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Revised as of July 1, 2003

Protection of Environment

Containing a codification of documents
of general applicability and future effect

As of July 1, 2003

With Ancillaries

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Title 1 through Title 16	as of January 1
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RAYMOND A. MOSLEY,
Director,
Office of the Federal Register.

July 1, 2003.

THIS TITLE

Title 40—PROTECTION OF ENVIRONMENT is composed of twenty–nine volumes. The parts in these volumes are arranged in the following order: parts 1–49, parts 50–51, part 52 (52.01–52.1018), part 52 (52.1019–End), parts 53–59, part 60 (60.1–End), part 60 (Appendices), parts 61–62, part 63 (63.1–63.599), part 63 (63.600–1–63.1199), part 63 (63.1200–63.1439), part 63 (63.1440–End) parts 64–71, parts 72–80, parts 81–85, part 86 (86.1–86.599–99) part 86 (86.600–1–End), parts 87–99, parts 100–135, parts 136–149, parts 150–189, parts 190–259, parts 260–265, parts 266–299, parts 300–399, parts 400–424, parts 425–699, parts 700–789, and part 790 to End. The contents of these volumes represent all current regulations codified under this title of the CFR as of July 1, 2003.

Chapter I—Environmental Protection Agency appears in all twenty–nine volumes. An alphabetical Listing of Pesticide Chemicals Index appears in parts 150–189. Regulations issued by the Council on Environmental Quality appear in the volume containing part 790 to End. The OMB control numbers for title 40 appear in §9.1 of this chapter.

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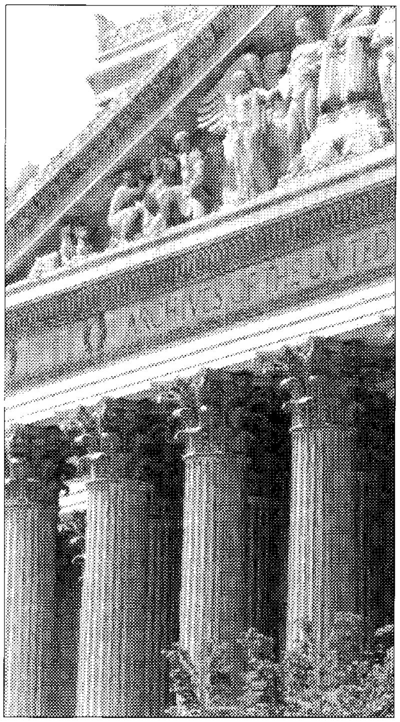

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Title 40—Protection of Environment

(This book contains part 63)

CHAPTER I—ENVIRONMENTAL PROTECTION AGENCY (CONTINUED)

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2. Nomenclature changes to chapter I appear at 65 FR 47324, 47325, Aug. 2, 2000.

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TESTING AND INITIAL COMPLIANCE REQUIREMENTS

AUTHORITY: 42 U.S.C. 7401 *et seq.*

SOURCE: 57 FR 61992, Dec. 29, 1992, unless otherwise noted.

Subpart QQQ—National Emission Standards for Hazardous Air Pollutants for Primary Copper Smelting

SOURCE: 67 FR 40491, June 12, 2002

WHAT THIS SUBPART COVERS

§63.1440 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants (NESHAP) for primary copper smelters. This subpart also establishes requirements to demonstrate initial and continuous compliance with all applicable emission limitations, work practice standards, and operation and maintenance requirements in this subpart.

§63.1441 Am I subject to this subpart?

You are subject to this subpart if you own or operate a primary copper smelter that is (or is part of) a major source of hazardous air pollutant (HAP) emissions on the first compliance date that applies to you, and your primary copper smelter uses batch copper converters as defined in §63.1459. Your primary copper smelter is a major source of HAP if it emits or has the potential to emit any single HAP at the rate of 10 tons or more per year or any combination of HAP at a rate of 25 tons or more per year.

§63.1442 What parts of my plant does this subpart cover?

(a) This subpart applies to each new and existing affected source at your primary copper smelter. The affected sources are each copper concentrate dryer, each smelting furnace, each slag cleaning vessel, each copper converter department, and the entire group of fugitive emission sources, as defined in § 63.1459.

(b) An affected source at your primary copper smelter is existing if you commenced construction or reconstruction of the affected source before April 20, 1998.

(c) An affected source at your primary copper smelter is new if you commenced construction or reconstruction of the affected source on or after April 20, 1998. An affected source is reconstructed if it meets the definition of ''reconstruction'' in § 63.2.

§ 63.1443 When do I have to comply with this subpart?

(a) If you have an existing affected source, you must comply with each emission limitation, work practice standard, and operation and maintenance requirement in this subpart that applies to you no later than June 13, 2005.

(b) If you have a new affected source and its initial startup date is on or before June 12, 2002, you must comply with each emission limitation, work practice standard, and operation and maintenance requirement in this subpart that applies to you by June 12, 2002.

(c) If you have a new affected source and its initial startup date is after June 12, 2002, you must comply with each emission limitation, work practice standard, and operation and maintenance requirement in this subpart that applies to you upon initial startup.

(d) If your primary copper smelter is an area source that becomes a major source of HAP, the compliance dates listed in paragraphs (d)(1) and (2) of this section apply to you.

(1) Any portion of the existing primary copper smelter that is a new affected source or a new reconstructed source must be in compliance with this subpart upon startup.

(2) All other parts of the primary copper smelter must be in compliance with this subpart no later than 3 years after it becomes a major source.

(e) You must meet the notification and schedule requirements in § 63.1454. Several of these notifications must be submitted before the compliance date for your affected source.

EMISSION LIMITATIONS AND WORK PRACTICE STANDARDS

§ 63.1444 What emissions limitations and work practice standards must I meet for my copper concentrate dryers, smelting furnaces, slag cleaning vessels, and copper converter departments?

(a) *Copper concentrate dryers.* For each copper concentrate dryer, you must comply with the emission limitation in paragraph (a)(1) or (2) of this section that applies to you.

(1) For each existing copper concentrate dryer, you must not cause to be discharged to the atmosphere from the dryer vent any gases that contain total particulate matter in excess of 50 milligrams per dry standard cubic meter (mg/dscm) as measured using the test methods specified in § 63.1450(a).

(2) For each new copper concentrate dryer, you must not cause to be discharged to the atmosphere from the dryer vent any gases that contain total particulate matter in excess of 23 mg/dscm as measured using the test methods specified in § 63.1450(a).

(b) *Smelting furnaces.* For each smelting furnace, you must comply with the emission limitations and work practice standards in paragraphs (b)(1) and (2) of this section.

(1) For each smelting furnace, you must not cause to be discharged to the atmosphere any process off-gas that contains nonsulfuric acid particulate matter in excess of 6.2 mg/dscm as measured using the test methods specified in § 63.1450(b). Process off-gas from a smelting furnace is generated when copper ore concentrates and fluxes are being smelted to form molten copper matte and slag layers.

(2) For each smelting furnace, you must control the process fugitive emissions released when tapping copper matte or slag from the smelting furnace according to paragraphs (b)(2)(i) and (ii) of this section.

(i) At all times when copper matte or slag is tapped from the smelting furnace, you must operate a capture system that collects the gases and fumes released from the tapping port in use.

The design and placement of this capture system must be such that the tapping port opening, launder, and receiving vessel (e.g., ladle, slag pot) are positioned within the confines or influence of the capture system's ventilation draft during those times when the copper matte or slag is flowing from the tapping port opening.

(ii) You must not cause to be discharged to the atmosphere from the capture system used to comply with paragraph (b)(2)(i) of this section any gases that contain total particulate matter in excess of 23 mg/dscm as measured using the test methods specified in §63.1450(a).

(c) *Slag cleaning vessels.* For each slag cleaning vessel, you must comply with the emission limitations and work practice standards in paragraphs (c)(1) through (3) of this section that apply to you.

(1) For each slag cleaning vessel, except as provided for in paragraph (c)(2) of this section, you must not cause to be discharged to the atmosphere any process off-gas that contains nonsulfuric acid particulate matter in excess of 6.2 mg/dscm as measured using the test methods specified in §63.1450(b).

(2) As an alternative to complying with the emission limit for nonsulfuric acid particulate matter in paragraph (c)(1) of this section, for each existing slag cleaning vessel you may choose to comply with the emission limit for total particulate matter specified in this paragraph (c)(2). You must not cause to be discharged to the atmosphere any process off-gas that contains total particulate matter in excess of 46 mg/dscm as measured using the test methods specified in §63.1450(a).

(3) For each slag cleaning vessel, you must control process fugitive emissions released when tapping copper matte or slag from the slag cleaning vessel according to paragraphs (c)(3)(i) and (ii) of this section.

(i) At all times when copper matte or slag is tapped from the slag cleaning vessel, you must operate a capture system that collects the gases and fumes released from the tapping port in use. The design and placement of this capture system must be such that the tapping port opening, launder, and receiving vessel (e.g., ladle, slag pot) are positioned within the confines or influence of the capture system's ventilation draft during those times when the copper matte or slag is flowing from the tapping port opening.

(ii) You must not cause to be discharged to the atmosphere from the capture system used to comply with paragraph (c)(3)(i) of this section any gases that contain total particulate matter in excess of 23 mg/dscm as measured using the test methods specified in §63.1450(a).

(d) *Existing copper converter departments.* For each existing copper converter department, you must comply with the emission limitations and work practice standards in paragraphs (d)(1) through (6) of this section that apply to you.

(1) You must operate a capture system that collects the process off gas vented from each batch copper converter. At all times when one or more batch copper converters are blowing, you must operate the capture system according to the written operation and maintenance plan that has been prepared according to the requirements in §63.1447(b).

(2) If your copper converter department uses Pierce-Smith converters, the capture system design must include use of a primary hood that covers the entire mouth of the converter vessel when the copper converter is positioned for blowing. Additional hoods (e.g., secondary hoods) or other capture devices must be included in the capture system design as needed to achieve the opacity limit in paragraph (d)(4) of this section. The capture system design may use multiple intake and duct segments through which the ventilation rates are controlled independently of each other, and individual duct segments may be connected to separate control devices.

(3) If your copper converter department uses Hoboken converters, the capture system must collect all process off-gas vented during blowing through the side-flue intake on each converter vessel.

(4) You must operate the capture system such that any visible emissions exiting the roof monitors or roof exhaust fans on the building housing the copper converter department meet the

opacity limit as specified in paragraphs (d)(4)(i) and (ii) of this section.

(i) The opacity of any visible emissions exiting the roof monitors or roof exhaust fans on the building housing the copper converter department must not exceed 4 percent as determined by a performance test conducted according to § 63.1450(c).

(ii) The opacity limit in paragraph (d)(4)(i) of this section applies only at those times when a performance test is conducted according to § 63.1450(c). The requirements for compliance with opacity and visible emission standards specified in § 63.6(h) do not apply to this opacity limit.

(5) You must not cause to be discharged to the atmosphere from any Pierce-Smith converter primary hood capture system or Hoboken converter side-flue intake capture system any process off-gas that contains nonsulfuric acid particulate matter in excess of 6.2 mg/dscm as measured using the test methods specified in § 63.1450(b).

(6) You must not cause to be discharged to the atmosphere from any secondary capture system any gases that contain total particulate matter in excess of 23 mg/dscm as measured using the test methods specified in § 63.1450(a).

(e) *New copper converter departments.* For each new copper converter department for which construction commenced on or after April 20, 1998, the use of batch copper converters is prohibited.

(f) *Baghouses.* For each baghouse applied to meet any total particulate matter emission limit in paragraphs (a) through (d) of this section, you must operate the baghouse such that the bag leak detection system does not alarm for more than 5 percent of the total operating time in any semiannual reporting period.

(g) *Venturi wet scrubbers.* For each venturi wet scrubber applied to meet any total particulate matter emission limit in paragraphs (a) through (d) of this section, you must maintain the hourly average pressure drop and scrubber water flow rate at or above the minimum levels established during the initial or subsequent performance test.

(h) *Other control devices.* For each control device other than a baghouse or venturi wet scrubber applied to meet any total particulate matter emission limit in paragraphs (a) through (d) of this section, you must operate the control device as specified in paragraphs (h)(1) and (2) of this section.

(1) You must select one or more operating parameters, as appropriate for the control device design, that can be used as representative and reliable indicators of the control device operation.

(2) You must maintain the hourly average value for each of the selected parameters at or above the minimum level or at or below the maximum level, as appropriate for the selected parameter, established during the initial or subsequent performance test.

§ 63.1445 What work practice standards must I meet for my fugitive dust sources?

(a) You must control particulate matter emissions from fugitive dust sources at your primary copper smelter by operating according to a written fugitive dust control plan that has been approved by the designated authority. For the purpose of complying with this paragraph (a) you may use an existing fugitive dust control plan provided that the plan complies with the requirements of this section. A fugitive dust control plan is considered to be approved if the plan has been incorporated in your applicable State implementation plan, and the document addresses the fugitive dust sources specified in paragraph (b) of this section and includes the information specified in paragraph (c) of this section.

(b) Your fugitive dust control plan must address each of the fugitive dust emission sources listed in paragraphs (b)(1) through (6) of this section that are located at your primary copper smelter.

(1) On-site roadways used by trucks or other motor vehicles (e.g., front-end loaders) when transporting bulk quantities of fugitive dust materials. Paved roads and parking areas that are not used by these vehicles do not need to be included in the plan (e.g., employee and visitor parking lots).

(2) Unloading of fugitive dust materials from trucks or railcars.

(3) Outdoor piles used for storage of fugitive dust materials.

(4) Bedding areas used for blending copper concentrate and other feed constituents.

(5) Each transfer point in conveying systems used to transport fugitive dust materials. These points include, but are not limited to, transfer of material from one conveyor belt to another and transfer of material to a hopper or bin.

(6) Other site-specific sources of fugitive dust emissions that the Administrator or delegated permitting authority designate to be included in your fugitive dust control plan.

(c) Your fugitive dust control plan must describe the control measures you use to control fugitive dust emissions from each source addressed in the plan, as applicable and appropriate for your site conditions. Examples of control measures include, but are not limited to, locating the source inside a building or other enclosure, installing and operating a local hood capture system over the source and venting the captured gas stream to a control device, placing material stockpiles below grade, installing wind screens or wind fences around the source, spraying water on the source as weather conditions require, applying appropriate dust suppression agents on the source, or combinations of these control measures.

(d) The requirement for you to operate according to a written fugitive dust control plan must be incorporated in your operating permit that is issued by the designated permitting authority under part 70 of this chapter. A copy of your fugitive dust control plan must be sent to the designated permitting authority on or before the compliance date for your primary copper smelter, as specified in §63.1443.

§63.1446 What alternative emission limitation may I meet for my combined gas streams?

(a) For situations where you combine gas streams from two or more affected sources for discharge to the atmosphere through a single vent, you may choose to meet the requirements in paragraph (b) of this section as an alternative to complying with the individual total particulate matter emission limits specified in §63.1444 that apply to you. This alternative emission limit for a combined gas stream may be used for any combination of the affected source gas steams specified in paragraphs (a)(1) through (5) of this section.

(1) Gas stream discharged from a copper concentrate dryer vent that would otherwise be subject to §63.1444(a)(1) or (2);

(2) Gas stream discharged from a smelting furnace capture system that would otherwise be subject to §63.1444(b)(2)(ii);

(3) Process off-gas stream discharged from a slag cleaning vessel that would otherwise be subject to §63.1444(c)(2);

(4) Gas stream discharged from a slag cleaning vessel capture system that would otherwise be subject to §63.1444(c)(3)(ii); and

(5) Gas stream discharged from a batch copper converter secondary capture system that would otherwise be subject to §63.1444(d)(5).

(b) You must meet the requirements specified in paragraphs (b)(1) and (2) of this section for the combined gas stream discharged through a single vent.

(1) For each combined gas stream discharged through a single vent, you must not cause to be discharged to the atmosphere any gases that contain total particulate matter in excess of the emission limit calculated using the procedure in paragraph (b)(2) of this section and measured using the test methods specified in §63.1450(a).

(2) You must calculate the alternative total particulate matter emission limit for your combined gas stream using Equation 1 of this section. The volumetric flow rate value for each of the individual affected source gas streams that you use for Equation 1 (i.e., the flow rate of the gas stream discharged from the affected source but before this gas stream is combined with the other gas streams) is to be the average of the volumetric flow rates measured using the test method specified in §63.1450(a)(1)(ii):

$$E_{Alt} = \frac{E_d Q_d + E_{sv} Q_{sv} + E_{scvp} Q_{scvp} + E_{scvf} Q_{scvf} + E_{cc} Q_{cc}}{Q_d + Q_{sv} + Q_{scvp} + Q_{scvf} + Q_{cc}} \quad (\text{Eq. } 1)$$

Where

E_{Alt} = Alternative total particulate matter emission limit for the combined gas stream discharged to atmosphere through a single vent (mg/dscm);

E_d = Total particulate matter emission limit applicable to copper concentrate dryer as specified in § 63.1444(a)(1) or (2) (mg/dscm);

Q_d = Copper concentrate dryer exhaust gas stream volumetric flow rate before being combined with other gas streams (dscm);

E_{sv} = Total particulate matter emission limit for smelting furnace capture system as specified in § 63.1444(b)(2)(ii) (mg/dscm);

Q_{sv} = Smelting furnace capture system exhaust gas stream volumetric flow rate before being combined with other gas streams (dscm);

E_{scvp} = Total particulate matter emission limit for slag cleaning vessel process off-gas as specified in § 63.1444(c)(2) (mg/dscm);

Q_{scvp} = Slag cleaning vessel process off-gas volumetric flow rate before being combined with other gas streams (dscm);

E_{scvf} = Total particulate matter emission limit for slag cleaning vessel capture system as specified in § 63.1444(c)(3)(ii) (mg/dscm);

Q_{scvf} = Slag cleaning vessel capture system exhaust gas stream volumetric flow rate before being combined with other gas streams (dscm);

E_{cc} = Total particulate emission limit for the batch copper converter secondary capture system as specified in § 63.1544(d)(5) (mg/dscm); and

Q_{cc} = Batch copper converter capture system exhaust gas stream volumetric flow rate before being combined with other gas streams (dscm).

(c) For each baghouse applied to meet any total particulate matter emission limit in paragraph (b) of this section, you must operate the baghouse such that the bag leak detection system does not alarm for more than 5 percent of the total operating time in any semiannual reporting period.

(d) For each venturi wet scrubber applied to meet any total particulate matter emission limit in paragraph (b) of this section, you must maintain the hourly average pressure drop and scrubber water flow rate at or above the minimum levels established during the initial or subsequent performance test.

(e) For each control device other than a baghouse or venturi wet scrubber applied to meet any total particulate matter emission limit in paragraph (b) of this section, you must operate the control device as specified in paragraphs (e)(1) and (2) of this section.

(1) You must select one or more operating parameters, as appropriate for the control device design, that can be used as representative and reliable indicators of the control device operation.

(2) You must maintain the hourly average value for each of the selected parameters at or above the minimum level or at or below the maximum level, as appropriate for the selected parameter, established during the initial or subsequent performance test.

OPERATION AND MAINTENANCE REQUIREMENTS

§ 63.1447 What are my operation and maintenance requirements?

(a) As required by § 63.6(e)(1)(i), you must always operate and maintain your affected source, including air pollution control and monitoring equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by this subpart.

(b) You must prepare and operate at all times according to a written operation and maintenance plan for each capture system and control device subject to standards in § 63.1444 or § 63.1446. The plan must address the requirements in paragraphs (b)(1) through (3) of this section as applicable to the capture system or control device.

(1) *Preventative maintenance.* You must perform preventative maintenance for each capture system and control device according to written procedures specified in your operation and maintenance plan. The procedures must include a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and long-term maintenance.

(2) *Capture system inspections.* You must conduct monthly inspections of the equipment components of the capture system that can affect the performance of the system to collect the gases and fumes emitted from the affected source (e.g., hoods, exposed ductwork, dampers, fans) according to written procedures specified in your operation and maintenance plan. The inspection procedure must include the requirements in paragraphs (b)(2)(i) through (iii) of this section as applicable to the capture system or control device.

(i) Observations of the physical appearance of the equipment to confirm the physical integrity of the equipment (e.g., verify by visual inspection no holes in ductwork or hoods, no flow constrictions caused by dents, or accumulated dust in ductwork).

(ii) Inspection, and if necessary testing, of equipment components to confirm that the component is operating as intended (e.g., verify by appropriate measures that flow or pressure sensors, damper plates, automated damper switches and motors are operating according to manufacture or engineering design specifications).

(iii) In the event that a defective or damaged component is detected during an inspection, you must initiate corrective action according to written procedures specified in your operation and maintenance plan to correct the defect or deficiency as soon as practicable.

(3) *Copper converter department capture system operating limits.* You must establish, according to the requirements in paragraph (b)(3)(i) through (iii) of this section, operating limits for the capture system that are representative and reliable indicators of the performance of capture system when it is used to collect the process off-gas vented from batch copper converters during blowing.

(i) Select operating limit parameters appropriate for the capture system design that are representative and reliable indicators of the performance of the capture system when it is used to collect the process off-gas vented from batch copper converters during blowing. At a minimum, you must use appropriate operating limit parameters that indicate the level of the ventilation draft and the damper position settings for the capture system when operating to collect the process off-gas from the batch copper converters during blowing. Appropriate operating limit parameters for ventilation draft include, but are not limited to, volumetric flow rate through each separately ducted hood, total volumetric flow rate at the inlet to control device to which the capture system is vented, fan motor amperage, or static pressure. Any parameter for damper position setting may be used that indicates the duct damper position relative to the fully open setting.

(ii) For each operating limit parameter selected in paragraph (b)(3)(i) of this section, designate the value or setting for the parameter at which the capture system operates during batch copper converter blowing. If your blister copper production operations allow for more than one batch copper converter to be operating simultaneously in the blowing mode, designate the value or setting for the parameter at which the capture system operates during each possible batch copper converter blowing configuration that you may operate at your smelter (i.e., the operating limits with one converter blowing, with two converters blowing, with three converters blowing, as applicable to your smelter).

(iii) Include documentation in the plan to support your selection of the operating limits established for the capture system. This documentation must include a description of the capture system design, a description of the capture system operation during blister copper production, a description of each selected operating limit parameter, a rationale for why you chose the parameter, a description of the method used to monitor the parameter according to the requirements in § 63.1452(a), and the data used to set the value or setting for the parameter for each of your batch copper converter configurations.

(4) *Baghouse leak detection corrective actions.* In the event a bag leak detection system alarm is triggered, you must initiate corrective action according to written procedures specified in your operation and maintenance plan to determine the cause of the alarm within 1 hour of the alarm, initiate corrective action to correct the cause of the problem within 24 hours of the alarm, and complete the corrective action as soon as practicable. Corrective actions may include, but are not limited to, the activities listed in paragraphs (b)(3)(i) through (vi) of this section.

(i) Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in emissions.

(ii) Sealing off defective bags or filter media.

(iii) Replacing defective bags or filter media or otherwise repairing the control device.

(iv) Sealing off a defective baghouse compartment.

(v) Cleaning the bag leak detection system probe, or otherwise repair the bag leak detection system.

(vi) Shutting down the process producing the particulate emissions.

GENERAL COMPLIANCE REQUIREMENTS

63.1448 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limitations, work practice standards, and operation and maintenance requirements in this subpart at all times, except during periods of startup, shutdown, and malfunction as defined in § 63.2.

(b) During the period between the compliance date specified for your affected source in § 63.1443, and the date upon which continuous monitoring systems have been installed and certified and any applicable operating limits have been set, you must maintain a log detailing the operation and maintenance of the process and emissions control equipment.

(c) You must develop and implement a written startup, shutdown, and malfunction plan according to the provisions in § 63.6(e)(3).

INITIAL COMPLIANCE REQUIREMENTS

§ 63.1449 By what dates must I conduct performance tests or other initial compliance demonstrations?

(a) As required in § 63.7(a)(2), you must conduct a performance test within 180 calendar days of the compliance date that is specified in § 63.1443 for your affected source to demonstrate initial compliance with each emission and opacity limit in § 63.1443 and § 63.1446 that applies to you.

(b) For each work practice standard and operation and maintenance requirement that applies to you where initial compliance is not demonstrated using a performance test or opacity observation, you must demonstrate initial compliance within 30 calendar days after the compliance date that is specified for your affected source in § 63.1443.

§ 63.1450 What test methods and other procedures must I use to demonstrate initial compliance with the emission limitations?

(a) *Total particulate matter emission limits.* You must conduct each performance test to determine compliance with the total particulate matter emission limits in § 63.1444 or § 63.1446 that apply to you according to the requirements for representative test conditions specified in § 63.7(e)(1) and using the test methods and procedures in paragraphs (a)(1) through (5) of this section.

(1) Determine the concentration of total particulate matter according to the test methods in appendix A to part 60 of this chapter as specified in paragraphs (a)(1)(i) through (iii) of this section.

(i) Method 1 to select sampling port locations and the number of traverse points. Sampling ports must be located at the outlet of the control device and prior to any releases to the atmosphere.

(ii) Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

(iv) Method 4 to determine the moisture content of the stack gas.

(v) Method 5, 5D, or 17, as applicable, to determine the concentration of total particulate matter. You can also use ASTM D4536–96 incorporated by reference in § 63.14 as an alternative to the sampling equipment and operating procedures in Method 5 or 17 when testing a positive pressure baghouse, but you must use the sample traverse location and number of sampling points described in Method 5D.

(2) As an alternative to using the applicable method specified in paragraph (a)(1)(v) of this section, you may determine total particulate matter emissions from the control device using Method 29 in appendix A of part 60 of this chapter provided that you follow the procedures and precautions prescribed in Method 29. If the control device is a positive pressure baghouse, you must also follow the measurement procedure specified in sections 4.1 through 4.3 of Method 5D.

(3) You must conduct three separate test runs for each performance test. Each test run must have a minimum sampling time of 60 minutes and a minimum sampling volume of 0.85 dscm. For the purpose of determining compliance with the applicable total particulate matter emission limit, the arithmetic mean of the results for the three separate test runs is used.

(4) For a venturi wet scrubber applied to emissions from an affected source and subject to operating limits in § 63.1444(g) or § 63.1446(d) for pressure drop and scrubber water flow rate, you must establish site-specific operating limits according to the procedures in paragraph (a)(4)(i) and (ii) of this section.

(i) Using the continuous parameter monitoring system (CPMS) required in § 63.1452, measure and record the pressure drop and scrubber water flow rate during each run of the particulate matter performance test.

(ii) Compute and record the hourly average pressure drop and scrubber water flow rate for each individual test run. Your operating limits are the lowest average pressure drop and scrubber water flow rate value in any of the three runs that meet the applicable emission limit.

(5) For a control device other than a baghouse or venturi wet scrubber applied to emissions from an affected source and subject to site-specific operating limit(s) in § 63.1444(h) or § 63.1446(e) for appropriate, site-specific operating parameters that are representative and reliable indicators of the control device performance, you must establish a site-specific operating limit(s) according to the procedures in paragraph (a)(5)(i) through (iv) of this section.

(i) Select one or more operating parameters, as appropriate for the control device design, that can be used as representative and reliable indicators of the control device operation.

(ii) Using the CPMS required in § 63.1452, measure and record the selected operating parameters for the control device during each run of the total particulate matter performance test.

(iii) Compute and record the hourly average value for each of the selected operating parameters for each individual test run. Your operating limits are the lowest value or the highest value, as appropriate for the selected operating parameter, measured in any of the three runs that meet the applicable emission limit.

(iv) You must prepare written documentation to support your selection of the operating parameters used for the control device. This documentation must include a description of each selected parameter, a rationale for why you chose the parameter, a description of the method used to monitor the parameter, and the data recorded during the performance test and used to set the operating limit(s).

(b) *Nonsulfuric acid particulate matter emission limits.* You must conduct each performance test to determine compliance with the nonsulfuric acid particulate matter emission limits in § 63.1444 that apply to you according to the requirements for representative test conditions specified in § 63.7(e)(1) and using the test methods and procedures in paragraphs (b)(1) and (2) of this section.

(1) Determine the concentration of nonsulfuric acid particulate matter according to the test methods in appendix A to part 60 of this chapter as specified in paragraphs (b)(1)(i) through (v) of this section.

(i) Method 1 to select sampling port locations and the number of traverse points. Sampling ports must be located at the outlet of the control device and prior to any releases to the atmosphere.

(ii) Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

(iv) Method 4 to determine the moisture content of the stack gas.

(v) Method 5B to determine the nonsulfuric acid particulate matter emissions.

(2) You must conduct three separate test runs for each performance test. Each test run must have a minimum sampling time of 240 minutes and a minimum sampling volume of 3.4 dscm. For the purpose of determining compliance with the nonsulfuric acid particulate matter emission limit, the arithmetic mean of the results for the three separate test runs is used.

(c) *Copper converter department capture system opacity limit.* You must conduct each performance test to determine compliance with the opacity limit in § 63.1444 using the test methods and procedures in paragraphs (c)(1) through (9) of this section.

(1) You must conduct the performance test during the period when the primary copper smelter is operating under conditions representative of the smelter's normal blister copper production rate. You may not conduct a performance test during periods of startup, shutdown, or malfunction. Before conducting the performance test, you must prepare a written test plan specifying the copper production conditions to be maintained throughout the opacity observation period and including a copy of the written documentation you have prepared according to paragraph (a)(3) of this section to support the established operating limits for the copper converter department capture system. You must submit a copy of the test plan for review and approval by the Administrator or delegated authority. During the observation period, you must collect appropriate process information and copper converter department capture system operating information to prepare documentation sufficient to verify that all opacity observations were made during the copper production and capture system operating conditions specified in the approved test plan.

(2) You must notify the Administrator or delegated authority before conducting the opacity observations to allow the Administrator or delegated authority the opportunity to have authorized representatives attend the test. Written notification of the location and scheduled date for conducting the opacity observations must be received by the Administrator on or before 30 calendar days before this scheduled date.

(3) You must gather the data needed for determining compliance with the opacity limit using qualified visible emission observers and process monitors as described in paragraphs (c)(3)(i) and (ii) of this section.

(i) Opacity observations must be performed by a sufficient number of qualified visible emission observers to obtain two complete concurrent sets of opacity readings for the required observation period. Each visible emission observer must be certified as a qualified observer by the procedure specified in section 3 of Method 9 in appendix A of part 60 of this chapter. The entire set of readings during the required observation period does not need to be made by the same two observers. More than two observers may be used to allow for substitutions and provide for observer rest breaks. The owner or operator must obtain proof of current visible emission reading certification for each observer.

(ii) A person (or persons) familiar with the copper production operations conducted at the smelter must serve as the indoor process monitor. The indoor process monitor is stationed at a location inside the building housing the batch copper converters such that he or she can visually observe and record operations that occur in the batch copper converter aisle during the times that the visible emission observers are making opacity readings. More than one indoor process monitor may be used to allow for substitutions and provide for rest breaks.

(4) You must make all opacity observations using Method 9 in appendix A to part 60 of this chapter and following the procedures described in paragraphs (c)(4)(i) and (ii) of this section.

(i) Each visible emission observer must make his or her readings at a position from the outside of the building that houses the copper converter department such that the observer's line-of-sight is approximately perpendicular to the longer axis of the converter building, and the observer has an unobstructed view of the building roof monitor sections or roof exhaust fan outlets that are positioned over each of the batch copper converters inside the building. Opacity readings can only be made during those times when the observer's position meets the sun orientation and other conditions specified in section 2.1 of Method 9.

(ii) At 15-second intervals, each visible emission observer views the building roof monitor sections or roof exhaust fan outlets that are positioned over each of the batch copper converters inside the building and reads the opacity of the visible plumes. If no plume is visible, the observer records zero as the opacity value for the 15-second interval. In situations when it is possible for an observer to distinguish two or more visible emission plumes from the building roof monitor sections or roof exhaust fan outlets, the observer must identify, to the extent feasible, the plume having the highest opacity and record his or her opacity reading for that plume as the opacity value for the 15-second interval.

(5) You must make opacity observations for a period of sufficient duration to obtain a minimum of 120 1-minute intervals during which at least one copper converter is blowing and no interferences have occurred from other copper production events, as specified in paragraph (c)(7) of this section, which generate visible emissions inside the building that potentially can interfere with the visible emissions from the converter capture systems as seen by the outside observers. To obtain the required number of 1-minute intervals, the observation period may be divided into two or more segments performed on the same day or on different days if conditions prevent the required number of opacity readings from being obtained during one continuous time period. Examples of these conditions include, but are not limited to, changes in the sun's orientation relative to visible emission observers' positions such that the Method 9 conditions are no longer met or an unexpected thunder storm. If the total observation period is divided into two or more segments, all opacity observations must be made during the same set of copper production conditions described in your approved test plan as required by paragraph (c)(1) of this section.

(6) You must gather indoor process information during all times that the visible emission observers are making opacity readings outside the building housing the copper converter department. The indoor process monitor must continually observe the operations occurring in the copper converter department and prepare a written record of his or her observations using the procedure specified in paragraphs (c)(6)(i) through (iv) of this section.

(i) At the beginning of each observation period or segment, the clock time setting on the watch or clock to be used by the indoor process monitor must be synchronized with the clock time settings for the timepieces to be used by the outdoor opacity observers.

(ii) During each period or segment when opacity readings are being made by the visible emission observers, the indoor process monitor must continuously observe the operations occurring in the copper converter department and record his or her observations in a log book, on data sheets, or other type of permanent written format.

(iii) When a batch copper converter is blowing, a record must be prepared for the converter that includes, but is not limited to, the clock times for when blowing begins and when blowing ends and the converter blowing rate. This information may be recorded by the indoor process monitor or by a separate, automated computer data system.

(iv) The process monitor must record each event other than converter blowing that occurs in or nearby the converter aisle that he or she observes to generate visible emissions inside the building. The recorded entry for each event must include, but is not limited to, a description of the event and the clock times when the event begins and when the event ends.

(7) You must prepare a summary of the data for the entire observation period using the information recorded during the observation period by the outdoor visible emission observers and the indoor process monitor and the procedure specified in paragraphs (c)(7)(i) through (iv) of this section.

(i) Using the field data sheets, identify the 1-minute clock times for which a total of eight opacity readings were made and recorded by both observers at 15-second intervals according to the test procedures (i.e., a total of four opacity values have been recorded for the 1-minute interval by each of the two observers). Calculate the average of the eight 15-second interval readings recorded on the field data sheets by the two observers during the clock time minute interval (add the four consecutive 15-second interval opacity readings made by Observer A during the specified clock time minute, plus the four consecutive 15-second interval opacity readings made by Observer B during the same clock time minute, and divide the resulting total by eight). Record the clock time and the opacity average for the 1-minute interval on a data summary sheet. Figure 1 of this subpart shows an example of the format for the data summary sheet you may use, but are not required to use.

(ii) Using the data summary sheets prepared according to paragraph (c)(7)(i) of this section and the process information recorded according to paragraph (c)(6)(iii) of this section, identify those 1-minute intervals for which at least one of the batch copper converters was blowing.

(iii) Using the data summary sheets prepared according to paragraph (c)(7)(ii) of this section and the process information recorded according to paragraph (c)(6)(iv) of this section, identify the 1-minute intervals during which at least one copper converter was blowing but none of the interference events listed in paragraphs (c)(7)(iii)(A) through (F) of this section occurred. Other ancillary activities not listed but conducted in or adjacent to the converter aisle during the opacity observations are not considered to be interference events (e.g., converter aisle cleaning, placement of smoking ladles or skulls on the converter aisle floor).

(A) Charging of copper matte, reverts, or other materials to a batch copper converter;

(B) Skimming slag or other molten materials from a batch copper converter;

(C) Pouring of blister copper or other molten materials from a batch copper converter;

(D) Return of slag or other molten materials to the flash smelting furnace or slag cleaning vessel;

(E) Roll-out or roll-in of the batch copper converter; or

(F) Smoke and fumes generated inside the converter building by operation of the smelting furnace, the slag cleaning vessel (if used), anode refining and casting processes that drift into the copper converter department.

(iv) Using the data summary sheets prepared according to paragraph (c)(7)(iii) of this section, up to five 1-minute intervals following an interference event may be eliminated from data used for the compliance determination calculation specified in paragraph (c)(8) of this section by applying a time delay factor. The time delay factor must be a constant number of minutes not to exceed 5 minutes that is added to the clock time recorded when cessation of the interference event occurs. The same time delay factor must be used for all interference events (i.e., a constant time delay factor for the smelter of 1 minute, 2 minutes, 3 minutes, 4 minutes, or 5 minutes). The number of minutes to be used for the time delay factor is determined based on the site-specific equipment and converter building configuration. An explanation of the rationale for selecting the value used for the time delay factor must be prepared and included in the test report.

(8) You must use the data summary prepared in paragraph (c)(7) of this section to calculate the average opacity value for a minimum of 120 1-minute intervals during which at least one copper converter was blowing with no interference events as determined according to paragraphs (c)(7)(iii) and (iv) of this section. Average opacity is calculated using Equation 1 of this section:

$$\mathrm{VE}_{\mathrm{ave}} = \frac{1}{n}\sum_{i=1}^{n}\mathrm{VE}_{\mathrm{i}} \qquad (\text{Eq. } 1)$$

Where

$\mathrm{VE}_{\mathrm{ave}}$ = Average opacity to be used for compliance determination (percent);

n = Total number of 1-minute intervals during which at least one copper converter was blowing with no interference events as determined according to paragraphs (c)(7)(iii) and (iv) of this section (at least 120 1-minute intervals);

i = 1-minute interval ''i'' during which at least one copper converter was blowing with no interference events as determined according to paragraphs (c)(7)(iii) and (iv) of this section; and

VE_{i} = Average opacity value calculated for the eight opacity readings recorded during 1-minute interval ''i'' (percent).

(9) You must certify that the copper converter department capture system operated during the performance test at the operating limits established in your capture system operation and maintenance plan using the procedure specified in paragraphs (c)(9)(i) through (iv) of this section.

(i) Concurrent with all opacity observations, measure and record values for each of the operating limit parameters in your capture system operation and maintenance plan according to the monitoring requirements specified in §63.1452(a).

(ii) For any dampers that are manually set and remain in the same position at all times the capture system is operating, the damper position must be visually checked and recorded at the beginning and end of each opacity observation period segment.

(iii) Review the recorded monitoring data. Identify and explain any times during batch copper converter blowing when the capture system operated outside the applicable operating limits.

(iv) Certify in your performance test report that during all observation period segments, the copper converter department capture system was operating at the values or settings established in your capture system operation and maintenance plan.

§63.1451 How do I demonstrate initial compliance with the emission limitations, work practice standards, and operation and maintenance requirements that apply to me?

(a) *Total particulate matter emission limits.* For each copper concentrate dryer, smelting furnace, slag cleaning vessel, and copper converter department subject to a total particulate matter emission limits in §63.1444 or §63.1446 that applies to you, you have demonstrated initial compliance if you meet both of the conditions in paragraphs (a)(1) and (2) of this section.

(1) The average concentration of total particulate matter from a control device applied to emissions from the affected source, measured according to the performance test procedures in §63.1450(a), did not exceed the applicable emission limit.

(2) You have submitted a notification of compliance status according to the requirements in §63.1454(e).

(b) *Nonsulfuric acid particulate matter emissions limits.* For each smelting furnace, slag cleaning vessel, and copper converter departments subject to the nonsulfuric acid particulate matter emissions limit in §63.1444 as applies to you, you have demonstrated initial compliance if you meet both of the conditions in paragraphs (b)(1) and (2) of this section.

(1) The average concentration of nonsulfuric acid particulate matter in the process off-gas discharged from the affected source, measured according to the performance test procedures in §63.1450(b), did not exceed 6.2 mg/dscm.

(2) You have submitted a notification of compliance status according to the requirements in §63.1454(e).

(c) For each existing copper converter department subject to the opacity limit in § 63.1444, you have demonstrated initial compliance if you meet both of the conditions in paragraphs (c)(1) and (2) of this section.

(1) The opacity of visible emissions exiting the roof monitors or roof exhaust fans on the building housing the copper converter department measured according to the performance test procedures in § 63.1450(c), did not exceed 4 percent opacity.

(2) You have submitted a notification of compliance status according to the requirements in § 63.1454(e).

(d) *Copper converter department capture systems.* You have demonstrated initial compliance of the copper converter department capture system if you meet all of the conditions in paragraphs (d)(1) through (4) of this section.

(1) Prepared the capture system operation and maintenance plan according to the requirements of paragraph (a) of this section;

(2) Conducted an initial performance test according to the procedures of § 63.1450(c) demonstrating the opacity of any visible emissions exiting the roof monitors or roof exhaust fans on the building housing the copper converter department does not exceed 4 percent opacity;

(3) Included in your notification of compliance status a copy of your written capture system operation and maintenance plan and have certified in your notification of compliance status that you will operate the copper converter department capture system at all times during blowing at the values or settings established for the operating limits in that plan; and

(4) Submitted a notification of compliance status according to the requirements in § 63.1454(e).

(e) *Baghouses.* For each baghouse subject to operating limits in § 63.1444(f) or § 63.1446(c), you have demonstrated initial compliance if you meet all of the conditions in paragraphs (e)(1) through (3) of this section.

(1) You have included in your written operation and maintenance plan required under § 63.1447(b) detailed descriptions of the procedures you use for inspection, maintenance, bag leak detection, and corrective action for the baghouse.

(2) You have certified in your notification of compliance status that you will operate the baghouse according to your written operation and maintenance plan.

(3) You have submitted the notification of compliance status according to the requirements in § 63.1454(e).

(f) *Venturi wet scrubbers.* For each venturi wet scrubber subject to operating limits in § 63.1444(g) or § 63.1446(d), you have demonstrated initial compliance if you meet all of the conditions in paragraphs (f)(1) through (3) of this section.

(1) Established site-specific operating limits for pressure drop and scrubber water flow rate and have a record of the pressure drop and scrubber water flow rate measured during the performance test you conduct to demonstrate initial compliance with paragraph (a) of this section.

(2) Certified in your notification of compliance status that you will operate the venturi wet scrubber within the established operating limits for pressure drop and scrubber water flow rate.

(3) Submitted a notification of compliance status according to the requirements in § 63.1454(e).

(g) *Other control devices.* For each control device other than a baghouse or venturi wet scrubber subject to operating limits in § 63.1444(h) or § 63.1446(e), you have demonstrated initial compliance if you meet all of the conditions in paragraphs (g)(1) through (4) of this section.

(1) Selected one or more operating parameters, as appropriate for the control device design, that can be used as representative and reliable indicators of the control device operation.

(2) Established site-specific operating limits for each of the selected operating parameters based on values measured during the performance test you conduct to demonstrate initial compliance with paragraph (a) of this section and have prepared written documentation according to the requirements in § 63.1450(a)(5)(iv).

(3) Included in your notification of compliance status a copy of the written documentation you have prepared

to demonstrate compliance with paragraph (g)(2) of this section and have certified in your notification of compliance status that you will operate the control device within the established operating limits.

(4) Submitted a notification of compliance status according to the requirements in §63.1454(e).

(h) *Fugitive dust sources.* For all fugitive dust sources subject to work practice standards in §63.1445, you have demonstrated initial compliance if you meet all of the conditions in paragraphs (i)(1) through (3) of this section.

(1) Prepared a written fugitive dust control plan according to the requirements in §63.1454 and it has been approved by the designated authority.

(2) Certified in your notification of compliance status that you will control emissions from the fugitive dust sources according to the procedures in the approved plan.

(3) Submitted the notification of compliance status according to the requirements in §63.1454(e).

(i) *Operation and maintenance requirements.* You have demonstrated initial compliance with the operation and maintenance requirements that apply to you if you meet all of the conditions in paragraphs (i)(1) through (3) of this section.

(1) Prepared an operation and maintenance plan according to the requirements in §63.1454(b).

(2) Certified in your notification of compliance status that you will operate each capture system and control device according to the procedures in the plan.

(3) Submitted the notification of compliance status according to the requirements in §63.1454(e).

CONTINUOUS COMPLIANCE REQUIREMENTS

§63.1452 What are my monitoring requirements?

(a) *Copper converter department capture systems.* For each operating limit established under your capture system operation and maintenance plan, you must install, operate, and maintain an appropriate monitoring device according the requirements in paragraphs (a)(1) though (6) of this section to measure and record the operating limit value or setting at all times the copper converter department capture system is operating during batch copper converter blowing. Dampers that are manually set and remain in the same position at all times the capture system is operating are exempted from the requirements of this paragraph (a).

(1) Install the monitoring device, associated sensor(s), and recording equipment according to the manufacturers' specifications. Locate the sensor(s) used for monitoring in or as close to a position that provides a representative measurement of the parameter being monitored.

(2) If a flow measurement device is used to monitor the operating limit parameter, you must meet the requirements in paragraph (a)(2)(i) through (iv) of this section.

(i) Locate the flow sensor and other necessary equipment such as straightening vanes in a position that provides a representative flow.

(ii) Use a flow sensor with a minimum tolerance of 2 percent of the flow rate.

(iii) Reduce swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.

(iv) Conduct a flow sensor calibration check at least semiannually.

(3) If a pressure measurement device is used to monitor the operating limit parameter, you must meet the requirements in paragraph (a)(3)(i) through (v) of this section.

(i) Locate the pressure sensor(s) in or as close to a position that provides a representative measurement of the pressure.

(ii) Minimize or eliminate pulsating pressure, vibration, and internal and external corrosion.

(iii) Use a gauge with a minimum tolerance of 0.5 inch of water or a transducer with a minimum tolerance of 1 percent of the pressure range.

(iv) Check pressure tap pluggage daily.

(v) Using a manometer, check gauge calibration quarterly and transducer calibration monthly.

(4) Conduct calibration and validation checks any time the sensor exceeds the manufacturer's specifications or you install a new sensor.

(5) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(6) Record the results of each inspection, calibration, and validation check.

(b) *Baghouses.* For each baghouse subject to the operating limit in § 63.1444(f) or § 63.1446(c) for the bag leak detection system alarm, you must at all times monitor the relative change in particulate matter loadings using a bag leak detection system according to the requirements in paragraph (b)(1) of this section and conduct regular inspections according to the requirements in paragraph (b)(2) of this section.

(1) You must install, operate, and maintain each bag leak detection system according to the requirements in paragraphs (b)(1)(i) through (vii) of this section.

(i) The system must be certified by the manufacturer to be capable of detecting emissions of particulate matter at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.

(ii) The system must provide output of relative changes in particulate matter loadings.

(iii) The system must be equipped with an alarm that will sound when an increase in relative particulate loadings is detected over a preset level. The alarm must be located such that it can be heard by the appropriate plant personnel.

(iv) Each system that works based on the triboelectric effect must be installed, operated, and maintained in a manner consistent with the guidance document, ‘‘Fabric Filter Bag Leak Detection Guidance,’’ EPA–454/R–98–015, September 1997. You may obtain a copy of this guidance document by contacting the National Technical Information Service (NTIS) at 800–553–6847. You may install, operate, and maintain other types of bag leak detection systems in a manner consistent with the manufacturer's written specifications and recommendations.

(v) To make the initial adjustment of the system, establish the baseline output by adjusting the sensitivity (range) and the averaging period of the device. Then, establish the alarm set points and the alarm delay time.

(vi) Following the initial adjustment, do not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time, except as detailed in your operation and maintenance plan. Do not increase the sensitivity by more than 100 percent or decrease the sensitivity by more than 50 percent over a 365-day period unless a responsible official certifies, in writing, that the baghouse has been inspected and found to be in good operating condition.

(vii) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(2) You must conduct baghouse inspections at their specified frequencies according to the requirements in paragraphs (b)(2)(i) through (viii) of this section.

(i) Monitor the pressure drop across each baghouse cell each day to ensure pressure drop is within the normal operating range identified in the manual.

(ii) Confirm that dust is being removed from hoppers through weekly visual inspections or other means of ensuring the proper functioning of removal mechanisms.

(iii) Check the compressed air supply for pulse-jet baghouses each day.

(iv) Monitor cleaning cycles to ensure proper operation using an appropriate methodology.

(v) Check bag cleaning mechanisms for proper functioning through monthly visual inspection or equivalent means.

(vi) Make monthly visual checks of bag tension on reverse air and shaker-type baghouses to ensure that bags are not kinked (kneed or bent) or laying on their sides. You do not have to make this check for shaker-type baghouses using self-tensioning (spring-loaded) devices.

(vii) Confirm the physical integrity of the baghouse through quarterly visual inspections of the baghouse interior for air leaks.

(viii) Inspect fans for wear, material buildup, and corrosion through quarterly visual inspections, vibration detectors, or equivalent means.

(c) *Venturi wet scrubbers.* For each venturi wet scrubber subject to the operating limits for pressure drop and scrubber water flow rate in § 63.1444(g) or §63.1446(d), you must at all times monitor the hourly average pressure drop and water flow rate using a CPMS. You must install, operate, and maintain each CPMS according to the requirements in paragraphs (c)(1) and (2) of this section.

(1) For the pressure drop CPMS, you must meet the requirements in paragraphs (c)(1)(i) through (vi) of this section.

(i) Locate the pressure sensor(s) in or as close to a position that provides a representative measurement of the pressure and that minimizes or eliminates pulsating pressure, vibration, and internal and external corrosion.

(ii) Use a gauge with a minimum measurement sensitivity of 0.5 inch of water or a transducer with a minimum measurement sensitivity of 1 percent of the pressure range.

(iii) Check the pressure tap for pluggage daily.

(iv) Using a manometer, check gauge calibration quarterly and transducer calibration monthly.

(v) Conduct calibration checks any time the sensor exceeds the manufacturer's specified maximum operating pressure range, or install a new pressure sensor.

(vi) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(2) For the scrubber water flow rate CPMS, you must meet the requirements in paragraphs (c)(2)(i) through (iv) of this section.

(i) Locate the flow sensor and other necessary equipment in a position that provides a representative flow and that reduces swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.

(ii) Use a flow sensor with a minimum measurement sensitivity of 2 percent of the flow rate.

(iii) Conduct a flow sensor calibration check at least semiannually according to the manufacturer's instructions.

(iv) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(d) *Other control devices.* For each control device other than a baghouse or venturi wet scrubber subject to the operating limits for appropriate parameters in §63.1444(h) or §63.1446(e), you must at all times monitor the hourly average pressure drop and water flow rate using a CPMS. You must install, operate, and maintain each CPMS according to the equipment manufacturer's specifications and the requirements in paragraphs (d)(1) though (5) of this section.

(1) Locate the sensor(s) used for monitoring in or as close to a position that provides a representative measurement of the parameter being monitored.

(2) Determine the hourly average of all recorded readings.

(3) Conduct calibration and validation checks any time the sensor exceeds the manufacturer's specifications or you install a new sensor.

(4) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(5) Record the results of each inspection, calibration, and validation check.

(e) Except for monitoring malfunctions, associated repairs, and required quality assurance or control activities (including as applicable, calibration checks and required zero and span adjustments), you must monitor continuously (or collect data at all required intervals) at all times an affected source is operating.

(f) You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels or to fulfill a minimum data availability requirement, if applicable. You must use all the data collected during all other periods in assessing compliance.

(g) A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitor to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

§ 63.1453 How do I demonstrate continuous compliance with the emission limitations, work practice standards, and operation and maintenance requirements that apply to me?

(a) *Particulate matter emission limits.* For each affected source subject to a particulate matter emission limit § 63.1444 or § 63.1446 as applies to you, you must demonstrate continuous compliance according to the requirements in paragraphs (a)(1) and (2) of this section.

(1) For each copper concentrate dryer, smelting furnace, slag cleaning vessel, and copper converter department subject to a total particulate matter emission limit in § 63.1444 or § 63.1446 as applies to you, you must demonstrate continuous compliance by meeting the conditions in paragraphs (a)(1)(i) and (ii) of this section.

(i) Maintain the average concentration of total particulate matter in the gases discharged from the affected source at or below the applicable emission limit.

(ii) Conduct subsequent performance tests following your initial performance test no less frequently than once per year according to the performance test procedures in § 63.1450(a).

(2) For each smelting furnace, slag cleaning vessel, and copper converter department subject to the nonsulfuric acid particulate matter emission limit in § 63.1444 as applies to you, you must demonstrate continuous compliance by meeting the conditions in paragraphs (a)(2)(i) and (ii) of this section.

(i) Maintain the average concentration of nonsulfuric acid particulate matter in the process off-gas discharged from the affected source at or below 6.2 mg/dscm.

(ii) Conduct subsequent performance tests following your initial performance test no less frequently than once per year according to the performance test procedures in § 63.1450(b).

(b) *Copper converter department capture systems.* You must demonstrate continuous compliance of the copper converter department capture system by meeting the requirements in paragraphs (b)(1) through (4) of this section.

(1) Operate the copper converter department capture system at all times during blowing at or above the lowest values or settings established for the operating limits and demonstrated to achieve the opacity limit according to the applicable requirements of this subpart;

(2) Inspect and maintain the copper converter department capture system according to the applicable requirements in § 63.1447 and recording all information needed to document conformance with these requirements;

(3) Monitor the copper converter department capture system according to the requirements in § 63.1452(a) and collecting, reducing, and recording the monitoring data for each of the operating limit parameters according to the applicable requirements of this subpart; and

(4) Conduct subsequent performance tests according to the requirements of § 63.1450(c) following your initial performance test no less frequently than once per year to demonstrate that the opacity of any visible emissions exiting the roof monitors or roof exhaust fans on the building housing the copper converter department does not exceed 4 percent opacity.

(c) *Baghouses.* For each baghouse subject to the operating limit for the bag leak detection system alarm in § 63.1444(f) or § 63.1446(c), you must demonstrate continuous compliance by meeting the requirements in paragraphs (c)(1) through (3) of this section.

(1) Maintain the baghouse such that the bag leak detection system alarm does not sound for more than 5 percent of the operating time during any semiannual reporting period. To determine the percent of time the alarm sounded use the procedures in paragraphs (c)(1)(i) through (v) of this section.

(i) Alarms that occur due solely to a malfunction of the bag leak detection system are not included in the calculation.

(ii) Alarms that occur during startup, shutdown, or malfunction are not included in the calculation if the condition is described in the startup, shutdown, and malfunction plan, and all the actions you took during the startup, shutdown, or malfunction were consistent with the procedures in the startup, shutdown, and malfunction plan.

(iii) Count 1 hour of alarm time for each alarm when you initiated procedures to determine the cause of the alarm within 1 hour.

(iv) Count the actual amount of time you took to initiate procedures to determine the cause of the alarm if you did not initiate procedures to determine the cause of the alarm within 1 hour of the alarm.

(v) Calculate the percentage of time the alarm on the bag leak detection system sounds as the ratio of the sum of alarm times to the total operating time multiplied by 100.

(2) Maintain records of the times the bag leak detection system alarm sounded, and for each valid alarm, the time you initiated corrective action, the corrective action(s) taken, and the date on which corrective action was completed.

(3) Inspect and maintain each baghouse according to the requirements in §63.1451(b)(2) and recording all information needed to document conformance with these requirements. If you increase or decrease the sensitivity of the bag leak detection system beyond the limits specified in §63.1451(b)(1)(vi), you must include a copy of the required written certification by a responsible official in the next semiannual compliance report.

(d) *Venturi wet scrubbers.* For each venturi wet scrubber subject to the operating limits for pressure drop and scrubber water flow rate in §63.1444(g) or §63.1446(d), you must demonstrate continuous compliance by meeting the requirements of paragraphs (d)(1) through (3) of this section.

(1) Maintain the hourly average pressure drop and scrubber water flow rate at levels no lower than those established during the initial or subsequent performance test;

(2) Inspect and maintain each venturi wet scrubber CPMS according to §63.1452(c) and recording all information needed to document conformance with these requirements; and

(3) Collect and reduce monitoring data for pressure drop and scrubber water flow rate according to §63.1452(e) and recording all information needed to document conformance with these requirements.

(e) *Other control devices.* For each control device other than a baghouse or venturi wet scrubber subject to the operating limits for site-specific operating parameters in §63.1444(h) or §63.1446(e), you must demonstrate continuous compliance by meeting the requirements of paragraphs (e)(1) through (3) of this section:

(1) Maintain the hourly average rate at levels no lower than those established during the initial or subsequent performance test;

(2) Inspect and maintain each venturi wet scrubber CPMS according to §63.1452(d) and recording all information needed to document conformance with these requirements; and

(3) Collect and reduce monitoring data for selected parameters according to §63.1452(e) and recording all information needed to document conformance with these requirements.

(f) *Fugitive dust sources.* For each fugitive dust source subject to work practice standards in §63.1445, you must demonstrate continuous compliance by implementing all of fugitive control measures specified for the source in your written fugitive dust control plan.

NOTIFICATIONS, REPORTS AND RECORDS

§63.1454 What notifications must I submit and when?

(a) You must submit all of the notifications in §§63.6(h)(4) and (h)(5), 63.7(b) and (c), 63.8(f)(4), and 63.9(b) through (h) that apply to you by the specified dates.

(b) As specified in §63.9(b)(2), if you start your affected source before June 12, 2002, you must submit your initial notification not later than October 10, 2002.

(c) As specified in §63.9(b)(3), if you start your new affected source on or after June 12, 2002, you must submit your initial notification not later than 120 calendar days after you become subject to this subpart.

(d) If you are required to conduct a performance test, you must submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin as required in §63.7(b)(1).

(e) If you are required to conduct a performance test, opacity observation, or other initial compliance demonstration, you must submit a notification of compliance status according to § 63.9(h)(2)(ii) by the date specified in paragraph (e)(1) or (2) of this section as applies to you.

(1) For each initial compliance demonstration that does not include a performance test, you must submit the notification of compliance status before the close of business on the 30th calendar day following the completion of the initial compliance demonstration.

(2) For each initial compliance demonstration that includes a performance test, you must submit the notification of compliance status, including the performance test results, before the close of business on the 60th calendar day following the completion of the performance test according to § 63.10(d)(2).

§ 63.1455 What reports must I submit and when?

(a) You must submit each report in paragraphs (a)(1) and (2) of this section that applies to you.

(1) You must submit a compliance report semiannually according to the requirements in paragraph (b) of this section and containing the information in paragraph (c) of this section.

(2) You must submit an immediate startup, shutdown, and malfunction report if you had a startup, shutdown, or malfunction during the reporting period that is not consistent with your startup, shutdown, and malfunction plan. You must report the actions taken for the event by fax or telephone within 2 working days after starting actions inconsistent with the plan. You must submit the information in § 63.10(d)(5)(ii) of this part by letter within 7 working days after the end of the event unless you have made alternative arrangements with the permitting authority.

(b) Unless the Administrator has approved a different schedule under § 63.10(a), you must submit each compliance report required in paragraph (a) of this section according to the applicable requirements in paragraphs (b)(1) through (5) of this section.

(1) The first compliance report must cover the period beginning on the compliance date that is specified for your affected source in § 63.1443 and ending on June 30 or December 31, whichever date comes first after the compliance date that is specified for your source in § 63.1443.

(2) The first compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date comes first after your first compliance report is due.

(3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date comes first after the end of the semiannual reporting period.

(5) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 40 CFR part 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A) of this chapter, you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (4) of this section.

(c) Each compliance report must contain the information in paragraphs (c)(1) through (3) of this section and, as applicable, paragraphs (c)(4) through (8) of this section.

(1) Company name and address.

(2) Statement by a responsible official, as defined in 40 CFR 63.2, with that official's name, title, and signature, certifying the accuracy and completeness of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If you had a startup, shutdown or malfunction during the reporting period and you took actions consistent with your startup, shutdown, and malfunction plan, the compliance report must include the information in § 63.10(d)(5)(i).

(5) If there are no deviations from any emission limitations (emission limit, operating limit, opacity limit) that applies to you and there are no deviations from the requirements for work practice standards in this subpart, a statement that there were no deviations from the emission limitations, work practice standards, or operation and maintenance requirements during the reporting period.

(6) If there were no periods during which an operating parameter monitoring system was out-of-control as specified in § 63.8(c)(7), a statement that there were no periods during which the monitoring system was out-of-control during the reporting period.

(7) For each deviation from an emission limitation (emission limit, operating limit, opacity limit) and for each deviation from the requirements for work practice standards that occurs at an affected source where you are not using a continuous monitoring system to comply with the emission limitations or work practice standards in this subpart, the compliance report must contain the information in paragraphs (b)(1) through (4) of this section and the information in paragraphs (b)(7)(i) and (ii) of this section. This includes periods of startup, shutdown, and malfunction.

(i) The total operating time of each affected source during the reporting period.

(ii) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

(8) For each deviation from an emission limitation (emission limit, operating limit, opacity limit, and visible emission limit) occurring at an affected source where you are using a operating parameter monitoring system to comply with the emission limitation in this subpart, you must include the information in paragraphs (b)(1) through (4) of this section and the information in paragraphs (c)(8)(i) through (xi) of this section. This includes periods of startup, shutdown, and malfunction.

(i) The date and time that each malfunction started and stopped.

(ii) The date and time that each monitoring system was inoperative, except for zero (low-level) and high-level checks.

(iii) The date, time and duration that each monitoring system was out-of-control, including the information in § 63.8(c)(8).

(iv) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(v) A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.

(vi) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(vii) A summary of the total duration of monitoring system downtime during the reporting period and the total duration of monitoring system downtime as a percent of the total source operating time during that reporting period.

(viii) A brief description of the process units.

(ix) A brief description of the monitoring system.

(x) The date of the latest monitoring system certification or audit.

(xi) A description of any changes in continuous monitoring systems, processes, or controls since the last reporting period.

(d) If you have obtained a Title V operating permit pursuant to 40 CFR part 70 or 40 CFR part 71 must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If you submit a compliance report pursuant to paragraph (a) of this section along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the compliance report includes all required information concerning deviations from any emission limitation(including any operating limit), or work practice requirement in this subpart, submission of the compliance report is deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a compliance report does not otherwise affect any obligation you may have to report deviations from permit requirements to the permit authority.

§ 63.1456 What records must I keep and how long must I keep my records?

(a) You must keep the records listed in paragraphs (a)(1) through (7) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any initial notification or notification of compliance status that you submitted, according to the requirements in § 63.10(b)(2)(xiv).

(2) The records in § 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

(3) Records of performance tests and performance evaluations as required in § 63.10(b)(2)(viii).

(4) For each monitoring system, you must keep the records specified in paragraphs (a)(4)(i) through (iv) of this section.

(i) Records described in § 63.10(b)(2)(vi) through (xi).

(ii) Monitoring data recorded by the monitoring system during a performance evaluation as required in § 63.6(h)(7)(i) and (ii).

(iii) Previous (i.e., superseded) versions of the performance evaluation plan as required in § 63.8(d)(3).

(iv) Records of the date and time that each deviation started and stopped, and whether the deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(5) For each performance test you conduct to demonstrate compliance with a opacity limit according to § 63.1450(c), you must keep the records specified in paragraphs (a)(5)(i) through (ix) of this section.

(i) Dates and time intervals of all opacity observation period segments;

(ii) Description of overall smelter operating conditions during each observation period. Identify, if any, the smelter copper production process equipment that was out-of-service during the performance test and explain why this equipment was not in operation;

(iii) Name, affiliation, and copy of current visible emission reading certification for each visible emission observer participating in the performance test;

(iv) Name, title, and affiliation for each indoor process monitor participating in the performance test;

(v) Copies of all visible emission observer opacity field data sheets;

(vi) Copies of all indoor process monitor operating log sheets;

(vii) Copies of all data summary sheets used for data reduction;

(viii) Copy of calculation sheets of the average opacity value used to demonstrate compliance with the opacity limit; and

(ix) Documentation according to the requirements in § 63.1450(c)(9)(iv) to support your selection of the site-specific capture system operating limits used for each batch copper converter capture system when blowing.

(6) For each baghouse subject to the operating limit in § 63.1444(f) or § 63.1446(c), you must keep the records specified in paragraphs (a)(6)(i) and (ii) of this section.

(i) Records of alarms for each bag leak detection system.

(ii) Description of the corrective actions taken following each bag leak detection alarm.

(7) For each control device other than a baghouse or venturi wet scrubber subject to site-specific operating limits in § 63.1444(g) or § 63.1446(f), you must keep documentation according to the requirements in § 63.1450(a)(5)(iv) to support your selection of the site-specific operating limits for the control device.

(b) Your records must be in a form suitable and readily available for expeditious review, according to § 63.10(b)(1).

(c) As specified in § 63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(d) You must keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to § 63.10(b)(1). You can keep the records off site for the remaining 3 years.

OTHER REQUIREMENTS AND INFORMATION

§63.1457 What part of the general provisions apply to me?

Table 2 to this subpart shows which parts of the general provisions in §§63.1 through 63.15 apply to you.

§63.1458 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by us, the United States Environmental Protection Agency (U.S. EPA), or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities listed in paragraph (c) of this section are retained by the U.S. EPA Administrator and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are as listed in paragraphs (c)(1) through (4) of this section.

(1) Approval of alternatives to the emission limitations and work practice standards in §§63.1444 through 63.1446 under §63.6(g).

(2) Approval of major alternatives to test methods under §63.7(f) and as defined in §63.90.

(3) Approval of major alternatives to monitoring under §63.8(f) and as defined in §63.90.

(4) Approval of major alternatives to recordkeeping and reporting under §63.10(f) and as defined in §63.90.

§63.1459 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act, in §63.2, and in this section as follows:

Bag leak detection system means a system that is capable of continuously monitoring relative particulate matter (dust) loadings in the exhaust of a baghouse in order to detect bag leaks and other upset conditions. A bag leak detection system includes, but is not limited to, an instrument that operates on triboelectric, light scattering, transmittance or other effect to continuously monitor relative particulate matter loadings.

Baghouse means a control device that collects particulate matter by filtering the gas stream through bags. A baghouse is also referred to as a ‘‘fabric filter.’’

Batch copper converter means a Pierce-Smith converter or Hoboken converter in which copper matte is oxidized to form blister copper by a process that is performed in discrete batches using a sequence of charging, blowing, skimming, and pouring.

Blowing means the operating mode for a batch copper converter during which air or oxygen-enriched air is injected into the molten converter bath.

Capture system means the collection of components used to capture gases and fumes released from one or more emission points, and to convey the captured gases and fumes to a control device. A capture system may include, but is not limited to, the following components as applicable to a given capture system design: duct intake devices, hoods, enclosures, ductwork, dampers, manifolds, plenums, and fans.

Charging means the operating mode for a batch copper converter during which molten or solid material is added into the vessel.

Control device means the air pollution control equipment used to collect particulate matter emissions. Examples of such equipment include, but are not limited to, a baghouse, an electrostatic precipitator, and a wet scrubber.

Copper concentrate dryer means a vessel in which copper concentrates are heated in the presence of air to reduce the moisture content of the material. Supplemental copper-bearing feed materials and fluxes may be added or mixed with the copper concentrates fed to a copper concentrate dryer.

Copper converter department means the area at a primary copper smelter in which the copper converters are located.

Copper matte means a material predominately composed of copper and iron sulfides produced by smelting copper ore concentrates.

Deviation means any instance in which an affected source subject to this subpart or an owner or operator of such a source fails to meet any of the following:

(1) Any requirement or obligation established by this subpart including, but not limited to, any emission limitation (including any operating limit) or work practice standard;

(2) Any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Any emission limitation (including any operating limit) or work practice standard in this subpart during startup, shutdown, or malfunction, regardless whether or not such failure is permitted by this subpart.

Emission limitation means any emission limit, opacity limit, operating limit, or visible emission limit.

Fugitive dust material means copper concentrate, dross, reverts, slag, speiss, or other solid copper-bearing materials.

Fugitive dust source means a stationary source of particulate matter emissions resulting from the handling, storage, transfer, or other management of fugitive dust materials where the source is not associated with a specific process, process vent, or stack. Examples of a fugitive dust source include, but are not limited to, on-site roadways used by trucks transporting copper concentrate, unloading of materials from trucks or railcars, outdoor material storage piles, and transfer of material to hoppers and bins.

Holding means the operating mode for a batch copper converter during which the molten bath is maintained in the vessel but no blowing is performed nor is material added into or removed from the vessel.

Opacity means the degree to which emissions reduce the transmission of light.

Particulate matter means any finely divided solid or liquid material, other than uncombined water, as measured by the specific reference method.

Pouring means the operating mode for a batch copper converter during which molten copper is removed from the vessel.

Primary copper smelter means any installation or any intermediate process engaged in the production of copper from copper sulfide ore concentrates through the use of pyrometallurgical techniques.

Responsible official means responsible official as defined in 40 CFR 70.2.

Skimming means the batch copper converter operating mode during which molten slag is removed from the vessel.

Slag cleaning vessel means a vessel that receives molten copper-bearing material and the predominant use of the vessel is to separate this material into molten copper matte and slag layers.

Smelting furnace means a furnace, reactor, or other type of vessel in which copper ore concentrate and fluxes are melted to form a molten mass of material containing copper matte and slag. Other copper-bearing materials may also be charged to the smelting furnace.

Work practice standard means any design, equipment, work practice, or operational standard, or combination thereof, that is promulgated pursuant to section 112(h) of the Clean Air Act.

As required in §63.1457, you must comply with the requirements of the NESHAP General Provisions (40 CFR part 63, subpart A) shown in the following table:

TABLE 1 TO SUBPART QQQ OF PART 63—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART QQQ

Citation	Subject	Applies to subpart QQQ	Explanation
§63.1	Applicability	Yes.	
§63.2	Definitions	Yes.	

Citation	Subject	Applies to subpart QQQ	Explanation
§ 63.3	Units and Abbreviations	Yes.	
§ 63.4	Prohibited Activities	Yes.	
§ 63.5	Construction and Reconstruction	Yes.	
§ 63.6(a)-(g)	Compliance with Standards and Maintenance requirements.	Yes.	
§ 63.6(h)	Determining compliance with Opacity and VE standards.	No	Subpart QQQ specifies the requirements and test protocol used to determine compliance with the opacity limits.
§ 63.6(i)-(j)	Extension of Compliance and Presidential Compliance Exemption.	Yes.	
§ 63.7(a)(1)-(2)	Applicability and Performance Test Dates.	No	Subpart QQQ specifies performance test applicability and dates.
§ 63.7(a)(3), (b)-(h)	Performance Testing Requirements.	Yes.	
§ 63.8 except for (a)(4),(c)(4), and (f)(6).	Monitoring Requirements	Yes.	
§ 63.8(a)(4)	Additional Monitoring Requirements for Control devices in § 63.11.	No	Subpart QQ does not require flares.
§ 63.8(c)(4)	Continuous Monitoring System Requirements.	No	Subpart QQQ specifies requirements for operation of CMS.
§ 63.8(f)(6)	RATA Alternative	No	Subpart QQQ does not require continuous emission monitoring systems.
§ 63.9	Notification Requirements	Yes.	
§ 63.9(g)(5)	DATA reduction	No	Subpart QQQ specifies data reduction requirements
§ 63.10 except for (b)(2)(xiii) and (c)(7)-(8).	Recordkeeping and reporting Requirements.	Yes.	
§ 63.10(b)(2)(xiii)	CMS Records for RATA Alternative.	No	Subpart QQQ does not require continuous emission monitoring systems.
§ 63.10(c)(7)-(8)	Records of Excess Emissions and Parameter Monitoring Accedences for CMS.	No	Subpart QQQ specifies record keeping requirements
§ 63.11	Control Device Requirements	No	Subpart QQQ does not require flares
§ 63.12	State Authority and Delegations	Yes.	
§§ 63.13–63.15	Addresses, Incorporation by Reference, Availability of Information.	Yes.	

FIGURE 1 TO SUBPART QQQ OF PART 63—DATA SUMMARY SHEET FOR DETERMINATION OF AVERAGE OPACITY

Clock time	Number of converters blowing	Converter aisle activity	Average opacity for 1-minute interval (percent)	Visible emissions interference observed during 1-minute interval? (yes or no)	Average opacity for 1-minute interval blowing without visible emission interferences (percent)

Clock time	Number of converters blowing	Converter aisle activity	Average opacity for 1-minute interval (percent)	Visible emissions interference observed during 1-minute interval? (yes or no)	Average opacity for 1-minute interval blowing without visible emission interferences (percent)

Subpart RRR—National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production

SOURCE: 65 FR 15710, Mar. 23, 2000, unless otherwise noted.

GENERAL

§ 63.1500 Applicability.

(a) The requirements of this subpart apply to the owner or operator of each secondary aluminum production facility as defined in § 63.1503.

(b) The requirements of this subpart apply to the following affected sources, located at a secondary aluminum production facility that is a major source of hazardous air pollutants (HAPs) as defined in § 63.2:

(1) Each new and existing aluminum scrap shredder;

(2) Each new and existing thermal chip dryer;

(3) Each new and existing scrap dryer/delacquering kiln/decoating kiln;

(4) Each new and existing group 2 furnace;

(5) Each new and existing sweat furnace;

(6) Each new and existing dross-only furnace;

(7) Each new and existing rotary dross cooler; and

(8) Each new and existing secondary aluminum processing unit.

(c) The requirements of this subpart pertaining to dioxin and furan (D/F) emissions and associated operating, monitoring, reporting and recordkeeping requirements apply to the following affected sources, located at a secondary aluminum production facility that is an area source of HAPs as defined in § 63.2:

(1) Each new and existing thermal chip dryer;

(2) Each new and existing scrap dryer/delacquering kiln/decoating kiln;

(3) Each new and existing sweat furnace;

(4) Each new and existing secondary aluminum processing unit, containing one or more group 1 furnace emission units processing other than clean charge.

(d) The requirements of this subpart do not apply to facilities and equipment used for research and development that are not used to produce a saleable product.

(e) The owner or operator of a secondary aluminum production facility subject to the provisions of this subpart, is subject to the title V permitting requirements under 40 CFR parts 70 and 71, as applicable. The permitting authority may defer the affected facility from the title V permitting requirements until December 9, 2004, if the secondary aluminum production facility is not a major source and is not located at a major source as defined under 40 CFR 63.2, 70.2, or 71.2, and is not otherwise required to obtain a title V permit. If an affected facility receives a deferral from title V permitting requirements under this section, the source must submit a title V permit application by December 9, 2005. The affected facility must continue to comply with the provisions of this subpart applicable to area sources, even if a deferral from title V permitting requirements has been granted to the facility by the permitting authority.

(f) An aluminum die casting facility, aluminum foundry, or aluminum extrusion facility shall be considered to be an area source if it does not emit, or have the potential to emit considering controls, 10 tons per year or more of any single listed HAP or 25 tons per year of any combination of listed HAP from all emission sources which are located in a contiguous area and under common control, without regard to whether or not such sources are regulated under this subpart or any other subpart. In the case of an aluminum die casting facility, aluminum foundry, or aluminum extrusion facility which is an area source and is subject to regulation under this subpart only because it operates a thermal chip dryer, no furnace operated by such a facility shall be deemed to be subject to the requirements of this subpart if it melts only clean charge, internal scrap, or customer returns.

[65 FR 15710, Mar. 23, 2000, as amended at 67 FR 79814, Dec. 30, 2002]

§ 63.1501 Dates.

(a) The owner or operator of an existing affected source must comply with the requirements of this subpart by March 24, 2003.

(b) Except as provided in paragraph (c) of this section, the owner or operator of a new affected source that commences construction or reconstruction after February 11, 1999 must comply with the requirements of this subpart by March 24, 2000 or upon startup, whichever is later.

(c) The owner or operator of any affected source which is constructed or reconstructed at any existing aluminum die casting facility, aluminum foundry, or aluminum extrusion facility which otherwise meets the applicability criteria set forth in § 63.1500 must comply with the requirements of this subpart by March 24, 2003 or upon startup, whichever is later.

[67 FR 59791, Sept. 24, 2002]

§ 63.1502 Incorporation by reference.

(a) The following material is incorporated by reference in the corresponding sections noted. The incorporation by reference (IBR) of certain publications listed in the rule will be approved by the Director of the Office of the Federal Register as of the date of publication of the final rule in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. This material is incorporated as it exists on the date of approval:

(1) Chapters 3 and 5 of ‘‘Industrial Ventilation: A Manual of Recommended Practice,’’ American Conference of Governmental Industrial Hygienists, (23rd edition, 1998), IBR approved for § 63.1506(c), and

(2) ‘‘Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-Dioxins and -Dibenzofurans (CDDs and CDFs) and 1989 Update’’ (EPA/625/3–89/016).

(b) The material incorporated by reference is available for inspection at the Office of the Federal Register, 800 North Capitol Street NW, Suite 700, Washington, DC; and at the Air and Radiation Docket and Information Center, U.S. EPA, 1200 Pennsylvania Ave., NW., Washington, DC. The material is also available for purchase from the following addresses:

(1) Customer Service Department, American Conference of Governmental Industrial Hygienists (ACGIH), 1330 Kemper Meadow Drive, Cincinnati, OH 45240–1634, telephone number (513) 742–2020; and

(2) The National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA, NTIS no. PB 90–145756.

§ 63.1503 Definitions.

Terms used in this subpart are defined in the Clean Air Act as amended (CAA), in § 63.2, or in this section as follows:

Add-on air pollution control device means equipment installed on a process vent that reduces the quantity of a pollutant that is emitted to the air.

Afterburner means an air pollution control device that uses controlled flame combustion to convert combustible materials to noncombustible gases; also known as an incinerator or a thermal oxidizer.

Aluminum scrap means fragments of aluminum stock removed during manufacturing (*i.e.*, machining), manufactured aluminum articles or parts rejected or discarded and useful only as material for reprocessing, and waste and discarded material made of aluminum.

Aluminum scrap shredder means a unit that crushes, grinds, or breaks aluminum scrap into a more uniform size prior to processing or charging to a *scrap dryer/delacquering kiln/decoating kiln,* or furnace. A bale breaker is not an *aluminum scrap shredder.*

Bag leak detection system means an instrument that is capable of monitoring particulate matter loadings in the exhaust of a fabric filter (*i.e.,* baghouse) in order to detect bag failures. A *bag leak detection system* includes, but is not limited to, an instrument that operates on triboelectric, light scattering, light transmittance, or other effect to monitor relative particulate matter loadings.

Chips means small, uniformly-sized, unpainted pieces of aluminum scrap, typically below 1¼ inches in any dimension, primarily generated by turning, milling, boring, and machining of aluminum parts.

Clean charge means furnace charge materials including molten aluminum, T-bar, sow, ingot, billet, pig, alloying elements, *aluminum scrap* known by the owner or operator to be entirely free of paints, coatings, and lubricants; uncoated/unpainted aluminum chips that have been thermally dried or treated by a centrifugal cleaner; *aluminum scrap* dried at 343 °C (650 °F) or higher; *aluminum scrap* delacquered/decoated at 482 °C (900 °F) or higher, and *runaround scrap*.

Cover flux means salt added to the surface of molten aluminum in a *group 1* or *group 2 furnace,* without agitation of the molten aluminum, for the purpose of preventing oxidation.

Customer returns means any aluminum product which is returned by a customer to the aluminum company that originally manufactured the product prior to resale of the product or further distribution in commerce, and which contains no paint or other solid coatings (*i.e.,* lacquers).

D/F means dioxins and furans.

Dioxins and furans means tetra-, penta-, hexa-, and octachlorinated dibenzo dioxins and furans.

Dross means the slags and skimmings from aluminum melting and refining operations consisting of fluxing agent(s), impurities, and/or oxidized and non-oxidized aluminum, from scrap aluminum charged into the furnace.

Dross-only furnace means a furnace, typically of rotary barrel design, dedicated to the reclamation of aluminum from dross formed during melting, holding, fluxing, or alloying operations carried out in other process units. Dross and salt flux are the sole feedstocks to this type of furnace.

Emission unit means a *group 1 furnace* or *in-line fluxer* at a *secondary aluminum production facility*.

Fabric filter means an add-on air pollution control device used to capture particulate matter by filtering gas streams through filter media; also known as a baghouse.

Feed/charge means, for a furnace or other process unit that operates in batch mode, the total weight of material (including molten aluminum, T-bar, sow, ingot, etc.) and alloying agents that enter the furnace during an operating cycle. For a furnace or other process unit that operates continuously, *feed/charge* means the weight of material (including molten aluminum, T-bar, sow, ingot, etc.) and alloying agents that enter the process unit within a specified time period (*e.g.,* a time period equal to the performance test period). The *feed/charge* for a dross only furnace includes the total weight of dross and solid flux.

Fluxing means refining of molten aluminum to improve product quality, achieve product specifications, or reduce material loss, including the addition of solvents to remove impurities (solvent flux); and the injection of gases such as chlorine, or chlorine mixtures, to remove magnesium (demagging) or hydrogen bubbles (degassing). *Fluxing* may be performed in the furnace or outside the furnace by an *in-line fluxer.*

Furnace hearth means the combustion zone of a furnace in which the molten metal is contained.

Group 1 furnace means a furnace of any design that melts, holds, or processes aluminum that contains paint, lubricants, coatings, or other foreign materials with or without *reactive fluxing,* or processes *clean charge* with *reactive fluxing.*

Group 2 furnace means a furnace of any design that melts, holds, or processes only *clean charge* and that performs no *fluxing* or performs *fluxing* using only nonreactive, non-HAP-containing/non-HAP-generating gases or agents.

HCl means, for the purposes of this subpart, emissions of hydrogen chloride that serve as a surrogate measure of the total emissions of the HAPs hydrogen chloride, hydrogen fluoride and chlorine.

In-line fluxer means a device exterior to a furnace, located in a transfer line from a furnace, used to refine (flux) molten aluminum; also known as a flux box, degassing box, or demagging box.

Internal scrap means all aluminum scrap regardless of the level of contamination which originates from castings or extrusions produced by an aluminum die casting facility, aluminum foundry, or aluminum extrusion facility, and which remains at all times within the control of the company that produced the castings or extrusions.

Internal runaround means scrap material generated on-site by aluminum extruding, rolling, scalping, forging, forming/stamping, cutting, and trimming operations that do not contain paint or solid coatings. Aluminum chips generated by turning, boring, milling, and similar machining operations that have not been dried at 343 °C (650 °F) or higher, or by an equivalent non-thermal drying process, are not considered internal runaround.

Lime means calcium oxide or other alkaline reagent.

Lime-injection means the continuous addition of lime upstream of a *fabric filter*.

Melting/holding furnace means a *group 1 furnace* that processes only *clean charge*, performs melting, holding, and fluxing functions, and does not transfer molten aluminum to or from another furnace except for purposes of alloy changes, off-specification product drains, or maintenance activities.

Operating cycle means for a batch process, the period beginning when the feed material is first charged to the operation and ending when all feed material charged to the operation has been processed. For a batch melting or holding furnace process, *operating cycle* means the period including the charging and melting of scrap aluminum and the fluxing, refining, alloying, and tapping of molten aluminum (the period from tap-to-tap).

PM means, for the purposes of this subpart, emissions of particulate matter that serve as a measure of total particulate emissions and as a surrogate for metal HAPs contained in the particulates, including but not limited to, antimony, arsenic, beryllium, cadmium, chromium, cobalt, lead, manganese, mercury, nickel, and selenium.

Pollution prevention means source reduction as defined under the Pollution Prevention Act of 1990 (*e.g.*, equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control), and other practices that reduce or eliminate the creation of pollutants through increased efficiency in the use of raw materials, energy, water, or other resources, or protection of natural resources by conservation.

Reactive fluxing means the use of any gas, liquid, or solid flux (other than cover flux) that results in a HAP emission. Argon and nitrogen are not reactive and do not produce HAP.

Reconstruction means the replacement of components of an affected source or *emission unit* such that the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable new affected source, and it is technologically and economically feasible for the reconstructed source to meet relevant standard(s) established in this subpart. Replacement of the refractory in a furnace is routine maintenance and is not a *reconstruction*. The repair and replacement of *in-line fluxer* components (*e.g.*, rotors/shafts, burner tubes, refractory, warped steel) is considered to be routine maintenance and is not considered a *reconstruction*. *In-line fluxers* are typically removed to a maintenance/repair area and are replaced with repaired units. The replacement of an existing *in-line fluxer* with a repaired unit is not considered a *reconstruction*.

Residence time means, for an *afterburner*, the duration of time required for gases to pass through the *afterburner* combustion zone. *Residence time* is calculated by dividing the *afterburner* combustion zone volume in cubic feet by the volumetric flow rate of the gas stream in actual cubic feet per second.

Rotary dross cooler means a water-cooled rotary barrel device that accelerates cooling of dross.

Runaround scrap means scrap materials generated on-site by aluminum casting, extruding, rolling, scalping, forging, forming/stamping, cutting, and trimming operations and that do not contain paint or solid coatings. Uncoated/unpainted aluminum chips generated by turning, boring, milling, and similar machining operations may be clean charge if they have been thermally dried or treated by a centrifugal cleaner, but are not considered to be *runaround scrap*.

Scrap dryer/delacquering kiln/decoating kiln means a unit used primarily to remove various organic contaminants such as oil, paint, lacquer, ink, plastic, and/or rubber from *aluminum scrap* (including used beverage containers) prior to melting.

Secondary aluminum processing unit (SAPU). An existing SAPU means all existing *group 1 furnaces* and all existing *in-line fluxers* within a *secondary aluminum production facility*. Each existing *group 1 furnace* or existing *in-line fluxer* is considered an *emission unit* within a *secondary aluminum processing unit*. A new *SAPU* means any combination of individual *group 1 furnaces* and *in-line fluxers* within a *secondary aluminum processing facility* which either were constructed or reconstructed after February 11, 1999, or have been permanently redesignated as new emission units pursuant to § 63.1505(k)(6). Each of the *group 1 furnaces* or *in-line fluxers* within a new *SAPU* is considered an *emission unit* within that *secondary aluminum processing unit*.

Secondary aluminum production facility means any establishment using *clean charge*, *aluminum scrap*, or dross from aluminum production, as the raw material and performing one or more of the following processes: scrap shredding, scrap drying/delacquering/decoating, thermal chip drying, furnace operations (*i.e.*, melting, holding, sweating, refining, fluxing, or alloying), recovery of aluminum from dross, in-line fluxing, or dross cooling. A *secondary aluminum production facility* may be independent or part of a primary aluminum production facility. For purposes of this subpart, aluminum die casting facilities, aluminum foundries, and aluminum extrusion facilities are not considered to be secondary aluminum production facilities if the only materials they melt are *clean charge*, customer returns, or internal scrap, and if they do not operate sweat furnaces, thermal chip dryers, or scrap dryers/delacquering kilns/decoating kilns. The determination of whether a facility is a *secondary aluminum production facility* is only for purposes of this subpart and any regulatory requirements which are derived from the applicability of this subpart, and is separate from any determination which may be made under other environmental laws and regulations, including whether the same facility is a ‘‘secondary metal production facility’’ as that term is used in 42 U.S.C. § 7479(1) and 40 CFR 52.21(b)(1)(i)(A) (‘‘prevention of significant deterioration of air quality’’).

Sidewell means an open well adjacent to the hearth of a furnace with connecting arches between the hearth and the open well through which molten aluminum is circulated between the hearth, where heat is applied by burners, and the open well, which is used for charging scrap and solid flux or salt to the furnace, injecting fluxing agents, and skimming dross.

Sweat furnace means a furnace used exclusively to reclaim aluminum from scrap that contains substantial quantities of iron by using heat to separate the low-melting point aluminum from the scrap while the higher melting-point iron remains in solid form.

TEQ means the international method of expressing toxicity equivalents for dioxins and furans as defined in ‘‘Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-Dioxins and -Dibenzofurans (CDDs and CDFs) and

1989 Update'' (EPA–625/3–89–016), available from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161, NTIS no. PB 90–145756.

THC means, for the purposes of this subpart, total hydrocarbon emissions that also serve as a surrogate for the emissions of organic HAP compounds.

Thermal chip dryer means a device that uses heat to evaporate oil or oil/water mixtures from unpainted/uncoated aluminum chips. Pre-heating boxes or other dryers which are used solely to remove water from aluminum scrap are not considered to be thermal chip dryers for purposes of this subpart.

Three-day, 24-hour rolling average means daily calculations of the average 24-hour emission rate (lbs/ton of feed/charge), over the 3 most recent consecutive 24-hour periods, for a *secondary aluminum processing unit.*

Total reactive chlorine flux injection rate means the sum of the total weight of chlorine in the gaseous or liquid reactive flux and the total weight of chlorine in the solid reactive chloride flux, divided by the total weight of feed/charge, as determined by the procedure in §63.1512(o).

[65 FR 15710, Mar. 23, 2000, as amended at 67 FR 79814, Dec. 30, 2002]

§63.1504 [Reserved]

EMISSION STANDARDS AND OPERATING REQUIREMENTS

§63.1505 Emission standards for affected sources and emission units.

(a) *Summary.* The owner or operator of a new or existing affected source must comply with each applicable limit in this section. Table 1 to this subpart summarizes the emission standards for each type of source.

(b) *Aluminum scrap shredder.* On and after the compliance date established by §63.1501, the owner or operator of an aluminum scrap shredder at a secondary aluminum production facility that is a major source must not discharge or cause to be discharged to the atmosphere:

(1) Emissions in excess of 0.023 grams (g) of PM per dry standard cubic meter (dscm) (0.010 grain (gr) of PM per dry standard cubic foot (dscf)); and

(2) Visible emissions (VE) in excess of 10 percent opacity from any PM add-on air pollution control device if a continuous opacity monitor (COM) or visible emissions monitoring is chosen as the monitoring option.

(c) *Thermal chip dryer.* On and after the compliance date established by §63.1501, the owner or operator of a thermal chip dryer must not discharge or cause to be discharged to the atmosphere emissions in excess of:

(1) 0.40 kilogram (kg) of THC, as propane, per megagram (Mg) (0.80 lb of THC, as propane, per ton) of feed/charge from a thermal chip dryer at a secondary aluminum production facility that is a major source; and

(2) 2.50 micrograms (μg) of D/F TEQ per Mg (3.5×10^{-5} gr per ton) of feed/charge from a thermal chip dryer at a secondary aluminum production facility that is a major or area source.

(d) *Scrap dryer/delacquering kiln/decoating kiln.* On and after the compliance date established by §63.1501:

(1) The owner or operator of a scrap dryer/delacquering kiln/decoating kiln must not discharge or cause to be discharged to the atmosphere emissions in excess of:

(i) 0.03 kg of THC, as propane, per Mg (0.06 lb of THC, as propane, per ton) of feed/charge from a scrap dryer/delacquering kiln/decoating kiln at a secondary aluminum production facility that is a major source;

(ii) 0.04 kg of PM per Mg (0.08 lb per ton) of feed/charge from a scrap dryer/delacquering kiln/decoating kiln at a secondary aluminum production facility that is a major source;

(iii) 0.25 μg of D/F TEQ per Mg (3.5×10^{-6} gr of D/F TEQ per ton) of feed/charge from a scrap dryer/delacquering kiln/decoating kiln at a secondary aluminum production facility that is a major or area source; and

(iv) 0.40 kg of HCl per Mg (0.80 lb per ton) of feed/charge from a scrap dryer/delacquering kiln/decoating kiln at a secondary aluminum production facility that is a major source.

(2) The owner or operator of a scrap dryer/delacquering kiln/decoating kiln at a secondary aluminum production facility that is a major source must

not discharge or cause to be discharged to the atmosphere visible emissions in excess of 10 percent opacity from any PM add-on air pollution control device if a COM is chosen as the monitoring option.

(e) *Scrap dryer/delacquering kiln/decoating kiln: alternative limits.* The owner or operator of a scrap dryer/delacquering kiln/decoating kiln may choose to comply with the emission limits in this paragraph (e) as an alternative to the limits in paragraph (d) of this section if the scrap dryer/delacquering kiln/decoating kiln is equipped with an afterburner having a design residence time of at least 1 second and the afterburner is operated at a temperature of at least 750 °C (1400 °F) at all times. On and after the compliance date established by §63.1501:

(1) The owner or operator of a scrap dryer/delacquering kiln/decoating kiln must not discharge or cause to be discharged to the atmosphere emissions in excess of:

(i) 0.10 kg of THC, as propane, per Mg (0.20 lb of THC, as propane, per ton) of feed/charge from a scrap dryer/delacquering kiln/decoating kiln at a secondary aluminum production facility that is a major source;

(ii) 0.15 kg of PM per Mg (0.30 lb per ton) of feed/charge from a scrap dryer/delacquering kiln/decoating kiln at a secondary aluminum production facility that is a major source;

(iii) 5.0 µg of D/F TEQ per Mg (7.0×10^{-5} gr of D/F TEQ per ton) of feed/charge from a scrap dryer/delacquering kiln/decoating kiln at a secondary aluminum production facility that is a major or area source; and

(iv) 0.75 kg of HCl per Mg (1.50 lb per ton) of feed/charge from a scrap dryer/delacquering kiln/decoating kiln at a secondary aluminum production facility that is a major source.

(2) The owner or operator of a scrap dryer/ delacquering kiln/decoating kiln at a secondary aluminum production facility that is a major source must not discharge or cause to be discharged to the atmosphere visible emissions in excess of 10 percent opacity from any PM add-on air pollution control device if a COM is chosen as the monitoring option.

(f) *Sweat furnace.* The owner or operator of a sweat furnace shall comply with the emission standard of paragraph (f)(2) of this section.

(1) The owner or operator is not required to conduct a performance test to demonstrate compliance with the emission standard of paragraph (f)(2) of this section, provided that, on and after the compliance date of this rule, the owner or operator operates and maintains an afterburner with a design residence time of 0.8 seconds or greater and an operating temperature of 1600 °F or greater.

(2) On and after the compliance date established by §63.1501, the owner or operator of a sweat furnace at a secondary aluminum production facility that is a major or area source must not discharge or cause to be discharged to the atmosphere emissions in excess of 0.80 nanogram (ng) of D/F TEQ per dscm ($3.5 \text{ x } 10^{-10}$ gr per dscf) at 11 percent oxygen (O_2).

(g) *Dross-only furnace.* On and after the compliance date established by §63.1501, the owner or operator of a dross-only furnace at a secondary aluminum production facility that is a major source must not discharge or cause to be discharged to the atmosphere:

(1) Emissions in excess of 0.15 kg of PM per Mg (0.30 lb of PM per ton) of feed/charge.

(2) Visible emissions in excess of 10 percent opacity from any PM add-on air pollution control device if a COM is chosen as the monitoring option.

(h) *Rotary dross cooler.* On and after the compliance date established by §63.1501, the owner or operator of a rotary dross cooler at a secondary aluminum production facility that is a major source must not discharge or cause to be discharged to the atmosphere:

(1) Emissions in excess of 0.09 g of PM per dscm (0.04 gr per dscf).

(2) Visible emissions in excess of 10 percent opacity from any PM add-on air pollution control device if a COM is chosen as the monitoring option.

(i) *Group 1 furnace.* The owner or operator of a group 1 furnace must use the limits in this paragraph to determine the emission standards for a SAPU.

(1) 0.20 kg of PM per Mg (0.40 lb of PM per ton) of feed/charge from a group 1 furnace, that is not a melting/holding furnace processing only clean charge, at a secondary aluminum production facility that is a major source;

(2) 0.40 kg of PM per Mg (0.80 lb of PM per ton) of feed/charge from a group 1 melting/holding furnace processing only clean charge at a secondary aluminum production facility that is a major source;

(3) 15 µg of D/F TEQ per Mg (2.1×10^{-4} gr of D/F TEQ per ton) of feed/charge from a group 1 furnace at a secondary aluminum production facility that is a major or area source. This limit does not apply if the furnace processes only clean charge; and

(4) 0.20 kg of HCl per Mg (0.40 lb of HCl per ton) of feed/charge or, if the furnace is equipped with an add-on air pollution control device, 10 percent of the uncontrolled HCl emissions, by weight, for a group 1 furnace at a secondary aluminum production facility that is a major source.

(5) The owner or operator of a group 1 furnace at a secondary aluminum production facility that is a major source must not discharge or cause to be discharged to the atmosphere visible emissions in excess of 10 percent opacity from any PM add-on air pollution control device if a COM is chosen as the monitoring option.

(6) The owner or operator may determine the emission standards for a SAPU by applying the group 1 furnace limits on the basis of the aluminum production weight in each group 1 furnace, rather than on the basis of feed/charge.

(7) The owner or operator of a sidewell group 1 furnace that conducts reactive fluxing (except for cover flux) in the hearth, or that conducts reactive fluxing in the sidewell at times when the level of molten metal falls below the top of the passage between the sidewell and the hearth, must comply with the emission limits of paragraphs (i)(1) through (4) of this section on the basis of the combined emissions from the sidewell and the hearth.

(j) *In-line fluxer.* Except as provided in paragraph (j)(3) of this section for an in-line fluxer using no reactive flux material, the owner or operator of an in-line fluxer must use the limits in this paragraph to determine the emission standards for a SAPU.

(1) 0.02 kg of HCl per Mg (0.04 lb of HCl per ton) of feed/charge;

(2) 0.005 kg of PM per Mg (0.01 lb of PM per ton) of feed/charge.

(3) The emission limits in paragraphs (j)(1) and (j)(2) of this section do not apply to an in-line fluxer that uses no reactive flux materials.

(4) The owner or operator of an in-line fluxer at a secondary aluminum production facility that is a major source must not discharge or cause to be discharged to the atmosphere visible emissions in excess of 10 percent opacity from any PM add-on air pollution control device used to control emissions from the in-line fluxer, if a COM is chosen as the monitoring option.

(5) The owner or operator may determine the emission standards for a SAPU by applying the in-line fluxer limits on the basis of the aluminum production weight in each in-line fluxer, rather than on the basis of feed/charge.

(k) *Secondary aluminum processing unit.* On and after the compliance date established by § 63.1501, the owner or operator must comply with the emission limits calculated using the equations for PM and HCl in paragraphs (k)(1) and (2) of this section for each secondary aluminum processing unit at a secondary aluminum production facility that is a major source. The owner or operator must comply with the emission limit calculated using the equation for D/F in paragraph (k)(3) of this section for each secondary aluminum processing unit at a secondary aluminum production facility that is a major or area source.

(1) The owner or operator must not discharge or allow to be discharged to the atmosphere any 3-day, 24-hour rolling average emissions of PM in excess of:

$$L_{C_{PM}} = \frac{\sum_{i=1}^{n}\left(L_{ti_{PM}} \times T_{ti}\right)}{\sum_{i=1}^{n}\left(T_{ti}\right)} \qquad \text{(Eq. 1)}$$

Where,

L_{tiPM} = The PM emission limit for individual emission unit i in paragraph (i)(1) and (2) of this section for a group 1 furnace or in paragraph (j)(2) of this section for an in-line fluxer;

T_{ti} = The feed/charge rate for individual emission unit I; and

L_{cPM} = The PM emission limit for the secondary aluminum processing unit.

NOTE: In-line fluxers using no reactive flux materials cannot be included in this calculation since they are not subject to the PM limit.

(2) The owner or operator must not discharge or allow to be discharged to the atmosphere any 3-day, 24-hour rolling average emissions of HCl in excess of:

$$L_{c_{HCl}} = \frac{\sum_{i=1}^{n}\left(L_{ti_{HCl}} \times T_{ti}\right)}{\sum_{i=1}^{n}\left(T_{ti}\right)} \qquad \text{(Eq. 2)}$$

Where,

L_{tiHCl} = The HCl emission limit for individual emission unit i in paragraph (i)(4) of this section for a group 1 furnace or in paragraph (j)(1) of this section for an in-line fluxer; and

L_{cHCl} = The HCl emission limit for the secondary aluminum processing unit.

NOTE: In-line fluxers using no reactive flux materials cannot be included in this calculation since they are not subject to the HCl limit.

(3) The owner or operator must not discharge or allow to be discharged to the atmosphere any 3-day, 24-hour rolling average emissions of D/F in excess of:

$$L_{C_{D/F}} = \frac{\sum_{i=1}^{n}\left(L_{ti_{D/F}} \times T_{ti}\right)}{\sum_{i=1}^{n}\left(T_{ti}\right)} \qquad \text{(Eq. 3)}$$

Where,

$L_{tiD/F}$ = The D/F emission limit for individual emission unit i in paragraph (i)(3) of this section for a group 1 furnace; and

$L_{cD/F}$ = The D/F emission limit for the secondary aluminum processing unit.

NOTE: Clean charge furnaces cannot be included in this calculation since they are not subject to the D/F limit.

(4) The owner or operator of a SAPU at a secondary aluminum production facility that is a major source may demonstrate compliance with the emission limits of paragraphs (k)(1) through (3) of this section by demonstrating that each emission unit within the SAPU is in compliance with the applicable emission limits of paragraphs (i) and (j) of this section.

(5) The owner or operator of a SAPU at a secondary aluminum production facility that is an area source may demonstrate compliance with the emission limits of paragraph (k)(3) of this section by demonstrating that each emission unit within the SAPU is in compliance with the emission limit of paragraph (i)(3) of this section.

(6) With the prior approval of the responsible permitting authority, an owner or operator may redesignate any existing group 1 furnace or in-line fluxer at a secondary aluminum production facility as a new emission unit. Any emission unit so redesignated may thereafter be included in a new SAPU at that facility. Any such redesignation will be solely for the purpose of this MACT standard and will be irreversible.

[65 FR 15710, Mar. 23, 2000, as amended at 67 FR 59792, Sept. 24, 2002; 67 FR 79816, Dec. 30, 2002]

§ 63.1506 Operating requirements.

(a) *Summary*. (1) On and after the compliance date established by § 63.1501, the owner or operator must operate all new and existing affected sources and control equipment according to the requirements in this section.

(2) The owner or operator of an existing sweat furnace that meets the specifications of § 63.1505(f)(1) must operate the sweat furnace and control equipment according to the requirements of this section on and after the compliance date of this standard.

(3) The owner or operator of a new sweat furnace that meets the specifications of § 63.1505(f)(1) must operate the sweat furnace and control equipment according to the requirements of this section by March 23, 2000 or upon startup, whichever is later.

(4) Operating requirements are summarized in Table 2 to this subpart.

(b) *Labeling.* The owner or operator must provide and maintain easily visible labels posted at each group 1 furnace, group 2 furnace, in-line fluxer and scrap dryer/delacquering kiln/decoating kiln that identifies the applicable emission limits and means of compliance, including:

(1) The type of affected source or emission unit (*e.g.,* scrap dryer/delacquering kiln/decoating kiln, group 1 furnace, group 2 furnace, in-line fluxer).

(2) The applicable operational standard(s) and control method(s) (work practice or control device). This includes, but is not limited to, the type of charge to be used for a furnace (*e.g.,* clean scrap only, all scrap, etc.), flux materials and addition practices, and the applicable operating parameter ranges and requirements as incorporated in the OM&M plan.

(3) The afterburner operating temperature and design residence time for a scrap dryer/delacquering kiln/decoating kiln.

(c) *Capture/collection systems.* For each affected source or emission unit equipped with an add-on air pollution control device, the owner or operator must:

(1) Design and install a system for the capture and collection of emissions to meet the engineering standards for minimum exhaust rates as published by the American Conference of Governmental Industrial Hygienists in chapters 3 and 5 of ‘‘Industrial Ventilation: A Manual of Recommended Practice’’ (incorporated by reference in §63.1502 of this subpart);

(2) Vent captured emissions through a closed system, except that dilution air may be added to emission streams for the purpose of controlling temperature at the inlet to a fabric filter; and

(3) Operate each capture/collection system according to the procedures and requirements in the OM&M plan.

(d) *Feed/charge weight.* The owner or operator of each affected source or emission unit subject to an emission limit in kg/Mg (lb/ton) of feed/charge must:

(1) Except as provided in paragraph (d)(3) of this section, install and operate a device that measures and records or otherwise determine the weight of feed/charge (or throughput) for each operating cycle or time period used in the performance test; and

(2) Operate each weight measurement system or other weight determination procedure in accordance with the OM&M plan.

(3) The owner or operator may chose to measure and record aluminum production weight from an affected source or emission unit rather than feed/charge weight to an affected source or emission unit, provided that:

(i) The aluminum production weight, rather than feed/charge weight is measured and recorded for all emission units within a SAPU; and

(ii) All calculations to demonstrate compliance with the emission limits for SAPUs are based on aluminum production weight rather than feed/charge weight.

(e) *Aluminum scrap shredder.* The owner or operator of a scrap shredder with emissions controlled by a fabric filter must operate a bag leak detection system, or a continuous opacity monitor, or conduct visible emissions observations.

(1) If a bag leak detection system is used to meet the monitoring requirements in §63.1510, the owner or operator must:

(i) Initiate corrective action within 1-hour of a bag leak detection system alarm and complete the corrective action procedures in accordance with the OM&M plan.

(ii) Operate each fabric filter system such that the bag leak detection system alarm does not sound more than 5 percent of the operating time during a 6-month block reporting period. In calculating this operating time fraction, if inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted. If corrective action is required, each alarm shall be counted as a minimum of 1 hour. If the owner or operator takes longer than 1 hour to initiate corrective action, the alarm time shall be counted as the actual amount of time taken by the owner or operator to initiate corrective action.

(2) If a continuous opacity monitoring system is used to meet the monitoring requirements in §63.1510, the

owner or operator must initiate corrective action within 1-hour of any 6-minute average reading of 5 percent or more opacity and complete the corrective action procedures in accordance with the OM&M plan.

(3) If visible emission observations are used to meet the monitoring requirements in § 63.1510, the owner or operator must initiate corrective action within 1-hour of any observation of visible emissions during a daily visible emissions test and complete the corrective action procedures in accordance with the OM&M plan.

(f) *Thermal chip dryer.* The owner or operator of a thermal chip dryer with emissions controlled by an afterburner must:

(1) Maintain the 3-hour block average operating temperature of each afterburner at or above the average temperature established during the performance test.

(2) Operate each afterburner in accordance with the OM&M plan.

(3) Operate each thermal chip dryer using only unpainted aluminum chips as the feedstock.

(g) *Scrap dryer/delacquering kiln/decoating kiln.* The owner or operator of a scrap dryer/delacquering kiln/decoating kiln with emissions controlled by an afterburner and a lime-injected fabric filter must:

(1) For each afterburner,

(i) Maintain the 3-hour block average operating temperature of each afterburner at or above the average temperature established during the performance test.

(ii) Operate each afterburner in accordance with the OM&M plan.

(2) If a bag leak detection system is used to meet the fabric filter monitoring requirements in § 63.1510,

(i) Initiate corrective action within 1-hour of a bag leak detection system alarm and complete any necessary corrective action procedures in accordance with the OM&M plan.

(ii) Operate each fabric filter system such that the bag leak detection system alarm does not sound more than 5 percent of the operating time during a 6-month block reporting period. In calculating this operating time fraction, if inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted. If corrective action is required, each alarm shall be counted as a minimum of 1 hour. If the owner or operator takes longer than 1 hour to initiate corrective action, the alarm time shall be counted as the actual amount of time taken by the owner or operator to initiate corrective action.

(3) If a continuous opacity monitoring system is used to meet the monitoring requirements in § 63.1510, initiate corrective action within 1-hour of any 6-minute average reading of 5 percent or more opacity and complete the corrective action procedures in accordance with the OM&M plan.

(4) Maintain the 3-hour block average inlet temperature for each fabric filter at or below the average temperature established during the performance test, plus 14 °C (plus 25 °F).

(5) For a continuous injection device, maintain free-flowing lime in the hopper to the feed device at all times and maintain the lime feeder setting at the same level established during the performance test.

(h) *Sweat furnace.* The owner or operator of a sweat furnace with emissions controlled by an afterburner must:

(1) Maintain the 3-hour block average operating temperature of each afterburner at or above:

(i) The average temperature established during the performance test; or

(ii) 1600 °F if a performance test was not conducted, and the afterburner meets the specifications of § 63.1505(f)(1).

(2) Operate each afterburner in accordance with the OM&M plan.

(i) *Dross-only furnace.* The owner or operator of a dross-only furnace with emissions controlled by a fabric filter must:

(1) If a bag leak detection system is used to meet the monitoring requirements in § 63.1510,

(i) Initiate corrective action within 1-hour of a bag leak detection system alarm and complete the corrective action procedures in accordance with the OM&M plan.

(ii) Operate each fabric filter system such that the bag leak detection system alarm does not sound more than 5 percent of the operating time during a

6-month block reporting period. In calculating this operating time fraction, if inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted. If corrective action is required, each alarm shall be counted as a minimum of 1 hour. If the owner or operator takes longer than 1 hour to initiate corrective action, the alarm time shall be counted as the actual amount of time taken by the owner or operator to initiate corrective action.

(2) If a continuous opacity monitoring system is used to meet the monitoring requirements in §63.1510, initiate corrective action within 1-hour of any 6-minute average reading of 5 percent or more opacity and complete the corrective action procedures in accordance with the OM&M plan.

(3) Operate each furnace using dross as the sole feedstock.

(j) *Rotary dross cooler.* The owner or operator of a rotary dross cooler with emissions controlled by a fabric filter must:

(1) If a bag leak detection system is used to meet the monitoring requirements in §63.1510,

(i) Initiate corrective action within 1-hour of a bag leak detection system alarm and complete the corrective action procedures in accordance with the OM&M plan.

(ii) Operate each fabric filter system such that the bag leak detection system alarm does not sound more than 5 percent of the operating time during a 6-month block reporting period. In calculating this operating time fraction, if inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted. If corrective action is required, each alarm shall be counted as a minimum of 1 hour. If the owner or operator takes longer than 1 hour to initiate corrective action, the alarm time shall be counted as the actual amount of time taken by the owner or operator to initiate corrective action.

(2) If a continuous opacity monitoring system is used to meet the monitoring requirements in §63.1510, initiate corrective action within 1 hour of any 6-minute average reading of 5 percent or more opacity and complete the corrective action procedures in accordance with the OM&M plan.

(k) *In-line fluxer.* The owner or operator of an in-line fluxer with emissions controlled by a lime-injected fabric filter must:

(1) If a bag leak detection system is used to meet the monitoring requirements in §63.1510,

(i) Initiate corrective action within 1-hour of a bag leak detection system alarm and complete the corrective action procedures in accordance with the OM&M plan.

(ii) Operate each fabric filter system such that the bag leak detection system alarm does not sound more than 5 percent of the operating time during a 6-month block reporting period. In calculating this operating time fraction, if inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted. If corrective action is required, each alarm shall be counted as a minimum of 1 hour. If the owner or operator takes longer than 1 hour to initiate corrective action, the alarm time shall be counted as the actual amount of time taken by the owner or operator to initiate corrective action.

(2) If a continuous opacity monitoring system is used to meet the monitoring requirements in §63.1510, initiate corrective action within 1 hour of any 6-minute average reading of 5 percent or more opacity and complete the corrective action procedures in accordance with the OM&M plan.

(3) For a continuous injection system, maintain free-flowing lime in the hopper to the feed device at all times and maintain the lime feeder setting at the same level established during the performance test.

(4) Maintain the total reactive chlorine flux injection rate for each operating cycle or time period used in the performance test at or below the average rate established during the performance test.

(l) *In-line fluxer using no reactive flux material.* The owner or operator of a new or existing in-line fluxer using no reactive flux materials must operate each in-line fluxer using no reactive flux materials.

(m) *Group 1 furnace with add-on air pollution control devices.* The owner or operator of a group 1 furnace with emissions controlled by a lime-injected fabric filter must:

(1) If a bag leak detection system is used to meet the monitoring requirements in §63.1510, the owner or operator must:

(i) Initiate corrective action within 1 hour of a bag leak detection system alarm.

(ii) Complete the corrective action procedures in accordance with the OM&M plan.

(iii) Operate each fabric filter system such that the bag leak detection system alarm does not sound more than 5 percent of the operating time during a 6-month block reporting period. In calculating this operating time fraction, if inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted. If corrective action is required, each alarm shall be counted as a minimum of 1 hour. If the owner or operator takes longer than 1 hour to initiate corrective action, the alarm time shall be counted as the actual amount of time taken by the owner or operator to initiate corrective action.

(2) If a continuous opacity monitoring system is used to meet the monitoring requirements in §63.1510, the owner or operator must:

(i) Initiate corrective action within 1 hour of any 6-minute average reading of 5 percent or more opacity; and

(ii) Complete the corrective action procedures in accordance with the OM&M plan.

(3) Maintain the 3-hour block average inlet temperature for each fabric filter at or below the average temperature established during the performance test, plus 14 °C (plus 25 °F).

(4) For a continuous lime injection system, maintain free-flowing lime in the hopper to the feed device at all times and maintain the lime feeder setting at the same level established during the performance test.

(5) Maintain the total reactive chlorine flux injection rate for each operating cycle or time period used in the performance test at or below the average rate established during the performance test.

(6) Operate each sidewell furnace such that:

(i) The level of molten metal remains above the top of the passage between the sidewell and hearth during reactive flux injection, unless emissions from both the sidewell and the hearth are included in demonstrating compliance with all applicable emission limits.

(ii) Reactive flux is added only in the sidewell, unless emissions from both the sidewell and the hearth are included in demonstrating compliance with all applicable emission limits.

(n) *Group 1 furnace without add-on air pollution control devices.* The owner or operator of a group 1 furnace (including a group 1 furnace that is part of a secondary aluminum processing unit) without add-on air pollution control devices must:

(1) Maintain the total reactive chlorine flux injection rate for each operating cycle or time period used in the performance test at or below the average rate established during the performance test.

(2) Operate each furnace in accordance with the work practice/pollution prevention measures documented in the OM&M plan and within the parameter values or ranges established in the OM&M plan.

(3) Operate each group 1 melting/holding furnace subject to the emission standards in §63.1505(i)(2) using only clean charge as the feedstock.

(o) *Group 2 furnace.* The owner or operator of a new or existing group 2 furnace must:

(1) Operate each furnace using only clean charge as the feedstock.

(2) Operate each furnace using no reactive flux.

(p) *Corrective action.* When a process parameter or add-on air pollution control device operating parameter deviates from the value or range established during the performance test and incorporated in the OM&M plan, the owner or operator must initiate corrective action. Corrective action must restore operation of the affected source or emission unit (including the process or control device) to its normal or usual mode of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. Corrective actions taken must include follow-up actions necessary to return the process or control device parameter level(s) to the value or range of values established during the performance test and steps to prevent the likely recurrence of the cause of a deviation.

[65 FR 15710, Mar. 23, 2000, as amended at 67 FR 59792, Sept. 24, 2002; 67 FR 79816, Dec. 30, 2002]

§§ 63.1507–63.1509 [Reserved]

MONITORING AND COMPLIANCE REQUIREMENTS

§ 63.1510 Monitoring requirements.

(a) *Summary.* On and after the compliance date established by § 63.1501, the owner or operator of a new or existing affected source or emission unit must monitor all control equipment and processes according to the requirements in this section. Monitoring requirements for each type of affected source and emission unit are summarized in Table 3 to this subpart.

(b) *Operation, maintenance, and monitoring (OM&M) plan.* The owner or operator must prepare and implement for each new or existing affected source and emission unit, a written operation, maintenance, and monitoring (OM&M) plan. The owner or operator of an existing affected source must submit the OM&M plan to the responsible permitting authority no later than the compliance date established by § 63.1501(a). The owner or operator of any new affected source must submit the OM&M plan to the responsible permitting authority within 90 days after a successful initial performance test under § 63.1511(b), or within 90 days after the compliance date established by § 63.1501(b) if no initial performance test is required. The plan must be accompanied by a written certification by the owner or operator that the OM&M plan satisfies all requirements of this section and is otherwise consistent with the requirements of this subpart. The owner or operator must comply with all of the provisions of the OM&M plan as submitted to the permitting authority, unless and until the plan is revised in accordance with the following procedures. If the permitting authority determines at any time after receipt of the OM&M plan that any revisions of the plan are necessary to satisfy the requirements of this section or this subpart, the owner or operator must promptly make all necessary revisions and resubmit the revised plan. If the owner or operator determines that any other revisions of the OM&M plan are necessary, such revisions will not become effective until the owner or operator submits a description of the changes and a revised plan incorporating them to the permitting authority. Each plan must contain the following information:

(1) Process and control device parameters to be monitored to determine compliance, along with established operating levels or ranges, as applicable, for each process and control device.

(2) A monitoring schedule for each affected source and emission unit.

(3) Procedures for the proper operation and maintenance of each process unit and add-on control device used to meet the applicable emission limits or standards in § 63.1505.

(4) Procedures for the proper operation and maintenance of monitoring devices or systems used to determine compliance, including:

(i) Calibration and certification of accuracy of each monitoring device, at least once every 6 months, according to the manufacturer's instructions; and

(ii) Procedures for the quality control and quality assurance of continuous emission or opacity monitoring systems as required by the general provisions in subpart A of this part.

(5) Procedures for monitoring process and control device parameters, including procedures for annual inspections of afterburners, and if applicable, the procedure to be used for determining charge/feed (or throughput) weight if a measurement device is not used.

(6) Corrective actions to be taken when process or operating parameters or add-on control device parameters deviate from the value or range established in paragraph (b)(1) of this section, including:

(i) Procedures to determine and record the cause of an deviation or excursion, and the time the deviation or excursion began and ended; and

(ii) Procedures for recording the corrective action taken, the time corrective action was initiated, and the time/date corrective action was completed.

(7) A maintenance schedule for each process and control device that is consistent with the manufacturer's instructions and recommendations for routine and long-term maintenance.

(8) Documentation of the work practice and pollution prevention measures used to achieve compliance with the applicable emission limits and a site-specific monitoring plan as required in paragraph (o) of this section for each group 1 furnace not equipped with an add-on air pollution control device.

(c) *Labeling.* The owner or operator must inspect the labels for each group 1 furnace, group 2 furnace, in-line fluxer and scrap dryer/delacquering kiln/decoating kiln at least once per calendar month to confirm that posted labels as required by the operational standard in § 63.1506(b) are intact and legible.

(d) *Capture/collection system.* The owner or operator must:

(1) Install, operate, and maintain a capture/collection system for each affected source and emission unit equipped with an add-on air pollution control device; and

(2) Inspect each capture/collection and closed vent system at least once each calendar year to ensure that each system is operating in accordance with the operating requirements in § 63.1506(c) and record the results of each inspection.

(e) *Feed/charge weight.* The owner or operator of an affected source or emission unit subject to an emission limit in kg/Mg (lb/ton) or µg/Mg (gr/ton) of feed/charge must install, calibrate, operate, and maintain a device to measure and record the total weight of feed/charge to, or the aluminum production from, the affected source or emission unit over the same operating cycle or time period used in the performance test. Feed/charge or aluminum production within SAPUs must be measured and recorded on an emission unit-by-emission unit basis. As an alternative to a measurement device, the owner or operator may use a procedure acceptable to the applicable permitting authority to determine the total weight of feed/charge or aluminum production to the affected source or emission unit.

(1) The accuracy of the weight measurement device or procedure must be ±1 percent of the weight being measured. The owner or operator may apply to the permitting agency for approval to use a device of alternative accuracy if the required accuracy cannot be achieved as a result of equipment layout or charging practices. A device of alternative accuracy will not be approved unless the owner or operator provides assurance through data and information that the affected source will meet the relevant emission standard.

(2) The owner or operator must verify the calibration of the weight measurement device in accordance with the schedule specified by the manufacturer, or if no calibration schedule is specified, at least once every 6 months.

(f) *Fabric filters and lime-injected fabric filters.* The owner or operator of an affected source or emission unit using a fabric filter or lime-injected fabric filter to comply with the requirements of this subpart must install, calibrate, maintain, and continuously operate a bag leak detection system as required in paragraph (f)(1) of this section or a continuous opacity monitoring system as required in paragraph (f)(2) of this section. The owner or operator of an aluminum scrap shredder must install and operate a bag leak detection system as required in paragraph (f)(1) of this section, install and operate a continuous opacity monitoring system as required in paragraph (f)(2) of this section, or conduct visible emission observations as required in paragraph (f)(3) of this section.

(1) These requirements apply to the owner or operator of a new or existing affected source or existing emission unit using a bag leak detection system.

(i) The owner or operator must install and operate a bag leak detection system for each exhaust stack of a fabric filter.

(ii) Each triboelectric bag leak detection system must be installed, calibrated, operated, and maintained according to the ''Fabric Filter Bag Leak Detection Guidance,'' (September 1997). This document is available from the U.S. Environmental Protection Agency; Office of Air Quality Planning and Standards; Emissions, Monitoring and

Analysis Division; Emission Measurement Center (MD–19), Research Triangle Park, NC 27711. This document also is available on the Technology Transfer Network (TTN) under Emission Measurement Technical Information (EMTIC), Continuous Emission Monitoring. Other bag leak detection systems must be installed, operated, calibrated, and maintained in a manner consistent with the manufacturer's written specifications and recommendations.

(iii) The bag leak detection system must be certified by the manufacturer to be capable of detecting PM emissions at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.

(iv) The bag leak detection system sensor must provide output of relative or absolute PM loadings.

(v) The bag leak detection system must be equipped with a device to continuously record the output signal from the sensor.

(vi) The bag leak detection system must be equipped with an alarm system that will sound automatically when an increase in relative PM emissions over a preset level is detected. The alarm must be located where it is easily heard by plant operating personnel.

(vii) For positive pressure fabric filter systems, a bag leak detection system must be installed in each baghouse compartment or cell. For negative pressure or induced air fabric filters, the bag leak detector must be installed downstream of the fabric filter.

(viii) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(ix) The baseline output must be established by adjusting the range and the averaging period of the device and establishing the alarm set points and the alarm delay time.

(x) Following initial adjustment of the system, the owner or operator must not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time except as detailed in the OM&M plan. In no case may the sensitivity be increased by more than 100 percent or decreased more than 50 percent over a 365-day period unless such adjustment follows a complete fabric filter inspection which demonstrates that the fabric filter is in good operating condition.

(2) These requirements apply to the owner or operator of a new or existing affected source or an existing emission unit using a continuous opacity monitoring system.

(i) The owner or operator must install, calibrate, maintain, and operate a continuous opacity monitoring system to measure and record the opacity of emissions exiting each exhaust stack.

(ii) Each continuous opacity monitoring system must meet the design and installation requirements of Performance Specification 1 in appendix B to 40 CFR part 60.

(3) These requirements apply to the owner or operator of a new or existing aluminum scrap shredder who conducts visible emission observations. The owner or operator must:

(i) Perform a visible emissions test for each aluminum scrap shredder using a certified observer at least once a day according to the requirements of Method 9 in appendix A to 40 CFR part 60. Each Method 9 test must consist of five 6-minute observations in a 30-minute period; and

(ii) Record the results of each test.

(g) *Afterburner.* These requirements apply to the owner or operator of an affected source using an afterburner to comply with the requirements of this subpart.

(1) The owner or operator must install, calibrate, maintain, and operate a device to continuously monitor and record the operating temperature of the afterburner consistent with the requirements for continuous monitoring systems in subpart A of this part.

(2) The temperature monitoring device must meet each of these performance and equipment specifications:

(i) The temperature monitoring device must be installed at the exit of the combustion zone of each afterburner.

(ii) The monitoring system must record the temperature in 15-minute block averages and determine and record the average temperature for each 3-hour block period.

(iii) The recorder response range must include zero and 1.5 times the average temperature established according to the requirements in §63.1512(m).

(iv) The reference method must be a National Institute of Standards and Technology calibrated reference thermocouple-potentiometer system or alternate reference, subject to approval by the Administrator.

(3) The owner or operator must conduct an inspection of each afterburner at least once a year and record the results. At a minimum, an inspection must include:

(i) Inspection of all burners, pilot assemblies, and pilot sensing devices for proper operation and clean pilot sensor;

(ii) Inspection for proper adjustment of combustion air;

(iii) Inspection of internal structures (*e.g.*, baffles) to ensure structural integrity;

(iv) Inspection of dampers, fans, and blowers for proper operation;

(v) Inspection for proper sealing;

(vi) Inspection of motors for proper operation;

(vii) Inspection of combustion chamber refractory lining and clean and replace lining as necessary;

(viii) Inspection of afterburner shell for corrosion and/or hot spots;

(ix) Documentation, for the burn cycle that follows the inspection, that the afterburner is operating properly and any necessary adjustments have been made; and

(x) Verification that the equipment is maintained in good operating condition.

(xi) Following an equipment inspection, all necessary repairs must be completed in accordance with the requirements of the OM&M plan.

(h) *Fabric filter inlet temperature.* These requirements apply to the owner or operator of a scrap dryer/delacquering kiln/decoating kiln or a group 1 furnace using a lime-injected fabric filter to comply with the requirements of this subpart.

(1) The owner or operator must install, calibrate, maintain, and operate a device to continuously monitor and record the temperature of the fabric filter inlet gases consistent with the requirements for continuous monitoring systems in subpart A of this part.

(2) The temperature monitoring device must meet each of these performance and equipment specifications:

(i) The monitoring system must record the temperature in 15-minute block averages and calculate and record the average temperature for each 3-hour block period.

(ii) The recorder response range must include zero and 1.5 times the average temperature established according to the requirements in §63.1512(n).

(iii) The reference method must be a National Institute of Standards and Technology calibrated reference thermocouple-potentiometer system or alternate reference, subject to approval by the Administrator.

(i) *Lime injection.* These requirements apply to the owner or operator of an affected source or emission unit using a lime-injected fabric filter to comply with the requirements of this subpart.

(1) The owner or operator of a continuous lime injection system must verify that lime is always free-flowing by either:

(i) Inspecting each feed hopper or silo at least once each 8-hour period and recording the results of each inspection. If lime is found not to be free-flowing during any of the 8-hour periods, the owner or operator must increase the frequency of inspections to at least once every 4-hour period for the next 3 days. The owner or operator may return to inspections at least once every 8 hour period if corrective action results in no further blockages of lime during the 3-day period; or

(ii) Subject to the approval of the permitting agency, installing, operating and maintaining a load cell, carrier gas/lime flow indicator, carrier gas pressure drop measurement system or other system to confirm that lime is free-flowing. If lime is found not to be free-flowing, the owner or operator must promptly initiate and complete corrective action, or

(iii) Subject to the approval of the permitting agency, installing, operating and maintaining a device to monitor the concentration of HCl at the outlet of the fabric filter. If an increase in the concentration of HCl indicates that the lime is not free-flowing, the owner or operator must promptly initiate and complete corrective action.

(2) The owner or operator of a continuous lime injection system must record the lime feeder setting once each day of operation.

(3) An owner or operator who intermittently adds lime to a lime coated fabric filter must obtain approval from the permitting authority for a lime addition monitoring procedure. The permitting authority will not approve a monitoring procedure unless data and information are submitted establishing that the procedure is adequate to ensure that relevant emission standards will be met on a continuous basis.

(j) *Total reactive flux injection rate.* These requirements apply to the owner or operator of a group 1 furnace (with or without add-on air pollution control devices) or in-line fluxer. The owner or operator must:

(1) Install, calibrate, operate, and maintain a device to continuously measure and record the weight of gaseous or liquid reactive flux injected to each affected source or emission unit.

(i) The monitoring system must record the weight for each 15-minute block period, during which reactive fluxing occurs, over the same operating cycle or time period used in the performance test.

(ii) The accuracy of the weight measurement device must be ±1 percent of the weight of the reactive component of the flux being measured. The owner or operator may apply to the permitting authority for permission to use a weight measurement device of alternative accuracy in cases where the reactive flux flow rates are so low as to make the use of a weight measurement device of ±1 percent impracticable. A device of alternative accuracy will not be approved unless the owner or operator provides assurance through data and information that the affected source will meet the relevant emission standards.

(iii) The owner or operator must verify the calibration of the weight measurement device in accordance with the schedule specified by the manufacturer, or if no calibration schedule is specified, at least once every 6 months.

(2) Calculate and record the gaseous or liquid reactive flux injection rate (kg/Mg or lb/ton) for each operating cycle or time period used in the performance test using the procedure in §63.1512(o).

(3) Record, for each 15-minute block period during each operating cycle or time period used in the performance test during which reactive fluxing occurs, the time, weight, and type of flux for each addition of:

(i) Gaseous or liquid reactive flux other than chlorine; and

(ii) Solid reactive flux.

(4) Calculate and record the total reactive flux injection rate for each operating cycle or time period used in the performance test using the procedure in §63.1512(o).

(5) The owner or operator of a group 1 furnace or in-line fluxer performing reactive fluxing may apply to the Administrator for approval of an alternative method for monitoring and recording the total reactive flux addition rate based on monitoring the weight or quantity of reactive flux per ton of feed/charge for each operating cycle or time period used in the performance test. An alternative monitoring method will not be approved unless the owner or operator provides assurance through data and information that the affected source will meet the relevant emission standards on a continuous basis.

(k) *Thermal chip dryer.* These requirements apply to the owner or operator of a thermal chip dryer with emissions controlled by an afterburner. The owner or operator must:

(1) Record the type of materials charged to the unit for each operating cycle or time period used in the performance test.

(2) Submit a certification of compliance with the applicable operational standard for charge materials in §63.1506(f)(3) for each 6-month reporting period. Each certification must contain the information in §63.1516(b)(2)(i).

(l) *Dross-only furnace.* These requirements apply to the owner or operator of a dross-only furnace. The owner or operator must:

(1) Record the materials charged to each unit for each operating cycle or

time period used in the performance test.

(2) Submit a certification of compliance with the applicable operational standard for charge materials in § 63.1506(i)(3) for each 6-month reporting period. Each certification must contain the information in § 63.1516(b)(2)(ii).

(m) *In-line fluxers using no reactive flux.* The owner or operator of an in-line fluxer that uses no reactive flux materials must submit a certification of compliance with the operational standard for no reactive flux materials in § 63.1506(l) for each 6-month reporting period. Each certification must contain the information in § 63.1516(b)(2)(vi).

(n) *Sidewell group 1 furnace with add-on air pollution control devices.* These requirements apply to the owner or operator of a sidewell group 1 furnace using add-on air pollution control devices. The owner or operator must:

(1) Record in an operating log for each charge of a sidewell furnace that the level of molten metal was above the top of the passage between the sidewell and hearth during reactive flux injection, unless the furnace hearth was also equipped with an add-on control device.

(2) Submit a certification of compliance with the operational standards in § 63.1506(m)(7) for each 6-month reporting period. Each certification must contain the information in § 63.1516(b)(2)(iii).

(o) *Group 1 furnace without add-on air pollution control devices.* These requirements apply to the owner or operator of a group 1 furnace that is not equipped with an add-on air pollution control device.

(1) The owner or operator must develop, in consultation with the responsible permitting authority, a written site-specific monitoring plan. The site-specific monitoring plan must be submitted to the permitting authority as part of the OM&M plan. The site-specific monitoring plan must contain sufficient procedures to ensure continuing compliance with all applicable emission limits and must demonstrate, based on documented test results, the relationship between emissions of PM, HCl, and D/F and the proposed monitoring parameters for each pollutant. Test data must establish the highest level of PM, HCl, and D/F that will be emitted from the furnace. This may be determined by conducting performance tests and monitoring operating parameters while charging the furnace with feed/charge materials containing the highest anticipated levels of oils and coatings and fluxing at the highest anticipated rate. If the permitting authority determines that any revisions of the site-specific monitoring plan are necessary to meet the requirements of this section or this subpart, the owner or operator must promptly make all necessary revisions and resubmit the revised plan to the permitting authority.

(i) The owner or operator of an existing affected source must submit the site-specific monitoring plan to the applicable permitting authority for review at least 6 months prior to the compliance date.

(ii) The permitting authority will review and approve or disapprove a proposed plan, or request changes to a plan, based on whether the plan contains sufficient provisions to ensure continuing compliance with applicable emission limits and demonstrates, based on documented test results, the relationship between emissions of PM, HCl, and D/F and the proposed monitoring parameters for each pollutant. Test data must establish the highest level of PM, HCl, and D/F that will be emitted from the furnace. Subject to permitting agency approval of the OM&M plan, this may be determined by conducting performance tests and monitoring operating parameters while charging the furnace with feed/charge materials containing the highest anticipated levels of oils and coatings and fluxing at the highest anticipated rate.

(2) Each site-specific monitoring plan must document each work practice, equipment/design practice, pollution prevention practice, or other measure used to meet the applicable emission standards.

(3) Each site-specific monitoring plan must include provisions for unit labeling as required in paragraph (c) of this section, feed/charge weight measurement (or production weight measurement) as required in paragraph (e) of

this section and flux weight measurement as required in paragraph (j) of this section.

(4) Each site-specific monitoring plan for a melting/holding furnace subject to the clean charge emission standard in §63.1505(i)(3) must include these requirements:

(i) The owner or operator must record the type of feed/ charge (*e.g.*, ingot, thermally dried chips, dried scrap, etc.) for each operating cycle or time period used in the performance test; and

(ii) The owner or operator must submit a certification of compliance with the applicable operational standard for clean charge materials in §63.1506(n)(3) for each 6-month reporting period. Each certification must contain the information in §63.1516(b)(2)(iv).

(5) If a continuous emission monitoring system is included in a site-specific monitoring plan, the plan must include provisions for the installation, operation, and maintenance of the system to provide quality-assured measurements in accordance with all applicable requirements of the general provisions in subpart A of this part.

(6) If a continuous opacity monitoring system is included in a site-specific monitoring plan, the plan must include provisions for the installation, operation, and maintenance of the system to provide quality-assured measurements in accordance with all applicable requirements of this subpart.

(7) If a site-specific monitoring plan includes a scrap inspection program for monitoring the scrap contaminant level of furnace feed/charge materials, the plan must include provisions for the demonstration and implementation of the program in accordance with all applicable requirements in paragraph (p) of this section.

(8) If a site-specific monitoring plan includes a calculation method for monitoring the scrap contaminant level of furnace feed/charge materials, the plan must include provisions for the demonstration and implementation of the program in accordance with all applicable requirements in paragraph (q) of this section.

(p) *Scrap inspection program for group 1 furnace without add-on air pollution control devices.* A scrap inspection program must include:

(1) A proven method for collecting representative samples and measuring the oil and coatings content of scrap samples;

(2) A scrap inspector training program;

(3) An established correlation between visual inspection and physical measurement of oil and coatings content of scrap samples;

(4) Periodic physical measurements of oil and coatings content of randomly-selected scrap samples and comparison with visual inspection results;

(5) A system for assuring that only acceptable scrap is charged to an affected group 1 furnace; and

(6) Recordkeeping requirements to document conformance with plan requirements.

(q) *Monitoring of scrap contamination level by calculation method for group 1 furnace without add-on air pollution control devices.* The owner or operator of a group 1 furnace dedicated to processing a distinct type of furnace feed/charge composed of scrap with a uniform composition (such as rejected product from a manufacturing process for which the coating-to-scrap ratio can be documented) may include a program in the site-specific monitoring plan for determining, monitoring, and certifying the scrap contaminant level using a calculation method rather than a scrap inspection program. A scrap contaminant monitoring program using a calculation method must include:

(1) Procedures for the characterization and documentation of the contaminant level of the scrap prior to the performance test.

(2) Limitations on the furnace feed/ charge to scrap of the same composition as that used in the performance test. If the performance test was conducted with a mixture of scrap and clean charge, limitations on the proportion of scrap in the furnace feed/ charge to no greater than the proportion used during the performance test.

(3) Operating, monitoring, recordkeeping, and reporting requirements to ensure that no scrap with a contaminant level higher than that used in the performance test is charged to the furnace.

(r) *Group 2 furnace.* These requirements apply to the owner or operator of a new or existing group 2 furnace. The owner or operator must:

(1) Record a description of the materials charged to each furnace, including any nonreactive, non-HAP-containing/non-HAP-generating fluxing materials or agents.

(2) Submit a certification of compliance with the applicable operational standard for charge materials in §63.1506(o) for each 6-month reporting period. Each certification must contain the information in §63.1516(b)(2)(v).

(s) *Site-specific requirements for secondary aluminum processing units.* (1) An owner or operator of a secondary aluminum processing unit at a facility must include, within the OM&M plan prepared in accordance with §63.1510(b), the following information:

(i) The identification of each emission unit in the secondary aluminum processing unit;

(ii) The specific control technology or pollution prevention measure to be used for each emission unit in the secondary aluminum processing unit and the date of its installation or application;

(iii) The emission limit calculated for each secondary aluminum processing unit and performance test results with supporting calculations demonstrating initial compliance with each applicable emission limit;

(iv) Information and data demonstrating compliance for each emission unit with all applicable design, equipment, work practice or operational standards of this subpart; and

(v) The monitoring requirements applicable to each emission unit in a secondary aluminum processing unit and the monitoring procedures for daily calculation of the 3-day, 24-hour rolling average using the procedure in §63.1510(t).

(2) The SAPU compliance procedures within the OM&M plan may not contain any of the following provisions:

(i) Any averaging among emissions of differing pollutants;

(ii) The inclusion of any affected sources other than emission units in a secondary aluminum processing unit;

(iii) The inclusion of any emission unit while it is shutdown; or

(iv) The inclusion of any periods of startup, shutdown, or malfunction in emission calculations.

(3) To revise the SAPU compliance provisions within the OM&M plan prior to the end of the permit term, the owner or operator must submit a request to the applicable permitting authority containing the information required by paragraph (s)(1) of this section and obtain approval of the applicable permitting authority prior to implementing any revisions.

(t) *Secondary aluminum processing unit.* Except as provided in paragraph (u) of this section, the owner or operator must calculate and record the 3-day, 24-hour rolling average emissions of PM, HCl, and D/F for each secondary aluminum processing unit on a daily basis. To calculate the 3-day, 24-hour rolling average, the owner or operator must:

(1) Calculate and record the total weight of material charged to each emission unit in the secondary aluminum processing unit for each 24-hour day of operation using the feed/charge weight information required in paragraph (e) of this section. If the owner or operator chooses to comply on the basis of weight of aluminum produced by the emission unit, rather than weight of material charged to the emission unit, all performance test emissions results and all calculations must be conducted on the aluminum production weight basis.

(2) Multiply the total feed/charge weight to the emission unit, or the weight of aluminum produced by the emission unit, for each emission unit for the 24-hour period by the emission rate (in lb/ton of feed/charge) for that emission unit (as determined during the performance test) to provide emissions for each emission unit for the 24-hour period, in pounds.

(3) Divide the total emissions for each SAPU for the 24-hour period by the total material charged to the SAPU, or the weight of aluminum produced by the SAPU over the 24-hour period to provide the daily emission rate for the SAPU.

(4) Compute the 24-hour daily emission rate using Equation 4:

$$E_{day} = \frac{\sum_{i=1}^{n}\left(T_i \times ER_i\right)}{\sum_{i=1}^{n} T_i} \qquad \text{(Eq. 4)}$$

Where,

E_{day} = The daily PM, HCl, or D/F emission rate for the secondary aluminum processing unit for the 24-hour period;
T_i = The total amount of feed, or aluminum produced, for emission unit i for the 24-hour period (tons);
ER_i = The measured emission rate for emission unit i as determined in the performance test (lb/ton or µg/Mg of feed/charge); and
n = The number of emission units in the secondary aluminum processing unit.

(5) Calculate and record the 3-day, 24-hour rolling average for each pollutant each day by summing the daily emission rates for each pollutant over the 3 most recent consecutive days and dividing by 3.

(u) *Secondary aluminum processing unit compliance by individual emission unit demonstration.* As an alternative to the procedures of paragraph (t) of this section, an owner or operator may demonstrate, through performance tests, that each individual emission unit within the secondary aluminum production unit is in compliance with the applicable emission limits for the emission unit.

(v) *Alternative monitoring method for lime addition.* The owner or operator of a lime-coated fabric filter that employs intermittent or noncontinuous lime addition may apply to the Administrator for approval of an alternative method for monitoring the lime addition schedule and rate based on monitoring the weight of lime added per ton of feed/charge for each operating cycle or time period used in the performance test. An alternative monitoring method will not be approved unless the owner or operator provides assurance through data and information that the affected source will meet the relevant emission standards on a continuous basis.

(w) *Alternative monitoring methods.* If an owner or operator wishes to use an alternative monitoring method to demonstrate compliance with any emission standard in this subpart, other than those alternative monitoring methods which may be authorized pursuant to § 63.1510(j)(5) and § 63.1510(v), the owner or operator may submit an application to the Administrator. Any such application will be processed according to the criteria and procedures set forth in paragraphs (w)(1) through (6) of this section.

(1) The Administrator will not approve averaging periods other than those specified in this section.

(2) The owner or operator must continue to use the original monitoring requirement until necessary data are submitted and approval is received to use another monitoring procedure.

(3) The owner or operator shall submit the application for approval of alternate monitoring methods no later than the notification of the performance test. The application must contain the information specified in paragraphs (w)(3) (i) through (iii) of this section:

(i) Data or information justifying the request, such as the technical or economic infeasibility, or the impracticality of using the required approach;

(ii) A description of the proposed alternative monitoring requirements, including the operating parameters to be monitored, the monitoring approach and technique, and how the limit is to be calculated; and

(iii) Data and information documenting that the alternative monitoring requirement(s) would provide equivalent or better assurance of compliance with the relevant emission standard(s).

(4) The Administrator will not approve an alternate monitoring application unless it would provide equivalent or better assurance of compliance with the relevant emission standard(s). Before disapproving any alternate monitoring application, the Administrator will provide:

(i) Notice of the information and findings upon which the intended disapproval is based; and

(ii) Notice of opportunity for the owner or operator to present additional supporting information before final action is taken on the application. This notice will specify how much additional time is allowed for the owner or operator to provide additional supporting information.

(5) The owner or operator is responsible for submitting any supporting information in a timely manner to enable the Administrator to consider the application prior to the performance test. Neither submittal of an application nor the Administrator's failure to approve or disapprove the application relieves the owner or operator of the responsibility to comply with any provisions of this subpart.

(6) The Administrator may decide at any time, on a case-by-case basis, that additional or alternative operating limits, or alternative approaches to establishing operating limits, are necessary to demonstrate compliance with the emission standards of this subpart.

[65 FR 15710, Mar. 23, 2000, as amended at 67 FR 59792, Sept. 24, 2002; 67 FR 79816, Dec. 30, 2002]

§ 63.1511 Performance test/compliance demonstration general requirements.

(a) *Site-specific test plan.* Prior to conducting any performance test required by this subpart, the owner or operator must prepare a site-specific test plan which satisfies all of the requirements, and must obtain approval of the plan pursuant to the procedures, set forth in § 63.7(c).

(b) *Initial performance test.* Following approval of the site-specific test plan, the owner or operator must demonstrate initial compliance with each applicable emission, equipment, work practice, or operational standard for each affected source and emission unit, and report the results in the notification of compliance status report as described in § 63.1515(b). The owner or operator of any existing affected source for which an initial performance test is required to demonstrate compliance must conduct this initial performance test no later than the date for compliance established by § 63.1501(a). The owner or operator of any new affected source for which an initial performance test is required must conduct this initial performance test within 90 days after the date for compliance established by § 63.1501(b). Except for the date by which the performance test must be conducted, the owner or operator must conduct each performance test in accordance with the requirements and procedures set forth in § 63.7(c). Owners or operators of affected sources located at facilities which are area sources are subject only to those performance testing requirements pertaining to D/F. Owners or operators of sweat furnaces meeting the specifications of § 63.1505(f)(1) are not required to conduct a performance test.

(1) The owner or operator must conduct each test while the affected source or emission unit is operating at the highest production level with charge materials representative of the range of materials processed by the unit and, if applicable, at the highest reactive fluxing rate.

(2) Each performance test for a continuous process must consist of 3 separate runs; pollutant sampling for each run must be conducted for the time period specified in the applicable method or, in the absence of a specific time period in the test method, for a minimum of 3 hours.

(3) Each performance test for a batch process must consist of three separate runs; pollutant sampling for each run must be conducted over the entire process operating cycle.

(4) Where multiple affected sources or emission units are exhausted through a common stack, pollutant sampling for each run must be conducted over a period of time during which all affected sources or emission units complete at least 1 entire process operating cycle or for 24 hours, whichever is shorter.

(5) Initial compliance with an applicable emission limit or standard is demonstrated if the average of three runs conducted during the performance test is less than or equal to the applicable emission limit or standard.

(c) *Test methods.* The owner or operator must use the following methods in appendix A to 40 CFR part 60 to determine compliance with the applicable emission limits or standards:

(1) Method 1 for sample and velocity traverses.

(2) Method 2 for velocity and volumetric flow rate.

(3) Method 3 for gas analysis.

(4) Method 4 for moisture content of the stack gas.

(5) Method 5 for the concentration of PM.

(6) Method 9 for visible emission observations.

(7) Method 23 for the concentration of D/F.

(8) Method 25A for the concentration of THC, as propane.

(9) Method 26A for the concentration of HCl. Where a lime-injected fabric filter is used as the control device to comply with the 90 percent reduction standard, the owner or operator must measure the fabric filter inlet concentration of HCl at a point before lime is introduced to the system.

(d) *Alternative methods.* The owner or operator may use an alternative test method, subject to approval by the Administrator.

(e) *Repeat tests.* The owner or operator of new or existing affected sources and emission units located at secondary aluminum production facilities that are major sources must conduct a performance test every 5 years following the initial performance test.

(f) *Testing of representative emission units.* With the prior approval of the permitting authority, an owner or operator may utilize emission rates obtained by testing a particular type of group 1 furnace which is not controlled by any add-on control device, or by testing an in-line flux box which is not controlled by any add-on control device, to determine the emission rate for other units of the same type at the same facility. Such emission test results may only be considered to be representative of other units if all of the following criteria are satisfied:

(1) The tested emission unit must use feed materials and charge rates which are comparable to the emission units that it represents;

(2) The tested emission unit must use the same type of flux materials in the same proportions as the emission units it represents;

(3) The tested emission unit must be operated utilizing the same work practices as the emission units that it represents;

(4) The tested emission unit must be of the same design as the emission units that it represents; and

(5) The tested emission unit must be tested under the highest load or capacity reasonably expected to occur for any of the emission units that it represents.

(g) *Establishment of monitoring and operating parameter values.* The owner or operator of new or existing affected sources and emission units must establish a minimum or maximum operating parameter value, or an operating parameter range for each parameter to be monitored as required by § 63.1510 that ensures compliance with the applicable emission limit or standard. To establish the minimum or maximum value or range, the owner or operator must use the appropriate procedures in this section and submit the information required by § 63.1515(b)(4) in the notification of compliance status report. The owner or operator may use existing data in addition to the results of performance tests to establish operating parameter values for compliance monitoring provided each of the following conditions are met to the satisfaction of the applicable permitting authority:

(1) The complete emission test report(s) used as the basis of the parameter(s) is submitted.

(2) The same test methods and procedures as required by this subpart were used in the test.

(3) The owner or operator certifies that no design or work practice changes have been made to the source, process, or emission control equipment since the time of the report.

(4) All process and control equipment operating parameters required to be monitored were monitored as required in this subpart and documented in the test report.

(h) *Testing of commonly-ducted units within a secondary aluminum processing unit.* When group 1 furnaces and/or in-line fluxers are included in a single existing SAPU or new SAPU, and the emissions from more than one emission unit within that existing SAPU or new SAPU are manifolded to a single control device, compliance for all units within the SAPU is demonstrated if the total measured emissions from all controlled and uncontrolled units in the SAPU do not exceed the emission limits calculated for that SAPU based on the applicable equation in § 63.1505(k).

(i) *Testing of commonly-ducted units not within a secondary aluminum processing unit.* With the prior approval of the permitting authority, an owner or operator may do combined performance testing of two or more individual affected sources or emission units which are not included in a single existing SAPU or new SAPU, but whose emissions are manifolded to a single control device. Any such performance testing of commonly-ducted units must satisfy the following basic requirements:

(1) All testing must be designed to verify that each affected source or emission unit individually satisfies all emission requirements applicable to that affected source or emission unit;

(2) All emissions of pollutants subject to a standard must be tested at the outlet from each individual affected source or emission unit while operating under the highest load or capacity reasonably expected to occur, and prior to the point that the emissions are manifolded together with emissions from other affected sources or emission units;

(3) The combined emissions from all affected sources and emission units which are manifolded to a single emission control device must be tested at the outlet of the emission control device;

(4) All tests at the outlet of the emission control device must be conducted with all affected sources and emission units whose emissions are manifolded to the control device operating simultaneously under the highest load or capacity reasonably expected to occur; and

(5) For purposes of demonstrating compliance of a commonly-ducted unit with any emission limit for a particular type of pollutant, the emissions of that pollutant by the individual unit shall be presumed to be controlled by the same percentage as total emissions of that pollutant from all commonly-ducted units are controlled at the outlet of the emission control device.

[65 FR 15710, Mar. 23, 2000, as amended at 67 FR 59792, Sept. 24, 2002; 67 FR 79817, Dec. 30, 2002]

§ 63.1512 Performance test/compliance demonstration requirements and procedures.

(a) *Aluminum scrap shredder.* The owner or operator must conduct performance tests to measure PM emissions at the outlet of the control system. If visible emission observations is the selected monitoring option, the owner or operator must record visible emission observations from each exhaust stack for all consecutive 6-minute periods during the PM emission test according to the requirements of Method 9 in appendix A to 40 CFR part 60.

(b) *Thermal chip dryer.* The owner or operator must conduct a performance test to measure THC and D/F emissions at the outlet of the control device while the unit processes only unpainted aluminum chips.

(c) *Scrap dryer/delacquering kiln/decoating kiln.* The owner or operator must conduct performance tests to measure emissions of THC, D/F, HCl, and PM at the outlet of the control device.

(1) If the scrap dryer/delacquering kiln/decoating kiln is subject to the alternative emission limits in § 63.1505(e), the average afterburner operating temperature in each 3-hour block period must be maintained at or above 760 °C (1400 °F) for the test.

(2) The owner or operator of a scrap dryer/delacquering kiln/decoating kiln subject to the alternative limits in § 63.1505(e) must submit a written certification in the notification of compliance status report containing the information required by § 63.1515(b)(7).

(d) *Group 1 furnace with add-on air pollution control devices.* (1) The owner or operator of a group 1 furnace that processes scrap other than clean charge materials with emissions controlled by a lime-injected fabric filter must conduct performance tests to measure emissions of PM and D/F at the outlet of the control device and emissions of HCl at the outlet (for the emission limit) or the inlet and the outlet (for the percent reduction standard).

(2) The owner or operator of a group 1 furnace that processes only clean charge materials with emissions controlled by a lime-injected fabric filter must conduct performance tests to

measure emissions of PM at the outlet of the control device and emissions of HCl at the outlet (for the emission limit) or the inlet and the outlet (for the percent reduction standard).

(3) The owner or operator may choose to determine the rate of reactive flux addition to the group 1 furnace and assume, for the purposes of demonstrating compliance with the SAPU emission limit, that all reactive flux added to the group 1 furnace is emitted. Under these circumstances, the owner or operator is not required to conduct an emission test for HCl.

(4) The owner or operator of a sidewell group 1 furnace that conducts reactive fluxing (except for cover flux) in the hearth, or that conducts reactive fluxing in the sidewell at times when the level of molten metal falls below the top of the passage between the sidewell and the hearth, must conduct the performance tests required by paragraph (d)(1) or (d)(2) of this section, to measure emissions from both the sidewell and the hearth.

(e) *Group 1 furnace (including melting holding furnaces) without add-on air pollution control devices.* In the site-specific monitoring plan required by § 63.1510(o), the owner or operator of a group 1 furnace (including a melting/holding furnaces) without add-on air pollution control devices must include data and information demonstrating compliance with the applicable emission limits.

(1) If the group 1 furnace processes other than clean charge material, the owner or operator must conduct emission tests to measure emissions of PM, HCl, and D/F at the furnace exhaust outlet.

(2) If the group 1 furnace processes only clean charge, the owner or operator must conduct emission tests to simultaneously measure emissions of PM and HCl at the furnace exhaust outlet. A D/F test is not required. Each test must be conducted while the group 1 furnace (including a melting/holding furnace) processes only clean charge.

(3) The owner or operator may choose to determine the rate of reactive flux addition to the group 1 furnace and assume, for the purposes of demonstrating compliance with the SAPU emission limit, that all reactive flux added to the group 1 furnace is emitted. Under these circumstances, the owner or operator is not required to conduct an emission test for HCl.

(f) *Sweat furnace.* Except as provided in § 63.1505(f)(1), the owner or operator must measure emissions of D/F from each sweat furnace at the outlet of the control device.

(g) *Dross-only furnace.* The owner or operator must conduct a performance test to measure emissions of PM from each dross-only furnace at the outlet of each control device while the unit processes only dross.

(h) *In-line fluxer.* (1) The owner or operator of an in-line fluxer that uses reactive flux materials must conduct a performance test to measure emissions of HCl and PM or otherwise demonstrate compliance in accordance with paragraph (h)(2) of this section. If the in-line fluxer is equipped with an add-on control device, the emissions must be measured at the outlet of the control device.

(2) The owner or operator may choose to limit the rate at which reactive chlorine flux is added to an in-line fluxer and assume, for the purposes of demonstrating compliance with the SAPU emission limit, that all chlorine in the reactive flux added to the in-line fluxer is emitted as HCl. Under these circumstances, the owner or operator is not required to conduct an emission test for HCl. If the owner or operator of any in-line flux box which has no ventilation ductwork manifolded to any outlet or emission control device chooses to demonstrate compliance with the emission limit for HCl by limiting use of reactive chlorine flux and assuming that all chlorine in the flux is emitted as HCl, compliance with the HCl limit shall also constitute compliance with the emission limit for PM, and no separate emission test for PM is required. In this case, the owner or operator of the unvented in-line flux box must utilize the maximum permissible PM emission rate for the in-line flux boxes when determining the total emissions for any SAPU which includes the flux box.

(i) *Rotary dross cooler.* The owner or operator must conduct a performance test to measure PM emissions at the outlet of the control device.

(j) *Secondary aluminum processing unit.* The owner or operator must conduct performance tests as described in paragraphs (j)(1) through (3) of this section. The results of the performance tests are used to establish emission rates in lb/ton of feed/charge for PM and HCl and µg TEQ/Mg of feed/charge for D/F emissions from each emission unit. These emission rates are used for compliance monitoring in the calculation of the 3-day, 24-hour rolling average emission rates using the equation in §63.1510(t). A performance test is required for:

(1) Each group 1 furnace processing only clean charge to measure emissions of PM and either:

(i) Emissions of HCl (for the emission limit); or

(ii) The mass flow rate of HCl at the inlet to and outlet from the control device (for the percent reduction standard).

(2) Each group 1 furnace that processes scrap other than clean charge to measure emissions of PM and D/F and either:

(i) Emissions of HCl (for the emission limit); or

(ii) The mass flow rate of HCl at the inlet to and outlet from the control device (for the percent reduction standard).

(3) Each in-line fluxer to measure emissions of PM and HCl.

(k) *Feed/charge weight measurement.* During the emission test(s) conducted to determine compliance with emission limits in a kg/Mg (lb/ton) format, the owner or operator of an affected source or emission unit, subject to an emission limit in a kg/Mg (lb/ton) of feed/charge format, must measure (or otherwise determine) and record the total weight of feed/charge to the affected source or emission unit for each of the three test runs and calculate and record the total weight. An owner or operator that chooses to demonstrate compliance on the basis of the aluminum production weight must measure the weight of aluminum produced by the emission unit or affected source instead of the feed/charge weight.

(l) *Continuous opacity monitoring system.* The owner or operator of an affected source or emission unit using a continuous opacity monitoring system must conduct a performance evaluation to demonstrate compliance with Performance Specification 1 in appendix B to 40 CFR part 60. Following the performance evaluation, the owner or operator must measure and record the opacity of emissions from each exhaust stack for all consecutive 6-minute periods during the PM emission test.

(m) *Afterburner.* These requirements apply to the owner or operator of an affected source using an afterburner to comply with the requirements of this subpart.

(1) Prior to the initial performance test, the owner or operator must conduct a performance evaluation for the temperature monitoring device according to the requirements of §63.8.

(2) The owner or operator must use these procedures to establish an operating parameter value or range for the afterburner operating temperature.

(i) Continuously measure and record the operating temperature of each afterburner every 15 minutes during the THC and D/F performance tests;

(ii) Determine and record the 15-minute block average temperatures for the three test runs; and

(iii) Determine and record the 3-hour block average temperature measurements for the 3 test runs.

(n) *Inlet gas temperature.* The owner or operator of a scrap dryer/delacquering kiln/decoating kiln or a group 1 furnace using a lime-injected fabric filter must use these procedures to establish an operating parameter value or range for the inlet gas temperature.

(1) Continuously measure and record the temperature at the inlet to the lime-injected fabric filter every 15 minutes during the HCl and D/F performance tests;

(2) Determine and record the 15-minute block average temperatures for the 3 test runs; and

(3) Determine and record the 3-hour block average of the recorded temperature measurements for the 3 test runs.

(o) *Flux injection rate.* The owner or operator must use these procedures to establish an operating parameter value or range for the total reactive chlorine flux injection rate.

(1) Continuously measure and record the weight of gaseous or liquid reactive flux injected for each 15 minute period

during the HCl and D/F tests, determine and record the 15-minute block average weights, and calculate and record the total weight of the gaseous or liquid reactive flux for the 3 test runs;

(2) Record the identity, composition, and total weight of each addition of solid reactive flux for the 3 test runs;

(3) Determine the total reactive chlorine flux injection rate by adding the recorded measurement of the total weight of chlorine in the gaseous or liquid reactive flux injected and the total weight of chlorine in the solid reactive flux using Equation 5:

$$W_t = F_1 W_1 + F_2 W_2 \qquad \text{(Eq. 5)}$$

Where,

W_t = Total chlorine usage, by weight;
F_1 = Fraction of gaseous or liquid flux that is chlorine;
W_1 = Weight of reactive flux gas injected;
F_2 = Fraction of solid reactive chloride flux that is chlorine (*e.g.*, F = 0.75 for magnesium chloride; and
W_2 = Weight of solid reactive flux;

(4) Divide the weight of total chlorine usage (W_t) for the 3 test runs by the recorded measurement of the total weight of feed for the 3 test runs; and

(5) If a solid reactive flux other than magnesium chloride is used, the owner or operator must derive the appropriate proportion factor subject to approval by the applicable permitting authority.

(p) *Lime injection*. The owner or operator of an affected source or emission unit using a lime-injected fabric filter system must use these procedures during the HCl and D/F tests to establish an operating parameter value for the feeder setting for each operating cycle or time period used in the performance test.

(1) For continuous lime injection systems, ensure that lime in the feed hopper or silo is free-flowing at all times; and

(2) Record the feeder setting for the 3 test runs. If the feed rate setting varies during the runs, determine and record the average feed rate from the 3 runs.

(q) *Bag leak detection system*. The owner or operator of an affected source or emission unit using a bag leak detection system must submit the information described in §63.1515(b)(6) as part of the notification of compliance status report to document conformance with the specifications and requirements in §63.1510(f).

(r) *Labeling*. The owner or operator of each scrap dryer/delacquering kiln/decoating kiln, group 1 furnace, group 2 furnace and in-line fluxer must submit the information described in §63.1515(b)(3) as part of the notification of compliance status report to document conformance with the operational standard in §63.1506(b).

(s) *Capture/collection system*. The owner or operator of a new or existing affected source or emission unit with an add-on control device must submit the information described in §63.1515(b)(2) as part of the notification of compliance status report to document conformance with the operational standard in §63.1506(c).

[65 FR 15710, Mar. 23, 2000, as amended at 67 FR 79817, Dec. 30, 2002]

§63.1513 Equations for determining compliance.

(a) *THC emission limit*. Use Equation 6 to determine compliance with an emission limit for THC:

$$E = \frac{C \times MW \times Q \times K_1 \times K_2}{M_V \times P \times 10^6} \qquad \text{(Eq. 6)}$$

Where,

E = Emission rate of measured pollutant, kg/Mg (lb/ton) of feed;
C = Measured volume fraction of pollutant, ppmv;
MW = Molecular weight of measured pollutant, g/g-mole (lb/lb-mole): THC (as propane) = 44.11;
Q = Volumetric flow rate of exhaust gases, dscm/hr (dscf/hr);
K_1 = Conversion factor, 1 kg/1,000 g (1 lb/lb);
K_2 = Conversion factor, 1,000 L/m^3 (1 ft^3/ft^3);
M_v = Molar volume, 24.45 L/g-mole (385.3 ft^3/lb-mole); and
P = Production rate, Mg/hr (ton/hr).

(b) *PM, HCl and D/F emission limits*. Use Equation 7 to determine compliance with an emission limit for PM, HCl, and D/F:

$$E = \frac{C \times Q \times K_1}{P} \qquad \text{(Eq. 7)}$$

Where,

E = Emission rate of PM, HCl, or D/F, kg/Mg (lb/ton) of feed;
C = Concentration of PM, HCl, or D/F, g/dscm (gr/dscf);
Q = Volumetric flow rate of exhaust gases, dscm/hr (dscf/hr);
K_1 = Conversion factor, 1 kg/1,000 g (1 lb/7,000 gr); and
P = Production rate, Mg/hr (ton/hr).

(c) *HCl percent reduction standard.* Use Equation 8 to determine compliance with an HCl percent reduction standard:

$$\%R = \frac{L_i - L_o}{L_i} \times 100 \qquad \text{(Eq. 8)}$$

Where,

%R = Percent reduction of the control device;
L_i = Inlet loading of pollutant, kg/Mg (lb/ton); and
L_o = Outlet loading of pollutant, kg/Mg (lb/ton).

(d) *Conversion of D/F measurements to TEQ units.* To convert D/F measurements to TEQ units, the owner or operator must use the procedures and equations in ‘‘Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-Dioxins and -Dibenzofurans (CDDs and CDFs) and 1989 Update’’ (EPA–625/3–89–016), incorporated by reference in § 63.1502 of this subpart, available from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia, NTIS no. PB 90–145756.

(e) *Secondary aluminum processing unit.* Use the procedures in paragraphs (e)(1), (2), and (3) or the procedure in paragraph (e)(4) of this section to determine compliance with emission limits for a secondary aluminum processing unit.

(1) Use Equation 9 to compute the mass-weighted PM emissions for a secondary aluminum processing unit. Compliance is achieved if the mass-weighted emissions for the secondary aluminum processing unit (E_{cPM}) is less than or equal to the emission limit for the secondary aluminum processing unit (L_{cPM}) calculated using Equation 1 in § 63.1505(k).

$$E_{C_{PM}} = \frac{\sum_{i=1}^{n}\left(E_{ti_{PM}} \times T_{ti}\right)}{\sum_{i=1}^{n}\left(T_{ti}\right)} \qquad \text{(Eq. 9)}$$

Where,

E_{cPM} = The mass-weighted PM emissions for the secondary aluminum processing unit;
E_{tiPM} = Measured PM emissions for individual emission unit i;
T_{ti} = The average feed rate for individual emission unit i during the operating cycle or performance test period; and
n=The number of emission units in the secondary aluminum processing unit.

(2) Use Equation 10 to compute the aluminum mass-weighted HCl emissions for the secondary aluminum processing unit. Compliance is achieved if the mass-weighted emissions for the secondary aluminum processing unit (E_{cHCl}) is less than or equal to the emission limit for the secondary aluminum processing unit (L_{cHCl}) calculated using Equation 2 in § 63.1505(k).

$$E_{C_{HCl}} = \frac{\sum_{i=1}^{n}\left(E_{ti_{HCl}} \times T_{ti}\right)}{\sum_{i=1}^{n}\left(T_{ti}\right)} \qquad \text{(Eq. 10)}$$

Where,

E_{cHCl} = The mass-weighted HCl emissions for the secondary aluminum processing unit; and
E_{tiHCl} = Measured HCl emissions for individual emission unit i.

(3) Use Equation 11 to compute the aluminum mass-weighted D/F emissions for the secondary aluminum processing unit. Compliance is achieved if the mass-weighted emissions for the secondary aluminum processing unit is less than or equal to the emission limit for the secondary aluminum processing unit ($L_{cD/F}$) calculated using Equation 3 in § 63.1505(k).

$$E_{C_{D/F}} = \frac{\sum_{i=1}^{n}\left(E_{ti_{D/F}} \times T_{ti}\right)}{\sum_{i=1}^{n}\left(T_{ti}\right)} \qquad \text{(Eq. 11)}$$

Where,

$E_{cD/F}$ = The mass-weighted D/F emissions for the secondary aluminum processing unit; and

$E_{tiD/F}$ = Measured D/F emissions for individual emission unit i.

(4) As an alternative to using the equations in paragraphs (e)(1), (2), and (3) of this section, the owner or operator may demonstrate compliance for a secondary aluminum processing unit by demonstrating that each existing group 1 furnace is in compliance with the emission limits for a new group 1 furnace in § 63.1505(i) and that each existing in-line fluxer is in compliance with the emission limits for a new in-line fluxer in § 63.1505(j).

§ 63.1514 [Reserved]

NOTIFICATIONS, REPORTS, AND RECORDS

§ 63.1515 Notifications.

(a) *Initial notifications.* The owner or operator must submit initial notifications to the applicable permitting authority as described in paragraphs (a)(1) through (7) of this section.

(1) As required by § 63.9(b)(1), the owner or operator must provide notification for an area source that subsequently increases its emissions such that the source is a major source subject to the standard.

(2) As required by § 63.9(b)(3), the owner or operator of a new or reconstructed affected source, or a source that has been reconstructed such that it is an affected source, that has an initial startup after the effective date of this subpart and for which an application for approval of construction or reconstruction is not required under § 63.5(d), must provide notification that the source is subject to the standard.

(3) As required by § 63.9(b)(4), the owner or operator of a new or reconstructed major affected source that has an initial startup after the effective date of this subpart and for which an application for approval of construction or reconstruction is required by § 63.5(d) must provide the following notifications:

(i) Intention to construct a new major affected source, reconstruct a major source, or reconstruct a major source such that the source becomes a major affected source;

(ii) Date when construction or reconstruction was commenced (submitted simultaneously with the application for approval of construction or reconstruction if construction or reconstruction was commenced before the effective date of this subpart, or no later than 30 days after the date construction or reconstruction commenced if construction or reconstruction commenced after the effective date of this subpart);

(iii) Anticipated date of startup; and

(iv) Actual date of startup.

(4) As required by § 63.9(b)(5), after the effective date of this subpart, an owner or operator who intends to construct a new affected source or reconstruct an affected source subject to this subpart, or reconstruct a source such that it becomes an affected source subject to this subpart, must provide notification of the intended construction or reconstruction. The notification must include all the information required for an application for approval of construction or reconstruction as required by § 63.5(d). For major sources, the application for approval of construction or reconstruction may be used to fulfill these requirements.

(i) The application must be submitted as soon as practicable before the construction or reconstruction is planned to commence (but no sooner than the effective date) if the construction or reconstruction commences after the effective date of this subpart; or

(ii) The application must be submitted as soon as practicable before startup but no later than 90 days after the effective date of this subpart if the construction or reconstruction had commenced and initial startup had not occurred before the effective date.

(5) As required by § 63.9(d), the owner or operator must provide notification of any special compliance obligations for a new source.

(6) As required by § 63.9(e) and (f), the owner or operator must provide notification of the anticipated date for conducting performance tests and visible emission observations. The owner or

operator must notify the Administrator of the intent to conduct a performance test at least 60 days before the performance test is scheduled; notification of opacity or visible emission observations for a performance test must be provided at least 30 days before the observations are scheduled to take place.

(7) As required by § 63.9(g), the owner or operator must provide additional notifications for sources with continuous emission monitoring systems or continuous opacity monitoring systems.

(b) *Notification of compliance status report.* Each owner or operator of an existing affected source must submit a notification of compliance status report within 60 days after the compliance date established by § 63.1501(a). Each owner or operator of a new affected source must submit a notification of compliance status report within 90 days after conducting the initial performance test required by § 63.1511(b), or within 90 days after the compliance date established by § 63.1501(b) if no initial performance test is required. The notification must be signed by the responsible official who must certify its accuracy. A complete notification of compliance status report must include the information specified in paragraphs (a)(1) through (10) of this section. The required information may be submitted in an operating permit application, in an amendment to an operating permit application, in a separate submittal, or in any combination. In a State with an approved operating permit program where delegation of authority under section 112(l) of the CAA has not been requested or approved, the owner or operator must provide duplicate notification to the applicable Regional Administrator. If an owner or operator submits the information specified in this section at different times or in different submittals, later submittals may refer to earlier submittals instead of duplicating and resubmitting the information previously submitted. A complete notification of compliance status report must include:

(1) All information required in § 63.9(h). The owner or operator must provide a complete performance test report for each affected source and emission unit for which a performance test is required. A complete performance test report includes all data, associated measurements, and calculations (including visible emission and opacity tests).

(2) The approved site-specific test plan and performance evaluation test results for each continuous monitoring system (including a continuous emission or opacity monitoring system).

(3) Unit labeling as described in § 63.1506(b), including process type or furnace classification and operating requirements.

(4) The compliant operating parameter value or range established for each affected source or emission unit with supporting documentation and a description of the procedure used to establish the value (*e.g.*, lime injection rate, total reactive chlorine flux injection rate, afterburner operating temperature, fabric filter inlet temperature), including the operating cycle or time period used in the performance test.

(5) Design information and analysis, with supporting documentation, demonstrating conformance with the requirements for capture/collection systems in § 63.1506(c).

(6) If applicable, analysis and supporting documentation demonstrating conformance with EPA guidance and specifications for bag leak detection systems in § 63.1510(f).

(7) Manufacturer's specification or analysis documenting the design residence time of no less than 1 second for each afterburner used to control emissions from a scrap dryer/delacquering kiln/decoating kiln subject to alternative emission standards in § 63.1505(e).

(8) Manufacturer's specification or analysis documenting the design residence time of no less than 0.8 seconds and design operating temperature of no less than 1,600 °F for each afterburner used to control emissions from a sweat furnace that is not subject to a performance test.

(9) The OM&M plan (including site-specific monitoring plan for each group 1 furnace with no add-on air pollution control device).

(10) Startup, shutdown, and malfunction plan, with revisions.

[65 FR 15710, Mar. 23, 2000, as amended at 67 FR 59793, Sept. 24, 2002; 67 FR 79818, Dec. 30, 2002]

§63.1516 Reports.

(a) *Startup, shutdown, and malfunction plan/reports.* The owner or operator must develop and implement a written plan as described in §63.6(e)(3) that contains specific procedures to be followed for operating and maintaining the source during periods of startup, shutdown, and malfunction, and a program of corrective action for malfunctioning process and air pollution control equipment used to comply with the standard. The owner or operator shall also keep records of each event as required by §63.10(b) and record and report if an action taken during a startup, shutdown, or malfunction is not consistent with the procedures in the plan as described in §63.6(e)(3). In addition to the information required in §63.6(e)(3), the plan must include:

(1) Procedures to determine and record the cause of the malfunction and the time the malfunction began and ended; and

(2) Corrective actions to be taken in the event of a malfunction of a process or control device, including procedures for recording the actions taken to correct the malfunction or minimize emissions.

(b) *Excess emissions/summary report.* As required by §63.10(e)(3), the owner or operator must submit semiannual reports within 60 days after the end of each 6-month period. Each report must contain the information specified in §63.10(c). When no deviations of parameters have occurred, the owner or operator must submit a report stating that no excess emissions occurred during the reporting period.

(1) A report must be submitted if any of these conditions occur during a 6-month reporting period:

(i) The corrective action specified in the OM&M plan for a bag leak detection system alarm was not initiated within 1 hour.

(ii) The corrective action specified in the OM&M plan for a continuous opacity monitoring deviation was not initiated within 1 hour.

(iii) The corrective action specified in the OM&M plan for visible emissions from an aluminum scrap shredder was not initiated within 1 hour.

(iv) An excursion of a compliant process or operating parameter value or range (*e.g.,* lime injection rate or screw feeder setting, total reactive chlorine flux injection rate, afterburner operating temperature, fabric filter inlet temperature, definition of acceptable scrap, or other approved operating parameter).

(v) An action taken during a startup, shutdown, or malfunction was not consistent with the procedures in the plan as described in §63.6(e)(3).

(vi) An affected source (including an emission unit in a secondary aluminum processing unit) was not operated according to the requirements of this subpart.

(vii) A deviation from the 3-day, 24-hour rolling average emission limit for a secondary aluminum processing unit.

(2) Each report must include each of these certifications, as applicable:

(i) For each thermal chip dryer: ‘‘Only unpainted aluminum chips were used as feedstock in any thermal chip dryer during this reporting period.’’

(ii) For each dross-only furnace: ‘‘Only dross was used as the charge material in any dross-only furnace during this reporting period.’’

(iii) For each sidewell group 1 furnace with add-on air pollution control devices: ‘‘Each furnace was operated such that the level of molten metal remained above the top of the passage between the sidewell and hearth during reactive fluxing, and reactive flux, except for cover flux, was added only to the sidewell or to a furnace hearth equipped with an add-on air pollution control device for PM, HCl, and D/F emissions during this reporting period.’’

(iv) For each group 1 melting/holding furnace without add-on air pollution control devices and using pollution prevention measures that processes only clean charge material: ‘‘Each group 1 furnace without add-on air pollution control devices subject to emission limits in §63.1505(i)(2) processed only clean charge during this reporting period.’’

(v) For each group 2 furnace: ''Only clean charge materials were processed in any group 2 furnace during this reporting period, and no fluxing was performed or all fluxing performed was conducted using only nonreactive, non-HAP-containing/non-HAP-generating fluxing gases or agents, except for cover fluxes, during this reporting period.''

(vi) For each in-line fluxer using no reactive flux: ''Only nonreactive, non-HAP-containing, non-HAP-generating flux gases, agents, or materials were used at any time during this reporting period.''

(3) The owner or operator must submit the results of any performance test conducted during the reporting period, including one complete report documenting test methods and procedures, process operation, and monitoring parameter ranges or values for each test method used for a particular type of emission point tested.

(c) *Annual compliance certifications.* For the purpose of annual certifications of compliance required by 40 CFR part 70 or 71, the owner or operator must certify continuing compliance based upon, but not limited to, the following conditions:

(1) Any period of excess emissions, as defined in paragraph (b)(1) of this section, that occurred during the year were reported as required by this subpart; and

(2) All monitoring, recordkeeping, and reporting requirements were met during the year.

§ 63.1517 Records

(a) As required by § 63.10(b), the owner or operator shall maintain files of all information (including all reports and notifications) required by the general provisions and this subpart.

(1) The owner or operator must retain each record for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. The most recent 2 years of records must be retained at the facility. The remaining 3 years of records may be retained off site.

(2) The owner or operator may retain records on microfilm, computer disks, magnetic tape, or microfiche; and

(3) The owner or operator may report required information on paper or on a labeled computer disk using commonly available and EPA-compatible computer software.

(b) In addition to the general records required by § 63.10(b), the owner or operator of a new or existing affected source (including an emission unit in a secondary aluminum processing unit) must maintain records of:

(1) For each affected source and emission unit with emissions controlled by a fabric filter or a lime-injected fabric filter:

(i) If a bag leak detection system is used, the number of total operating hours for the affected source or emission unit during each 6-month reporting period, records of each alarm, the time of the alarm, the time corrective action was initiated and completed, and a brief description of the cause of the alarm and the corrective action(s) taken.

(ii) If a continuous opacity monitoring system is used, records of opacity measurement data, including records where the average opacity of any 6-minute period exceeds 5 percent, with a brief explanation of the cause of the emissions, the time the emissions occurred, the time corrective action was initiated and completed, and the corrective action taken.

(iii) If an aluminum scrap shredder is subject to visible emission observation requirements, records of all Method 9 observations, including records of any visible emissions during a 30-minute daily test, with a brief explanation of the cause of the emissions, the time the emissions occurred, the time corrective action was initiated and completed, and the corrective action taken.

(2) For each affected source with emissions controlled by an afterburner:

(i) Records of 15-minute block average afterburner operating temperature, including any period when the average temperature in any 3-hour block period falls below the compliant operating parameter value with a brief explanation of the cause of the excursion and the corrective action taken; and

(ii) Records of annual afterburner inspections.

(3) For each scrap dryer/delacquering kiln/decoating kiln and group 1 furnace, subject to D/F and HCl emission standards with emissions controlled by a lime-injected fabric filter, records of 15-minute block average inlet temperatures for each lime-injected fabric filter, including any period when the 3-hour block average temperature exceeds the compliant operating parameter value +14 °C (+25 °F), with a brief explanation of the cause of the excursion and the corrective action taken.

(4) For each affected source and emission unit with emissions controlled by a lime-injected fabric filter:

(i) Records of inspections at least once every 8-hour period verifying that lime is present in the feeder hopper or silo and flowing, including any inspection where blockage is found, with a brief explanation of the cause of the blockage and the corrective action taken, and records of inspections at least once every 4-hour period for the subsequent 3 days. If flow monitors, pressure drop sensors or load cells are used to verify that lime is present in the hopper and flowing, records of all monitor or sensor output including any event where blockage was found, with a brief explanation of the cause of the blockage and the corrective action taken;

(ii) If lime feeder setting is monitored, records of daily inspections of feeder setting, including records of any deviation of the feeder setting from the setting used in the performance test, with a brief explanation of the cause of the deviation and the corrective action taken.

(iii) If lime addition rate for a non-continuous lime injection system is monitored pursuant to the approved alternative monitoring requirements in § 63.1510(v), records of the time and mass of each lime addition during each operating cycle or time period used in the performance test and calculations of the average lime addition rate (lb/ton of feed/charge).

(5) For each group 1 furnace (with or without add-on air pollution control devices) or in-line fluxer, records of 15-minute block average weights of gaseous or liquid reactive flux injection, total reactive flux injection rate and calculations (including records of the identity, composition, and weight of each addition of gaseous, liquid or solid reactive flux), including records of any period the rate exceeds the compliant operating parameter value and corrective action taken.

(6) For each continuous monitoring system, records required by § 63.10(c).

(7) For each affected source and emission unit subject to an emission standard in kg/Mg (lb/ton) of feed/charge, records of feed/charge (or throughput) weights for each operating cycle or time period used in the performance test.

(8) Approved site-specific monitoring plan for a group 1 furnace without add-on air pollution control devices with records documenting conformance with the plan.

(9) Records of all charge materials for each thermal chip dryer, dross-only furnace, and group 1 melting/holding furnaces without air pollution control devices processing only clean charge.

(10) Operating logs for each group 1 sidewell furnace with add-on air pollution control devices documenting conformance with operating standards for maintaining the level of molten metal above the top of the passage between the sidewell and hearth during reactive flux injection and for adding reactive flux only to the sidewell or a furnace hearth equipped with a control device for PM, HCl, and D/F emissions.

(11) For each in-line fluxer for which the owner or operator has certified that no reactive flux was used:

(i) Operating logs which establish that no source of reactive flux was present at the in-line fluxer;

(ii) Labels required pursuant to § 63.1506(b) which establish that no reactive flux may be used at the in-line fluxer; or

(iii) Operating logs which document each flux gas, agent, or material used during each operating cycle.

(12) Records of all charge materials and fluxing materials or agents for a group 2 furnace.

(13) Records of monthly inspections for proper unit labeling for each affected source and emission unit subject to labeling requirements.

(14) Records of annual inspections of emission capture/collection and closed vent systems.

(15) Records for any approved alternative monitoring or test procedure.

(16) Current copy of all required plans, including any revisions, with records documenting conformance with the applicable plan, including:

(i) Startup, shutdown, and malfunction plan;

(ii) OM&M plan; and

(iii) Site-specific secondary aluminum processing unit emission plan (if applicable).

(17) For each secondary aluminum processing unit, records of total charge weight, or if the owner or operator chooses to comply on the basis of aluminum production, total aluminum produced for each 24-hour period and calculations of 3-day, 24-hour rolling average emissions.

[65 FR 15710, Mar. 23, 2000, as amended at 67 FR 79818, Dec. 30, 2002]

OTHER

§ 63.1518 Applicability of general provisions.

The requirements of the general provisions in subpart A of this part that are applicable to the owner or operator subject to the requirements of this subpart are shown in appendix A to this subpart.

§ 63.1519 Delegation of authority.

(a) In delegating implementation and enforcement authority to a State under section 112(d) of the CAA, the authorities contained in paragraph (b) of this section are retained by the Administrator and are not transferred to a State.

(b) Applicability determinations pursuant to § 63.1.

EFFECTIVE DATE NOTE: At 68 FR 37359, June 23, 2003, § 63.1519 was revised effective August 22, 2003. For the convenience of the user, the revised text is set forth as follows:

§ 63.1519 Implementation and enforcement.

(a) This subpart can be implemented and enforced by the U.S. EPA, or a delegated authority such as the applicable State, local, or Tribal agency. If the U.S. EPA Administrator has delegated authority to a State, local, or Tribal agency, then that agency, in addition to the U.S. EPA, has the authority to implement and enforce this regulation. Contact the applicable U.S. EPA Regional Office to find out if this subpart is delegated to a State, local, or Tribal agency.

(b) In delegating implementation and enforcement authority of this regulation to a State, local, or Tribal agency under subpart E of this part, the authorities contained in paragraph (c) of this section are retained by the Administrator of U.S. EPA and cannot be transferred to the State, local, or Tribal agency.

(c) The authorities that cannot be delegated to State, local, or Tribal agencies are as specified in paragraphs (c)(1) through (4) of this section.

(1) Approval of alternatives to the requirements in §§ 63.1500 through 63.1501 and 63.1505 through 63.1506.

(2) Approval of major alternatives to test methods for under § 63.7(e)(2)(ii) and (f), as defined in § 63.90, and as required in this subpart.

(3) Approval of major alternatives to monitoring under § 63.8(f), as defined in § 63.90, and as required in this subpart.

(4) Approval of major alternatives to recordkeeping and reporting under § 63.10(f), as defined in § 63.90, and as required in this subpart.

§ 63.1520 [Reserved]

TABLE 1 TO SUBPART RRR OF PART 63

Table 1 to Subpart RRR--Emission Standards for New and Existing Affected Sources

Affected source/ Emission unit	Pollutant	Limit	Units
All new and existing affected sources and emission units that are controlled with a PM add-on control device and that choose to monitor with a COM; and all new and existing aluminum scrap shredders that choose to monitor with a COM or to monitor visible emissions	Opacity	10	percent
New and existing aluminum scrap shredder	PM	0.01	gr/dscf
New and existing thermal chip dryer	THC D/F[a]	0.80 2.50	lb/ton of feed µg TEQ/Mg of feed
New and existing scrap dryer/delacquering kiln/decoating kiln	PM HCl THC D/F[a]	0.08 0.80 0.06 0.25	lb/ton of feed lb/ton of feed lb/ton of feed µg TEQ/Mg of feed
Or			
Alternative limits if afterburner has a design residence time of at least 1 second and operates at a temperature of at least 1400 °F	PM HCl THC D/F[a]	0.30 1.50 0.20 5.0	lb/ton of feed lb/ton of feed lb/ton of feed µg TEQ/Mg of feed
New and existing sweat furnace	D/F[a]	0.80	ng TEQ/dscm @ 11% O_2[b]
New and existing dross-only furnace	PM	0.30	lb/ton of feed

New and existing in-line fluxer[c]	HCl	0.04	lb/ton of feed
	PM	0.01	lb/ton of feed
New and existing in-line fluxer with no reactive fluxing		No limit	Work practice: no reactive fluxing
New and existing rotary dross cooler	PM	0.04	gr/dscf
New and existing clean furnace (Group 2)		No limit	Work practices: clean charge only and no reactive fluxing
New and existing group 1 melting/holding furnace (processing only clean charge)[c]	PM	0.80	lb/ton of feed
	HCl	0.40 or 10	lb/ton of feed percent of the HCl upstream of an add-on control device
New and existing group 1 furnace[c]	PM	0.40	lb/ton of feed
	HCl	0.40 or 10	lb/ton of feed percent of the HCl upstream of an add-on control device
	D/F[a]	15.0	μg TEQ/Mg of feed
New and existing group 1 furnace[c] with clean charge only	PM	0.40	lb/ton of feed
	HCl	0.40 Or 10	lb/ton of feed percent of the HCl upstream of an add-on control device
	D/F[a]	No Limit	Clean charge only

New and existing secondary aluminum processing unit[a,d] (consists of all existing group 1 furnaces and existing in-line flux boxes at the facility, or all simultaneously constructed new group 1 furnaces and new in-line fluxers)	PM[e]	$L_{t_{PM}} = \frac{\sum_{i=1}^{n} (L_{i_{PM}} \times T_i)}{\sum_{i=1}^{n} (T_i)}$
	HCl[f]	$L_{t_{HCl}} = \frac{\sum_{i=1}^{n} (L_{i_{HCl}} \times T_i)}{\sum_{i=1}^{n} (T_i)}$
	D/F[g]	$L_{t_{D/F}} = \frac{\sum_{i=1}^{n} (L_{i_{D/F}} \times T_i)}{\sum_{i=1}^{n} (T_i)}$

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[a] D/F limit applies to a unit at a major or area source.

[b] Sweat furnaces equipped with afterburners meeting the specifications of §63.1505(f)(1) are not required to conduct a performance test.

[c] These limits are also used to calculate the limits applicable to secondary aluminum processing units.

[d] Equation definitions: L_{iPM} = the PM emission limit for individual emission unit i in the secondary aluminum processing unit [kg/Mg (lb/ton) of feed]; T_i = the feed rate for individual emission unit i in the secondary aluminum processing unit; L_{tPM} = the overall PM emission limit for the secondary aluminum processing unit [kg/Mg (lb/ton) of feed]; L_{iHCl} = the HCl emission limit for individual emission unit i in the secondary aluminum processing unit [kg/Mg (lb/ton) of feed]; L_{tHCl} = the overall HCl emission limit for the secondary aluminum processing unit [kg/Mg (lb/ton) of feed]; $L_{iD/F}$ = the D/F emission limit for individual emission unit i [μg TEQ/Mg (gr TEQ/ton) of feed]; $L_{tD/F}$ = the overall D/F emission limit for the secondary aluminum processing unit [μg TEQ/Mg (gr TEQ/ton) of feed]; n = the number of units in the secondary aluminum processing unit.

[e] In-line fluxers using no reactive flux materials cannot be included in this calculation since they are not subject to the PM limit.

[f] In-line fluxers using no reactive flux materials cannot be included in this calculation since they are not subject to the HCl limit.

[g] Clean charge furnaces cannot be included in this calculation since they are not subject to the D/F limit.

TABLE 2 TO SUBPART RRR OF PART 63—SUMMARY OF OPERATING REQUIREMENTS FOR NEW AND EXISTING AFFECTED SOURCES AND EMISSION UNITS

Affected source/emission unit	Monitor type/operation/process	Operating requirements
All affected sources and emission units with an add-on air pollution control device.	Emission capture and collection system.	Design and install in accordance with Industrial Ventilation: A Handbook of Recommended Practice; operate in accordance with OM&M plan.[b]
All affected sources and emission units subject to production-based (lb/ton of feed) emission limits[a].	Charge/feed weight or Production weight.	Operate a device that records the weight of each charge; Operate in accordance with OM&M plan.[b]
Group 1 furnace, group 2 furnace, in-line fluxer and scrap dryer/delacquering kiln/decoating kiln.	Labeling	Identification, operating parameter ranges and operating requirements posted at affected sources and emission units; control device temperature and residence time requirements posted at scrap dryer/delacquering kiln/decoating kiln.
Aluminum scrap shredder with fabric filter.	Bag leak detector or	Initiate corrective action within 1-hr of alarm and complete in accordance with OM&M plan[b]; operate such that alarm does not sound more than 5% of operating time in 6-month period.
	COM or	Initiate corrective action within 1-hr of a 6-minute average opacity reading of 5% or more and complete in accordance with OM&M plan.[b]
	VE	Initiate corrective action within 1-hr of any observed VE and complete in accordance with the OM&M plan.[b]
Thermal chip dryer with afterburner.	Afterburner operating temperature.	Maintain average temperature for each 3-hr period at or above average operating temperature during the performance test.
	Afterburner operation	Operate in accordance with OM&M plan.[b]
	Feed material	Operate using only unpainted aluminum chips.
Scrap dryer/delacquering kiln/decoating kiln with afterburner and lime-injected fabric filter.	Afterburner operating temperature.	Maintain average temperature for each 3-hr period at or above average operating temperature during the performance test.
	Afterburner operation	Operate in accordance with OM&M plan.[b]
	Bag leak detector or	Initiate corrective action within 1-hr of alarm and complete in accordance with the OM&M plan;[b] operate such that alarm does not sound more than 5% of operating time in 6-month period.
	COM	Initiate corrective action within 1-hr of a 6-minute average opacity reading of 5% or more and complete in accordance with the OM&M plan.[b]
	Fabric filter inlet temperature	Maintain average fabric filter inlet temperature for each 3-hr period at or below average temperature during the performance test +14 °C (+25 °F).
	Lime injection rate	Maintain free-flowing lime in the feed hopper or silo at all times for continuous injection systems; maintain feeder setting at level established during the performance test for continuous injection systems.
Sweat furnace with afterburner	Afterburner operating temperature.	If a performance test was conducted, maintain average temperature for each 3-hr period at or above average operating temperature during the performance test; if a performance test was not conducted, and afterburner meets specifications of § 63.1505(f)(1), maintain average temperature for each 3-hr period at or above 1600 °F.
	Afterburner operation	Operate in accordance with OM&M plan.[b]
Dross-only furnace with fabric filter.	Bag leak detector or	Initiate corrective action within 1-hr of alarm and complete in accordance with the OM&M plan;[b] operate such that alarm does not sound more than 5% of operating time in 6-month period.
	COM	Initiate corrective action within 1-hr of a 6-minute average opacity reading of 5% or more and complete in accordance with the OM&M plan.[b]
	Feed/charge material	Operate using only dross as the feed material.
Rotary dross cooler with fabric filter.	Bag leak detector or	Initiate corrective action within 1-hr of alarm and complete in accordance with the OM&M plan;[b] operate such that alarm does not sound more than 5% of operating time in 6-month period.
	COM	Initiate corrective action within 1-hr of a 6-minute average opacity reading of 5% or more and complete in accordance with the OM&M plan.[b]
In-line fluxer with lime-injected fabric filter (including those that are part of a secondary aluminum processing unit).	Bag leak detector or	Initiate corrective action within 1-hr of alarm and complete in accordance with the OM&M plan;[b] operate such that alarm does not sound more than 5% of operating time in 6-month period.

Affected source/emission unit	Monitor type/operation/process	Operating requirements
	COM	Initiate corrective action within 1-hr of a 6-minute average opacity reading of 5% or more and complete in accordance with the OM&M plan.[b]
	Lime injection rate	Maintain free-flowing lime in the feed hopper or silo at all times for continuous injection systems; maintain feeder setting at level established during performance test for continuous injection systems.
	Reactive flux injection rate	Maintain reactive flux injection rate at or below rate used during the performance test for each operating cycle or time period used in the performance test.
In-line fluxer (using no reactive flux material).	Flux materials	Use no reactive flux.
Group 1 furnace with lime-injected fabric filter (including those that are part of a secondary aluminum processing unit).	Bag leak detector or	Initiate corrective action within 1-hr of alarm; operate such that alarm does not sound more than 5% of operating time in 6-month period; complete corrective action in accordance with the OM&M plan.[b]
	COM	Initiate corrective action within 1-hr of a 6-minute average opacity reading of 5% or more; complete corrective action in accordance with the OM&M plan.[b]
	Fabric filter inlet temperature	Maintain average fabric filter inlet temperature for each 3-hour period at or below average temperature during the performance test +14 °C (+25 °F).
	Reactive flux injection rate	Maintain reactive flux injection rate (lb/hr) at or below rate used during the performance test for each furnace cycle.
	Lime injection rate	Maintain free-flowing lime in the feed hopper or silo at all times for continuous injection systems; maintain feeder setting at level established at performance test for continuous injection systems.
	Maintain molten aluminum level.	Operate side-well furnaces such that the level of molten metal is above the top of the passage between sidewell and hearth during reactive flux injection, unless the hearth is also controlled.
	Fluxing in sidewell furnace hearth.	Add reactive flux only to the sidewell of the furnace unless the hearth is also controlled.
Group 1 furnace without add-on controls (including those that are part of a secondary aluminum processing unit).	Reactive flux injection rate	Maintain reactive flux injection rate (lb/hr) at or below rate used during the performance test for each operating cycle or time period used in the performance test.
	Site-specific monitoring plan[c]	Operate furnace within the range of charge materials, contaminant levels, and parameter values established in the site-specific monitoring plan.
	Feed material (melting/holding furnace).	Use only clean charge.
Clean (group 2) furnace	Charge and flux materials	Use only clean charge. Use no reactive flux.

[a] Thermal chip dryers, scrap dryers/delacquering kilns/decoating kilns, dross-only furnaces, in-line fluxers and group 1 furnaces including melting/holding furnaces.

[b] OM&M plan—Operation, maintenance, and monitoring plan.

[c] Site-specific monitoring plan. Owner/operators of group 1 furnaces without control devices must include a section in their OM&M plan that documents work practice and pollution prevention measures, including procedures for scrap inspection, by which compliance is achieved with emission limits and process or feed parameter-based operating requirements. This plan and the testing to demonstrate adequacy of the monitoring plan must be developed in coordination with and approved by the permitting authority.

[65 FR 15710, Mar. 23, 2000, as amended at 67 FR 79818, Dec. 30, 2002]

TABLE 3 TO SUBPART RRR OF PART 63—SUMMARY OF MONITORING REQUIREMENTS FOR NEW AND EXISTING AFFECTED SOURCES AND EMISSION UNITS

Affected source/Emission unit	Monitor type/Operation/Process	Monitoring requirements
All affected sources and emission units with an add-on air pollution control device.	Emission capture and collection system.	Annual inspection of all emission capture, collection, and transport systems to ensure that systems continue to operate in accordance with ACGIH standards.
All affected sources and emission units subject to production-based (lb/ton of feed/charge) emission limits[a].	Feed/charge weight	Record weight of each feed/charge, weight measurement device or other procedure accuracy of ±1%[b]; calibrate according to manufacturers specifications, or at least once every 6 months.
Group 1 furnace, group 2 furnace, in-line fluxer, and scrap dryer/delacquering kiln/decoating kiln.	Labeling	Check monthly to confirm that labels are intact and legible.

Affected source/Emission unit	Monitor type/Operation/Process	Monitoring requirements
Aluminum scrap shredder with fabric filter.	Bag leak detector or	Install and operate in accordance with "Fabric Filter Bag Leak Detection Guidance"[c]; record voltage output from bag leak detector.
	COM or	Design and install in accordance with PS–1; collect data in accordance with subpart A of 40 CFR part 63; determine and record 6-minute block averages.
	VE	Conduct and record results of 30-minute daily test in accordance with Method 9.
Thermal chip dryer with afterburner.	Afterburner operating temperature.	Continuous measurement device to meet specifications in § 63.1510(g)(1); record average temperature for each 15-minute block; determine and record 3-hr block averages.
	Afterburner operation	Annual inspection of afterburner internal parts; complete repairs in accordance with the OM&M plan.
	Feed/charge material	Record identity of each feed/charge; certify feed/charge materials every 6 months.
Scrap dryer/ delacquering kiln/ decoating kiln with afterburner and lime injected fabric filter.	Afterburner operating temperature.	Continuous measurement device to meet specifications in § 63.1510(g)(1); record temperatures in 15-minute block averages; determine and record 3-hr block averages.
	Afterburner operation	Annual inspection of afterburner internal parts; complete repairs in accordance with the OM&M plan.
	Bag leak detector or	Install and operate in accordance with "Fabric Filter Bag Leak Detection Guidance"[c]; record voltage output from bag leak detector.
	COM	Design and install in accordance with PS–1; collect data in accordance with subpart A of 40 CFR part 63; determine and record 6-minute block averages.
	Lime injection rate	For continuous injection systems, inspect each feed hopper or silo every 8 hrs to verify that lime is free-flowing; record results of each inspection. If blockage occurs, inspect every 4 hrs for 3 days; return to 8-hr inspections if corrective action results in no further blockage during 3-day periode; record feeder setting daily.
	Fabric filter inlet temperature	Continuous measurement device to meet specifications in § 63.1510(h)(2); record temperatures in 15-minute block averages; determine and record 3-hr block averages.
Sweat furnace with afterburner	Afterburner operating temperature.	Continuous measurement device to meet specifications in § 63.1510(g)(1); record temperatures in 15-minute block averages; determine and record 3-hr block averages.
	Afterburner operation	Annual inspection of afterburner internal parts; complete repairs in accordance with the OM&M plan.
Dross-only furnace with fabric filter.	Bag leak detector or	Install and operate in accordance with "Fabric Filter Bag Leak Detection Guidance"[c]; record output voltage from bag leak detector.
	COM	Design and install in accordance with PS–1; collect data in accordance with subpart A of 40 CFR part 63; determine and record 6-minute block averages.
	Feed/charge material	Record identity of each feed/charge; certify charge materials every 6 months.
Rotary dross cooler with fabric filter.	Bag leak detector or	Install and operate in accordance with "Fabric Filter Bag Leak Detection Guidance"[c]; record output voltage from bag leak detector.
	COM	Design and install in accordance with PS–1; collect data in accordance with subpart A of 40 CFR part 63; determine and record 6-minute block averages.
In-line fluxer with lime-injected fabric filter.	Bag leak detector or	Install and operate in accordance with "Fabric Filter Bag Leak Detection Guidance"[c]; record output voltage from bag leak detector.
	COM	Design and install in accordance with PS–1; collect data in accordance with subpart A of 40 CFR part 63; determine and record 6-minute block averages
	Reactive flux injection rate	Weight measurement device accuracy of ±1%[b]; calibrate according to manufacturer's specifications or at least once every 6 months; record time, weight and type of reactive flux added or injected for each 15-minute block period while reactive fluxing occurs; calculate and record total reactive flux injection rate for each operating cycle or time period used in performance test; or Alternative flux injection rate determination procedure per § 63.1510(j)(5).

Affected source/Emission unit	Monitor type/Operation/Process	Monitoring requirements
	Lime injection rate	For continuous injection systems, record feeder setting daily and inspect each feed hopper or silo every 8 hrs to verify that lime is free-flowing; record results of each inspection. If blockage occurs, inspect every 4 hrs for 3 days; return to 8-hour inspections if corrective action results in no further blockage during 3-day period.[d]
In-line fluxer using no reactive flux.	Flux materials	Record flux materials; certify every 6 months for no reactive flux.
Group 1 furnace with lime-injected fabric filter.	Bag leak detector or	Install and operate in accordance with ‘‘Fabric Filter Bag Leak Detection Guidance’’[c]; record output voltage from bag leak detector.
	COM	Design and install in accordance with PS–1; collect data in accordance with subpart A of 40 part CFR 63; determine and record 6-minute block averages.
	Lime injection rate	For continuous injection systems, record feeder setting daily and inspect each feed hopper or silo every 8 hours to verify that lime is free-flowing; record results of each inspection. If blockage occurs, inspect every 4 hours for 3 days; return to 8-hour inspections if corrective action results in no further blockage during 3-day period.[d]
	Reactive flux injection rate	Weight measurement device accuracy of ±1%[b]; calibrate every 3 months; record weight and type of reactive flux added or injected for each 15-minute block period while reactive fluxing occurs; calculate and record total reactive flux injection rate for each operating cycle or time period used in performance test; or Alternative flux injection rate determination procedure per § 63.1510(j)(5).
	Fabric filter inlet temperature	Continuous measurement device to meet specifications in § 63.1510(h)(2); record temperatures in 15-minute block averages; determine and record 3-hour block averages.
	Maintain molten aluminum level in sidewell furnace.	Maintain aluminum level operating log; certify every 6 months.
Group 1 furnace without add-on controls.	Fluxing in sidewell furnace hearth.	Maintain flux addition operating log; certify every 6 months.
	Reactive flux injection rate	Weight measurement device accuracy of +1%[b]; calibrate according to manufacturers specifications or at least once every six months; record weight and type of reactive flux added or injected for each 15-minute block period while reactive fluxing occurs; calculate and record total reactive flux injection rate for each operating cycle or time period used in performance test.
	OM&M plan (approved by permitting agency).	Demonstration of site-specific monitoring procedures to provide data and show correlation of emissions across the range of charge and flux materials and furnace operating parameters.
	Feed material (melting/holding furnace).	Record type of permissible feed/charge material; certify charge materials every 6 months.
Clean (group 2) furnace	Charge and flux materials	Record charge and flux materials; certify every 6 months for clean charge and no reactive flux.

[a] Thermal chip dryers, scrap dryers/delacquering kilns/decoating kilns, dross-only furnaces, in-line fluxers and group 1 furnaces or melting/holding furnaces.

[b] Permitting agency may approve measurement devices of alternative accuracy, for example in cases where flux rates are very low and costs of meters of specified accuracy are prohibitive; or where feed/charge weighing devices of specified accuracy are not practicable due to equipment layout or charging practices.

[c] Non-triboelectric bag leak detectors must be installed and operated in accordance with manufacturers' specifications.

[d] Permitting agency may approve other alternatives including load cells for lime hopper weight, sensors for carrier gas pressure, or HCl monitoring devices at fabric filter outlet.

APPENDIX A TO SUBPART RRR OF PART 63—GENERAL PROVISIONS APPLICABILITY TO SUBPART RRR

Citation	Requirement	Applies to RRR	Comment
§ 63.1(a)(1)–(4)	General Applicability	Yes.	
§ 63.1(a)(5)		No	[Reserved].
§ 63.1(a)(6)–(8)		Yes.	
§ 63.1(a)(9)		No	[Reserved].
§ 63.1(a) (10)–(14)		Yes.	
§ 63.1(b)	Initial Applicability Determination	Yes	EPA retains approval authority.
§ 63.1(c)(1)	Applicability After Standard Established.	Yes.	

Citation	Requirement	Applies to RRR	Comment
§ 63.1(c)(2)		Yes	States have option to exclude area sources from title V permit program.
§ 63.1(c)(3)		No	[Reserved].
§ 63.1(c)(4)–(5)		Yes.	
§ 63.1(d)		No	[Reserved].
§ 63.1(e)	Applicability of Permit Program	Yes.	
§ 63.2	Definitions	Yes	Additional definitions in § 63.1503.
§ 63.3	Units and Abbreviations	Yes	
§ 63.4(a)(1)–(3)	Prohibited Activities	Yes.	
§ 63.4(a)(4)		No	[Reserved]
§ 63.4(a)(5)		Yes.	
§ 63.4(b)–(c)	Circumvention/ Severability	Yes.	
§ 63.5(a)	Construction and Reconstruction—Applicability.	Yes.	
§ 63.5(b)(1)	Existing, New, Reconstructed Sources—Requirements.	Yes.	
§ 63.5(b)(2)		No	[Reserved].
§ 63.5(b)(3)–(6)		Yes.	
§ 63.5(c)		No	[Reserved].
§ 63.5(d)	Application for Approval of Construction/ Reconstruction.	Yes.	
§ 63.5(e)	Approval of Construction/ Reconstruction.	Yes.	
§ 63.5(f)	Approval of Construction/Reconstruction Based on State Review.	Yes.	
§ 63.6(a)	Compliance with Standards and Maintenance—Applicability.	Yes.	
§ 63.6(b)(1)–(5)	New and Reconstructed Sources—Dates.	Yes.	
§ 63.6(b)(6)		No	[Reserved].
§ 63.6(b)(7)		Yes.	
§ 63.6(c)(1)	Existing Sources Dates	Yes	§ 63.1501 specifies dates.
§ 63.6(c)(2)		Yes.	
§ 63.6(c)(3)–(4)		No	[Reserved].
§ 63.6(c)(5)		Yes.	
§ 63.6(d)		No	[Reserved].
§ 63.6(e)(1)–(2)	Operation & Maintenance Requirements.	Yes	§ 63.1510 requires plan.
§ 63.6(e)(3)	Startup, Shutdown, and Malfunction Plan.	Yes.	
§ 63.6(f)	Compliance with Emission Standards.	Yes.	
§ 63.6(g)	Alternative Standard	No	
§ 63.6(h)	Compliance with Opacity/VE Standards.	Yes.	
§ 63.6(i)(1)–(14)	Extension of Compliance	Yes.	
§ 63.6(i)(15)		No	[Reserved].
§ 63.6(i)(16)		Yes.	
§ 63.6(j)	Exemption from Compliance	Yes.	
§ 63.7(a)–(h)	Performance Test Requirements-Applicability and Dates.	Yes	Except § 63.1511 establishes dates for initial performance tests.
§ 63.7(b)	Notification	Yes.	
§ 63.7(c)	Quality Assurance/Test Plan	Yes.	
§ 63.7(d)	Testing Facilities	Yes.	
§ 63.7(e)	Conduct of Tests	Yes.	
§ 63.7(f)	Alternative Test Method	Yes.	
§ 63.7(g)	Data Analysis	Yes.	
§ 63.7(h)	Waiver of Tests	Yes.	
§ 63.8(a)(1)	Monitoring Requirements—Applicability.	Yes.	
§ 63.8(a)(2)		Yes.	
§ 63.8(a)(3)		No	[Reserved]
§ 63.8(a)(4)		Yes	
§ 63.8(b)	Conduct of Monitoring	Yes.	
§ 63.8(c)(1)–(3)	CMS Operation and Maintenance.	Yes.	
§ 63.8(c)(4)–(8)		Yes.	
§ 63.8(d)	Quality Control	Yes.	
§ 63.8(e)	CMS Performance Evaluation	Yes.	
§ 63.8(f)(1)–(5)	Alternative Monitoring Method	No	§ 63.1510(w) includes provisions for monitoring alternatives.

Citation	Requirement	Applies to RRR	Comment
§ 63.8(f)(6)	Alternative to RATA Test	Yes.	
§ 63.8(g)(1)	Data Reduction	Yes.	
§ 63.8(g)(2)		No	§ 63.1512 requires five 6-minute averages for an aluminum scrap shredder.
§ 63.8(g)(3)–(5)		Yes.	
§ 63.9(a)	Notification Requirements—Applicability.	Yes.	
§ 63.9(b)	Initial Notifications	Yes.	
§ 63.9(c)	Request for Compliance Extension.	Yes.	
§ 63.9(d)	New Source Notification for Special Compliance Requirements.	Yes.	
63.9(e)	Notification of Performance Test	Yes.	
§ 63.9(f)	Notification of VE/Opacity Test	Yes.	
§ 63.9(g)	Additional CMS Notifications	Yes.	
§ 63.9(h)(1)–(3)	Notification of Compliance Status	Yes	Except § 63.1515 establishes dates for notification of compliance status reports.
§ 63.9(h)(4)		No	[Reserved].
§ 63.9(h)(5)–(6)		Yes.	
§ 63.9(i)	Adjustment of Deadlines	Yes.	
§ 63.9(j)	Change in Previous Information	Yes.	
§ 63.10(a)	Recordkeeping/Reporting—Applicability.	Yes.	
§ 63.10(b)	General Requirements	Yes	§ 63.1517 includes additional requirements.
§ 63.10(c)(1)	Additional CMS Recordkeeping	Yes.	
§ 63.10(c)(2)–(4)		No	[Reserved].
§ 63.10(c)(5)		Yes.	
§ 63.10(c)(6)		Yes.	
§ 63.10(c)(7)–(8)		Yes.	
§ 63.10(c)(9)		No	[Reserved].
§ 63.10(c)(10)–(13)		Yes.	
§ 63.10(c)(14)		Yes.	
§ 63.10(d)(1)	General Reporting Requirements	Yes.	
§ 63.10(d)(2)	Performance Test Results	Yes.	
§ 63.10(d)(3)	Opacity or VE Observations	Yes.	
§ 63.10(d)(4) –(5)	Progress Reports/Startup, Shutdown, and Malfunction Reports.	Yes.	
§ 63.10(e)(1)–(2)	Additional CMS Reports	Yes.	
§ 63.10(e)(3)	Excess Emissions/CMS Performance Reports.	Yes.	
§ 63.10(e)(4)	COMS Data Reports	Yes.	
§ 63.10(f)	Recordkeeping/Reporting Waiver	Yes.	
§ 63.11(a)–(b)	Control Device Requirements	No	Flares not applicable.
§ 63.12(a)–(c)	State Authority and Delegations	Yes.	EPA retains authority for applicability determinations.
§ 63.13	Addresses	Yes.	
§ 63.14	Incorporation by Reference	Yes	Chapters 3 and 5 of ACGIH Industrial Ventilation Manual for capture/collection systems; and Interim Procedures for Estimating Risk Associated with Exposure to Mixtures of Chlorinated Dibenzofurans (CDDs and CDFs) and 1989 Update (incorporated by reference in § 63.1502).
§ 63.15	Availability of Information/Confidentiality.	Yes.	

[65 FR 15710, Mar. 23, 2000, as amended at 67 FR 59793, Sept. 24, 2002; 67 FR 79818, Dec. 30, 2002]

Subpart SSS [Reserved]

Subpart TTT—National Emission Standards for Hazardous Air Pollutants for Primary Lead Smelting

SOURCE: 64 FR 30204, June 4, 1999, unless othewise noted.

§ 63.1541 Applicability.

(a) The provisions of this subpart apply to the following affected sources at primary lead smelters: sinter machine, blast furnace, dross furnace, process fugitive sources, and fugitive dust sources. The provisions of this subpart do not apply to secondary lead smelters, lead refiners, or lead remelters.

(b) Table 1 of this subpart specifies the provisions of subpart A that apply and those that do not apply to owners and operators of primary lead smelters. The following sections of part 63 apply to this subpart as stated in subpart A and Table 1: § 63.1 (Applicability), § 63.2 (Definitions), § 63.3 (Units and abbreviations), § 63.4 (Prohibited activities and circumvention), § 63.5 (Construction and reconstruction), § 63.7 (Performance testing requirements), § 63.8 (Monitoring requirements), § 63.12 (State authority and delegations), § 63.13 (Addresses of State air pollution control agencies and EPA Regional Offices), § 63.14 (Incorporations by reference), and § 63.15 (Availability of information confidentiality). The following sections of part 63 apply to the extent specified in this subpart and Table 1: § 63.6 (Compliance with standards and maintenance requirements), § 63.9 (Notification requirements), and § 63.10 (Recordkeeping and reporting requirements). Section § 63.11 (Control device requirements) does not apply to this subpart.

§ 63.1542 Definitions.

Terms used in this subpart are defined in the Act, in subpart A of this part, or in this section as follows:

Bag leak detection system means a system that is capable of continuously monitoring relative particulate matter (dust) loadings in the exhaust of a baghouse in order to detect bag leaks and other upset conditions. A bag leak detection system includes, but is not limited to, an instrument that operates on triboelectric, light scattering, light transmittance, or other effect to continuously monitor relative particulate matter loadings.

Blast furnace means any reduction furnace to which sinter is charged and which forms separate layers of molten slag and lead bullion.

Building means a roofed and walled structure with limited openings to allow access and egress for people and vehicles.

Charging location means the physical opening through which raw materials are introduced into a sinter machine, blast furnace, or dross furnace.

Dross furnace means any smelting furnace to which drosses are charged and which chemically and physically separates lead from other impurities.

Drossing and refining kettle means an open-top vessel that is constructed of cast iron or steel and is indirectly heated from below and contains molten lead for the purpose of drossing, refining, or alloying lead. Included are pot furnaces, receiving kettles, and holding kettles.

Fugitive dust source means a stationary source of hazardous air pollutant emissions at a primary lead smelter resulting from the handling, storage, transfer, or other management of lead-bearing materials where the source is not associated with a specific process, process vent, or stack. Fugitive dust sources include roadways, storage piles, materials handling transfer points, and materials transport areas.

Furnace area means any area of a primary lead smelter in which a blast furnace or dross furnace is located.

Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

Materials storage and handling area means any area of a primary lead smelter in which lead-bearing materials (including ore concentrate, sinter, granulated lead, dross, slag, and flue dust) are stored or handled between process steps, including areas in which materials are stored in piles, bins, or tubs, and areas in which material is prepared for charging to a sinter machine or smelting furnace.

Operating time means the period of time in hours that an affected source is in operation beginning at a startup and ending at the next shutdown.

Plant operating time means the period of time in hours that either a sinter machine or blast furnace is in operation.

Plant roadway means any area of a primary lead smelter that is subject to vehicle traffic, including traffic by fork lifts, front-end loaders, or vehicles carrying ore concentrates or cast lead ingots. Excluded from this definition are employee and visitor parking areas, provided they are not subject to traffic by vehicles carrying lead-bearing materials.

Primary lead smelter means any facility engaged in the production of lead metal from lead sulfide ore concentrates through the use of pyrometallurgical techniques.

Process fugitive source means a source of hazardous air pollutant emissions at a primary lead smelter that is associated with lead smelting or refining but is not the primary exhaust stream and is not a fugitive dust source. Process fugitive sources include sinter machine charging locations, sinter machine discharge locations, sinter crushing and sizing equipment, furnace charging locations, furnace taps, drossing kettles, and refining kettles.

Refining and casting area means any area of a primary lead smelter in which drossing or refining operations occur, or casting operations occur.

Shutdown means the cessation of operation of an affected source for any purpose.

Sinter machine means any device in which a lead sulfide ore concentrate charge is heated in the presence of air to eliminate sulfur contained in the charge and to agglomerate the charge into a hard porous mass called sinter.

Sinter machine area means any area of a primary lead smelter where a sinter machine, or sinter crushing and sizing equipment is located.

Sinter machine discharge end means the physical opening at the end of a sinter machine where the sinter exits the sinter machine.

Startup means the setting in operation of an affected source for any purpose.

Tapping location means the opening thru which lead and slag are removed from the furnace.

§63.1543 Standards for process and process fugitive sources.

(a) No owner or operator of any existing, new, or reconstructed primary lead smelter shall discharge or cause to be discharged into the atmosphere lead compounds in excess of 500 grams of lead per megagram of lead metal produced (1.0 pounds of lead per ton of lead metal produced) from the aggregation of emissions discharged from the air pollution control devices used to control emissions from the sources listed in paragraphs (a)(1) through (a)(9) of this section.

(1) Sinter machine;

(2) Blast furnace;

(3) Dross furnace;

(4) Dross furnace charging location;

(5) Blast furnace and dross furnace tapping location;

(6) Sinter machine charging location;

(7) Sinter machine discharge end;

(8) Sinter crushing and sizing equipment; and

(9) Sinter machine area.

(b) The process fugitive sources listed in paragraphs (a)(4) through (a)(8) of this section shall be equipped with a hood and shall be ventilated to a baghouse or equivalent control device. The hood design and ventilation rate shall be consistent with American Conference of Governmental Industrial Hygienists recommended practices.

(c) The sinter machine area shall be enclosed in a building that is ventilated to a baghouse or equivalent control device at a rate that maintains a positive in-draft through any doorway opening.

(d) Except as provided in paragraph (e) of this section, following the initial test to demonstrate compliance with paragraph (a) of this section, the owner or operator of a primary lead smelter shall conduct a compliance test for lead compounds on an annual basis (no later than 12 calendar months following any previous compliance test).

(e) If the three most recent compliance tests demonstrate compliance with the emission limit specified in paragraph (a) of this section, the owner or operator of a primary lead smelter shall be allowed up to 24 calendar months from the last compliance test to conduct the next compliance test for lead compounds.

(f) The owner or operator of a primary lead smelter shall maintain and operate each baghouse used to control emissions from the sources listed in paragraphs (a)(1) through (a)(9) of this section such that the alarm on a bag leak detection system required under § 63.1547(c)(9) does not sound for more than five percent of the total operating time in a 6-month reporting period.

(g) The owner or operator of a primary lead smelter shall record the date and time of a bag leak detection system alarm and initiate procedures to determine the cause of the alarm according to the corrective action plan required under § 63.1547(c)(9) within 1 hour of the alarm. The cause of the alarm shall be corrected as soon as practicable.

§ 63.1544 Standards for fugitive dust sources.

(a) Each owner or operator of a primary lead smelter shall prepare, and at all times operate according to, a standard operating procedures manual that describes in detail the measures that will be put in place to control fugitive dust emissions from the sources listed in paragraphs (a)(1) through (a)(5) of this section:

(1) Plant roadways;

(2) Material storage and handling area(s);

(3) Sinter machine area(s);

(4) Furnace area(s); and

(5) Refining and casting area(s).

(b) Not withstanding paragraph (c) of this section, the standard operating procedures manual shall be submitted to the Administrator or delegated authority for review and approval.

(c) Existing manuals that describe the measures in place to control fugitive dust sources required as part of a State implementation plan for lead shall satisfy the requirements of paragraph (a) of this section provided they address the sources listed in paragraphs (a)(1) through (a)(5) of this section.

§ 63.1545 Compliance dates.

(a) Each owner or operator of an existing primary lead smelter shall achieve compliance with the requirements of this subpart no later than May 4, 2001.

(b) Each owner or operator of a primary lead smelter that commences construction or reconstruction after April 17, 1998, shall achieve compliance with the requirements of this subpart by June 4, 1999 or upon startup of operations, whichever is later.

§ 63.1546 Test methods.

(a) The following procedure shall be used to determine compliance with the emissions standard for lead compounds under § 63.1543(a):

(1) The lead compound emission rate, in units of grams of lead per hour, for each source listed in § 63.1543(a)(1) through § 63.1543(a)(9) shall be determined according to the following test methods in appendix A of part 60 of this chapter:

(i) Method 1 shall be used to select the sampling port location and the number of traverse points.

(ii) Method 2 shall be used to measure volumetric flow rate.

(iii) Method 3 shall be used for gas analysis.

(iv) Method 4 shall be used to determine moisture content of the stack gas

(v) Method 12 shall be used to measure the lead emission rate of the stack gas. The minimum sample volume shall be 0.85 dry standard cubic meters (30 dry standard cubic feet) and the minimum sampling time shall be 60 minutes for each run. Three runs shall be performed and the average of the three runs shall be used to determine compliance.

(2) The lead production rate, in units of megagrams per hour, shall be determined based on production data for the previous 12 calendar months according to the procedures detailed in paragraphs (a)(2)(i) through (a)(2)(v) of this section:

(i) Total lead products production multiplied by the fractional lead content shall be determined in units of megragrams.

(ii) Total copper matte production multiplied by the fractional lead content shall be determined in units of megragrams.

(iii) Total copper speiss production multiplied by the fractional lead content shall be determined in units of megragrams.

(iv) Total lead production shall be determined by summing the values obtained in paragraphs (a)(2)(i) through (a)(2)(iii) of this section.

(v) The lead production rate, in units of megragrams per hours, shall be calculated based on the total lead production, as determined in accordance with paragraph (a)(2)(iv) of this section, divided by the total plant operating time, in hours, for the previous 12 months.

(3) The sum of lead compound emission rates for the sources in §63.1543(a)((1) through (a)(9), as determined in accordance with paragraph (a)(1) of this section, shall be divided by the lead production rate, as determined in accordance with paragraph (a)(2)(v) of this section, to obtain a production-based, lead compound emission rate in units of grams of lead per megagram of lead metal produced. The production-based, lead compound emission rate shall be used to determine compliance with the emissions standard for lead compounds under §63.1543(a).

(b) Owner and operators shall perform an initial compliance test to demonstrate compliance with the sinter building in-draft requirements of §63.1543(c) at each doorway opening in accordance with paragraphs (b)(1) through (b)(4) of this section.

(1) Use a propeller anemometer or equivalent device.

(2) Determine doorway in-draft by placing the anemometer in the plane of the doorway opening near its center.

(3) Determine doorway in-draft for each doorway that is open during normal operation with all remaining doorways in their customary position during normal operation.

(4) Do not determine doorway in-draft when ambient wind speed exceeds 2 meters per second.

§63.1547 Monitoring requirements.

(a) Owners and operators of primary lead smelters shall prepare, and at all times operate according to, a standard operating procedures manual that describes in detail the procedures for inspection, maintenance, and bag leak detection and corrective action for all baghouses that are used to control process, process fugitive, or fugitive dust emissions from any source subject to the lead emission standards in §§63.1543 and 63.1544, including those used to control emissions from general ventilation systems.

(b) The standard operating procedures manual for baghouses required by paragraph (a) of this section shall be submitted to the Administrator or delegated authority for review and approval.

(c) The procedures specified in the standard operating procedures manual for inspections and routine maintenance shall, at a minimum, include the requirements of paragraphs (c)(1) through (c)(9) of this section.

(1) Daily monitoring of pressure drop across each baghouse cell to ensure pressure drop is within the normal operating range identified in the standard operating procedures manual.

(2) Weekly confirmation that dust is being removed from hoppers through visual inspection or equivalent means of ensuring the proper functioning of removal mechanisms.

(3) Daily check of compressed air supply for pulse-jet baghouses.

(4) An appropriate methodology for monitoring cleaning cycles to ensure proper operation.

(5) Monthly check of bag cleaning mechanisms for proper functioning through visual inspection or equivalent means.

(6) Quarterly visual check of bag tension on reverse air and shaker-type baghouses to ensure that bags are not kinked (kneed or bent) or laying on their sides. Such checks are not required for shaker-type baghouses using self-tensioning (spring loaded) devices.

(7) Quarterly confirmation of the physical integrity of the baghouse

through visual inspection of the baghouse interior for air leaks.

(8) Quarterly inspection of fans for wear, material buildup, and corrosion through visual inspection, vibration detectors, or equivalent means.

(9) Except as provided in paragraph (h) of this section, continuous operation of a bag leak detection system.

(d) The procedures specified in the standard operating procedures manual for maintenance shall, at a minimum, include a preventative maintenance schedule that is consistent with the baghouse manufacturer's instructions for routine and long-term maintenance.

(e) The bag leak detection system required by paragraph (c)(9) of this section shall meet the specifications and requirements of (e)(1) through (e)(8) of this section.

(1) The bag leak detection system must be certified by the manufacturer to be capable of detecting particulate matter emissions at concentrations of 10 milligram per actual cubic meter (0.0044 grains per actual cubic foot) or less.

(2) The bag leak detection system sensor must provide output of relative particulate matter loadings, and the owner or operator shall continuously record the output from the bag leak detection system.

(3) The bag leak detection system must be equipped with an alarm system that will sound when an increase in relative particulate loading is detected over a preset level, and the alarm must be located such that it can be heard by the appropriate plant personnel.

(4) Each bag leak detection system that works based on the triboelectric effect shall be installed, calibrated, and maintained in a manner consistent with guidance provided in the U.S. Environmental Protection Agency guidance document ''Fabric Filter Bag Leak Detection Guidance'' (EPA–454/R–98–015). Other bag leak detection systems shall be installed, calibrated, and maintained in a manner consistent with the manufacturer's written specifications and recommendations.

(5) The initial adjustment of the system shall, at a minimum, consist of establishing the baseline output by adjusting the sensitivity (range) and the averaging period of the device, and establishing the alarm set points and the alarm delay time.

(6) Following initial adjustment, the owner or operator shall not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time, except as detailed in the approved SOP required under paragraph (a) of this section. In no event shall the sensitivity be increased by more than 100 percent or decreased more than 50 percent over a 365-day period unless a responsible official certifies that the baghouse has been inspected and found to be in good operating condition.

(7) For negative pressure, induced air baghouses, and positive pressure baghouses that are discharged to the atmosphere through a stack, the bag leak detector must be installed downstream of the baghouse and upstream of any wet acid gas scrubber.

(8) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(f) The standard operating procedures manual required by paragraph (a) of this section shall include a corrective action plan that specifies the procedures to be followed in the event of a bag leak detection system alarm. The corrective action plan shall include, at a minimum, procedures to be used to determine the cause of an alarm, as well as actions to be taken to minimize emissions, which may include, but are not limited to, the following.

(1) Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in emissions.

(2) Sealing off defective bags or filter media.

(3) Replacing defective bags or filter media, or otherwise repairing the control device.

(4) Sealing off a defective baghouse compartment.

(5) Cleaning the bag leak detection system probe, or otherwise repairing the bag leak detection system.

(6) Shutting down the process producing the particulate emissions.

(g) The percentage of total operating time the alarm on the bag leak detection system sounds in a 6-month reporting period shall be calculated in order to determine compliance with the five percent operating limit in § 63.1543(f). The percentage of time the alarm on the bag leak detection system sounds shall be determined according to paragraphs (g)(1) through (g)(5) of this section.

(1) Alarms that occur due solely to a malfunction of the bag leak detection system shall not be included in the calculation.

(2) Alarms that occur during startup, shutdown, or malfunction shall not be included in the calculation if the condition is described in the startup, shutdown, and malfunction plan and the owner or operator follows all the procedures in the plan defined for this condition.

(3) For each alarm where the owner or operator initiates procedures to determine the cause of an alarm within 1 hour of the alarm, 1 hour of alarm time shall be counted.

(4) For each alarm where the owner or operator does not initiate procedures to determine the cause of the alarm within 1 hour of the alarm, alarm time will be counted as the actual amount of time taken by the owner or operator to initiate procedures to determine the cause of the alarm.

(5) The percentage of time the alarm on the bag leak detection system sounds shall be calculated as the ratio of the sum of alarm times to the total operating time multiplied by 100.

(h) Baghouses equipped with HEPA filters as a secondary filter used to control process or process fugitive sources subject to the lead emission standards in § 63.1543 are exempt from the requirement in § 63.1543(c)(9) to be equipped with a bag leak detector. The owner or operator of an affected source that uses a HEPA filter shall monitor and record the pressure drop across the HEPA filter system daily. If the pressure drop is outside the limit(s) specified by the filter manufacturer, the owner or operator must take appropriate corrective measures, which may include, but not be limited to, the following:

(1) Inspecting the filter and filter housing for air leaks and torn or broken filters.

(2) Replacing defective filter media, or otherwise repairing the control device.

(3) Sealing off a defective control device by routing air to other control devices.

(4) Shutting down the process producing the particulate emissions.

(i) Owners and operators shall monitor sinter machine building in-draft to demonstrate continued compliance with the operating standard specified in § 63.1543(c) in accordance with either paragraph (i)(1), (i)(2), or (i)(3) of this section.

(1) Owners and operators shall check and record on a daily basis doorway in-draft at each doorway in accordance with the methodology specified in § 63.1546(b).

(2) Owners and operators shall establish and maintain baseline ventilation parameters which result in a positive in-draft according to paragraphs (i)(2)(i) through (i)(2)(iv) of this section.

(i) Owners and operators shall install, calibrate, maintain, and operate a monitoring device that continuously records the actual volumetric flow rate through each separately ducted hood; or install, calibrate, maintain, and operate a monitoring device that continuously records the volumetric flow rate at the control device inlet of each exhaust system ventilating the building. The flow rate monitoring device(s) can be installed in any location in the exhaust duct such that reproducible flow rate monitoring will result. The flow rate monitoring device(s) shall have an accuracy of plus or minus 10 percent over its normal operating range and shall be calibrated according to manufacturer's instructions.

(ii) During the initial demonstration of sinter building in-draft, and at any time the owner or operator wishes to re-establish the baseline ventilation parameters, the owner or operator shall continuously record the volumetric flow rate through each separately ducted hood, or continuously record the volumetric flow rate at the control device inlet of each exhaust system ventilating the building and record exhaust system damper positions. The owner or operator shall determine the average volumetric flow rate(s) corresponding to the period of time the in-draft compliance determinations are being conducted.

(iii) The owner or operator shall maintain the volumetric flow rate(s) at or above the value(s) established during the most recent in-draft determination at all times the sinter machine is in operation. Volumetric flow rate(s) shall be calculated as a 15-minute average.

(iv) If the volumetric flow rate is monitored at the control device inlet, the owner or operator shall check and record damper positions daily to ensure they are in the positions they were in during the most recent in-draft determination.

(3) An owner or operator may request an alternative monitoring method by following the procedures and requirements in § 63.8(f) of the General Provisions.

§ 63.1548 Notification requirements.

(a) The owner or operator of a primary lead smelter shall comply with all of the notification requirements of § 63.9 of subpart A, General Provisions.

(b) The owner or operator of a primary lead smelter shall submit the fugitive dust control standard operating procedures manual required under § 63.1544(a) and the standard operating procedures manual for baghouses required under § 63.1547(a) to the Administrator or delegated authority along with a notification that the smelter is seeking review and approval of these plans and procedures. Owners or operators of existing primary lead smelters shall submit this notification no later than November 6, 2000. The owner or operator of a primary lead smelter that commences construction or reconstruction after April 17, 1998, shall submit this notification no later than 180 days before startup of the constructed or reconstructed primary lead smelter, but no sooner than September 2, 1999.

§ 63.1549 Recordkeeping and reporting requirements.

(a) The owner or operator of a primary lead smelter shall comply with all of the recordkeeping requirements of § 63.10 of subpart A, General Provisions.

(b) In addition to the general records required by paragraph (a) of this section, each owner or operator of a primary lead smelter shall maintain for a period of 5 years, records of the information listed in paragraphs (b)(1) through (b)(8) of this section.

(1) Production records of the weight and lead content of lead products, copper matte, and copper speiss.

(2) Records of the bag leak detection system output.

(3) An identification of the date and time of all bag leak detection system alarms, the time that procedures to determine the cause of the alarm were initiated, the cause of the alarm, an explanation of the actions taken, and the date and time the cause of the alarm was corrected.

(4) Any recordkeeping required as part of the practices described in the standard operating procedures manual required under § 63.1544(a) for the control of fugitive dust emissions.

(5) Any recorkeeping required as part of the practices described in the standard operating procedures manual for baghouses required under § 63.1547(a).

(6) If an owner or operator chooses to demonstrate continuous compliance with the sinter building in-draft requirement under § 63.1543(c) by employing the method allowed in § 63.1546(i)(1), the records of the daily doorway in-draft checks, an identification of the periods when there was not a positive in-draft, and an explanation of the corrective actions taken.

(7) If an owner or operator chooses to demonstrate continuous compliance with the sinter building in-draft requirement under § 63.1543(c) by employing the method allowed in § 63.1546(i)(2), the records of the output from the continuous volumetric flow monitor(s), an identification of the periods when the 15-minute volumetric flow rate dropped below the minimum established during the most recent in-draft determination, and an explanation of the corrective actions taken.

(8) If an owner or operator chooses to demonstrate continuous compliance with the sinter building in-draft requirement under § 63.1543(c) by employing the method allowed in § 63.1546(i)(2),

and volumetric flow rate is monitored at the baghouse inlet, records of the daily checks of damper positions, an identification of the days that the damper positions were not in the positions established during the most recent in-draft determination, and an explanation of the corrective actions taken.

(c) Records for the most recent 2 years of operation must be maintained on site. Records for the previous 3 years may be maintained off site.

(d) The owner or operator of a primary lead smelter shall comply with all of the reporting requirements of §63.10 of subpart A, General Provisions.

(e) In addition to the information required under §63.10 of the General Provisions, the owner or operator shall provide semi-annual reports containing the information specified in paragraphs (e)(1) through (e)(7) of this section to the Administrator or designated authority.

(1) The reports shall include records of all alarms from the bag leak detection system specified in §63.1547(e).

(2) The reports shall include a description of the actions taken following each bag leak detection system alarm pursuant to §63.1547(f).

(3) The reports shall include a calculation of the percentage of time the alarm on the bag leak detection system sounded during the reporting period pursuant to §63.1547(g).

(4) If an owner or operator chooses to demonstrate continuous compliance with the sinter building in-draft requirement under §63.1543(c) by employing the method allowed in §63.1546(i)(1), the reports shall contain an identification of the periods when there was not a positive in-draft, and an explanation of the corrective actions taken.

(5) If an owner or operator chooses to demonstrate continuous compliance with the sinter building in-draft requirement under §63.1543(c) by employing the method allowed in §63.1546(i)(2), the reports shall contain an identification of the periods when the 15-minute volumetric flow rate(s) dropped below the minimum established during the most recent in-draft determination, and an explanation of the corrective actions taken.

(6) If an owner or operator chooses to demonstrate continuous compliance with the sinter building in-draft requirement under §63.1543(c) by employing the method allowed in §63.1546(i)(2), and volumetric flow rate is monitored at the baghouse inlet, the reports shall contain an identification of the days that the damper positions were not in the positions established during the most recent in-draft determination, and an explanation of the corrective actions taken.

(7) The reports shall contain a summary of the records maintained as part of the practices described in the standard operating procedures manual for baghouses required under §63.1547(a), including an explanation of the periods when the procedures were not followed and the corrective actions taken.

(8) The reports shall contain a summary of the fugitive dust control measures performed during the required reporting period, including an explanation of any periods when the procedures outlined in the standard operating procedures manual required by §63.1544(a) were not followed and the corrective actions taken. The reports shall not contain copies of the daily records required to demonstrate compliance with the requirements of the standard operating procedures manuals required under §§63.1544(a) and §63.1547(a).

§63.1550 Delegation of authority

(a) In delegating implementation and enforcement authority to a State under section 112(1) of the act, the authorities contained in paragraph (b) of this section shall be retained by the Administrator and not transferred to a State.

(b) Authorities which will not be delegated to States: no restrictions.

EFFECTIVE DATE NOTE: At 68 FR 37360, June 23, 2003, §63.1550 was revised effective August 22, 2003. For the convenience of the user, the revised text is set forth as follows:

§63.1550 Implementation and enforcement.

(a) This subpart will be implemented and enforced by the U.S. EPA, or a delegated authority such as the applicable State, local, or Tribal agency. If the U.S. EPA Administrator has delegated authority to a State, local, or Tribal agency, then that agency, in addition to the U.S. EPA, has the authority to implement and enforce this subpart. Contact the applicable U.S. EPA Regional Office to find out if this subpart is delegated to a State, local, or Tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or Tribal agency under subpart E of this part, the authorities contained in paragraph (c) of this section are retained by the Administrator of U.S. EPA and cannot be transferred to the State, local, or Tribal agency.

(c) The authorities that cannot be delegated to State, local, or Tribal agencies are as specified in paragraphs (c)(1) through (4) of this section.

(1) Approval of alternatives to the requirements in §§63.1541, 63.1543(a) through (c), (f) through (g), and 63.1544 through 63.1545.

(2) Approval of major alternatives to test methods under §63.7(e)(2)(ii) and (f), as defined in §63.90, and as required in this subpart.

(3) Approval of major alternatives to monitoring under §63.8(f), as defined in §63.90, and as required in this subpart.

(4) Approval of major alternatives to recordkeeping and reporting under §63.10(f), as defined in §63.90, and as required in this subpart.

TABLE 1 TO SUBPART TTT OF PART 63—SUMMARY OF MONITORING REQUIREMENTS FOR NEW AND EXISTING AFFECTED SOURCES AND EMISSION UNITS

Reference	Applies to subpart TTT	Comment
§63.1	Yes	
§63.2	Yes	
§63.3	Yes	
§63.4	Yes	
§63.5	Yes	
§63.6(a), (b), (c), (e), (f), (g), (i) and (j)	Yes	
§63.6(d) and (h)	No	No opacity limits in rule.
§63.7	Yes	
§63.8	Yes	
§63.9 (a), (b), (c), (d), (e), (g), (h)(1) through (3), (h)(5) and (6), (i) and (j).	Yes	
§63.9(f) and (h)(4)	No	No opacity or visible emission limits in rule.
§63.10	Yes	
§63.11	No	Flares will not be used to comply with the emission limits.
§63.12 through 63.15	Yes	

Subpart UUU—National Emission Standards for Hazardous Air Pollutants for Petroleum Refineries: Catalytic Cracking Units, Catalytic Reforming Units, and Sulfur Recovery Units

SOURCE: 67 FR 17773, Apr. 11, 2002, unless otherwise noted.

WHAT THIS SUBPART COVERS

§63.1560 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants (HAP) emitted from petroleum refineries. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and work practice standards.

§63.1561 Am I subject to this subpart?

(a) You are subject to this subpart if you own or operate a petroleum refinery that is located at a major source of HAP emissions.

(1) A petroleum refinery is an establishment engaged primarily in petroleum refining as defined in the Standard Industrial Classification (SIC) code 2911 and the North American Industry Classification (NAIC) code 32411, and used mainly for:

(i) Producing transportation fuels (such as gasoline, diesel fuels, and jet fuels), heating fuels (such as kerosene, fuel gas distillate, and fuel oils), or lubricants;

(ii) Separating petroleum; or

(iii) Separating, cracking, reacting, or reforming an intermediate petroleum stream, or recovering a by-product(s) from the intermediate petroleum stream (e.g., sulfur recovery).

(2) A major source of HAP is a plant site that emits or has the potential to emit any single HAP at a rate of 9.07 megagrams (10 tons) or more per year or any combination of HAP at a rate of 22.68 megagrams (25 tons) or more per year.

(b) [Reserved]

§63.1562 What parts of my plant are covered by this subpart?

(a) This subpart applies to each new, reconstructed, or existing affected source at a petroleum refinery.

(b) The affected sources are:

(1) Each catalytic cracking unit that regenerates catalyst.

(2) Each catalytic reforming unit that regenerates catalyst.

(3) Each sulfur recovery unit and the tail gas treatment unit serving it.

(4) Each bypass line serving a new, existing, or reconstructed catalytic cracking unit, catalytic reforming unit, or sulfur recovery unit. This means each vent system that contains a bypass line (e.g., ductwork) that could divert an affected vent stream away from a control device used to comply with the requirements of this subpart.

(c) An affected source is a new affected source if you commence construction of the affected source after September 11, 1998, and you meet the applicability criteria in §63.1561 at the time you commenced construction.

(d) Any affected source is reconstructed if you meet the criteria in §63.2.

(e) An affected source is existing if it is not new or reconstructed.

(f) This subpart does not apply to:

(1) A thermal catalytic cracking unit.

(2) A sulfur recovery unit that does not recover elemental sulfur or where the modified reaction is carried out in a water solution which contains a metal ion capable of oxidizing the sulfide ion to sulfur (e.g., the LO–CAT II process).

(3) A redundant sulfur recovery unit not located at a petroleum refinery and used by the refinery only for emergency or maintenance backup.

(4) Equipment associated with bypass lines such as low leg drains, high point bleed, analyzer vents, open-ended valves or lines, or pressure relief valves needed for safety reasons.

(5) Gaseous streams routed to a fuel gas system.

§63.1563 When do I have to comply with this subpart?

(a) If you have a new or reconstructed affected source, you must comply with this subpart according to the requirements in paragraphs (a)(1) and (2) of this section.

(1) If you startup your affected source before April 11, 2002, then you must comply with the emission limitations and work practice standards for new and reconstructed sources in this subpart no later than April 11, 2002.

(2) If you startup your affected source after April 11, 2002, you must comply with the emission limitations and work practice standards for new and reconstructed sources in this subpart upon startup of your affected source.

(b) If you have an existing affected source, you must comply with the emission limitations and work practice standards for existing affected sources in this subpart by no later than April 11, 2005 except as specified in paragraph (c) of this section.

(c) We will grant an extension of compliance for an existing catalytic cracking unit allowing additional time to meet the emission limitations and work practice standards for catalytic cracking units in §§63.1564 and 63.1565 if you commit to hydrotreating the catalytic cracking unit feedstock and to meeting the emission limitations of this subpart on the same date that your facility meets the final Tier 2 gasoline sulfur control standard (40 CFR part 80, subpart J). To obtain an extension, you must submit a written notification to your permitting authority according to the requirements in §63.1574(e). Your notification must include the information in paragraphs (c)(1) and (2) of this section.

(1) Identification of the affected source with a brief description of the controls to be installed (if needed) to

comply with the emission limitations for catalytic cracking units in this subpart.

(2) A compliance schedule, including the information in paragraphs (c)(2)(i) through (iv) of this section.

(i) The date by which onsite construction or the process change is to be initiated.

(ii) The date by which onsite construction or the process change is to be completed.

(iii) The date by which your facility will achieve final compliance with both the final Tier 2 gasoline sulfur control standard as specified in § 80.195, and the emission limitations and work practice standards for catalytic cracking units in this subpart. In no case will your permitting authority grant an extension beyond the date you are required to meet the Tier 2 gasoline sulfur control standard or December 31, 2009, whichever comes first. If you don't comply with the emission limitations and work practice standards for existing catalytic cracking units by the specified date, you will be out-of-compliance with the requirements for catalytic cracking units beginning April 11, 2005.

(iv) A brief description of interim emission control measures that will be taken to ensure proper operation and maintenance of the process equipment during the period of the compliance extension.

(d) If you have an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP, the requirements in paragraphs (d)(1) and (2) of this section apply.

(1) Any portion of the existing facility that is a new affected source or a new reconstructed source must be in compliance with the requirements of this subpart upon startup.

(2) All other parts of the source must be in compliance with the requirements of this subpart by no later than 3 years after it becomes a major source or, if applicable, the extended compliance date granted according to the requirements in paragraph (c) of this section.

(e) You must meet the notification requirements in § 63.1574 according to the schedule in § 63.1574 and in 40 CFR part 63, subpart A. Some of the notifications must be submitted before the date you are required to comply with the emission limitations and work practice standards in this subpart.

CATALYTIC CRACKING UNITS, CATALYTIC REFORMING UNITS, SULFUR RECOVERY UNITS, AND BYPASS LINES

§ 63.1564 What are my requirements for metal HAP emissions from catalytic cracking units?

(a) *What emission limitations and work practice standards must I meet?* You must:

(1) Meet each emission limitation in Table 1 of this subpart that applies to you. If your catalytic cracking unit is subject to the NSPS for PM in § 60.102 of this chapter, you must meet the emission limitations for NSPS units. If your catalytic cracking unit isn't subject to the NSPS for PM, you can choose from the four options in paragraphs (a)(1)(i) through (iv) of this section:

(i) You can elect to comply with the NSPS requirements (Option 1);

(ii) You can elect to comply with the PM emission limit (Option 2);

(iii) You can elect to comply with the Nickel (Ni) lb/hr emission limit (Option 3); or

(iv) You can elect to comply with the Ni lb/1,000 lbs of coke burn-off emission limit (Option 4).

(2) Comply with each operating limit in Table 2 of this subpart that applies to you.

(3) Prepare an operation, maintenance, and monitoring plan according to the requirements in § 63.1574(f) and operate at all times according to the procedures in the plan.

(4) The emission limitations and operating limits for metal HAP emissions from catalytic cracking units required in paragraphs (a)(1) and (2) of this section do not apply during periods of planned maintenance preapproved by the applicable permitting authority according to the requirements in § 63.1575(j).

(b) *How do I demonstrate initial compliance with the emission limitations and work practice standard?* You must:

(1) Install, operate, and maintain a continuous monitoring system(s) according to the requirements in §63.1572 and Table 3 of this subpart.

(2) Conduct a performance test for each catalytic cracking unit not subject to the NSPS for PM according to the requirements in §63.1571 and under the conditions specified in Table 4 of this subpart.

(3) Establish each site-specific operating limit in Table 2 of this subpart that applies to you according to the procedures in Table 4 of this subpart.

(4) Use the procedures in paragraphs (b)(4)(i) through (iv) of this section to determine initial compliance with the emission limitations.

(i) If you elect Option 1 in paragraph (a)(1)(i) of ths section, the NSPS requirements, compute the PM emission rate (lb/1,000 lbs of coke burn-off) for each run using Equations 1, 2, and 3 (if applicable) of this section as follows:

$$R_c = K_1 Q_r(\%CO_2 + \%CO) + K_2 Q_a - K_3 Q_r\left[(\%CO/2) + \%CO_2 + \%O_2\right] + K_3 Q_{oxy}\left(\%O_{xy}\right) \qquad \text{(Eq. 1)}$$

Where:

R_c = Coke burn-off rate, kg/hr (lb/hr);

Q_r = Volumetric flow rate of exhaust gas from catalyst regenerator before adding air or gas streams. Example: You may measure after an electrostatic precipitator, but you must measure before a carbon monoxide boiler, dscm/min (dscf/min);

Q_a = Volumetric flow rate of air to catalytic cracking unit catalyst regenerator, as determined from instruments in the catalytic cracking unit control room, dscm/min (dscf/min);

$\%CO_2$ = Carbon dioxide concentration in regenerator exhaust, percent by volume (dry basis);

%CO = Carbon monoxide concentration in regenerator exhaust, percent by volume (dry basis);

$\%O_2$ = Oxygen concentration in regenerator exhaust, percent by volume (dry basis);

K_1 = Material balance and conversion factor, 0.2982 (kg-min)/(hr-dscm-%) (0.0186 (lb-min)/(hr-dscf-%));

K_2 = Material balance and conversion factor, 2.088 (kg-min)/(hr-dscm) (0.1303 (lb-min)/(hr-dscf));

K_3 = Material balance and conversion factor, 0.0994 (kg-min)/(hr-dscm-%) (0.0062 (lb-min)/(hr-dscf-%));

Q_{oxy} = Volumetric flow rate of oxygen-enriched air stream to regenerator, as determined from instruments in the catalytic cracking unit control room, dscm/min (dscf/min); and

$\%O_{xy}$ = Oxygen concentration in oxygen-enriched air stream, percent by volume (dry basis).

$$E = \frac{K \times C_s \times Q_{sd}}{R_c} \qquad \text{(Eq. 2)}$$

Where:

E = Emission rate of PM, kg/1,000 kg (lb/1,000 lb) of coke burn-off;

C_s = Concentration of PM, g/dscm (lb/dscf);

Q_{sd} = Volumetric flow rate of the catalytic cracking unit catalyst regenerator flue gas as measured by Method 2 in appendix A to part 60 of this chapter, dscm/hr (dscf/hr);

R_c = Coke burn-off rate, kg coke/hr (1,000 lb coke/hr); and

K = Conversion factor, 1.0 (kg^2/g)/(1,000 kg) (1,000 lb/(1,000 lb)).

$$E_s = 1.0 + A\left(H/R_c\right)K' \qquad \text{(Eq. 3)}$$

Where:

E_s = Emission rate of PM allowed, kg/1,000 kg (1b/1,000 lb) of coke burn-off in catalyst regenerator;

1.0 = Emission limitation, kg coke/1,000 kg (lb coke/1,000 lb);

A = Allowable incremental rate of PM emissions, 0.18 g/million cal (0.10 lb/million Btu); and

H = Heat input rate from solid or liquid fossil fuel, million cal/hr (million Btu/hr). Make sure your permitting authority approves procedures for determining the heat input rate.

R_c = Coke burn-off rate, kg coke/hr (1,000 lb coke/hr) determined using Equation 1 of this section; and

K′ = Conversion factor to units to standard, 1.0 (kg^2/g)/(1,000 kg) (10^3 lb/(1,000 lb)).

(ii) If you elect Option 2 in paragraph (a)(1)(ii) of this section, the PM emission limit, compute your PM emission rate (lb/1,000 lbs of coke burn-off) using Equations 1 and 2 of this section and your site-specific opacity operating limit (if you use a continuous opacity monitoring system) using Equation 4 of this section as follows:

$$\text{Opacity Limit} = \text{Opacity}_{st} \times \left(\frac{1\ \text{lb/klb coke burn}}{\text{PMEmR}_{st}}\right) \qquad (\text{Eq. } 4)$$

Where:

Opacity limit = Maximum permissible hourly average opacity, percent, or 10 percent, whichever is greater;

Opacity_{st} = Hourly average opacity measured during the source test runs, percent; and

PMEmR_{st} = PM emission rate measured during the source test, lb/1,000 lbs coke burn.

$$E_{Ni_1} = C_{Ni} \times Q_{sd} \qquad (\text{Eq. } 5)$$

(iii) If you elect Option 3 in paragraph (a)(1)(iii) of this section, the Ni lb/hr emission limit, compute your Ni emission rate using Equation 5 of this section and your site-specific Ni operating limit (if you use a continuous opacity monitoring system) using Equations 6 and 7 of this section as follows:

Where:

E_{Ni1} = Mass emission rate of Ni, mg/hr (lb/hr); and

C_{Ni} = Ni concentration in the catalytic cracking unit catalyst regenerator flue gas as measured by Method 29 in appendix A to part 60 of this chapter, mg/dscm (lbs/dscf).

$$\text{Opacity}_1 = \frac{13\ \text{g Ni/hr}}{\text{NiEmR1}_{st}} \times \text{Opacity}_{st} \qquad (\text{Eq. } 6)$$

Where:

Opacity_1 = Opacity value for use in Equation 7 of this section, percent, or 10 percent, whichever is greater; and

NiEmR1_{st} = Average Ni emission rate calculated as the arithmetic average Ni emission rate using Equation 5 of this section for each of the performance test runs, g Ni/hr.

$$\text{Ni Operating Limit}_1 = \text{Opacity}_1 \times Q_{mon,st} \times \text{E-Cat}_{st} \qquad (\text{Eq. } 7)$$

Where:

Ni operating limit_1 = Maximum permissible hourly average Ni operating limit, percent-acfm-ppmw, i.e., your site-specific Ni operating limit;

$Q_{mon,st}$ = Hourly average actual gas flow rate as measured by the continuous parameter monitoring system during the performance test or using the alternative procedure in § 63.1573, acfm; and

E–Cat_{st} = Ni concentration on equilibrium catalyst measured during source test, ppmw.

(iv) If you elect Option 4 in paragraph (a)(1)(iv) of this section, the Ni lbs/1,000 lbs of coke burn-off emission limit, compute your Ni emission rate using Equations 1 and 8 of this section and your site-specific Ni operating limit (if you use a continuous opacity monitoring system) using Equations 9 and 10 of this section as follows:

$$E_{Ni_2} = \frac{C_{Ni} \times Q_{sd}}{R_c} \qquad (\text{Eq. } 8)$$

Where:

E_{Ni2} = Normalized mass emission rate of Ni, mg/kg coke (lb/1,000 lbs coke).

$$\text{Opacity}_2 = \frac{1.0\ \text{mg/kg coke}}{\text{NiEmR2}_{\text{st}}} \times \text{Opacity}_{\text{st}} \qquad (\text{Eq. 9})$$

Where:

Opacity_2 = Opacity value for use in Equation 10 of this section, percent, or 10 percent, whichever is greater; and

$\text{NiEmR2}_{\text{st}}$ = Average Ni emission rate calculated as the arithmetic average Ni emission rate using Equation 8 of this section for each of the performance test runs, mg/kg coke.

$$\text{Ni Operating Limit}_2 = \text{Opacity}_2 \times \text{E-Cat}_{\text{st}} \times \frac{Q_{\text{mon,st}}}{R_{\text{c,st}}} \qquad (\text{Eq. 10})$$

Where:

Ni operating limit_2 = Maximum permissible hourly average Ni operating limit, percent-ppmw-acfm-hr/kg coke, i.e., your site-specific Ni operating limit; and

$R_{c,st}$ = Coke burn rate from Equation 1 of this section, as measured during the initial performance test, kg coke/hr.

(5) Demonstrate initial compliance with each emission limitation that applies to you according to Table 5 of this subpart.

(6) Demonstrate initial compliance with the work practice standard in paragraph (a)(3) of this section by submitting your operation, maintenance, and monitoring plan to your permitting authority as part of your Notification of Compliance Status.

(7) Submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in § 63.1574.

(c) *How do I demonstrate continuous compliance with the emission limitations and work practice standards?* You must:

(1) Demonstrate continuous compliance with each emission limitation in Tables 1 and 2 of this subpart that applies to you according to the methods specified in Tables 6 and 7 of this subpart.

(2) Demonstrate continuous compliance with the work practice standard in paragraph (a)(3) of this section by maintaining records to document conformance with the procedures in your operation, maintenance, and monitoring plan.

(3) If you use a continuous opacity monitoring system and elect to comply with Option 3 in paragraph (a)(1)(iii) of this section, determine continuous compliance with your site-specific Ni operating limit by using Equation 11 of this section as follows:

$$\text{Ni Operating Value}_1 = \text{Opacity} \times Q_{\text{mon}} \times \text{E-Cat} \qquad (\text{Eq. 11})$$

Where:

Ni operating value_1 = Maximum permissible hourly average Ni standard operating value, %-acfm-ppmw;

Opacity = Hourly average opacity, percent;

Q_{mon} = Hourly average actual gas flow rate as measured by continuous parameter monitoring system or calculated by alternative procedure in § 63.1573, acfm; and

E-Cat = Ni concentration on equilibrium catalyst from weekly or more recent measurement, ppmw.

(4) If you use a continuous opacity monitoring system and elect to comply with Option 4 in paragraph (a)(1)(iv) of this section, determine continuous

compliance with your site-specific Ni operating limit by using Equation 12 of this section as follows:

$$\text{Ni Operating Value}_2 = \frac{\text{Opacity} \times \text{E-Cat} \times Q_{mon}}{R_c} \qquad (\text{Eq. } 12)$$

Where:

Ni operating value$_2$ = Maximum permissible hourly average Ni standard operating value, percent-acfm-ppmw-hr/kg coke.

§ 63.1565 What are my requirements for organic HAP emissions from catalytic cracking units?

(a) *What emission limitations and work practice standards must I meet?* You must:

(1) Meet each emission limitation in Table 8 of this subpart that applies to you. If your catalytic cracking unit is subject to the NSPS for carbon monoxide (CO) in § 60.103 of this chapter, you must meet the emission limitations for NSPS units. If your catalytic cracking unit isn't subject to the NSPS for CO, you can choose from the two options in paragraphs (a)(1)(i) through (ii) of this section:

(i) You can elect to comply with the NSPS requirements (Option 1); or

(ii) You can elect to comply with the CO emission limit (Option 2).

(2) Comply with each site-specific operating limit in Table 9 of this subpart that applies to you.

(3) Prepare an operation, maintenance, and monitoring plan according to the requirements in § 63.1574(f) and operate at all times according to the procedures in the plan.

(4) The emission limitations and operating limits for organic HAP emissions from catalytic cracking units required in paragraphs (a)(1) and (2) of this section do not apply during periods of planned maintenance preapproved by the applicable permitting authority according to the requirements in § 63.1575(j).

(b) *How do I demonstrate initial compliance with the emission limitations and work practice standards?* You must:

(1) Install, operate, and maintain a continuous monitoring system according to the requirements in § 63.1572 and Table 10 of this subpart. Except:

(i) Whether or not your catalytic cracking unit is subject to the NSPS for CO in § 60.103 of this chapter, you don't have to install and operate a continuous emission monitoring system if you show that CO emissions from your vent average less than 50 parts per million (ppm), dry basis. You must get an exemption from your permitting authority, based on your written request. To show that the emissions average is less than 50 ppm (dry basis), you must continuously monitor CO emissions for 30 days using a CO continuous emission monitoring system that meets the requirements in § 63.1572.

(ii) If your catalytic cracking unit isn't subject to the NSPS for CO, you don't have to install and operate a continuous emission monitoring system or a continuous parameter monitoring system if you vent emissions to a boiler (including a ''CO boiler'') or process heater that has a design heat input capacity of at least 44 megawatts (MW).

(iii) If your catalytic cracking unit isn't subject to the NSPS for CO, you don't have to install and operate a continuous emission monitoring system or a continuous parameter monitoring system if you vent emissions to a boiler or process heater in which all vent streams are introduced into the flame zone.

(2) Conduct each performance test for a catalytic cracking unit not subject to the NSPS for CO according to the requirements in § 63.1571 and under the conditions specified in Table 11 of this subpart.

(3) Establish each site-specific operating limit in Table 9 of this subpart that applies to you according to the procedures in Table 11 of this subpart.

(4) Demonstrate initial compliance with each emission limitation that applies to you according to Table 12 of this subpart.

(5) Demonstrate initial compliance with the work practice standard in paragraph (a)(3) of this section by submitting the operation, maintenance, and monitoring plan to your permitting authority as part of your Notification of Compliance Status according to §63.1574.

(6) Submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in §63.1574.

(c) *How do I demonstrate continuous compliance with the emission limitations and work practice standards?* You must:

(1) Demonstrate continuous compliance with each emission limitation in Tables 8 and 9 of this subpart that applies to you according to the methods specified in Tables 13 and 14 of this subpart.

(2) Demonstrate continuous compliance with the work practice standard in paragraph (a)(3) of this section by complying with the procedures in your operation, maintenance, and monitoring plan.

§63.1566 What are my requirements for organic HAP emissions from catalytic reforming units?

(a) *What emission limitations and work practice standards must I meet?* You must:

(1) Meet each emission limitation in Table 15 of this subpart that applies to you. You can choose from the two options in paragraphs (a)(1)(i) through (ii) of this section:

(i) You can elect to vent emissions of total organic compounds (TOC) to a flare that meets the control device requirements in §63.11(b) (Option 1); or

(ii) You can elect to use a control device to meet a TOC percent reduction standard or concentration limit, whichever is less stringent (Option 2).

(2) Comply with each site-specific operating limit in Table 16 of this subpart that applies to you.

(3) The emission limitations in Tables 15 and 16 of this subpart apply to emissions from catalytic reforming unit process vents that occur during depressuring and purging operations. These process vents include those used during unit depressurization, purging, coke burn, catalyst rejuvenation, and reduction or activation purge.

(4) The emission limitations in Tables 15 and 16 of this subpart do not apply to emissions from process vents during depressuring and purging operations when the reactor vent pressure is 5 pounds per square inch gauge (psig) or less.

(5) Prepare an operation, maintenance, and monitoring plan according to the requirements in §63.1574(f) and operate at all times according to the procedures in the plan.

(b) *How do I demonstrate initial compliance with the emission limitations and work practice standard?* You must:

(1) Install, operate, and maintain a continuous monitoring system(s) according to the requirements in §63.1572 and Table 17 of this subpart.

(2) Conduct each performance test for a catalytic reforming unit according to the requirements in §63.1571 and under the conditions specified in Table 18 of this subpart.

(3) Establish each site-specific operating limit in Table 16 of this subpart that applies to you according to the procedures in Table 18 of this subpart.

(4) Use the procedures in paragraph (b)(4)(i) or (ii) of this section to determine initial compliance with the emission limitations.

(i) If you elect the percent reduction standard under Option 2, calculate the emission rate of TOC using Equation 1 of this section (if you use Method 25) or Equation 2 of this section (if you use Method 25A); then calculate the mass emission reduction using Equation 3 of this section as follows:

$$E = K_4 M_c Q_s \qquad (\text{Eq. } 1)$$

Where:

E = Emission rate of TOC in the vent stream, kilograms-C per hour;

K_4 = Constant, 6.0×10^{-5} (kilograms per milligram)(minutes per hour);

M_c = Mass concentration of total gaseous nonmethane organic as measured and calculated using Method 25 in appendix A to part 60 of this chapter, mg/dscm; and

Q_s = Vent stream flow rate, dscm/min, at a temperature of 20 degrees Celsius (C).

$$E = K_5 \, C_{TOC} \, Q_S \qquad (\text{Eq. } 2)$$

Where:

E = Emission rate of TOC in the vent stream, kilograms-C per hour;

K_5 = Constant, 9.0×10^{-5}(parts per million)$^{-1}$ (gram-mole per standard cubic meter) (gram-C per gram-mole-propane) (kilogram per gram) (minutes per hour), where the standard temperature (standard cubic meter) is at 20 degrees C (uses 36g–C/g.mole propane);

C_{TOC} = Concentration of TOC on a dry basis in ppmv as propane as measured by Method 25A in appendix A to part 60 of this chapter; and

Q_s = Vent stream flow rate, dry standard cubic meters per minute, at a temperature of 20 degrees C.

$$\%\ \text{reduction} = \frac{E_i - E_o}{E_i} \times 100\% \qquad (\text{Eq. } 3)$$

Where:

E_i = Mass emission rate of TOC at control device inlet, kg/hr; and

E_o = Mass emission rate of TOC at control device outlet, kg/hr.

(5) If you elect the 20 parts per million by volume (ppmv) concentration limit, correct the measured TOC concentration for oxygen (O_2) content in the gas stream using Equation 4 of this section as follows:

$$C_{TOC,\,3\%O_2} = C_{TOC}\left(\frac{17.9\%}{20.9\% - \%O_2}\right) \qquad (\text{Eq. } 4)$$

(6) You are not required to do a TOC performance test if:

(i) You elect to vent emissions to a flare as provided in paragraph (a)(1)(i) of this section (Option 1); or

(ii) You elect the TOC percent reduction or concentration limit in paragraph (a)(1)(ii) of this section (Option 2), and you use a boiler or process heater with a design heat input capacity of 44 MW or greater or a boiler or process heater in which all vent streams are introduced into the flame zone.

(7) Demonstrate initial compliance with each emission limitation that applies to you according to Table 19 of this subpart.

(8) Demonstrate initial compliance with the work practice standard in paragraph (a)(5) of this section by submitting the operation, maintenance, and monitoring plan to your permitting authority as part of your Notification of Compliance Status.

(9) Submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in § 63.1574.

(c) *How do I demonstrate continuous compliance with the emission limitations and work practice standards?* You must:

(1) Demonstrate continuous compliance with each emission limitation in Tables 15 and 16 of this subpart that applies to you according to the methods specified in Tables 20 and 21 of this subpart.

(2) Demonstrate continuous compliance with the work practice standards in paragraph (a)(3) of this section by complying with the procedures in your operation, maintenance, and monitoring plan.

§63.1567 What are my requirements for inorganic HAP emissions from catalytic reforming units?

(a) *What emission limitations and work practice standards must I meet?* You must:

(1) Meet each emission limitation in Table 22 of this subpart that applies to you. These emission limitations apply during coke burn-off and catalyst rejuvenation. You can choose from the two options in paragraphs (a)(1)(i) through (ii) of this section:

(i) You can elect to use a control device to meet either a percent reduction standard for hydrogen chloride (HCl) emissions (Option 1); or

(ii) You can elect to meet an HCl concentration limit (Option 2).

(2) Meet each site-specific operating limit in Table 23 of this subpart that applies to you. These operating limits apply during coke burn-off and catalyst rejuvenation.

(3) Prepare an operation, maintenance, and monitoring plan according to the requirements in §63.1574(f) and operate at all times according to the procedures in the plan.

(b) *How do I demonstrate initial compliance with the emission limitations and work practice standard?* You must:

(1) Install, operate, and maintain a continuous monitoring system(s) according to the requirements in §63.1572 and Table 24 of this subpart.

(2) Conduct each performance test for a catalytic reforming unit according to the requirements in §63.1571 and the conditions specified in Table 25 of this subpart.

(3) Establish each site-specific operating limit in Table 23 of this subpart that applies to you according to the procedures in Table 25 of this subpart.

(4) Demonstrate initial compliance with each emission limitation that applies to you according to Table 26 of this subpart.

(5) Demonstrate initial compliance with the work practice standard in paragraph (a)(3) of this section by submitting the operation, maintenance, and monitoring plan to your permitting authority as part of your Notification of Compliance Status.

(6) Submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in §63.1574.

(c) *How do I demonstrate continuous compliance with the emission limitations and work practice standard?* You must:

(1) Demonstrate continuous compliance with each emission limitation in Tables 22 and 23 of this subpart that applies to you according to the methods specified in Tables 27 and 28 of this subpart.

(2) Demonstrate continuous compliance with the work practice standard in paragraph (a)(3) of this section by maintaining records to document conformance with the procedures in your operation, maintenance and monitoring plan.

§63.1568 What are my requirements for HAP emissions from sulfur recovery units?

(a) *What emission limitations and work practice standard must I meet?* You must:

(1) Meet each emission limitation in Table 29 of this subpart that applies to you. If your sulfur recovery unit is subject to the NSPS for sulfur oxides in §60.104 of this chapter, you must meet the emission limitations for NSPS units. If your sulfur recovery unit isn't subject to the NSPS for sulfur oxides, you can choose from the options in paragraphs (a)(1)(i) through (ii) of this section:

(i) You can elect to meet the NSPS requirements (Option 1); or

(ii) You can elect to meet the total reduced sulfur (TRS) emission limitation (Option 2).

(2) Meet each operating limit in Table 30 of this subpart that applies to you.

(3) Prepare an operation, maintenance, and monitoring plan according to the requirements in §63.1574(f) and operate at all times according to the procedures in the plan.

(b) *How do I demonstrate initial compliance with the emission limitations and work practice standards?* You must:

(1) Install, operate, and maintain a continuous monitoring system according to the requirements in §63.1572 and Table 31 of this subpart.

(2) Conduct each performance test for a sulfur recovery unit not subject to the NSPS for sulfur oxides according to the requirements in §63.1571 and under

the conditions specified in Table 32 of this subpart.

(3) Establish each site-specific operating limit in Table 30 of this subpart that applies to you according to the procedures in Table 32 of this subpart.

(4) Correct the reduced sulfur samples to zero percent excess air using Equation 1 of this section as follows:

$$C_{adj} = C_{meas}\left[20.9_c / \left(20.9 - \%O_2\right)\right] \qquad \text{(Eq. 1)}$$

Where:

C_{adj} = pollutant concentration adjusted to zero percent oxygen, ppm or g/dscm;

C_{meas} = pollutant concentration measured on a dry basis, ppm or g/dscm;

20.9_c = 20.9 percent oxygen—0.0 percent oxygen (defined oxygen correction basis), percent;

20.9 = oxygen concentration in air, percent;

$\%O_2$ = oxygen concentration measured on a dry basis, percent.

(5) Demonstrate initial compliance with each emission limitation that applies to you according to Table 33 of this subpart.

(6) Demonstrate initial compliance with the work practice standard in paragraph (a)(3) of this section by submitting the operation, maintenance, and monitoring plan to your permitting authority as part of your notification of compliance status.

(7) Submit the notification of compliance status containing the results of the initial compliance demonstration according to the requirements in § 63.1574.

(c) *How do I demonstrate continuous compliance with the emission limitations and work practice standards?* You must:

(1) Demonstrate continuous compliance with each emission limitation in Tables 29 and 30 of this subpart that applies to you according to the methods specified in Tables 34 and 35 of this subpart.

(2) Demonstrate continuous compliance with the work practice standard in paragraph (a)(3) of this section by complying with the procedures in your operation, maintenance, and monitoring plan.

§ 63.1569 What are my requirements for HAP emissions from bypass lines?

(a) *What work practice standards must I meet?* (1) You must meet each work practice standard in Table 36 of this subpart that applies to you. You can choose from the four options in paragraphs (a)(1)(i) through (iv) of this section:

(i) You can elect to install an automated system (Option 1);

(ii) You can elect to use a manual lock system (Option 2);

(iii) You can elect to seal the line (Option 3); or

(iv) You can elect to vent to a control device (Option 4).

(2) As provided in § 63.6(g), we, the EPA, may choose to grant you permission to use an alternative to the work practice standard in paragraph (a)(1) of this section.

(3) You must prepare an operation, maintenance, and monitoring plan according to the requirements in § 63.1574(f) and operate at all times according to the procedures in the plan.

(b) *How do I demonstrate initial compliance with the work practice standards?* You must:

(1) If you elect the option in paragraph (a)(1)(i) of this section, conduct each performance test for a bypass line according to the requirements in § 63.1571 and under the conditions specified in Table 37 of this subpart.

(2) Demonstrate initial compliance with each work practice standard in Table 36 of this subpart that applies to you according to Table 38 of this subpart.

(3) Demonstrate initial compliance with the work practice standard in paragraph (a)(3) of this section by submitting the operation, maintenance,

and monitoring plan to your permitting authority as part of your notification of compliance status.

(4) Submit the notification of compliance status containing the results of the initial compliance demonstration according to the requirements in §63.1574.

(c) *How do I demonstrate continuous compliance with the work practice standards?* You must:

(1) Demonstrate continuous compliance with each work practice standard in Table 36 of this subpart that applies to you according to the requirements in Table 39 of this subpart.

(2) Demonstrate continuous compliance with the work practice standard in paragraph (a)(2) of this section by complying with the procedures in your operation, maintenance, and monitoring plan.

GENERAL COMPLIANCE REQUIREMENTS

§63.1570 What are my general requirements for complying with this subpart?

(a) You must be in compliance with all of the non-opacity standards in this subpart during the times specified in §63.6(f)(1).

(b) You must be in compliance with the opacity and visible emission limits in this subpart during the times specified in §63.6(h)(1).

(c) You must always operate and maintain your affected source, including air pollution control and monitoring equipment, according to the provisions in §63.6(e)(1)(i). During the period between the compliance date specified for your affected source and the date upon which continuous monitoring systems have been installed and validated and any applicable operating limits have been set, you must maintain a log detailing the operation and maintenance of the process and emissions control equipment.

(d) You must develop and implement a written startup, shutdown, and malfunction plan (SSMP) according to the provisions in §63.6(e)(3).

(e) During periods of startup, shutdown, and malfunction, you must operate in accordance with your SSMP.

(f) You must report each instance in which you did not meet each emission limitation and each operating limit in this subpart that applies to you. This includes periods of startup, shutdown, and malfunction. You also must report each instance in which you did not meet the work practice standards in this subpart that apply to you. These instances are deviations from the emission limitations and work practice standards in this subpart. These deviations must be reported according to the requirements in §63.1575.

(g) Consistent with §§63.6(e) and 63.7(e)(1), deviations that occur during a period of startup, shutdown, or malfunction are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with the SSMP. The SSMP must require that good air pollution control practices are used during those periods. The plan must also include elements designed to minimize the frequency of such periods (i.e., root cause analysis). The Administrator will determine whether deviations that occur during a period of startup, shutdown, or malfunction are violations, according to the provisions in §63.6(e) and the contents of the SSMP.

§63.1571 How and when do I conduct a performance test or other initial compliance demonstration?

(a) *When must I conduct a performance test?* You must conduct performance tests and report the results by no later than 150 days after the compliance date specified for your source in §63.1563 and according to the provisions in §63.7(a)(2). If you are required to do a performance evaluation or test for a semi-regenerative catalytic reforming unit catalyst regenerator vent, you may do them at the first regeneration cycle after your compliance date and report the results in a followup Notification of Compliance Status report due no later than 150 days after the test.

(1) For each emission limitation or work practice standard where initial compliance is not demonstrated using a performance test, opacity observation, or visible emission observation, you must conduct the initial compliance demonstration within 30 calendar days after the compliance date that is specified for your source in §63.1563.

(2) For each emission limitation where the averaging period is 30 days,

the 30-day period for demonstrating initial compliance begins at 12:00 a.m. on the compliance date that is specified for your source in § 63.1563 and ends at 11:59 p.m., 30 calendar days after the compliance date that is specified for your source in § 63.1563.

(3) If you commenced construction or reconstruction between September 11, 1998 and April 11, 2002, you must demonstrate initial compliance with either the proposed emission limitation or the promulgated emission limitation no later than October 8, 2002 or within 180 calendar days after startup of the source, whichever is later, according to § 63.7(a)(2)(ix).

(4) If you commenced construction or reconstruction between September 11, 1998 and April 11, 2002, and you chose to comply with the proposed emission limitation when demonstrating initial compliance, you must conduct a second compliance demonstration for the promulgated emission limitation by October 10, 2005, or after startup of the source, whichever is later, according to § 63.7(a)(2)(ix).

(b) *What are the general requirements for performance test and performance evaluations?* You must:

(1) Conduct each performance test according to the requirements in § 63.7(e)(1).

(2) Except for opacity and visible emission observations, conduct three separate test runs for each performance test as specified in § 63.7(e)(3). Each test run must last at least 1 hour.

(3) Conduct each performance evaluation according to the requirements in § 63.8(e).

(4) Not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in § 63.7(e)(1).

(5) Calculate the average emission rate for the performance test by calculating the emission rate for each individual test run in the units of the applicable emission limitation using Equation 2, 5, or 8 of § 63.1564, and determining the arithmetic average of the calculated emission rates.

(c) *What procedures must I use for an engineering assessment?* You may choose to use an engineering assessment to calculate the process vent flow rate, net heating value, TOC emission rate, and total organic HAP emission rate expected to yield the highest daily emission rate when determining the emission reduction or outlet concentration for the organic HAP standard for catalytic reforming units. If you use an engineering assessment, you must document all data, assumptions, and procedures to the satisfaction of the applicable permitting authority. An engineering assessment may include the approaches listed in paragraphs (c)(1) through (c)(4) of this section. Other engineering assessments may be used but are subject to review and approval by the applicable permitting authority.

(1) You may use previous test results provided the tests are representative of current operating practices at the process unit, and provided EPA methods or approved alternatives were used;

(2) You may use bench-scale or pilot-scale test data representative of the process under representative operating conditions;

(3) You may use maximum flow rate, TOC emission rate, organic HAP emission rate, or organic HAP or TOC concentration specified or implied within a permit limit applicable to the process vent; or

(4) You may use design analysis based on engineering principles, measurable process parameters, or physical or chemical laws or properties. Examples of analytical methods include, but are not limited to:

(i) Use of material balances based on process stoichiometry to estimate maximum TOC concentrations;

(ii) Calculation of hourly average maximum flow rate based on physical equipment design such as pump or blower capacities; and

(iii) Calculation of TOC concentrations based on saturation conditions.

(d) *Can I adjust the process or control device measured values when establishing an operating limit?* If you do a performance test to demonstrate compliance, you must base the process or control device operating limits for continuous parameter monitoring systems on the results measured during the performance test. You may adjust the values measured during the performance test according to the criteria in paragraphs (d)(1) through (3) of this section.

(1) If you must meet the HAP metal emission limitations in §63.1564, you elect the option in paragraph (a)(1)(iii) in §63.1564 (Ni lb/hr), and you use continuous parameter monitoring systems, you must establish an operating limit for the equilibrium catalyst Ni concentration based on the laboratory analysis of the equilibrium catalyst Ni concentration from the initial performance test. Section 63.1564(b)(2) allows you to adjust the laboratory measurements of the equilibrium catalyst Ni concentration to the maximum level. You must make this adjustment using Equation 1 of this section as follows:

$$\text{Ecat-Limit} = \frac{13\text{ g Ni/hr}}{\text{NiEmR1}_{st}} \times \text{Ecat}_{st} \qquad (\text{Eq. } 1)$$

Where:

Ecat-Limit = Operating limit for equilibrium catalyst Ni concentration, mg/kg;

NiEmR1_{st} = Average Ni emission rate calculated as the arithmetic average Ni emission rate using Equation 5 of this section for each performance test run, g Ni/hr; and

Ecat_{st} = Average equilibrium Ni concentration from laboratory test results, mg/kg.

(2) If you must meet the HAP metal emission limitations in §63.1564, you elect the option in paragraph (a)(1)(iv) in §63.1564 (Ni lb/1,000 lb of coke burn-off), and you use continuous parameter monitoring systems, you must establish an operating limit for the equilibrium catalyst Ni concentration based on the laboratory analysis of the equilibrium catalyst Ni concentration from the initial performance test. Section 63.1564(b)(2) allows you to adjust the laboratory measurements of the equilibrium catalyst Ni concentration to the maximum level. You must make this adjustment using Equation 2 of this section as follows:

$$\text{Ecat-Limit} = \frac{1.0\text{ mg/kg coke burn-off}}{\text{NiEmR2}_{st}} \times \text{Ecat}_{st} \qquad (\text{Eq. } 2)$$

Where:

NiEmR2_{st} = Average Ni emission rate calculated as the arithmetic average Ni emission rate using Equation 8 of §63.1564 for each performance test run, mg/kg coke burn-off.

(3) If you choose to adjust the equilibrium catalyst Ni concentration to the maximum level, you can't adjust any other monitored operating parameter (i.e., gas flow rate, voltage, pressure drop, liquid-to-gas ratio).

(4) Except as specified in paragraph (d)(3) of this section, if you use continuous parameter monitoring systems, you may adjust one of your monitored operating parameters (flow rate, voltage and secondary current, pressure drop, liquid-to-gas ratio) from the average of measured values during the performance test to the maximum value (or minimum value, if applicable) representative of worst-case operating conditions, if necessary. This adjustment of measured values may be done using control device design specifications, manufacturer recommendations, or other applicable information. You must provide supporting documentation and rationale in your Notification of Compliance Status, demonstrating to the satisfaction of your permitting authority, that your affected source complies with the applicable emission limit at the operating limit based on adjusted values.

(e) *Can I change my operating limit?* You may change the established operating limit by meeting the requirements in paragraphs (e)(1) through (3) of this section.

(1) You may change your established operating limit for a continuous parameter monitoring system by doing an additional performance test, a performance test in conjunction with an engineering assessment, or an engineering assessment to verify that, at the new operating limit, you are in compliance with the applicable emission limitation.

(2) You must establish a revised operating limit for your continuous parameter monitoring system if you make any change in process or operating conditions that could affect control system performance or you change designated conditions after the last performance or compliance tests were done. You can establish the revised operating limit as described in paragraph (e)(1) of this section.

(3) You may change your site-specific opacity operating limit or Ni operating limit only by doing a new performance test.

§ 63.1572 What are my monitoring installation, operation, and maintenance requirements?

(a) You must install, operate, and maintain each continuous emission monitoring system according to the requirements in paragraphs (a)(1) through (4) of this section.

(1) You must install, operate, and maintain each continuous emission monitoring system according to the requirements in Table 40 of this subpart.

(2) If you use a continuous emission monitoring system to meet the NSPS CO or SO_2 limit, you must conduct a performance evaluation of each continuous emission monitoring system according to the requirements in § 63.8 and Table 40 of this subpart. This requirement does not apply to an affected source subject to the NSPS that has already demonstrated initial compliance with the applicable performance specification.

(3) As specified in § 63.8(c)(4)(ii), each continuous emission monitoring system must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

(4) Data must be reduced as specified in § 63.8(g)(2).

(b) You must install, operate, and maintain each continuous opacity monitoring system according to the requirements in paragraphs (b)(1) through (3) of this section.

(1) Each continuous opacity monitoring system must be installed, operated, and maintained according to the requirements in Table 40 of this subpart.

(2) If you use a continuous opacity monitoring system to meet the NSPS opacity limit, you must conduct a performance evaluation of each continuous opacity monitoring system according to the requirements in § 63.8 and Table 40 of this subpart. This requirement does not apply to an affected source subject to the NSPS that has already demonstrated initial compliance with the applicable performance specification.

(3) As specified in § 63.8(c)(4)(i), each continuous opacity monitoring system must complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period.

(c) You must install, operate, and maintain each continuous parameter monitoring system according to the requirements in paragraphs (c)(1) through (7) of this section.

(1) Each continuous parameter monitoring system must be installed, operated, and maintained according to the requirements in Table 41 of this subpart and in a manner consistent with the manufacturer's specifications or other written procedures that provide adequate assurance that the equipment will monitor accurately.

(2) The continuous parameter monitoring system must complete a minimum of one cycle of operation for each successive 15-minute period. You must have a minimum of four successive cycles of operation to have a valid hour of data (or at least two if a calibration check is performed during that hour or if the continuous parameter monitoring system is out-of-control).

(3) Each continuous parameter monitoring system must have valid hourly average data from at least 75 percent of the hours during which the process operated.

(4) Each continuous parameter monitoring system must determine and record the hourly average of all recorded readings and if applicable, the daily average of all recorded readings for each operating day. The daily average must cover a 24-hour period if operation is continuous or the number of hours of operation per day if operation is not continuous.

(5) Each continuous parameter monitoring system must record the results of each inspection, calibration, and validation check.

(d) You must monitor and collect data according to the requirements in paragraphs (d)(1) and (2) of this section.

(1) Except for monitoring malfunctions, associated repairs, and required quality assurance or control activities (including as applicable, calibration checks and required zero and span adjustments), you must conduct all monitoring in continuous operation (or collect data at all required intervals) at all times the affected source is operating.

(2) You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities for purposes of this regulation, including data averages and calculations, for fulfilling a minimum data availability requirement, if applicable. You must use all the data collected during all other periods in assessing the operation of the control device and associated control system.

§63.1573 What are my monitoring alternatives?

(a) *What is the approved alternative for monitoring gas flow rate?* You can elect to use this alternative to a continuous parameter monitoring system for the catalytic regenerator exhaust gas flow rate for your catalytic cracking unit if the unit does not introduce any other gas streams into the catalyst regeneration vent (i.e., complete combustion units with no additional combustion devices). If you select this alternative, you must use the same procedure for the performance test and for monitoring after the performance test.

(1) Install and operate a continuous parameter monitoring system to measure and record the hourly average volumetric air flow rate to the catalytic cracking unit regenerator. Or, you can determine and record the hourly average volumetric air flow rate to the catalytic cracking unit regenerator using the catalytic cracking unit control room instrumentation.

(2) Install and operate a continuous parameter monitoring system to measure and record the temperature of the gases entering the control device (or exiting the catalyst regenerator if you do not use an add-on control device).

(3) Calculate and record the hourly average actual exhaust gas flow rate using Equation 1 of this section as follows:

$$Q_{gas} = (1.12\ \text{scfm/dscfm}) \times (Q_{air} + Q_{oxy}) \times \left(\frac{\text{Temp}_{gas}}{273^\circ \text{K}}\right) \times \left(\frac{P_{vent}}{1\ \text{atm.}}\right) \qquad (\text{Eq. } 1)$$

Where:

Q_{gas} = Hourly average actual gas flow rate, acfm;

1.12 = Default correction factor to convert gas flow from dry standard cubic feet per minute (dscfm) to standard cubic feet per minute (scfm);

Q_{air} = Volumetric flow rate of air to regenerator, as determined from the catalytic cracking unit control room instrumentations, dscfm;

Q_{oxy} = Volumetric flow rate of oxygen-enriched air stream to regenerator, as determined from the catalytic cracking unit control room instrumentations, dscfm;

Temp_{gas} = Temperature of gas stream in vent measured as near as practical to the control device or opacity monitor, °K. For wet scrubbers, temperature of gas prior to the wet scrubber; and

P_{vent} = Absolute pressure in the vent measured as near as practical to the control device or opacity monitor, atm. When used in conjunction with opacity in the final vent stack, you can assume P_{vent} = 1 atm.

(b) *What is the approved alternative for monitoring pH levels?* If you use a wet scrubber to control inorganic HAP emissions from your vent on a catalytic reforming unit, you can measure and record the pH of the water (or scrubbing liquid) exiting the scrubber at least once an hour during coke burn-off and catalyst rejuvenation using pH strips as an alternative to a continuous parameter monitoring system. The pH strips must meet the requirements in Table 41 of this subpart.

(c) *Can I use another type of monitoring system?* You may request approval from your permitting authority to use an automated data compression system. An automated data compression system does not record monitored operating parameter values at a set frequency (e.g., once every hour) but records all values that meet set criteria for variation from previously recorded values. Your request must contain a description of the monitoring system and data recording system, including the criteria used to determine which monitored values are recorded and retained, the method for calculating daily averages, and a demonstration that the system meets all of the criteria in paragraphs (c)(1) through (5) of this section:

(1) The system measures the operating parameter value at least once every hour;

(2) The system records at least 24 values each day during periods of operation;

(3) The system records the date and time when monitors are turned off or on;

(4) The system recognizes unchanging data that may indicate the monitor is not functioning properly, alerts the operator, and records the incident; and

(5) The system computes daily average values of the monitored operating parameter based on recorded data.

(d) *Can I monitor other process or control device operating parameters?* You may request approval to monitor parameters other than those required in this subpart. You must request approval if:

(1) You use a control device other than a thermal incinerator, boiler, process heater, flare, electrostatic precipitator, or wet scrubber;

(2) You use a combustion control device (e.g., incinerator, flare, boiler or process heater with a design heat capacity of at least 44 MW, boiler or process heater where the vent stream is introduced into the flame zone), electrostatic precipitator, or scrubber but want to monitor a parameter other than those specified; or

(3) You wish to use another type of continuous emission monitoring system that provides direct measurement of a pollutant (i.e., a PM or multi-metals HAP continuous emission monitoring system, a carbonyl sulfide/carbon disulfide continuous emission monitoring system, a TOC continuous emission monitoring system, or HCl continuous emission monitoring system).

(e) *How do I request to monitor alternative parameters?* You must submit a request for review and approval or disapproval to the Administrator. The request must include the information in paragraphs (e)(1) through (5) of this section.

(1) A description of each affected source and the parameter(s) to be monitored to determine whether the affected source will continuously comply with the emission limitations and an explanation of the criteria used to select the parameter(s).

(2) A description of the methods and procedures that will be used to demonstrate that the parameter can be used to determine whether the affected source will continuously comply with the emission limitations and the schedule for this demonstration. You must certify that you will establish an operating limit for the monitored parameter(s) that represents the conditions in existence when the control device is being properly operated and maintained to meet the emission limitation.

(3) The frequency and content of monitoring, recording, and reporting, if monitoring and recording are not continuous. You also must include the rationale for the proposed monitoring, recording, and reporting requirements.

(4) Supporting calculations.

(5) Averaging time for the alternative operating parameter.

NOTIFICATIONS, REPORTS, AND RECORDS

§63.1574 What notifications must I submit and when?

(a) Except as allowed in paragraphs (a)(1) through (3) of this section, you must submit all of the notifications in §§63.6(h), 63.7(b) and (c), 63.8(e), 63.8(f)(4), 63.8(f)(6), and 63.9(b) through (h) that apply to you by the dates specified.

(1) You must submit the notification of your intention to construct or reconstruct according to §63.9(b)(5) unless construction or reconstruction had commenced and initial startup had not occurred before April 11, 2002. In this case, you must submit the notification as soon as practicable before startup but no later than July 10, 2002. This deadline also applies to the application for approval of construction or reconstruction and approval of construction or reconstruction based on State preconstruction review required in §§63.5(d)(1)(i) and 63.5(f)(2).

(2) You must submit the notification of intent to conduct a performance test required in §63.7(b) at least 30 calendar days before the performance test is scheduled to begin (instead of 60 days).

(3) If you are required to conduct a performance test, performance evaluation, design evaluation, opacity observation, visible emission observation, or other initial compliance demonstration, you must submit a notification of compliance status according to §63.9(h)(2)(ii). You can submit this information in an operating permit application, in an amendment to an operating permit application, in a separate submission, or in any combination. In a State with an approved operating permit program where delegation of authority under section 112(l) of the CAA has not been requested or approved, you must provide a duplicate notification to the applicable Regional Administrator. If the required information has been submitted previously, you do not have to provide a separate notification of compliance status. Just refer to the earlier submissions instead of duplicating and resubmitting the previously submitted information.

(i) For each initial compliance demonstration that does not include a performance test, you must submit the Notification of Compliance Status no later than 30 calendar days following completion of the initial compliance demonstration.

(ii) For each initial compliance demonstration that includes a performance test, you must submit the notification of compliance status, including the performance test results, no later than 150 calendar days after the compliance date specified for your affected source in §63.1573.

(b) As specified in §63.9(b)(2), if you startup your new affected source before April 11, 2002, you must submit the initial notification no later than August 9, 2002.

(c) As specified in §63.9(b)(3), if you start your new or reconstructed affected source on or after April 11, 2002, you must submit the initial notification no later than 120 days after you become subject to this subpart.

(d) You also must include the information in Table 42 of this subpart in your notification of compliance status.

(e) If you request an extension of compliance for an existing catalytic cracking unit as allowed in §63.1563(c), you must submit a notification to your permitting authority containing the required information by October 13, 2003.

(f) As required by this subpart, you must prepare and implement an operation, maintenance, and monitoring plan for each affected source, control system, and continuous monitoring system. The purpose of this plan is to detail the operation, maintenance, and monitoring procedures you will follow.

(1) You must submit the plan to your permitting authority for review and approval along with your notification of compliance status. While you do not have to include the entire plan in your part 70 or 71 permit, you must include the duty to prepare and implement the plan as an applicable requirement in your part 70 or 71 operating permit. You must submit any changes to your permitting authority for review and approval and comply with the plan until the change is approved.

(2) Each plan must include, at a minimum, the information specified in paragraphs (f)(2)(i) through (x) of this section.

(i) Process and control device parameters to be monitored for each affected source, along with established operating limits.

(ii) Procedures for monitoring emissions and process and control device operating parameters for each affected source.

(iii) Procedures that you will use to determine the coke burn-rate, the volumetric flow rate (if you use process data rather than direct measurement), and the rate of combustion of liquid or solid fossil fuels if you use an incinerator-waste heat boiler to burn the exhaust gases from a catalyst regenerator.

(iv) Procedures and analytical methods you will use to determine the equilibrium catalyst Ni concentration, the equilibrium catalyst Ni concentration monthly rolling average, and the hourly or hourly average Ni operating value.

(v) Procedures you will use to determine the pH of the water (or scrubbing liquid) exiting a wet scrubber if you use pH strips.

(vi) Procedures you will use to determine the HCl concentration of gases from a semi-regenerative catalytic reforming unit with an internal scrubbing system (i.e., no add-on control device) when you use a colormetric tube sampling system, including procedures for correcting for pressure (if applicable to the sampling equipment).

(vii) Procedures you will use to determine the gas flow rate for a catalytic cracking unit if you use the alternative procedure based on air flow rate and temperature.

(viii) Monitoring schedule, including when you will monitor and when you will not monitor an affected source (e.g., during the coke burn-off, regeneration process).

(ix) Quality control plan for each continuous opacity monitoring system and continuous emission monitoring system you use to meet an emission limit in this subpart. This plan must include procedures you will use for calibrations, accuracy audits, and adjustments to the system needed to meet applicable requirements for the system.

(x) Maintenance schedule for each affected source, monitoring system, and control device that is generally consistent with the manufacturer's instructions for routine and long-term maintenance.

§63.1575 What reports must I submit and when?

(a) You must submit each report in Table 43 of this subpart that applies to you.

(b) Unless the Administrator has approved a different schedule, you must submit each report by the date in Table 43 of this subpart and according to the requirements in paragraphs (b)(1) through (5) of this section.

(1) The first compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.1563 and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for your affected source in §63.1563.

(2) The first compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date follows the end of the first calendar half after the compliance date that is specified for your affected source in §63.1563.

(3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(5) For each affected source that is subject to permitting regulations pursuant to part 70 or 71 of this chapter, and if the permitting authority has established dates for submitting semiannual reports pursuant to §70.6(a)(3)(iii)(A) or §71.6(a)(3)(iii)(A) of this chapter, you may submit the first

and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (4) of this section.

(c) The compliance report must contain the information required in paragraphs (c)(1) through (4) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with that official's name, title, and signature, certifying the accuracy of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If there are no deviations from any emission limitation that applies to you and there are no deviations from the requirements for work practice standards, a statement that there were no deviations from the emission limitations or work practice standards during the reporting period and that no continuous emission monitoring system or continuous opacity monitoring system was inoperative, inactive, malfunctioning, out-of-control, repaired, or adjusted.

(d) For each deviation from an emission limitation and for each deviation from the requirements for work practice standards that occurs at an affected source where you are not using a continuous opacity monitoring system or a continuous emission monitoring system to comply with the emission limitation or work practice standard in this subpart, the compliance report must contain the information in paragraphs (c)(1) through (3) of this section and the information in paragraphs (d)(1) through (3) of this section.

(1) The total operating time of each affected source during the reporting period.

(2) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

(3) Information on the number, duration, and cause for monitor downtime incidents (including unknown cause, if applicable, other than downtime associated with zero and span and other daily calibration checks).

(e) For each deviation from an emission limitation occurring at an affected source where you are using a continuous opacity monitoring system or a continuous emission monitoring system to comply with the emission limitation, you must include the information in paragraphs (d)(1) through (3) of this section and the information in paragraphs (e)(1) through (13) of this section.

(1) The date and time that each malfunction started and stopped.

(2) The date and time that each continuous opacity monitoring system or continuous emission monitoring system was inoperative, except for zero (low-level) and high-level checks.

(3) The date and time that each continuous opacity monitoring system or continuous emission monitoring system was out-of-control, including the information in § 63.8(c)(8).

(4) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(5) A summary of the total duration of the deviation during the reporting period (recorded in minutes for opacity and hours for gases and in the averaging period specified in the regulation for other types of emission limitations), and the total duration as a percent of the total source operating time during that reporting period.

(6) A breakdown of the total duration of the deviations during the reporting period and into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(7) A summary of the total duration of downtime for the continuous opacity monitoring system or continuous emission monitoring system during the reporting period (recorded in minutes for opacity and hours for gases and in the averaging time specified in the regulation for other types of standards), and the total duration of downtime for the continuous opacity monitoring system or continuous emission monitoring system as a percent of the total source operating time during that reporting period.

(8) A breakdown of the total duration of downtime for the continuous opacity monitoring system or continuous emission monitoring system during the reporting period into periods that are due

to monitoring equipment malfunctions, non-monitoring equipment malfunctions, quality assurance/quality control calibrations, other known causes, and other unknown causes.

(9) An identification of each HAP that was monitored at the affected source.

(10) A brief description of the process units.

(11) The monitoring equipment manufacturer(s) and model number(s).

(12) The date of the latest certification or audit for the continuous opacity monitoring system or continuous emission monitoring system.

(13) A description of any change in the continuous emission monitoring system or continuous opacity monitoring system, processes, or controls since the last reporting period.

(f) You also must include the information required in paragraphs (f)(1) through (2) of this section in each compliance report, if applicable.

(1) A copy of any performance test done during the reporting period on any affected unit. The report may be included in the next semiannual report. The copy must include a complete report for each test method used for a particular kind of emission point tested. For additional tests performed for a similar emission point using the same method, you must submit the results and any other information required, but a complete test report is not required. A complete test report contains a brief process description; a simplified flow diagram showing affected processes, control equipment, and sampling point locations; sampling site data; description of sampling and analysis procedures and any modifications to standard procedures; quality assurance procedures; record of operating conditions during the test; record of preparation of standards; record of calibrations; raw data sheets for field sampling; raw data sheets for field and laboratory analyses; documentation of calculations; and any other information required by the test method.

(2) Any requested change in the applicability of an emission standard (e.g., you want to change from the PM standard to the Ni standard for catalytic cracking units or from the HCl concentration standard to percent reduction for catalytic reforming units) in your periodic report. You must include all information and data necessary to demonstrate compliance with the new emission standard selected and any other associated requirements.

(g) You may submit reports required by other regulations in place of or as part of the compliance report if they contain the required information.

(h) The reporting requirements in paragraphs (h)(1) and (2) of this section apply to startups, shutdowns, and malfunctions:

(1) When actions taken to respond are consistent with the plan, you are not required to report these events in the semiannual compliance report and the reporting requirements in §§ 63.6(e)(3)(iii) and 63.10(d)(5) do not apply.

(2) When actions taken to respond are not consistent with the plan, you must report these events and the response taken in the semiannual compliance report. In this case, the reporting requirements in §§ 63.6(e)(3)(iv) and 63.10(d)(5) do not apply.

(i) If the applicable permitting authority has approved a period of planned maintenance for your catalytic cracking unit according to the requirements in paragraph (j) of this section, you must include the following information in your compliance report.

(1) In the compliance report due for the 6-month period before the routine planned maintenance is to begin, you must include a full copy of your written request to the applicable permitting authority and written approval received from the applicable permitting authority.

(2) In the compliance report due after the routine planned maintenance is complete, you must include a description of the planned routine maintenance that was performed for the control device during the previous 6-month period, and the total number of hours during those 6 months that the control device did not meet the emission limitations and monitoring requirements as a result of the approved routine planned maintenance.

(j) If you own or operate multiple catalytic cracking units that are served by a single wet scrubber emission control device (e.g., a Venturi scrubber), you may request the applicable permitting authority to approve a period of planned routine maintenance for the control device needed to meet requirements in your operation, maintenance, and monitoring plan. You must present data to the applicable permitting authority demonstrating that the period of planned maintenance results in overall emissions reductions. During this pre-approved time period, the emission control device may be taken out of service while maintenance is performed on the control device and/or one of the process units while the remaining process unit(s) continue to operate. During the period the emission control device is unable to operate, the emission limits, operating limits, and monitoring requirements applicable to the unit that is operating and the wet scrubber emission control device do not apply. The applicable permitting authority may require that you take specified actions to minimize emissions during the period of planned maintenance.

(1) You must submit a written request to the applicable permitting authority at least 6 months before the planned maintenance is scheduled to begin with a copy to the EPA Regional Administrator.

(2) Your written request must contain the information in paragraphs (j)(2)(i) through (v) of this section.

(i) A description of the planned routine maintenance to be performed during the next 6 months and why it is necessary.

(ii) The date the planned maintenance will begin and end.

(iii) A quantified estimate of the HAP and criteria pollutant emissions that will be emitted during the period of planned maintenance.

(iv) An analysis showing the emissions reductions resulting from the planned maintenance as opposed to delaying the maintenance until the next unit turnaround.

(v) Actions you will take to minimize emissions during the period of planned maintenance.

§63.1576 What records must I keep, in what form, and for how long?

(a) You must keep the records specified in paragraphs (a)(1) through (3) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any initial notification or Notification of Compliance Status that you submitted, according to the requirements in §63.10(b)(2)(xiv).

(2) The records in §63.6(e)(1)(iii) through (v) related to startup, shutdown, and malfunction.

(3) Records of performance tests, performance evaluations, and opacity and visible emission observations as required in §63.10(b)(2)(viii).

(b) For each continuous emission monitoring system and continuous opacity monitoring system, you must keep the records required in paragraphs (b)(1) through (5) of this section.

(1) Records described in §63.10(b)(2)(vi) through (xi).

(2) Monitoring data for continuous opacity monitoring systems during a performance evaluation as required in §63.6(h)(7)(i) and (ii).

(3) Previous (i.e., superceded) versions of the performance evaluation plan as required in §63.8(d)(3).

(4) Requests for alternatives to the relative accuracy test for continuous emission monitoring systems as required in §63.8(f)(6)(i).

(5) Records of the date and time that each deviation started and stopped, and whether the deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(c) You must keep the records in §63.6(h) for visible emission observations.

(d) You must keep records required by Tables 6, 7, 13, and 14 of this subpart (for catalytic cracking units); Tables 20, 21, 27 and 28 of this subpart (for catalytic reforming units); Tables 34 and 35 of this subpart (for sulfur recovery units); and Table 39 of this subpart (for bypass lines) to show continuous compliance with each emission limitation that applies to you.

(e) You must keep a current copy of your operation, maintenance, and monitoring plan onsite and available for inspection. You also must keep records to show continuous compliance with the procedures in your operation, maintenance, and monitoring plan.

(f) You also must keep the records of any changes that affect emission control system performance including, but not limited to, the location at which the vent stream is introduced into the flame zone for a boiler or process heater.

(g) Your records must be in a form suitable and readily available for expeditious review according to § 63.10(b)(1).

(h) As specified in § 63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(i) You must keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to § 63.10(b)(1). You can keep the records offsite for the remaining 3 years.

OTHER REQUIREMENTS AND INFORMATION

§ 63.1577 What parts of the General Provisions apply to me?

Table 44 of this subpart shows which parts of the General Provisions in §§ 63.1 through 63.15 apply to you.

§ 63.1578 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by us, the U.S. EPA, or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that Agency has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are listed in paragraphs (c)(1) through (5) of this section.

(1) Approval of alternatives to the non-opacity emission limitations and work practice standards in §§ 63.1564 through 63.1569 under § 63.6(g).

(2) Approval of alternative opacity emission limitations in §§ 63.1564 through 63.1569 under § 63.6(h)(9).

(3) Approval of major alternatives to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.90.

(4) Approval of major alternatives to monitoring under § 63.8(f) and as defined in § 63.90.

(5) Approval of major alternatives to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

§ 63.1579 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act (CAA), in 40 CFR 63.2, the General Provisions of this part (§§ 63.1 through 63.15), and in this section as listed.

Boiler means any enclosed combustion device that extracts useful energy in the form of steam and is not an incinerator.

Catalytic cracking unit means a refinery process unit in which petroleum derivatives are continuously charged; hydrocarbon molecules in the presence of a catalyst suspended in a fluidized bed are fractured into smaller molecules, or react with a contact material suspended in a fluidized bed to improve feedstock quality for additional processing; and the catalyst or contact material is continuously regenerated by burning off coke and other deposits. The unit includes, but is not limited to, the riser, reactor, regenerator, air blowers, spent catalyst or contact material stripper, catalyst or contact material recovery equipment, and regenerator equipment for controlling air pollutant emissions and equipment used for heat recovery.

Catalytic cracking unit catalyst regenerator means one or more regenerators (multiple regenerators) which comprise that portion of the catalytic cracking unit in which coke burn-off and catalyst or contact material regeneration occurs and includes the regenerator combustion air blower(s).

Catalytic reforming unit means a refinery process unit that reforms or changes the chemical structure of naphtha into higher octane aromatics through the use of a metal catalyst and chemical reactions that include dehydrogenation, isomerization, and hydrogenolysis. The catalytic reforming unit includes the reactor, regenerator (if separate), separators, catalyst isolation and transport vessels (e.g., lock and lift hoppers), recirculation equipment, scrubbers, and other ancillary equipment.

Catalytic reforming unit regenerator means one or more regenerators which comprise that portion of the catalytic reforming unit and ancillary equipment in which the following regeneration steps typically are performed: depressurization, purge, coke burn-off, catalyst rejuvenation with a chloride (or other halogenated) compound(s), and a final purge. The catalytic reforming unit catalyst regeneration process can be done either as a semi-regenerative, cyclic, or continuous regeneration process.

Coke burn-off means the coke removed from the surface of the catalytic cracking unit catalyst or the catalytic reforming unit catalyst by combustion in the catalyst regenerator. The rate of coke burn-off is calculated using Equation 2 in § 63.1564.

Combustion device means an individual unit of equipment such as a flare, incinerator, process heater, or boiler used for the destruction of organic HAP or VOC.

Combustion zone means the space in an enclosed combustion device (e.g., vapor incinerator, boiler, furnace, or process heater) occupied by the organic HAP and any supplemental fuel while burning. The combustion zone includes any flame that is visible or luminous as well as that space outside the flame envelope in which the organic HAP continues to be oxidized to form the combustion products.

Contact material means any substance formulated to remove metals, sulfur, nitrogen, or any other contaminants from petroleum derivatives.

Continuous regeneration reforming means a catalytic reforming process characterized by continuous flow of catalyst material through a reactor where it mixes with feedstock, and a portion of the catalyst is continuously removed and sent to a special regenerator where it is regenerated and continuously recycled back to the reactor.

Control device means any equipment used for recovering, removing, or oxidizing HAP in either gaseous or solid form. Such equipment includes, but is not limited to, condensers, scrubbers, electrostatic precipitators, incinerators, flares, boilers, and process heaters.

Cyclic regeneration reforming means a catalytic reforming process characterized by continual batch regeneration of catalyst in situ in any one of several reactors (e.g., 4 or 5 separate reactors) that can be isolated from and returned to the reforming operation while maintaining continuous reforming process operations (i.e., feedstock continues flowing through the remaining reactors without change in feed rate or product octane).

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including but not limited to any emission limit, operating limit, or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limit, operating limit, or work practice standard in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Emission limitation means any emission limit, opacity limit, operating limit, or visible emission limit.

Flame zone means the portion of a combustion chamber of a boiler or process heater occupied by the flame envelope created by the primary fuel.

Flow indicator means a device that indicates whether gas is flowing, or whether the valve position would allow gas to flow, in or through a line.

Fuel gas system means the offsite and onsite piping and control system that gathers gaseous streams generated by the source, may blend them with sources of gas, if available, and transports the blended gaseous fuel at suitable pressures for use as fuel in heaters, furnaces, boilers, incinerators, gas turbines, and other combustion devices located within or outside of the refinery. The fuel is piped directly to each individual combustion device, and the system typically operates at pressures over atmospheric. The gaseous streams can contain a mixture of methane, light hydrocarbons, hydrogen, and other miscellaneous species.

HCl means for the purposes of this subpart, gaseous emissions of hydrogen chloride that serve as a surrogate measure for total emissions of hydrogen chloride and chlorine as measured by Method 26 or 26A in appendix A to part 60 of this chapter or an approved alternative method.

Incinerator means an enclosed combustion device that is used for destroying organic compounds, with or without heat recovery. Auxiliary fuel may be used to heat waste gas to combustion temperatures. An incinerator may use a catalytic combustion process where a substance is introduced into an exhaust stream to burn or oxidize contaminants while the substances itself remains intact, or a thermal process which uses elevated temperatures as a primary means to burn or oxidize contaminants.

Ni means, for the purposes of this subpart, particulate emissions of nickel that serve as a surrogate measure for total emissions of metal HAP, including but not limited to: antimony, arsenic, beryllium, cadmium, chromium, cobalt, lead, manganese, nickel, and selenium as measured by Method 29 in appendix A to part 60 of this chapter or by an approved alternative method.

Oxidation control system means an emission control system which reduces emissions from sulfur recovery units by converting these emissions to sulfur dioxide.

PM means, for the purposes of this subpart, emissions of particulate matter that serve as a surrogate measure of the total emissions of particulate matter and metal HAP contained in the particulate matter, including but not limited to: antimony, arsenic, beryllium, cadmium, chromium, cobalt, lead, manganese, nickel, and selenium as measured by Methods 5B or 5F in appendix A to part 60 of this chapter or by an approved alternative method.

Process heater means an enclosed combustion device that primarily transfers heat liberated by burning fuel directly to process streams or to heat transfer liquids other than water.

Process vent means, for the purposes of this subpart, a gas stream that is continuously or periodically discharged during normal operation of a catalytic cracking unit, catalytic reforming unit, or sulfur recovery unit, including gas streams that are discharged directly to the atmosphere, gas streams that are routed to a control device prior to discharge to the atmosphere, or gas streams that are diverted through a product recovery device line prior to control or discharge to the atmosphere.

Reduced sulfur compounds means hydrogen sulfide, carbonyl sulfide, and carbon disulfide.

Reduction control system means an emission control system which reduces emissions from sulfur recovery units by converting these emissions to hydrogen sulfide.

Responsible official means responsible official as defined in 40 CFR 70.2.

Semi-regenerative reforming means a catalytic reforming process characterized by shutdown of the entire reforming unit (e.g., which may employ three to four separate reactors) at specified intervals or at the owner's or operator's convenience for in situ catalyst regeneration.

Sulfur recovery unit means a process unit that recovers elemental sulfur from gases that contain reduced sulfur compounds and other pollutants, usually by a vapor-phase catalytic reaction of sulfur dioxide and hydrogen sulfide. This definition does not include a unit where the modified reaction is carried out in a water solution which contains a metal ion capable of oxidizing the sulfide ion to sulfur, e.g., the LO–CAT II process.

TOC means, for the purposes of this subpart, emissions of total organic compounds, excluding methane and ethane, that serve as a surrogate measure of the total emissions of organic HAP compounds, including but not limited to, acetaldehyde, benzene, hexane, phenol, toluene, and xylenes and non-HAP VOC as measured by Method 25 or 25A in appendix A to part 60 of this chapter or an approved alternative method.

TRS means, for the purposes of this subpart, emissions of total reduced sulfur compounds, expressed as an equivalent sulfur dioxide concentration, that serve as a surrogate measure of the total emissions of sulfide HAP carbonyl sulfide and carbon disulfide as measured by Method 15 in appendix A to part 60 of this chapter or by an approved alternative method.

Work practice standard means any design, equipment, work practice, or operational standard, or combination thereof, that is promulgated pursuant to section 112(h) of the CAA.

TABLE 1 TO SUBPART UUU OF PART 63—METAL HAP EMISSION LIMITS FOR CATALYTIC CRACKING UNITS

[As stated in § 63.1564(a)(1), you must meet each emission limitation in the following table that applies to you]

For each new or existing catalytic cracking unit * * *	You must meet the following emission limits for each catalyst regenerator vent * * *
1. Subject to the new source performance standard (NSPS) for PM in 40 CFR 60.102.	PM emissions must not exceed 1.0 kilogram (kg) per 1,000 kg (1.0 lb/1,000 lb) of coke burn-off in the catalyst regenerator; if the discharged gases pass through an incinerator or waste heat boiler in which you burn auxiliary or supplemental liquid or solid fossil fuel, you must limit the incremental rate of PM to no more than 43.0 grams per Megajoule (g/MJ) or 0.10 pounds per million British thermal units (lb/million Btu) of heat input attributable to the liquid or solid fossil fuel; and the opacity of emissions must not exceed 30 percent, except for one 6-minute average opacity reading in any 1-hour period.
2. Option 1: NSPS requirements not subject to the NSPS for PM in 40 CFR 60.102.	PM emissions must not exceed 1.0 kg/1,000 kg (1.0 lb/1,000 lb) of coke burn-off in the catalyst regenerator; if the discharged gases pass through an incinerator or waste heat boiler in which you burn auxiliary or in supplemental liquid or solid fossil fuel, you must limit the incremental rate of PM to no more than 43.0 g/MJ or lb/million Btu of heat input attributable to the liquid or solid fossil fuel; and the opacity of emissions must not exceed 30 percent, except for one 6-minute average opacity reading in any 1-hour period.
3. Option 2: PM limit not subject to the NSPS for PM in 40 CFR 60.102.	PM emissions must not exceed 1.0 kg/1,000 kg (1.0 lb/1,000 lbs) of coke burn-off in the catalyst regenerator.
4. Option 3: Ni lb/hr not subject to the NSPS for PM in 40 CFR 60.102.	Nickel (Ni) emissions must not exceed 13,000 milligrams per hour (mg/hr) (0.029 lb/hr).
5. Option 4: Ni Lb/1,000 lbs of coke burn-off not subject to the NSPS for PM in 40 CFR 60.102.	Ni emissions must not exceed 1.0 mg/kg (0.001 lb/1,000 lbs) of coke burn-off in the catalyst regenerator.

TABLE 2 TO SUBPART UUU OF PART 63—OPERATING LIMITS FOR METAL HAP EMISSIONS FROM CATALYTIC CRACKING UNITS

[As stated in § 63.1564(a)(2), you must meet each operating limit in the following table that applies to you]

For each new or existing catalytic cracking unit * * *	For this type of continuous monitoring system * * *	For this type of control device * * *	You must meet this operating limit * * *
1. Subject to the NSPS for PM in 40 CFR 60.102.	Continuous opacity monitoring system.	Not applicable	Not applicable.
2. Option 1: NSPS requirements not subject to the NSPS for PM in 40 CFR 60.102.	Continuous opacity monitoring system.	Not applicable	Not applicable.
3. Option 2: PM limit not subject to the NSPS for PM in 40 CFR 60.102.	a. Continuous opacity monitoring system.	Electrostatic precipitator	Maintain the hourly average opacity of emissions from your catalyst regenerator vent no higher than the site-specific opacity limit established during the performance test.

[As stated in § 63.1564(a)(2), you must meet each operating limit in the following table that applies to you]

For each new or existing catalytic cracking unit * * *	For this type of continuous monitoring system * * *	For this type of control device * * *	You must meet this operating limit * * *
	b. Continuous parameter monitoring systems.	Electrostatic precipitator	Maintain the daily average gas flow rate no higher than the limit established in the performance test; and maintain the daily average voltage and secondary current (or total power input) above the limit established in the performance test.
	c. Continuous parameter monitoring systems.	Wet scrubber	Maintain the daily average pressure drop above the limit established in the performance test (not applicable to a wet scrubber of the non-venturi jet-ejector design); and maintain the daily average liquid-to-gas ratio above the limit established in the performance test.
4. Option 3: Ni lb/hr not subject to the NSPS for PM in 40 CFR 60.102.	a. Continuous opacity monitoring system.	Electrostatic precipitator	Maintain the daily average Ni operating value no higher than the limit established during the performance test.
	b. Continuous parameter monitoring systems.	i. Electrostatic precipitator	Maintain the daily average gas flow rate no higher than the limit established during the performance test; maintain the monthly rolling average of the equilibrium catalyst Ni concentration no higher than the limit established during the performance test; and maintain the daily average voltage and secondary current (or total power input) above the established during the performance test.
		ii. Wet scrubber	Maintain the monthly rolling average of the equilibrium catalyst Ni concentration no higher than the limit established during the performance test; maintain the daily average pressure drop above the limit established during the performance test (not applicable to a non-venturi wet scrubber of the jet-ejector design); and maintain the daily average liquid-to-gas ratio above the limit established during the performance test.
5. Option 4: Ni lb/1,000 lbs of coke burn-off not subject to the NSPS for PM in 40 CFR 60.102.	a. Continuous opacity monitoring system	Electrostatic precipitator	Maintain the daily average Ni operating value no higher than the Ni operating limit established during the performance test.

[As stated in § 63.1564(a)(2), you must meet each operating limit in the following table that applies to you]

For each new or existing catalytic cracking unit * * *	For this type of continuous monitoring system * * *	For this type of control device * * *	You must meet this operating limit * * *
	b. Continuous parameter monitoring systems.	i. Electrostatic precipitator	Maintain the monthly rolling average of the equilibrium catalyst Ni concentration no higher than the limit established during the performance test; and maintain the daily average voltage and secondary current for total power input) above the limit established during the performance test.
		ii. Wet scrubber	Maintain the monthly rolling average of the equilibrium catalyst Ni concentration no higher than the limit established during the performance test; maintain the daily average pressure drop above the limit established during the performance test (not applicable to a non-venturi wet scrubber of the jet-ejector design); and maintain the daily average liquid-to-gas ratio above the limit established during the performance test.

Table 3 to Subpart UUU of Part 63—Continous Monitoring Systems for Metal HAP Emissions From Catalytic Cracking Units

[As stated in § 63.1564(b)(1), you must meet each requirement in the following table that applies to you]

For each new or existing catalytic cracking unit * * *	If your catalytic cracking unit is * * *	And you use this type of control device for your vent * * *	You must install, operate, and maintain a * * *
1. Subject to the NSPS for PM in 40 CFR 60.102.	Any size	Electrostatic precipitator or wet scrubber or no control device.	Continous opacity monitoring system to measure and record the opacity of emissions from each catalyst regenerator vent.
2. Option 1: NSPS limits not subject to the NSPS for PM in 40 CFR 60.102.	Any size	Electrostatic precipitator or wet scrubber or no control device.	Continuous opacity monitoring system to measure and record the opacity of emissions from each catalyst regenerator vent.
3. Option 2: PM limit not subject to the NSPS for PM in 40 CFR 60.102.	a. Over 20,000 barrels per day fresh feed capacity.	Electrostatic precipitator ...	Continous opacity monitoring system to measure and record the opacity of emissions from each catalyst regenerator vent.
	b. Up to 20,000 barrels per day fresh feed capacity.	Electrostatic precipitator ...	Continuous opacity monitoring system to measure and record the opacity of emissions from each catalyst regenerator vent; or continuous parameter monitoring systems to measure and record the gas flow rate to the control device and the voltage and secondary current (or total power input) to the control device.
	c. Any size	i. Wet scrubber	(1) Continuous parameter monitoring system to measure and record the pressure drop across the scrubber, gas flow rate to the scrubber, and total liquid (or scrubbing liquor) flow rate to the scrubber. (2) If you use a wet scrubber of the non-venturi jet-ejector design, you're not required to install and operate a continuous parameter monitoring system for pressure drop.

[As stated in § 63.1564(b)(1), you must meet each requirement in the following table that applies to you]

For each new or existing catalytic cracking unit * * *	If your catalytic cracking unit is * * *	And you use this type of control device for your vent * * *	You must install, operate, and maintain a * * *
	d. Any size	No electrostatic precipitator or wet scrubber.	Continous opacity monitoring system to measure and record the opacity of emissions from each catalyst regenerator vent.
4. Option 3: Ni lb/hr not subject to the NSPS for PM in 40 CFR 60.102.	a. Over 20,000 barrels per day fresh feed capacity.	Electrostatic precipitator	Continous opacity monitoring system to measure and record the opacity of emissions from each catalyst regenerator vent and continuous parameter monitoring system to measure and record the gas flow rate.
	b. Up to 20,000 barrels per day fresh feed capacity.	Electrostatic precipitator	Continuous opacity monitoring system to measure and record the opacity of emissions from each catalyst regenerator vent and continuous parameter monitoring system to measure and record the gas flow rate; or continuous parameter monitoring systems to measure and record the gas flow rate and the voltage and secondary current (or total power input) to the control device.
	c. Any size	Wet scrubber	(1) Continuous parameter monitoring system to measure and record the pressure drop across the scrubber, gas flow rate to the scrubber, and total liquid (or scrubbing liquor) flow rate to the scrubber. (2) If you use a wet scrubber of the non-venturi jet-ejector, design, you're not required to install and operate a continuous parameter monitoring system for pressure drop.
	d. Any size	No electrostatic precipitator or wet scrubber.	Continuous opacity monitoring system to measure and record the opacity of emissions from each catalyst regenerator vent and continuous parameter monitoring system to measure and record the gas flow rate.
5. Option 4: Ni lb/1,000 lbs of coke burn-off not subject to the NSPS for PM in 40 CFR 60.102.	a. Over 20,000 barrels per day fresh feed capacity.	Electrostatic precipitator	Continuous opacity monitoring system to measure and record the opacity of emissions from each catalyst regenerator vent and continuous parameter monitoring system to measure and record the gas flow rate.
	b. Up to 20,000 barrels per day fresh feed capacity.	Electrostatic precipitator	Continuous opacity monitoring system to measure and record the opacity of emissions from each catalyst regenerator vent and continuous parameter monitoring system to measure and record the gas flow rate; or continuous parameter monitoring systems to measure and record the gas flow rate and the voltage and secondary current (or total power input) to the control device.
	c. Any size	Wet scrubber	Continuous parameter monitoring system to measure and record the pressure drop across the scrubber, gas flow rate to the scrubber, and total liquid (or scrubbing liquor) flow rate to the scrubber.
	d. Any size	No electrostatic precipitator or wet scrubber	Continuous opacity monitoring system to measure and record the opacity of emissions from each catalyst regenerator vent and continuous parameter monitoring system to measure and record the gas flow rate.

TABLE 4 TO SUBPART UUU OF PART 63—REQUIREMENTS FOR PERFORMANCE TESTS FOR METAL HAP EMISSIONS FROM CATALYTIC CRACKING UNITS NOT SUBJECT TO THE NEW SOURCE PERFORMANCE STANDARD (NSPS) FOR PARTICULATE MATTER (PM)

[As stated in § 63.1564(b)(2), you must meet each requirement in the following table that applies to you]

For each new or existing catalytic cracking unit catalyst regenerator vent * * *	You must * * *	Using * * *	According to these requirements * * *
1. If you elect Option 1 in item 2 of Table 1, Option 2 in item 3 of Table 1, Option 3 in item 4 of Table 1, or Option 4 in item 5 of Table 1 of this subpart.	a. Select sampling port's location and the number of traverse ports.	Method 1 or 1A in appendix A to part 60 of this chapter.	Sampling sites must be located at the outlet of the control device or the outlet of the regenerator, as applicable, and prior to any releases to the atmosphere.
	b. Determine velocity and volumetric flow rate.	Method 2, 2A, 2C, 2D, 2F, or 2G in appendix A to part 60 of this chapter, as applicable.	
	c. Conduct gas molecular weight analysis.	Method 3, 3A, or 3B in appendix A to part 60 of this chapter, as applicable.	
	d. Measure moisture content of the stack gas.	Method 4 in appendix A to part 60 of this chapter.	
	e. If you use an electro-static precipitator, record the total number of fields in the control system and how many operated during the applicable performance test.		
	f. If you use a wet scrubber, record the total amount (rate) of water (or scrubbing liquid) and the amount (rate) of make-up liquid to the scrubber during each test run.		
2. Option 1: Elect NSPS	a. Measure PM emissions	Method 5B or 5F (40 CFR part 60, appendix A) to determine PM emissions and associated moisture content for units without wet scrubbers. Method 5B (40 CFR part 60, appendix A) to determine PM emissions and associated moisture content for unit with wet scrubber.	You must maintain a sampling rate of at least 0.15 dry standard cubic meters per minute (dscm/min) (0.53 dry standard cubic feet per minute (dscf/min)).
	b. Compute PM emission rate (lbs/1,000 lbs) of coke burn-off.	Equations 1, 2, and 3 of § 63.1564 (if applicable).	
	c. Measure opacity of emissions..	Continuous opacity monitoring system.	You must collect opacity monitoring data every 10 seconds during the entire period of the initial Method 5 performance test and reduce the data to 6-minute averages.
3. Option 2: PM limit	a. Measure PM emissions	See item 2. of this table	See item 2. of this table.
	b. Compute coke burn-off rate and PM emission rate.	Equations 1 and 2 of § 63.1564	
	c. Establish your site-specific opacity operating limit if you use a continuous opacity monitoring system.	Data from the continuous opacity monitoring system.	You must collect opacity monitoring data every 10 seconds during the entire period of the initial Method 5 performance test and reduce the data to 6-minute averages; determine and record the hourly average opacity from all the 6-minute averages; and compute the site-specific limit using Equation 4 of § 63.1564.
4. Option 3: Ni lb/hr	a. Measure concentration of Ni and total metal HAP.	Method 29 (40 CFR part 60, appendix A).	You must maintain a sampling rate of at least 0.028 dscm/min (0.74 dscf/min).

[As stated in § 63.1564(b)(2), you must meet each requirement in the following table that applies to you]

For each new or existing catalytic cracking unit catalyst regenerator vent * * *	You must * * *	Using * * *	According to these requirements * * *
	b. Compute Ni emission rate (lb/hr).	Equation 5 of § 63.1564	
	c. Determine the equilibrium catalyst Ni concentration.	EPA Method 6010B or 6020 or EPA Method 7520 or 7521 in SW–846 [1]; or, you can use an alternative method satisfactory to the Administrator.	You must obtain 1 sample for each of the 3 runs; determine and record the average equilibrium catalyst Ni concentration for each of the 3 runs; and you may adjust the results for an individual run to the maximum value using Equation 1 of § 63.1571.
	d. If you use a continuous opacity monitoring system, establish your site-specific Ni operating limit.	i. Equations 6 and 7 of § 63.1564 using data from continuous opacity monitoring system, gas flow rate, results of equilibrium catalyst Ni concentration analysis, and Ni emission rate from Method 29 test.	(1) You must collect opacity monitoring data every 10 seconds during the entire period of the initial Ni performance test; reduce the data to 6-minute averages; and determine and record the hourly average opacity from all the 6-minute averages. (2) You must collect gas flow rate monitoring data every 15 minutes during the entire period of the initial Ni performance test; measure the gas flow as near as practical to the continuous opacity monitoring system; and determine and record the hourly average actual gas flow rate from all the readings.
5. Option 4: Ni lbs/1,000 lbs of coke burn-off.	a. Measure concentration of Ni and total metal HAP.	Method 29 (40 CFR part 60, appendix A).	You must maintain a sampling rate of at least 0.028 dscm/min (0.74 dscf/min).
	b. Compute Ni emission rate (lb/1,000 lbs of coke burn-off).	Equations 1 and 8 of § 63.1564.	
	c. Determine the equilibrium catalyst Ni concentration.	EPA Method 6010B or 6020 or EPA Method 7520 or 7521 (SW–846) [1]; or, you can use an alternative method satisfactory to the Administrator.	You must obtain 1 sample for each of the 3 runs; determine and record the equilibrium catalyst Ni concentration for each of the 3 samples; and you may adjust the laboratory results to the maximum value using Equation 2 of § 63.1571.
	d. If you use a continuous opacity monitoring system, establish your site-specific Ni operating limit.	i. Equations 9 and 10 of § 63.1564 with data from continuous opacity monitoring system, coke burn-off rate, gas flow rate, results of equilibrium catalyst Ni concentration analysis, and Ni emission rate from Method 29 test.	(1) You must collect opacity monitoring data every 10 seconds during the entire period of the initial Ni performance test; reduce the data to 6-minute averages; and determine and record the hourly average opacity from all the 6-minute averages. (2) You must collect gas flow rate monitoring data every 15 minutes during the entire period of the initial Ni performance test; measure the gas flow rate as near as practical to the continuous opacity monitoring system; and determine and record the hourly average actual gas flow rate from all the readings.

[As stated in § 63.1564(b)(2), you must meet each requirement in the following table that applies to you]

For each new or existing catalytic cracking unit catalyst regenerator vent * * *	You must * * *	Using * * *	According to these requirements * * *
	e. Record the catalyst addition rate for each test and schedule for the 10-day period prior to the test.		
6. If you elect Option 2 in Entry 3 in Table 1, Option 3 in Entry 4 in Table 1, or Option 4 in Entry 5 in Table 1 of this subpart and you use continuous parameter monitoring systems.	a. Establish each operating limit in Table 2 of this subpart that applies to you.	Data from the continuous parameter monitoring systems and applicable performance test methods.	
	b. Electrostatic precipitator or wet scrubber: gas flow rate.	Data from the continuous parameter monitoring systems and applicable performance test methods.	You must collect gas flow rate monitoring data every 15 minutes during the entire period of the initial performance test; and determine and record the maximum hourly average gas flow rate from all the readings.
	c. Electrostatic precipitator: voltage and secondary current (or total power input).	Data from the continuous parameter monitoring systems and applicable performance test methods.	You must collect voltage and secondary current (or total power input) monitoring data every 15 minutes during the entire period of the initial performance test; and determine and record the minimum hourly average voltage and secondary current (or total power input) from all the readings.
	d. Electrostatic precipitator or wet scrubber: equilibrium catalyst Ni concentration.	Results of analysis for equilibrium catalyst Ni concentration.	You must determine and record the average equilibrium catalyst Ni concentration for the 3 runs based on the laboratory results. You may adjust the value using Equation 1 or 2 of § 63.1571 as applicable.
	e. Wet scrubber: pressure drop (not applicable to non-venturi scrubber of jet ejector design).	Data from the continuous parameter monitoring systems and applicable performance test methods.	You must collect pressure drop monitoring data every 15 minutes during the entire period of the initial performance test; and determine and record the minimum hourly average pressure drop from all the readings.
	f. Wet scrubber: liquid-to-gas ratio.	Data from the continuous parameter monitoring systems and applicable performance test methods.	You must collect gas flow rate and total water (or scrubbing liquid) flow rate monitoring data every 15 minutes during the entire period of the initial performance test; determine and record the hourly average gas flow rate and total water (or scrubbing liquid) flow rate from all the readings; and determine and record the minimum liquid-to-gas ratio.

[As stated in § 63.1564(b)(2), you must meet each requirement in the following table that applies to you]

For each new or existing catalytic cracking unit catalyst regenerator vent * * *	You must * * *	Using * * *	According to these requirements * * *
	g. Alternative procedure for gas flow rate.	Data from the continuous parameter monitoring systems and applicable performance test methods.	You must collect air flow rate monitoring data or determine the air flow rate using control room instrumentation every 15 minutes during the entire period of the initial performance test; determine and record the hourly average rate of all the readings; and determine and record the maximum gas flow rate using Equation 1 of § 63.1573.

[1] EPA Method 6010B, Inductively Coupled Plasma-Atomic Emission Spectrometry, EPA Method 6020, Inductively Coupled Plasma-Mass Spectrometry, EPA Method 7520, Nickel Atomic Absorption, Direct Aspiration, and EPA Method 7521, Nickel Atomic Absorption, Direct Aspiration are included in ''Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,'' EPA Publication SW–846, Revision 5 (April 1998). The SW–846 and Updates (document number 955–001–00000–1) are available for purchase from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, (202) 512–1800; and from the National Technical Information Services (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487–4650. Copies may be inspected at the Air and Radiation Docket and Information Center, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC; or at the Office of the Federal Register, 800 North Capitol Street, NW, Suite 700, Washington, DC.

TABLE 5 TO SUBPART UUU OF PART 63—INITIAL COMPLIANCE WITH METAL HAP EMISSION LIMITS FOR CATALYTIC CRACKING UNITS

[As stated in § 63.1564(b)(5), you must meet each requirement in the following table that applies to you]

For each new and existing catalytic cracking unit catalyst regenerator vent * * *	For the following emission limit * * *	You have demonstrated initial compliance if * * *
1. Subject to the NSPS for PM in 40 CFR 60.102.	PM emissions must not exceed 1.0 kg/1,000 kg (1.0 lb/1,000 lb) of coke burn-off in the catalyst regenerator; if the discharged gases pass through an incinerator or waste heat boiler in which you burn auxiliary or supplemental liquid or solid fossil fuel, you must limit the incremental rate of PM to no more than 43.0 grams per Megajoule (g/MJ) or 0.10 pounds per million British thermal units (lb/million Btu) of heat input attributable to the liquid or solid fossil fuel; and the opacity of emissions 30 percent, except for one 6-minute average opacity reading in any 1-hour period.	You have already conducted a performance test to demonstrate initial compliance with the NSPS and the measured PM emission rate is less than or equal to 1.0 kg/1,000 kg (1.0 lb/1,000 lb) of coke burn-off in the catalyst regenerator. As part of the Notification of Compliance Status, you must certify that your vent meets the PM limit. You are not required to do another performance test to demonstrate initial compliance. If applicable, you have already conducted a performance test to demonstrate initial compliance with the NSPS and the measured PM rate is less than or equal to 43.0 g/MJ or 0.010 lb/million Btu of heat input attributable to the liquid or solid fossil fuel. As part of the Notification of Compliance Status, you must certify that your vent meets the PM emission limit. You are not required to do another performance test to demonstrate initial compliance. You have already conducted a performance test to demonstrate initial compliance with the NSPS and the average hourly opacity of emissions is no more than 30 percent. Except: one 6-minute average in any 1-hour period can exceed 30 percent. As part of the Notification of Compliance Status, you must certify that your vent meets the opacity limit. You are not required to do another performance test to demonstrate initial compliance. You have already conducted a performance evaluation to demonstrate initial compliance with the applicable performance specification. As part of your Notification of Compliance Status, you certify that your continuous opacity monitoring system meets the requirements in § 63.1572. You are not required to do a performance evaluation to demonstrate initial compliance.

[As stated in § 63.1564(b)(5), you must meet each requirement in the following table that applies to you]

For each new and existing catalytic cracking unit catalyst regenerator vent * * *	For the following emission limit * * *	You have demonstrated initial compliance if * * *
2. Option 1: Elect NSPS not subject to the NSPS for PM.	PM emissions must not exceed 1.0 kg/1,000 kg (1.0 lb/1,000 lb) of coke burn-off in the catalyst regenerator; if the discharged gases pass through an incinerator or waste heat boiler in which you burn auxiliary or supplemental liquid or solid fossil fuel, you must limit the incremental rate of PM to no more than 43.0 grams per Megajoule (g/MJ) or 0.10 pounds per million British thermal units (lb/million Btu) of heat input attributable to the liquid or solid fossil fuel; and the opacity of emissions must not exceed 30 percent, except for one 6-minute average opacity reading in any 1-hour period.	The average PM emission rate, measured using EPA method 5 over the period of the initial performance test, is no higher than 1.0 kg/1,000 kg (1.0 lb/1,000 lbs) of coke burn-off in the catalyst regenerator. The PM emission rate is calculated using Equations 1 and 2 of the § 63.1564. If applicable, the average PM emission rate, measured using EPA Method 5 over the period of the initial performance test, is no higher than 43.0 g/MJ or 0.010 lb/million Btu of heat input attributable to the liquid or solid fossil fuel. The PM emission rate is calculated using Equation 3 of § 63.1564; no more than one 6-minute average measured by the continuous opacity monitoring system exceeds 30 percent opacity in any 1-hour period over the period of the performance test; and your performance evaluation shows the continuous opacity monitoring system meets the applicable requirements in § 63.1572.
3. Option 2: not subject to the NSPS for PM.	PM emissions must not exceed 1.0 kg/1,000 kg (1.0 lb/1,000 lb) of coke burn-off in the catalyst regenerator.	The average PM emission rate, measured using EPA Method 5 over the period of the initial performance test, is less than or equal to 1.0 kg/1,000 kg (1.0 lb/1,000 lbs) of coke burn-off in the catalyst regenerator. The PM emission rate is calculated using Equations 1 and 2 of § 63.1564; and if you use a continuous opacity monitoring system, your performance evaluation shows the system meets the applicable requirements in § 63.1572.
4. Option 3: not subject to the NSPS for PM.	Nickel (Ni) emissions from your catalyst regenerator vent must not exceed 13,000 mg/hr (0.029 lb/hr).	The average Ni emission rate, measured using Method 29 over the period of the initial performance test, is not more than 13,000 mg/hr (0.029 lb/hr). The Ni emission rate is calculated using Equation 5 of § 63.1564; and if you use a continuous opacity monitoring system, your performance evaluation shows the system meets the applicable requirements in § 63.1572.
5. Option 4: Ni lb/1,000 lbs of coke burn-off not subject to the NSPS for PM.	Ni emissions from your catalyst regenerator vent must not exceed 1.0 mg/kg (0.001 lb/1,000 lbs) of coke burn-off in the catalyst regenerator.	The average Ni emission rate, measured using Method 29 over the period of the initial performance test, is not more than 1.0 mg/kg (0.001 lb/1,000 lbs) of coke burn-off in the catalyst regenerator. The Ni emission rate is calculated using Equation 8 of § 63.1564; and if you use a continuous opacity monitoring system, your performance evaluation shows the system meets the applicable requirements in § 63.1572.

TABLE 6 TO SUBPART UUU OF PART 63—CONTINUOUS COMPLIANCE WITH METAL HAP EMISSION LIMITS FOR CATALYTIC CRACKING UNITS

[As stated in § 63.1564(c)(1), you must meet each requirement in the following table that applies to you]

For each new and existing catalytic cracking unit * * *	Subject to this emission limit for your catalyst regenerator vent * * *	You must demonstrate continuous compliance by * * *
1. Subject to the NSPS for PM in 40 CFR 60.102.	a. PM emissions must not exceed 1.0 lb/1,000 lbs of coke burn-off in the catalyst regenerator; if the discharged gases pass through an incinerator or waste heat boiler in which you burn auxiliary or supplemental liquid or solid fossil fuel, incremental rate of PM can't exceed 43.0 g/MJ (0.10 lb/million Btu) of heat input attributable to the liquid or solid fossil fuel; and opacity of emissions can't exceed 30 percent, except for one 6-minute average opacity reading in any 1-hour period.	i. Determining and recording each day the average coke burn-off rate (thousands of kilograms per hour) using Equation 2 in § 63.1564 and the hours of operation for each catalyst regenerator; maintaining PM emission rate below 1.0 kg/1,000 kg (1.0 lb/1,000 lbs) of coke burn-off; if applicable, determining and recording each day the rate of combustion of liquid or solid fossil fuels (liters/hour or kilograms/hour) using Equation 3 of § 63.1564 and the hours of operation during which liquid or solid fossil-fuels are combusted in the incinerator-waste heat boiler; if applicable, maintaining PM rate below 43 g/MJ (0.10 lb/million Btu) of heat input attributable to the solid or liquid fossil fuel; collecting the continuous opacity monitoring data for each catalyst regenerator vent according to § 63.1572; and maintaining each 6-minute average at or below 30 percent except that one 6-minute average during a 1-hour period can exceed 30 percent.
2. Option 1: Elect NSPS not subject to the NSPS for PM in 40 CFR 60.102.	See item 1.a. of this table	See item 1.a.i. of this table.
3. Option 2: PM limit not subject to the NSPS for PM.	PM emissions must not exceed 1.0 lb/1,000 lbs of coke burn-off in the catalyst regenerator.	Determining and recording each day the average coke burn-off rate (thousands of kilograms per hour) and the hours of operation for each catalyst regenerator by Equation 2 of § 63.1564. You can use process data to determine the volumetric flow rate; and maintaining PM emission rate below 1.0 kg/1,000 kg (1.0 lb/1,000 lbs) of coke burn-off.
4. Option 3: Ni lb/hr not subject to the NSPS for PM.	Ni emissions must not exceed 13,000 mg/hr (0.029 lb/hr).	Maintaining Ni emission rate below 13,000 mg/hr (0.029 lb/hr).
5. Option 4: Ni lb/1,000 lbs of coke burn-off not subject to the NSPS for PM.	Ni emissions must not exceed 1.0 mg/kg (0.001 lb/1,000 lbs) of coke burn-off in the catalyst regenerator.	Determining and recording each day the average coke burn-off rate (thousands of kilograms per hour) and the hours of operation for each catalyst regenerator by Equation 2 of § 63.1564. You can use process data to determine the volumetric flow rate; and maintaining Ni emission rate below 1.0 mg/kg (0.001 lb/1,000 lbs) of coke burn-off in the catalyst regenerator.

TABLE 7 TO SUBPART UUU OF PART 63—CONTINUOUS COMPLIANCE WITH OPERATING LIMITS FOR METAL HAP EMISSIONS FROM CATALYTIC CRACKING UNITS

[As stated in § 63.1564(c)(1), you must meet each requirement in the following table that applies to you]

For each new or existing catalytic cracking unit * * *	If you use * * *	For this operating limit * * *	You must demonstrate continuous compliance by * * *
1. Subject to NSPS for PM in 40 CFR 60.102.	Continuous opacity monitoring system.	Not applicable	Complying with Table 6 of this subpart.
2. Option 1: Elect NSPS not subject to the NSPS for PM in 40 CFR 60.102.	Continuous opacity monitoring system.	Not applicable	Complying with Table 6 of this subpart.

[As stated in § 63.1564(c)(1), you must meet each requirement in the following table that applies to you]

For each new or existing catalytic cracking unit * * *	If you use * * *	For this operating limit * * *	You must demonstrate continuous compliance by * * *
3. Option 2: PM limit not subject to the NSPS for PM in 40 CFR 60.102.	a. Continuous opacity monitoring system.	The opacity of emissions from your catalyst regenerator vent must not exceed the site-specific opacity operating limit established during the performance test	Collecting the hourly average continuous opacity monitoring system data according to § 63.1572; and maintaining each 6-minute average in each 1-hour period at or below the site-specific limit.
	b. Continuous parameter monitoring systems—electrostatic precipitator.	i. The daily average gas flow rate to the control device must not exceed the operating limit established during the performance test.	Collecting the hourly and daily average gas flow rate monitoring data according to § 63.1572[1]; and maintaining the daily average gas flow rate at limit or below the established during the performance test.
		ii. The daily average voltage and secondary current (or total power input) to the control device must not fall below the operating limit established during the performance test.	Collecting the hourly and daily average voltage and secondary current (or total power input) monitoring data according to § 63.1572; and maintaining the daily average voltage and secondary current (or total power input) at or above the limit established during the performance test.
	c. Continuous parameter monitoring systems—wet scrubber.	i. The daily average pressure drop across the scrubber must not fall below the operating limit established during the performance test.	Collecting the hourly and daily average pressure drop monitoring data according to § 63.1572; and maintaining the daily average press drop above the limit established during the performance test.
		ii. The daily average liquid-to-gas ratio must not fall below the operating limit established during the performance test.	Collecting the hourly average gas flow rate and water (or scrubbing liquid) flow rate monitoring data according to § 63.1572[1]; determining and recording the hourly average liquid-to-gas ratio; determining and recording the daily average liquid-to-gas ratio; and maintaining the daily average liquid-to-gas ratio above the limit established during the performance test.

[As stated in § 63.1564(c)(1), you must meet each requirement in the following table that applies to you]

For each new or existing catalytic cracking unit * * *	If you use * * *	For this operating limit * * *	You must demonstrate continuous compliance by * * *
4. Option 3: Ni lb/hr not subject to the NSPS for PM in 40 CFR 60.102.	a. Continuous opacity monitoring system.	The daily average Ni operating value must not exceed the site-specific Ni operating limit established during the performance test.	Collecting the hourly average continuous opacity monitoring system data according § 63.1572; determining and recording equilibrium catalyst Ni concentration at least once a week collecting the hourly average gas flow rate monitoring data according to § 63.1572[1]; determining and recording the hourly average Ni operating value using Equation 11 of § 63.1564; determining and recording the daily average Ni operating value; and maintaining the daily average Ni operating value below the site-specific Ni operating limit established the performance test.
	b. Continuous parameter monitoring systems—electrostatic precipitator.	i. The daily average gas flow rate to the control device must notice exceed the level established in the performance test.	See item 3.b.i. of this table.
		ii. The daily average voltage and secondary current (or total power input) must not fall below the level established in the performance test.	See item 3.b.ii. of this table.
		iii. The monthly rolling average of equilibrium catalyst Ni concentration must not exceed the level established during the performance test.	Determining the recording the equilibrium catalyst Ni concentration at least once a week; determining and recording the monthly rolling average of the equilibrium catalyst Ni concentration once each week using the weekly or most recent value; and maintaining the monthly rolling average below the limit established in the performance test
	c. Continuous parameter monitoring systems—wet scrubber.	i. The daily average pressure drop must not fall below the operating limit established in the performance test.	See item 3.c.i. of this table.
		ii. The daily average liquid-to-gas ratio must not fall below the operating limit established during the performance test.	See item 3.c.ii. of this table.
		iii. The monthly rolling average equilibrium catalyst Ni concentration must not exceed the level established during the performance test.	Determining and recording the equilibrium catalyst Ni concentration at least once a week; determining and recording the monthly rolling average of equilibrium catalyst Ni concentration once each week using the weekly or most recent value; and maintaining the monthly rolling average below the limit established in the performance test.

[As stated in § 63.1564(c)(1), you must meet each requirement in the following table that applies to you]

For each new or existing catalytic cracking unit * * *	If you use * * *	For this operating limit * * *	You must demonstrate continuous compliance by * * *
5. Option 4: Ni lb/ton of coke burn-off not subject to the NSPS for PM in 40 CFR 60.102	a. Continuous opacity monitoring system.	The daily average Ni operating value must not exceed the site-specific Ni operating limit established during the performance test.	Collecting the hourly average continuous opacity monitoring system data according to § 63.1572; collecting the hourly average gas flow rate monitoring data according to § 63.1572[1]; determining and recording equilibrium catalyst Ni concentration at least once a week; determining and recording the hourly average Ni operating value using Equation 12 of § 63.1564; determining and recording the daily average Ni operating value; and maintaining the daily average Ni operating value below the site-specific Ni operating limit established during the performance test.
	b. Continuous parameter monitoring systems—electrostatic precipitator.	i. The daily average gas flow rate to the control device must not exceed the level established in the performance test.	See item 3.b.i. of this table.
		ii. The daily average voltage and secondary current (or total power input) must not fall below the level established in the performance test.	See item 3.b.ii. of this table.
		iii. The monthly rolling average equilibrium catalyst Ni concentration must not exceed the level established during the performance test.	See item 4.b.iii. of this table.
	c. Continuous parameter monitoring systems—wet scrubber.	i. The daily average pressure drop must not fall below the operating limit established in the performance test.	See item 3.c.i. of this table.
		ii. The daily average liquid-to-gas ratio must not fall below the operating limit established during the performance test. See item 3.c.ii. of this table.	
		iii. The monthly rolling average equilibrium catalyst Ni concentration must not exceed the level established during the performance test.	See item 4.c.iii. of this table.

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[1] If applicable, you can use the alternative in § 63.1573 for gas flow rate instead of a continuous parameter monitoring system if you used the alternative method in the initial performance test. If so, you must continuously monitor and record the air flow rate to the regenerator and the temperature of the gases entering the control device as described in § 63.1573. You must determine and record the hourly average gas flow rate using Equation 1 of § 63.1573 and the daily average gas flow rate. You must maintain the daily average gas flow rate below the operating limit established during the performance test.

TABLE 8 TO SUBPART UUU OF PART 63—ORGANIC HAP EMISSION LIMITS FOR CATALYTIC CRACKING UNITS

[As stated in § 63.1565(a)(1), you must meet each emission limitation in the following table that applies to you]

For each new and existing catalytic cracking unit * * *	You must meet the following emission limit for each catalyst regenerator vent * * *
1. Subject to the NSPS for carbon monoxide (CO) in 40 CFR 60.103.	CO emissions from the catalyst regenerator vent or CO boiler serving the catalytic cracking unit must not exceed 500 parts per million volume (ppmv) (dry basis).
2. Not subject to the NSPS for CO in 40 CFR 60.103 ...	a. CO emissions from the catalyst regenerator vent or CO boiler serving the catalytic cracking unit must not exceed 500 ppmv (dry basis).
	b. If you use a flare to meet the CO limit, the flare must meet the requirements for control devices in § 63.11(b): visible emissions must not exceed a total of 5 minutes during any 2 consecutive hours.

TABLE 9 TO SUBPART UUU OF PART 63—OPERATING LIMITS FOR ORGANIC HAP EMISSIONS FROM CATALYTIC CRACKING UNITS

[As stated in § 63.1565(a)(2), you must meet each operating limit in the following table that applies to you]

For each new or existing catalytic cracking unit * * *	For this type of continuous monitoring system * * *	For this type of control device * * *	You must meet this operating limit * * *
1. Subject to the NSPS for carbon monoxide (CO) in 40 CFR 60.103.	Continuous emission monitoring system.	Not applicable	Not applicable.
2. Not subject to the NSPS for CO in 40 CFR 60.103.	a. Continuous emission monitoring system.	Not applicable	Not applicable.
	b. Continuous parameter monitoring systems.	i. Thermal incinerator	Maintain the daily average combustion zone temperature above the limit established during the performance test; and maintain the daily average oxygen concentration in the vent stream (percent, dry basis) above the limit established during the performance test.
		ii. Boiler or process heater with a design heat input capacity under 44 MW or a boiler or process heater in which all vent streams are not introduced into the flame zone.	Maintain the daily average combustion zone temperature above the limit established in the performance test.
		iii. Flare	The flare pilot light must be present at all times and the flare must be operating at all times that emissions may be vented to it.

TABLE 10 TO SUBPART UUU OF PART 63—CONTINUOUS MONITORING SYSTEMS FOR ORGANIC HAP EMISSIONS FROM CATALYTIC CRACKING UNITS

[As stated in § 63.1565(b)(1), you must meet each requirement in the following table that applies to you]

For each new or existing catalytic cracking unit * * *	And you use this type of control device for your vent * * *	You must install, operate, and maintain this type of continuous monitoring system * * *
1. Subject to the NSPS for carbon monoxide (CO) in 40 CFR 60.103.	Not applicable	Continuous emission monitoring system to measure and record the concentration by volume (dry basis) of CO emissions from each catalyst regenerator vent.

[As stated in § 63.1565(b)(1), you must meet each requirement in the following table that applies to you]

For each new or existing catalytic cracking unit * * *	And you use this type of control device for your vent * * *	You must install, operate, and maintain this type of continuous monitoring system * * *
2. Not subject to the NSPS for CO in 40 CFR 60.103.	a. Thermal incinerator	Continuous emission monitoring system to measure and record the concentration by volume (dry basis) of CO emissions from each catalyst regenerator vent; or continuous parameter monitoring systems to measure and record the combustion zone temperature and oxygen content (percent, dry basis) in the incinerator vent stream.
	b. Process heater or boiler with a design heat input capacity under 44 MW or process heater or boiler in which all vent streams are not introduced into the flame zone.	Continuous emission monitoring system to measure and record the concentration by volume (dry basis) of CO emissions from each catalyst regenerator vent; or continuous parameter monitoring systems to measure and record the combustion zone temperature.
	c. Flare	Monitoring device such as a thermocouple, an ultraviolet beam sensor, or infrared sensor to continuously detect the presence of a pilot flame.
	d. No control device	Continuous emission monitoring system to measure and record the concentration by volume (dry basis) of CO emissions from each catalyst regenerator vent.

TABLE 11 TO SUBPART UUU OF PART 63—REQUIREMENTS FOR PERFORMANCE TESTS FOR ORGANIC HAP EMISSIONS FROM CATALYTIC CRACKING UNITS NOT SUBJECT TO NEW SOURCE PERFORMANCE STANDARD (NSPS) FOR CARBON MONOXIDE (CO)

[As stated in § 63.1565(b)(2) and (3), you must meet each requirement in the following table that applies to you]

For * * *	You must * * *	Using * * *	According to these requirements * * *
1. Each new or existing catalytic cracking unit catalyst regenerator vent.	a. Select sampling port's location and the number of traverse ports.	Method 1 or 1A in appendix A to part 60 of this chapter.	Sampling sites must be located at the outlet of the control device or the outlet of the regenerator, as applicable, and prior to any releases to the atmosphere.
	b. Determine velocity and volumetric flow rate.	Method 2, 2A, 2D, 2F, or 2G in appendix A to part 60 of this chapter, as applicable.	
	c. Conduct gas molecular weight analysis.	Method 3, 3A, or 3B in appendix A to part 60 of this chapter, as applicable.	
	d. Measure moisture content of the stack gas.	Method 4 in appendix A to part 60 of this chapter.	
2. For each new or existing catalytic cracking unit catalyst regenerator vent if you use a continuous emission monitoring system.	Measure CO emissions	Data from your continuous emission monitoring system.	Collect CO monitoring data for each vent for 24 consecutive operating hours; and reduce the continuous emission monitoring data to 1-hour averages computed from four or more data points equally spaced over each 1-hour period.
3. Each catalytic cracking unit catalyst regenerator vent if you use continuous parameter monitoring systems.	a. Measure the CO concentration (dry basis) of emissions exiting the control device.	Method 10, 10A, or 10B in appendix A to part 60 of this chapter, as applicable.	
	b. Establish each operating limit in Table 9 of this subpart that applies to you.	Data from the continuous parameter monitoring systems.	

[As stated in § 63.1565(b)(2) and (3), you must meet each requirement in the following table that applies to you]

For * * *	You must * * *	Using * * *	According to these requirements * * *
	c. Thermal incinerator combustion zone temperature.	Data from the continuous parameter monitoring systems.	Collect temperature monitoring data every 15 minutes during the entire period of the CO initial performance test; and determine and record the minimum hourly average combustion zone temperature from all the readings.
	d. Thermal incinerator: oxygen, content (percent, dry basis) in the incinerator vent stream.	Data from the continuous parameter monitoring systems.	Collect oxygen concentration (percent, dry basis) monitoring data every 15 minutes during the entire period of the CO initial performance test; and determine and record the minimum hourly average percent excess oxygen concentration from all the readings.
	e. If you use a process heater or boiler with a design heat input capacity under 44 MW or process heater or boiler in which all vent streams are not introduced into the flame zone, establish operating limit for combustion zone temperature.	Data from the continuous parameter monitoring systems.	Collect the temperature monitoring data every 15 minutes during the entire period of the CO initial performance test; and determine and record the minimum hourly average combustion zone temperature from all the readings.
	f. If you use a flare, conduct visible emission observations.	Method 22 (40 CFR part 60, appendix A).	Maintain a 2-hour observation period; and record the presence of a flame at the pilot light over the full period of the test.
	g. If you use a flare, determine that the flare meets the requirements for net heating value of the gas being combusted and exit velocity.	40 CFR 60.11(b)(6)through(8).	

TABLE 12 TO SUBPART UUU OF PART 63—INITIAL COMPLIANCE WITH ORGANIC HAP EMISSION LIMITS FOR CATALYTIC CRACKING UNITS

[As stated in § 63.1565(b)(4), you must meet each requirement in the following table that applies to you]

For each new and existing catalytic cracking unit * * *	For the following emission limit * * *	You have demonstrated initial compliance if * * *
1. Subject to the NSPS for carbon monoxide (CO) in 40 CFR 60.103.	CO emissions from your catalyst regenerator vent or CO boiler serving the catalytic cracking unit must not exceed 500 ppmv (dry basis).	You have already conducted a performance test to demonstrate initial compliance with the NSPS and the measured CO emissions are less than or equal to 500 ppm (dry basis). As part of the Notification of Compliance Status, you must certify that your vent meets the CO limit. You are not required to conduct another performance test to demonstrate initial compliance. You have already conducted a performance evaluation to demonstrate initial compliance with the applicable performance specification. As part of your Notification of Compliance Status, you must certify that your continuous emission monitoring system meets the applicable requirements in § 63.1572. You are not required to conduct another performance evaluation to demonstrate initial compliance.

[As stated in § 63.1565(b)(4), you must meet each requirement in the following table that applies to you]

For each new and existing catalytic cracking unit * * *	For the following emission limit * * *	You have demonstrated initial compliance if * * *
2. Not subject to the NSPS for CO in 40 CFR 60.103.	a. CO emissions from your catalyst regenerator vent or CO boiler serving the catalytic cracking unit must not exceed 500 ppmv (dry basis).	i. If you use a continuous parameter monitoring system, the average CO emissions measured by Method 10 over the period of the initial performance test are less than or equal to 500 ppmv (dry basis). ii. If you use a continuous emission monitoring system, the hourly average CO emissions over the 24-hour period for the initial performance test are not more than 500 ppmv (dry basis); and your performance evaluation shows your continuous emission monitoring system meets the applicable requirements in § 63.1572.
	b. If you use a flare, visible emissions must not exceed a total of 5 minutes during any 2 operating hours.	Visible emissions, measured by Method 22 during the 2-hour observation period during the initial performance test, are no higher than 5 minutes.

TABLE 13 TO SUBPART UUU OF PART 63—CONTINUOUS COMPLIANCE WITH ORGANIC HAP EMISSION LIMITS FOR CATALYTIC CRACKING UNITS

[As stated in § 63.1565(c)(1), you must meet each requirement in the following table that applies to you]

For each new and existing catalytic cracking unit * * ;*	Subject to this emission limit for your catalyst regenerator vent * * *	If you must * * *	You must demonstrate continuous compliance by * * *
1. Subject to the NSPS for carbon monoxide (CO) in 40 CFR 60.103.	CO emissions from your catalyst regenerator vent or CO boiler serving the catalytic cracking unit must not exceed 500 ppmv (dry basis).	Continuous emission monitoring system.	Collecting the hourly average CO monitoring data according to § 63.1572; and maintaining the hourly average CO concentration at or below 500 ppmv (dry basis).
2. Not subject to the NSPS for CO in 40 CFR 60.103.	i. CO emissions from your catalyst regenerator vent or CO boiler serving the catalytic cracking unit must not exceed 500 ppmv (dry basis).	Continuous emission monitoring system.	Same as above.
	ii. CO emissisons from your catalyst regenerator vent or CO boiler serving the catalytic cracking unit must not exceed 500 ppmv (dry basis).	Continuous parameter monitoring system.	Maintaining the hourly average CO concentration below 500 ppmv (dry basis).
	iii. Visible emissions from a flare must not exceed a total of 5 minutes during any 2-hour period.	Control device-flare	Maintaining visible emissions below a total of 5 minutes during any 2-hour operating period.

TABLE 14 TO SUBPART UUU OF PART 63—CONTINUOUS COMPLIANCE WITH OPERATING LIMITS FOR ORGANIC HAP EMISSIONS FROM CATALYTIC CRACKING UNITS

[As stated in § 63.1565(c)(1), you must meet each requirement in the following table that applies to you]

For each new existing catalytic cracking unit * * *	If you use * * *	For this operating limit * * *	You must demonstrate continuous compliance by * * *
1. Subject to NSPS for carbon monoxide (CO) in 40 CFR 60.103.	Continuous emission monitoring system.	Not applicable	Complying with Table 13 of this subpart.
2. Not subject to the NSPS for CO in 40 CFR 60.103.	a. Continuous emission monitoring system.	Not applicable	Complying with Table 13 of this subpart.

[As stated in § 63.1565(c)(1), you must meet each requirement in the following table that applies to you]

For each new existing catalytic cracking unit * * *	If you use * * *	For this operating limit * * *	You must demonstrate continuous compliance by * * *
	b. Continuous parameter monitoring systems—thermal incinerator.	i. The daily average combustion zone temperature must not fall below the level established during the performance test.	Collecting the hourly and daily average temperature monitoring data according to § 63.1572; and maintaining the daily average combustion zone temperature above the limit established during the performance test.
		ii. The daily average oxygen concentration in the vent stream (percent, dry basis) must not fall below the level established during the performance test.	Collecting the hourly and daily average oxygen concentration monitoring data according to § 63.1572; and maintaining the daily average oxygen concentration above the limit established during the performance test.
	c. Continuous parameter monitoring systems—boiler or process heater with a design heat input capacity under 44 MW or boiler or process heater in which all vent streams are not introduced into the flame zone.	The daily combustion zone temperature must not fall below the level established in the performance test.	Collecting the average hourly and daily temperature monitoring data according to § 63.1572; and maintaining the daily average combustion zone temperature above the limit established during the performance test.
	d. Continuous parameter monitoring system—flare.	The flare pilot light must be present at all times and the flare must be operating at all times that emissions may be vented to it.	Collecting the flare monitoring data according to § 63.1572; and recording for each 1-hour period whether the monitor was continuously operating and the pilot light was continuously present during each 1-hour period.

TABLE 15 TO SUBPART UUU OF PART 63—ORGANIC HAP EMISSION LIMITS FOR CATALYTIC REFORMING UNITS

[As stated in § 63.1566(a)(1), you must meet each emission limitation in the following table that applies to you]

For each new or existing catalytic reforming unit * * *	You must meet this emission limit for each process vent during depressuring and purging operation * * *
1. Option 1	Vent emissions to a flare that meets the requirements for control devices in § 63.11(b). Visible emissions from a flare must not exceed a total of 5 minutes during any 2-hour operating period.
2. Option 2	Using a control device, reduce uncontrolled emissions of total organic compounds (TOC) from your process vent by 98 percent by weight or to a concentration of 20 ppmv (dry basis), corrected to 3 percent oxygen, whichever is less stringent. If you vent emissions to a boiler or process heater to comply with the percent reduction or concentration emission limitation, the vent stream must be introduced into the flame zone, or any other location that will achieve the percent reduction or concentration standard.

TABLE 16 TO SUBPART UUU OF PART 63—OPERATING LIMITS FOR ORGANIC HAP EMISSIONS FROM CATALYTIC REFORMING UNITS

[As stated in § 63.1566(a)(2), you must meet each operating limit in the following table that applies to you]

For each new or existing catalytic reforming unit * * *	For this type of control device * * *	You must meet this operating limit during depressuring and purging operations * * *
1. Option 1: vent to flare	Flare that meets the requirements for control devices in § 63.11(b).	The flare pilot light must be present at all times and the flare must be operating at all times that emissions may be vented to it.

[As stated in § 63.1566(a)(2), you must meet each operating limit in the following table that applies to you]

For each new or existing catalytic reforming unit * * *	For this type of control device * * *	You must meet this operating limit during depressuring and purging operations * * *
2. Option 2: percent reduction or concentration limit.	Thermal incinerator, boiler or process heater with a design heat input capacity under 44 MW, or boiler or process heater in which all vent streams are not introduced into the flame zone.	The daily average combustion zone temperature must not fall below the limit established during the performance test.

TABLE 17 TO SUBPART UUU OF PART 63—CONTINUOUS MONITORING SYSTEMS FOR ORGANIC HAP EMISSIONS FROM CATALYTIC REFORMING UNITS

[As stated in § 63.1566(b)(1), you must meet each requirement in the following table that applies to you]

For each new or exiting catalytic reforming unit * * *	If you use this type of control device * * *	You must install and operate this type of continuous monitoring system * * *
1. Option 1: vent to a flare	Flare that meets the requirements for control devices in § 63.11(b).	Monitoring device such as a thermocouple, an ultraviolet beam sensor, or infrared sensor to continuously detect the presence of a pilot flame.
2. Option 2: percent reduction or concentration limit.	Thermal incinerator, process heater or boiler with a design heat input capacity under 44 MW, or process heater or boiler in which all vent streams are not introduced into the flame zone.	Continuous parameter monitoring systems to measure and record the combustion zone temperature.

TABLE 18 TO SUBPART UUU OF PART 63—REQUIREMENTS FOR PERFORMANCE TESTS FOR ORGANIC HAP EMISSIONS FROM CATALYTIC REFORMING UNITS

[As stated in § 63.1566(b)(2) and (3), you must meet each requirement in the following table that applies to you]

For each new or exiting catalytic reforming unit * * *	You must * * *	Using * * *	According to these requirements * * *
1. Option 1: vent to a flare.	a. Conduct visible emission observations.	Method 22 (40 CFR 60, appendix A).	2-hour observation period. Record the presence of a flame at the pilot light over the full period of the test.
	b. Determine that the flare meets the requirements for net heating value of the gas being combusted and exit velocity.	Not applicable	40 CFR 60.11(b)(6) through (8).
2. Option 2: percent reduction or concentration limit.	a. Select sampling site	Method 1 or 1A (40 CFR part 60, appendix A). No traverse site selection method is needed for vents smaller than 0.10 meter in diameter.	Sampling sites must be located at the inlet (if you elect the emission reduction standard) and outlet of the control device and prior to any releases to the atmosphere.
	b. Measure gas volumetric flow rate.	Method 2, 2A, 2C, 2D, 2F, or 2G (40 CFR part 60, appendix A), as applicable.	
	c. Measure TOC concentration (for percent reduction standard).	Method 25 (40 CFR part 60, appendix A) to measure TOC concentration at the inlet and outlet of the control device. If the TOC outlet concentration is expected to be less than 50 ppm, you can use Method 25A to measure TOC concentration at the inlet and the outlet of the control device.	Take either an integrated sample or four grab samples during each run. If you use a grab sampling technique, take the samples at approximately equal intervals in time, such as 15-minute intervals during the run.

[As stated in § 63.1566(b)(2) and (3), you must meet each requirement in the following table that applies to you]

For each new or exiting catalytic reforming unit * * *	You must * * *	Using * * *	According to these requirements * * *
	d. Calculate TOC emission rate and mass emission reduction.	Calculate emission rate by Equation 1 of § 63.1566 (if you use Method 25) or Equation 2 of § 63.1566 (if you use Method 25A). Calculate mass emission reduction by Equation 3 of § 63.1566.	
	e. Measure TOC concentration (for concentration standard).	Method 25A (40 CFR part 60, appendix A) to measure TOC concentration at the outlet of the control device.	
	f. Determine oxygen content in the gas stream at the outlet of the control device.	Method 3A or 3B (40 CFR part 60, appendix A), as applicable.	
	g. Correct the measured TOC concentration for oxygen content.	Equation 4 of § 63.1566	
	h. Established each operating limit in Table 16 of this subpart that applies to you for a thermal incinerator, or process heater or boiler with a design heat input capacity under 44 MW, or process heater or boiler in which all vent streams are not introduced into the flame zone.	Data from the continuous parameter monitoring systems.	Collect the temperature monitoring data every 15 minutes during the entire period of the initial TOC performance test. Determine and record the minimum hourly average combustion zone temperature.

TABLE 19 TO SUBPART UUU OF PART 63—INITIAL COMPLIANCE WITH ORGANIC HAP EMISSION LIMITS FOR CATALYTIC REFORMING UNITS

[As stated in § 63.1566(b)(7), you must meet each requirement in the following table that applies to you.]

For . . .	For the following emission limit . . .	You have demonstrated initial compliance if . . .
1. Each new and existing catalytic reforming unit.	a. Visible emissions from a flare must not exceed a total of 5 minutes during any 2 consecutive hours.	Visible emissions, measured using Method 22 over the 2-hour observation period of the performance test do not exceed a total of 5 minutes.
	b. Reduce uncontrolled emissions of TOC from your process vent using a control device, by 98 percent by weight or to a concentration of 20 ppmv, on a dry basis, corrected to 3 percent oxygen, whichever is less stringent.	The mass emission reduction measured using Method 25 over the period of the performance test, is at least 98 percent by weight. The mass emission reduction is calculated using Equations 1 (or 2) and 3 of § 63.1566 or the TOC concentration, measured by Method 25A over the period of the performance test, does not exceed 20 ppmv (dry basis), corrected to 3 percent oxygen using Equation 4 of § 63.1566.

TABLE 20 TO SUBPART UUU OF PART 63—CONTINUOUS COMPLIANCE WITH ORGANIC HAP EMISSION LIMITS FOR CATALYTIC REFORMING UNITS

[As stated in § 63.1566(c)(1), you must meet each requirement in the following table that applies to you]

For * * *	For this emission limit * * *	You must demonstrate continuous compliance during depressuring and purging by * * *
1. Option 1: Each new or existing catalytic reforming unit.	Vent emissions from your process vent to a flare that meets the requirements in § 63.11(b).	Maintaining visible emissions from a flare below a total of 5 minutes during any 2 consecutive hours.
2. Option 2: Each new or existing catalytic reforming unit.	Using a control device, reduce uncontrolled emissions of TOC from your process vent by 98 percent by weight or to a concentration of 20 ppmv, (dry basis), corrected to 3 percent oxygen, whichever is less stringent.	Maintaining a 98 percent by weight TOC emission reduction; or maintaining a TOC concentration of not more than 20 ppmv (dry basis), corrected to 3 percent oxygen, whichever is less stringent.

TABLE 21 TO SUBPART UUU OF PART 63—CONTINUOUS COMPLIANCE WITH OPERATING LIMITS FOR ORGANIC HAP EMISSIONS FROM CATALYTIC REFORMING UNITS

[As stated in § 63.1566(c)(1), you must meet each requirement in the following table that applies to you]

For * * *	If you use * * *	For this operating limit * * *	You must demonstrate continuous compliance during depressuring and purging by * * *
1. Each new or existing catalytic reforming unit.	a. Flare that meets the requirements in § 63.11(b).	The flare pilot light must be present at all times and the flare must be operating at all times that emissions may be vented to it.	Collecting flare monitoring data according to § 63.1572; and recording for each 1-hour period whether the monitor was continuously operating and the pilot light was continuously present during each 1-hour period.
	b. Thermal incinerator, boiler or process heater with a design input capacity under 44 MW or boiler or process heater in which all vent streams are not introduced into the flame zone.	Maintain the daily average combustion zone temperature above the limit established during the performance test.	Collecting the hourly and daily temperature monitoring data according to § 63.1572; and maintaining the daily average combustion zone temperature above the limit established during the performance test.

TABLE 22 TO SUBPART UUU OF PART 63—INORGANIC HAP EMISSION LIMITS FOR CATALYTIC REFORMING UNITS

[As stated in § 63.1567(a)(1), you must meet each emission limitation in the following table that applies to you]

For * * *	You must meet this emission limit for your process vent during coke burn-off and catalyst rejuvenation * * *
1. Each existing semi-regenerative catalytic reforming unit.	Reduce uncontrolled emissions of hydrogen chloride (HC1) by 92 percent by weight using a control device or to a concentration of 30 ppmv (dry basis), corrected to 3 percent oxygen.
2. Each existing cyclic or continuous catalytic reforming unit.	Reduce uncontrolled emissions of HC1 by 97 percent by weight using a control device or to a concentration of 10 ppmv (dry basis), corrected to 3 percent oxygen.
3. Each new semi-regenerative, cyclic, or continuous catalytic reforming unit.	Reduce uncontrolled emissions of HC1 by 97 percent by weight using a control device or to a concentration of 10 ppmv (dry basis), corrected to 3 percent oxygen.

TABLE 23 TO SUBPART UUU OF PART 63—OPERATING LIMITS FOR INORGANIC HAP EMISSION LIMITATIONS FOR CATALYTIC REFORMING UNITS

[As stated in § 63.1567(a)(2), you must meet each operating limit in the following table that applies to you]

For * * *	If you use this type of control device * * *	You must meet this operating limit during coke burn-off and catalytst rejuvenation . . .
1. Each new or existing catalytic reforming unit.	a. Wet scrubber	The daily average pH of the water (or scrubbing liquid) exiting the scrubber must not fall below the limit established during the performance test; and the daily average liquid-to-gas ratio must not fall below the limit established during the performance test.
	b. Internal scrubbing system (i.e., no add-on control device).	The HCl concentration in the catalyst regenerator exhaust gas must not exceed the limit established during the performance test.

Table 24 to Subpart UUU of Part 63—Continuous Monitoring Systems for Inorganic HAP Emissions From Catalytic Reforming Units

[As stated in § 63.1567(b)(1), you must meet each requirement in the following table that applies to you]

If you use this type of control device for your vent * * *	You must install and operate this type of continuous monitoring system * * *
1. Wet scrubber	Continuous parameter monitoring system to measure and record the pH of the water (or scrubbing liquid) exiting the scrubber during coke burn-off and catalyst rejuvenation. If applicable, you can use the alternative in § 63.1573 instead of a continuous parameter monitoring system for pH of the water (or scrubbing liquid); and continuous parameter monitoring systems to measure and record the gas flow rate to the scrubber and the total water (or scrubbing liquid) flow rate to the scrubber during coke burn-off and catalyst rejuvenation.
2. Internal scrubbing system (i.e., no add-on control device).	Colormetric tube sampling system to measure the HCl concentration in the catalyst regenerator exhaust gas during coke burn-off and catalyst rejuvenation.

Table 25 to Subpart UUU of Part 63—Requirements for Performance Tests for Inorganic HAP Emissions From Catalytic Reforming Units

[As stated in § 63.1567(b)(2) and (3), you must meet each requirement in the following table that applies to you]

If you use this type of control device or system * * *	You must * * *	Using * * *	According to these requirements * * *
1. Wet scrubber	a. Measure the HCl concentration at the outlet of the control device (for the concentration standard) or at the inlet and outlet of the control d4evice (for the percent reduction standard).	i. Method 26A (40 CFR part 60, appendix A).	(1) Sampling rate must be at least 0.014 dscm/min (0.5 dscf/min). You must do the test during the coke burn-off and catalyst rejuvenation cycle, but don't make any test runs during the first hour or the last 6 hours of the cycle. (2) Record the total amount (rate) of scrubbing liquid or solution and the amount (rate) of make-up liquid to the scrubber during each test run.
	b. Establish operating limit for pH level.		(1) Measure and record the pH of the water (or scrubbing liquid) exiting the scrubber every 15 minutes during the entire period of the performance test. Determine and record the hourly average pH level from the recorded values. (2) If you use the alternative method in § 63.1573, measure and record the pH of the water (or scrubbing liquid) exiting the scrubber during coke burn-off and catalyst rejuvenation using pH strips at least three times during each run. Determine and record the average pH level.
	c. Establish operating limit for liquid-to-gas ratio.	Data from the continuous parameter monitoring systems.	Measure and record the gas flow rate to the scrubber and the total water (or scrubbing liquid) flow rate to the scrubber every 15 minutes during the entire period of the performance test. Determine and record the hourly average gas flow rate and total water (or scrubbing liquid) flow rate. Determine and record the minimum liquid-to-gas ratio.

[As stated in § 63.1567(b)(2) and (3), you must meet each requirement in the following table that applies to you]

If you use this type of control device or system * * *	You must * * *	Using * * *	According to these requirements * * *
2. Internal scrubbing system (i.e., no add-on control device).	a. Measure the concentration of HCl in the catalyst regenerator exhaust gas.	Method 26 (40 CFR part 60, appendix A).	Sampling rate must be at least 0.014 dscm/min (0.5 dscf/min). You must do the test during the coke burn-off and catalyst rejuvenation cycle, but don't make any test runs during the first hour or the last 6 hours of the cycle.
	b. Establish operating limit for HCl concentration.	Measure and record the HCl concentration in the catalyst regenerator exhaust gas using the colorimetric tube sampling system at least three times during each test run. Determine and record the average HCl concentration.	

TABLE 26 TO SUBPART UUU OF PART 63—INITIAL COMPLIANCE WITH INORGANIC HAP EMISSION LIMITS FOR CATALYTIC REFORMING UNITS

[As stated in § 63.1567(b)(4), you must meet each requirement in the following table that applies to you]

For* * *	For the following emission limit * * *	You have demonstrated initial compliance if * * *
1. Each existing semi-regenerative catalytic reforming unit.	Reduce uncontrolled emissions of HCl by 92 percent by weight using a control device or to a concentration of 30 ppmv, (dry basis), corrected to 3 percent oxygen.	Average emissions of HCl measured using Method 26 or 26A, as applicable over the period of the performance test, are reduced by 92 percent or to a concentration less than or equal to 30 ppmv (dry basis) corrected to 3 percent oxygen.
2. Each existing cyclic or continuous catalytic reforming unit and each new semi-regenerative, cyclic, or continuous catalytic reforming unit.	Reduce uncontrolled emissions of HCl by 97 percent by weight using a control device, or to a concentration of 10 ppmv (dry basis), corrected to 3 percent oxygen.	Average emissions of HCl measured using Method 26 or 26A, as applicable over the period of the performance test, are reduced by 97 percent or to a concentration less than or equal to 10 ppmv (dry basis) corrected to 3 percent oxygen.

TABLE 27 TO SUBPART UUU OF PART 63—CONTINUOUS COMPLIANCE WITH INORGANIC HAP EMISSION LIMITS FOR CATALYTIC REFORMING UNITS

[As stated in § 63.1567(c)(1), you must meet each requirement in the following table that applies to you]

For * * *	For this emission limit * * *	You must demonstrate continuous compliance during coke burn-off and catalyst rejuvenation by * * *
1. Each existing semi-regenerative catalytic reforming unit.	Reduce uncontrolled emissions of HCl by 92 percent by weight using a control device or to a concentration of 30 ppmv (dry basis), corrected to 3 percent oxygen.	Maintaining a 92 percent HCl emission reduction or an HCl concentration no more than 30 ppmv (dry basis), corrected to 3 percent oxygen.
2. Each existing cyclic or continuous catalytic reforming unit.	Reduce uncontrolled emissions of HCl by 97 percent by weight using a control device, or to a concentration of 10 ppmv (dry basis), corrected to 3 percent oxygen.	Maintaining a 97 percent HCl control efficiency or an HCl concentration no more than 10 ppmv (dry basis), corrected to 3 percent oxygen.
3. Each new semi-regenerative, cyclic, or continuous catalytic reforming unit.	Reduce uncontrolled emissions of HCl by 97 percent by weight using a control device, or to a concentration of 10 ppmv (dry basis), corrected to 3 percent oxygen.	Maintaining a 97 percent HCl control efficiency or an HCl concentration no more than 10 ppmv (dry basis), corrected to 3 percent oxygen.

TABLE 28 TO SUBPART UUU OF PART 63—CONTINUOUS COMPLIANCE WITH OPERATING LIMITS FOR INORGANIC HAP EMISSIONS FROM CATALYTIC REFORMING UNITS

[As stated in § 63.1567(c)(1), you must meet each requirement in the following table that applies to you]

For * * *	For this operating limit * * *	If you use this type of control device * * *	You must demonstrate continuous compliance during coke burn-off and catalyst rejuvenation by * * *
1. Each new or existing catalytic reforming unit.	a. The daily average pH of the water (or scrubbing and liquid) exiting the scrubber must not fall below the level established during the performance test.	i. Wet scrubber	(1) Collecting the hourly and daily average pH monitoring data according to § 63.1572; and maintaining the daily average the pH above the operating limit established during the performance test. (2) If you use the alternative in § 63.1573, measuring and recording the pH of the water (or scrubbing liquid) exiting the scrubber every hour according to § 63.1572; determining and recording the daily average pH; and maintaining the daily average pH above the operating limit established during the performance test.
	b. The daily average liquid-to-gas ratio must not fall below the level established during the performance test.	Wet scrubber	Collecting the hourly average gas flow rate and total water (or scrubbing liquid) flow rate monitoring data; determining and recording the hourly average liquid-to-gas ratio; determining and recording the daily average liquid-to-gas ratio; and maintaining the daily average liquid-to-gas ratio above the limit established during the performance test.
	c. The HCl concentration in the catalyst regenerator exhaust gas must not exceed the applicable operating limit established during the performance test.	Internal scrubbing system (e.g., no add-on control device).	Measuring and recording the concentration of HCl every 4 hours using a colormetric tube sampling system; and maintaining the HCl concentration below the applicable operating limit.

TABLE 29 TO SUBPART UUU OF PART 63—HAP EMISSION LIMITS FOR SULFUR RECOVERY UNITS

[As stated in § 63.1568(a)(1), you must meet each emission limitation in the following table that applies to you]

For * * *	You must meet this emission limit for each process vent * * *
1. Each new or existing Claus sulfur recovery unit part of a sulfur recovery plant of 20 long tons per day or more and subject to the NSPS for sulfur oxides in 40 CFR 60.104(a)(2).	a. 250 ppmv (dry basis) of sulfur dioxide (SO_2) at zero percent excess air if you use an oxidation or reduction control system followed by incineration. b. 300 ppmv of reduced sulfur compounds calculated as ppmv SO_2 (dry basis) at zero percent excess air if you use a reduction control system without incineration.
2. Each new or existing sulfur recovery unit (Claus or other type, regardless of size) not subject to the NSPS for sulfur oxides in 40 CFR 60.104(a)(2): Option 1 (Elect NSPS).	a. 250 ppmv (dry basis) of SO_2 at zero percent excess air if you use an oxidation or reduction control system followed by incineration. b. 300 ppmv of reduced sulfur compounds calculated as ppmv SO_2 (dry basis) at zero percent excess air if you use a reduction control system without incineration.

[As stated in § 63.1568(a)(1), you must meet each emission limitation in the following table that applies to you]

For * * *	You must meet this emission limit for each process vent * * *
3. Each new or existing sulfur recovery unit (Claus or other type, regardless of size) not subject to the NSPS for sulfur oxides in paragraph (a)(2) of 40 CFR 60.104: Option 2 (TRS limit).	300 ppmv of total reduced sulfur (TRS) compounds, expressed as an equivalent SO_2 concentration (dry basis) at zero percent oxygen.

TABLE 30 TO SUBPART UUU OF PART 63—OPERATING LIMITS FOR HAP EMISSIONS FROM SULFUR RECOVERY UNITS

[As stated in § 63.1568(a)(2), you must meet each operating limit in the following table that applies to you]

For * * *	If use this type of control device	You must meet this operating limit* * *
1. Each new or existing Claus sulfur recovery unit part of a sulfur recovery plant of 20 long tons per day or more and subject to the NSPS for sulfur oxides in 40 CFR 60.104(a)(2).	Not applicable	Not applicable.
2. Each new or existing sulfur recovery unit (Claus or other type, regardless of size) not subject to the NSPS for sulfur oxides in 40 CFR 60.104(a)(2): Option 1 (Elect NSPS).	Not applicable	Not applicable.
3. Each new or existing sulfur recovery unit (Claus or other type, regardless of size) not subject to the NSPS for sulfur oxides in 40 CFR 60.104(a)(2): Option 2 (TRS limit).	Thermal incinerator	Maintain the daily average combustion zone temperature above the limit established during the performance test; and maintain the daily average oxygen concentration in the vent stream (percent, dry basis) above the limit established during the performance test.

TABLE 31 TO SUBPART UUU OF PART 63—CONTINUOUS MONITORING SYSTEMS FOR HAP EMISSIONS FROM SULFUR RECOVERY UNITS

[As stated in § 63.1568(b)(1), you must meet each requirement in the following table that applies to you]

For * * *	For this limit * * *	You must install and operate this continuous monitoring system * * *
1. Each new or existing Claus sulfur recovery unit part to a sulfur recovery plant of 20 long tons per day and subject to the NSPS for sulfur oxides in 40 CFR 60.104 (1) (2).	a. 250 ppmv (dry basis) of SO_2 at zero percent excess air if you use an oxidation or reduction control system followed by incineration.	Continuous emission monitoring system to measure and record the hourly average concentration of SO_2 (dry basis) at zero percent excess air for each exhaust stack. This system must include an oxygen monitor for correcting the data for excess air.
	b. 300 ppmv of reduced sulfur compounds calculated as ppmv SO_2 (dry basis) at zero percent excess air if you use a reduction control system without incineration.	Continuous emission monitoring system to measure and record the hourly average concentration of reduced sulfur and oxygen (O_2) emissions. Calculate the reduced sulfur emissions as SO_2 (dry basis) at zero percent excess air. *Exception:* You can use an instrument having an air or SO_2 dilution and oxidation system to convert the reduced sulfur to SO_2 for continuously monitoring and recording the concentration (dry basis) at zero percent excess air of the resultant SO_2 instead of the reduced sulfur monitor. The monitor must include an oxygen monitor for correcting the data for excess oxygen.
2. Option 1: Elect NSPS. Each new or existing sulfur recovery unit (Claus or other type, regardless of size) not subject to the NSPS for sulfur oxides in paragraph (a) (2) of 40 CFR 60.104.	a. 250 ppmv (dry basis) of SO_2 at zero percent excess air if you use an oxidation or reduction control system followed by incineration.	Continuous emission monitoring system to measure and record the hourly average concentration of SO_2 (dry basis), at zero percent excess air for each exhaust stack. This system must include an oxygen monitor for correcting the data for excess air.

[As stated in § 63.1568(b)(1), you must meet each requirement in the following table that applies to you]

For * * *	For this limit * * *	You must install and operate this continuous monitoring system * * *
	b. 300 ppmv of reduced sulfur compounds calculated as ppmv SO_2 (dry basis) at zero percent excess air if you use a reduction control system without incineration.	Continuous emission monitoring system to measure and record the hourly average concentration of reduced sulfur and O_2 emissions for each exhaust stack. Calculate the reduced sulfur emissions as SO_2 (dry basis), at zero percent excess air. *Exception:* You can use an instrument having an air or O_2 dilution and oxidation system to convert the reduced sulfur to SO_2 for continuously monitoring and recording the concentration (dry basis) at zero percent excess air of the resultant SO_2 instead of the reduced sulfur monitor. The monitor must include an oxygen monitor for correcting the data for excess oxygen.
3. Option 2: TRS limit Each new or existing sulfur recovery unit (Claus or Other type, regardless or size) not subject to the NSPS for sulfur oxides in 40 CFR 60.104 (a) (2).	300 ppmv of total reduced sulfur (TRS) compounds, expressed as an equivalent SO_2 concentration (dry basis) at zero percent oxygen.	Continuous emission monitoring system to measure and record the hourly average concentration of TRS for each exhaust stack. This monitor must include an oxygen monitor for correcting the data for excess oxygen; or continuous parameter monitoring systems to measure and record the combustion zone temperature of each thermal incinerator and the oxygen content (percent, dry basis) in the vent stream of the incinerator.

TABLE 32 TO SUBPART UUU OF PART 63—REQUIREMENTS FOR PERFORMANCE TESTS FOR HAP EMISSIONS FROM SULFUR RECOVERY UNITS NOT SUBJECT TO THE NEW SOURCE PERFORMANCE STANDARDS FOR SULFUR OXIDES

[As stated in § 63.1568(b)(2) and (3), you must meet each requirement in the following table that applies to you]

For * * *	You must * * *	Using * * *	According to these requirements * * *
1. Each new and existing sulfur recovery unit: Option 1 (Elect NSPS).	Measure SO_2 concentration (for an oxidation or reduction system followed by incineration) or the concentration of reduced sulfur (or SO_2 if you use an instrument to convert the reduced sulfur to SO_2) for a reduction control system without incineration.	Data from continuous emission monitoring system.	Collect SO_2 monitoring data every 15 minutes for 24 consecutive operating hours. Reduce the data to 1-hour averages computed from four or more data points equally spaced over each 1-hour period.
2. Each new and existing sulfur recovery unit: Option 2 (TRS limit).	a. Select sampling port's location and the number of traverse ports.	Method 1 or 1A appendix A to part 60 of this chapter.	Sampling sites must be located at the outlet of the control device and prior to any releases to the atmosphere.
	b. Determine velocity and volumetric flow rate.	Method 2, 2A, 2C, 2D, 2F, or 2G in appendix A to part 60 of this chapter, as applicable.	
	c. Conduct gas molecular weight analysis; obtain the oxygen concentration needed to correct the emission rate for excess air.	Method 3, 3A, or 3B in appendix A to part 60 of this chapter, as applicable.	Take the samples simultaneously with reduced sulfur or moisture samples.
	d. Measure moisture content of the stack gas.	Method 4 in appendix A to part 60 of this chapter.	Make your sampling time for each Method 4 sample equal to that for 4 Method 15 samples.

[As stated in § 63.1568(b)(2) and (3), you must meet each requirement in the following table that applies to you]

For * * *	You must * * *	Using * * *	According to these requirements * * *
	e. Measure the concentration of TRS.	Method 15 or 15A in appendix A to part 60 of this chapter, as applicable.	If the cross-sectional area of the duct is less than 5 square meters (m^2) or 54 square feet, you must use the centroid of the cross section as the sampling point. If the cross-sectional area is 5 m^2 or more and the centroid is more than 1 meter (m) from the wall, your sampling point may be at a point no closer to the walls than 1 m or 39 inches. Your sampling rate must be at least 3 liters per minute or 0.10 cubic feet per minute to ensure minimum residence time for the sample inside the sample lines.
	f. Calculate the SO_2 equivalent for each run after correcting for moisture and oxygen.	The arithmetic average of the SO_2 equivalent for each sample during the run.	
	g. Correct the reduced sulfur samples to zero percent excess air.sa	Equation 1 of § 63.1568.	
	h. Establish each operating limit in Table 30 of this subpart that applies to you.	Data from the continuous parameter monitoring system.	
	i. Measure thermal incinerator: combustion zone temperature.	Data from the continuous parameter monitoring system.	Collect temperature monitoring data every 15 minutes during the entire period of the performance test; and determine and record the minimum hourly average temperature from all the readings.
	j. Measure thermal incinerator: oxygen concentration (percent, dry basis) in the vent stream.	Data from the continuous parameter monitoring system.	Collect oxygen concentration (percent, dry basis) data every 15 minutes during the entire period of the performance test; and determine and record the minimum hourly average percent excess oxygen concentration.
	k. If you use a continuous emission monitoring system, measure TRS concentration.	Data from continuous emission monitoring system.	Collect TRS data every 15 minutes for 24 consecutive operating hours. Reduce the data to 1-hour averages computed from four or more data points equally spaced over each 1-hour period.

TABLE 33 TO SUBPART UUU OF PART 63—INITIAL COMPLIANCE WITH HAP EMISSION LIMITS FOR SULFUR RECOVERY UNITS

[As stated in § 63.1568(b)(5), you must meet each requirement in the following table that applies to you]

For * * *	For the following emission limit * * *	You have demonstrated initial compliance if * * *
1. Each new or existing Clause sulfur recovery unit part of a sulfur recovery plant of 20 long tons per day and subject to the NSPS for sulfur oxides in 40 CFR 60.104(a)(2).	a. 250 ppmv (dry basis) SO_2 at zero percent excess air if you use an oxidation or reduction control system followed by incineration.	You have already conducted a performance test to demonstrate initial compliance with the NSPS and the hourly average SO_2 emissions measured by the continuous emission monitoring system are less than or equal to 250 ppmv (dry basis) at zero percent excess air. As part of the Notification of Compliance Status, you must certify that your vent meets the SO_2 limit. You are not required to do another performance test to demonstrate initial compliance. You have already conducted a performance evaluation to demonstrate initial compliance with the applicable performance specification. As part of your Notification of Compliance Status, you must certify that your continuous emission monitoring system meets the applicable requirements in § 63.1572. You are not required to do another performance evaluation to demonstrate initial compliance.
	b. 300 ppmv of reduced sulfur compounds calculated as ppmv SO_2 (dry basis) at zero percent excess air if you use a reduction control system without incineration.	You have already conducted a performance test to demonstrate initial compliance with the NSPS and the hourly average SO_2 emissions measured by your continuous emission monitoring system are less than or equal to 250 ppmv (dry basis) at zero percent excess air. As part of the Notification of Compliance Status, you must certify that your vent meets the SO_2 limit. You are not required to do another performance test do demonstrate initial compliance. You have already conducted a performance evaluation to demonstrate initial compliance with the applicable performance specification. As part of your Notification of Compliance Status, you must certify that your continuous emission monitoring system meets the applicable requirements in § 63.1572. You are not required to do another performance evaluation to demonstrate initial compliance.
2. Option 1: Elect NSPS. Each new or existing sulfur recovery unit (Claus or other type, regardless of size) not subject to the NSPS for sulfur oxides in 40 CFR 60.104(a)(2).	a. 250 ppmv (dry basis) of SO_2 at zero percent excess air if you use an oxidation control system followed by incineration.	The hourly average SO_2 emissions measured by the continuous emission monitoring system over the 24-hour period of the initial performance test are not more than 250 ppvm (dry basis) at zero percent excess air; and your performance evaluation shows the monitoring system meets the applicable requirements in § 63.1572.
	b. 300 ppmv of reduced sulfur compounds calculated as ppmv SO_2 (dry basis) at zero percent excess air if you use a reduction control system without incineration.	The hourly average reduced sulfur emissions measured by the continuous emission monitoring system over the 24-hour period of the performance test no more than 300 ppmv, calculated as ppmv SO_2 (dry basis) at zero percent excess air; and your performance evaluation shows the continuous emission monitoring system meets the applicable requirements in § 63.1572.

[As stated in § 63.1568(b)(5), you must meet each requirement in the following table that applies to you]

For * * *	For the following emission limit * * *	You have demonstrated initial compliance if * * *
3. Option 2: TRS limit. Each new or existing sulfur recovery unit (Claus or other type, regardless of size) not subject to the NSPS for sulfur oxides in 40 CFR 60.104(a)(2).	300 ppmv of TRS compounds expressed as an equivalent SO_2 concentration (dry basis) at zero percent oxygen.	If you do not use a continuous emission monitoring system, the average TRS emissions measured using Method 15 over the period of the initial performance test are less than or equal to 300 ppmv expressed as equivalent SO_2 concentration (dry basis) at zero percent oxygen. If you use a continuous emission monitoring system the hourly average TRS emissions measured by the continuous emission monitoring system over the 24-hour period of the performance test are no more than 300 ppmv expressed as an equivalent SO_2 concentration (dry basis) at zero percent oxygen; and your performance evaluation shows the continuous emission monitoring system meets the applicable requirements in § 63.1572.

TABLE 34 TO SUBPART UUU OF PART 63—CONTINUOUS COMPLIANCE WITH HAP EMISSION LIMITS FOR SULFUR RECOVERY UNITS

[As stated in § 63.1568(c)(1), you must meet each requirement in the following table that applies to you.]

For * * *	For this emission limit * * *	You must demonstrate continuous compliance by * * *
1. Each new or existing Claus sulfur recovery unit part of a sulfur recovery plant of 20 long tons per or more and subject to the NSPS for sulfur oxides in 40 CFR 60.104(a)(2).	a. 250 ppmv (dry basis) SO_2 at zero percent excess air if you use an oxidation or reduction control system followed by incineration.	Collecting the hourly average SO_2 monitoring data (dry basis, percent excess air) according to § 63.1572; maintaining the hourly average SO_2 concentration at or below the applicable limit; determining and recording each 12-hour average SO_2 day concentration; and reporting any 12-hour average SO_2 concentration greater than the applicable emission limitation in the compliance report required in § 63.1575.
	b. 300 ppmv of reduced sulfur compounds calculated as ppmv (dry basis) SO_2 at zero percent excess air if you use a reduction control system without incineration.	Collecting the hourly average reduced sulfur and O_2 data according to § 63.1572; and maintaining the hourly average concentration of reduced sulfur at or below the applicable limit; and determining and recording each 12-hour average concentration of reduced sulfur; and reporting any 12-hour average concentration of reduced sulfur greater than the applicable emission limitation in the compliance report required in § 63.1575.
2. Option 1: Elect NSPS Each new or existing sulfur recovery unit (Claus or other type, regardless of size) not subject to the NSPS for sulfur oxides in 40 CFR 60.104(a)(2).	a. 250 ppmv (dry basis) of SO_2 at zero percent excess air (for oxidation or reduction system followed by incineration).	Collecting the hourly average SO_2 monitoring data (dry basis, percent excess air) according to § 63.1572; maintaining the hourly average SO_2 concentration at or below the applicable limit; determining and recording each 12-hour average SO_2 concentration; and reporting any 12-hour average SO_2 concentration greater than the applicable emission limitation in the compliance report required in § 63.1575.

[As stated in § 63.1568(c)(1), you must meet each requirement in the following table that applies to you.]

For * * *	For this emission limit * * *	You must demonstrate continuous compliance by * * *
	b. 300 ppmv of reduced sulfur compounds calculated as ppmv SO_2 (dry basis) at zero percent excess air (for reduction control system without incineration).	Collecting the hourly average reduced sulfur (and air or O_2 dilution and oxidation data) according to § 63.1572; maintaining the hourly average SO_2 concentration at or below the applicable limit; reducing the monitoring data to 12-hour averages; and reporting any 12-hour average SO_2 concentration greater than the applicable limit in the compliance report required by § 63.1575.
3. Option 2: TRS limit Each new or existing sulfur recovery unit (Claus or other type, regardless of size) not subject to the NSPS for sulfur oxides in 40 CFR 60.104(a)(2).	300 ppmv of TRS compounds, expressed as an SO_2 concentration (dry basis) at zero percent oxygen or reduced sulfur compounds calculated as ppmv SO_2 (dry basis) at zero percent excess air.	Collecting the hourly average TRS monitoring data according to § 63.1572, if you use a continuous emission monitoring system; maintaining the hourly average concentration of TRS at or below the applicable limit; reducing the TRS monitoring data to 12-hour averages; reporting any 12-hour average TRS greater than the applicable limit in the compliance report required by § 63.1575; and maintaining the hourly average concentration of TRS below the applicable limit if you use continuous parameter monitoring systems.

TABLE 35 TO SUBPART UUU OF PART 63—CONTINUOUS COMPLIANCE WITH OPERATING LIMITS FOR HAP EMISSIONS FROM SULFUR RECOVERY UNITS

[As stated in § 63.1568(c)(1), you must meet each requirement in the following table that applies to you]

For * * *	For this operating limit * * *	You must demonstrate continuous compliance by * * *
1. Each new or existing Claus sulfur recovery unit part of a sulfur recovery plant of 20 long tons per day or more and subject to the NSPS for sulfur oxides in paragraph 40 CFR 60.104(a)(2).	Not applicable	Meeting the requirements of Table 34 of this subpart.
2. Option 1: Elect NSPS Each new or existing sulfur recovery unit (Claus or other type, regardless of size) not subject to the NSPS for sulfur oxides in 40 CFR 60.104(a)(2).	Not applicable	Meeting the requirements of Table 34 of this subpart.
3. Option 2: TRS limit Each new or existing sulfur recovery unit (Claus or other type, regardless of size) not subject to the NSPS for sulfur oxides in 40 CFR 60.104(a)(2)	a. Maintain the daily average combustion zone temperature above the level established during the performance test.	Collecting the hourly and daily average temperature monitoring data according to § 63.1572; and maintaining the daily average combustion zone temperature at or above the limit established during the performance test.
	b. The daily average oxygen concentration in the vent stream (percent, dry basis) must not fall below the level established during the performance test.	Collecting the hourly and daily average O_2 monitoring data according to § 63.1572; and maintaining the average O_2 concentration above the level established during the performance test.

TABLE 36 TO SUBPART UUU OF PART 63—WORK PRACTICE STANDARDS FOR HAP EMISSIONS FROM BYPASS LINES

[As stated in § 63.1569(a)(1), you must meet each work practice standard in the following table that applies to you]

Option	You must meet one of these equipment standards * * *
1. Option 1	Install and operate a device (including a flow indicator, level recorder, or electronic valve position monitor) to continuously detect, at least every hour, whether flow is present in the bypass line. Install the device at or as near as practical to the entrance to any bypass line that could divert the vent stream away from the control device to the atmosphere.

[As stated in § 63.1569(a)(1), you must meet each work practice standard in the following table that applies to you]

Option	You must meet one of these equipment standards * * *
2. Option 2	Install a car-seal or lock-and-key device placed on the mechanism by which the bypass device flow position is controlled (e.g., valve handle, damper level) when the bypass device is in the closed position such that the bypass line valve cannot be opened without breaking the seal or removing the device.
3. Option 3	Seal the bypass line by installing a solid blind between piping flanges.
4. Option 4	Vent the bypass line to a control device that meets the appropriate requirements in this subpart.

TABLE 37 TO SUBPART UUU OF PART 63—REQUIREMENTS FOR PERFORMANCE TESTS FOR BYPASS LINES

[As stated in § 63.1569(b)(1), you must meet each requirement in the following table that applies to you]

For this standard . . .	You must . . .
1. Option 1: Install and operate a flow indicator, level recorder, or electronic valve position monitor.	Record during the performance test for each type of control device whether the flow indicator, level recorder, or electronic valve position monitor was operating and whether flow was detected at any time during each hour of level the three runs comprising the performance test.

TABLE 38 TO SUBPART UUU OF PART 63—INITIAL COMPLIANCE WITH WORK PRACTICE STANDARDS FOR HAP EMISSIONS FROM BYPASS LINES

[As stated in § 63.1569(b)(2), you must meet each requirement in the following table that applies to you]

For * * *	For this work practice standard * * *	You have demonstrated initial compliance if * * *
1. Each new or existing bypass line associated with a catalytic cracking unit, catalylic reforming unit, or sulfur recovery unit.	a. Option 1: Install and operate a device (including a flow indicator, level recorder, or electronic valve position monitor) to continuously detect, at least every hour, whether flow is present in the bypass line. Install the device at or as near as practical to the entrance to any bypass line that could divert the vent stream away from the control device to the atmosphere.	The installed equipment operates properly during each run of the performance test and no flow is present in the line during the test.
	b. Option 2: Install a car-seal or lock-and-key device placed on the mechanism by which the bypass device flow position is controlled (e.g., valve handle, damper level) when the bypass device is in the closed position such that the bypass line valve cannot be opened without breaking the seal or removing the device.	As part of the notification of compliance status, you certify that you installed the equipment, the equipment was operational by your compliance date, and you identify what equipment was installed.
	c. Option 3: Seal the bypass line by installing a solid blind between piping flanges.	See item 1.b. of this table.
	d. Option 4: Vent the bypass line to a control device that meets the appropriate requirements in this subpart.	See item 1.b. of this table.

TABLE 39 TO SUBPART UUU OF PART 63—CONTINUOUS COMPLIANCE WITH WORK PRACTICE STANDARDS FOR HAP EMISSIONS FROM BYPASS LINES

[As stated in § 63.1569(c)(1), you must meet each requirement in the following table that applies to you]

If you elect this standard * * *	You must demonstrate continuous compliance by * * *
1. Option 1: Flow indicator, level recorder, or electronic valve position monitor.	Continuously monitoring and recording whether flow is present in the bypass line; visually inspecting the device at least once every hour if the device is not equipped with a recording system that provides a continuous record; and recording whether the device is operating properly and whether flow is present in the bypass line.
2. Option 2: Car-seal or lock-and-key device	Visually inspecting the seal or closure mechanism at least once every month; and recording whether the bypass line valve is maintained in the closed position and whether flow is present in the line.

[As stated in § 63.1569(c)(1), you must meet each requirement in the following table that applies to you]

If you elect this standard * * *	You must demonstrate continuous compliance by * * *
3. Option 3: Solid blind flange	Visually inspecting the blind at least once a month; and recording whether the blind is maintained in the correct position such that the vent stream cannot be diverted through the bypass line.
4. Option 4: Vent to control device	Monitoring the control device according to appropriate subpart requirements.
5. Option 1, 2, 3, or 4	Recording and reporting the time and duration of any bypass.

TABLE 40 TO SUBPART UUU OF PART 63—REQUIREMENTS FOR INSTALLATION, OPERATION, AND MAINTENANCE OF CONTINUOUS OPACITY MONITORING SYSTEMS AND CONTINUOUS EMISSION MONITORING SYSTEMS

[As stated in § 63.1572(a)(1) and (b)(1), you must meet each requirement in the following table that applies to you]

This type of continuous opacity or emission monitoring system * * *	Must meet these requirements * * *
1. Continuous opacity monitoring system	Performance specification 1 (40 CFR part 60, appendix B).
2. CO continuous emission monitoring system	Performance specification 4 (40 CFR part 60, appendix B); span value of 1,000 ppm; and procedure 1 (40 CFR part 60, appendix F) except relative accuracy test audits are required annually instead of quarterly.
3. CO continuous emission monitoring system used to demonstrate emissions average under 50 ppm (dry basis).	Performance specification 4 (40 CFR part 60, appendix B); and span value of 100 ppm.
4. SO_2 continuous emission monitoring for sulfur recovery unit with oxidation control system or reduction control system; this monitor must include an O_2 monitor for correcting the data for excess air.	Performance specification 2 (40 CFR part 60, appendix B); span values of 500 ppm SO_2 and 10 percent O_2; use Methods 6 or 6C and 3A or 3B (40 CFR part 60, appendix A) for certifying O_2 monitor; and procedure 1 (40 CFR part 60, appendix F) except relative accuracy test audits are required annually instead of quarterly.
5. Reduced sulfur and O_2 continuous emission monitoring system for sulfur recovery unit with reduction control system not followed by incineration; this monitor must include an O_2 monitor for correcting the data for excess air unless exempted.	Performance specification 5 (40 CFR part 60, appendix B), except calibration drift specification is 2.5 percent of the span value instead of 5 percent; 450 ppm reduced sulfur and 10 percent O_2; use Methods 15 or 15A and 3A or 3B (40 CFR part 60, appendix A) for certifying O_2 monitor; if Method 3A or 3B yields O_2 concentrations below 0.25 percent during the performance evaluation, the O_2 concentration can be assumed to be zero and the O_2 monitor is not required; and procedure 1 (40 CFR part 60, appendix F), except relative accuracy test audits, are required annually instead of quarterly.
6. Instrument with an air or O2 dilution and oxidation system to convert reduced sulfur to SO_2 for continuously monitoring the concentration of SO_2 instead of reduced sulfur monitor and O_2 monitor.	Performance specification 5 (40 CFR part 60, appendix B); span value of 375 ppm SO_2 and 10 percent O_2; use Methods 15 or 15A and 3A or 3B for certifying O_2 monitor; and procedure 1 (40 CFR part 60, appendix F), except relative accuracy test audits, are required annually instead of quarterly.
7. TRS continuous emission monitoring system for sulfur recovery unit; this monitor must include an O_2 monitor for correcting the data for excess air.	Performance specification 5 (40 CFR part 60, appendix B).
8. O_2 monitor for oxygen concentration	If necessary due to interferences, locate the oxygen sensor prior to the introduction of any outside gas stream; performance specification 3 (40 CFR part 60, appendix B; span value for O_2 sensor is 10 percent; and procedure 1 (40 CFR part 60, appendix F), except relative accuracy test audits, are required annually instead of quarterly.

TABLE 41 TO SUBPART UUU OF PART 63—REQUIREMENTS FOR INSTALLATION, OPERATION, AND MAINTENANCE OF CONTINUOUS PARAMETER MONITORING SYSTEMS

[As stated in § 63.1572(c)(1), you must meet each requirement in the following table that applies to you]

If you use a continuous parameter monitoring system to measure and record * * *	You must * * *
1. Voltage and secondary current or total power input.	At least monthly, inspect all components of the continuous parameter monitoring system for integrity and all electrical connections for continuity; and record the results of each inspection.

[As stated in § 63.1572(c)(1), you must meet each requirement in the following table that applies to you]

If you use a continuous parameter monitoring system to measure and record * * *	You must * * *
2. Pressure drop[1]	Locate the pressure sensor(s) in a position that provides a representative measurement of the pressure; minimize or eliminate pulsating pressure, vibration, and internal and external corrosion; use a gauge with an accuracy ± 2 percent over the operating range; check pressure tap for plugs at least once a week; using a manometer, check gauge calibration quarterly and transducer calibration monthly; for a semi-regenerative catalytic reforming unit, you can check the calibration quarterly and monthly or prior to regeneration, whichever is longer; record the results of each calibration; conduct calibration checks any time the sensor exceeds the manufacturer's specified maximum operating pressure range, or install a new pressure sensor; at least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage; and record the results of each inspection.
3. Air flow rate, gas flow rate, or total water (or scrubbing liquid) flow rate.	Locate the flow sensor(s) and other necessary equipment such as straightening vanes in a position that provides representative flow; use a flow rate sensor with an accuracy within ±5 percent; reduce swirling flow or abnormal velocity distributions due to upstream and downstream disturbances; conduct a flow sensor calibration check at least semiannually; for a semi-regenerative catalytic reforming unit, you can check the calibration at least semiannually or prior to regeneration, whichever is longer; record the results of each calibration; if you elect to comply with Option 3 (Ni lb/hr) or Option 4 (Ni lb/1,000 lbs of coke burn-off) for the HAP metal emission limitations in § 63.1564, install the continuous parameter monitoring system for gas flow rate as close as practical to the continuous opacity monitoring system; and if you don't use a continuous opacity monitoring system, install the continuous parameter monitoring system for gas flow rate as close as practical to the control device.
4. Combustion zone temperature	Install the temperature sensor in the combustion zone or in the ductwork immediately downstream of the combustion zone before any substantial heat exchange occurs; locate the temperature sensor in a position that provides a representative temperature; use a temperature sensor with an accuracy of ±1 percent of the temperature being measured, expressed in degrees Celsius (C) or ±0.5 degrees C, whichever is greater; shield the temperature sensor system from electromagnetic interference and chemical contaminants; if you use a chart recorder, it must have a sensitivity in the minor division of at least 20 degrees Fahrenheit; perform an electronic calibration at least semiannually according to the procedures in the manufacturer's owners manual; following the electronic calibration, conduct a temperature sensor validation check, in which a second or redundant temperature sensor placed nearby the process temperature sensor must yield a reading within 16.7 degrees C of the process temperature sensor's reading; record the results of each calibration and validation check; conduct calibration and validation checks any time the sensor exceeds the manufacturer's specified maximum operating temperature range, or install a new temperature sensor; and at least monthly, inspect all components for integrity and all electrical connections for continuity, oxidation, and galvanic corrosion.
5. pH	Locate the pH sensor in a position that provides a representative measurement of pH; ensure the sample is properly mixed and representative of the fluid to be measured; check the pH meter's calibration on at least two points every 8 hours of process operation; at least monthly, inspect all components for integrity and all electrical components for continuity; record the results of each inspection; and if you use pH strips to measure the pH of the water exiting a wet scrubber as an alternative to a continuous parameter monitoring system, you must use pH strips with an accuracy of ±10 percent.
6. HCl concentration	Use a colormetric tube sampling system with a printed numerical scale in ppmv, a standard measurement range of 1 to 10 ppmv (or 1 to 30 ppmv if applicable), and a standard deviation for measured values of no more than ±15 percent. System must include a gas detection pump and hot air probe if needed for the measurement range.

[1] Not applicable to non-venturi wet scrubbers of the jet-ejector design.

TABLE 42 TO SUBPART UUU OF PART 63—ADDITIONAL INFORMATION FOR INITIAL NOTIFICATION OF COMPLIANCE STATUS

[As stated in § 63.1574(d), you must meet each requirement in the following table that applies to you]

For * * *	You must provide this additional information * * *
1. Identification of affected sources and emission points.	Nature, size, design, method of operation, operating design capacity of each affected source; identify each emission point for each HAP; identify any affected source or vent associated with an affected source not subject to the requirements of subpart UUU.
2. Initial compliance	Identification of each emission limitation you will meet for each affected source, including any option you select (i.e., NSPS, PM or Ni, flare, percent reduction, concentration, options for bypass lines); if applicable, certification that you have already conducted a performance test to demonstrate initial compliance with the NSPS for an affected source; certification that the vents meet the applicable emission limit and the continuous opacity or that the emission monitoring system meets the applicable performance specification; if applicable, certification that you have installed and verified the operational status of equipment by your compliance date for each bypass line that meets the requirements of Option 2, 3, or 4 in § 63.1569 and what equipment you installed; identification of the operating limit for each affected source, including supporting documentation; if your affected source is subject to the NSPS, certification of compliance with NSPS emission limitations and performance specifications; a brief description of performance test conditions (capacity, feed quality, catalyst, etc.); an engineering assessment (if applicable); and if applicable, the flare design (e.g., steam-assisted, air-assisted, or non-assisted), all visible emission readings, heat content determinations, flow rate measurements, and exit velocity determinations made during the Method 22 test.
3. Continuous compliance	Each monitoring option you elect; and identification of any unit or vent for which monitoring is not required; and the definition of ‘‘operating day.’’ (This definition, subject to approval by the applicable permitting authority, must specify the times at which a 24-hr operating day begins and ends.)

TABLE 43 TO SUBPART UUU OF PART 63—REQUIREMENTS FOR REPORTS

[As stated in § 63.1575(a), you must meet each requirement in the following table that applies to you]

You must submit a(n) * * *	The report must contain * * *	You must submit the report * * *
1. Compliance report	If there are not deviations from any emission limitation or work practice standard that applies to you, a statement that there were no deviations from the standards during the reporting period and that no continuous opacity monitoring system or continuous emission monitoring system was inoperative, inactive, out-of-control, repaired, or adjusted; and if you have a deviation from any emission limitation or work practice standard during the reporting period, the report must contain the information in § 63.1575(d) or (e)	Semiannually according to the requirements in § 63.1575(b).

TABLE 44 TO SUBPART UUU OF PART 63—APPLICABILITY OF NESHAP GENERAL PROVISIONS TO SUBPART UUU

[As stated in § 63.1577, you must meet each requirement in the following table that applies to you]

Citation	Subject	Applies to subpart UUU	Explanation
§ 63.1	Applicability	Yes.	Except that subpart UUU specifies calendar or operating day.
§ 63.2	Definitions	Yes.	
§ 63.3	Units and Abbreviations	Yes.	
§ 63.4	Prohibited Activities	Yes.	
§ 63.5(a)–(c)	Construction and Reconstruction.	Yes	In § 63.5(b)(4), replace the reference to § 63.9 with § 63.9(b)(4) and (5).
§ 63.5(d)(1)(i)	Application for Approval of Construction or Reconstruction—General Application Requirements.	Yes	Except, subpart UUU specifies the application is submitted as soon as practicable before startup but no later than 90 days (rather than 60) after the promulgation date where construction or reconstruction had commenced and initial startup had not occurred before promulgation.
§ 63.5(d)(1)(ii)		Yes	Except that emission estimates specified in § 63.5(d)(1)(ii)(H) are not required.

[As stated in § 63.1577, you must meet each requirement in the following table that applies to you]

Citation	Subject	Applies to subpart UUU	Explanation
§ 63.5(d)(1)(iii)		No	Subpart UUU specifies submission of notification of compliance status.
§ 63.5(d)(2)		No.	
§ 63.5(d)(3)		Yes	Except that § 63.5(d)(3)(ii) does not apply.
§ 63.5(d)(4)		Yes.	
§ 63.5(e)	Approval of Construction or Reconstruction.		
§ 63.5(f)(1)	Approval of Construction or Reconstruction Based on State Review.	Yes.	
§ 63.5(f)(2)		Yes	Except that 60 days is changed to 90 days and cross-reference to § 63.9(b)(2) does not apply.
§ 63.6(a)	Compliance with Standards and Maintenance—Applicability.	Yes.	
§ 63.6(b)(1)–(4)	Compliance Dates for New and Reconstructed Sources.	Yes.	
§ 63.6(b)(5)		Yes	Except that subpart UUU specifies different compliance dates for sources.
§ 63.6(b)(6)	[Reserved]	Not applicable.	
§ 63.6(b)(7)	Compliance Dates for New and Reconstructed Area Sources That Become Major.	Yes.	
§ 63.6(c)(1)–(2)	Compliance Dates for Existing Sources.	Yes	Except that for subpart UUU specifies different compliance dates for sources subject to Tier II gasoline sulfur control requirements.
§ 63.6(c)(3)–(4)	[Reserved]	Not applicable.	
§ 63.6(c)(5)	Compliance Dates for Existing Area Sources That Become Major.	Yes.	
§ 63.6(d)	[Reserved]	Not applicable.	
§ 63.6(e)(1)–(2)	Operation and Maintenance Requirements.	Yes.	
§ 63.6(e)(3)(i)–(iii)	Startup, Shutdown, and Malfunction Plan.	Yes.	
§ 63.6(e)(3)(iv)		Yes	Except that reports of actions not consistent with plan are not required within 2 and 7 days of action but rather must be included in next periodic report.
§ 63.6(e)(3)(v)–(viii)		Yes	The owner or operator is only required to keep the latest version of the plan.
§ 63.6(f)(1)–(2)(iii)(C)	Compliance with Emission Standards.	Yes.	
§ 63.6(f)(2)–(iii)(D)		No.	
§ 63.6(f)(2)(iv)–(v)		Yes.	
§ 63.6(f)(3)		Yes.	
§ 63.6(g)	Alternative Standard	Yes.	
§ 63.6(h)	Opacity/VE Standards	Yes.	
§ 63.6(h)(2)(i)	Determining Compliance with Opacity/VE Standards.	No	Subpart UUU specifies methods.
§ 63.6(h)(2)(ii)	[Reserved]	Not applicable.	
§ 63.6(h)(2)(iii)		Yes.	
§ 63.6(h)(3)	[Reserved]	Not applicable.	
§ 63.6(h)(4)	Notification of Opacity/VE Observation Date.	Yes	Applies to Method 22 tests.
§ 63.6(h)(5)	Conducting Opacity/VE Observations.	No.	
§ 63.6(h)(6)	Records of Conditions During Opacity/VE Observations.	Yes	Applies to Method 22 observations.
§ 63.6(h)(7)(i)	Report COM Monitoring Data from Performance Test.	Yes.	
§ 63.6(h)(7)(ii)	Using COM Instead of Method 9.	No.	
§ 63.6(h)(7)(iii)	Averaging Time for COM during Performance Test.	Yes.	
§ 63.6(h)(7)(iv)	COM Requirements	Yes.	
§ 63.6(h)(8)	Determining Compliance with Opacity/VE Standards.	Yes.	
§ 63.6(h)(9)	Adjusted Opacity Standard	Yes.	

[As stated in § 63.1577, you must meet each requirement in the following table that applies to you]

Citation	Subject	Applies to subpart UUU	Explanation
§ 63.6(i)(1)–(14)	Extension of Compliance	Yes	Not applicable to an affected source with Tier II compliance date. May be applicable to an affected source exempt from Tier II rule.
§ 63.6(i)(15)	[Reserved]	Not applicable.	
§ 63.6(i)(16)		Yes.	

Subpart VVV—National Emission Standards for Hazardous Air Pollutants: Publicly Owned Treatment Works

SOURCE: 64 FR 57579, Oct. 26, 1999, unless otherwise noted.

APPLICABILITY

§ 63.1580 Am I subject to this subpart?

(a) You are subject to this subpart if the following are all true:

(1) You own or operate a publicly owned treatment works (POTW) that includes an affected source (§ 63.1595);

(2) The affected source is located at a POTW which is a major source of HAP emissions, or at any industrial POTW regardless of whether or not it is a major source of HAP; and

(3) Your POTW is required to develop and implement a pretreatment program as defined by 40 CFR 403.8 (for a POTW owned or operated by a municipality, State, or intermunicipal or interstate agency), or your POTW would meet the general criteria for development and implementation of a pretreatment program (for a POTW owned or operated by a department, agency, or instrumentality of the Federal government).

(b) If your existing POTW treatment plant is not located at a major source as of October 26, 1999, but thereafter becomes a major source for any reason other than reconstruction, then, for the purpose of this subpart, your POTW treatment plant would be considered an existing source. Note to Paragraph (b): See § 63.2 of the national emission standards for hazardous air pollutants (NESHAP) General Provisions in subpart A of this part for the definitions of major source and area source.

(c) If you reconstruct your POTW treatment plant, then the requirements for a new or reconstructed POTW treatment plant, as defined in § 63.1595, apply.

[67 FR 64745, Oct. 21, 2002]

§ 63.1581 Does the subpart distinguish between different types of POTW treatment plants?

Yes, POTW treatment plants are divided into two subcategories. A POTW treatment plant which does not meet the characteristics of an industrial POTW treatment plant belongs in the non-industrial POTW treatment plant subcategory as defined in § 63.1595.

INDUSTRIAL POTW TREATMENT PLANT DESCRIPTION AND REQUIREMENTS

§ 63.1582 What are the characteristics of an industrial POTW treatment plant?

(a) Your POTW is an industrial POTW treatment plant if an industrial discharger complies with its NESHAP by using the treatment and controls located at your POTW. Your POTW accepts the regulated waste stream and provides treatment and controls as an agent for the industrial discharger. Industrial POTW treatment plant is defined in § 63.1595.

(b) If, in the future, an industrial discharger begins complying with its NESHAP by using the treatment and controls at your POTW, then on the date that the industrial discharger certifies compliance, your POTW treatment plant will be considered an industrial POTW treatment plant.

(c) If your POTW treatment plant accepts one or more specific regulated industrial waste streams as part of compliance with one or more other NESHAP, then you are subject to all the requirements of each appropriate

NESHAP for each waste stream, as described in the following section. In the case of overlapping NESHAP requirements, the more stringent of the requirements will apply.

§63.1583 What are the emission points and control requirements for an industrial POTW treatment plant?

(a) The emission points and control requirements for an existing industrial POTW treatment plant are specified in the appropriate NESHAP(s) for the industrial user(s) (see §63.1582). For example, an existing industrial POTW treatment plant that provides treatment for a facility subject to subpart FF of this part, the National Emission Standard for Benzene Waste Operations, must meet the treatment and control requirements specified in §61.348(d)(4) of this chapter.

(b) The emission points and control requirements for a new or reconstructed industrial POTW treatment plant are either those specified by the particular NESHAP(s) which apply to the industrial user(s) who discharge their waste for treatment to the POTW, or those emission points and control requirements set forth in §63.1586. The set of control requirements which applies to a particular new or reconstructed POTW is that set which requires the most stringent overall control of HAP emissions. If you are uncertain which set of requirements is more stringent, this determination should be made in consultation with the permitting authority. Reconstruction is defined in §63.1595.

§63.1584 When do I have to comply?

(a) *Existing industrial POTW treatment plant.* If you have an existing industrial POTW treatment plant, the appropriate NESHAP(s) for the industrial user(s) sets the compliance date, or the compliance date is 60 days after October 26, 1999, whichever is later.

(b) *New industrial POTW treatment plant.* If you have a new industrial POTW treatment plant, you must be in compliance as soon as you begin accepting the waste stream(s) for treatment. If you begin accepting a specific regulated industrial waste stream(s) for treatment, you must be in compliance by the time specified in the appropriate NESHAP(s) for the industrial user(s).

§63.1585 How does an industrial POTW treatment plant demonstrate compliance?

(a) An existing industrial POTW treatment plant demonstrates compliance by operating treatment and control devices which meet all requirements specified in the appropriate industrial NESHAP(s). Requirements may include performance tests, routine monitoring, recordkeeping, and reporting.

(b) If you have a new or reconstructed industrial POTW plant, you must first determine whether the control requirements set forth in the applicable industrial NESHAP(s) or the control requirements applicable to a new or reconstructed nonindustrial POTW under §63.1586 would require more stringent overall control of HAP emissions. You must then meet whichever set of requirements is more stringent. If you determine that the controls required by the applicable industrial NESHAP(s) are more stringent, you demonstrate compliance by operating treatment and control devices which meet all requirements specified in those industrial NESHAP(s). If you determine that the controls required for a new or reconstructed nonindustrial POTW are more stringent, you demonstrate compliance by meeting all requirements in §§63.1586 through 63.1590.

NON-INDUSTRIAL POTW TREATMENT PLANT REQUIREMENTS

§63.1586 What are the emission points and control requirements for a non-industrial POTW treatment plant?

There are no control requirements for an existing non-industrial POTW treatment plant. There are no control requirements for any new or reconstructed area source non-industrial POTW treatment plant which is not a major source of HAP. The control requirements for a new or reconstructed major source non-industrial POTW treatment plant which is a major source of HAP are as follows:

(a) Covers on the emission points up to, but not including, the secondary influent pumping station or the secondary treatment units. These emission points are treatment units that include, but are not limited to, influent waste stream conveyance channels, bar screens, grit chambers, grinders, pump stations, aerated feeder channels, primary clarifiers, primary effluent channels, and primary screening stations. In addition, all covered units, except primary clarifiers, must have the air in the headspace ducted to a control device in accordance with the standards for closed-vent systems and control devices in § 63.693 of subpart DD of this part, except you may substitute visual inspections for leak checks rather than Method 21 of Appendix A of part 60 of this chapter. Reconstruction is defined in § 63.1595.

(1) Covers must be tightly fitted and designed and operated to minimize exposure of the wastewater to the atmosphere. This includes, but is not limited to, the absence of visible cracks, holes, or gaps in the roof sections or between the roof and the supporting wall; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.

(2) If wastewater is in a treatment unit, each opening must be maintained in a closed, sealed position, unless plant personnel are present and conducting wastewater or sludge sampling, or equipment inspection, maintenance, or repair.

(b) As an alternative to the requirements in paragraph (a) of this section, you may comply by demonstrating, for all units up to the secondary influent pumping station or the secondary treatment units, that the fraction emitted does not exceed 0.014. You must demonstrate that for your POTW, the sum of all HAP emissions from those units divided by the sum of all HAP mass loadings results in a annual rolling average of the fraction emitted no greater than 0.014. You may use any combination of pretreatment, wastewater treatment plant modifications, and control devices to achieve this performance standard; however, you must demonstrate, to the Administrator's satisfaction that:

(1) You have accurately determined your POTW's annual HAP mass loadings and your POTW's annual HAP emissions as of the date of start-up;

(2) Your POTW meets the fraction emitted standard of 0.014 or less; and

(3) Your POTW has established procedures to demonstrate continuous compliance which are consistent with the criteria set forth in § 63.1588(c)(4).

[64 FR 57579, Oct. 26, 1999, as amended at 66 FR 16142, Mar. 23, 2001; 67 FR 64746, Oct. 21, 2002]

§ 63.1587 When do I have to comply?

If your POTW treatment plant began construction on or after December 1, 1998, you must comply with all provisions of this subpart either immediately upon startup, or by six months after October 26, 1999, whichever date is later.

§ 63.1588 What inspections must I conduct?

(a) If your treatment units are required to have covers, you must conduct the following inspections:

(1) You must visually check the cover and its closure devices for defects that could result in air emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in the roof sections or between the roof and the supporting wall; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.

(2) You must perform an initial visual inspection with follow-up inspections at least once per year.

(3) In the event that you find a defect on a treatment unit in use, you must repair the defect within 45 days. If you cannot repair within 45 days, you must notify the EPA or the designated State authority immediately and report the reason for the delay and the date you expect to complete the repair. If you find a defect on a treatment unit that is not in service, you must repair the defect prior to putting the treatment unit back in wastewater service.

(b) If you own or operate a control device used to meet the requirements for § 63.1586, you must comply with the inspection and monitoring requirements of §63.695(c) of subpart DD of this part.

(c) To comply with the performance standard specified in §63.1586(b), you must develop an inspection and monitoring plan. This inspection and monitoring plan must include, at a minimum, the following:

(1) A method to determine, to the satisfaction of the Administrator, the influent HAP mass loading, *i.e.,* the annual mass quantity for each HAP entering the wastewater treatment plant.

(2) A method to determine, to the satisfaction of the Administrator, your POTW's annual HAP emissions for all units up to and including the secondary influent pumping station or up to and not including the secondary treatment units as of October 26, 1999. The method you use to determine your HAP emissions, such as modeling or direct source measurement, must:

(i) Be approved by your EPA Regional Office, State, or local regulatory agency for use at your POTW;

(ii) Account for all factors affecting emissions from your plant including, but not limited to, emissions from wastewater treatment units; emissions resulting from inspection, maintenance, and repair activities; fluctuations (*e.g.,* daily, monthly, annual, seasonal) in your influent wastewater HAP concentrations; annual industrial loading; performance of control devices; or any other factors that could affect your annual HAP emissions; and

(iii) Include documentation that the values and sources of all data, operating conditions, assumptions, etc., used in your method result in an accurate estimation of annual emissions from your plant.

(3) Documentation, to the satisfaction of the Administrator, that your POTW meets the fraction emitted standard of 0.014 or less, *i.e.,* the sum of all HAP emissions from paragraph (c)(2) of this section divided by the sum of all HAP mass loadings from paragraph (c)(1) of this section results in a fraction emitted of 0.014 or less as described in paragraph (c)(4) of this section.

(4) A method to demonstrate, to the satisfaction of the Administrator, that your POTW is in continuous compliance with the requirements of §63.1586(b). Continuous compliance means that your emissions, when averaged over the course of a year, do not exceed the level of emissions that allows your POTW to comply with §63.1586(b). For example, you may identify a parameter(s) that you can monitor that assures your emissions, when averaged over the entire year, will meet the requirements in §63.1586(b). Some example parameters that may be considered for monitoring include your wastewater influent HAP concentration and flow, industrial loading from your permitted industrial dischargers, and your control device performance criteria. Where emission reductions are due to proper operation of equipment, work practices, or other operational procedures, your demonstration must specify the frequency of inspections and the number of days to completion of repairs. You must, at a minimum, perform the following each month to demonstrate that your annual rolling average of the fraction emitted is 0.014 or less:

(i) Determine the average daily flow of the wastewater entering your POTW treatment plant for the month;

(ii) Determine the flow-weighted monthly concentration of each HAP in your influent listed in Table 1 to subpart DD of this part;

(iii) Using the current month's information in paragraphs (c)(4)(i) and (ii) of this section, determine a total annual loading (Mg/year) of each HAP entering your POTW treatment plant;

(iv) Sum up the values in paragraph (c)(4)(iii) of this section and determine a total annual loading value (Mg/year) for all HAP entering your POTW treatment plant for the current month;

(v) Based on the current month's information in paragraph (c)(4)(iii) of this section along with source testing and emission modeling, for each HAP, determine annual emissions (Mg/year) from all wastewater units up to, but not including, secondary treatment units;

(vi) Sum up the values in paragraph (c)(4)(v) of this section and determine the total annual emissions value for the month for all HAP from all wastewater units up to, but not including, secondary treatment units;

(vii) Calculate the fraction emitted value for the month by dividing the total annual HAP emissions value from paragraph (c)(4)(vi) of this section by the total annual loading from paragraph (c)(4)(iv) of this section; and

(viii) Average the fraction emitted value for the month determined in paragraph (c)(4)(vii) of this section, with the values determined for the previous 11 months, to calculate an annual rolling average of the fraction HAP emitted.

§ 63.1589 What records must I keep?

(a) To comply with the equipment standard specified in § 63.1586(a), you must prepare and maintain the records required in paragraphs (a)(1) through (4) of this section:

(1) A record for each treatment unit inspection required by § 63.1588(a). You must include a treatment unit identification number (or other unique identification description as selected by you) and the date of inspection.

(2) For each defect detected during inspections required by § 63.1588(a), you must record the location of the defect, a description of the defect, the date of detection, the corrective action taken to repair the defect, and the date the repair to correct the defect is completed.

(3) In the event that repair of the defect is delayed, in accordance with the provisions of § 63.1588(a)(3), you must also record the reason for the delay and the date you expect to complete the repair.

(4) If you own or operate a control device used to meet the requirements for § 63.1586, you must comply with the recordkeeping requirements of § 63.696(a), (b), (g), and (h).

(b) To comply with the performance standard specified in § 63.1586(b), you must prepare and maintain the records required in paragraphs (b)(1) through (3) of this section:

(1) A record of the methods and data used to determine your POTW's annual HAP emissions as determined in § 63.1588(c)(2);

(2) A record of the methods and data used to determine that your POTW meets the fraction emitted standard of 0.014 or less, as determined in § 63.1588(c)(3); and

(3) A record of the methods and data that demonstrates that your POTW is in continuous compliance with the requirements of § 63.1588(c)(4).

[64 FR 57579, Oct. 26, 1999, as amended at 66 FR 16142, Mar. 23, 2001]

§ 63.1590 What reports must I submit?

(a)(1) If you have an existing non-industrial POTW treatment plant, or a new or reconstructed area source non-industrial POTW treatment plant, you are not required to submit a notification of compliance status. If you have a new or reconstructed non-industrial POTW treatment plant which is a major source of HAP, you must submit to the Administrator a notification of compliance status, signed by the responsible official who must certify its accuracy, attesting to whether your POTW treatment plant has complied with this subpart. This notification must be submitted initially, and each time a notification of compliance status is required under this subpart. At a minimum, the notification must list—

(i) The methods that were used to determine compliance;

(ii) The results of any monitoring procedures or methods that were conducted;

(iii) The methods that will be used for determining continuing compliance;

(iv) The type and quantity of HAP emitted by your POTW treatment plant;

(v) A description of the air pollution control equipment (or method) for each emission point; and

(vi) Your statement that your POTW treatment plant has complied with this subpart.

(2) You must send this notification before the close of business on the 60th day following the completion of the relevant compliance demonstration activity specified in this subpart.

(b) After you have been issued a title V permit, you must comply with all requirements for compliance status reports contained in your title V permit, including reports required under this subpart. After you have been issued a title V permit, and each time a notification of compliance status is required under this subpart, you must submit the notification of compliance status to the appropriate permitting authority, as described in paragraph (d) of this section, following completion of the relevant compliance demonstration activity specified in this subpart.

(c) You must comply with the delay of repair reporting required in §63.1588(a)(3).

(d) If your State has not been delegated authority, you must submit reports to your EPA Regional Office. If your State has been delegated authority, you must submit reports to your delegated State authority, and you must send a copy of each report submitted to the State to your EPA Regional Office. Your EPA Regional Office, at its discretion, may waive this requirement for any reports.

(e) You may apply to the Administrator for a waiver of recordkeeping and reporting requirements by complying with the requirements of §63.10(f) of subpart A of this part.

(f) If you own or operate a control device used to meet the requirements of §63.1586(a), you must submit the reports required by §63.697(b) of subpart DD of this part, including a notification of performance tests; a performance test report; a startup, shutdown, and malfunction report; and a summary report.

(g) To comply with the performance standard specified in §63.1586(b), you must submit, for approval by the Administrator, an initial report explaining your compliance approach 90 days prior to beginning operation of your new or reconstructed POTW. You must also submit a startup, shutdown, and malfunction report.

[64 FR 57579, Oct. 26, 1999, as amended at 66 FR 16142, Mar. 23, 2001; 67 FR 64746, Oct. 21, 2002]

GENERAL REQUIREMENTS

§63.1591 What are my notification requirements?

(a) If you have an industrial POTW treatment plant or a new or reconstructed non-industrial POTW which is a major source of HAP, and your State has not been delegated authority, you must submit notifications to the appropriate EPA Regional Office. If your State has been delegated authority you must submit notifications to your State and a copy of each notification to the appropriate EPA Regional Office. The Regional Office may waive this requirement for any notifications at its discretion.

(b) You must notify the Administrator in writing no later than 120 calendar days after the effective date of this subpart (or within 120 calendar days after your POTW treatment plant becomes subject to the relevant standard), and you must provide the following information:

(1) Your name and address;

(2) The address (*i.e.*, physical location) of your POTW treatment plant;

(3) An identification of these standards as the basis of the notification and your POTW treatment plant's compliance date; and

(4) A brief description of the nature, size, design, and method of operation of your POTW treatment plant, including its operating design capacity and an identification of each point of emission for each HAP, or if a definitive identification is not yet possible, a preliminary identification of each point of emission for each HAP.

(c) You must notify the Administrator if your data show that you are no longer in continuous compliance.

[64 FR 57579, Oct. 26, 1999, as amended at 67 FR 64746, Oct. 21, 2002]

§63.1592 Which General Provisions apply to my POTW treatment plant?

(a) Table 1 to this subpart lists the General Provisions (40 CFR part 63, subpart A) which do and do not apply to POTW treatment plants.

(b) Unless a permit is otherwise required by law, the owner or operator of an industrial POTW which is not a major source is exempt from the permitting requirements established by 40 CFR part 70.

[67 FR 64746, Oct. 21, 2002]

§63.1594 Who enforces this subpart?

If the Administrator has delegated authority to your State, then the State enforces this subpart. If the Administrator has not delegated authority to your State, then the EPA Regional Office enforces this subpart.

EFFECTIVE DATE NOTE: At 68 FR 37360, June 23, 2003, §63.1594 was revised effective August

22, 2003. For the convenience of the user, the revised text is set forth as follows:

§ 63.1594 Who enforces this subpart?

(a) This subpart can be implemented and enforced by the U.S. EPA, or a delegated authority such as the applicable State, local, or Tribal agency. If the U.S. EPA Administrator has delegated authority to a State, local, or Tribal agency, then that agency, in addition to the U.S. EPA, has the authority to implement and enforce this subpart. Contact the applicable U.S. EPA Regional Office to find out if implementation and enforcement of this subpart is delegated to a State, local, or Tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or Tribal agency under subpart E of this part, the authorities contained in paragraph (c) of this section are retained by the Administrator of U.S. EPA and cannot be transferred to the State, local, or Tribal agency.

(c) The authorities that cannot be delegated to State, local, or Tribal agencies are as specified in paragraphs (c)(1) through (4) of this section.

(1) Approval of alternatives to the requirements in §§ 63.1580, 63.1583 through 63.1584, and 63.1586 through 63.1587.

(2) Approval of major alternatives to test methods under § 63.7(e)(2)(ii) and (f), as defined in § 63.90, and as required in this subpart.

(3) Approval of major alternatives to monitoring under § 63.8(f), as defined in § 63.90, and as required in this subpart.

(4) Approval of major alternatives to recordkeeping and reporting under § 63.10(f), as defined in § 63.90, and as required in this subpart.

§ 63.1595 List of definitions.

Affected source means the group of all equipment that comprise the POTW treatment plant.

Area source means any stationary source of HAP that is not a major source.

Cover means a device that prevents or reduces air pollutant emissions to the atmosphere by forming a continuous barrier over the waste material managed in a treatment unit. A cover may have openings (such as access hatches, sampling ports, gauge wells) that are necessary for operation, inspection, maintenance, and repair of the treatment unit on which the cover is used. A cover may be a separate piece of equipment which can be detached and removed from the treatment unit, or a cover may be formed by structural features permanently integrated into the design of the treatment unit. The cover and its closure devices must be made of suitable materials that will minimize exposure of the waste material to the atmosphere, to the extent practical, and will maintain the integrity of the cover and its closure devices throughout its intended service life.

Fraction emitted means the fraction of the mass of HAP entering the POTW wastewater treatment plant which is emitted prior to secondary treatment. The value is calculated using the following steps:

(1) Determine mass emissions from all equipment up to, but not including, secondary treatment for each HAP listed in Table 1 to subpart DD of this part;

(2) Sum the HAP emissions (ΣE);

(3) Sum the HAP mass loadings (ΣL) in the influent to the POTW wastewater treatment plant; and

(4) Calculate the fraction emitted (f_e monthly) using f_e monthly = $\Sigma E / \Sigma L$.

HAP means hazardous air pollutant(s).

Industrial POTW means a POTW that accepts a waste stream regulated by an industrial NESHAP and provides treatment and controls as an agent for the industrial discharger. The industrial discharger complies with its NESHAP by using the treatment and controls located at the POTW. For example, an industry discharges its benzene-containing waste stream to the POTW for treatment to comply with 40 CFR part 61, Subpart FF—National Emission Standard for Benzene Waste Operations. This definition does not include POTW treating waste streams not specifically regulated under another NESHAP.

Industrial user means a nondomestic source introducing any pollutant or combination of pollutants into a POTW. Industrial users can be commercial or industrial facilities whose wastes enter local sewers.

Non-industrial POTW means a POTW that does not meet the definition of an industrial POTW as defined above.

Publicly owned treatment works (POTW) means a treatment works, as that term is defined by section 112(e)(5) of the Clean Air Act, which is owned by a municipality (as defined by section

502(4) of the Clean Water Act), a State, an intermunicipal or interstate agency, or any department, agency, or instrumentality of the Federal Government. This definition includes any intercepting sewers, outfall sewers, sewage collection systems, pumping, power, and other equipment. The wastewater treated by these facilities is generated by industrial, commercial, and domestic sources. As used in this regulation, the term POTW refers to both any publicly owned treatment works which is owned by a State, municipality, or intermunicipal or interstate agency and therefore eligible to receive grant assistance under the Subchapter II of the Clean Water Act, and any federally owned treatment works as that term is described in section 3023 of the Solid Waste Disposal Act.

POTW treatment plant means that portion of the POTW which is designed to provide treatment (including recycling and reclamation) of municipal sewage and industrial waste.

Reconstruction means the replacement of components of an affected or a previously unaffected stationary source such that:

(1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable new source; and

(2) It is technologically and economically feasible for the reconstructed source to meet the relevant standard(s) established by the Administrator (or a State) pursuant to section 112 of the Act. Upon reconstruction, an affected source, or a stationary source that becomes an affected source, is subject to relevant standards for new sources, including compliance dates, irrespective of any change in emissions of HAP from that source.

Secondary treatment means treatment processes, typically biological, designed to reduce the concentrations of dissolved and colloidal organic matter in wastewater.

Waste and wastewater means a material, or spent or used water or waste, generated from residential, industrial, commercial, mining, or agricultural operations or from community activities that contain dissolved or suspended matter, and that is discarded, discharged, or is being accumulated, stored, or physically, chemically, thermally, or biologically treated in a publicly owned treatment works.

[64 FR 57579, Oct. 26, 1999 as amended at 66 FR 16142, Mar. 23, 2001]

TABLE 1 TO SUBPART VVV OF PART 63—APPLICABILITY OF 40 CFR PART 63 GENERAL PROVISIONS TO SUBPART VVV

General provisions reference	Applicable to subpart VVV	Explanation
§ 63.1		APPLICABILITY.
§ 63.1(a)(1)	Yes	Terms defined in the Clean Air Act.
§ 63.1(a)(2)	Yes	General applicability explanation.
§ 63.1(a)(3)	Yes	Cannot diminish a stricter NESHAP.
§ 63.1(a)(4)	Yes	Not repetitive. Doesn't apply to section 112(r).
§ 63.1(a)(5)	Yes	Section reserved.
§ 63.1(a)(6)–(8)	Yes	Contacts and authorities.
§ 63.1(a)(9)	Yes	Section reserved.
§ 63.1(a)(10)	Yes	Time period definition.
§ 63.1(a)(11)	Yes	Postmark explanation.
§ 63.1(a)(12)–(14)	Yes	Time period changes. Regulation conflict. Force and effect of subpart A.
§ 63.1(b)(1)	Yes	Initial applicability determination of subpart A.
§ 63.1(b)(2)	Yes	Operating permits by States.
§ 63.1(b)(3)	No	Subpart VVV specifies recordkeeping of records of applicability determination.
§ 63.1(c)(1)	Yes	Requires compliance with both subpart A and subpart VVV.
§ 63.1(c)(2)(i)	No	State options regarding title V permit. Unless required by the State, area sources subject to subpart VVV are exempted from permitting requirements.
§ 63.1(c)(2)(ii)–(iii)	No	State options regarding title V permit.
§ 63.1(c)(3)	Yes	Section reserved.
§ 63.1(c)(4)	Yes	Extension of compliance.

General provisions reference	Applicable to subpart VVV	Explanation
§ 63.1(c)(5)	No	Subpart VVV addresses area sources becoming major due to increase in emissions.
§ 63.1(d)	Yes	Section reserved.
§ 63.1(e)	Yes	Title V permit before a relevant standard is established.
§ 63.2	Yes	DEFINITIONS.
§ 63.3	Yes	UNITS AND ABBREVIATIONS.
§ 63.4		PROHIBITED ACTIVITIES AND CIRCUMVENTION.
§ 63.4(a)(1)–(3)	Yes	Prohibits operation in violation of subpart A.
§ 63.4(a)(4)	Yes	Section reserved.
§ 63.4(a)(5)	Yes	Compliance dates.
§ 63.4(b)	Yes	Circumvention.
§ 63.4(c)	Yes	Severability.
§ 63.5		CONSTRUCTION AND RECONSTRUCTION.
§ 63.5(a)(1)	Yes	Construction and reconstruction.
§ 63.5(a)(2)	Yes	New source—effective dates.
§ 63.5(b)(1)	Yes	New sources subject to relevant standards.
§ 63.5(b)(2)	Yes	Section reserved.
§ 63.5(b)(3)	Yes	No new major sources without Administrator approval.
§ 63.5(b)(4)	Yes	New major source notification.
§ 63.5(b)(5)	Yes	New major sources must comply.
§ 63.5(b)(6)	Yes	New equipment added considered part of major source.
§ 63.5(c)	Yes	Section reserved.
§ 63.5(d)(1)	Yes	Implementation of section 112(I)(2)—application of approval of new source construction.
§ 63.5(d)(2)	Yes	Application for approval of construction for new sources listing and describing planned air pollution control system.
§ 63.5(d)(3)	Yes	Application for reconstruction.
§ 63.5(d)(4)	Yes	Administrator may request additional information.
§ 63.5(e)	Yes	Approval of reconstruction.
§ 63.5(f)(1)	Yes	Approval based on State review.
§ 63.5(f)(2)	Yes	Application deadline.
§ 63.6		COMPLIANCE WITH STANDARDS AND MAINTENANCE REQUIREMENTS.
§ 63.6(a)	Yes	Applicability of compliance with standards and maintenance requirements.
§ 63.6(b)	Yes	Compliance dates for new and reconstructed sources.
§ 63.6(c)	Yes	Compliance dates for existing sources apply to existing industrial POTW treatment plants.
§ 63.6(d)	Yes	Section reserved.
§ 63.6(e)	Yes	Operation and maintenance requirements apply to new sources.
§ 63.6(f)	Yes	Compliance with non-opacity emission standards applies to new sources.
§ 63.6(g)	Yes	Use of alternative non-opacity emission standards applies to new sources.
§ 63.6(h)	No	POTW treatment plants do not typically have visible emissions.
§ 63.6(i)	Yes	Extension of compliance with emission standards applies to new sources.
§ 63.6(j)	Yes	Presidential exemption from compliance with emission standards.
§ 63.7		PERFORMANCE TESTING REQUIREMENTS.
§ 63.7(a)	Yes	Performance testing is required for new sources.
§ 63.7(b)	Yes	New sources must notify the Administrator of intention to conduct performance testing.
§ 63.7(c)	Yes	New sources must comply with quality assurance program requirements.
§ 63.7(d)	Yes	New sources must provide performance testing facilities at the request of the Administrator.
§ 63.7(e)	Yes	Requirements for conducting performance tests apply to new sources.
§ 63.7(f)	Yes	New sources may use an alternative test method.
§ 63.7(g)	Yes	Requirements for data analysis, recordkeeping, and reporting associated with performance testing apply to new sources.
§ 63.7(h)	Yes	New sources may request a waiver of performance tests.
§ 63.8		MONITORING REQUIREMENTS.
§ 63.8(a)	Yes	Applicability of monitoring requirements.
§ 63.8(b)	Yes	Monitoring shall be conducted by new sources.
§ 63.8(c)	Yes	New sources shall operate and maintain continuous monitoring systems (CMS).
§ 63.8(d)	Yes	New sources must develop and implement a CMS quality control program.

General provisions reference	Applicable to subpart VVV	Explanation
§63.8(e)	Yes	New sources may be required to conduct a performance evaluation of CMS.
§63.8(f)	Yes	New sources may use an alternative monitoring method.
§63.8(g)	Yes	Requirements for reduction of monitoring data.
§63.9		NOTIFICATION REQUIREMENTS.
§63.9(a)	Yes	Applicability of notification requirements.
§63.9(b)	Yes	Applicability of notification requirements. Existing major non-industrial POTW treatment plants, and existing and new or reconstructed area non-industrial POTW treatment plants are not subject to the notification requirements.
§63.9(c)	Yes	Request for extension of compliance with subpart VVV.
§63.9(d)	Yes	Notification that source is subject to special compliance requirements as specified in §63.6(b)(3) and (4).
§63.9(e)	Yes	Notification of performance test.
§63.9(f)	No	POTW treatment plants do not typically have visible emissions.
§63.9(g)	Yes	Additional notification requirements for sources with continuous emission monitoring systems.
§63.9(h)	Yes	Notification of compliance status when the source becomes subject to subpart VVV.
§63.9(i)	Yes	Adjustments to time periods or postmark deadlines or submittal and review of required communications.
§63.9(j)	Yes	Change of information already provided to the Administrator.
§63.10		RECORDKEEPING AND REPORTING REQUIREMENTS.
§63.10(a)	Yes	Applicability of notification and reporting requirements.
§63.10(b)(1)–(2)	Yes	General recordkeeping requirements.
§63.10(b)(3)	No	Recording requirement for applicability determination.
§63.10(c)	Yes	Additional recordkeeping requirements for sources with continuous monitoring systems.
§63.10(d)	Yes	General reporting requirements.
§63.10(e)	Yes	Additional reporting requirements for sources with continuous monitoring systems.
§63.10(f)	Yes	Waiver of recordkeeping and reporting requirements.
§63.11		FLARES AS A CONTROL DEVICE.
§63.11(a) and (b)	Yes	If a new source uses flares to comply with the requirements of subpart VVV, the requirements of §63.11 apply.
§63.12	Yes	STATE AUTHORITY AND DESIGNATION.
§63.13	Yes	ADDRESSES OF STATE AIR POLLUTION CONTROL AGENCIES AND EPA REGIONAL OFFICES.
§63.14	Yes	INCORPORATION BY REFERENCE.
§63.15	Yes	AVAILABILITY OF INFORMATION AND CONFIDENTIALITY.

[64 FR 57579, Oct. 26, 1999 as amended at 66 FR 16142, Mar. 23, 2001; 67 FR 64746, Oct. 21, 2002]

Subpart WWW [Reserved]

Subpart XXX—National Emission Standards for Hazardous Air Pollutants for Ferroalloys Production: Ferromanganese and Silicomanganese

SOURCE: 64 FR 27458, May 20, 1999, unless otherwise noted.

§§ 63.1620–63.1649 [Reserved]

§ 63.1650 Applicability and compliance dates.

(a) This subpart applies to all new and existing ferromanganese and silicomanganese production facilities that manufacture ferromanganese or silicomanganese and are major sources or are co-located at major sources of hazardous air pollutant emissions.

(b) The following sources at a ferromanganese and silicomanganese production facility are subject to this subpart:

(1) Open submerged arc furnaces with a furnace power input of 22 MW or less when producing ferromanganese.

(2) Open submerged arc furnaces with a furnace power input greater than 22 MW when producing ferromanganese.

(3) Open submerged arc furnaces with a furnace power input greater than 25 MW when producing silicomanganese.

(4) Open submerged arc furnaces with a furnace power input of 25 MW or less when producing silicomanganese.

(5) Semi-sealed submerged arc furnaces when producing ferromanganese.

(6) Metal oxygen refining (MOR) process.

(7) Crushing and screening operations.

(8) Fugitive dust sources.

(c) A new affected source is one for which construction or reconstruction commenced after August 4, 1998.

(d) The following table specifies which provisions of subpart A of this part apply to owners and operators of ferromanganese and silicomanganese production facilities subject to this subpart:

GENERAL PROVISIONS APPLICABILITY TO SUBPART XXX

Reference, Subpart A General Provisions	Applies to Subpart XXX, §§ 63.1620–63.1679	Comment
63.1–63.5	Yes.	
63.6(a)–(g), (i)–(j)	Yes.	
63.6(h)(1)–(h)(6), (h)(8)–(h)(9)	Yes.	
63.7(h)(7)	No	§ 63.6(h)(7), use of continuous opacity monitoring system, not applicable.
63.7	Yes.	
63.8	Yes.	
63.9	Yes	Notification of performance test results changed to a 30-day notification period.
63.10	Yes	Allow changes in dates by which periodic reports are submitted by mutual agreement between the owner or operator and the State to occur any time after the source's compliance date.
63.11	No	Flares will not be used to comply with the emission limits.
63.12–63.15	Yes.	

(e) *Compliance dates.* (1) Each owner or operator of an existing affected source must comply with the requirements of this subpart no later than November 21, 2001.

(2) Each owner or operator of a new or reconstructed affected source that commences construction or reconstruction after August 4, 1998, must comply with the requirements of this subpart by May 20, 1999 or upon startup of operations, whichever is later.

[64 FR 27458, May 20, 1999, as amended at 66 FR 16012, Mar. 22, 2001]

§ 63.1651 Definitions.

Terms in this subpart are defined in the Clean Air Act (Act), in subpart A of this part, or in this section as follows:

Bag leak detection system means a system that is capable of continuously monitoring particulate matter (dust) loadings in the exhaust of a baghouse in order to detect bag leaks and other upset conditions. A bag leak detection system includes, but is not limited to, an instrument that operates on triboelectric, light scattering, light transmittance, or other effect to continuously monitor relative particulate matter loadings.

Capture system means the equipment (including hoods, ducts, fans, dampers, etc.) used to capture or transport particulate matter generated by an affected submerged arc furnace.

Casting means the period of time from when molten ferroalloy falls from the furnace tapping runner into the ladle until pouring into molds is completed. This includes the following operations: ladle filling, pouring alloy from one ladle to another, slag separation, slag removal, and ladle transfer by crane, truck, or other conveyance.

Crushing and screening equipment means the crushers, grinders, mills, screens and conveying systems used to crush, size, and prepare for packing manganese-containing materials, including raw materials, intermediate products, and final products.

Fugitive dust source means a stationary source from which manganese-bearing particles are discharged to the atmosphere due to wind or mechanical inducement such as vehicle traffic. Fugitive dust sources include plant roadways, yard areas, and outdoor material storage and transfer operations.

Furnace power input means the resistive electrical power consumption of a submerged arc furnace, expressed as megawatts (MW).

Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures caused in part by poor maintenance or careless operation are not malfunctions.

Metal oxygen refining (MOR) process means the reduction of the carbon content of ferromanganese through the use of oxygen.

Open submerged arc furnace means an electric submerged arc furnace that is equipped with a canopy hood above the furnace to collect primary emissions.

Operating time means the period of time in hours that the affected source is in operation beginning at a startup and ending at the next shutdown.

Plant roadway means any area at a ferromanganese and silicomanganese production facility that is subject to plant mobile equipment, such as fork lifts, front end loaders, or trucks, carrying manganese-bearing materials. Excluded from this definition are employee and visitor parking areas, provided they are not subject to traffic by plant mobile equipment.

Primary emissions means gases and emissions collected by hoods and ductwork located above an open furnace or under the cover of a semi-closed or sealed furnace.

Sealed submerged arc furnace means an electric submerged arc furnace equipped with a total enclosure or cover from which primary emissions are evacuated directly.

Semi-closed submerged arc furnace means an electric submerged arc furnace equipped with a partially sealed cover over the furnace. This cover is equipped with openings to allow penetration of the electrodes into the furnace. Mix is introduced into the furnace around the electrode holes forming a partial seal between the electrodes and the cover. Furnace emissions generated under the cover are ducted to an emission control device. Emissions that escape the cover are collected and vented through stacks directly to the atmosphere.

Shop means the building which houses one or more submerged arc furnaces.

Shutdown means the cessation of operation of an affected source for any purpose.

Startup means the setting in operation of an affected source for any purpose.

Submerged arc furnace means any furnace wherein electrical energy is converted to heat energy by transmission of current between electrodes partially submerged in the furnace charge. The furnace may be of an open, semi-sealed, or sealed design.

Tapping emissions means a source of air pollutant emissions that occur during the process of removing the molten product from the furnace.

Tapping period means the time from when a tap hole is opened until the time a tap hole is closed.

§63.1652 Emission standards.

(a) *New and reconstructed submerged arc furnaces.* No owner or operator shall cause to be discharged into the atmosphere from any new or reconstructed submerged arc furnace exhaust gases (including primary and tapping) containing particulate matter in excess of one of the following:

(1) 0.23 kilograms per hour per megawatt (kg/hr/MW) (0.51 pounds per hour per megawatt [lb/hr/MW]), or

(2) 35 milligrams per dry standard cubic meter (mg/dscm) (0.015 grains per dry standard cubic foot [gr/dscf]).

(b) *Existing open submerged arc furnaces.* No owner or operator shall cause to be discharged into the atmosphere from any existing open submerged arc furnace exhaust gases (including primary and tapping) containing particulate matter in excess of one of the following:

(1) 9.8 kilograms per hour (kg/hr) (21.7 pounds per hour (lb/hr)) when producing ferromanganese in an open furnace operating at a furnace power input of 22 MW or less; or

(2) 13.5 kg/hr (29.8 lb/hr) when producing ferromanganese in an open furnace operating at a furnace power input greater than 22 MW; or

(3) 16.3 kg/hr (35.9 lb/hr) when producing silicomanganese in an open furnace operating at a furnace power input greater than 25 MW; or

(4) 12.3 kg/hr (27.2 lb/hr) when producing silicomanganese in an open furnace operating at a furnace power input of 25 MW or less.

(c) *Existing semi-sealed submerged arc furnaces.* No owner or operator shall cause to be discharged into the atmosphere from any existing semi-sealed submerged arc furnace exhaust gases (including primary, tapping, and vent stacks) containing particulate matter in excess of 11.2 kg/hr (24.7 lb/hr) when producing ferromanganese.

(d) *MOR process.* No owner or operator shall cause to be discharged into the atmosphere from any new, reconstructed, or existing MOR process exhaust gases containing particulate matter in excess of 69 mg/dscm (0.03 gr/dscf).

(e) *Crushing and screening equipment.* (1) *New and reconstructed equipment.* No owner or operator shall cause to be discharged into the atmosphere from any new or reconstructed piece of equipment associated with crushing and screening exhaust gases containing particulate matter in excess of 50 mg/dscm (0.022 gr/dscf).

(2) *Existing equipment.* No owner or operator shall cause to be discharged into the atmosphere from any existing piece of equipment associated with crushing and screening exhaust gases containing particulate matter in excess of 69 (mg/dscm) (0.03 gr/dscf).

[64 FR 27458, May 20, 1999, as amended at 66 FR 16013, Mar. 22, 2001]

§ 63.1653 Opacity standards.

No owner or operator shall cause emissions exiting from a shop due solely to operations of any affected submerged arc furnace, to exceed 20 percent opacity for more than one 6-minute period during any performance test, with the following exceptions:

(a) Visible particulate emissions from a shop due solely to operation of a semi-closed submerged arc furnace, may exceed 20 percent opacity, measured as a 6-minute average, one time during any performance test, so long as the emissions never exceed 60 percent opacity, measured as a 6-minute average.

(b) Blowing taps, poling and oxygen lancing of the tap hole; burndowns associated with electrode measurements; and maintenance activities associated with submerged arc furnaces and casting operations are exempt from the opacity standards specified in this section.

§ 63.1654 Operational and work practice standards.

(a) *Fugitive dust sources.* (1) Each owner or operator of an affected ferromanganese and silicomanganese production facility must prepare, and at all times operate according to, a fugitive dust control plan that describes in detail the measures that will be put in place to control fugitive dust emissions from the individual fugitive dust sources at the facility.

(2) The owner or operator must submit a copy of the fugitive dust control plan to the designated permitting authority on or before the applicable compliance date for the affected source as specified in § 63.1650(e). The requirement for the owner or operator to operate the facility according to a written fugitive dust control plan must be incorporated in the operating permit for the facility that is issued by the designated permitting authority under part 70 of this chapter.

(3) The owner or operator may use existing manuals that describe the measures in place to control fugitive dust sources required as part of a State implementation plan or other federally enforceable requirement for particulate matter to satisfy the requirements of paragraph (a)(1) of this section.

(b) *Baghouses equipped with bag leak detection systems.* The owner or operator of a new or reconstructed submerged arc furnace must install and continuously operate a bag leak detection system if the furnace's primary and/or tapping emissions are ducted to a negative pressure baghouse or to a positive pressure baghouse equipped with a stack. The owner or operator must maintain and operate each baghouse such that the following conditions are met:

(1) The alarm on the system does not sound for more than 5 percent of the total operating time in a 6-month reporting period.

(2) A record is made of the date and time of each alarm and procedures to determine the cause of the alarm are initiated within 1 hour of the alarm according to the plan for corrective action required under §63.1657(a)(7).

§63.1655 Maintenance requirements.

(a) The owner or operator of an affected source must comply with the requirements of §63.6(e) of subpart A.

(b)(1) The owner or operator must develop and implement a written maintenance plan for each air pollution control device associated with submerged arc furnaces, metal oxygen refining processes, and crushing and screening operations subject to the provisions of this part. The owner or operator must keep the maintenance plan on record and available for the Administrator's inspection for the life of the air pollution control device or until the affected source is no longer subject to the provisions of this part.

(2) To satisfy the requirement to develop maintenance plans, the owner or operator may use the affected source's standard operating procedures (SOP) manual or other plan, provided the alternative plan meets the requirements of this paragraph and is made available for inspection when requested by the Administrator.

(c) The procedures specified in the maintenance plan must include a preventive maintenance schedule that is consistent with good air pollution control practices for minimizing emissions and, for baghouses, ensure that the requirements specified in §63.1657(a) are met.

(d) The owner or operator must perform monthly inspections of the equipment that is important to the performance of the furnace capture system. This inspection must include an examination of the physical condition of the equipment, suitable for detecting holes in ductwork or hoods, flow constrictions in ductwork due to dents or accumulated dust, and operational status of flow rate controllers (pressure sensors, dampers, damper switches, etc.). Any deficiencies must be recorded and proper maintenance and repairs performed.

§63.1656 Performance testing, test methods, and compliance demonstrations.

(a) *Performance testing.* (1) All performance tests must be conducted according to the requirements in §63.7 of subpart A.

(2) Each performance test must consist of three separate and complete runs using the applicable test methods.

(3) Each run must be conducted under conditions that are representative of normal process operations.

(4) Performance tests conducted on air pollution control devices serving submerged arc furnaces must be conducted such that at least one tapping period, or at least 20 minutes of a tapping period, whichever is less, is included in at least two of the three runs. The sampling time for each run must be at least as long as three times the average tapping period of the tested furnace, but no less than 60 minutes.

(5) The sample volume for each run must be at least 0.9 dscm (30 dscf).

(b) *Test methods.* The following test methods in Appendix A of part 60 of this chapter must be used to determine compliance with the emission standards.

(1) Method 1 to select the sampling port location and the number of traverse points.

(2) Method 2 to determine the volumetric flow rate of the stack gas.

(3) Method 3 to determine the dry molecular weight of the stack gas.

(4) Method 4 to determine the moisture content of the stack gas.

(5) Method 5 to determine the particulate matter concentration of the stack gas for negative pressure baghouses and positive pressure baghouses with stacks.

(6) Method 5D to determine particulate matter concentration and volumetric flow rate of the stack gas for positive pressure baghouses without stacks.

(7) Method 9 to determine opacity.

(8) The owner or operator may use equivalent alternative measurement methods approved by the Administrator following the procedures described in § 63.7(f) of subpart A.

(c) *Compliance demonstration with the emission standards.* (1) The owner or operator must conduct an initial performance test for air pollution control devices or vent stacks subject to § 63.1652(a) through (e) to demonstrate compliance with the applicable emission standards.

(2) The owner or operator must conduct annual performance tests for the air pollution control devices and vent stacks associated with the submerged arc furnaces, with the exception of any air pollution control devices that serve tapping emissions combined with non-furnace emissions, such as the MOR process or equipment associated with crushing and screening. Also excluded are air pollution control devices that serve dedicated non-furnace emissions, such as the MOR process or equipment associated with crushing and screening. The results of these annual tests will be used to demonstrate compliance with the emission standards in § 63.1652(a) through (e), as applicable.

(3) Following development, and approval, if required, of the site-specific test plan, the owner or operator must conduct a performance test for each air pollution control device or vent stack to measure particulate matter and determine compliance with the applicable standard.

(i) An owner or operator of sources subject to the particulate matter concentration standards in § 63.1652(a)(2), (d), or (e), must determine compliance as follows:

(A) Determine the particulate matter concentration using Method 5 or 5D, as applicable.

(B) Compliance is demonstrated if the average concentration for the three runs comprising the performance test does not exceed the standard.

(ii) An owner or operator of sources subject to the particulate mass rate standards in § 63.1652(b) or (c) must determine compliance as follows:

(A) Determine the particulate matter concentration and volumetric flow rate using Method 5 or 5D, as applicable.

(B) Compute the mass rate (E_M) of particulate matter for each run using the following equation:

$$E_M = \left[\sum_{i=1}^{N} C_{si} Q_{sdi}\right] / K$$

Where:

E_M = mass rate of particulate matter, kg/hr (lb/hr).
N = total number of exhaust streams at which emissions are quantified.
C_{si} = concentration of particulate matter from exhaust stream ‘‘i’’, mg/dscm (gr/dscf).
Q_{sdi} = volumetric flow rate of effluent gas from exhaust stream ‘‘i’’, dscm/hr (dscf/hr)
K = conversion factor, 1×10^6 mg/kg (7,000 gr/lb).

(C) Compliance is demonstrated if the average of the mass rates for the three runs comprising the performance test does not exceed the standard.

(iii) An owner or operator of sources subject to the particulate matter process-weighted rate standard in § 63.1652(a)(1) must determine compliance as follows:

(A) Determine particulate matter concentration and volumetric flow rate using Method 5 or 5D, as applicable.

(B) Compute the process-weighted mass rate (E_P) of particulate matter for each run using the following equation:

$$E_P = \left[\sum_{i=1}^{N} C_{si} Q_{sdi}\right] / PK$$

Where:

E_P = process-weighted mass rate of particulate matter, kg/hr/MW (lb/hr/MW).
N = total number of exhaust streams at which emissions are quantified.
C_{si} = concentration of particulate matter from exhaust stream ‘‘i’’, mg/dscm (gr/dscf)
Q_{sdi} = volumetric flow rate of effluent gas from exhaust stream ‘‘i’’, dscm/hr (dscf/hr)
P = Average furnace power input, MW
K = conversion factor, 1×10^6 mg/kg (7,000 gr/lb).

(C) Compliance is demonstrated if the average process-weighted mass rate for the three runs comprising the performance test does not exceed the standard.

(4) If a venturi scrubber is used to comply with the emission standards,

the owner or operator must establish as a site-specific operating parameter the lowest average pressure drop on any individual complying run in the three runs constituting any compliant test. The pressure drop must be monitored at least every 5 minutes during the test and hourly averages recorded.

(i) [Reserved]

(ii) The owner or operator may augment the data obtained under paragraph (a)(4) of this section by conducting multiple performance tests to establish a range of compliant operating parameter values. The lowest value of this range would be selected as the operating parameter monitoring value. The use of historic compliance data may be used to establish the compliant operating parameter value if the previous values were recorded during performance tests using the same test methods specified in this subpart and established as required in paragraph (a)(4) of this section.

(d) *Compliance demonstration with opacity standards.* (1)(i) The owner or operator subject to § 63.1653 must conduct initial opacity observations of the shop building to demonstrate compliance with the applicable opacity standards according to § 63.6(h)(5), which addresses the conduct of opacity or visible emission observations.

(ii) In conducting the opacity observations of the shop building, the observer must limit his or her field of view to the area of the shop building roof monitor that corresponds to the placement of the affected submerged arc furnaces.

(iii) The owner or operator must conduct the opacity observations according to EPA Method 9 of 40 CFR part 60, appendix A, for a minimum of 60 minutes.

(2)(i) When demonstrating initial compliance with the shop building opacity standard, as required by paragraph (d)(1) of this section, the owner or operator must simultaneously establish parameter values for one of the following: the control system fan motor amperes and all capture system damper positions, the total volumetric flow rate to the air pollution control device and all capture system damper positions, or volumetric flow rate through each separately ducted hood that comprises the capture system.

(ii) The owner or operator may petition the Administrator to reestablish these parameters whenever he or she can demonstrate to the Administrator's satisfaction that the submerged arc furnace operating conditions upon which the parameters were previously established are no longer applicable. The values of these parameters determined during the most recent demonstration of compliance must be maintained at the appropriate level for each applicable period.

(3) The owner or operator must demonstrate continuing compliance with the opacity standards by following the monitoring requirements specified in § 63.1657(c) and the reporting and recordkeeping requirements specified in §§ 63.1659(b)(4) and 63.1660(b).

(e) *Compliance demonstration with the operational and work practice standards.* (1) *Fugitive dust sources.* Failure to have a fugitive dust control plan or failure to report deviations from the plan and take necessary corrective action would be a violation of the general duty to ensure that fugitive dust sources are operated and maintained in a manner consistent with good air pollution control practices for minimizing emissions per § 63.6(e)(1)(i) of subpart A.

(2) *Baghouses equipped with bag leak detection systems.* The owner or operator demonstrates compliance with the bag leak detection system requirements by submitting reports as required by § 63.1659(b)(5) showing that the alarm on the system does not sound for more than 5 percent of the total operating time in a 6-month period. Calculate the percentage of total operating time the alarm on the bag leak detection system sounds as follows:

(i) Do not include alarms that occur due solely to a malfunction of the bag leak detection system in the calculation.

(ii) Do not include alarms that occur during startup, shutdown, and malfunction in the calculation if the condition is described in the startup, shutdown, and malfunction plan and the owner or operator follows all the procedures in the plan defined for this condition.

(iii) Count 1 hour of alarm time for each alarm where the owner or operator initiates procedures to determine the cause within 1 hour of the alarm.

(iv) Count the actual time it takes the owner or operator to initiate procedures to determine the cause of the alarm for each alarm where the owner or operator does not initiate procedures to determine the cause within 1 hour of the alarm.

(v) Calculate the percentage of time the alarm on the bag leak detection system sounds as the ratio of the sum of alarm times to the total operating time multiplied by 100.

§ 63.1657 Monitoring requirements.

(a) *Baghouses.* (1) For the baghouses serving the submerged arc furnaces, the metal oxygen refining process, and crushing and screening operations, the owner or operator must observe on a daily basis for the presence of any visible emissions.

(2) In addition to the daily visible emissions observation, the owner or operator must conduct the following activities:

(i) Daily monitoring of pressure drop across each baghouse cell, or across the baghouse if it is not possible to monitor each cell individually, to ensure the pressure drop is within the normal operating range identified in the baghouse maintenance plan.

(ii) Weekly confirmation that dust is being removed from hoppers through visual inspection, or equivalent means of ensuring the proper functioning of removal mechanisms.

(iii) Daily check of compressed air supply for pulse-jet baghouses.

(iv) An appropriate methodology for monitoring cleaning cycles to ensure proper operation.

(v) Monthly check of bag cleaning mechanisms for proper functioning through visual inspection or equivalent means.

(vi) Quarterly visual check of bag tension on reverse air and shaker-type baghouses to ensure that the bags are not kinked (kneed or bent) or laying on their sides. Such checks are not required for shaker-type baghouses using self-tensioning (spring loaded) devices.

(vii) Quarterly confirmation of the physical integrity of the baghouse structure through visual inspection of the baghouse interior for air leaks.

(viii) Semiannual inspection of fans for wear, material buildup, and corrosion through visual inspection, vibration detectors, or equivalent means.

(3) In addition to meeting the requirements of paragraphs (a)(1) and (a)(2) of this section, the owner or operator of a new or reconstructed submerged arc furnace must install and continuously operate a bag leak detection system if the furnace primary and/or tapping emissions are ducted to a negative pressure baghouse or to a positive pressure baghouse equipped with a stack. The bag leak detection system must meet the following requirements:

(i) The bag leak detection system must be certified by the manufacturer to be capable of detecting particulate matter emissions at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.

(ii) The bag leak detection system sensor must provide output of relative particulate matter loadings, and the owner or operator must continuously record the output from the bag leak detection system.

(iii) The bag leak detection system must be equipped with an alarm system that will sound when an increase in relative particulate loadings is detected over a preset level. The alarm must be located where it can be heard by the appropriate plant personnel.

(iv) Each bag leak detection system that works based on the triboelectric effect must be installed, calibrated, operated, and maintained consistent with the U.S. Environmental Protection Agency guidance document ‘‘Fabric Filter Bag Leak Detection Guidance’’ (EPA–454/R–98–015). Other bag leak detection systems must be installed, calibrated, and maintained consistent with the manufacturer’s written specifications and recommendations.

(v) The initial adjustment of the system must, at a minimum, consist of establishing the baseline output by adjusting the sensitivity (range) and the averaging period of the device, and establishing the alarm set points and the alarm delay time.

(vi) Following initial adjustment, the owner or operator must not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time, except as detailed in the maintenance plan required under § 63.1655(b). In no event must the sensitivity be increased by more than 100 percent or decreased more than 50 percent over a 365-day period unless a responsible official certifies the baghouse has been inspected and found to be in good operating condition.

(vii) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(4) As part of the maintenance plan required by § 63.1655(b), the owner or operator must develop and implement corrective action procedures to be followed in the case of a bag leak detection system alarm (for baghouses equipped with such a system), the observation of visible emissions from the baghouse, or the indication through the periodic baghouse system inspections that the system is not operating properly. The owner or operator must initiate corrective action as soon as practicable after the occurrence of the observation or event indicating a problem.

(5) The corrective action plan must include procedures used to determine the cause of an alarm or other indications of problems as well as actions to minimize emissions. These actions may include the following:

(i) Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in emissions.

(ii) Sealing off defective bags or filter media.

(iii) Replacing defective bags or filter media, or otherwise repairing the control device.

(iv) Sealing off a defective baghouse compartment.

(v) Cleaning the bag leak detection system probe, or otherwise repairing the bag leak detection system.

(vi) Shutting down the process producing the particulate matter emissions.

(6) Failure to monitor or failure to take corrective action under the requirements of paragraph (a) of this section would be a violation of the general duty to operate in a manner consistent with good air pollution control practices that minimizes emissions per § 63.6(e)(1)(i) of subpart A.

(b) *Venturi scrubbers.* (1) The owner or operator must monitor the pressure drop across the venturi at least every 5 minutes and record the average hourly pressure drop. Measurement of an average hourly pressure drop less than the pressure drop operating parameter limit established during a successful compliance demonstration would be a violation of the applicable emission standard, unless the excursion in the pressure drop is due to a malfunction.

(2) As part of the maintenance plan required by § 63.1655(b), the owner or operator must develop and implement corrective action procedures to be followed in the case of a violation of the pressure drop requirement. The owner or operator must initiate corrective action as soon as practicable after the excursion.

(3) Failure to monitor or failure to take corrective action under the requirements of paragraph (b) of this section is a violation of the general duty to operate in a manner consistent with good air pollution control practices that minimizes emissions per § 63.6(e)(1)(i).

(c) *Shop opacity.* The owner or operator subject to the opacity standards in § 63.1653 must comply with one of the monitoring options in paragraphs (c)(1), (c)(2) or (c)(3) of this section. The selected option must be consistent with that selected during the initial performance test described in § 63.1656(d)(2). Alternatively, the owner or operator may use the provisions of § 63.8(f) to request approval to use an alternative monitoring method.

(1) The owner or operator must check and record the control system fan motor amperes and capture system damper positions once per shift.

(2) The owner or operator must install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate through each separately ducted hood.

(3) The owner or operator must install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate at the inlet of

the air pollution control device and must check and record the capture system damper positions once per shift.

(4) The flow rate monitoring devices must meet the following requirements:

(i) Be installed in an appropriate location in the exhaust duct such that reproducible flow rate monitoring will result.

(ii) Have an accuracy ±10 percent over its normal operating range and be calibrated according to the manufacturer's instructions.

(5) The Administrator may require the owner or operator to demonstrate the accuracy of the monitoring device(s) relative to Methods 1 and 2 of appendix A of part 60 of this chapter.

(6) Failure to maintain the appropriate capture system parameters (fan motor amperes, flow rate, and/or damper positions) establishes the need to initiate corrective action as soon as practicable after the monitoring excursion in order to minimize excess emissions.

(7) Failure to monitor or failure to take corrective action under the requirements of paragraph (c) of this section is a violation of the general duty to operate in a manner consistent with good air pollution control practices that minimizes emissions per § 63.6(e)(1)(i).

§ 63.1658 Notification requirements.

(a) As required by § 63.9(b) of subpart A, unless otherwise specified in this subpart, the owner or operator must submit the following written notifications to the Administrator:

(1) The owner or operator of an area source that subsequently becomes subject to the requirements of the standard must provide notification to the applicable permitting authority as required by § 63.9(b)(1).

(2) As required by § 63.9(b)(2), the owner or operator of an affected source that has an initial startup before the effective date of the standard must notify the Administrator that the source is subject to the requirements of the standard. The notification must be submitted no later than 120 calendar days after May 20, 1999 (or within 120 calendar days after the source becomes subject to this standard) and must contain the information specified in § 63.9(b)(2)(i) through (b)(2)(v).

(3) As required by § 63.9(b)(3), the owner or operator of a new or reconstructed affected source, or a source that has been reconstructed such that it is an affected source, that has an initial startup after the effective date and for which an application for approval of construction or reconstruction is not required under § 63.5(d), must notify the Administrator in writing that the source is subject to the standards no later than 120 days after initial startup. The notification must contain the information specified in § 63.9(b)(2)(i) through (b)(2)(v), delivered or postmarked with the notification required in § 63.9(b)(5).

(4) As required by § 63.9(b)(4), the owner or operator of a new or reconstructed major affected source that has an initial startup after the effective date of this standard and for which an application for approval of construction or reconstruction is required under § 63.5(d) must provide the information specified in § 63.9(b)(4)(i) through (b)(4)(v).

(5) As required by § 63.9(b)(5), the owner or operator who, after the effective date of this standard, intends to construct a new affected source or reconstruct an affected source subject to this standard, or reconstruct a source such that it becomes an affected source subject to this standard, must notify the Administrator, in writing, of the intended construction or reconstruction.

(b) *Request for extension of compliance.* As required by § 63.9(c), if the owner or operator of an affected source cannot comply with this standard by the applicable compliance date for that source, or if the owner or operator has installed BACT or technology to meet LAER consistent with § 63.6(i)(5), he or she may submit to the Administrator (or the State with an approved permit program) a request for an extension of compliance as specified in § 63.6(i)(4) through (i)(6).

(c) *Notification that source is subject to special compliance requirements.* As required by § 63.9(d), an owner or operator of a new source that is subject to special compliance requirements as specified in § 63.6(b)(3) and (b)(4) must notify the Administrator of his or her compliance obligations no later than the notification dates established in §63.9(b) for new sources that are not subject to the special provisions.

(d) *Notification of performance test.* As required by §63.9(e), the owner or operator of an affected source must notify the Administrator in writing of his or her intention to conduct a performance test at least 30 calendar days before the performance test is scheduled to begin to allow the Administrator to review and approve the site-specific test plan required under §63.7(c) and to have an observer present during the test.

(e) *Notification of opacity and visible emission observations.* As required by §63.9(f), the owner or operator of an affected source must notify the Administrator in writing of the anticipated date for conducting the opacity or visible emission observations specified in §63.6(h)(5). The notification must be submitted with the notification of the performance test date, as specified in paragraph (d) of this section, or if visibility or other conditions prevent the opacity or visible emission observations from being conducted concurrently with the initial performance test required under §63.7, the owner or operator must deliver or postmark the notification not less than 30 days before the opacity or visible emission observations are scheduled to take place.

(f) *Notification of compliance status.* The owner or operator of an affected source must submit a notification of compliance status as required by §63.9(h). The notification must be sent before the close of business on the 60th day following completion of the relevant compliance demonstration.

§63.1659 Reporting requirements.

(a) *General reporting requirements.* The owner or operator of a ferromanganese and silicomanganese production facility must comply with all of the reporting requirements under §63.10 of subpart A, unless otherwise specified in this subpart.

(1) *Frequency of reports.* As provided by §63.10(a)(5), if the owner or operator is required to submit periodic reports to a State on an established time line, he or she may change the dates by which periodic reports submitted under this part may be submitted (without changing the frequency of reporting) to be consistent with the State's schedule by mutual agreement between the owner or operator and the State. This provision may be applied at any point after the source's compliance date.

(2) *Reporting results of performance tests.* As required by §63.10(d)(2), the owner or operator of an affected source must report the results of the initial performance test as part of the notification of compliance status required in §63.1658(f).

(3) [Reserved]

(4) *Periodic startup, shutdown, and malfunction reports.* (i) As required by §63.10(d)(5)(i), if actions taken by an owner or operator during a startup, shutdown, or malfunction of an affected source (including actions taken to correct a malfunction) are consistent with the procedures specified in the startup, shutdown, and malfunction plan, the owner or operator must state such information in a semiannual report. The report, to be certified by the owner or operator or other responsible official, must be submitted semiannually and delivered or postmarked by the 30th day following the end of each calendar half; and

(ii) Any time an action taken by an owner or operator during a startup, shutdown, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures in the startup, shutdown, and malfunction plan, the owner or operator must comply with all requirements of §63.10(d)(5)(ii).

(b) *Specific reporting requirements.* In addition to the information required under §63.10, reports required under paragraph (a) of this section must include the information specified in paragraphs (b)(1) through (b)(5) of this section. As allowed by §63.10(a)(3), if any State requires a report that contains all of the information required in a report listed in this section, an owner or operator may send the Administrator a copy of the report sent to the State to satisfy the requirements of this section for that report.

(1) *Air pollution control devices.* The owner or operator must submit reports that summarize the records maintained as part of the practices described in the

maintenance plan for air pollution control devices required under § 63.1655(b), including an explanation of the periods when the procedures were not followed and the corrective actions taken.

(2) *Venturi scrubbers.* In addition to the information required to be submitted in paragraph (b)(1) of this section, the owner or operator must submit reports that identify the periods when the average hourly pressure drop of venturi scrubbers used to control particulate emissions dropped below the levels established in § 63.1656(c)(4), and an explanation of the corrective actions taken.

(3) *Fugitive dust.* The owner or operator must submit reports that explain the periods when the procedures outlined in the fugitive dust control plan pursuant to § 63.1654(a) were not followed and the corrective actions taken.

(4) *Capture system.* The owner or operator must submit reports that summarize the monitoring parameter excursions measured pursuant to § 63.1657(c) and the corrective actions taken.

(5) *Bag leak detection system.* The owner or operator must submit reports including the following information:

(i) Records of all alarms.

(ii) Description of the actions taken following each bag leak detection system alarm.

(iii) Calculation of the percent of time the alarm on the bag leak detection system sounded during the reporting period.

(6) *Frequency of reports.* (i) The owner or operator must submit reports pursuant to § 63.10(e)(3) that are associated with excess emissions events such as the excursion of the scrubber pressure drop limit per paragraph (b)(2) of this section. These reports are to be submitted on a quarterly basis, unless the owner or operator can satisfy the requirements in § 63.10(e)(3) to reduce the frequency to a semiannual basis.

(ii) All other reports specified in paragraphs (b)(1) through (b)(5) of this section must be submitted semiannually.

§ 63.1660 Recordkeeping requirements.

(a) *General recordkeeping requirements.* (1) The owner or operator of a ferromanganese and silicomanganese production facility must comply with all of the recordkeeping requirements under § 63.10.

(2) As required by § 63.10(b)(2), the owner or operator must maintain records for 5 years from the date of each record of:

(i) The occurrence and duration of each startup, shutdown, or malfunction of operation (i.e., process equipment and control devices);

(ii) The occurrence and duration of each malfunction of the source or air pollution control equipment;

(iii) All maintenance performed on the air pollution control equipment;

(iv) Actions taken during periods of startup, shutdown, and malfunction (including corrective actions to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation) when such actions are different from the procedures specified in the startup, shutdown, and malfunction plan;

(v) All information necessary to demonstrate conformance with the startup, shutdown, and malfunction plan when all actions taken during periods of startup, shutdown, and malfunction (including corrective actions) are consistent with the procedures specified in such plan. This information can be recorded in a checklist or similar form (see § 63.10(b)(2)(v));

(vi) All required measurements needed to demonstrate compliance with the standard and to support data that the source is required to report, including, but not limited to, performance test measurements (including initial and any subsequent performance tests) and measurements as may be necessary to determine the conditions of the initial test or subsequent tests;

(vii) All results of initial or subsequent performance tests;

(viii) If the owner or operator has been granted a waiver from recordkeeping or reporting requirements under § 63.10(f), any information demonstrating whether a source is meeting the requirements for a waiver of recordkeeping or reporting requirements;

(ix) If the owner or operator has been granted a waiver from the initial performance test under § 63.7(h), a copy of the full request and the Administrator’s approval or disapproval;

(x) All documentation supporting initial notifications and notifications of compliance status required by § 63.9; and

(xi) As required by § 63.10(b)(3), records of any applicability determination, including supporting analyses.

(b) *Specific recordkeeping requirements.* (1) In addition to the general records required by paragraph (a) of this section, the owner or operator must maintain records for 5 years from the date of each record of:

(i) Records of pressure drop across the venturi if a venturi scrubber is used.

(ii) Records of manufacturer certification that monitoring devices are accurate to within 5 percent (unless otherwise specified in this subpart) and of calibrations performed at the manufacturer's recommended frequency, or at a frequency consistent with good engineering practice, or as experience dictates.

(iii) Records of bag leak detection system output.

(iv) An identification of the date and time of all bag leak detection system alarms, the time that procedures to determine the cause of the alarm were initiated, the cause of the alarm, an explanation of the actions taken, and the date and time the alarm was corrected.

(v) Copy of the written maintenance plan for each air pollution control device.

(vi) Copy of the fugitive dust control plan.

(vii) Records of each maintenance inspection and repair, replacement, or other corrective action.

(2) All records for the most recent 2 years of operation must be maintained on site. Records for the previous 3 years may be maintained off site.

§ 63.1661 Delegation of authorities.

In delegating implementation and enforcement authority to a State under subpart E of this part, the Administrator retains no authorities.

EFFECTIVE DATE NOTE: At 68 FR 37360, June 23, 2003, § 63.1661 was revised effective August 22, 2003. For the convenience of the user, the revised text is set forth as follows:

§ 63.1661 Implementation and enforcement.

(a) This subpart can be implemented and enforced by the U.S. EPA, or a delegated authority such as the applicable State, local, or Tribal agency. If the U.S. EPA Administrator has delegated authority to a State, local, or Tribal agency, then that agency, in addition to the U.S. EPA, has the authority to implement and enforce this subpart. Contact the applicable U.S. EPA Regional Office to find out if this subpart is delegated to a State, local, or Tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or Tribal agency under subpart E of this part, the authorities contained in paragraph (c) of this section are retained by the Administrator of U.S. EPA and cannot be transferred to the State, local, or Tribal agency.

(c) The authorities that cannot be delegated to State, local, or Tribal agencies are as specified in paragraphs (c)(1) through (4) of this section.

(1) Approval of alternatives to requirements in §§ 63.1650 and 63.1652 through 63.1654.

(2) Approval of major alternatives to test methods under § 63.7(e)(2)(ii) and (f), as defined in § 63.90, and as required in this subpart.

(3) Approval of major alternatives to monitoring under § 63.8(f), as defined in § 63.90, and as required in this subpart.

(4) Approval of major alternatives to recordkeeping and reporting under § 63.10(f), as defined in § 63.90, and as required in this subpart.

§§ 63.1662–63.1679 [Reserved]

Subpart AAAA—National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills

SOURCE: 68 FR 2238, Jan. 16, 2003, unless otherwise noted.

WHAT THIS SUBPART COVERS

§ 63.1930 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants for existing and new municipal solid waste (MSW) landfills. This subpart requires all landfills described in § 63.1935 to meet the requirements of 40 CFR part 60, subpart Cc or WWW and requires timely control of bioreactors. This subpart also requires such landfills to meet the startup, shutdown, and malfunction (SSM) requirements of the general provisions of this part and provides that compliance with the operating conditions shall be demonstrated by parameter monitoring results that are within the specified ranges. It also includes additional reporting requirements.

§ 63.1935 Am I subject to this subpart?

You are subject to this subpart if you meet the criteria in paragraph (a) or (b) of this section.

(a) You are subject to this subpart if you own or operate a MSW landfill that has accepted waste since November 8, 1987 or has additional capacity for waste deposition and meets any one of the three criteria in paragraphs (a)(1) through (3) of this section:

(1) Your MSW landfill is a major source as defined in 40 CFR 63.2 of subpart A.

(2) Your MSW landfill is collocated with a major source as defined in 40 CFR 63.2 of subpart A.

(3) Your MSW landfill is an area source landfill that has a design capacity equal to or greater than 2.5 million megagrams (Mg) and 2.5 million cubic meters (m^3) and has estimated uncontrolled emissions equal to or greater than 50 megagrams per year (Mg/yr) NMOC as calculated according to § 60.754(a) of the MSW landfills new source performance standards in 40 CFR part 60, subpart WWW, the Federal plan, or an EPA approved and effective State or tribal plan that applies to your landfill.

(b) You are subject to this subpart if you own or operate a MSW landfill that has accepted waste since November 8, 1987 or has additional capacity for waste deposition, that includes a bioreactor, as defined in § 63.1990, and that meets any one of the criteria in paragraphs (b)(1) through (3) of this section:

(1) Your MSW landfill is a major source as defined in 40 CFR 63.2 of subpart A.

(2) Your MSW landfill is collocated with a major source as defined in 40 CFR 63.2 of subpart A.

(3) Your MSW landfill is an area source landfill that has a design capacity equal to our greater than 2.5 million Mg and 2.5 million m^3 and that is not permanently closed as of January 16, 2003.

§ 63.1940 What is the affected source of this subpart?

(a) An affected source of this subpart is a MSW landfill, as defined in § 63.1990, that meets the criteria in § 63.1935(a) or (b). The affected source includes the entire disposal facility in a contiguous geographic space where household waste is placed in or on land, including any portion of the MSW landfill operated as a bioreactor.

(b) A new affected source of this subpart is an affected source that commenced construction or reconstruction after November 7, 2000. An affected source is reconstructed if it meets the definition of reconstruction in 40 CFR 63.2 of subpart A.

(c) An affected source of this subpart is existing if it is not new.

§ 63.1945 When do I have to comply with this subpart?

(a) If your landfill is a new affected source, you must comply with this subpart by January 16, 2003 or at the time you begin operating, whichever is last.

(b) If your landfill is an existing affected source, you must comply with this subpart by January 16, 2004.

(c) If your landfill is a new affected source and is a major source or is collocated with a major source, you must comply with the requirements in §§ 63.1955(b) and 63.1960 through 63.1980 by the date your landfill is required to install a collection and control system by 40 CFR 60.752(b)(2) of subpart WWW.

(d) If your landfill is an existing affected source and is a major source or is collocated with a major source, you must comply with the requirements in §§ 63.1955(b) and 63.1960 through 63.1980 by the date your landfill is required to install a collection and control system by 40 CFR 60.752(b)(2) of subpart WWW, the Federal plan, or EPA approved and effective State or tribal plan that applies to your landfill or by January 13, 2004, whichever occurs later.

(e) If your landfill is a new affected source and is an area source meeting the criteria in § 63.1935(a)(3), you must comply with the requirements of §§ 63.1955(b) and 63.1960 through 63.1980 by the date your landfill is required to install a collection and control system by 40 CFR 60.752(b)(2) of subpart WWW.

(f) If your landfill is an existing affected source and is an area source meeting the criteria in §63.1935(a)(3), you must comply with the requirements in §§63.1955(b) and 63.1960 through 63.1980 by the date your landfill is required to install a collection and control system by 40 CFR 60.752(b)(2) of subpart WWW, the Federal plan, or EPA approved and effective State or tribal plan that applies to your landfill or by January 16, 2004, whichever occurs later.

§63.1947 When do I have to comply with this subpart if I own or operate a bioreactor?

You must comply with this subpart by the dates specified in §63.1945(a) or (b) of this subpart. If you own or operate a bioreactor located at a landfill that is not permanently closed as of January 16, 2003 and has a design capacity equal to or greater than 2.5 million Mg and 2.5 million m^3, then you must install and operate a collection and control system that meets the criteria in 40 CFR 60.752(b)(2)(v) of part 60, subpart WWW, the Federal plan, or EPA approved and effective State plan according to the schedule specified in paragraph (a), (b), or (c) of this section.

(a) If your bioreactor is at a new affected source, then you must meet the requirements in paragraphs (a)(1) and (2) of this section:

(1) Install the gas collection and control system for the bioreactor before initiating liquids addition.

(2) Begin operating the gas collection and control system within 180 days after initiating liquids addition or within 180 days after achieving a moisture content of 40 percent by weight, whichever is later. If you choose to begin gas collection and control system operation 180 days after achieving a 40 percent moisture content instead of 180 days after liquids addition, use the procedures in §63.1980(g) and (h) to determine when the bioreactor moisture content reaches 40 percent.

(b) If your bioreactor is at an existing affected source, then you must install and begin operating the gas collection and control system for the bioreactor by January 17, 2006 or by the date your bioreactor is required to install a gas collection and control system under 40 CFR part 60, subpart WWW, the Federal plan, or EPA approved and effective State plan or tribal plan that applies to your landfill, whichever is earlier.

(c) If your bioreactor is at an existing affected source and you do not initiate liquids addition to your bioreactor until later than January 17, 2006, then you must meet the requirements in paragraphs (c)(1) and (2) of this section:

(1) Install the gas collection and control system for the bioreactor before initiating liquids addition.

(2) Begin operating the gas collection and control system within 180 days after initiating liquids addition or within 180 days after achieving a moisture content of 40 percent by weight, whichever is later. If you choose to begin gas collection and control system operation 180 days after achieving a 40 percent moisture content instead of 180 days after liquids addition, use the procedures in §63.1980(g) and (h) to determine when the bioreactor moisture content reaches 40 percent.

§63.1950 When am I no longer required to comply with this subpart?

You are no longer required to comply with the requirements of this subpart when you are no longer required to apply controls as specified in 40 CFR 60.752(b)(2)(v) of subpart WWW, or the Federal plan or EPA approved and effective State plan or tribal plan that implements 40 CFR part 60, subpart Cc, whichever applies to your landfill.

§63.1952 When am I no longer required to comply with the requirements of this subpart if I own or operate a bioreactor?

If you own or operate a landfill that includes a bioreactor, you are no longer required to comply with the requirements of this subpart for the bioreactor provided you meet the conditions of either paragraphs (a) or (b).

(a) Your affected source meets the control system removal criteria in 40 CFR 60.752(b)(2)(v) of part 60, subpart WWW or the bioreactor meets the criteria for a nonproductive area of the landfill in 40 CFR 60.759(a)(3)(ii) of part 60, subpart WWW.

(b) The bioreactor portion of the landfill is a closed landfill as defined in

40 CFR 60.751, subpart WWW, you have permanently ceased adding liquids to the bioreactor, and you have not added liquids to the bioreactor for at least 1 year. A closure report for the bioreactor must be submitted to the Administrator as provided in 40 CFR 60.757(d) of subpart WWW.

(c) Compliance with the bioreactor control removal provisions in this section constitutes compliance with 40 CFR part 60, subpart WWW or the Federal plan, whichever applies to your bioreactor.

STANDARDS

§ 63.1955 What requirements must I meet?

(a) You must fulfill one of the requirements in paragraph (a)(1) or (2) of this section, whichever is applicable:

(1) Comply with the requirements of 40 CFR part 60, subpart WWW.

(2) Comply with the requirements of the Federal plan or EPA approved and effective State plan or tribal plan that implements 40 CFR part 60, subpart Cc.

(b) If you are required by 40 CFR 60.752(b)(2) of subpart WWW, the Federal plan, or an EPA approved and effective State or tribal plan to install a collection and control system, you must comply with the requirements in §§ 63.1960 through 63.1985 and with the general provisions of this part specified in table 1 of this subpart.

(c) For approval of collection and control systems that include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping or reporting provisions, you must follow the procedures in 40 CFR 60.752(b)(2). If alternatives have already been approved under 40 CFR part 60 subpart WWW or the Federal plan, or EPA approved and effective State or tribal plan, these alternatives can be used to comply with this subpart, except that all affected sources must comply with the SSM requirements in Subpart A of this part as specified in Table 1 of this subpart and all affected sources must submit compliance reports every 6 months as specified in § 63.1980(a) and (b), including information on all deviations that occurred during the 6-month reporting period. Deviations for continuous emission monitors or numerical continuous parameter monitors must be determined using a 3 hour monitoring block average.

(d) If you own or operate a bioreactor that is located at a MSW landfill that is not permanently closed and has a design capacity equal to or greater than 2.5 million Mg and 2.5 million m^3, then you must meet the requirements of paragraph (a) and the additional requirements in paragraphs (d)(1) and (2) of this section.

(1) You must comply with the general provisions specified in Table 1 of this subpart and §§ 63.1960 through 63.1985 starting on the date you are required to install the gas collection and control system.

(2) You must extend the collection and control system into each new cell or area of the bioreactor prior to initiating liquids addition in that area, instead of the schedule in 40 CFR 60.752(b)(2)(ii)(A)(*2*).

GENERAL AND CONTINUING COMPLIANCE REQUIREMENTS

§ 63.1960 How is compliance determined?

Compliance is determined in the same way it is determined for 40 CFR part 60, subpart WWW, including performance testing, monitoring of the collection system, continuous parameter monitoring, and other credible evidence. In addition, continuous parameter monitoring data, collected under 40 CFR 60.756(b)(1), (c)(1), and (d) of subpart WWW, are used to demonstrate compliance with the operating conditions for control systems. If a deviation occurs, you have failed to meet the control device operating conditions described in this subpart and have deviated from the requirements of this subpart. Finally, you must develop and implement a written SSM plan according to the provisions in 40 CFR 63.6(e)(3). A copy of the SSM plan must be maintained on site. Failure to write, implement, or maintain a copy of the SSM plan is a deviation from the requirements of this subpart.

§63.1965 What is a deviation?

A deviation is defined in §63.1990. For the purposes of the landfill monitoring and SSM plan requirements, deviations include the items in paragraphs (a) through (c) of this section.

(a) A deviation occurs when the control device operating parameter boundaries described in 40 CFR 60.758(c)(1) of subpart WWW are exceeded.

(b) A deviation occurs when 1 hour or more of the hours during the 3-hour block averaging period does not constitute a valid hour of data. A valid hour of data must have measured values for at least three 15-minute monitoring periods within the hour.

(c) A deviation occurs when a SSM plan is not developed, implemented, or maintained on site.

§63.1975 How do I calculate the 3-hour block average used to demonstrate compliance?

Averages are calculated in the same way as they are calculated in 40 CFR part 60, subpart WWW, except that the data collected during the events listed in paragraphs (a), (b), (c), and (d) of this section are not to be included in any average computed under this subpart:

(a) Monitoring system breakdowns, repairs, calibration checks, and zero (low-level) and high-level adjustments.

(b) Startups.

(c) Shutdowns.

(d) Malfunctions.

NOTIFICATIONS, RECORDS, AND REPORTS

§63.1980 What records and reports must I keep and submit?

(a) Keep records and reports as specified in 40 CFR part 60, subpart WWW, or in the Federal plan, EPA approved State plan or tribal plan that implements 40 CFR part 60, subpart Cc, whichever applies to your landfill, with one exception: You must submit the annual report described in 40 CFR 60.757(f) every 6 months.

(b) You must also keep records and reports as specified in the general provisions of 40 CFR part 60 and this part as shown in Table 1 of this subpart. Applicable records in the general provisions include items such as SSM plans and the SSM plan reports.

(c) For bioreactors at new affected sources you must submit the initial semiannual compliance report and performance test results described in 40 CFR 60.757(f) within 180 days after the date you are required to begin operating the gas collection and control system by §63.1947(a)(2) of this subpart.

(d) For bioreactors at existing affected sources, you must submit the initial semiannual compliance report and performance test results described in 40 CFR 60.757(f) within 180 days after the compliance date specified in §63.1947(b) of this subpart, unless you have previously submitted a compliance report for the bioreactor required by 40 CFR part 60, subpart WWW, the Federal plan, or an EPA approved and effective State plan or tribal plan.

(e) For bioreactors that are located at existing affected sources, but do not initiate liquids addition until later than the compliance date in §63.1947(b) of this subpart, you must submit the initial semiannual compliance report and performance tests results described in 40 CFR 60.757(f) within 180 days after the date you are required to begin operating the gas collection and control system by §63.1947(c) of this subpart.

(f) If you must submit a semiannual compliance report for a bioreactor as well as a semiannual compliance report for a conventional portion of the same landfill, you may delay submittal of a subsequent semiannual compliance report for the bioreactor according to paragraphs (f)(1) through (3) of this section so that the reports may be submitted on the same schedule.

(1) After submittal of your initial semiannual compliance report and performance test results for the bioreactor, you may delay submittal of the subsequent semiannual compliance report for the bioreactor until the date the initial or subsequent semiannual compliance report is due for the conventional portion of your landfill.

(2) You may delay submittal of your subsequent semiannual compliance report by no more than 12 months after the due date for submitting the initial semiannual compliance report and performance test results described in 40 CFR 60.757(f) for the bioreactor. The report shall cover the time period since the previous semiannual report for the

bioreactor, which would be a period of at least 6 months and no more than 12 months.

(3) After the delayed semiannual report, all subsequent semiannual reports for the bioreactor must be submitted every 6 months on the same date the semiannual report for the conventional portion of the landfill is due.

(g) If you add any liquids other than leachate in a controlled fashion to the waste mass and do not comply with the bioreactor requirements in §§ 63.1947, 63.1955(c) and 63.1980(c) through (f) of this subpart, you must keep a record of calculations showing that the percent moisture by weight expected in the waste mass to which liquid is added is less than 40 percent. The calculation must consider the waste mass, moisture content of the incoming waste, mass of water added to the waste including leachate recirculation and other liquids addition and precipitation, and the mass of water removed through leachate or other water losses. Moisture level sampling or mass balances calculations can be used. You must document the calculations and the basis of any assumptions. Keep the record of the calculations until you cease liquids addition.

(h) If you calculate moisture content to establish the date your bioreactor is required to begin operating the collection and control system under § 63.1947(a)(2) or (c)(2), keep a record of the calculations including the information specified in paragraph (g) of this section for 5 years. Within 90 days after the bioreactor achieves 40 percent moisture content, report the results of the calculation, the date the bioreactor achieved 40 percent moisture content by weight, and the date you plan to begin collection and control system operation.

OTHER REQUIREMENTS AND INFORMATION

§ 63.1985 Who enforces this subpart?

(a) This subpart can be implemented and enforced by the U.S. EPA, or a delegated authority such as the applicable State, local, or tribal agency. If the EPA Administrator has delegated authority to a State, local, or tribal agency, then that agency as well as the U.S. EPA has the authority to implement and enforce this subpart. Contact the applicable EPA Regional Office to find out if this subpart is delegated to a State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under subpart E of this part, the authorities contained in paragraph (c) of this section are retained by the EPA Administrator and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are as follows. Approval of alternatives to the standards in § 63.1955. Where these standards reference another subpart, the cited provisions will be delegated according to the delegation provisions of the referenced subpart.

§ 63.1990 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act, 40 CFR part 60, subparts A, Cc, and WWW; 40 CFR part 62, subpart GGG, and subpart A of this part, and this section that follows:

Bioreactor means a MSW landfill or portion of a MSW landfill where any liquid other than leachate (leachate includes landfill gas condensate) is added in a controlled fashion into the waste mass (often in combination with recirculating leachate) to reach a minimum average moisture content of at least 40 percent by weight to accelerate or enhance the anaerobic (without oxygen) biodegradation of the waste.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including, but not limited to, any emissions limitation (including any operating limit) or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limitation, (including any operating limit), or work practice standard in this subpart during SSM, regardless of whether

or not such failure is permitted by this subpart.

Emissions limitation means any emission limit, opacity limit, operating limit, or visible emissions limit.

EPA approved State plan means a State plan that EPA has approved based on the requirements in 40 CFR part 60, subpart B to implement and enforce 40 CFR part 60, subpart Cc. An approved State plan becomes effective on the date specified in the notice published in the FEDERAL REGISTER announcing EPA's approval.

Federal plan means the EPA plan to implement 40 CFR part 60, subpart Cc for existing MSW landfills located in States and Indian country where State plans or tribal plans are not currently in effect. On the effective date of an EPA approved State or tribal plan, the Federal plan no longer applies. The Federal plan is found at 40 CFR part 62, subpart GGG.

Municipal solid waste landfill or MSW landfill means an entire disposal facility in a contiguous geographical space where household waste is placed in or on land. A municipal solid waste landfill may also receive other types of RCRA Subtitle D wastes (see §257.2 of this chapter) such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste. Portions of a municipal solid waste landfill may be separated by access roads. A municipal solid waste landfill may be publicly or privately owned. A municipal solid waste landfill may be a new municipal solid waste landfill, an existing municipal solid waste landfill, or a lateral expansion.

Tribal plan means a plan submitted by a tribal authority pursuant to 40 CFR parts 9, 35, 49, 50, and 81 to implement and enforce 40 CFR part 60, subpart Cc.

Work practice standard means any design, equipment, work practice, or operational standard, or combination thereof, that is promulgated pursuant to section 112(h) of the Clean Air Act.

As stated in §§63.1955 and 63.1980, you must meet each requirement in the following table that applies to you.

TABLE 1 OF SUBPART AAAA OF PART 63—APPLICABILITY OF NESHAP GENERAL PROVISIONS TO SUBPART AAAA

Part 63 Citation	Description	Explanation
63.1(a)	Applicability: general applicability of NESHAP in this part.	Affected sources are already subject to the provisions of paragraphs (a)(10)–(12) through the same provisions under 40 CFR, part 60 subpart A.
63.1(b)	Applicability determination for stationary sources.	
63.1(e)	Title V permitting.	
63.2	Definitions.	
63.4	Prohibited activities and circumvention	Affected sources are already subject to the provisions of paragraph (b) through the same provisions under 40 CFR, part 60 subpart A.
63.5(b)	Requirements for existing, newly constructed, and reconstructed sources.	
63.6(e)	Operation and maintenance requirements, start-up, shutdown and malfunction plan provisions.	
63.6(f)	Compliance with nonopacity emission standards	Affected sources are already subject to the provisions of paragraphs (f)(1) and (2)(i) through the same provisions under 40 CFR, part 60 subpart A.
63.10(b)(2)(i)–(b)(2)(v)	General recordkeeping requirements.	
63.10(d)(5)	If actions taken during a startup, shutdown and malfunction plan are consistent with the procedures in the startup, shutdown and malfunction plan, this information shall be included in a semi-annual startup, shutdown and malfunction plan report. Any time an action taken during a startup, shutdown and malfunction plan is not consistent with the startup, shutdown and malfunction plan, the source shall report actions taken within 2 working days after commencing such actions, followed by a letter 7 days after the event.	

Part 63 Citation	Description	Explanation
63.12(a)	These provisions do not preclude the State from adopting and enforcing any standard, limitation, etc., requiring permits, or requiring emissions reductions in excess of those specified.	
63.15	Availability of information and confidentiality.	

Subpart CCCC—National Emission Standards for Hazardous Air Pollutants: Manufacturing of Nutritional Yeast

SOURCE: 66 FR 27884, May 21, 2001, unless otherwise noted.

WHAT THIS SUBPART COVERS

§ 63.2130 What is the purpose of this subpart?

This subpart establishes national emission limitations for hazardous air pollutants emitted from manufacturers of nutritional yeast. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations.

§ 63.2131 Am I subject to this subpart?

(a) You are subject to this subpart if you own or operate a nutritional yeast manufacturing facility that is, is located at, or is part of a major source of hazardous air pollutants (HAP) emissions.

(1) A manufacturer of nutritional yeast is a facility that makes yeast for the purpose of becoming an ingredient in dough for bread or any other yeast-raised baked product, or for becoming a nutritional food additive intended for consumption by humans. A manufacturer of nutritional yeast does not include production of yeast intended for consumption by animals, such as an additive for livestock feed.

(2) A major source of HAP emissions is any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit, considering controls, any single HAP at a rate of 9.07 megagrams (10 tons) or more per year or any combination of HAP at a rate of 22.68 megagrams (25 tons) or more per year.

(b) [Reserved]

§ 63.2132 What parts of my plant does this subpart cover?

(a) This subpart applies to each new, reconstructed, or existing ‘‘affected source’’ that produces *Saccharomyces cerevisiae* at a nutritional yeast manufacturing facility.

(b) The affected source is the collection of equipment used in the manufacture of the nutritional yeast species *Saccharomyces cerevisiae.* This collection of equipment includes, but is not limited to, fermentation vessels (fermenters). The collection of equipment used in the manufacture of the nutritional yeast species *Candida utilis* (torula yeast) is not part of the affected source.

(c) The emission limitations in this subpart apply to fermenters in the affected source that meet all of the criteria listed in paragraphs (c)(1) through (2) of this section.

(1) The fermenters are ‘‘fed-batch’’ as defined in § 63.2192.

(2) The fermenters are used to support one of the last three fermentation stages in a production run, which may be referred to as ‘‘stock, first generation, and trade,’’ ‘‘seed, semi-seed, and commercial,’’ or ‘‘CB4, CB5, and CB6’’ stages.

(d) The emission limitations in this subpart do not apply to flask, pure-culture, yeasting-tank, or any other set-batch fermentation, and they do not apply to any operations after the last dewatering operation, such as filtration.

(e) The emission limitations in this subpart do not apply to the affected source during the production of specialty yeast (defined in § 63.2192).

(f) An affected source is a ‘‘new affected source’’ if you commenced construction of the affected source after October 19, 1998, and you met the applicability criteria in § 63.2131 at the time you commenced construction.

(g) An affected source is ‘‘reconstructed’’ if you meet the criteria as defined in §63.2.

(h) An affected source is ‘‘existing’’ if it is not new or reconstructed.

§63.2133 When do I have to comply with this subpart?

(a) If you have a new or reconstructed affected source, you must comply with paragraphs (a)(1) through (2) of this section.

(1) If you start up your affected source before May 21, 2001, then you must comply with the emission limitations in this subpart no later than May 21, 2001.

(2) If you start up your affected source after May 21, 2001, then you must comply with the emission limitations in this subpart upon startup of your affected source.

(b) If you have an existing affected source, you must comply with the emission limitations for existing sources no later than May 21, 2004.

(c) If you have an area source that increases its emissions, or its potential to emit, so that it becomes a major source of HAP, paragraphs (c)(1) through (2) of this section apply.

(1) Any portion of the existing facility that is a new affected source or a new reconstructed source must be in compliance with this subpart upon startup.

(2) All other parts of the source must be in compliance with this subpart by not later than 3 years after it becomes a major source.

(d) You must meet the notification requirements in §63.2180 according to the schedule in §63.2180 and in subpart A of this part.

EMISSION LIMITATIONS

§63.2140 What emission limitations must I meet?

You must meet all of the emission limitations in Table 1 to this subpart.

GENERAL COMPLIANCE REQUIREMENTS

§63.2150 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limitations in Table 1 to this subpart at all times, except during periods of malfunction.

(b) You must always operate and maintain your affected source, including monitoring equipment, according to the provisions in §63.6(e)(1)(i). If the date upon which you must demonstrate initial compliance as specified in §63.2160 falls after the compliance date specified for your affected source in §63.2133, then you must maintain a log detailing the operation and maintenance of the continuous monitoring systems and the process and emissions control equipment during the period between those dates.

(c) You must develop and implement a written malfunction plan. It will be as specified in §63.6(e)(3), except that the requirements for startup, shutdown, and maintenance plans, records and reports apply only to malfunctions. Under this subpart, a period of malfunction is expressed in whole batches and not in portions of batches.

TESTING AND INITIAL COMPLIANCE REQUIREMENTS

§63.2160 By what date must I conduct an initial compliance demonstration?

(a) For each emission limitation in Table 1 to this subpart for which compliance is demonstrated by monitoring fermenter exhaust, you must demonstrate initial compliance for the period ending on the last day of the month that is 12 calendar months (or 11 calendar months, if the compliance date for your source is the first day of the month) after the compliance date that is specified for your source in §63.2133. (For example, if the compliance date is October 15, 2003, the first 12-month period for which you must demonstrate compliance would be October 15, 2003 through October 31, 2004.)

(b) For each emission limitation in Table 1 to this subpart for which initial compliance is demonstrated by monitoring brew ethanol concentration and calculating volatile organic compound (VOC) concentration in the fermenter exhaust according to the procedures in §63.2161, you must demonstrate initial compliance within 180 calendar days before the compliance date that is specified for your source in §63.2133.

§ 63.2161 What performance tests and other procedures must I use if I monitor brew ethanol?

(a) You must conduct each performance test in Table 2 to this subpart that applies to you.

(b) Each performance test must be conducted according to the requirements in § 63.7(e)(1) and under the specific conditions that this subpart specifies in Table 2 to this subpart and in paragraphs (b)(1) through (4) of this section.

(1) Conduct each performance test simultaneously with brew ethanol monitoring to establish a brew-to-exhaust correlation equation as specified in paragraph (f) of this section.

(2) For each fermentation stage, conduct one run of the EPA Test Method 25A of 40 CFR part 60, appendix A, over the entire length of a batch. The three fermentation stages do not have to be from the same production run.

(3) Do the test at a point in the exhaust-gas stream before you inject any dilution air, which is any air not needed to control fermentation.

(4) Record the results of the test for each fermentation stage.

(c) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in § 63.7(e)(1).

(d) You must collect data to correlate the brew ethanol concentration measured by the continuous emission monitoring system (CEMS) to the VOC concentration in the fermenter exhaust according to paragraphs (d)(1) through (3) of this section.

(1) You must collect a separate set of brew ethanol concentration data for each fed-batch fermentation stage while manufacturing the product that comprises the largest percentage (by mass) of average annual production.

(2) Measure brew ethanol as specified in § 63.2164 simultaneously with conducting a performance test for VOC in fermenter exhaust as specified in paragraph (b) of this section. You must measure brew ethanol at least once during each successive 30-minute period over the entire period of the performance test for VOC in fermenter exhaust.

(3) Keep a record of the brew ethanol concentration data for each fermentation stage over the period of EPA Test Method 25A of 40 CFR part 60, appendix A, performance test when the VOC concentration in the fermenter exhaust does not exceed the applicable emission limitation in Table 1 to this subpart.

(e) For each set of data that you collected under paragraph (d) of this section, perform a linear regression of brew ethanol concentration (percent) on VOC fermenter exhaust concentration (parts per million by volume (ppmv) measured as propane). The correlation between the brew ethanol concentration as measured by the CEMS and the VOC fermenter exhaust concentration as measured by EPA Test Method 25A of 40 CFR part 60, appendix A, must be linear with a correlation coefficient of at least 0.90.

(f) Calculate the VOC concentration in the fermenter exhaust using the brew ethanol concentration data collected under paragraph (d) of this section and according to Equation 1 of this section.

$$BAVOC = BAE * CF + y \qquad (Eq. 1)$$

Where:

BAVOC = batch-average concentration of VOC in fermenter exhaust (ppmv measured as propane), calculated for compliance demonstration

BAE = batch-average concentration of brew ethanol in fermenter liquid (percent), measured by CEMS

CF = constant established at performance test and representing the slope of the regression line

y = constant established at performance test and representing the y-intercept of the regression line

§ 63.2162 When must I conduct subsequent performance tests?

(a) For each emission limitation in Table 1 to this subpart for which compliance is demonstrated by monitoring brew ethanol concentration and calculating VOC concentration in the fermenter exhaust according to the procedures in § 63.2161, you must conduct an EPA Test Method 25A of 40 CFR part 60, appendix A, performance test and establish a brew-to-exhaust correlation according to the procedures in Table 2 to this subpart and in § 63.2161, at least once every year.

(b) The first subsequent performance test must be conducted no later than

365 calendar days after the initial performance test conducted according to §63.2160. Each subsequent performance test must be conducted no later than 365 calendar days after the previous performance test. You must conduct a performance test for each 365 calendar day period for the lifetime of the affected source.

§63.2163 If I monitor fermenter exhaust, what are my monitoring installation, operation, and maintenance requirements?

(a) Each CEMS must be installed, operated, and maintained according to the applicable Performance Specification (PS) of 40 CFR part 60, appendix B.

(b) You must conduct a performance evaluation of each CEMS according to the requirements in §63.8, according to the applicable Performance Specification of 40 CFR part 60, appendix B, and according to paragraphs (b)(1) through (4) of this section.

(1) If your CEMS monitor generates a single combined response value for VOC (examples of such detection principles are flame ionization, photoionization, and non-dispersive infrared absorption), but it is not a flame ionization analyzer, you must use PS 8 to show that your CEMS is operating properly.

(i) Use EPA Test Method 25A of 40 CFR part 60, appendix A, to do the relative-accuracy test PS 8 requires.

(ii) Calibrate the reference method with propane.

(iii) Collect a 1-hour sample for each reference-method test.

(2) If you continuously monitor VOC emissions using a flame ionization analyzer, then you must conduct the calibration drift test PS 8 requires, but you are not required to conduct the relative-accuracy test PS 8 requires.

(3) If you continuously monitor VOC emissions using gas chromatography, you must use PS 9 of CFR part 60, appendix B, to show that your CEMS is operating properly.

(4) You must complete the performance evaluation and submit the performance evaluation report before the compliance date that is specified for your source in §63.2133.

(c) Calibrate the CEMS with propane.

(d) Set the CEMS span at not greater than 5 times the relevant emission limit, with 1.5 to 2.5 times the relevant emission limit being the range considered by us to be generally optimum.

(e) You must monitor VOC concentration in fermenter exhaust at any point prior to dilution of the exhaust stream.

(f) Each CEMS must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 30-minute period within each batch monitoring period. Except as specified in paragraph (g) of this section, you must have a minimum of two cycles of operation in a 1-hour period to have a valid hour of data.

(g) The CEMS data must be reduced to arithmetic batch averages computed from two or more data points over each 1-hour period, except during periods when calibration, quality assurance, or maintenance activities pursuant to provisions of this part are being performed. During these periods, a valid hour of data shall consist of at least one data point representing a 30-minute period.

(h) You must have valid CEMS data from at least 75 percent of the full hours over the entire batch monitoring period.

(i) For each CEMS, record the results of each inspection, calibration, and validation check.

(j) You must check the zero (low-level) and high-level calibration drifts for each CEMS in accordance with the applicable PS of 40 CFR part 60, appendix B. The zero (low-level) and high-level calibration drifts shall be adjusted, at a minimum, whenever the zero (low-level) drift exceeds 2 times the limits of the applicable PS. The calibration drift checks must be performed at least once daily except that they may be performed less frequently under the conditions of paragraphs (j)(1) through (3) of this section.

(1) If a 24-hour calibration drift check for your CEMS is performed immediately prior to, or at the start of, a batch monitoring period of a duration exceeding 24 hours, you are not required to perform 24-hour-interval calibration drift checks during that batch monitoring period.

(2) If the 24-hour calibration drift exceeds 2.5 percent of the span value (or

more than 10 percent of the calibration gas value if your CEMS is a gas chromatograph (GC)) in fewer than 5 percent of the checks over a 1-month period, and the 24-hour calibration drift never exceeds 7.5 percent of the span value, then the frequency of calibration drift checks may be reduced to at least weekly (once every 7 days).

(3) If, during two consecutive weekly checks, the weekly calibration drift exceeds 5 percent of the span value (or more than 20 percent of the calibration gas value, if your CEMS is a GC), then a frequency of at least 24-hour interval calibration checks must be resumed until the 24-hour calibration checks meet the test of paragraph (j)(2) of this section.

(k) If your CEMS is out of control, you must take corrective action according to paragraphs (k)(1) through (3) of this section.

(1) Your CEMS is out of control if the zero (low-level) or high-level calibration drift exceeds 2 times the limits of the applicable PS.

(2) When the CEMS is out of control, take the necessary corrective action and repeat all necessary tests that indicate that the system is out of control. You must take corrective action and conduct retesting until the performance requirements are below the applicable limits.

(3) During the batch monitoring periods in which the CEMS is out of control, recorded data shall not be used in data averages and calculations, or to meet any data availability requirement established under this subpart. The beginning of the out-of-control period is the beginning of the first batch monitoring period that follows the most recent calibration drift check during which the system was within allowable performance limits. The end of the out-of-control period is the end of the last batch monitoring period before you have completed corrective action and successfully demonstrated that the system is within the allowable limits. If your successful demonstration that the system is within the allowable limits occurs during a batch monitoring period, then the out-of-control period ends at the end of that batch monitoring period. If the CEMS is out of control for any part of a particular batch monitoring period, it is out of control for the whole batch monitoring period.

§ 63.2164 If I monitor brew ethanol, what are my monitoring installation, operation, and maintenance requirements?

(a) Each CEMS must be installed, operated, and maintained according to manufacturer's specifications and the plan for malfunctions that you must develop and use according to § 63.6(e).

(b) Each CEMS must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 30-minute period within each batch monitoring period. Except as specified in paragraph (c) of this section, you must have a minimum of two cycles of operation in a 1-hour period to have a valid hour of data.

(c) The CEMS data must be reduced to arithmetic batch averages computed from two or more data points over each 1-hour period, except during periods when calibration, quality assurance, or maintenance activities pursuant to provisions of this part are being performed. During these periods, a valid hour of data shall consist of at least one data point representing a 30-minute period.

(d) You must have valid CEMS data from at least 75 percent of the full hours over the entire batch monitoring period.

(e) Set the CEMS span to correspond to not greater than 5 times the relevant emission limit, with 1.5 to 2.5 times the relevant emission limit being the range considered by us to be generally optimum. Use the brew-to-exhaust correlation equation established under § 63.2161(f) to determine the span value for your CEMS that corresponds to the relevant emission limit.

(f) For each CEMS, record the results of each inspection, calibration, and validation check.

(g) The GC that you use to calibrate your CEMS must meet the requirements of paragraphs (g)(1) through (3) of this section.

(1) Calibrate the GC at least daily, by analyzing standard solutions of ethanol in water (0.05 percent, 0.15 percent, and 0.3 percent).

(2) For use in calibrating the GC, prepare the standard solutions of ethanol using the procedures listed in paragraphs (g)(2)(i) through (vi) of this section.

(i) Starting with 100 percent ethanol, dry the ethanol by adding a small amount of anhydrous magnesium sulfate (granular) to 15–20 milliliters (ml) of ethanol.

(ii) Place approximately 50 ml of water into a 100-ml volumetric flask and place the flask on a balance. Tare the balance. Weigh 2.3670 grams of the dry (anhydrous) ethanol into the volumetric flask.

(iii) Add the 100-ml volumetric flask contents to a 1000-ml volumetric flask. Rinse the 100-ml volumetric flask with water into the 1000-ml flask. Bring the volume to 1000 ml with water.

(iv) Place an aliquot into a sample bottle labeled ‘‘0.3% Ethanol.’’

(v) Fill a 50-ml volumetric flask from the contents of the 1000-ml flask. Add the contents of the 50-ml volumetric flask to a 100-ml volumetric flask and rinse the 50-ml flask into the 100-ml flask with water. Bring the volume to 100 ml with water. Place the contents into a sample bottle labeled ‘‘0.15% Ethanol.’’

(vi) With a 10-ml volumetric pipette, add two 10.0-ml volumes of water to a sample bottle labeled ‘‘0.05% Ethanol.’’ With a 10.0-ml volumetric pipette, pipette 10.0 ml of the 0.15 percent ethanol solution into the sample bottle labeled ‘‘0.05% Ethanol.’’

(3) For use in calibrating the GC, dispense samples of the standard solutions of ethanol in water in aliquots to appropriately labeled and dated glass sample bottles fitted with caps having a Teflon® seal. Refrigerated samples may be kept unopened for 1 month. Prepare new calibration standards of ethanol in water at least monthly.

(h) Calibrate the CEMS according to paragraphs (h)(1) through (3) of this section.

(1) To calibrate the CEMS, inject a brew sample into a calibrated GC and compare the simultaneous ethanol value given by the CEMS to that given by the GC. Use either the Porapak® Q, 80–100 mesh, 6′ × 1⁄8′, stainless steel packed column or the DB Wax, 0.53 mm × 30 m capillary column.

(2) If a CEMS ethanol value differs by 20 percent or more from the corresponding GC ethanol value, determine the brew ethanol values throughout the rest of the batch monitoring period by injecting brew samples into the GC not less frequently than every 30 minutes. From the time at which the difference of 20 percent or more is detected until the batch monitoring period ends, the GC data will serve as the CEMS data.

(3) Perform a calibration of the CEMS at least four times per batch.

§ 63.2165 How do I demonstrate initial compliance with the emission limitations if I monitor fermenter exhaust?

(a) You must demonstrate initial compliance with each emission limitation that applies to you according to Table 3 to this subpart.

(b) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in § 63.2180(e).

§ 63.2166 How do I demonstrate initial compliance with the emission limitations if I monitor brew ethanol?

(a) You must demonstrate initial compliance with each emission limitation that applies to you according to Table 3 to this subpart.

(b) You must establish the brew-to-exhaust correlation for each fermentation stage according to § 63.2161(e).

(c) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in § 63.2180(e).

CONTINUOUS COMPLIANCE REQUIREMENTS

§ 63.2170 How do I monitor and collect data to demonstrate continuous compliance?

(a) You must monitor and collect data according to this section.

(b) Except for monitor malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), you must monitor continuously during each batch monitoring period.

(c) You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or quality control activities in data averages and calculations used to report emission or operating levels, or to fulfill a minimum data availability requirement. You must use all the data collected during all other periods in assessing the operation of the control system.

§ 63.2171 How do I demonstrate continuous compliance with the emission limitations?

(a) You must demonstrate continuous compliance with each emission limitation in Table 1 to this subpart that applies to you according to methods specified in Table 4 to this subpart.

(b) You must calculate the percentage of within-concentration batches (defined in § 63.2192) for each 12-month period according to paragraphs (b)(1) through (4) of this section.

(1) Determine the percentage of batches over a 12-month calculation period that were in compliance with the applicable maximum concentration. The total number of batches in the calculation period is the sum of the numbers of batches of each fermentation stage for which emission limits apply. To calculate the 12-month percentage, do not include batches in production during periods of malfunction. In counting the number of batches in the 12-month calculation period, include those batches for which the batch monitoring period ended on or after 12 a.m. on the first day of the period and exclude those batches for which the batch monitoring period did not end on or before 11:59 p.m. on the last day of the period.

(2) You must determine the 12-month percentage at the end of each calendar month.

(3) The first 12-month calculation period begins on the compliance date that is specified for your source in § 63.2133 and ends on the last day of the month that includes the date 365 days after your compliance date, unless the compliance date for your source is the first day of the month, in which case the first 12-month calculation period ends on the last day of the month that is 11 calendar months after the compliance date. (For example, if the compliance date for your source is October 15, 2003, the first 12-month calculation period would begin on October 15, 2003, and end on October 31, 2004. If the compliance date for your source is October 1, 2003, the first 12-month calculation period would begin on October 1, 2003, and end on September 30, 2004.)

(4) The second 12-month calculation period and each subsequent 12-month calculation period begin on the first day of the month following the first full month of the previous 12-month averaging period and end on the last day of the month 11 calendar months later. (For example, if the compliance date for your source is October 15, 2003, the second calculation period would begin on December 1, 2003 and end on November 30, 2004.)

(c) You must report each instance (that is, each 12-month calculation period) in which you did not meet each emission requirement in Table 4 to this subpart that applies to you. (Failure of a single batch to meet a concentration limit does not in and of itself constitute a failure to meet the emission limitation.) Each instance in which you failed to meet each applicable emission limitation is reported as part of the requirements in § 63.2181.

(d) During periods of malfunction, you must operate in accordance with the malfunction plan.

NOTIFICATION, REPORTS, AND RECORDS

§ 63.2180 What notifications must I submit and when?

(a) You must submit all of the notifications in §§ 63.7(b) and (c), 63.8(e), (f)(4) and (6), and 63.9(b) through (h) that apply to you by the dates specified.

(b) If you start up your affected source before May 21, 2001, you are not subject to the initial notification requirements of § 63.9(b)(2).

(c) If you are required to conduct a performance test as specified in Table 2 to this subpart, you must submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin as required in § 63.7(b)(1).

(d) If you are required to conduct a performance evaluation as specified in

§63.2163(b), you must submit a notification of the date of the performance evaluation at least 60 days prior to the date the performance evaluation is scheduled to begin as required in §63.8(e)(2).

(e) If you are required to conduct a performance test or other initial compliance demonstration as specified in Table 2 or 3 to this subpart, you must submit a Notification of Compliance Status according to §63.9(h)(2)(ii) and according to paragraphs (e)(1) through (2) of this section.

(1) For each initial compliance demonstration required in Table 3 to this subpart that does not include a performance test, you must submit the Notification of Compliance Status no later than July 31 or January 31, whichever date follows the end of the first 12 calendar months after the compliance date that is specified for your source in §63.2133. If your initial compliance demonstration does not include a performance test, the first compliance report, described in §63.2181(b)(1), serves as the Notice of Compliance Status.

(2) For each initial compliance demonstration required in Table 2 or 3 to this subpart that includes a performance test conducted according to the requirements in Table 2, you must submit the Notification of Compliance Status, including the performance test results, before the close of business on the 60th calendar day following the completion of the performance test according to §63.10(d)(2).

§63.2181 What reports must I submit and when?

(a) You must submit each report in Table 5 to this subpart that applies to you.

(b) Unless the Administrator has approved a different schedule for submission of reports under §63.10(a), you must submit each report by the date in Table 5 to this subpart and according to paragraphs (b)(1) through (5) of this section.

(1) The first compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.2133 and ending on either June 30 or December 31 (use whichever date is the first date following the end of the first 12 calendar months after the compliance date that is specified for your source in §63.2133). The first compliance report must include the percentage of within-concentration batches, as described in §63.2171(b), for the first 12-month calculation period described in §63.2171(b)(3). It must also include a percentage for each subsequent 12-month calculation period, as described in §63.2171(b)(4), ending on a calendar month that falls within the first compliance period. (For example, if the compliance date for your source is October 15, 2003, the first compliance report would cover the period from October 15, 2003 to December 31, 2004. It would contain percentages for the 12-month periods ending October 31, 2004; November 30, 2004; and December 31, 2004.)

(2) The first compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date follows the end of the first 12 calendar months after the compliance date that is specified for your affected source in §63.2133.

(3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31. Each subsequent compliance report must include the percentage of within-concentration batches for each 12-month calculation period ending on a calendar month that falls within the reporting period. (For example, if the compliance date for your source is October 15, 2003, the second compliance report would cover the period from January 1, 2005 through June 30, 2005. It would contain percentages for the 12-month periods ending January 31, 2005; February 28, 2005; March 31, 2005; April 30, 2005; May 31, 2005; and June 30, 2005.)

(4) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(5) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or part 71, and if the permitting authority has established dates for submitting semiannual

reports pursuant to 40 CFR 70.6(a)(3)(a)(iii)(A) or 40 CFR 71.6(a)(3)(a)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (4) of this section.

(c) The compliance report must contain the information listed in paragraphs (c)(1) through (5) of this section.

(1) Company name and address.

(2) Statement by a responsible official with that official's name, title, and signature, certifying the accuracy of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) Percentage of batches that are within-concentration batches for each 12-month period ending on a calendar month that falls within the reporting period.

(5) If you had a malfunction during the reporting period and you took actions consistent with your malfunction plan, the compliance report must include the information in § 63.10(d)(5)(i) for each malfunction.

§ 63.2182 What records must I keep?

(a) You must keep the records listed in paragraphs (a)(1) through (4) of this section. These include:

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Notification of Compliance Status and compliance report that you submitted, according to the requirements in § 63.10(b)(2)(xiv).

(2) The records in § 63.6(e)(3)(iii) through (v) related to malfunction;

(3) Records of performance tests and performance evaluations as required in § 63.10(b)(2)(viii); and

(4) Records of results of brew-to-exhaust correlation tests specified in § 63.2161.

(b) For each CEMS, you must keep the records listed in paragraphs (b)(1) through (9) of this section. These include:

(1) Records described in § 63.10 (b)(2)(vi);

(2) All required measurements needed to demonstrate compliance with a relevant standard (including, but not limited to, 30-minute averages of CEMS data, raw performance testing measurements, and raw performance evaluation measurements, that support data that the source is required to report);

(3) Records described in § 63.10 (b)(2)(viii) through (xi). The CEMS system must allow the amount of excess zero (low-level) and high-level calibration drift measured at the interval checks to be quantified and recorded;

(4) All required CEMS measurements (including monitoring data recorded during unavoidable CEMS breakdowns and out-of-control periods);

(5) Identification of each batch during which the CEMS was inoperative, except for zero (low-level) and high-level checks;

(6) Identification of each batch during which the CEMS was out of control, as defined in § 63.2163(k);

(7) Previous (i.e., superseded) versions of the performance evaluation plan as required in § 63.8(d)(3);

(8) Request for alternatives to relative accuracy test for CEMS as required in § 63.8(f)(6)(i); and

(9) Records of each batch for which the batch-average VOC concentration exceeded the applicable maximum VOC concentration in Table 1 to this subpart and whether the batch was in production during a period of malfunction or during another period.

(c) You must keep the records required in Table 4 to this subpart to show continuous compliance with each emission limitation that applies to you.

(d) You must also keep the records listed in paragraphs (d)(1) through (3) of this section for each batch in your affected source.

(1) Unique batch identification number.

(2) Fermentation stage for which you are using the fermenter.

(3) Unique CEMS equipment identification number.

§ 63.2183 In what form and how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review, according to § 63.10(b)(1).

(b) As specified in § 63.10(b)(1), you must keep each record for 5 years following the date of each occurrence,

measurement, maintenance, corrective action, report, or record.

(c) You must keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to § 63.10(b)(1). You can keep the records offsite for the remaining 3 years.

OTHER REQUIREMENTS AND INFORMATION

§ 63.2190 What parts of the General Provisions apply to me?

Table 6 to this subpart shows which parts of the General Provisions in §§ 63.1 through 63.13 apply to you.

§ 63.2191 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by us, the U.S. EPA, or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are as listed in paragraphs (c)(1) through (4) of this section.

(1) Approval of alternatives to the non-opacity emission limitations in § 63.2140 under § 63.6(g).

(2) Approval of major alternatives to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.90.

(3) Approval of major alternatives to monitoring under § 63.8(f) and as defined in § 63.90.

(4) Approval of major alternatives to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

§ 63.2192 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act, in 40 CFR 63.2, the General Provisions of this part, and in this section as follows:

Batch means a single fermentation cycle in a single fermentation vessel (fermenter).

Batch monitoring period means the period that begins at the later of either the start of aeration or the addition of yeast to the fermenter; the period ends at the earlier of either the end of aeration or the point at which the yeast has begun being emptied from the fermenter.

Brew means the mixture of yeast and additives in the fermenter.

Brew ethanol means the ethanol in fermenter liquid.

Brew ethanol monitor means the monitoring system that you use to measure brew ethanol to demonstrate compliance with this subpart. The monitoring system includes a resistance element used as an ethanol sensor, with the measured resistance proportional to the concentration of ethanol in the brew.

Brew-to-exhaust correlation means the correlation between the concentration of ethanol in the brew and the concentration of VOC in the fermenter exhaust. This correlation is specific to each fed-batch fermentation stage and is established while manufacturing the product that comprises the largest percentage (by mass) of average annual production.

Emission limitation means any emission limit or operating limit.

Fed-batch means the yeast is fed carbohydrates and additives during fermentation in the vessel. In contrast, carbohydrates and additives are added to ‘‘set-batch’’ fermenters only at the start of the batch.

1-hour period means any 60-minute period commencing on the minute at which the batch monitoring period begins.

Product means the yeast resulting from the final stage in a production run. Products are distinguished by yeast species, strain, and variety.

Responsible official means responsible official as defined in 40 CFR 70.2.

Specialty yeast includes but is not limited to yeast produced for use in wine, champagne, whiskey, and beer.

Within-concentration batch means a batch for which the average VOC concentration is not higher than the maximum concentration that is allowed as part of the applicable emission limitation.

TABLES

TABLE 1 TO SUBPART CCCC—EMISSION LIMITATIONS

As stated in § 63.2140, you must comply with the emission limitations in the following table:

For each fed-batch fermenter producing yeast in the following fermentation stage . . .	You must meet the following emission limitation . . .
Last stage (Trade); or Second-to-last stage (First Generation); or Third-to-last stage (Stock).	a. For at least 98 percent of all batches (sum of batches from last, second-to-last, and third-to-last stages) in each 12-month calculation period described in § 63.2171(b), the VOC concentration in the fermenter exhaust does not exceed the applicable maximum concentration (100 ppmv for last stage, 200 ppmv for second-to-last stage, or 300 ppmv for third-to-last stage), measured as propane, and averaged over the duration of a batch. b. The emission limitation does not apply during the production of specialty yeast.

TABLE 2 TO SUBPART CCCC—REQUIREMENTS FOR PERFORMANCE TESTS

As stated in § 63.2161, if you demonstrate compliance by monitoring brew ethanol, you must comply with the requirements for performance tests in the following table:

[Brew Ethanol Monitoring Only]

For each fed-batch fermenter for which compliance is determined by monitoring brew ethanol concentration and calculating VOC concentration in the fermenter exhaust according to the procedures in § 63.2161, you must . . .	Using . . .	According to the following requirements . . .
1. Measure VOC as propane	Method 25A*, or an alternative validated by EPA Method in the 301* and approved by the Administrator.	You must measure the VOC concentration in the fermenter exhaust at any point prior to dilution of the exhaust stream.
2. Select the sampling port's location and the number of traverse points.	Method 1*	
3. Measure volumetric flow rate.	Method 2*	
4. Perform gas analysis to determine the dry molecular weight of the stack gas.	Method 3*	
5. Determine moisture content of the stack gas.	Method 4*	

*EPA Test Methods found in appendix A of 40 CFR part 60.

As stated in § 63.2165 (if you monitor fermenter exhaust) and § 63.2166 (if you monitor brew ethanol), you must comply with the requirements to demonstrate initial compliance with the applicable emission limitations in the following table:

TABLE 3 TO SUBPART CCCC—INITIAL COMPLIANCE WITH EMISSION LIMITATIONS

For . . .	For the following emission limitation . . .	You have demonstrated initial compliance if . . .
1. Each fed-batch fermenter producing yeast in a fermentation stage (last Trade), second-to-last (First Generation), or third-to-last (Stock)) for which compliance is determined by monitoring VOC concentration in the fermenter exhaust.	The VOC concentration in the fermenter exhaust, averaged over the duration of the batch, does not exceed the applicable maximum concentration (100 ppmv for last stage, 200 ppmv for second-to-last stage, or 300 ppmv for third-to-last stage), measured as propane..	a. You reduce the CEMS data batch averages according to § 63.2163(g). b. The average VOC concentration in the fermenter exhaust for at least 98 percent of the batches (sum of batches from last, second-to-last, and third-to-last stages) during the initial compliance period described in § 63.2160(a) does not exceed the applicable maximum concentration.

For . . .	For the following emission limitation . . .	You have demonstrated initial compliance if . . .
2. Each fed-batch fermenter producing yeast in a fermentation stage (last (Trade), second-to-last (First Generation), or third-to-last (Stock)) for which compliance is determined by monitoring brew ethanol concentration and calculating VOC concentration in the fermenter exhaust according to the procedures in § 63.2161.	The VOC concentration in the fermenter exhaust, averaged over the duration of the batch, does not exceed the applicable maximum concentration (100 ppmv for last stage, 2000 ppmv for second-to-last stage, or 300 ppmv for third-to-last stage), measured as propane.	a. The VOC fermenter exhaust concentration over the period of the Method 25A* performance test does not exceed the applicable maximum concentration. b. You have a record of the brew-to-exhaust correlation during the Method 25A* performance test during which the VOC fermenter exhaust concentration did not exceed the applicable maximum concentration.

*EPA Test Method in appendix A of 40 CFR part 60.

As stated in § 63.2171, you must comply with the requirements to demonstrate continuous compliance with the applicable emission limitations in the following table:

TABLE 4 TO SUBPART CCCC—CONTINUOUS COMPLIANCE WITH EMISSION LIMITATIONS

For . . .	For the following emission limitation . . .	You must demonstrate continuous compliance by . . .
1. Each fed-batch fermenter producing yeast in a fermentation stage (last (Trade), second-to-last (First Generation), or third-to-last (Stock)) for which compliance is determined by monitoring VOC concentration in the fermenter exhaust.	For at least 98 percent of all batches (sum of batches from last, second-to-last, and third-to-last stages) in each 12-month calculation period described in § 63.2171(b), the VOC concentration in the fermenter exhaust, averaged over the duration of the batch, does not exceed the applicable maximum concentration (100 ppmv for last stage, 200 ppmv for second-to-last stage, or 300 ppmv for third-to-last stage), measured as propane.	a. Collecting the monitoring data according to § 63.2163(f). b. Reducing the data according to § 63.2163(g). c. For at least 98 percent of the batches (sum of batches from last, second-to-last, and third-to-last stages) for each 12-month period ending within a semiannual reporting period described in § 63.2181(b)(3), the batch average VOC concentration in the fermenter exhaust does not exceed the applicable maximum concentration.
2. Each fed-batch fermenter producing yeast in a fermentation stage (last (Trade), second-to-last (First Generation), or third-to-last (Stock)) for which compliance is determined by monitoring brew ethanol concentration and calculating VOC concentration in the fermenter exhaust according to the procedures in § 63.2161.	.For at least 98 percent of all batches (sum of batches from last, second-to-last, and third-to-last stages) in each 12-month calculation period described in § 63.2171(b), the VOC concentration in the fermenter exhaust, averaged over the duration of the batch, does not exceed the applicable maximum concentration (100 ppmvc for last stage, 200 ppmv for second-to-last stage, or 300 ppmv for third-to-last stage), measured as propane.	a. Collecting the monitoring data according to § 63.2164(b). b. Reducing the data according to § 63.2164(c). c. For at least 98 percent of the batches (sum of batches from last, second-to-last, and third-to-last stages) for each 12-month period ending within a semiannual reporting period described in § 63.2181(b)(3), the batch average VOC concentration in the fermenter exhaust does not exceed the applicable maximum concentration.

As stated in § 63.2181, you must submit a compliance report that contains the information in § 63.2181(c) as well as the information in the following table; you must also submit malfunction reports according to the requirements in the following table:

TABLE 5 TO SUBPART CCCC—REQUIREMENTS FOR REPORTS

You must submit a(n)	The report must contain . . .	You must submit the report . . .
1. Compliance report	a. Your calculated percentage of within-concentration batches, as described in § 63.2171(b), for 12-month calculation periods ending on each calendar month that falls within the reporting period.	Semiannually according to the requirements in § 63.2181(b).

You must submit a(n)	The report must contain . . .	You must submit the report . . .
	b. If you had a malfunction during the reporting period and you took actions consistent with your malfunction plan, the compliance report must include the information in § 63.10(d)(5)(i).	Semiannually according to the requirements in § 63.2181(b).
2. Immediate malfunction report if you had a malfunction during the reporting period that is not consistent with your malfunction plan.	a. Actions taken for the event	By fax or telephone within 2 working days after starting actions inconsistent with the plan.
	b. The information in § 63.10(d)(5)(ii)	By letter within 7 working days after the end of the event unless you have made alternative arrangements with the permitting authority (§ 63.10(d)(5)(ii)).

As stated in § 63.2190, you must comply with the applicable General Provisions requirements according to the following table:

TABLE 6 TO SUBPART CCCC—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART CCCC

Citation	Subject	Applicable to subpart CCCC?
§ 63.1	Applicability	Yes.
§ 63.2	Definitions	Yes.
§ 63.3	Units and Abbreviations	Yes.
§ 63.4	Prohibited Activities and Circumvention	Yes.
§ 63.5	Construction and Reconstruction	Yes.
§ 63.6	Compliance With Standards and Maintenance Requirements.	1. For § 63.6(e) and (f), requirements for startup, shutdown, and malfunctions apply only to malfunctions. 2. § 63.6(h) does not apply. 3. Otherwise, all apply.
§ 63.7	Performance Testing Requirements	1. § 63.7(a)(1)–(2) and (e)(3) do not apply, instead specified in this subpart. 2. Otherwise, all apply.
§ 63.8	Monitoring Requirements	1. § 63.8(a)(2) is modified by § 63.2163. 2. § 63.8(a)(4) does not apply. 3. For § 63.8(c)(1), requirements for startup, shutdown, and malfunctions apply only to malfunctions, and no report pursuant to § 63.10(d)(5)(i) is required. 4. For § 63.8(d), requirements for startup, shutdown, and malfunctions apply only to malfunctions. 5. § 63.8(c)(4)(i), (c)(5), (e)(5)(ii), and (g)(5), do not apply. 6. § 63.8(c)(4)(ii), (c)(6)–(8), (e)(4), and (g)(1)–(4) do not apply, instead specified in this subpart. 7. Otherwise, all apply.
§ 63.9	Notification Requirements	1. § 63.9(b)(2) does not apply because rule omits requirements for initial notification for sources that start up prior to May 21, 2001 2. § 63.9(f) does not apply. 3. Otherwise, all apply.
§ 63.10	Recordkeeping and Reporting Requirements	1. For § 63.10(b)(2)(i)–(v), (c)(9)–(15), and (d)(5), requirements for startup, shutdown, and malfunctions apply only to malfunctions. 2. § 63.10(b)(2)(vii) and (c)(1)–(6) do not apply, instead specified in this subpart. 3. § 63.10(c)(7)–(8), (d)(3), (e)(2)(ii)–(4), (e)(3)–(4) do not apply. 4. Otherwise, all apply.
§ 63.11	Flares	No.
§ 63.12	Delegation	Yes.
§ 63.13	Addresses	Yes.
§ 63.14	Incorporation by Reference	Yes.
§ 63.15	Availability of Information	Yes.

Subpart GGGG—National Emission Standards for Hazardous Air Pollutants: Solvent Extraction for Vegetable Oil Production

SOURCE: 66 FR 19011, Apr. 12, 2001, unless otherwise noted.

WHAT THIS SUBPART COVERS

§63.2830 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants (NESHAP) for emissions during vegetable oil production. This subpart limits hazardous air pollutant (HAP) emissions from specified vegetable oil production processes. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission standards.

§63.2831 Where can I find definitions of key words used in this subpart?

You can find definitions of key words used in this subpart in §63.2872.

§63.2832 Am I subject to this subpart?

(a) You are an affected source subject to this subpart if you meet all of the criteria listed in paragraphs (a)(1) and (2) of this section:

(1) You own or operate a vegetable oil production process that is a major source of HAP emissions or is collocated within a plant site with other sources that are individually or collectively a major source of HAP emissions.

(i) A *vegetable oil production process* is defined in §63.2872. In general, it is the collection of continuous process equipment and activities that produce crude vegetable oil and meal products by removing oil from oilseeds listed in Table 1 to §63.2840 through direct contact with an organic solvent, such as a hexane isomer blend.

(ii) A major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year.

(2) Your vegetable oil production process processes any combination of eight types of oilseeds listed in paragraphs (a)(2)(i) through (viii) of this section:

(i) Corn germ;

(ii) Cottonseed;

(iii) Flax;

(iv) Peanut;

(v) Rapeseed (for example, canola);

(vi) Safflower;

(vii) Soybean; and

(viii) Sunflower.

(b) You are not subject to this subpart if your vegetable oil production process meets any of the criteria listed in paragraphs (b)(1) through (4) of this section:

(1) It uses only mechanical extraction techniques that use no organic solvent to remove oil from a listed oilseed.

(2) It uses only batch solvent extraction and batch desolventizing equipment.

(3) It processes only agricultural products that are not listed oilseeds as defined in §63.2872.

(4) It functions only as a research and development facility and is not a major source.

(c) As listed in §63.1(c)(5) of the General Provisions, if your HAP emissions increase such that you become a major source, then you are subject to all of the requirements of this subpart.

§63.2833 Is my source categorized as existing or new?

(a) This subpart applies to each existing and new affected source. You must categorize your vegetable oil production process as either an existing or a new source in accordance with the criteria in Table 1 of this section, as follows:

TABLE 1 TO §63.2833—CATEGORIZING YOUR SOURCE AS EXISTING OR NEW

If your affected source...	And if...	Then your affected source...
(1) was constructed or began construction before May 26, 2000.	reconstruction has not occurred	is an existing source.

TABLE 1 TO § 63.2833—CATEGORIZING YOUR SOURCE AS EXISTING OR NEW—Continued

If your affected source...	And if...	Then your affected source...
(2) began reconstruction, as defined in § 63.2, on or after May 26, 2000.	(i) reconstruction was part of a scheduled plan to comply with the existing source requirements of this subpart; and. (ii) reconstruction was completed no later than 3 years after the effective date of this subpart.	remains an existing source.
(3) began a significant modification, as defined in § 63.2872, at any time on an existing source.	the modification does not constitute reconstruction.	remains an existing source.
(4) began a significant modification, as defined in § 63.2872, at any time on a new source.	the modification does not constitute reconstruction.	remains a new source.
(5) began reconstruction on or after May 26, 2000.	reconstruction was completed later than 3 years after the effective date of this subpart.	is a new source
(6) began construction on or after May 26, 2000.	....	is a new source.

(b) *Reconstruction of a source.* Any affected source is reconstructed if components are replaced so that the criteria in the definition of *reconstruction* in § 63.2 are satisfied. In general, a vegetable oil production process is reconstructed if the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost for constructing a new vegetable oil production process, and it is technically and economically feasible for the reconstructed source to meet the relevant new source requirements of this subpart. The effect of reconstruction on the categorization of your existing and new affected source is described in paragraphs (b)(1) and (2) of this section:

(1) After reconstruction of an existing source, the affected source is recategorized as a new source and becomes subject to the new source requirements of this subpart.

(2) After reconstruction of a new source, the affected source remains categorized as a new source and remains subject to the new source requirements of this subpart.

(c) *Significant modification of a source.* A significant modification to an affected source is a term specific to this subpart and is defined in § 63.2872.

(1) In general, a significant modification to your source consists of adding new equipment or the modification of existing equipment within the affected source that significantly affects solvent losses from the affected source. Examples include adding or replacing extractors, desolventizer-toasters (conventional and specialty), and meal dryer-coolers. All other significant modifications must meet the criteria listed in paragraphs (c)(1)(i) and (ii) of this section:

(i) The fixed capital cost of the modification represents a significant percentage of the fixed capital cost of building a comparable new vegetable oil production process.

(ii) It does not constitute reconstruction as defined in § 63.2.

(2) A significant modification has no effect on the categorization of your source as existing and new. An existing source remains categorized as an existing source and subject to the existing source requirements of this subpart. A new source remains categorized as a new source and subject to the new source requirements of this subpart.

(d) Changes in the type of oilseed processed by your affected source does not affect the categorization of your source as new or existing. Recategorizing an affected source from existing to new occurs only when you add or modify process equipment within the source which meets the definition of *reconstruction*.

§ 63.2834 When do I have to comply with the standards in this subpart?

You must comply with this subpart in accordance with one of the schedules in Table 1 of this section, as follows:

TABLE 1 OF §63.2834—COMPLIANCE DATES FOR EXISTING AND NEW SOURCES

If your affected source is categorized as...	And if...	Then your compliance date is...
(a) an existing source		3 years after the effective date of this subpart.
(b) a new source	you startup your affected source before the effective date of this subpart.	the effective date of this subpart.
(c) a new source	you startup your affected source on or after the effective date of this subpart.	your startup date.

STANDARDS

§63.2840 What emission requirements must I meet?

(a)(1) The emission requirements limit the number of gallons of HAP lost per ton of listed oilseeds processed. For each operating month, you must calculate a compliance ratio which compares your actual HAP loss to your allowable HAP loss for the previous 12 operating months as shown in Equation 1 of this section. An operating month, as defined in §63.2872, is any calendar month in which a source processes a listed oilseed, excluding any entire calendar month in which the source operated under an initial startup period subject to §63.2850(c)(2) or (d)(2) or a malfunction period subject to §63.2850(e)(2). Equation 1 of this section follows:

$$\text{Compliance Ratio} = \frac{\text{Actual Hap Loss}}{\text{Allowable Hap Loss}} \qquad \text{(Eq. 1)}$$

(2) Equation 1 of this section can also be expressed as a function of total solvent loss as shown in Equation 2 of this section. Equation 2 of this section follows:

$$\text{Compliance Ratio} = \frac{f * \text{Actual Solvent Loss}}{0.64 * \sum_{i=1}^{n}\left((\text{Oilseed})_i * (\text{SLF})_i\right)} \qquad \text{(Eq. 2)}$$

Where:

f = The weighted average volume fraction of HAP in solvent received during the previous 12 operating months, as determined in §63.2854, dimensionless.

0.64 = The average volume fraction of HAP in solvent in the baseline performance data, dimensionless.

Actual Solvent Loss = Gallons of actual solvent loss during previous 12 operating months, as determined in §63.2853.

Oilseed = Tons of each oilseed type ‘‘i’’ processed during the previous 12 operating months, as shown in §63.2855.

SLF = The corresponding solvent loss factor (gal/ton) for oilseed ‘‘i’’ listed in Table 1 of this section, as follows:

TABLE 1 OF § 63.2840—OILSEED SOLVENT LOSS FACTORS FOR DETERMINING ALLOWABLE HAP LOSS

Type of oilseed process	A source that...	Oilseed solvent loss factor (gal/ton)	
		Existing sources	New sources
(i) Corn Germ, Wet Milling	processes corn germ that has been separated from other corn components using a ''wet'' process of centrifuging a slurry steeped in a dilute sulfurous acid solution.	0.4	0.3
(ii) Corn Germ, Dry Milling	processes corn germ that has been separated from the other corn components using a ''dry'' process of mechanical chafing and air sifting.	0.7	0.7
(iii) Cottonseed, Large	processes 120,000 tons or more of a combination of cottonseed and other listed oilseeds during all normal operating periods in a 12 operating month period.	0.5	0.4
(iv) Cottonseed, Small	processes less than 120,000 tons of a combination of cottonseed and other listed oilseeds during all normal operating periods in a 12 operating month period.	0.7	0.4
(v) Flax	processes flax	0.6	0.6
(vi) Peanuts	processes peanuts	1.2	0.7
(vii) Rapeseed	processes rapeseed	0.7	0.3
(viii) Safflower	processes safflower	0.7	0.7
(ix) Soybean, Conventional	uses a conventional style desolventizer to produce crude soybean oil products and soybean animal feed products.	0.2	0.2
(x) Soybean, Specialty	uses a special style desolventizer to produce soybean meal products for human and animal consumption.	1.7	1.5
(xi) Soybean, Combination Plant with Low Specialty Production.	processes soybeans in both specialty and conventional desolventizers and the quantity of soybeans processed in specialty desolventizers during normal operating periods is less than 3.3 percent of total soybeans processed during all normal operating periods in a 12 operating month period. The corresponding solvent loss factor is an overall value and applies to the total quantity of soybeans processed..	0.25	0.25
(xii) Sunflower	processes sunflower	0.4	0.3

(b) When your source has processed listed oilseed for 12 operating months, calculate the compliance ratio by the end of each calendar month following an operating month using Equation 2 of this section. When calculating your compliance ratio, consider the conditions and exclusions in paragraphs (b)(1) through (6) of this section:

(1) If your source processes any quantity of listed oilseeds in a calendar month and the source is not operating under an initial startup period or malfunction period subject to § 63.2850, then you must categorize the month as an operating month, as defined in § 63.2872.

(2) The 12-month compliance ratio may include operating months occurring prior to a source shutdown and operating months that follow after the source resumes operation.

(3) If your source shuts down and processes no listed oilseed for an entire calendar month, then you must categorize the month as a nonoperating month, as defined in § 63.2872. Exclude any nonoperating months from the compliance ratio determination.

(4) If your source is subject to an initial startup period as defined in § 63.2872, exclude from the compliance ratio determination any solvent and oilseed information recorded for the initial startup period.

(5) If your source is subject to a malfunction period as defined in § 63.2872, exclude from the compliance ratio determination any solvent and oilseed information recorded for the malfunction period.

(6) For sources processing cottonseed or specialty soybean, the solvent loss

factor you use to determine the compliance ratio may change each operating month depending on the tons of oilseed processed during all normal operating periods in a 12 operating month period.

(c) If the compliance ratio is less than or equal to 1.00, your source was in compliance with the HAP emission requirements for the previous operating month.

(d) To determine the compliance ratio in Equation 2 of this section, you must select the appropriate oilseed solvent loss factor from Table 1 of this section. First, determine whether your source is new or existing using Table 1 of § 63.2833. Then, under the appropriate existing or new source column, select the oilseed solvent loss factor that corresponds to each type oilseed or process operation for each operating month.

COMPLIANCE REQUIREMENTS

§ 63.2850 How do I comply with the hazardous air pollutant emission standards?

(a) *General requirements.* The requirements in paragraphs (a)(1)(i) through (iv) of this section apply to all affected sources:

(1) Submit the necessary notifications in accordance with § 63.2860, which include:

(i) Initial notifications for existing sources.

(ii) Initial notifications for new and reconstructed sources.

(iii) Initial notifications for significant modifications to existing or new sources.

(iv) Notification of compliance status.

(2) Develop and implement a plan for demonstrating compliance in accordance with § 63.2851.

(3) Develop a written startup, shutdown and malfunction (SSM) plan in accordance with the provisions in § 63.2852.

(4) Maintain all the necessary records you have used to demonstrate compliance with this subpart in accordance with § 63.2862.

(5) Submit the reports in paragraphs (a)(5)(i) through (iii) of this section:

(i) Annual compliance certifications in accordance with § 63.2861(a).

(ii) Periodic SSM reports in accordance with § 63.2861(c).

(iii) Immediate SSM reports in accordance with § 63.2861(d).

(6) Submit all notifications and reports and maintain all records required by the General Provisions for performance testing if you add a control device that destroys solvent.

(b) *Existing sources under normal operation.* You must meet all of the requirements listed in paragraph (a) of this section and Table 1 of this section for sources under normal operation, and the schedules for demonstrating compliance for existing sources under normal operation in Table 2 of this section.

(c) *New sources.* Your new source, including a source that is categorized as new due to reconstruction, must meet the requirements associated with one of two compliance options. Within 15 days of the startup date, you must choose to comply with one of the options listed in paragraph (c)(1) or (2) of this section:

(1) *Normal operation.* Upon startup of your new source, you must meet all of the requirements listed in § 63.2850(a) and Table 1 of this section for sources under normal operation, and the schedules for demonstrating compliance for new sources under normal operation in Table 2 of this section.

(2) *Initial startup period.* For up to 6 calendar months after the startup date of your new source, you must meet all of the requirements listed in paragraph (a) of this section and Table 1 of this section for sources operating under an initial startup period, and the schedules for demonstrating compliance for new sources operating under an initial startup period in Table 2 of this section. After a maximum of 6 calendar months, your new source must then meet all of the requirements listed in Table 1 of this section for sources under normal operation.

(d) *Existing or new sources that have been significantly modified.* Your existing or new source that has been significantly modified must meet the requirements associated with one of two compliance options. Within 15 days of the modified source startup date, you must choose to comply with one of the options listed in paragraph (d)(1) or (2) of this section:

(1) *Normal operation.* Upon startup of your significantly modified existing or new source, you must meet all of the requirements listed in paragraph (a) of this section and Table 1 of this section for sources under normal operation, and the schedules for demonstrating compliance for an existing or new source that has been significantly modified in Table 2 of this section.

(2) *Initial startup period.* For up to 3 calendar months after the startup date of your significantly modified existing or new source, you must meet all of the requirements listed in paragraph (a) of this section and Table 1 of this section for sources operating under an initial startup period, and the schedules for demonstrating compliance for a significantly modified existing or new source operating under an initial startup period in Table 2 of this section. After a maximum of 3 calendar months, your new or existing source must meet all of the requirements listed in Table 1 of this section for sources under normal operation.

(e) *Existing or new sources experiencing a malfunction.* A *malfunction* is defined in § 63.2. In general, it means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment or process equipment to function in a usual manner. If your existing or new source experiences an unscheduled shutdown as a result of a malfunction, continues to operate during a malfunction (including the period reasonably necessary to correct the malfunction), or starts up after a shutdown resulting from a malfunction, then you must meet the requirements associated with one of two compliance options. Routine or scheduled process startups and shutdowns resulting from, but not limited to, market demands, maintenance activities, and switching types of oilseed processed, are not startups or shutdowns resulting from a malfunction and, therefore, do not qualify for this provision. Within 15 days of the beginning date of the malfunction, you must choose to comply with one of the options listed in paragraphs (e)(1) through (2) of this section:

(1) *Normal operation.* Your source must meet all of the requirements listed in paragraph (a) of this section and one of the options listed in paragraphs (e)(1)(i) through (iii) of this section:

(i) Existing source normal operation requirements in paragraph (b) of this section.

(ii) New source normal operation requirements in paragraph (c)(1) of this section.

(iii) Normal operation requirements for sources that have been significantly modified in paragraph (d)(1) of this section.

(2) *Malfunction period.* Throughout the malfunction period, you must meet all of the requirements listed in paragraph (a) of this section and Table 1 of this section for sources operating during a malfunction period. At the end of the malfunction period, your source must then meet all of the requirements listed in Table 1 of this section for sources under normal operation. Table 1 of this section follows:

TABLE 1 OF § 63.2850—REQUIREMENTS FOR COMPLIANCE WITH HAP EMISSION STANDARDS

Are you required to . . .	For periods of normal operation?	For initial startup periods subject to § 63.2850(c)(2) or (d)(2)?	For malfunction periods subject to § 63.2850(e)(2)?
(a) Operate and maintain your source in accordance with your SSM plan as described in § 63.2852?.	No, your source is not subject to the SSM plan, but rather the HAP emission limits of this standard.	Yes, throughout the entire initial startup period.	Yes, throughout the entire malfunction period.
(b) Determine and record the extraction solvent loss in gallons from your source?.	Yes, as described in § 63.2853.	Yes, as described in § 63.2862(e).	Yes, as described in § 63.2862(e).
(c) Record the volume fraction of HAP present at greater than 1 percent by volume and gallons of extraction solvent in shipment received?.	Yes	Yes	Yes.

TABLE 1 OF § 63.2850—REQUIREMENTS FOR COMPLIANCE WITH HAP EMISSION STANDARDS—Continued

Are you required to . . .	For periods of normal operation?	For initial startup periods subject to § 63.2850(c)(2) or (d)(2)?	For malfunction periods subject to § 63.2850(e)(2)?
(d) Determine and record the tons of each oilseed type processed by your source?.	Yes, as described in § 63.2855.	No	No.
(e) Determine the weighted average volume fraction of HAP in extraction solvent received as described in § 63.2854 by the end of the following calendar month?.	Yes	No. Except for solvent received by a new or reconstructed source commencing operation under an initial startup period, the HAP volume fraction in any solvent received during an initial startup period is included in the weighted average HAP determination for the next operating month.	No, the HAP volume fraction in any solvent received during a malfunction period is included in the weighted average HAP determination for the next operating month.
(f) Determine and record the actual solvent loss, weighted average volume fraction HAP, oilseed processed and compliance ratio for each 12 operating month period as described in § 63.2840 by the end of the following calendar month?.	Yes,	No, these requirements are not applicable because your source is not required to determine the compliance ratio with data recorded for an initial startup period.	No, these requirements are not applicable because your source is not required to determine the compliance ratio with data recorded for a malfunction period.
(g) Submit a Notification of Compliance Status or Annual Compliance Certification as appropriate?.	Yes, as described in §§ 63.2860(d) and 63.2861(a).	No. However, you may be required to submit an annual compliance certification for previous operating months, if the deadline for the annual compliance certification happens to occur during the initial startup period.	No. However, you may be required to submit an annual compliance certification for previous operating months, if the deadline for the annual compliance certification happens to occur during the malfunction period.
(h) Submit a Deviation Notification Report by the end of the calendar month following the month in which you determined that the compliance ratio exceeds 1.00 as described in § 63.2861(b)?.	Yes	No, these requirements are not applicable because your source is not required to determine the compliance ratio with data recorded for an initial startup period.	No, these requirements are not applicable because your source is not required to determine the compliance ratio with data recorded for a malfunction period.
(i) Submit a Periodic SSM Report as described in § 63.2861(c)?.	No, a SSM activity is not categorized as normal operation.	Yes	Yes.
(j) Submit an Immediate SSM Report as described in § 63.2861(d)?.	No, a SSM activity is not categorized as normal operation.	Yes, only if your source does not follow the SSM plan.	Yes, only if your source does not follow the SSM plan.

TABLE 2 OF § 63.2850—SCHEDULES FOR DEMONSTRATING COMPLIANCE UNDER VARIOUS SOURCE OPERATING MODES

If your source is . . .	and is operating under. . .	then your recordkeeping schedule. . .	You must determine your first compliance ratio by the end of the calendar month following. . .	Base your first compliance ratio on information recorded. . .
(a) Existing	Normal operation	Begins on the compliance date.	The first 12 operating months after the compliance date.	During the first 12 operating months after the compliance date.
(b) New	(1) Normal operation	Begins on the startup date of your new source.	The first 12 operating months after the startup date of the new source.	During the first 12 operating months after the startup date of the new source.

TABLE 2 OF § 63.2850—SCHEDULES FOR DEMONSTRATING COMPLIANCE UNDER VARIOUS SOURCE OPERATING MODES—Continued

If your source is . . .	and is operating under. . .	then your recordkeeping schedule. . .	You must determine your first compliance ratio by the end of the calendar month following. . .	Base your first compliance ratio on information recorded. . .
	(2) An initial startup period.	Begins on the startup date of your new source.	The first 12 operating months after termination of the initial startup period, which can last for up to 6 months.	During the first 12 operating months after the initial startup period, which can last for up to 6 months.
(c) Existing or new that has been significantly modified.	(1) Normal operation	Resumes on the startup date of the modified source.	The first operating month after the startup date of the modified source.	During the previous 11 operating months prior to the significant modification and the first operating month following the initial startup date of the source.
	(2) An initial startup period.	Resumes on the startup date of the modified source.	The first operating month after termination of the initial startup period, which can last up to 3 months.	During the 11 operating months before the significant modification and the first operating month after the initial startup period.

§ 63.2851 What is a plan for demonstrating compliance?

(a) You must develop and implement a written plan for demonstrating compliance that provides the detailed procedures you will follow to monitor and record data necessary for demonstrating compliance with this subpart. Procedures followed for quantifying solvent loss from the source and amount of oilseed processed vary from source to source because of site-specific factors such as equipment design characteristics and operating conditions. Typical procedures include one or more accurate measurement methods such as weigh scales, volumetric displacement, and material mass balances. Because the industry does not have a uniform set of procedures, you must develop and implement your own site-specific plan for demonstrating compliance before the compliance date for your source. You must also incorporate the plan for demonstrating compliance by reference in the source's title V permit and keep the plan onsite and readily available as long as the source is operational. If you make any changes to the plan for demonstrating compliance, then you must keep all previous versions of the plan and make them readily available for inspection for at least 5 years after each revision. The plan for demonstrating compliance must include the items in paragraphs (a)(1) through (7) of this section:

(1) The name and address of the owner or operator.

(2) The physical address of the vegetable oil production process.

(3) A detailed description of all methods of measurement your source will use to determine your solvent losses, HAP content of solvent, and the tons of each type of oilseed processed.

(4) When each measurement will be made.

(5) Examples of each calculation you will use to determine your compliance status. Include examples of how you will convert data measured with one parameter to other terms for use in compliance determination.

(6) Example logs of how data will be recorded.

(7) A plan to ensure that the data continue to meet compliance demonstration needs.

(b) The responsible agency of these NESHAP may require you to revise your plan for demonstrating compliance. The responsible agency may require reasonable revisions if the procedures lack detail, are inconsistent or do not accurately determine solvent loss, HAP content of the solvent, or the tons of oilseed processed.

§63.2852 What is a startup, shutdown, and malfunction plan?

You must develop a written SSM plan in accordance with §63.6(e)(3) and implement the plan, when applicable. You must complete the SSM plan before the compliance date for your source. You must also keep the SSM plan on-site and readily available as long as the source is operational.The SSM plan provides detailed procedures for operating and maintaining your source to minimize emissions during a qualifying SSM event for which the source chooses the §63.2850(e)(2) malfunction period, or the §63.2850(c)(2) or (d)(2) initial startup period. The SSM plan must specify a program of corrective action for malfunctioning process and air pollution control equipment and reflect the best practices now in use by the industry to minimize emissions. Some or all of the procedures may come from plans you developed for other purposes such as a Standard Operating Procedure manual or an Occupational Safety and Health Administration Process Safety Management plan. To qualify as a SSM plan, other such plans must meet all the applicable requirements of these NESHAP.

[66 FR 19011, Apr. 12, 2001, as amended at 67 FR 16321, Apr. 5, 2002]

§63.2853 How do I determine the actual solvent loss?

By the end of each calendar month following an operating month, you must determine the total solvent loss in gallons for the previous operating month. The total solvent loss for an operating month includes all solvent losses that occur during normal operating periods within the operating month. If you have determined solvent losses for 12 or more operating months, then you must also determine the 12 operating months rolling sum of actual solvent loss in gallons by summing the monthly actual solvent loss for the previous 12 operating months. The 12 operating months rolling sum of solvent loss is the ‘‘actual solvent loss,’’ which is used to calculate your compliance ratio as described in §63.2840.

(a) To determine the actual solvent loss from your source, follow the procedures in your plan for demonstrating compliance to determine the items in paragraphs (a)(1) through (7) of this section:

(1) *The dates that define each operating status period during a calendar month.* The dates that define each operating status period include the beginning date of each calendar month and the date of any change in the source operating status. If the source maintains the same operating status during an entire calendar month, these dates are the beginning and ending dates of the calendar month. If, prior to the effective date of this rule, your source determines the solvent loss on an *accounting month,* as defined in §63.2872, rather than a calendar month basis, and you have 12 complete accounting months of approximately equal duration in a calendar year, you may substitute the accounting month time interval for the calendar month time interval. If you choose to use an accounting month rather than a calendar month, you must document this measurement frequency selection in your plan for demonstrating compliance, and you must remain on this schedule unless you request and receive written approval from the agency responsible for these NESHAP.

(2) *Source operating status.* You must categorize the operating status of your source for each recorded time interval in accordance with criteria in Table 1 of this section, as follows:

TABLE 1 OF §63.2853—CATEGORIZING YOUR SOURCE OPERATING STATUS

If during a recorded time interval . . .	then your source operating status is . . .
(i) Your source processes any amount of listed oilseed and source is not operating under an initial startup operating period or a malfunction period subject to §63.2850(c)(2), (d)(2), or (e)(2).	A normal operating period.
(ii) Your source processes no agricultural product and your source is not operating under an initial startup period or malfunction period subject to §63.2850(c)(2), (d)(2), or (e)(2).	A nonoperating period.

TABLE 1 OF § 63.2853—CATEGORIZING YOUR SOURCE OPERATING STATUS—Continued

If during a recorded time interval . . .	then your source operating status is . . .
(iii) You choose to operate your source under an initial startup period subject to § 63.2850(c)(2) or (d)(2).	An initial startup period.
(iv) You choose to operate your source under a malfunction period subject to § 63.2850(e)(2).	A malfunction period.
(v) Your source processes agricultural products not defined as listed oilseed.	An exempt period.

(3) *Measuring the beginning and ending solvent inventory.* You are required to measure and record the solvent inventory on the beginning and ending dates of each normal operating period that occurs during an operating month. An operating month is any calendar month with at least one normal operating period. You must consistently follow the procedures described in your plan for demonstrating compliance, as specified in § 63.2851, to determine the extraction solvent inventory, and maintain readily available records of the actual solvent loss inventory, as described in § 63.2862(c)(1). In general, you must measure and record the solvent inventory only when the source is actively processing any type of agricultural product. When the source is not active, some or all of the solvent working capacity is transferred to solvent storage tanks which can artificially inflate the solvent inventory.

(4) *Gallons of extraction solvent received.* Record the total gallons of extraction solvent received in each shipment. For most processes, the gallons of solvent received represents purchases of delivered solvent added to the solvent storage inventory. However, if your process refines additional vegetable oil from off-site sources, recovers solvent from the off-site oil, and adds it to the on-site solvent inventory, then you must determine the quantity of recovered solvent and include it in the gallons of extraction solvent received.

(5) *Solvent inventory adjustments.* In some situations, solvent losses determined directly from the measured solvent inventory and quantity of solvent received is not an accurate estimate of the ‘‘actual solvent loss’’ for use in determining compliance ratios. In such cases, you may adjust the total solvent loss for each normal operating period as long as you provide a reasonable justification for the adjustment. Situations that may require adjustments of the total solvent loss include, but are not limited to, situations in paragraphs (a)(5)(i) and (ii) of this section:

(i) *Solvent destroyed in a control device.* You may use a control device to reduce solvent emissions to meet the emission standard. The use of a control device does not alter the emission limit for the source. If you use a control device that reduces solvent emissions through destruction of the solvent instead of recovery, then determine the gallons of solvent that enter the control device and are destroyed there during each normal operating period. All solvent destroyed in a control device during a normal operating period can be subtracted from the total solvent loss. Examples of destructive emission control devices include catalytic incinerators, boilers, or flares. Identify and describe, in your plan for demonstrating compliance, each type of reasonable and sound measurement method that you use to quantify the gallons of solvent entering and exiting the control device and to determine the destruction efficiency of the control device. You may use design evaluations to document the gallons of solvent destroyed or removed by the control device instead of performance testing under § 63.7. The design evaluations must be based on the procedures and options described in § 63.985(b)(1)(i)(A) through (C) or § 63.11, as appropriate. All data, assumptions, and procedures used in such evaluations must be documented and available for inspection. If you use performance testing to determine solvent flow rate to the control device or destruction efficiency of the device, follow the procedures as outlined in § 63.997(e)(1) and (2). Instead of periodic performance testing to demonstrate continued good operation of the control device, you may develop a monitoring plan, following the procedures outlined in §63.988(c) and using operational parametric measurement devices such as fan parameters, percent measurements of lower explosive limits, and combustion temperature.

(ii) Changes in solvent working capacity. In records you keep on-site, document any process modifications resulting in changes to the solvent working capacity in your vegetable oil production process. *Solvent working capacity* is defined in §63.2872. In general, solvent working capacity is the volume of solvent normally retained in solvent recovery equipment such as the extractor, desolventizer-toaster, solvent storage, working tanks, mineral oil absorber, condensers, and oil/solvent distillation system. If the change occurs during a normal operating period, you must determine the difference in working solvent volume and make a one-time documented adjustment to the solvent inventory.

(b) Use Equation 1 of this section to determine the actual solvent loss occurring from your affected source for all normal operating periods recorded within a calendar month. Equation 1 of this section follows:

$$\begin{array}{c}\text{Monthly Actual}\\ \text{Solvent}\\ \text{(gal)}\end{array} = \sum_{i=1}^{n}\left(\text{SOLV}_{B} - \text{SOLV}_{E} + \text{SOLV}_{R} \pm \text{SOLV}_{A}\right)_{i} \qquad \text{(Eq. 1)}$$

Where:

SOLV_B = Gallons of solvent in the inventory at the beginning of normal operating period ‘‘i’’ as determined in paragraph (a)(3) of this section.

SOLV_E = Gallons of solvent in the inventory at the end of normal operating period ‘‘i’’ as determined in paragraph (a)(3) of this section.

SOLV_R = Gallons of solvent received between the beginning and ending inventory dates of normal operating period ‘‘i’’ as determined in paragraph (a)(4) of this section.

SOLV_A = Gallons of solvent added or removed from the extraction solvent inventory during normal operating period ‘‘i’’ as determined in paragraph (a)(5) of this section.

n = Number of normal operating periods in a calendar month.

(c) The actual solvent loss is the total solvent losses during normal operating periods for the previous 12 operating months. You determine your actual solvent loss by summing the monthly actual solvent losses for the previous 12 operating months. You must record the actual solvent loss by the end of each calendar month following an operating month. Use the actual solvent loss in Equation 2 of §63.2840 to determine the compliance ratio. Actual solvent loss does not include losses that occur during operating status periods listed in paragraphs (c)(1) through (4) of this section. If any one of these four operating status periods span an entire month, then the month is treated as nonoperating and there is no compliance ratio determination.

(1) Nonoperating periods as described in paragraph (a)(2)(ii) of this section.

(2) Initial startup periods as described in §63.2850(c)(2) or (d)(2).

(3) Malfunction periods as described in §63.2850(e)(2).

(4) Exempt operation periods as described in paragraph (a)(2)(v) of this section.

§63.2854 How do I determine the weighted average volume fraction of HAP in the actual solvent loss?

(a) This section describes the information and procedures you must use to determine the weighted average volume fraction of HAP in extraction solvent received for use in your vegetable oil production process. By the end of each calendar month following an operating month, determine the weighted average volume fraction of HAP in extraction solvent received since the end of the previous operating month. If you have determined the monthly weighted average volume fraction of HAP in solvent received for 12 or more operating months, then also determine an overall weighted average volume fraction of HAP in solvent received for the previous 12 operating months. Use the volume fraction of HAP determined as a 12 operating months weighted average in Equation 2 of § 63.2840 to determine the compliance ratio.

(b) To determine the volume fraction of HAP in the extraction solvent determined as a 12 operating months weighted average, you must comply with paragraphs (b)(1) through (3) of this section:

(1) Record the volume fraction of each HAP comprising more than 1 percent by volume of the solvent in each delivery of solvent, including solvent recovered from off-site oil. To determine the HAP content of the material in each delivery of solvent, the reference method is EPA Method 311 of appendix A of this part. You may use EPA Method 311, an approved alternative method, or any other reasonable means for determining the HAP content. Other reasonable means of determining HAP content include, but are not limited to, a material safety data sheet or a manufacturer's certificate of analysis. A certificate of analysis is a legal and binding document provided by a solvent manufacturer. The purpose of a certificate of analysis is to list the test methods and analytical results that determine chemical properties of the solvent and the volume percentage of all HAP components present in the solvent at quantities greater than 1 percent by volume. You are not required to test the materials that you use, but the Administrator may require a test using EPA Method 311 (or an approved alternative method) to confirm the reported HAP content. However, if the results of an analysis by EPA Method 311 are different from the HAP content determined by another means, the EPA Method 311 results will govern compliance determinations.

(2) Determine the weighted average volume fraction of HAP in the extraction solvent each operating month. The weighted average volume fraction of HAP for an operating month includes all solvent received since the end of the last operating month, regardless of the operating status at the time of the delivery. Determine the monthly weighted average volume fraction of HAP by summing the products of the HAP volume fraction of each delivery and the volume of each delivery and dividing the sum by the total volume of all deliveries as expressed in Equation 1 of this section. Record the result by the end of each calendar month following an operating month. Equation 1 of this section follows:

$$\begin{array}{c}\text{Monthly Weighted}\\ \text{Average HAP Content}\\ \text{of Extraction Solvent}\\ \text{(volume fraction)}\end{array} = \frac{\sum_{i=1}^{n}\left(\text{Received}_i * \text{Content}_i\right)}{\text{Total Received}} \qquad \text{(Eq. 1)}$$

Where:

Received_i = Gallons of extraction solvent received in delivery ''i.''

Content_i = The volume fraction of HAP in extraction solvent delivery ''i.''

Total Received = Total gallons of extraction solvent received since the end of the previous operating month.

n = Number of extraction solvent deliveries since the end of the previous operating month.

(3) Determine the volume fraction of HAP in your extraction solvent as a 12 operating months weighted average. When your source has processed oilseed for 12 operating months, sum the products of the monthly weighted average HAP volume fraction and corresponding volume of solvent received, and divide the sum by the total volume of solvent received for the 12 operating months, as expressed by Equation 2 of this section. Record the result by the end of each calendar month following

an operating month and use it in Equation 2 of §63.2840 to determine the compliance ratio. Equation 2 of this section follows:

$$\begin{array}{c}\text{12-Month Weighted}\\ \text{Average of HAP Content}\\ \text{in Solvent Received}\\ \text{(volume fraction)}\end{array} = \frac{\sum_{i=1}^{12}\left(\text{Received}_i * \text{Content}_i\right)}{\text{Total Received}} \qquad \text{(Eq. 2)}$$

Where:

Received_i = Gallons of extraction solvent received in operating month "i" as determined in accordance with §63.2853(a)(4).

Content_i = Average volume fraction of HAP in extraction solvent received in operating month "i" as determined in accordance with paragraph (b)(1) of this section.

Total Received = Total gallons of extraction solvent received during the previous 12 operating months.

§63.2855 How do I determine the quantity of oilseed processed?

All oilseed measurements must be determined on an *as received* basis, as defined in §63.2872. The as received basis refers to the oilseed chemical and physical characteristics as initially received by the source and prior to any oilseed handling and processing. By the end of each calendar month following an operating month, you must determine the tons as received of each listed oilseed processed for the operating month. The total oilseed processed for an operating month includes the total of each oilseed processed during all normal operating periods that occur within the operating month. If you have determined the tons of oilseed processed for 12 or more operating months, then you must also determine the 12 operating months rolling sum of each type oilseed processed by summing the tons of each type of oilseed processed for the previous 12 operating months. The 12 operating months rolling sum of each type of oilseed processed is used to calculate the compliance ratio as described in §63.2840.

(a) To determine the tons as received of each type of oilseed processed at your source, follow the procedures in your plan for demonstrating compliance to determine the items in paragraphs (a)(1) through (5) of this section:

(1) *The dates that define each operating status period.* The dates that define each operating status period include the beginning date of each calendar month and the date of any change in the source operating status. If, prior to the effective date of this rule, your source determines the oilseed inventory on an accounting month rather than a calendar month basis, and you have 12 complete accounting months of approximately equal duration in a calendar year, you may substitute the accounting month time interval for the calendar month time interval. If you choose to use an accounting month rather than a calendar month, you must document this measurement frequency selection in your plan for demonstrating compliance, and you must remain on this schedule unless you request and receive written approval from the agency responsible for these NESHAP. The dates on each oilseed inventory log must be consistent with the dates recorded for the solvent inventory.

(2) *Source operating status.* You must categorize the source operation for each recorded time interval. The source operating status for each time interval recorded on the oilseed inventory for each type of oilseed must be consistent with the operating status recorded on the solvent inventory logs as described in §63.2853(a)(2).

(3) *Measuring the beginning and ending inventory for each oilseed.* You are required to measure and record the oilseed inventory on the beginning and ending dates of each normal operating period that occurs during an operating month. An operating month is any calendar month with at least one normal

operating period. You must consistently follow the procedures described in your plan for demonstrating compliance, as specified in § 63.2851, to determine the oilseed inventory on an as received basis and maintain readily available records of the oilseed inventory as described by § 63.2862(c)(3).

(4) *Tons of each oilseed received.* Record the type of oilseed and tons of each shipment of oilseed received and added to your on-site storage.

(5) *Oilseed inventory adjustments.* In some situations, determining the quantity of oilseed processed directly from the measured oilseed inventory and quantity of oilseed received is not an accurate estimate of the tons of oilseed processed for use in determining compliance ratios. For example, spoiled and molded oilseed removed from storage but not processed by your source will result in an overestimate of the quantity of oilseed processed. In such cases, you must adjust the oilseed inventory and provide a justification for the adjustment. Situations that may require oilseed inventory adjustments include, but are not limited to, the situations listed in paragraphs (a)(5)(i) through (v) of this section:

(i) Oilseed that mold or otherwise become unsuitable for processing.

(ii) Oilseed you sell before it enters the processing operation.

(iii) Oilseed destroyed by an event such as a process malfunction, fire, or natural disaster.

(iv) Oilseed processed through operations prior to solvent extraction such as screening, dehulling, cracking, drying, and conditioning; but that are not routed to the solvent extractor for further processing.

(v) Periodic physical measurements of inventory. For example, some sources periodically empty oilseed storage silos to physically measure the current oilseed inventory. This periodic measurement procedure typically results in a small inventory correction. The correction factor, usually less than 1 percent, may be used to make an adjustment to the source's oilseed inventory that was estimated previously with indirect measurement techniques. To make this adjustment, your plan for demonstrating compliance must provide for such an adjustment.

(b) Use Equation 1 of this section to determine the quantity of each oilseed type processed at your affected source during normal operating periods recorded within a calendar month. Equation 1 of this section follows:

$$\begin{array}{c}\text{Monthly Quantity}\\ \text{of Each Oilseed}\\ \text{Processed (tons)}\end{array} = \sum_{n=1}^{n}\left(\text{SEED}_B - \text{SEED}_E + \text{SEED}_R \pm \text{SEED}_A\right) \qquad (\text{Eq. } 1)$$

Where:

SEED_B = Tons of oilseed in the inventory at the beginning of normal operating period ‘‘i’’ as determined in accordance with paragraph (a)(3) of this section.

SEED_E = Tons of oilseed in the inventory at the end of normal operating period ‘‘i’’ as determined in accordance with paragraph (a)(3) of this section.

SEED_R = Tons of oilseed received during normal operating period ‘‘i’’ as determined in accordance with paragraph (a)(4) of this section.

SEED_A = Tons of oilseed added or removed from the oilseed inventory during normal operating period ‘‘i’’ as determined in accordance with paragraph (a)(5) of this section.

n = Number of normal operating periods in the calendar month during which this type oilseed was processed.

(c) The quantity of each oilseed processed is the total tons of each type of listed oilseed processed during normal operating periods in the previous 12 operating months. You determine the tons of each oilseed processed by summing the monthly quantity of each oilseed processed for the previous 12 operating months. You must record the 12 operating months quantity of each type of oilseed processed by the end of each calendar month following an operating month. Use the 12 operating months quantity of each type of oilseed processed to determine the compliance ratio as described in §63.2840. The quantity of oilseed processed does not include oilseed processed during the operating status periods in paragraphs (c)(1) through (4) of this section:

(1) Nonoperating periods as described in §63.2853 (a)(2)(ii).

(2) Initial startup periods as described in §63.2850(c)(2) or (d)(2).

(3) Malfunction periods as described in §63.2850(e)(2).

(4) Exempt operation periods as described in §63.2853 (a)(2)(v).

(5) If any one of these four operating status periods span an entire calendar month, then the calendar month is treated as a nonoperating month and there is no compliance ratio determination.

NOTIFICATIONS, REPORTS, AND RECORDS

§63.2860 What notifications must I submit and when?

You must submit the one-time notifications listed in paragraphs (a) through (d) of this section to the responsible agency:

(a) *Initial notification for existing sources.* For an existing source, submit an initial notification to the agency responsible for these NESHAP no later than 120 days after the effective date of this subpart. In the notification, include the items in paragraphs (a)(1) through (5) of this section:

(1) The name and address of the owner or operator.

(2) The physical address of the vegetable oil production process.

(3) Identification of the relevant standard, such as the vegetable oil production NESHAP, and compliance date.

(4) A brief description of the source including the types of listed oilseeds processed, nominal operating capacity, and type of desolventizer(s) used.

(5) A statement designating the source as a major source of HAP or a demonstration that the source meets the definition of an area source. An area source is a source that is not a major source and is not collocated within a plant site with other sources that are individually or collectively a major source.

(b) *Initial notifications for new and reconstructed sources.* New or reconstructed sources must submit a series of notifications before, during, and after source construction per the schedule listed in §63.9. The information requirements for the notifications are the same as those listed in the General Provisions with the exceptions listed in paragraphs (b)(1) and (2) of this section:

(1) The application for approval of construction does not require the specific HAP emission data required in §63.5(d)(1)(ii)(H) and (iii), (d)(2) and (d)(3)(ii). The application for approval of construction would include, instead, a brief description of the source including the types of listed oilseeds processed, nominal operating capacity, and type of desolventizer(s) used.

(2) The notification of actual startup date must also include whether you have elected to operate under an initial startup period subject to §63.2850(c)(2) and provide an estimate and justification for the anticipated duration of the initial startup period.

(c) *Significant modification notifications.* Any existing or new source that plans to undergo a significant modification as defined in §63.2872 must submit two reports as described in paragraphs (c)(1) and (2) of this section:

(1) Initial notification. You must submit an initial notification to the agency responsible for these NESHAP 30 days prior to initial startup of the significantly modified source. The initial notification must demonstrate that the proposed changes qualify as a significant modification. The initial notification must include the items in paragraphs (c)(1)(i) and (ii) of this section:

(i) The expected startup date of the modified source.

(ii) A description of the significant modification including a list of the equipment that will be replaced or modified. If the significant modification involves changes other than adding or replacing extractors, desolventizer-toasters (conventional and specialty), and meal dryer-coolers, then you must also include the fixed capital cost of the new components, expressed as a percentage of the fixed capital cost to build a comparable new vegetable oil production process; supporting documentation for the cost estimate; and documentation that the proposed changes will significantly affect solvent losses.

(2) Notification of actual startup. You must submit a notification of actual startup date within 15 days after initial startup of the modified source. The notification must include the items in paragraphs (c)(2)(i) through (iv) of this section:

(i) The initial startup date of the modified source.

(ii) An indication whether you have elected to operate under an initial startup period subject to § 63.2850(d)(2).

(iii) The anticipated duration of any initial startup period.

(iv) A justification for the anticipated duration of any initial startup period.

(d) *Notification of compliance status.* As an existing, new, or reconstructed source, you must submit a notification of compliance status report to the responsible agency no later than 60 days after determining your initial 12 operating months compliance ratio. If you are an existing source, you generally must submit this notification no later than 50 calendar months after the effective date of these NESHAP (36 calendar months for compliance, 12 operating months to record data, and 2 calendar months to complete the report). If you are a new or reconstructed source, the notification of compliance status is generally due no later than 20 calendar months after initial startup (6 calendar months for the initial startup period, 12 operating months to record data, and 2 calendar months to complete the report). The notification of compliance status must contain the items in paragraphs (d)(1) through (6) of this section:

(1) The name and address of the owner or operator.

(2) The physical address of the vegetable oil production process.

(3) Each listed oilseed type processed during the previous 12 operating months.

(4) Each HAP identified under § 63.2854(a) as being present in concentrations greater than 1 percent by volume in each delivery of solvent received during the 12 operating months period used for the initial compliance determination.

(5) A statement designating the source as a major source of HAP or a demonstration that the source qualifies as an area source. An area source is a source that is not a major source and is not collocated within a plant site with other sources that are individually or collectively a major source.

(6) A compliance certification indicating whether the source complied with all of the requirements of this subpart throughout the 12 operating months used for the initial source compliance determination. This certification must include a certification of the items in paragraphs (d)(6)(i) through (iii) of this section:

(i) The plan for demonstrating compliance (as described in § 63.2851) and SSM plan (as described in § 63.2852) are complete and available on-site for inspection.

(ii) You are following the procedures described in the plan for demonstrating compliance.

(iii) The compliance ratio is less than or equal to 1.00.

§ 63.2861 What reports must I submit and when?

After the initial notifications, you must submit the reports in paragraphs (a) through (d) of this section to the agency responsible for these NESHAP at the appropriate time intervals:

(a) *Annual compliance certifications.* The first annual compliance certification is due 12 calendar months after you submit the notification of compliance status. Each subsequent annual compliance certification is due 12 calendar months after the previous annual compliance certification. The annual compliance certification provides the compliance status for each operating month during the 12 calendar months period ending 60 days prior to the date on which the report is due. Include the information in paragraphs (a)(1) through (6) of this section in the annual certification:

(1) The name and address of the owner or operator.

(2) The physical address of the vegetable oil production process.

(3) Each listed oilseed type processed during the 12 calendar months period covered by the report.

(4) Each HAP identified under §63.2854(a) as being present in concentrations greater than 1 percent by volume in each delivery of solvent received during the 12 calendar months period covered by the report.

(5) A statement designating the source as a major source of HAP or a demonstration that the source qualifies as an area source. An area source is a source that is not a major source and is not collocated within a plant site with other sources that are individually or collectively a major source.

(6) A compliance certification to indicate whether the source was in compliance for each compliance determination made during the 12 calendar months period covered by the report. For each such compliance determination, you must include a certification of the items in paragraphs (a)(6)(i) through (ii) of this section:

(i) You are following the procedures described in the plan for demonstrating compliance.

(ii) The compliance ratio is less than or equal to 1.00.

(b) *Deviation notification report.* Submit a deviation report for each compliance determination you make in which the compliance ratio exceeds 1.00 as determined under §63.2840(c). Submit the deviation report by the end of the month following the calendar month in which you determined the deviation. The deviation notification report must include the items in paragraphs (b)(1) through (4) of this section:

(1) The name and address of the owner or operator.

(2) The physical address of the vegetable oil production process.

(3) Each listed oilseed type processed during the 12 operating months period for which you determined the deviation.

(4) The compliance ratio comprising the deviation. You may reduce the frequency of submittal of the deviation notification report if the agency responsible for these NESHAP does not object as provided in §63.10(e)(3)(iii).

(c) *Periodic startup, shutdown, and malfunction report.* If you choose to operate your source under an initial startup period subject to §63.2850(c)(2) or (d)(2) or a malfunction period subject to §63.2850(e)(2), you must submit a periodic SSM report by the end of the calendar month following each month in which the initial startup period or malfunction period occurred. The periodic SSM report must include the items in paragraphs (c)(1) through (3) of this section:

(1) The name, title, and signature of a source's responsible official who is certifying that the report accurately states that all actions taken during the initial startup or malfunction period were consistent with the SSM plan.

(2) A description of events occurring during the time period, the date and duration of the events, and reason the time interval qualifies as an initial startup period or malfunction period.

(3) An estimate of the solvent loss during the initial startup or malfunction period with supporting documentation.

(d) *Immediate SSM reports.* If you handle a SSM during an initial startup period subject to §63.2850(c)(2) or (d)(2) or a malfunction period subject to §63.2850(e)(2) differently from procedures in the SSM plan and the relevant emission requirements in §63.2840 are exceeded, then you must submit an immediate SSM report. Immediate SSM reports consist of a telephone call or facsimile transmission to the responsible agency within 2 working days after starting actions inconsistent with the SSM plan, followed by a letter within 7 working days after the end of the event. The letter must include the items in paragraphs (d)(1) through (3) of this section:

(1) The name, title, and signature of a source's responsible official who is certifying the accuracy of the report, an explanation of the event, and the reasons for not following the SSM plan.

(2) A description and date of the SSM event, its duration, and reason it qualifies as a SSM.

(3) An estimate of the solvent loss for the duration of the SSM event with supporting documentation.

[66 FR 19011, Apr. 12, 2001, as amended at 67 FR 16321, Apr. 5, 2002]

§ 63.2862 What records must I keep?

(a) You must satisfy the recordkeeping requirements of this section by the compliance date for your source specified in Table 1 of § 63.2834.

(b) Prepare a plan for demonstrating compliance (as described in § 63.2851) and a SSM plan (as described in § 63.2852). In these two plans, describe the procedures you will follow in obtaining and recording data, and determining compliance under normal operations or a SSM subject to the § 63.2850(c)(2) or (d)(2) initial startup period or the § 63.2850(e)(2) malfunction period. Complete both plans before the compliance date for your source and keep them on-site and readily available as long as the source is operational.

(c) If your source processes any listed oilseed, record the items in paragraphs (c)(1) through (5) of this section:

(1) For the solvent inventory, record the information in paragraphs (c)(1)(i) through (vii) of this section in accordance with your plan for demonstrating compliance:

(i) Dates that define each operating status period during a calendar month.

(ii) The operating status of your source such as normal operation, nonoperating, initial startup period, malfunction period, or exempt operation for each recorded time interval.

(iii) Record the gallons of extraction solvent in the inventory on the beginning and ending dates of each normal operating period.

(iv) The gallons of all extraction solvent received, purchased, and recovered during each calendar month.

(v) All extraction solvent inventory adjustments, additions or subtractions. You must document the reason for the adjustment and justify the quantity of the adjustment.

(vi) The total solvent loss for each calendar month, regardless of the source operating status.

(vii) The actual solvent loss in gallons for each operating month.

(2) For the weighted average volume fraction of HAP in the extraction solvent, you must record the items in paragraphs (c)(2)(i) through (iii) of this section:

(i) The gallons of extraction solvent received in each delivery.

(ii) The volume fraction of each HAP exceeding 1 percent by volume in each delivery of extraction solvent.

(iii) The weighted average volume fraction of HAP in extraction solvent received since the end of the last operating month as determined in accordance with § 63.2854(b)(2).

(3) For each type of listed oilseed processed, record the items in paragraphs (c)(3)(i) through (vi) of this section, in accordance with your plan for demonstrating compliance:

(i) The dates that define each operating status period. These dates must be the same as the dates entered for the extraction solvent inventory.

(ii) The operating status of your source such as normal operation, nonoperating, initial startup period, malfunction period, or exempt operation for each recorded time interval. On the log for each type of listed oilseed that is not being processed during a normal operating period, you must record which type of listed oilseed is being processed in addition to the source operating status.

(iii) The oilseed inventory for the type of listed oilseed being processed on the beginning and ending dates of each normal operating period.

(iv) The tons of each type of listed oilseed received at the affected source each normal operating period.

(v) All listed oilseed inventory adjustments, additions or subtractions for normal operating periods. You must document the reason for the adjustment and justify the quantity of the adjustment.

(vi) The tons of each type of listed oilseed processed during each operating month.

(d) After your source has processed listed oilseed for 12 operating months, and you are not operating during an initial startup period as described in § 63.2850(c)(2) or (d)(2), or a malfunction period as described in § 63.2850(e)(2), record the items in paragraphs (d)(1) through (5) of this section by the end of the calendar month following each operating month:

(1) The 12 operating months rolling sum of the actual solvent loss in gallons as described in § 63.2853(c).

(2) The weighted average volume fraction of HAP in extraction solvent

received for the previous 12 operating months as described in §63.2854(b)(3).

(3) The 12 operating months rolling sum of each type of listed oilseed processed at the affected source in tons as described in §63.2855(c).

(4) A determination of the compliance ratio. Using the values from §§63.2853, 63.2854, 63.2855, and Table 1 of §63.2840, calculate the compliance ratio using Equation 2 of §63.2840.

(5) A statement of whether the source is in compliance with all of the requirements of this subpart. This includes a determination of whether you have met all of the applicable requirements in §63.2850.

(e) For each SSM event subject to an initial startup period as described in §63.2850(c)(2) or (d)(2), or a malfunction period as described in §63.2850(e)(2), record the items in paragraphs (e)(1) through (3) of this section by the end of the calendar month following each month in which the initial startup period or malfunction period occurred:

(1) A description and date of the SSM event, its duration, and reason it qualifies as an initial startup or malfunction.

(2) An estimate of the solvent loss in gallons for the duration of the initial startup or malfunction period with supporting documentation.

(3) A checklist or other mechanism to indicate whether the SSM plan was followed during the initial startup or malfunction period.

§63.2863 In what form and how long must I keep my records?

(a) Your records must be in a form suitable and readily available for review in accordance with §63.10(b)(1).

(b) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record on-site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, in accordance with §3.10(b)(1). You can keep the records off-site for the remaining 3 years.

OTHER REQUIREMENTS AND INFORMATION

§63.2870 What parts of the General Provisions apply to me?

Table 1 of this section shows which parts of the General Provisions in §§63.1 through 63.15 apply to you. Table 1 of §63.2870 follows:

TABLE 1 OF §63.2870—APPLICABILITY OF 40 CFR PART 63, SUBPART A, TO 40 CFR, PART 63, SUBPART GGGG

General provisions citation	Subject of citation	Brief description of requirement	Applies to subpart	Explanation
§63.1	Applicability	Initial applicability determination; applicability after standard established; permit requirements; extensions; notifications.	Yes	
§63.2	Definitions	Definitions for part 63 standards.	Yes	Except as specifically provided in this subpart.
§63.3	Units and abbreviations	Units and abbreviations for part 63 standards.	Yes.	
§63.4	Prohibited activities and circumvention.	Prohibited activities; compliance date; circumvention; severability.	Yes	
§63.5	Construction/reconstruction.	Applicability; applications; approvals.	Yes	Except for subsections of §63.5 as listed below.
§63.5(c)	[Reserved]			
§63.5(d)(1)(ii)(H)	Application for approval	Type and quantity of HAP, operating parameters.	No	All sources emit HAP. Subpart GGGG does not require control from specific emission points.
§63.5(d)(1)(ii)(I)	[Reserved]			

Table 1 of § 63.2870—Applicability of 40 CFR Part 63, Subpart A, to 40 CFR, Part 63, Subpart GGGG—Continued

General provisions citation	Subject of citation	Brief description of requirement	Applies to subpart	Explanation
§ 63.5(d)(1)(iii), (d)(2), (d)(3)(ii).		Application for approval	No	The requirements of the application for approval for new, reconstructed and significantly modified sources are described in § 63.2860(b) and (c) of subpart GGGG. General provision requirements for identification of HAP emission points or estimates of actual emissions are not required. Descriptions of control and methods, and the estimated and actual control efficiency of such do not apply. Requirements for describing control equipment and the estimated and actual control efficiency of such equipment apply only to control equipment to which the subpart GGGG requirements for quantifying.
§ 63.6	Applicability of General Provisions.	Applicability	Yes	Except for subsections of § 63.6 as listed below.
§ 63.6(b)(1)–(3)	Compliance dates, new and reconstructed sources.		No	Section 63.2834 of subpart GGGG specifies the compliance dates for new and reconstructed sources.
§ 63.6(b)(6)	[Reserved]			
§ 63.6(c)(3)–(4)	[Reserved]			
§ 63.6(d)	[Reserved]			
§ 63.6(e)(1) through (e)(3)(ii) and § 63.6(e)(3)(v) through (vii).	Operation and maintanance requirements.		Yes	Implement your SSM plan, as specified in § 63.2852.
§ 63.6(e)(3)(v)(iii)	Operation and maintenance requirements.		No	Implement your plan, as specified in § 63.2852.
§ 63.6(e)(3)(iv)	Operation and maintenance requirements.		No	Report SSM and in accordance with § 63.2861(c) and (d).
§ 63.6(e)(3)(viii)	Operation and maintenance requirements.		Yes	Except, report each revision to your SSM plan in accordance with § 63.2861(c) rather than § 63.10(d)(5) as required under § 63.6(e)(3) (viii).
§ 63.6(f)–(g)	Compliance with nonopacity emission standards except during SSM.	Comply with emission standards at all times except during SSM.	No	Subpart GGGG does not have nonopacity requirements.
§ 63.6(h)	Opacity/Visible emission (VE) standards.		No	Subpart GGGG has no opacity or VE standards.
§ 63.6(i)	Compliance extension	Procedures and criteria for responsible agency to grant compliance extension.	Yes	
§ 63.6(j)	Presidential compliance exemption.	President may exempt source category from requirement to comply with subpart.	Yes	
§ 63.7	Performance testing requirements.	Schedule, conditions, notifications and procedures.	Yes	Subpart GGGG requires performance testing only if the source applies additional control that destroys solvent. Section 63.2850(a)(6) requires sources to follow the performance testing guidelines of the General Provisions if a control is added.
§ 63.8	Monitoring requirements.		No	Subpart GGGG does not require monitoring other than as specified therein.
§ 63.9	Notification requirements.	Applicability and state delegation.	Yes	Except for subsections of § 63.9 as listed below.

TABLE 1 OF § 63.2870—APPLICABILITY OF 40 CFR PART 63, SUBPART A, TO 40 CFR, PART 63, SUBPART GGGG—Continued

General provisions citation	Subject of citation	Brief description of requirement	Applies to subpart	Explanation
§ 63.9(b)(2)	Notification requirements.	Initial notification requirements for existing sources.	No	Section 63.2860(a) of subpart GGGG specifies the requirements of the initial notification for existing sources.
§ 63.9(b)(3)–(5)	Notification requirements.	Notification requirement for certain new/reconstructed sources.	Yes	Except the information requirements differ as described in § 63.2860(b) of subpart GGGG.
§ 63.9(e)	Notification of performance test.	Notify responsible agency 60 days ahead.	Yes	Applies only if performance testing is performed.
§ 63.9(f)	Notification of VE/opacity observations.	Notify responsible agency 30 days ahead.	No	Subpart GGGG has no opacity or VE standards.
§ 63.9(g)	Additional notifications when using a continuous monitoring system (CMS).	Notification of performance evaluation; Notification using COMS data; notification that exceeded criterion for relative accuracy.	No	Subpart GGGG has no CMS requirements.
§ 63.9(h)	Notification of compliance status.	Contents	No	Section 63.2860(d) of subpart GGGG specifies requirements for the notification of compliance status.
§ 63.10	Recordkeeping/reporting.	Schedule for reporting, record storage.	Yes	Except for subsections of § 63.10 as listed below.
§ 63.10(b)(2)(i)	Recordkeeping	Record SSM event	Yes	Applicable to periods when sources must implement their SSM plan as specified in subpart GGGG.
§ 63.10(b)(2)(ii)–(iii)	Recordkeeping	Malfunction of air pollution equipment.	No	Applies only if air pollution control equipment has been added to the process and is necessary for the source to meet the emission limit.
§ 63.10(b)(2)(vi)	Recordkeeping	CMS recordkeeping	No	Subpart GGGG has no CMS requirements.
§ 63.10(b)(2)(viii)–(ix).	Recordkeeping	Conditions of performance test.	Yes	Applies only if performance tests are performed. Subpart GGGG does not have any CMS opacity or VE observation requirements.
§ 63.10(b)(2)(x)–(xii)	Recordkeeping	CMS, performance testing, and opacity and VE observations recordkeeping.	No	Subpart GGGG does not require CMS.
§ 63.10(c)	Recordkeeping	Additional CMS recordkeeping.	No	Subpart GGGG does not require CMS.
§ 63.10(d)(2)	Reporting	Reporting performance test results.	Yes	Applies only if performance testing is performed.
§ 63.10(d)(3)	Reporting	Reporting opacity or VE observations.	No	Subpart GGGG has no opacity or VE standards.
§ 63.10(d)(4)	Reporting	Progress reports	Yes	Applies only if a condition of compliance extension exists.
§ 63.10(d)(5)	Reporting	SSM reporting	No	Section 63.2861(c) and (d) specify SSM reporting requirements.
§ 63.10(e)	Reporting	Additional CMS reports	No	Subpart GGGG does not require CMS.
§ 63.11	Control device requirements.	Requirements for flares	Yes	Applies only if your source uses a flare to control solvent emissions. Subpart GGGG does not require flares.
§ 63.12	State authority and delegations.	State authority to enforce standards.	Yes	
§ 63.13	State/regional addresses.	Addresses where reports, notifications, and requests are sent.	Yes	
§ 63.14	Incorporation by reference.	Test methods incorporated by reference.	Yes	

TABLE 1 OF § 63.2870—APPLICABILITY OF 40 CFR PART 63, SUBPART A, TO 40 CFR, PART 63, SUBPART GGGG—Continued

General provisions citation	Subject of citation	Brief description of requirement	Applies to subpart	Explanation
§ 63.15	Availability of information and confidentiality.	Public and confidential information.	Yes	

[66 FR 19011, Apr. 12, 2001, as amended at 67 FR 16321, Apr. 5, 2002]

§ 63.2871 Who implements and enforces this subpart?

(a) This subpart can be implemented by us, the U.S. EPA, or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency, as well as the U.S. EPA, has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under section 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are as follows:

(1) Approval of alternative non-opacity emissions standards under § 63.6(g).

(2) Approval of alternative opacity standards under § 63.6(h)(9).

(3) Approval of major alternatives to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.90.

(4) Approval of major alternatives to monitoring under § 63.8(f) and as defined in § 63.90.

(5) Approval of major alternatives to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

§ 63.2872 What definitions apply to this subpart?

Terms used in this subpart are defined in the sources listed:

(a) The Clean Air Act, section 112(a).

(b) In 40 CFR 63.2, the NESHAP General Provisions.

(c) In this section as follows:

Accounting month means a time interval defined by a business firm during which corporate economic and financial factors are determined on a consistent and regular basis. An accounting month will consist of approximately 4 to 5 calendar weeks and each accounting month will be of approximate equal duration. An accounting month may not correspond exactly to a calendar month, but 12 accounting months will correspond exactly to a calendar year.

Actual solvent loss means the gallons of solvent lost from a source during 12 operating months as determined in accordance with § 63.2853.

Agricultural product means any commercially grown plant or plant product.

Allowable HAP loss means the gallons of HAP that would have been lost from a source if the source was operating at the solvent loss factor for each listed oilseed type. The allowable HAP loss in gallons is determined by multiplying the tons of each oilseed type processed during the previous 12 operating months, as determined in accordance with § 63.2855, by the corresponding oilseed solvent loss factor (gal/ton) listed in Table 1 of § 63.2840, and by the dimensionless constant 0.64, and summing the result for all oilseed types processed.

Area source means any source that does not meet the major source definition.

As received is the basis upon which all oilseed measurements must be determined and refers to the oilseed chemical and physical characteristics as initially received by the source and prior to any oilseed handling and processing.

Batch operation means any process that operates in a manner where the addition of raw material and withdrawal of product do not occur simultaneously. Typically, raw material is added to a process, operational steps occur, and a product is removed from the process. More raw material is then added to the process and the cycle repeats.

Calendar month means 1 month as specified in a calendar.

Compliance date means the date on which monthly compliance recordkeeping begins. For existing sources, recordkeeping typically begins 3 years after the effective date of the subpart. For new and reconstructed sources, recordkeeping typically begins upon initial startup, except as noted in § 63.2834.

Compliance ratio means a ratio of the actual HAP loss in gallons from the previous 12 operating months to an allowable HAP loss in gallons, which is determined by using oilseed solvent loss factors in Table 1 of § 63.2840, the weighted average volume fraction of HAP in solvent received for the previous 12 operating months, and the tons of each type of listed oilseed processed in the previous 12 operating months. Months during which no listed oilseed is processed, or months during which the § 63.2850(c)(2) or (d)(2) initial startup period or the § 63.2850(e)(2) malfunction period applies, are excluded from this calculation. Equation 2 of § 63.2840 is used to calculate this value. If the value is less than or equal to 1.00, the source is in compliance. If the value is greater than 1.00, the source is deviating from compliance.

Continuous operation means any process that adds raw material and withdraws product simultaneously. Mass, temperature, concentration and other properties typically approach steady-state conditions.

Conventional desolventizer means a desolventizer toaster that operates with indirect and direct-contact steam to remove solvent from the extracted meal. Oilseeds processed in a conventional desolventizer produce crude vegetable oil and crude meal products, such as animal feed.

Corn germ dry milling means a source that processes corn germ that has been separated from the other corn components using a ‘‘dry’’ process of mechanical chafing and air sifting.

Corn germ wet milling means a source that processes corn germ that has been separated from other corn components using a ‘‘wet’’ process of centrifuging a slurry steeped in a dilute sulfurous acid solution.

Exempt period means a period of time during which a source processes agricultural products not defined as listed oilseed.

Extraction solvent means an organic chemical medium used to remove oil from an oilseed. Typically, the extraction solvent is a commercial grade of hexane isomers which have an approximate HAP content of 64 percent by volume.

Hazardous air pollutant (HAP) means any substance or mixture of substances listed as a hazardous air pollutant under section 112(b) of the Clean Air Act, as of April 12, 2001.

Initial startup date means the first calendar day that a new, reconstructed or significantly modified source processes any listed oilseed.

Initial startup period means a period of time from the initial startup date of a new, reconstructed or significantly modified source, for which you choose to operate the source under an initial startup period subject to § 63.2850(c)(2) or (d)(2). During an initial startup period, a source is in compliance with the standards by following the operating and maintenance procedures listed for minimizing HAP emissions in the source's SSM plan rather than being subject to a HAP emission limit. The initial startup period following initial startup of a new or reconstructed source may not exceed 6 calendar months. The initial startup period following a significant modification may not exceed 3 calendar months. Solvent and oilseed inventory information recorded during the initial startup period is excluded from use in any compliance ratio determinations.

Large cottonseed plant means a vegetable oil production process that processes 120,000 tons or more of cottonseed and other listed oilseed during all normal operating periods in a 12 operating months period used to determine compliance.

Malfunction period means a period of time between the beginning and end of a process malfunction and the time reasonably necessary for a source to correct the malfunction for which you choose to operate the source under a malfunction period subject to § 63.2850(e)(2). This period may include the duration of an unscheduled process shutdown, continued operation during a malfunction, or the subsequent process startup after a shutdown resulting from a malfunction. During a malfunction period, a source complies with the standards by following the operating and maintenance procedures described for minimizing HAP emissions in the source's SSM plan rather than being subject to a HAP emission limit. Therefore, solvent and oilseed inventory information recorded during a malfunction period is excluded from use in any compliance ratio determinations.

Mechanical extraction means removing vegetable oil from oilseeds using only mechanical devices such as presses or screws that physically force the oil from the oilseed. Mechanical extraction techniques use no organic solvents to remove oil from an oilseed.

Nonoperating period means any period of time in which a source processes no agricultural product. This operating status does not apply during any period in which the source operates under an initial startup period as described in § 63.2850(c)(2) or (d)(2), or a malfunction period, as described in § 63.2850(e)(2).

Normal operating period means any period of time in which a source processes a listed oilseed that is not categorized as an initial startup period as described in § 63.2850(c)(2) or (d)(2), or a malfunction period, as described in § 63.2850(e)(2). At the beginning and ending dates of a normal operating period, solvent and oilseed inventory information is recorded and included in the compliance ratio determination.

Oilseed or listed oilseed means the following agricultural products: corn germ, cottonseed, flax, peanut, rapeseed (for example, canola), safflower, soybean, and sunflower.

Oilseed solvent loss factor means a ratio expressed as gallons of solvent loss per ton of oilseed processed. The solvent loss factors are presented in Table 1 of § 63.2840 and are used to determine the allowable HAP loss.

Operating month means any calendar or accounting month in which a source processes any quantity of listed oilseed, excluding any entire calendar or accounting month in which the source operated under an initial startup period as described in § 63.2850(c)(2) or (d)(2), or a malfunction period as described in § 63.2850(e)(2). An operating month may include time intervals characterized by several types of operating status. However, an operating month must have at least one normal operating period.

Significant modification means the addition of new equipment or the modification of existing equipment that:

(1) Significantly affects solvent losses from your vegetable oil production process;

(2) The fixed capital cost of the new components represents a significant percentage of the fixed capital cost of building a comparable new vegetable oil production process;

(3) The fixed capital cost of the new equipment does not constitute reconstruction as defined in § 63.2; and

(4) Examples of significant modifications include replacement of or major changes to solvent recovery equipment such as extractors, desolventizer-toasters/dryer-coolers, flash desolventizers, and distillation equipment associated with the mineral oil system, and equipment affecting desolventizing efficiency and steady-state operation of your vegetable oil production process such as flaking mills, oilseed heating and conditioning equipment, and cracking mills.

Small cottonseed plant means a vegetable oil production process that processes less than 120,000 tons of cottonseed and other listed oilseed during all normal operating periods in a 12 operating months period used to determine compliance.

Solvent extraction means removing vegetable oil from listed oilseed using an organic solvent in a direct-contact system.

Solvent working capacity means the volume of extraction solvent normally retained in solvent recovery equipment. Examples include components such as the solvent extractor, desolventizer-toaster, solvent storage and working tanks, mineral oil absorption system, condensers, and oil/solvent distillation system.

Specialty desolventizer means a desolventizer that removes excess solvent from soybean meal using vacuum conditions, energy from superheated solvent vapors, or reduced operating conditions (e.g., temperature) as compared to the typical operation of a conventional desolventizer. Soybeans processed in a specialty desolventizer result in high-protein vegetable meal products for human and animal consumption, such as calf milk replacement products and meat extender products.

Vegetable oil production process means the equipment comprising a continuous process for producing crude vegetable oil and meal products, including specialty soybean products, in which oil is removed from listed oilseeds through direct contact with an organic solvent. Process equipment typically includes the following components: oilseed preparation operations (including conditioning, drying, dehulling, and cracking), solvent extractors, desolventizer-toasters, meal dryers, meal coolers, meal conveyor systems, oil distillation units, solvent evaporators and condensers, solvent recovery system (also referred to as a mineral oil absorption system), vessels storing solvent-laden materials, and crude meal packaging and storage vessels. A vegetable oil production process does not include vegetable oil refining operations (including operations such as bleaching, hydrogenation, and deodorizing) and operations that engage in additional chemical treatment of crude soybean meals produced in specialty desolventizer units (including operations such as soybean isolate production).

Subpart HHHH—National Emission Standards for Hazardous Air Pollutants for Wet-Formed Fiberglass Mat Production

SOURCE: 67 FR 17835, Apr. 11, 2002, unless otherwise noted.

WHAT THIS SUBPART COVERS

§ 63.2980 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants (NESHAP) for emissions from facilities that produce wet-formed fiberglass mat. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations.

§ 63.2981 Does this subpart apply to me?

You must comply with this subpart if you meet the criteria in paragraphs (a) and (b) of this section:

(a) You own or operate a drying and curing oven at a wet-formed fiberglass mat production facility.

(b) Your drying and curing oven or the facility at which your drying and curing oven is located is a major source of hazardous air pollutants (HAP). A major source is any stationary source or group of stationary sources located within a contiguous area and under common control that emits or can potentially emit, considering controls, in the aggregate, 9.07 megagrams (10 tons) or more per year of a single HAP or 22.68 megagrams (25 tons) or more per year of any combination of HAP.

§ 63.2982 What parts of my plant does this subpart cover?

(a) This subpart applies to each new, reconstructed, or existing affected source. The affected source (the portion of your plant covered by this subpart) is each wet-formed fiberglass mat drying and curing oven.

(b) An affected source is a new affected source if you commenced construction of the affected source after May 26, 2000, and you meet the applicability criteria in § 63.2981 at start-up.

(c) An affected source is reconstructed if you meet the criteria as defined in § 63.2.

(d) An affected source is existing if it is not new or reconstructed.

EMISSION LIMITATIONS

§ 63.2983 What emission limits must I meet?

(a) You must limit the formaldehyde emissions from each drying and curing oven by either:

(1) Limiting emissions of formaldehyde to 0.03 kilograms or less per megagram (0.05 pounds per ton) of fiberglass mat produced; or

(2) Reducing uncontrolled formaldehyde emissions by 96 percent or more.

(b) [Reserved]

§ 63.2984 What operating limits must I meet?

(a) You must maintain operating parameters within established limits or ranges specified in your operation, maintenance, and monitoring (OMM) plan described in § 63.2987. If there is a deviation of any of the specified parameters from the limit or range specified in the OMM plan, you must address the deviation according to paragraph (b) of this section. You must comply with the operating limits specified in paragraphs (a)(1) through (4) of this section:

(1) You must operate the thermal oxidizer so that the average operating temperature in any 3-hour block period does not fall below the temperature established during your performance test and specified in your OMM plan.

(2) You must not use a resin with a free-formaldehyde content greater than that of the resin used during your performance test and specified in your OMM plan.

(3) You must operate the wet-formed fiberglass mat production process so that the average urea formaldehyde resin solids application rate in any 3-hour block period does not exceed the average application rate achieved during your performance test and specified in your OMM plan.

(4) If you use an add-on control device other than a thermal oxidizer or wish to monitor an alternative parameter and comply with a different operating limit, you must obtain approval for the alternative monitoring under § 63.8(f). You must include the approved alternative monitoring and operating limits in the OMM plan specified in § 63.2987.

(b) When during a period of normal operations you detect that an operating parameter deviates from the limit or range established in paragraph (a) of this section, you must initiate corrective actions within 1 hour according to the provisions of your OMM plan. During periods of start up, shut down, or malfunction you must follow your start up, shut down and malfunction plan (SSMP). The corrective action actions must be completed in an expeditious manner as specified in the OMM plan or SSMP.

(c) You must maintain and inspect control devices according to the procedures specified in the OMM plan.

(d) You must include the operating limits specified in paragraphs (a)(1) through (4) of this section and their allowable ranges or levels in your OMM plan. Your 40 CFR part 70 operating permit for the drying and curing oven must contain a requirement that you develop and operate according to an OMM plan at all times.

(e) If you use a thermal oxidizer or other control device to achieve the emission limits in § 63.2983, you must capture and convey the formaldehyde emissions from each drying and curing oven according to the procedures in chapters 3 and 5 of ‘‘Industrial Ventilation: A Manual of Recommended Practice’’ (23rd Edition). This publication is incorporated by reference in § 63.3003.

§ 63.2985 When do I have to comply with these standards?

(a) Existing drying and curing ovens must be in compliance with this subpart no later than April 11, 2005.

(b) New or reconstructed drying and curing ovens must be in compliance with this subpart at startup or by April 11, 2002, whichever is later.

(c) If your facility is an area source that increases its emissions or its potential to emit such that it becomes a major source of hazardous air pollutants, the following apply:

(1) Any portion of the existing facility that is a new affected source or a new reconstructed affected source must be in compliance upon startup.

(2) All other parts of the source must be in compliance with this subpart 1 year after becoming a major source or by April 11, 2005, whichever is later.

§63.2986 How do I comply with the standards?

(a) You must install, maintain, and operate a thermal oxidizer or other control device or implement a process modification that reduces formaldehyde emissions from each drying and curing oven to the emission limits specified in §63.2983.

(b) You must comply with the operating limits specified in §63.2984. The operating limits prescribe the requirements for demonstrating continuous compliance based on the OMM plan. You must begin complying with the operating limits on the date by which you must complete the initial performance test.

(c) You must conduct a performance test according to §§63.2991, 63.2992, and 63.2993 to demonstrate compliance for each drying and curing oven subject to the emission limits in §63.2983, and to establish or modify the operating limits or ranges for process or control device parameters that will be monitored to demonstrate continuous compliance.

(d) You must install, calibrate, maintain, and operate devices that monitor the parameters specified in your OMM plan at the frequency specified in the plan. All continuous parameter monitoring systems must be installed and operating no later than the applicable compliance date specified in §63.2985.

(e) You must prepare and follow a written OMM plan as specified in §63.2987.

(f) You must comply with the monitoring, recordkeeping, notification, and reporting requirements of this subpart as required by §§63.2996 through 63.3000.

(g) You must comply with the requirements in paragraphs (g)(1) through (3) of this section.

(1) You must be in compliance with the emission limits in §63.2983 and the operating limits in §63.2984 at all times, except during periods of startup, shutdown, or malfunction.

(2) You must always operate and maintain your affected source, including air pollution control and monitoring equipment, according to the provisions in §63.6(e)(1).

(3) You must develop and implement a written SSMP according to the provisions in §63.6(e)(3). The SSMP must address the startup, shutdown, and corrective actions taken for malfunctioning process and air pollution control equipment.

OPERATION, MAINTENANCE, AND MONITORING PLAN

§63.2987 What must my operation, maintenance, and monitoring (OMM) plan include?

(a) You must prescribe the monitoring that will be performed to ensure compliance with these emission limitations. Minimum monitoring requirements are listed in table 1 of this subpart. Your plan must specify the items listed in paragraphs (a)(1) through (3) of this section:

(1) Each process and control device to be monitored, the type of monitoring device that will be used, and the operating parameters that will be monitored.

(2) A monitoring schedule that specifies the frequency that the parameter values will be determined and recorded.

(3) The operating limits or ranges for each parameter that represent continuous compliance with the emission limits in §63.2983. Operating limits and ranges must be based on values of the monitored parameters recorded during performance tests.

(b) You must establish routine and long-term maintenance and inspection schedules for each control device. You must incorporate in the schedules the control device manufacturer's recommendations for maintenance and inspections or equivalent procedures. If you use a thermal oxidizer, the maintenance schedule must include procedures for annual or more frequent inspection of the thermal oxidizer to ensure that the structural and design integrity of the combustion chamber is maintained. At a minimum, you must meet the requirements of paragraphs (b)(1) through (10) of this section:

(1) Inspect all burners, pilot assemblies, and pilot sensing devices for proper operation. Clean pilot sensor if necessary.

(2) Ensure proper adjustment of combustion air and adjust if necessary.

(3) Inspect, when possible, all internal structures (such as baffles) to ensure structural integrity per the design specifications.

(4) Inspect dampers, fans, and blowers for proper operation.

(5) Inspect motors for proper operation.

(6) Inspect, when possible, combustion chamber refractory lining. Clean and repair or replace lining if necessary.

(7) Inspect the thermal oxidizer shell for proper sealing, corrosion, and hot spots.

(8) For the burn cycle that follows the inspection, document that the thermal oxidizer is operating properly and make any necessary adjustments.

(9) Generally observe whether the equipment is maintained in good operating condition.

(10) Complete all necessary repairs as soon as practicable.

(c) You must establish procedures for responding to operating parameter deviations. At a minimum, the procedures must include the information in paragraphs (c)(1) through (3) of this section.

(1) Procedures for determining the cause of the operating parameter deviation.

(2) Actions for correcting the deviation and returning the operating parameters to the allowable ranges or limits.

(3) Procedures for recording the date and time that the deviation began and ended, and the times corrective actions were initiated and completed.

(d) Your plan must specify the recordkeeping procedures to document compliance with the emissions and operating limits. Table 1 of this subpart establishes the minimum recordkeeping requirements.

§ 63.2988 [Reserved]

§ 63.2989 How do I change my OMM plan?

Changes to the operating limits or ranges in your OMM plan require a new performance test.

(a) In order to revise the ranges or levels established for your operating limits in § 63.2984, you must meet the requirements in paragraphs (a)(1) and (2) of this section:

(1) Submit a notification of performance test to the Administrator as specified in § 63.7(b) to revise your operating ranges or limits.

(2) After completing the performance test to demonstrate that compliance with the emissions limits can be achieved at the revised levels of the operating limits, you must submit the performance test results and the revised operating limits as part of the notification of compliance status required under § 63.9(h).

(b) If you are revising the inspection and maintenance procedures in your plan that are specified in § 63.2987(b), you do not need to conduct a new performance test.

(c) If you plan to operate your process or control device under alternative operating conditions and do not wish to revise your OMM plan when you change operating conditions, you can perform a separate compliance test to establish operating limits for each condition. You can then include the operating limits for each condition in your OMM plan. After completing the performance tests, you must record the date and time when you change operations from one condition to another, the condition under which you are operating, and the operating limits that apply under that condition. If you can perform a single performance test that establishes the most stringent operating limits that cover all alternative operating conditions, then you do not need to comply with the provisions of this paragraph.

§ 63.2990 Can I conduct short-term experimental production runs that cause parameters to deviate from operating limits?

With the approval of the Administrator, you may conduct short-term experimental production runs during which your operating parameters deviate from the operating limits. Experimental runs may include, but are not limited to, runs using resin with a higher free-formaldehyde content than specified in the OMM plan, or using experimental pollution prevention techniques. To conduct a short-term experimental production run, you must complete the requirements in paragraphs (a) and (b) of this section.

(a) Prepare an application to the Administrator for approval to conduct the experimental production runs. Your application must include the items listed in paragraphs (a)(1) through (6) of this section.

(1) The purpose of the experimental production run.

(2) Identification of the affected line.

(3) An explanation of how the operating parameters will deviate from the previously approved ranges and limits.

(4) The duration of the experimental production run.

(5) The date and time of the experimental production run.

(6) A description of any emission testing to be performed during the experimental production run.

(b) Submit the application to the Administrator for approval at least 30 days before you conduct the experimental production run.

(c) If you conduct such experimental production runs without first receiving approval from the Administrator, then you must conduct a performance test under those same experimental production run conditions to show that you were in compliance with the formaldehyde emission limits in §63.2983.

TESTING AND INITIAL COMPLIANCE REQUIREMENTS

§63.2991 When must I conduct performance tests?

You must conduct a performance test for each drying and curing oven subject to this subpart according to the provisions in paragraphs (a) through (c) of this section:

(a) *Initially*. You must conduct an initial performance test no later than 180 days after the applicable compliance date specified in §63.2985. The initial performance test is used to demonstrate initial compliance and establish operating parameter limits and ranges to be used to demonstrate continuous compliance with the emission standards.

(b) *Every 5 years*. You must conduct a performance test every 5 years as part of renewing your 40 CFR part 70 operating permit.

(c) *To change your OMM plan*. You must conduct a performance test according to the requirements specified in §63.2992 to change the limit or range for any operating limit specified in your OMM plan established during a previous compliance test.

§63.2992 How do I conduct a performance test?

(a) You must verify the performance of monitoring equipment as specified in §63.2994 before performing the test.

(b) You must conduct the performance test according to the procedures in §63.7.

(c) You must conduct the performance test under the conditions specified in paragraphs (c)(1) and (2) of this section.

(1) The resin must have the highest specified free-formaldehyde content that will be used.

(2) You must operate at the maximum feasible urea-formaldehyde resin solids application rate (pounds urea-formaldehyde resin solids applied per hour) that will be used.

(d) During the performance test, you must monitor and record the operating parameters that you will use to demonstrate continuous compliance after the test. These parameters are listed in table 1 of this subpart.

(e) You may not conduct performance tests during periods of startup, shutdown, or malfunction as specified in §63.7(e)(1).

(f) You must conduct three separate test runs for each performance test as specified in §63.7(e)(3), and each test run must last at least 1 hour.

§63.2993 What test methods must I use in conducting performance tests?

(a) Use EPA Method 1 (40 CFR part 60, appendix A) for selecting the sampling port location and the number of sampling ports.

(b) Use EPA Method 2 (40 CFR part 60, appendix A) for measuring the volumetric flow rate.

(c) Use EPA Method 316 or 318 (40 CFR part 63, appendix A) for measuring the concentration of formaldehyde.

(d) Use the method contained in appendix A of this subpart or the resin purchase specification and the vendor specification sheet for each resin lot for determining the free-formaldehyde content in the urea-formaldehyde resin.

(e) Use the method in appendix B of this subpart for determining product loss-on-ignition.

§ 63.2994 How do I verify the performance of monitoring equipment?

(a) Before conducting the performance test, you must take the steps listed in paragraphs (a)(1) and (2) of this section:

(1) Install and calibrate all process equipment, control devices, and monitoring equipment.

(2) Conduct a performance evaluation of the continuous monitoring system (CMS) according to § 63.8(e) which specifies the general requirements and requirements for notifications, the site-specific performance evaluation plan, conduct of the performance evaluation, and reporting of performance evaluation results.

(b) If you use a thermal oxidizer, the temperature monitoring device must meet the performance and equipment specifications listed in paragraphs (b)(1) through (3) of this section:

(1) The temperature monitoring device must be installed either at the exit of the combustion zone of each thermal oxidizer, or at the location specified by the manufacturer. The temperature monitoring device must also be installed in a location before any heat recovery or heat exchange equipment, and it must remain in the same location for both the performance test and the continuous monitoring of temperature.

(2) The recorder response range must include zero and 1.5 times the average temperature required in § 63.2984(a)(1).

(3) The measurement method or reference method for calibration must be a National Institute of Standards and Technology calibrated reference thermocouple-potentiometer system or an alternate reference subject to the approval of the Administrator.

§ 63.2995 What equations must I use to determine compliance?

(a) *Percent reduction for formaldehyde.* To determine compliance with the percent reduction formaldehyde emission standard, use equation 1 of this section as follows:

$$E_f = \frac{M_i - M_o}{M_i} \times 100 \qquad (\text{Eq. } 1)$$

Where:

E_f = Formaldehyde control efficiency, percent.

M_i = Mass flow rate of formaldehyde entering the control device, kilograms (pounds) per hour.

M_o = Mass flow rate of formaldehyde exiting the control device, kilograms (pounds) per hour.

(b) *Formaldehyde mass emissions rate.* To determine compliance with the kilogram per megagram (pound per ton) formaldehyde emission standard, use equation 2 of this section as follows:

$$E = \frac{M}{P} \qquad (\text{Eq. } 2)$$

Where:

E = Formaldehyde mass emissions rate, kilograms (pounds) of formaldehyde per megagram (ton) of fiberglass mat produced.

M = Formaldehyde mass emissions rate, kilograms (pounds) per hour.

P = The wet-formed fiberglass mat production rate during the emissions sampling period, including any material trimmed from the final product, megagrams (tons) per hour.

(c) *Urea-formaldehyde (UF) resin solids application rate.* To determine the UF resin solids application rate, use equation 3 of this section as follows:

$$\frac{\text{UF Solids}}{\text{Hour}} = \text{LOI} \times \text{UFL} \times \text{MW} \times \text{SQ} \qquad (\text{Eq. } 3)$$

Where:

UF solids/hour = UF resin solids application rate (pounds per hour).

LOI = loss on ignition (weight faction), or pound of organic binder per pound of mat.

UFL = UF-to-latex ratio in the binder (mass fraction of UF resin solids in total combined resin solids for UF and latex), or pound of UF solids per pound of total resin solids (UF and latex).

MW = weight of the final mat per square (pounds per roofing square).

SQ = roofing squares produced per hour.

MONITORING REQUIREMENTS

§63.2996 What must I monitor?

You must monitor the parameters listed in table 1 of this subpart and any other parameters specified in your OMM plan. The parameters must be monitored, at a minimum, at the corresponding frequencies listed in table 1 of this subpart.

§63.2997 What are the requirements for monitoring devices?

(a) If formaldehyde emissions are controlled using a thermal oxidizer, you must meet the requirements in paragraphs (a)(1) and (2) of this section:

(1) Install, calibrate, maintain, and operate a device to monitor and record continuously the thermal oxidizer temperature at the exit of the combustion zone before any substantial heat exchange occurs or at the location consistent with the manufacturer's recommendations.

(2) Continuously monitor the thermal oxidizer temperature and determine and record the average temperature in 15-minute and 3-hour block averages. You may determine the average temperature more frequently than every 15 minutes and every 3 hours, but not less frequently.

(b) If formaldehyde emissions are controlled by process modifications or a control device other than a thermal oxidizer, you must install, calibrate, maintain, and operate devices to monitor the parameters established in your OMM plan at the frequency established in the plan.

NOTIFICATIONS, REPORTS, AND RECORDS

§63.2998 What records must I maintain?

You must maintain records according to the procedures of §63.10. You must maintain the records listed in paragraphs (a) through (g) of this section.

(a) All records required by §63.10. Table 2 of this subpart presents the applicable requirements of the general provisions.

(b) The OMM plan.

(c) Records of values of monitored parameters listed in table 1 of this subpart to show continuous compliance with each operating limit specified in table 1 of this subpart.

(d) Records of maintenance and inspections performed on the control devices.

(e) If an operating parameter deviation occurs, you must record:

(1) The date, time, and duration of the operating parameter deviation;

(2) A brief description of the cause of the operating parameter deviation;

(3) The dates and times at which corrective actions were initiated and completed;

(4) A brief description of the corrective actions taken to return the parameter to the limit or to within the range specified in the OMM plan; and

(5) A record of whether the deviation occurred during a period of startup, shutdown, or malfunction.

(f) Keep all records specified in §63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

(g) If you operate your process or control device under alternative operating condition and have established operating limits for each condition as specified in §63.2989(c), then you must keep records of the date and time you changed operations from one condition to another, the condition under which you are operating, and the applicable operating limits for that condition.

§63.2999 In what form and for how long must I maintain records?

(a) You must maintain each record required by this subpart for 5 years. You must maintain the most recent 2 years of records at the facility. The remaining 3 years of records may be retained offsite.

(b) Your records must be readily available and in a form so they can be easily inspected and reviewed. You can keep the records on paper or an alternative media, such as microfilm, computer, computer disks, magnetic tape, or on microfiche.

§ 63.3000 What notifications and reports must I submit?

(a) You must submit all notifications and reports required by the applicable general provisions and this section. Table 2 of this subpart presents the applicable requirements of the general provisions.

(b) *Notification of compliance status.* You must submit the notification of compliance status, including the performance test results, the operating limits or ranges as determined during the performance test, and other information specified in § 63.9(h), before the close of business on the 60th calendar day after you complete the performance test according to § 63.10(d)(2).

(c) *Semiannual compliance reports.* You must submit semiannual compliance reports according to the requirements of paragraphs (c)(1) through (5) of this section.

(1) *Dates for submitting reports.* Unless the Administrator has agreed to a different schedule for submitting reports under § 63.10(a), you must deliver or postmark each semiannual compliance report no later than 30 days following the end of each semiannual reporting period. The first semiannual reporting period begins on the compliance date for your affected source and ends on June 30 or December 31, whichever date immediately follows your compliance date. Each subsequent semiannual reporting period for which you must submit a semiannual compliance report begins on July 1 or January 1 and ends 6 calendar months later. As required by § 63.10(e)(3), you must begin submitting quarterly compliance reports if you deviate from the emission limits in § 63.2983 or the operating limits in § 63.2984.

(2) *Inclusion with title V report.* For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 71, and for which the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 71.6 (a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraph (c)(1) of this section.

(3) *Contents of reports.* The semiannual compliance report must contain the information in paragraphs (c)(3)(i) through (vi) of this section:

(i) Company name and address.

(ii) Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.

(iii) Date of report and beginning and ending dates of the reporting period.

(iv) A summary of the total duration of continuous parameter monitoring system downtime during the semiannual reporting period and the total duration of continuous parameter monitoring system downtime as a percent of the total source operating time during that semiannual reporting period.

(v) The date of the latest continuous parameter monitoring system certification or audit.

(vi) A description of any changes in the wet-formed fiberglass mat manufacturing process, continuous parameter monitoring system, or add-on control device since the last semiannual reporting period.

(4) *No deviations.* If there were no deviations from the emission limit in § 63.2983 or the operating limits in § 63.2984, the semiannual compliance report must include a statement to that effect. If there were no periods during which the continuous parameter monitoring systems were out-of-control as specified in § 63.8(c)(7), the semiannual compliance report must include a statement to that effect.

(5) *Deviations.* If there was a deviation from the emission limit in § 63.2983 or an operating limit in § 63.2984, the semiannual compliance report must contain the information in paragraphs (c)(5)(i) through (ix) of this section:

(i) The date and time that each malfunction started and stopped.

(ii) The date and time that each continuous parameter monitoring system was inoperative, except for zero (low-level) and high-level checks.

(iii) The date, time, and duration that each continuous parameter monitoring system was out-of-control, including the information in §63.8(c)(8).

(iv) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(v) The date and time that corrective actions were taken, a description of the cause of the deviation, and a description of the corrective actions taken.

(vi) A summary of the total duration of each deviation during the semiannual reporting period and the total duration as a percent of the total source operating time during that semiannual reporting period.

(vii) A breakdown of the total duration of the deviations during the semiannual reporting period into those that were due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(viii) A brief description of the process units.

(ix) A brief description of the continuous parameter monitoring system.

(d) *Performance test reports.* You must submit reports of performance test results for add-on control devices no later than 60 days after completing the tests as specified in §63.10(d)(2). You must include in the performance test reports the values measured during the performance test for the parameters listed in table 1 of this subpart and the operating limits or ranges to be included in your OMM plan. For the thermal oxidizer temperature, you must include 15-minute averages and the average for the three 1-hour test runs.

(e) *Startup, shutdown, malfunction reports.* If you have a startup, shutdown, or malfunction during the semiannual reporting period, you must submit the reports specified §;63.10(d)(5).

OTHER REQUIREMENTS AND INFORMATION

§63.3001 What sections of the general provisions apply to me?

You must comply with the requirements of the general provisions of 40 CFR part 63, subpart A, as specified in table 2 of this subpart.

§63.3002 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by the U.S. EPA or a delegated authority, such as your State, local, or tribal agency. If the Administrator has delegated authority to your State, local, or tribal agency, then that agency is the primary enforcement authority. If the Administrator has not delegated authority to your State, only EPA enforces this subpart. You should contact your U.S. EPA Regional Office to find out if implementation and enforcement of this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under section 40 CFR part 63, subpart E, the authorities contained in paragraphs (b)(1) through (4) of this section are retained by the Administrator of U.S. EPA and are not transferred to the State, local, or tribal agency.

(1) The authority under §63.6(g) to approve alternatives to the emission limits in §63.2983 and operating limits in §63.2984 is not delegated.

(2) The authority under §63.7(e)(2)(ii) and (f) to approve of major alternatives (as defined in §63.90) to the test methods in §63.2993 is not delegated.

(3) The authority under §63.8(f) to approve major alternatives (as defined in §63.90) to the monitoring requirements in §§63.2996 and 63.2997 is not delegated.

(4) The authority under §63.10(f) to approve major alternatives (as defined in §63.90) to recordkeeping, notification, and reporting requirements in §§63.2998 through 63.3000 is not delegated.

§63.3003 Incorporation by reference.

(a) The following material is incorporated by reference and referred to at §63.2984: chapters 3 and 5 of ‘‘Industrial Ventilation: A Manual of Recommended Practice,’’ American Conference of Governmental Industrial Hygienists, (23rd edition, 1998). The incorporation by reference of this material is approved by the Director of the Office of the Federal Register as of the date of publication of the final rule according to 5 U.S.C. 552(a) and 1 CFR part 51. This material is incorporated as it exists on the date of approval and notice of any change in the material will be published in the FEDERAL REGISTER.

(b) The materials referenced in this section are incorporated by reference and are available for inspection at the Office of the Federal Register, 800 North Capitol Street NW, Suite 700, 7th Floor, Washington, DC; and at the Air and Radiation Docket and Information Center, U.S. EPA, 401 M Street SW, Washington, DC. The material is also available for purchase from the following address: Customer Service Department, American Conference of Governmental Industrial Hygienists (ACGIH), 1330 Kemper Meadow Drive, Cincinnati, OH 45240, telephone number (513) 742–2020.

§ 63.3004 What definitions apply to this subpart?

Terms used in this subpart are defined the Clean Air Act, in § 63.2, and in this section as follows:

Administrator means the Administrator of the United States Environmental Protection Agency or his or her authorized representative (e.g., a State that has been delegated the authority to implement the provisions of this part).

Binder application vacuum exhaust means the exhaust from the vacuum system used to remove excess resin solution from the wet-formed fiberglass mat before it enters the drying and curing oven.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including but not limited to any emission limit, or operating limit, or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limit, or operating limit, or work practice standard in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Drying and curing oven means the process section that evaporates excess moisture from a fiberglass mat and cures the resin that binds the fibers.

Emission limitation means an emission limit, operating limit, or work practice standard.

Fiberglass mat production rate means the weight of finished fiberglass mat produced per hour of production including any trim removed after the binder is applied and before final packaging.

Loss-on-ignition means the percentage decrease in weight of fiberglass mat measured before and after it has been ignited to burn off the applied binder. The loss-on-ignition is used to monitor the weight percent of binder in fiberglass mat.

Nonwoven wet-formed fiberglass mat manufacturing means the production of a fiberglass mat by bonding glass fibers to each other using a resin solution. Nonwoven wet-formed fiberglass mat manufacturing is also referred to as wet-formed fiberglass mat manufacturing.

Roofing square means the amount of finished product needed to cover an area 10 feet by 10 feet (100 square feet) of finished roof.

Thermal oxidizer means an air pollution control device that uses controlled flame combustion inside a combustion chamber to convert combustible materials to noncombustible gases.

Urea-formaldehyde content in binder formulation means the mass-based percent of urea-formaldehyde resin in the total binder mix as it is applied to the glass fibers to form the mat.

§§ 63.3005–63.3079 [Reserved]

Table 1 to Subpart HHHH—Minimum Requirements for Monitoring and Recordkeeping

[As stated in § 63.2998(c), you must comply with the minimum requirements for monitoring and recordkeeping in the following table]

You must monitor these parameters:	At this frequency:	And record for the monitored perameter:
1. Thermal oxidizer temperature[a]	Continuously	15-minute and 3-hour block averages.
2. Other process or control device parameters specified in your OMM[b] plan.	As specified in your OMM plan	As specified in your OMM plan.
3. Urea-formaldehyde resin solids application rate.	On each operating day, calculate the average lb/hr application rate for each product manufactured during that day.	The average lb/hr value for each product manufactured during the day.
4. Resin free-formaldehyde content	For each lot of resin purchased	The value for each lot used during the operating day.
5. Loss-on-ignition[c]	Measured at least once per day, for each product manufactured during that day.	The value for each product manufactured during the operating day.
6. UF-to-latex ratio in the binder[c]	For each batch of binder prepared the operating day.	The value for each batch of binder prepared during the operating day.
7. Weight of the final mat product per square (lb/roofing square)[c].	Each product manufactured during the operating day.	The value for each product manufactured during the operating day.
8. Average nonwoven wet-formed fiberglass mat production rate (roofing squares per the hour)[c].	For each product manufactured during the operating day.	The average value for each product manufactured during operating day.

[a] Required if a thermal oxidizer is used to control formaldehyde emissions.

[b] Required if process modifications or a control device other than a thermal oxidizer is used to control emissions.

[c] These parameters must be monitored and values recorded, but no operating limits apply.

Table 2 to Subpart HHHH—Applicability of General Provisions (40 CFR Part 63, Subpart A) to Subpart HHHH

[As stated in § 63.3001, you must comply with the applicable General Provisions requirements according to the following table]

Citation	Requirement	Applies to subpart HHHH	Explanation
§ 63.1(a)(1)–(4)	General Applicability	Yes.	
§ 63.1(a)(5)		No	[Reserved].
§ 63.1(a)(6)–(8)		Yes.	
§ 63.1(a)(9)		No	[Reserved].
§ 63.1(a)(10)–(14)		Yes.	
§ 63.1(b)	Initial Applicability Determination	Yes.	
§ 63.1(c)(1)	Applicability After Standard Established.	Yes.	
§ 63.1(c)(2)		Yes	Some plants may be area sources.
§ 63.1(c)(3)		No	[Reserved].
§ 63.1(c)(4)–(5)		Yes.	
§ 63.1(d)		No	[Reserved].
§ 63.1(e)	Applicability of Permit Program	Yes.	
§ 63.2	Definitions	Yes	Additional definitions in § 63.3004.
§ 63.3	Units and Abbreviations	Yes.	
§ 63.4(a)(1)–(3)	Prohibited Activities	Yes.	
§ 63.4(a)(4)		No	[Reserved].
§ 63.4(a)(5)		Yes.	
§ 63.4(b)–(c)	Circumvention/Severability	Yes.	
§ 63.5(a)	Construction/Reconstruction	Yes.	
§ 63.5(b)(1)	Existing/Constructed/Reconstruction.	Yes.	
§ 63.5(b)(2)		No	[Reserved].
§ 63.5(b)(3)–(6)		Yes.	
§ 63.5(c)		No	[Reserved].
§ 63.5(d)	Application for Approval of Construction/Reconstruction.	Yes.	
§ 63.5(e)	Approval of Construction/Reconstruction.	Yes.	
§ 63.5(f)	Approval of Construction/Reconstruction Based on State Review.	Yes.	
§ 63.6(a)	Compliance with Standards and Maintenance—Applicability.	Yes.	
§ 63.6(b)(1)–(5)	New and Reconstructed Sources-Dates.	Yes.	
§ 63.6(b)(6)		No	[Reserved].
§ 63.6(b)(7)		Yes.	

[As stated in § 63.3001, you must comply with the applicable General Provisions requirements according to the following table]

Citation	Requirement	Applies to subpart HHHH	Explanation
§ 63.6(c)(1)–(2)	Existing Sources Dates	Yes	§ 63.2985 specifies dates.
§ 63.6(c)(3)–(4)		No	[Reserved].
§ 63.6(c)(5)		Yes.	
§ 63.6(d)		No	[Reserved].
§ 63.6(e)	Operation and Maintenance Requirements.	Yes	§§ 63.2984 and 63.2987 specify additional requirements.
§ 63.6(f)	Compliance with Emission Standards.	Yes.	
§ 63.6(g)	Alternative Standard	Yes	EPA retains approval authority.
§ 63.6(h)	Compliance with Opacity/Visible Emissions Standards.	No	Subpart HHHH does not specify opacity or visible emission standards.
§ 63.6(i)(1)–(14)	Extension of Compliance	Yes.	
§ 63.6(i)(15)		No	[Reserved].
§ 63.6(i)(16)		Yes.	
§ 63.6(j)	Exemption from Compliance	Yes.	
§ 63.7(a)	Performance Test Requirements—Applicability and Dates.	Yes.	
§ 63.7(b)	Notification of Performance Test	Yes.	
§ 63.7(c)	Quality Assurance Program/Test Plan.	Yes.	
§ 63.7(d)	Testing Facilities	Yes.	
§ 63.7(e)	Conduct of Tests	Yes	§ 63.2991–63.2994 specify additional requirements.
§ 63.7(f)	Alternative Test Method	Yes	EPA retains approval authority
§ 63.7(g)	Data Analysis	Yes.	
§ 63.7(h)	Waiver of Tests	Yes.	
§ 63.8(a)(1)–(2)	Monitoring Requirements—Applicability.	Yes.	
§ 63.8(a)(3)		No	[Reserved].
§ 63.8(a)(4)		Yes.	
§ 63.8(b)	Conduct of Monitoring	Yes.	
§ 63.8(c)(1)–(3)	Continuous Monitoring System (CMS) Operation and Maintenance.	Yes.	
§ 63.8(c)(4)		Yes.	
§ 63.8(c)(5)		No	Subpart HHHH does not specify opacity or visible emission standards
§ 63.8(c)(6)–(8)		Yes.	
§ 63.8(d)	Quality Control	Yes.	
§ 63.8(e)	CMS Performance Evaluation	Yes.	
§ 63.8(f)(1)–(5)	Alternative Monitoring Method	Yes	EPA retains approval authority
§ 63.8(f)(6)	Alternative to Relative Accuracy Test.	No	Subpart HHHH does not require the use of continuous emissions monitoring systems (CEMS)
§ 63.8(g)(1)	Data Reduction	Yes.	
§ 63.8(g)(2)	Data Reduction	No	Subpart HHHH does not require the use of CEMS or continuous opacity monitoring systems (COMS).
§ 63.8(g)(3)–(5)	Data Reduction	Yes.	
§ 63.9(a)	Notification Requirements—Applicability.	Yes.	
§ 63.9(b)	Initial Notifications	Yes.	
§ 63.9(c)	Request for Compliance Extension.	Yes.	
§ 63.9(d)	New Source Notification for Special Compliance Requirements.	Yes.	
§ 63.9(e)	Notification of Performance Test.	Yes.	
§ 63.9(f)	Notification of Visible Emissions/Opacity Test.	No	Subpart HHHH does not specify opacity or visible emission standards.
§ 63.9(g)(1)	Additional CMS Notifications	Yes.	
§ 63.9(g)(2)–(3)		No	Subpart HHHH does not require the use of COMS or CEMS.
§ 63.9(h)(1)–(3)	Notification of Compliance Status.	Yes	§ 63.3000(b) specifies additional requirements.
§ 63.9(h)(4)		No	[Reserved].

[As stated in § 63.3001, you must comply with the applicable General Provisions requirements according to the following table]

Citation	Requirement	Applies to subpart HHHH	Explanation
§ 63.9(h)(5)–(6)		Yes.	
§ 63.9(i)	Adjustment of Deadlines	Yes.	
§ 63.9(j)	Change in Previous Information	Yes.	
§ 63.10(a)	Recordkeeping/Reporting—Applicability.	Yes.	
§ 63.10(b)	General Recordkeeping Requirements.	Yes	§ 63.2998 includes additional requirements.
§ 63.10(c)(1)	Additional CMS Recordkeeping	Yes.	
§ 63.10(c)(2)–(4)		No	[Reserved].
§ 63.10(c)(5)–(8)		Yes.	
§ 63.10(c)(9)		No	[Reserved].
§ 63.10(c)(10)–(15)		Yes.	
§ 63.10(d)(1)	General Reporting Requirements	Yes	§ 63.3000 includes additional requirements.
§ 63.10(d)(2)	Performance Test Results	Yes	§ 63.3000 includes additional requirements
§ 63.10(d)(3)	Opacity or Visible Emissions Observations.	No	Subpart HHHH does not specify opacity or visible emission standards.
§ 63.10(d)(4)–(5)	Progress Reports/Startup, Shutdown, and Malfunction Reports.	Yes.	
§ 63.10(e)(1)	Additional CMS Reports—General.	No	Subpart HHHH does not require CEMS.
§ 63.10(e)(2)	Reporting results of CMS performance evaluations.	Yes.	
§ 63.10(e)(3)	Excess Emission/CMS Performance Reports.	Yes.	
§ 63.10(e)(4)	COMS Data Reports	No	Subpart HHHH does not specify opacity or visible emission standards.
§ 63.10(f)	Recordkeeping/Reporting Waiver	Yes	EPA retains approval authority
§ 63.11	Control Device Requirments—Applicability.	No	Facilities subject to subpart HHHH do not use flares as control devices.
§ 63.12	State Authority and Delegations	Yes.	
§ 63.13	Addresses	Yes.	
§ 63.14	Incorporation by Reference	No.	
§ 63.15	Availability of Information/Confidentiality.	Yes.	

Appendix A to Subpart HHHH—Method for Determining Free-Formaldehyde in Urea-Formaldehyde Resins by Sodium Sulfite (Iced & Cooled)

1.0 Scope

This procedure corresponds to the Housing and Urban Development method of determining free-formaldehyde in urea-formaldehyde resins. This method applies to samples that decompose to yield formaldehyde under the conditions of other free-formaldehyde methods. The primary use is for urea-formaldehyde resins.

2.0 Part A—Testing Resins

Formaldehyde will react with sodium sulfite to form the sulfite addition products and liberate sodium hydroxide (NaOH); however, at room temperature, the methanol groups present will also react to liberate NaOH. Titrate at 0 degrees Celsius (°C) to minimize the reaction of the methanol groups.

2.1 Apparatus Required.

2.1.1 Ice crusher.

2.1.2 One 100-milliliter (mL) graduated cylinder.

2.1.3 Three 400-mL beakers.

2.1.4 One 50-mL burette.

2.1.5 Analytical balance accurate to 0.1 milligrams (mg).

2.1.6 Magnetic stirrer.

2.1.7 Magnetic stirring bars.

2.1.8 Disposable pipettes.

2.1.9 Several 5-ounce (oz.) plastic cups.

2.1.10 Ice cube trays (small cubes).

2.2 Materials Required.

2.2.1 Ice cubes (made with distilled water).

2.2.2 A solution of 1 molar (M) sodium sulfite (Na_2SO_3) (63 grams (g) Na_2SO_3/500 mL water (H_2O) neutralized to thymolphthalein endpoint).

2.2.3 Standardized 0.1 normal (N) hydrochloric acid (HCl).

2.2.4 Thymolphthalein indicator (1.0 g thymolphthalein/199 g methanol).

2.2.5 Sodium chloride (NaCl) (reagent grade).

2.2.6 Sodium hydroxide (NaOH).

2.3 Procedure.

2.3.1 Prepare sufficient quantity of crushed ice for three determinations (two trays of cubes).

2.3.2 Put 70 cubic centimeters (cc) of 1 M Na_2SO_3 solution into a 400-mL beaker. Begin stirring and add approximately 100 g of crushed ice and 2 g of NaCl. Maintain 0 °C during test, adding ice as necessary.

2.3.3 Add 10–15 drops of thymolphthalein indicator to the chilled solution. If the solution remains clear, add 0.1 N NaOH until the solution turns blue; then add 0.1 N HCl back to the colorless endpoint. If the solution turns blue upon adding the indicator, add 0.1 N HCl to the colorless endpoint.

2.3.4 On the analytical balance, accurately weigh the amount of resin indicated under the ‘‘*Resin Sample Size*’’ chart (see below) as follows.

RESIN SAMPLE SIZE

Approximate free HCHO (percent)	Sample weight (gram(s))
<0.5	10
0.5–1.0	5
1.0–3.0	2
3.0	1

2.3.4.1 Pour about 1 inch of resin into a 5 oz. plastic cup.

2.3.4.2 Determine the gross weight of the cup, resin, and disposable pipette (with the narrow tip broken off) fitted with a small rubber bulb.

2.3.4.3 Pipette out the desired amount of resin into the stirring, chilled solution (approximately 1.5 to 2 g per pipette-full).

2.3.4.4 Quickly reweigh the cup, resin, and pipette with the bulb.

2.3.4.5 The resultant weight loss equals the grams of resin being tested.

2.3.5 Rapidly titrate the solution with 0.1 N HCl to the colorless endpoint described in Step 3 (2.3.3).

2.3.6 Repeat the test in triplicate.

2.4 Calculation.

2.4.1 The percent free-formaldehyde (%HCHO) is calculated as follows:

$$\%\text{HCHO} = \frac{(\text{mL } 0.1\text{ N HCl})\ (\text{N of Acid})\ (3.003)}{\text{Weight of Sample}}$$

2.4.2 Compute the average percent free-formaldehyde of the three tests.

(NOTE: If the results of the three tests are not within a range of ±0.5 percent or if the average of the three tests does not meet expected limits, carry out Part B and then repeat Part A.)

3.0 Part B—Standard Check

Part B ensures that test reagents used in determining percent free-formaldehyde in urea-formaldehyde resins are of proper concentration and that operator technique is correct. Should any doubts arise in either of these areas, the formaldehyde standard solution test should be carried out.

3.1 Preparation and Standardization of a 1 Percent Formalin Solution.

Prepare a solution containing approximately 1 percent formaldehyde from a stock 37 percent formalin solution. Standardize the prepared solution by titrating the hydroxyl ions resulting from the formation of the formaldehyde bisulfite complex.

3.2 Apparatus Required.

NOTE: All reagents must be American Chemical Society analytical reagent grade or better.

3.2.1 One 1-liter (L) volumetric flask (class A).

3.2.2 One 250-mL volumetric flask (class A).

3.2.3 One 250-mL beaker.

3.2.4 One 100-mL pipette (class A).

3.2.5 One 10-mL pipette (class A).

3.2.6 One 50-mL graduated cylinder (class A).

3.2.7 A pH meter, standardized using pH 7 and pH 10 buffers.

3.2.8 Magnetic stirrer.

3.2.9 Magnetic stirring bars.

3.2.10 Several 5-oz. plastic cups.

3.2.11 Disposal pipettes.

3.2.12 Ice cube trays (small cubes).

3.3 Materials Required.

3.3.1 A solution of 37 percent formalin.

3.3.2 Anhydrous Na_2SO_3.

3.3.3 Distilled water.

3.3.4 Standardized 0.100 N HCl.

3.3.5 Thymolphthalein indicator (1.0 g thymolphthalein/199 g methanol).

3.4 Preparation of Solutions and Reagents.

3.4.1 Formaldehyde Standard Solution (approximately 1 percent). Measure, using a graduated cylinder, 27.0 mL of analytical reagent 37 percent formalin solution into a 1-L volumetric flask. Fill the flask to volume with distilled water.

(NOTE: You must standardize this solution as described in section 3.5. This solution is stable for 3 months.)

3.4.2 Sodium Sulfite Solution 1.0 M (used for standardization of Formaldehyde Standard Solution). Quantitatively transfer, using distilled water as the transfer solvent, 31.50 g of anhydrous Na_2SO_3 into a 250-mL volumetric flask. Dissolve in approximately 100 mL of distilled water and fill to volume.

(NOTE: You must prepare this solution daily, but the calibration of the Formaldehyde Standard Solution needs to be done only once.)

3.4.3 Hydrochloric Acid Standard Solution 0.100 M. This reagent should be readily available as a primary standard that only needs to be diluted.

3.5 Standardization.

3.5.1 Standardization of Formaldehyde Standard Solution.

3.5.1.1 Pipette 100.0 mL of 1 M sodium sulfite into a stirred 250-mL beaker.

3.5.1.2 Using a standardized pH meter, measure and record the pH. The pH should be around 10. It is not essential the pH be 10; however, it is essential that the value be accurately recorded.

3.5.1.3 To the stirring Na_2SO_3 solution, pipette in 10.0 mL of Formaldehyde Standard Solution. The pH should rise sharply to about 12.

3.5.1.4 Using the pH meter as a continuous monitor, titrate the solution back to the original exact pH using 0.100 N HCl. Record the milliliters of HCl used as titrant. (NOTE: Approximately 30 to 35 mL of HCl will be required.)

3.5.1.5 Calculate the concentration of the Formaldehyde Standard Solution using the equation as follows:

$$\%\text{HCHO} = \frac{(\text{mL HCl})\ (\text{N HCl})\ (3.003)}{\text{mL sample}}$$

3.6 Procedure.

3.6.1 Prepare a sufficient quantity of crushed ice for three determinations (two trays of cubes).

3.6.2 Put 70 cc of 1 M Na_2SO_3 solution into a 400-mL beaker. Begin stirring and add approximately 100 g of crushed ice and 2 g NaCl. Maintain 0 °C during the test, adding ice as necessary.

3.6.3 Add 10–15 drops of thymolphthalein indicator to the chilled solution. If the solution remains clear, add 0.1 N NaOH until the solution turns blue; then add 0.1 N HCl back to the colorless endpoint. If the solution turns blue upon adding the indicator, add 0.1 N HCl to the colorless endpoint.

3.6.4 On the analytical balance, accurately weigh a sample of Formaldehyde Standard Solution as follows.

3.6.4.1 Pour about 0.5 inches of Formaldehyde Standard Solution into a 5-oz. plastic cup.

3.6.4.2 Determine the gross weight of the cup, Formaldehyde Standard Solution, and a disposable pipette fitted with a small rubber bulb.

3.6.4.3 Pipette approximately 5 g of the Formaldehyde Standard Solution into the stirring, chilled Na_2SO_3 solution.

3.6.4.4 Quickly reweigh the cup, Formaldehyde Standard Solution, and pipette with the bulb.

3.6.4.5 The resultant weight loss equals the grams of Formaldehyde Standard Solution being tested.

3.6.5 Rapidly titrate the solution with 0.1 N HCl to the colorless endpoint in Step 3 (3.6.3).

3.6.6 Repeat the test in triplicate.

3.7 Calculation for Formaldehyde Standard Solution.

3.7.1 The percent free-formaldehyde (% HCHO) is calculated as follows:

$$\%\text{HCHO} = \frac{(\text{mL 0.1 N HCl})(\text{N Acid})(3.003)}{\text{Weight of Formaldehyde Standard Solution}}$$

3.7.2 The range of the results of three tests should be no more than ±5 percent of the actual Formaldehyde Standard Solution concentration. Report results to two decimal places.

3.8 Reference.

West Coast Adhesive Manufacturers Trade Association Test 10.1.

APPENDIX B TO SUBPART HHHH—METHOD FOR THE DETERMINATION OF LOSS-ON-IGNITION

1.0 Purpose

The purpose of this test is to determine the loss-on-ignition (LOI) of wet-formed fiberglass mat.

2.0 Equipment

2.1 Scale sensitive to 0.001 gram (g).

2.2 Drying oven equipped with a means of constant temperature regulation and mechanical air convection.

2.3 Furnace designed to heat to at least 625 °C (1,157 °F) and controllable to ±25 °C (±45 °F).

2.4 Crucible, high form, 250 milliliter (mL).

2.5 Desiccator.

2.6 Pan balance (see Note 2 in 4.9)

3.0 Sample Collection Procedure

3.1 Obtain a sample of mat in accordance with Technical Association of the Pulp and Paper Industry (TAPPI) method 1007 ‘‘Sample Location.’’

3.2 Use a 5- to 10-g sample cut into pieces small enough to fit into the crucible.

3.3 Place the sample in the crucible. (NOTE 1: To test without the use of a crucible, see Note 2 after Section 4.8.)

3.4 Condition the sample in the furnace set at 105 ± 3 °C (221 ± 9 °F) for 5 minutes ± 30 seconds.

4.0 Procedure

4.1 Condition each sample by drying for 5 minutes ± 30 seconds at 105 ± 3 °C (22 ± 5 °F).

4.2 Remove the test sample from the furnace and cool in the desiccator for 30 minutes in the standard atmosphere for testing glass textiles.

4.3 Place the empty crucible in the furnace at 625 ± 25 °C (1,157 ± 45 °F). After 30 minutes, remove and cool the crucible in the standard atmosphere (TAPPI method 1008) for 30 minutes.

4.4 Identify each crucible with respect to each test sample of mat.

4.5 Weigh the empty crucible to the nearest 0.001 g. Record this weight as the tare mass, T.

4.6 Place the test sample in the crucible and weigh to the nearest 0.001 g. Record this weight as the initial mass, A.

4.7 Place the test sample and crucible in the furnace and ignite at 625 ± 25 °C (1,157 ± 45 °F).

4.8 After ignition for at least 30 minutes, remove the test sample and crucible from the furnace and cool in the desiccator for 30 minutes in the standard atmosphere (TAPPI method 1008).

4.9 Remove each crucible, and test each sample separately from the desiccator, and immediately weigh each sample to the nearest 0.001 g. Record this weight as the ignited mass, B. (NOTE 2: When it is known that no ash residue separates from the test sample during the weighing and igniting processes, you may weigh the sample separately without the crucible. When this occurs, the tare mass (T) equals zero. With appropriate care, you can dry and weigh a single piece of mat and place with tongs into the ignition oven on appropriate refractory supports. When the ignition time is over, remove the sample as an intact fragile web and weigh it directly on a pan balance.)

5.0 Calculation

5.1 Calculate the LOI for each sample as follows:

$$\%\,\mathrm{LOI} = 100 \times (\mathrm{A}-\mathrm{B})/(\mathrm{A}-\mathrm{T})$$

Where:

A = initial mass of crucible and sample before ignition (g);

B = mass of crucible and glass residue after ignition (g); and

T = tare mass of crucible, (g) (see Note 2).

5.2 Report the percent LOI of the glass mat to the nearest 0.1 percent.

6.0 Precision

The repeatability of this test method for measurements on adjacent specimens from the same sample of mat is better than 1 percent.

Subpart JJJJ—National Emission Standards for Hazardous Air Pollutants: Paper and Other Web Coating

SOURCE: 67 FR 72341, Dec. 4, 2002, unless otherwise noted.

WHAT THIS SUBPART COVERS

63.3280 What is in this subpart?

This subpart describes the actions you must take to reduce emissions of organic hazardous air pollutants (HAP) from paper and other web coating operations. This subpart establishes emission standards for web coating lines and specifies what you must do to comply if you own or operate a facility with web coating lines that is a major source of HAP. Certain requirements apply to all who are subject to this subpart; others depend on the means you use to comply with an emission standard.

§ 63.3290 Does this subpart apply to me?

The provisions of this subpart apply to each new and existing facility that is a major source of HAP, as defined in § 63.2, at which web coating lines are operated.

§63.3300 Which of my emission sources are affected by this subpart?

The affected source subject to this subpart is the collection of all web coating lines at your facility. This includes web coating lines engaged in the coating of metal webs that are used in flexible packaging, and web coating lines engaged in the coating of fabric substrates for use in pressure sensitive tape and abrasive materials. Web coating lines specified in paragraphs (a) through (g) of this section are not part of the affected source of this subpart.

(a) Any web coating line that is stand-alone coating equipment under subpart KK of this part (national emission standards for the printing and publishing industry) which the owner or operator includes in the affected source under subpart KK.

(b) Any web coating line that is a product and packaging rotogravure or wide-web flexographic press under subpart KK of this part (national emission standards for the printing and publishing industry) which is included in the affected source under subpart KK.

(c) Web coating in lithography, screenprinting, letterpress, and narrow-web flexographic printing processes.

(d) Any web coating line subject to subpart EE of this part (national emission standards for magnetic tape manufacturing operations).

(e) Any web coating line that will be subject to the national emission standards for hazardous air pollutants (NESHAP) for surface coating of metal coil currently under development.

(f) Any web coating line that will be subject to the NESHAP for the printing, coating, and dyeing of fabric and other textiles currently under development. This would include any web coating line that coats both a paper or other web substrate and a fabric or other textile substrate, except for a fabric substrate used for pressure sensitive tape and abrasive materials.

(g) Any web coating line that is defined as research or laboratory equipment in §63.3310.

§63.3310 What definitions are used in this subpart?

All terms used in this subpart that are not defined in this section have the meaning given to them in the Clean Air Act (CAA) and in subpart A of this part.

Always-controlled work station means a work station associated with a dryer from which the exhaust is delivered to a control device with no provision for the dryer exhaust to bypass the control device unless there is an interlock to interrupt and prevent continued coating during a bypass. Sampling lines for analyzers, relief valves needed for safety purposes, and periodic cycling of exhaust dampers to ensure safe operation are not considered bypass lines.

Applied means, for the purposes of this subpart, the amount of organic HAP, coating material, or coating solids (as appropriate for the emission standards in §63.3320(b)) used by the affected source during the compliance period.

As-applied means the condition of a coating at the time of application to a substrate, including any added solvent.

As-purchased means the condition of a coating as delivered to the user.

Capture efficiency means the fraction of all organic HAP emissions generated by a process that is delivered to a control device, expressed as a percentage.

Capture system means a hood, enclosed room, or other means of collecting organic HAP emissions into a closed-vent system that exhausts to a control device.

Car-seal means a seal that is placed on a device that is used to change the position of a valve or damper (*e.g.*, from open to closed) in such a way that the position of the valve or damper cannot be changed without breaking the seal.

Coating material(s) means all inks, varnishes, adhesives, primers, solvents, reducers, and other coating materials applied to a substrate via a web coating line. Materials used to form a substrate are not considered coating materials.

Control device means a device such as a solvent recovery device or oxidizer which reduces the organic HAP in an exhaust gas by recovery or by destruction.

Control device efficiency means the ratio of organic HAP emissions recovered or destroyed by a control device to the total organic HAP emissions that are introduced into the control device, expressed as a percentage.

Day means a 24-consecutive-hour period.

Deviation means any instance in which an affected source, subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emission limitation (including any operating limit) or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limitation (including any operating limit) or work practice standard in this subpart during start-up, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Existing affected source means any affected source the construction or reconstruction of which is commenced on or before September 13, 2000, and has not undergone reconstruction as defined in § 63.2.

Fabric means any woven, knitted, plaited, braided, felted, or non-woven material made of filaments, fibers, or yarns including thread. This term includes material made of fiberglass, natural fibers, synthetic fibers, or composite materials.

Facility means all contiguous or adjoining property that is under common ownership or control, including properties that are separated only by a road or other public right-of-way.

Flexible packaging means any package or part of a package the shape of which can be readily changed. Flexible packaging includes, but is not limited to, bags, pouches, labels, liners and wraps utilizing paper, plastic, film, aluminum foil, metalized or coated paper or film, or any combination of these materials.

Formulation data means data on the organic HAP mass fraction, volatile matter mass fraction, or coating solids mass fraction of a material that is generated by the manufacturer or means other than a test method specified in this subpart or an approved alternative method.

HAP means hazardous air pollutants.

HAP applied means the organic HAP content of all coating materials applied to a substrate by a web coating line at an affected source.

Intermittently-controlled work station means a work station associated with a dryer with provisions for the dryer exhaust to be delivered to or diverted from a control device through a bypass line, depending on the position of a valve or damper. Sampling lines for analyzers, relief valves needed for safety purposes, and periodic cycling of exhaust dampers to ensure safe operation are not considered bypass lines.

Metal coil means a continuous metal strip that is at least 0.15 millimeter (0.006 inch) thick which is packaged in a roll or coil prior to coating. After coating, it may or may not be rewound into a roll or coil. Metal coil does not include metal webs that are coated for use in flexible packaging.

Month means a calendar month or a pre-specified period of 28 days to 35 days to allow for flexibility in recordkeeping when data are based on a business accounting period.

Never-controlled work station means a work station that is not equipped with provisions by which any emissions, including those in the exhaust from any associated dryer, may be delivered to a control device.

New affected source means any affected source the construction or reconstruction of which is commenced after September 13, 2000.

Overall organic HAP control efficiency means the total efficiency of a capture and control system.

Pressure sensitive tape means a flexible backing material with a pressure-sensitive adhesive coating on one or both sides of the backing. Examples include, but are not limited to, duct/duct insulation tape and medical tape.

Research or laboratory equipment means any equipment for which the primary purpose is to conduct research and development into new processes and products where such equipment is operated under the close supervision of technically trained personnel and is not engaged in the manufacture of products for commercial sale in commerce except in a *de minimis* manner.

Rewind or cutting station means a unit from which substrate is collected at the outlet of a web coating line.

Uncontrolled coating line means a coating line consisting of only never-controlled work stations.

Unwind or feed station means a unit from which substrate is fed to a web coating line.

Web means a continuous substrate (*e.g.*, paper, film, foil) which is flexible enough to be wound or unwound as rolls.

Web coating line means any number of work stations, of which one or more applies a continuous layer of coating material across the entire width or any portion of the width of a web substrate, and any associated curing/drying equipment between an unwind or feed station and a rewind or cutting station.

Work station means a unit on a web coating line where coating material is deposited onto a web substrate.

EMISSION STANDARDS AND COMPLIANCE DATES

§ 63.3320 What emission standards must I meet?

(a) If you own or operate any affected source that is subject to the requirements of this subpart, you must comply with these requirements on and after the compliance dates as specified in § 63.3330.

(b) You must limit organic HAP emissions to the level specified in paragraph (b)(1), (2), (3), or (4) of this section.

(1) No more than 5 percent of the organic HAP applied for each month (95 percent reduction) at existing affected sources, and no more than 2 percent of the organic HAP applied for each month (98 percent reduction) at new affected sources; or

(2) No more than 4 percent of the mass of coating materials applied for each month at existing affected sources, and no more than 1.6 percent of the mass of coating materials applied for each month at new affected sources; or

(3) No more than 20 percent of the mass of coating solids applied for each month at existing affected sources, and no more than 8 percent of the coating solids applied for each month at new affected sources.

(4) If you use an oxidizer to control organic HAP emissions, operate the oxidizer such that an outlet organic HAP concentration of no greater than 20 parts per million by volume (ppmv) by compound on a dry basis is achieved and the efficiency of the capture system is 100 percent.

(c) You must demonstrate compliance with this subpart by following the procedures in § 63.3370.

§ 63.3321 What operating limits must I meet?

(a) For any web coating line or group of web coating lines for which you use add-on control devices, unless you use a solvent recovery system and conduct a liquid-liquid material balance, you must meet the operating limits specified in Table 1 to this subpart or according to paragraph (b) of this section. These operating limits apply to emission capture systems and control devices, and you must establish the operating limits during the performance test according to the requirements in § 63.3360(e)(3). You must meet the operating limits at all times after you establish them.

(b) If you use an add-on control device other than those listed in Table 1 to this subpart or wish to monitor an alternative parameter and comply with a different operating limit, you must apply to the Administrator for approval of alternative monitoring under § 63.8(f).

§ 63.3330 When must I comply?

(a) If you own or operate an existing affected source subject to the provisions of this subpart, you must comply by the compliance date. The compliance date for existing affected sources in this subpart is December 5, 2005. You must complete any performance test required in § 63.3360 within the time limits specified in § 63.7(a)(2).

(b) If you own or operate a new affected source subject to the provisions of this subpart, your compliance date is immediately upon start-up of the new affected source or by December 4, 2002, whichever is later. You must complete any performance test required in § 63.3360 within the time limits specified in § 63.7(a)(2).

(c) If you own or operate a reconstructed affected source subject to the provisions of this subpart, your compliance date is immediately upon startup of the affected source or by December 4, 2002, whichever is later. Existing affected sources which have undergone reconstruction as defined in § 63.2 are subject to the requirements for new affected sources. The costs associated with the purchase and installation of air pollution control equipment are not considered in determining whether the existing affected source has been reconstructed. Additionally, the costs of retrofitting and replacing of equipment that is installed specifically to comply with this subpart are not considered reconstruction costs. You must complete any performance test required in § 63.3360 within the time limits specified in § 63.7(a)(2).

GENERAL REQUIREMENTS FOR COMPLIANCE WITH THE EMISSION STANDARDS AND FOR MONITORING AND PERFORMANCE TESTS

§ 63.3340 What general requirements must I meet to comply with the standards?

Table 2 to this subpart specifies the provisions of subpart A of this part that apply if you are subject to this subpart, such as startup, shutdown, and malfunction plans (SSMP) in § 63.6(e)(3) for affected sources using a control device to comply with the emission standards.

§ 63.3350 If I use a control device to comply with the emission standards, what monitoring must I do?

(a) A summary of monitoring you must do follows:

If you operate a web coating line, and have the following:	Then you must:
(1) Intermittently-controlled work stations	Record parameters related to possible exhaust flow bypass of control device and to coating use (§ 63.3350(c)).
(2) Solvent recovery unit	Operate continuous emission monitoring system and perform quarterly audits or determine volatile matter recovered and conduct a liquid-liquid material balance (§ 63.3350(d)).
(3) Control Device	Operate continuous parameter monitoring system (§ 63.3350(e)).
(4) Capture system	Monitor capture system operating parameter (§ 63.3350(f)).

(b) Following the date on which the initial performance test of a control device is completed to demonstrate continuing compliance with the standards, you must monitor and inspect each capture system and each control device used to comply with § 63.3320. You must install and operate the monitoring equipment as specified in paragraphs (c) and (f) of this section.

(c) *Bypass and coating use monitoring.* If you own or operate web coating lines with intermittently-controlled work stations, you must monitor bypasses of the control device and the mass of each coating material applied at the work station during any such bypass. If using a control device for complying with the requirements of this subpart, you must demonstrate that any coating material applied on a never-controlled work station or an intermittently-controlled work station operated in bypass mode is allowed in your compliance demonstration according to § 63.3370(n) and (o). The bypass monitoring must be conducted using at least one of the procedures in paragraphs (c)(1) through (4) of this section for each work station and associated dryer.

(1) *Flow control position indicator.* Install, calibrate, maintain, and operate according to the manufacturer's specifications a flow control position indicator that provides a record indicating whether the exhaust stream from the dryer was directed to the control device or was diverted from the control device. The time and flow control position must be recorded at least once per hour as well as every time the flow direction is changed. A flow control position indicator must be installed at the entrance to any bypass line that could

divert the exhaust stream away from the control device to the atmosphere.

(2) *Car-seal or lock-and-key valve closures.* Secure any bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism must be performed at least once every month to ensure that the valve or damper is maintained in the closed position, and the exhaust stream is not diverted through the bypass line.

(3) *Valve closure continuous monitoring.* Ensure that any bypass line valve or damper is in the closed position through continuous monitoring of valve position when the emission source is in operation and is using a control device for compliance with the requirements of this subpart. The monitoring system must be inspected at least once every month to verify that the monitor will indicate valve position.

(4) *Automatic shutdown system.* Use an automatic shutdown system in which the web coating line is stopped when flow is diverted away from the control device to any bypass line when the control device is in operation. The automatic system must be inspected at least once every month to verify that it will detect diversions of flow and would shut down operations in the event of such a diversion.

(d) *Solvent recovery unit.* If you own or operate a solvent recovery unit to comply with § 63.3320, you must meet the requirements in either paragraph (d)(1) or (2) of this section depending on how control efficiency is determined.

(1) *Continuous emission monitoring system (CEMS).* If you are demonstrating compliance with the emission standards in § 63.3320 through continuous emission monitoring of a control device, you must install, calibrate, operate, and maintain the CEMS according to paragraphs (d)(1)(i) through (iii) of this section.

(i) Measure the total organic volatile matter mass flow rate at both the control device inlet and the outlet such that the reduction efficiency can be determined. Each continuous emission monitor must comply with performance specification 6, 8, or 9 of 40 CFR part 60, appendix B, as appropriate.

(ii) You must follow the quality assurance procedures in procedure 1, appendix F of 40 CFR part 60. In conducting the quarterly audits of the monitors as required by procedure 1, appendix F, you must use compounds representative of the gaseous emission stream being controlled.

(iii) You must have valid data from at least 90 percent of the hours during which the process is operated.

(2) *Liquid-liquid material balance.* If you are demonstrating compliance with the emission standards in § 63.3320 through liquid-liquid material balance, you must install, calibrate, maintain, and operate according to the manufacturer's specifications a device that indicates the cumulative amount of volatile matter recovered by the solvent recovery device on a monthly basis. The device must be certified by the manufacturer to be accurate to within ±2.0 percent by mass.

(e) *Continuous parameter monitoring system (CPMS).* If you are using a control device to comply with the emission standards in § 63.3320, you must install, operate, and maintain each CPMS specified in paragraphs (e)(9) and (10) and (f) of this section according to the requirements in paragraphs (e)(1) through (8) of this section. You must install, operate, and maintain each CPMS specified in paragraph (c) of this section according to paragraphs (e)(5) through (7) of this section.

(1) Each CPMS must complete a minimum of one cycle of operation for each successive 15-minute period. You must have a minimum of four equally spaced successive cycles of CPMS operation to have a valid hour of data.

(2) You must have valid data from at least 90 percent of the hours during which the process operated.

(3) You must determine the hourly average of all recorded readings according to paragraphs (e)(3)(i) and (ii) of this section.

(i) To calculate a valid hourly value, you must have at least three of four equally spaced data values from that hour from a continuous monitoring system (CMS) that is not out-of-control.

(ii) Provided all of the readings recorded in accordance with paragraph (e)(3) of this section clearly demonstrate continuous compliance with the standard that applies to you, then you are not required to determine the hourly average of all recorded readings.

(4) You must determine the rolling 3-hour average of all recorded readings for each operating period. To calculate the average for each 3-hour averaging period, you must have at least two of three of the hourly averages for that period using only average values that are based on valid data (*i.e.*, not from out-of-control periods).

(5) You must record the results of each inspection, calibration, and validation check of the CPMS.

(6) At all times, you must maintain the monitoring system in proper working order including, but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment.

(7) Except for monitoring malfunctions, associated repairs, or required quality assurance or control activities (including calibration checks or required zero and span adjustments), you must conduct all monitoring at all times that the unit is operating. Data recorded during monitoring malfunctions, associated repairs, out-of-control periods, or required quality assurance or control activities shall not be used for purposes of calculating the emissions concentrations and percent reductions specified in § 63.3370. You must use all the valid data collected during all other periods in assessing compliance of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

(8) Any averaging period for which you do not have valid monitoring data and such data are required constitutes a deviation, and you must notify the Administrator in accordance with § 63.3400(c).

(9) *Oxidizer.* If you are using an oxidizer to comply with the emission standards, you must comply with paragraphs (e)(9)(i) through (iii) of this section.

(i) Install, calibrate, maintain, and operate temperature monitoring equipment according to the manufacturer's specifications. The calibration of the chart recorder, data logger, or temperature indicator must be verified every 3 months or the chart recorder, data logger, or temperature indicator must be replaced. You must replace the equipment whether you choose not to perform the calibration or the equipment cannot be calibrated properly.

(ii) For an oxidizer other than a catalytic oxidizer, install, calibrate, operate, and maintain a temperature monitoring device equipped with a continuous recorder. The device must have an accuracy of ±1 percent of the temperature being monitored in degrees Celsius, or ±1 °Celsius, whichever is greater. The thermocouple or temperature sensor must be installed in the combustion chamber at a location in the combustion zone.

(iii) For a catalytic oxidizer, install, calibrate, operate, and maintain a temperature monitoring device equipped with a continuous recorder. The device must be capable of monitoring temperature with an accuracy of ±1 percent of the temperature being monitored in degrees Celsius or ± 1 degree Celsius, whichever is greater. The thermocouple or temperature sensor must be installed in the vent stream at the nearest feasible point to the inlet and outlet of the catalyst bed. Calculate the temperature rise across the catalyst.

(10) *Other types of control devices.* If you use a control device other than an oxidizer or wish to monitor an alternative parameter and comply with a different operating limit, you must apply to the Administrator for approval of an alternative monitoring method under § 63.8(f).

(f) *Capture system monitoring.* If you are complying with the emission standards in § 63.3320 through the use of a capture system and control device for one or more web coating lines, you must develop a site-specific monitoring plan containing the information specified in paragraphs (f)(1) and (2) of this section for these capture systems. You must monitor the capture system in accordance with paragraph (f)(3) of this section. You must make the monitoring plan available for inspection by the permitting authority upon request.

(1) The monitoring plan must:

(i) Identify the operating parameter to be monitored to ensure that the capture efficiency determined during the initial compliance test is maintained; and

(ii) Explain why this parameter is appropriate for demonstrating ongoing compliance; and

(iii) Identify the specific monitoring procedures.

(2) The monitoring plan must specify the operating parameter value or range of values that demonstrate compliance with the emission standards in §63.3320. The specified operating parameter value or range of values must represent the conditions present when the capture system is being properly operated and maintained.

(3) You must conduct all capture system monitoring in accordance with the plan.

(4) Any deviation from the operating parameter value or range of values which are monitored according to the plan will be considered a deviation from the operating limit.

(5) You must review and update the capture system monitoring plan at least annually.

§63.3360 What performance tests must I conduct?

(a) The performance test methods you must conduct are as follows:

If you control organic HAP on any individual web coating line or any group of web coating lines by:	You must:
(1) Limiting organic HAP or volatile matter content of coatings.	Determine the organic HAP or volatile matter and coating solids content of coating materials according to procedures in §63.3360(c) and (d). If applicable, determine the mass of volatile matter retained in the coated web or otherwise not emitted to the atmosphere according to §63.3360(g).
(2) Using a capture and control system.	Conduct a performance test for each capture and control system to determine: the destruction or removal efficiency of each control device other than solvent recovery according to §63.3360(e), and the capture efficiency of each capture system according to §63.3360(f). If applicable, determine the mass of volatile matter retained in the coated web or otherwise not emitted to the atmosphere according to §63.3360(g).

(b) If you are using a control device to comply with the emission standards in §63.3320, you are not required to conduct a performance test to demonstrate compliance if one or more of the criteria in paragraphs (b)(1) through (3) of this section are met.

(1) The control device is equipped with continuous emission monitors for determining inlet and outlet total organic volatile matter concentration and capture efficiency has been determined in accordance with the requirements of this subpart such that an overall organic HAP control efficiency can be calculated, and the continuous emission monitors are used to demonstrate continuous compliance in accordance with §63.3350; or

(2) You have met the requirements of §63.7(h) (for waiver of performance testing; or

(3) The control device is a solvent recovery system and you comply by means of a monthly liquid-liquid material balance.

(c) *Organic HAP content.* If you determine compliance with the emission standards in §63.3320 by means other than determining the overall organic HAP control efficiency of a control device, you must determine the organic HAP mass fraction of each coating material ‘‘as-purchased’’ by following one of the procedures in paragraphs (c)(1) through (3) of this section, and determine the organic HAP mass fraction of each coating material ‘‘as-applied’’ by following the procedures in paragraph (c)(4) of this section. If the organic HAP content values are not determined using the procedures in paragraphs (c)(1) through (3) of this section, the owner or operator must submit an alternative test method for determining their values for approval by the Administrator in accordance with §63.7(f). The recovery efficiency of the test method must be determined for all of the target organic HAP and a correction factor, if necessary, must be determined and applied.

(1) *Method 311.* You may test the coating material in accordance with Method 311 of appendix A of this part. The Method 311 determination may be performed by the manufacturer of the coating material and the results provided to the owner or operator. The organic HAP content must be calculated according to the criteria and procedures in paragraphs (c)(1)(i) through (iii) of this section.

(i) Include each organic HAP determined to be present at greater than or equal to 0.1 mass percent for Occupational Safety and Health Administration (OSHA)-defined carcinogens as specified in 29 CFR 1910.1200(d)(4) and greater than or equal to 1.0 mass percent for other organic HAP compounds.

(ii) Express the mass fraction of each organic HAP you include according to paragraph (c)(1)(i) of this section as a value truncated to four places after the decimal point (for example, 0.3791).

(iii) Calculate the total mass fraction of organic HAP in the tested material by summing the counted individual organic HAP mass fractions and truncating the result to three places after the decimal point (for example, 0.763).

(2) *Method 24.* For coatings, determine the volatile organic content as mass fraction of nonaqueous volatile matter and use it as a substitute for organic HAP using Method 24 of 40 CFR part 60, appendix A. The Method 24 determination may be performed by the manufacturer of the coating and the results provided to you.

(3) *Formulation data.* You may use formulation data to determine the organic HAP mass fraction of a coating material. Formulation data may be provided to the owner or operator by the manufacturer of the material. In the event of an inconsistency between Method 311 (appendix A of 40 CFR part 63) test data and a facility's formulation data, and the Method 311 test value is higher, the Method 311 data will govern. Formulation data may be used provided that the information represents all organic HAP present at a level equal to or greater than 0.1 percent for OSHA-defined carcinogens as specified in 29 CFR 1910.1200(d)(4) and equal to or greater than 1.0 percent for other organic HAP compounds in any raw material used.

(4) *As-applied organic HAP mass fraction.* If the as-purchased coating material is applied to the web without any solvent or other material added, then the as-applied organic HAP mass fraction is equal to the as-purchased organic HAP mass fraction. Otherwise, the as-applied organic HAP mass fraction must be calculated using Equation 1a of § 63.3370.

(d) *Volatile organic and coating solids content.* If you determine compliance with the emission standards in § 63.3320 by means other than determining the overall organic HAP control efficiency of a control device and you choose to use the volatile organic content as a surrogate for the organic HAP content of coatings, you must determine the as-purchased volatile organic content and coating solids content of each coating material applied by following the procedures in paragraph (d)(1) or (2) of this section, and the as-applied volatile organic content and coating solids content of each coating material by following the procedures in paragraph (d)(3) of this section.

(1) *Method 24.* You may determine the volatile organic and coating solids mass fraction of each coating applied using Method 24 (40 CFR part 60, appendix A.) The Method 24 determination may be performed by the manufacturer of the material and the results provided to you. If these values cannot be determined using Method 24, you must submit an alternative technique for determining their values for approval by the Administrator.

(2) *Formulation data.* You may determine the volatile organic content and coating solids content of a coating material based on formulation data and may rely on volatile organic content data provided by the manufacturer of the material. In the event of any inconsistency between the formulation data and the results of Method 24 of 40 CFR part 60, appendix A, and the Method 24 results are higher, the results of Method 24 will govern.

(3) *As-applied volatile organic content and coating solids content.* If the as-purchased coating material is applied to the web without any solvent or other

material added, then the as-applied volatile organic content is equal to the as-purchased volatile content and the as-applied coating solids content is equal to the as-purchased coating solids content. Otherwise, the as-applied volatile organic content must be calculated using Equation 1b of § 63.3370 and the as-applied coating solids content must be calculated using Equation 2 of § 63.3370.

(e) *Control device efficiency*. If you are using an add-on control device other than solvent recovery, such as an oxidizer, to comply with the emission standards in § 63.3320, you must conduct a performance test to establish the destruction or removal efficiency of the control device according to the methods and procedures in paragraphs (e)(1) and (2) of this section. During the performance test, you must establish the operating limits required by § 63.3321 according to paragraph (e)(3) of this section.

(1) An initial performance test to establish the destruction or removal efficiency of the control device must be conducted such that control device inlet and outlet testing is conducted simultaneously, and the data are reduced in accordance with the test methods and procedures in paragraphs (e)(1)(i) through (ix) of this section. You must conduct three test runs as specified in § 63.7(e)(3), and each test run must last at least 1 hour.

(i) Method 1 or 1A of 40 CFR part 60, appendix A, must be used for sample and velocity traverses to determine sampling locations.

(ii) Method 2, 2A, 2C, 2D, 2F, or 2G of 40 CFR part 60, appendix A, must be used to determine gas volumetric flow rate.

(iii) Method 3, 3A, or 3B of 40 CFR part 60, appendix A, must be used for gas analysis to determine dry molecular weight. You may also use as an alternative to Method 3B the manual method for measuring the oxygen, carbon dioxide, and carbon monoxide content of exhaust gas in ANSI/ASME PTC 19.10–1981, ‘‘Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus],’’ (incorporated by reference, see § 63.14).

(iv) Method 4 of 40 CFR part 60, appendix A, must be used to determine stack gas moisture.

(v) The gas volumetric flow rate, dry molecular weight, and stack gas moisture must be determined during each test run specified in paragraph (f)(1)(vii) of this section.

(vi) Method 25 or 25A of 40 CFR part 60, appendix A, must be used to determine total gaseous non-methane organic matter concentration. Use the same test method for both the inlet and outlet measurements which must be conducted simultaneously. You must submit notice of the intended test method to the Administrator for approval along with notification of the performance test required under § 63.7(b). You must use Method 25A if any of the conditions described in paragraphs (e)(1)(vi)(A) through (D) of this section apply to the control device.

(A) The control device is not an oxidizer.

(B) The control device is an oxidizer but an exhaust gas volatile organic matter concentration of 50 ppmv or less is required to comply with the emission standards in § 63.3320; or

(C) The control device is an oxidizer but the volatile organic matter concentration at the inlet to the control system and the required level of control are such that they result in exhaust gas volatile organic matter concentrations of 50 ppmv or less; or

(D) The control device is an oxidizer but because of the high efficiency of the control device the anticipated volatile organic matter concentration at the control device exhaust is 50 ppmv or less, regardless of inlet concentration.

(vii) Except as provided in § 63.7(e)(3), each performance test must consist of three separate runs with each run conducted for at least 1 hour under the conditions that exist when the affected source is operating under normal operating conditions. For the purpose of determining volatile organic compound concentrations and mass flow rates, the average of the results of all the runs will apply.

(viii) Volatile organic matter mass flow rates must be determined for each run specified in paragraph (e)(1)(vii) of this section using Equation 1 of this section:

$$M_f = Q_{sd}C_c[12][0.0416]\left[10^{-6}\right] \quad \text{Eq. 1}$$

Where:

M_f = Total organic volatile matter mass flow rate, kilograms (kg)/hour (h).

Q_{sd} = Volumetric flow rate of gases entering or exiting the control device, as determined according to § 63.3360(e)(1)(ii), dry standard cubic meters (dscm)/h.

C_c = Concentration of organic compounds as carbon, ppmv.

12.0 = Molecular weight of carbon.

0.0416 = Conversion factor for molar volume, kg-moles per cubic meter (mol/m^3) (@ 293 Kelvin (K) and 760 millimeters of mercury (mmHg)).

(ix) For each run, emission control device destruction or removal efficiency must be determined using Equation 2 of this section:

$$E = \frac{M_{fi} - M_{fo}}{M_{fi}} \times 100 \quad \text{Eq. 2}$$

Where:

E = Organic volatile matter control efficiency of the control device, percent.

M_{fi} = Organic volatile matter mass flow rate at the inlet to the control device, kg/h.

M_{fo} = Organic volatile matter mass flow rate at the outlet of the control device, kg/h.

(x) The control device destruction or removal efficiency is determined as the average of the efficiencies determined in the test runs and calculated in Equation 2 of this section.

(2) You must record such process information as may be necessary to determine the conditions in existence at the time of the performance test. Operations during periods of startup, shutdown, and malfunction will not constitute representative conditions for the purpose of a performance test.

(3) *Operating limits.* If you are using one or more add-on control device other than a solvent recovery system for which you conduct a liquid-liquid material balance to comply with the emission standards in § 63.3320, you must establish the applicable operating limits required by § 63.3321. These operating limits apply to each add-on emission control device, and you must establish the operating limits during the performance test required by paragraph (e) of this section according to the requirements in paragraphs (e)(3)(i) and (ii) of this section.

(i) *Thermal oxidizer.* If your add-on control device is a thermal oxidizer, establish the operating limits according to paragraphs (e)(3)(i)(A) and (B) of this section.

(A) During the performance test, you must monitor and record the combustion temperature at least once every 15 minutes during each of the three test runs. You must monitor the temperature in the firebox of the thermal oxidizer or immediately downstream of the firebox before any substantial heat exchange occurs.

(B) Use the data collected during the performance test to calculate and record the average combustion temperature maintained during the performance test. This average combustion temperature is the minimum operating limit for your thermal oxidizer.

(ii) *Catalytic oxidizer.* If your add-on control device is a catalytic oxidizer, establish the operating limits according to paragraphs (e)(3)(ii)(A) and (B) or paragraphs (e)(3)(ii)(C) and (D) of this section.

(A) During the performance test, you must monitor and record the temperature just before the catalyst bed and the temperature difference across the catalyst bed at least once every 15 minutes during each of the three test runs.

(B) Use the data collected during the performance test to calculate and record the average temperature just before the catalyst bed and the average temperature difference across the catalyst bed maintained during the performance test. These are the minimum operating limits for your catalytic oxidizer.

(C) As an alternative to monitoring the temperature difference across the catalyst bed, you may monitor the temperature at the inlet to the catalyst bed and implement a site-specific inspection and maintenance plan for your catalytic oxidizer as specified in paragraph (e)(3)(ii)(D) of this section.

During the performance test, you must monitor and record the temperature just before the catalyst bed at least once every 15 minutes during each of the three test runs. Use the data collected during the performance test to calculate and record the average temperature just before the catalyst bed during the performance test. This is the minimum operating limit for your catalytic oxidizer.

(D) You must develop and implement an inspection and maintenance plan for your catalytic oxidizer(s) for which you elect to monitor according to paragraph (e)(3)(ii)(C) of this section. The plan must address, at a minimum, the elements specified in paragraphs (e)(3)(ii)(D)(*1*) through (*3*) of this section.

(*1*) Annual sampling and analysis of the catalyst activity (*i.e.*, conversion efficiency) following the manufacturer's or catalyst supplier's recommended procedures,

(*2*) Monthly inspection of the oxidizer system including the burner assembly and fuel supply lines for problems, and

(*3*) Annual internal and monthly external visual inspection of the catalyst bed to check for channeling, abrasion, and settling. If problems are found, you must take corrective action consistent with the manufacturer's recommendations and conduct a new performance test to determine destruction efficiency in accordance with this section.

(f) *Capture efficiency.* If you demonstrate compliance by meeting the requirements of § 63.3370(e), (f), (g), (h), (i)(2), (k), (n)(2) or (3), or (p), you must determine capture efficiency using the procedures in paragraph (f)(1), (2), or (3) of this section, as applicable.

(1) You may assume your capture efficiency equals 100 percent if your capture system is a permanent total enclosure (PTE). You must confirm that your capture system is a PTE by demonstrating that it meets the requirements of section 6 of EPA Method 204 of 40 CFR part 51, appendix M, and that all exhaust gases from the enclosure are delivered to a control device.

(2) You may determine capture efficiency according to the protocols for testing with temporary total enclosures that are specified in Methods 204 and 204A through F of 40 CFR part 51, appendix M. You may exclude never-controlled work stations from such capture efficiency determinations.

(3) You may use any capture efficiency protocol and test methods that satisfy the criteria of either the Data Quality Objective or the Lower Confidence Limit approach as described in appendix A of subpart KK of this part. You may exclude never-controlled work stations from such capture efficiency determinations.

(g) *Volatile matter retained in the coated web or otherwise not emitted to the atmosphere.* You may choose to take into account the mass of volatile matter retained in the coated web after curing or drying or otherwise not emitted to the atmosphere when determining compliance with the emission standards in § 63.3320. If you choose this option, you must develop a testing protocol to determine the mass of volatile matter retained in the coated web or otherwise not emitted to the atmosphere and submit this protocol to the Administrator for approval. You must submit this protocol with your site-specific test plan under § 63.7(f). If you intend to take into account the mass of volatile matter retained in the coated web after curing or drying or otherwise not emitted to the atmosphere and demonstrate compliance according to § 63.3370(c)(3), (c)(4), (c)(5), or (d), then the test protocol you submit must determine the mass of organic HAP retained in the coated web or otherwise not emitted to the atmosphere. Otherwise, compliance must be shown using the volatile organic matter content as a surrogate for the HAP content of the coatings.

(h) *Control devices in series.* If you use multiple control devices in series to comply with the emission standards in § 63.3320, the performance test must include, at a minimum, the inlet to the first control device in the series, the outlet of the last control device in the series, and all intermediate streams (*e.g.*, gaseous exhaust to the atmosphere or a liquid stream from a recovery device) that are not subsequently treated by any of the control devices in the series.

REQUIREMENTS FOR SHOWING COMPLIANCE

§ 63.3370 How do I demonstrate compliance with the emission standards?

(a) A summary of how you must demonstrate compliance follows:

If you choose to demonstrate compliance by:	Then you must demonstrate that:	To accomplish this:
(1) Use of ''as-purchased'' compliant coating materials.	(i) Each coating material used at an existing affected source does not exceed 0.04 kg organic HAP per kg coating material, and each coating material used at a new affected source does not exceed 0.016 kg organic HAP per kg coating material as-purchased; or.	Follow the procedures set out in § 63.3370(b).
	(ii) Each coating material used at an existing affected source does not exceed 0.2 kg organic HAP per kg coating solids, and each coating material used at a new affected source does not exceed 0.08 kg organic HAP per kg coating solids as-purchased.	Follow the procedures set out in § 63.3370(b).
(2) Use of ''as-applied'' compliant coating materials.	(i) Each coating material used at an existing affected source does not exceed 0.04 kg organic HAP per kg coating material, and each coating material used at a new affected source does not exceed 0.016 kg organic HAP per kg coating material as-applied; or.	Follow the procedures set out in § 63.3370(c)(1). Use either Equation 1a or b of § 63.3370 to determine compliance with § 63.3320(b)(2) in accordance with § 63.3370(c)(5)(i).
	(ii) Each coating material used at an existing affected source does not exceed 0.2 kg organic HAP per kg coating solids, and each coating material used at a new affected source does not exceed 0.08 kg organic HAP per kg coating solids as-applied; or.	Follow the procedures set out in § 63.3370(c)(2). Use Equations 2 and 3 of § 63.3370 to determine compliance with § 63.3320(b)(3) in accordance with § 63.3370(c)(5)(i).
	(iii) Monthly average of all coating materials used at an existing affected source does not exceed 0.04 kg organic HAP per kg coating material, and monthly average of all coating materials used at a new affected source does not exceed 0.016 kg organic HAP per kg coating material as-applied on a monthly average basis; or.	Follow the procedures set out in § 63.3370(c)(3). Use Equation 4 of § 63.3370 to determine compliance with § 63.3320(b)(2) in accordance with § 63.3370(c)(5)(ii).
	(iv) Monthly average of all coating materials used at an existing affected source does not exceed 0.2 kg organic HAP per kg coating solids, and monthly average of all coating materials used at a new affected source does not exceed 0.08 kg organic HAP per kg coating solids as-applied on a monthly average basis.	Follow the procedures set out in § 63.3370(c)(4). Use Equation 5 of § 63.3370 to determine compliance with § 63.3320(b)(3) in accordance with § 63.3370(c)(5)(ii).
(3) Tracking total monthly organic HAP applied.	Total monthly organic HAP applied does not exceed the calculated limit based on emission limitations.	Follow the procedures set out in § 63.3370(d). Show that total monthly HAP applied (Equation 6 of § 63.3370) is less than the calculated equivalent allowable organic HAP (Equation 13a or b of § 63.3370).
(4) Use of a capture system and control device.	(i) Overall organic HAP control efficiency is equal to 95 percent at an existing affected source and 98 percent at a new affected source on a monthly basis; or oxidizer outlet organic HAP concentration is no greater than 20 ppmv by compound and capture efficiency is 100 percent; or operating parameters are continuously monitored; or.	Follow the procedures set out in § 63.3370(e) to determine compliance with § 63.3320(b)(1) according to § 63.3370(i) if using a solvent recovery device, or § 63.3370(j) if using a control device and CPMS, or § 63.3370(k) if using an oxidizer.

If you choose to demonstrate compliance by:	Then you must demonstrate that:	To accomplish this:
	(ii) Overall organic HAP emission rate does not exceed 0.2 kg organic HAP per kg coating solids for an existing affected source or 0.08 kg organic HAP per kg coating solids for a new affected source on a monthly average as-applied basis;.	Follow the procedures set out in §63.3370(f) to determine compliance with §63.3320(b)(3) according to §63.3370(i) if using a solvent recovery device, or §63.3370(k) if using an oxidizer.
	(iii) Overall organic HAP emission rate does not exceed 0.04 kg organic HAP per kg coating material for an existing affected source or 0.016 kg organic HAP per kg coating material for a new affected source on a monthly average as-applied basis; or.	Follow the procedures set out in §63.3370(g) to determine compliance with §63.3320(b)(2) according to §63.3370(i) if using a solvent recovery device, or §63.3370(k) if using an oxidizer.
	(iv) Overall organic HAP emission rate does not exceed the calculated limit based on emission limitations.	Follow the procedures set out in §63.3370(h). Show that the monthly organic HAP emission rate is less than the calculated equivalent allowable organic HAP emission rate (Equation 13a or b of §63.3370). Calculate the monthly organic HAP emission rate according to §63.3370(i) if using a solvent recovery device, or §63.3370(k) if using an oxidizer.
(5) Use of multiple capture and/or control devices.	(i) Overall organic HAP control efficiency is equal to 95 percent at an existing affected source and 98 percent at a new affected source on a monthly basis; or.	Follow the procedures set out in §63.3370(e) to determine compliance with §63.3320(b)(1) according to §63.3370(e)(1) or (2).
	(ii) Average equivalent organic HAP emission rate does not exceed 0.2 kg organic HAP per kg coating solids for an existing affected source or 0.08 kg organic HAP per kg coating solids for a new affected source on a monthly average as-applied basis; or.	Follow the procedures set out in §63.3370(f) to determine compliance with §63.3320(b)(3) according to §63.3370(n).
	(iii) Average equivalent organic HAP emission rate does not exceed 0.04 kg organic HAP per kg coating material for an existing affected source or 0.016 kg organic HAP per kg coating material for a new affected source on a monthly average as-applied basis; or.	Follow the procedures set out in §63.3370(g) to determine compliance with §63.3320(b)(2) according to §63.3370(n).
	(iv) Average equivalent organic HAP emission rate does not exceed the calculated limit based on emission limitations.	Follow the procedures set out in §63.3370(h). Show that the monthly organic HAP emission rate is less than the calculated equivalent allowable organic HAP emission rate (Equation 13a or b of §63.3370) according to §63.3370(n).
(6) Use of a combination of compliant coatings and control devices.	(i) Average equivalent organic HAP emission rate does not exceed 0.2 kg organic HAP per kg coating solids for an existing affected source or 0.08 kg organic HAP per kg coating solids for a new affected source on a monthly average as-applied basis; or.	Follow the procedures set out in §63.3370(f) to determine compliance with §63.3320(b)(3) according to §63.3370(n).
	(ii) Average equivalent organic HAP emission rate does not exceed 0.04 kg organic HAP per kg coating material for an existing affected source or 0.016 kg organic HAP per kg coating material for a new affected source on a monthly average as-applied basis; or.	Follow the procedures set out in §63.3370(g) to determine compliance with §63.3320(b)(2) according to §63.3370(n).

If you choose to demonstrate compliance by:	Then you must demonstrate that:	To accomplish this:
	(iii) Average equivalent organic HAP emission rate does not exceed the calculated limit based on emission limitations.	Follow the procedures set out in § 63.3370(h). Show that the monthly organic HAP emission rate is less than the calculated equivalent allowable organic HAP emission rate (Equation 13a or b of § 63.3370) according to § 63.3370(n).

(b) *As-purchased ''compliant'' coating materials.* (1) If you comply by using coating materials that individually meet the emission standards in § 63.3320(b)(2) or (3), you must demonstrate that each coating material applied during the month at an existing affected source contains no more than 0.04 mass fraction organic HAP or 0.2 kg organic HAP per kg coating solids, and that each coating material applied during the month at a new affected source contains no more than 0.016 mass fraction organic HAP or 0.08 kg organic HAP per kg coating solids on an as-purchased basis as determined in accordance with § 63.3360(c).

(2) You are in compliance with emission standards in § 63.3320(b)(2) and (3) if each coating material applied at an existing affected source is applied as-purchased and contains no more than 0.04 kg organic HAP per kg coating material or 0.2 kg organic HAP per kg coating solids, and each coating material applied at a new affected source is applied as-purchased and contains no more than 0.016 kg organic HAP per kg coating material or 0.08 kg organic HAP per kg coating solids.

(c) *As-applied ''compliant'' coating materials.* If you comply by using coating materials that meet the emission standards in § 63.3320(b)(2) or (3) as-applied, you must demonstrate compliance by following one of the procedures in paragraphs (c)(1) through (4) of this section. Compliance is determined in accordance with paragraph (c)(5) of this section.

(1) *Each coating material as-applied meets the mass fraction of coating material standard (§ 63.3320(b)(2)).* You must demonstrate that each coating material applied at an existing affected source during the month contains no more than 0.04 kg organic HAP per kg coating material applied, and each coating material applied at a new affected source contains no more than 0.016 kg organic HAP per kg coating material applied as determined in accordance with paragraphs (c)(1)(i) and (ii) of this section. You must calculate the as-applied organic HAP content of as-purchased coating materials which are reduced, thinned, or diluted prior to application.

(i) Determine the organic HAP content or volatile organic content of each coating material applied on an as-purchased basis in accordance with § 63.3360(c).

(ii) Calculate the as-applied organic HAP content of each coating material using Equation 1a of this section:

$$C_{ahi} = \frac{\left(C_{hi}M_i + \sum_{j=1}^{q} C_{hij}M_{ij}\right)}{M_i + \sum_{j=1}^{q} M_{ij}} \qquad \text{Eq. 1a}$$

Where:

C_{ahi} = Monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg.

C_{hi} = Organic HAP content of coating material, i, as-purchased, expressed as a mass fraction, kg/kg.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

q = number of different materials added to the coating material.

C_{hij} = Organic HAP content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.

M_{ij} = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

or calculate the as-applied volatile organic content of each coating material using Equation 1b of this section:

$$C_{avi} = \frac{\left(C_{vi}M_i + \sum_{j=1}^{q} C_{vij}M_{ij}\right)}{M_i + \sum_{j=1}^{q} M_{ij}} \qquad \text{Eq. 1b}$$

Where:

C_{avi} = Monthly average, as-applied, volatile organic content of coating material, i, expressed as a mass fraction, kg/kg.

C_{vi} = Volatile organic content of coating material, i, expressed as a mass fraction, kg/kg.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

C_{vij} = Volatile organic content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.

M_{ij} = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

(2) *Each coating material as-applied meets the mass fraction of coating solids standard (§63.3320(b)(3)).* You must demonstrate that each coating material applied at an existing affected source contains no more than 0.20 kg of organic HAP per kg of coating solids applied and each coating material applied at a new affected source contains no more than 0.08 kg of organic HAP per kg of coating solids applied. You must demonstrate compliance in accordance with paragraphs (c)(2)(i) and (ii) of this section.

(i) Determine the as-applied coating solids content of each coating material following the procedure in §63.3360(d). You must calculate the as-applied coating solids content of coating materials which are reduced, thinned, or diluted prior to application, using Equation 2 of this section:

$$C_{asi} = \frac{\left(C_{si}M_i + \sum_{j=1}^{q} C_{sij}M_{ij}\right)}{M_i + \sum_{j=1}^{q} M_{ij}} \qquad \text{Eq. 2}$$

Where:

C_{si} = Coating solids content of coating material, i, expressed as a mass fraction, kg/kg.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

C_{sij} = Coating solids content of material, j, added to as-purchased coating material, i, expressed as a mass-fraction, kg/kg.

M_{ij} = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

(ii) Calculate the as-applied organic HAP to coating solids ratio using Equation 3 of this section:

$$H_{si} = \frac{C_{ahi}}{C_{asi}} \qquad \text{Eq. 3}$$

Where:

H_{si} = As-applied, organic HAP to coating solids ratio of coating material, i.

C_{ahi} = Monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg.

C_{asi} = Monthly average, as-applied, coating solids content of coating material, i, expressed as a mass fraction, kg/kg.

(3) *Monthly average organic HAP content of all coating materials as-applied is less than the mass percent limit (§63.3320(b)(2)).* Demonstrate that the monthly average as-applied organic HAP content of all coating materials applied at an existing affected source is less than 0.04 kg organic HAP per kg of coating material applied, and all coating materials applied at a new affected source are less than 0.016 kg organic

HAP per kg of coating material applied, as determined by Equation 4 of this section:

$$H_L = \frac{\sum_{i=1}^{p} C_{hi}M_i + \sum_{j=1}^{q} C_{hij}M_{ij} - M_{vret}}{\sum_{i=1}^{p} M_i + \sum_{j=1}^{q} M_{ij}} \qquad \text{Eq. 4}$$

Where:

H_L = Monthly average, as-applied, organic HAP content of all coating materials applied, expressed as kg organic HAP per kg of coating material applied, kg/kg.

p = Number of different coating materials applied in a month.

C_{hi} = Organic HAP content of coating material, i, as-purchased, expressed as a mass fraction, kg/kg.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

C_{hij} = Organic HAP content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.

M_{ij} = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

M_{vret} = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in § 63.3370.

(4) *Monthly average organic HAP content of all coating materials as-applied is less than the mass fraction of coating solids limit (§ 63.3320(b)(3)).* Demonstrate that the monthly average as-applied organic HAP content on the basis of coating solids applied of all coating materials applied at an existing affected source is less than 0.20 kg organic HAP per kg coating solids applied, and all coating materials applied at a new affected source are less than 0.08 kg organic HAP per kg coating solids applied, as determined by Equation 5 of this section:

$$H_S = \frac{\sum_{i=1}^{p} C_{hi}M_i + \sum_{j=1}^{q} C_{hij}M_{ij} - M_{vret}}{\sum_{i=1}^{p} C_{Si}M_i + \sum_{j=1}^{q} C_{Sij}M_{ij}} \qquad \text{Eq. 5}$$

Where:

H_s = Monthly average, as-applied, organic HAP to coating solids ratio, kg organic HAP/kg coating solids applied.

p = Number of different coating materials applied in a month.

C_{hi} = Organic HAP content of coating material, i, as-purchased, expressed as a mass fraction, kg/kg.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

C_{hij} = Organic HAP content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.

M_{ij} = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

M_{vret} = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in § 63.3370.

C_{si} = Coating solids content of coating material, i, expressed as a mass fraction, kg/kg.

C_{sij} = Coating solids content of material, j, added to as-purchased coating material, i, expressed as a mass-fraction, kg/kg.

(5) The affected source is in compliance with emission standards in § 63.3320(b)(2) or (3) if:

(i) The organic HAP content of each coating material as-applied at an existing affected source is no more than 0.04 kg organic HAP per kg coating material or 0.2 kg organic HAP per kg coating solids, and the organic HAP content of each coating material as-applied at a new affected source contains no more than 0.016 kg organic HAP per kg coating material or 0.08 kg organic HAP per kg coating solids; or

(ii) The monthly average organic HAP content of all as-applied coating materials at an existing affected source are no more than 0.04 kg organic HAP per kg coating material or 0.2 kg organic HAP per kg coating solids, and the monthly average organic HAP content of all as-applied coating materials at a new affected source is no more than 0.016 kg organic HAP per kg coating material or 0.08 kg organic HAP per kg coating solids.

(d) *Monthly allowable organic HAP applied.* Demonstrate that the total monthly organic HAP applied as determined by Equation 6 of this section is less than the calculated equivalent allowable organic HAP as determined by Equation 13a or b in paragraph (l) of this section:

$$H_m = \sum_{i=1}^{p} C_{hi} M_i + \sum_{j=1}^{q} C_{hij} M_{ij} - M_{vret} \qquad \text{Eq. 6}$$

Where:

H_m = Total monthly organic HAP applied, kg.

p = Number of different coating materials applied in a month.

C_{hi} = Organic HAP content of coating material, i, as-purchased, expressed as a mass fraction, kg/kg.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

C_{hij} = Organic HAP content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.

M_{ij} = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

M_{vret} = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in § 63.3370.

(e) *Capture and control to reduce emissions to no more than allowable limit (§ 63.3320(b)(1)).* Operate a capture system and control device and demonstrate an overall organic HAP control efficiency of at least 95 percent at an existing affected source and at least 98 percent at a new affected source for each month, or operate a capture system and oxidizer so that an outlet organic HAP concentration of no greater than 20 ppmv by compound on a dry basis is achieved as long as the capture efficiency is 100 percent as detailed in § 63.3320(b)(4). Unless one of the cases described in paragraph (e)(1), (2), or (3) of this section applies to the affected source, you must either demonstrate compliance in accordance with the procedure in paragraph (i) of this section when emissions from the affected source are controlled by a solvent recovery device, or the procedure in paragraph (k) of this section when emissions are controlled by an oxidizer or demonstrate compliance for a web coating line by operating each capture system and each control device and continuous parameter monitoring according to the procedures in paragraph (j) of this section.

(1) If the affected source has only always-controlled work stations and operates more than one capture system or more than one control device, you must demonstrate compliance in accordance with the provisions of either paragraph (n) or (p) of this section.

(2) If the affected source operates one or more never-controlled work stations or one or more intermittently-controlled work stations, you must demonstrate compliance in accordance with the provisions of paragraph (n) of this section.

(3) An alternative method of demonstrating compliance with § 63.3320(b)(1) is the installation of a PTE around the web coating line that achieves 100 percent capture efficiency and ventilation of all organic HAP emissions from the total enclosure to an oxidizer with an outlet organic HAP concentration of no greater than 20 ppmv by compound on a dry basis. If this method is selected, you must demonstrate compliance by following the procedures in paragraphs (e)(3)(i) and (ii) of this section. Compliance is determined according to paragraph (e)(3)(iii) of this section.

(i) Demonstrate that a total enclosure is installed. An enclosure that meets the requirements in § 63.3360(f)(1) will be considered a total enclosure.

(ii) Determine the organic HAP concentration at the outlet of your total enclosure using the procedures in paragraph (e)(3)(ii)(A) or (B) of this section.

(A) Determine the control device efficiency using Equation 2 of § 63.3360 and the applicable test methods and procedures specified in § 63.3360(e).

(B) Use a CEMS to determine the organic HAP emission rate according to paragraphs (i)(2)(i) through (x) of this section.

(iii) You are in compliance if the installation of a total enclosure is demonstrated and the organic HAP concentration at the outlet of the incinerator is demonstrated to be no greater than 20 ppmv by compound on a dry basis.

(f) *Capture and control to achieve mass fraction of coating solids applied limit (§ 63.3320(b)(3)).* Operate a capture system and control device and limit the organic HAP emission rate from an existing affected source to no more than 0.20 kg organic HAP emitted per kg coating solids applied, and from a new affected source to no more than 0.08 kg organic HAP emitted per kg coating solids applied as determined on a monthly average as-applied basis. If the affected source operates more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controlled work stations, then you must demonstrate compliance in accordance with the provisions of paragraph (n) of this section. Otherwise, you must demonstrate compliance following the procedure in paragraph (i) of this section when emissions from the affected source are controlled by a solvent recovery device or the procedure in paragraph (k) of this section when emissions are controlled by an oxidizer.

(g) *Capture and control to achieve mass fraction limit (§ 63.3320(b)(2)).* Operate a capture system and control device and limit the organic HAP emission rate to no more than 0.04 kg organic HAP emitted per kg coating material applied at an existing affected source, and no more than 0.016 kg organic HAP emitted per kg coating material applied at a new affected source as determined on a monthly average as-applied basis. If the affected source operates more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controlled work stations, then you must demonstrate compliance in accordance with the provisions of paragraph (n) of this section. Otherwise, you must demonstrate compliance following the procedure in paragraph (i) of this section when emissions from the affected source are controlled by a solvent recovery device or the procedure in paragraph (k) of this section when emissions are controlled by an oxidizer.

(h) *Capture and control to achieve allowable emission rate.* Operate a capture system and control device and limit the monthly organic HAP emissions to less than the allowable emissions as calculated in accordance with paragraph (l) of this section. If the affected source operates more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controlled work stations, then you must demonstrate compliance in accordance with the provisions of paragraph (n) of this section. Otherwise, the owner or operator must demonstrate compliance following the procedure in paragraph (i) of this section when emissions from the affected source are controlled by a solvent recovery device or the procedure in paragraph (k) of this section when emissions are controlled by an oxidizer.

(i) *Solvent recovery device compliance demonstration.* If you use a solvent recovery device to control emissions, you must show compliance by following the procedures in either paragraph (i)(1) or (2) of this section:

(1) *Liquid-liquid material balance.* Perform a monthly liquid-liquid material balance as specified in paragraphs (i)(1)(i) through (v) of this section and use the applicable equations in paragraphs (i)(1)(vi) through (ix) of this section to convert the data to units of the selected compliance option in paragraphs (e) through (h) of this section. Compliance is determined in accordance with paragraph (i)(1)(x) of this section.

(i) Determine the mass of each coating material applied on the web coating line or group of web coating lines controlled by a common solvent recovery device during the month.

(ii) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied, organic HAP emission rate based on coating material applied, or emission of less than the calculated allowable organic HAP, determine the organic HAP content of each coating material as-applied during the month following the procedure in § 63.3360(c).

(iii) Determine the volatile organic content of each coating material as-applied during the month following the procedure in § 63.3360(d).

(iv) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied or emission of less than the calculated allowable organic HAP, determine the coating solids content of each coating material applied during the month following the procedure in § 63.3360(d).

(v) Determine and monitor the amount of volatile organic matter recovered for the month according to the procedures in § 63.3350(d).

(vi) *Recovery efficiency.* Calculate the volatile organic matter collection and recovery efficiency using Equation 7 of this section:

$$R_V = \frac{M_{vr} + M_{vret}}{\sum_{i-1}^{p} C_{vi} M_i + \sum_{i=1}^{q} C_{vij} M_{ij}} \times 100 \quad \text{Eq. 7}$$

Where:

R_v = Organic volatile matter collection and recovery efficiency, percent.

M_{vr} = Mass of volatile matter recovered in a month, kg.

M_{vret} = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in § 63.3370.

p = Number of different coating materials applied in a month.

C_{vi} = Volatile organic content of coating material, i, expressed as a mass fraction, kg/kg.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

C_{vij} = Volatile organic content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.

M_{ij} = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

(vii) *Organic HAP emitted.* Calculate the organic HAP emitted during the month using Equation 8 of this section:

$$H_e = \left[1 - \frac{R_v}{100}\right]\left[\sum_{i=1}^{p} C_{hi}M_i + \sum_{j=1}^{q} C_{hij}M_{ij} - M_{vret}\right] \qquad \text{Eq. 8}$$

Where:

H_e = Total monthly organic HAP emitted, kg.

R_v = Organic volatile matter collection and recovery efficiency, percent.

p = Number of different coating materials applied in a month.

C_{hi} = Organic HAP content of coating material, i, as-purchased, expressed as a mass fraction, kg/kg.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

C_{hij} = Organic HAP content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.

M_{ij} = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

M_{vret} = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in §63.3370.

(viii) *Organic HAP emission rate based on coating solids applied.* Calculate the organic HAP emission rate based on coating solids applied using Equation 9 of this section:

$$L = \frac{H_e}{\sum_{i=1}^{p} C_{si}M_i + \sum_{j=1}^{q} C_{sij}M_{ij}} \qquad \text{Eq. 9}$$

Where:

L = Mass organic HAP emitted per mass of coating solids applied, kg/kg.

H_e = Total monthly organic HAP emitted, kg.

p = Number of different coating materials applied in a month.

C_{si} = Coating solids content of coating material, i, expressed as a mass fraction, kg/kg.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

C_{sij} = Coating solids content of material, j, added to as-purchased coating material, i, expressed as a mass-fraction, kg/kg.

M_{ij} = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

(ix) *Organic HAP emission rate based on coating materials applied.* Calculate the organic HAP emission rate based on coating material applied using Equation 10 of this section:

$$S = \frac{H_e}{\sum_{i=1}^{p} M_i + \sum_{j=1}^{q} M_{ij}} \qquad \text{Eq. 10}$$

Where:

S = Mass organic HAP emitted per mass of material applied, kg/kg.

H_e = Total monthly organic HAP emitted, kg.

p = Number of different coating materials applied in a month.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

M_{ij} = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

(x) You are in compliance with the emission standards in § 63.3320(b) if:

(A) The volatile organic matter collection and recovery efficiency is 95 percent or greater at an existing affected source and 98 percent or greater at a new affected source; or

(B) The organic HAP emission rate based on coating solids applied is no more than 0.20 kg organic HAP per kg coating solids applied at an existing affected source and no more than 0.08 kg organic HAP per kg coating solids applied at a new affected source; or

(C) The organic HAP emission rate based on coating material applied is no more than 0.04 kg organic HAP per kg coating material applied at an existing affected source and no more than 0.016 kg organic HAP per kg coating material applied at a new affected source; or

(D) The organic HAP emitted during the month is less than the calculated allowable organic HAP as determined using paragraph (l) of this section.

(2) *Continuous emission monitoring of capture system and control device performance.* Demonstrate initial compliance through a performance test on capture efficiency and continuing compliance through continuous emission monitors and continuous monitoring of capture system operating parameters following the procedures in paragraphs (i)(2)(i) through (vii) of this section. Use the applicable equations specified in paragraphs (i)(2)(viii) through (x) of this section to convert the monitoring and other data into units of the selected compliance option in paragraphs (e) through (h) of this section. Compliance is determined in accordance with paragraph (i)(2)(xi) of this section.

(i) *Control device efficiency.* Continuously monitor the gas stream entering and exiting the control device to determine the total organic volatile matter mass flow rate (*e.g.*, by determining the concentration of the vent gas in grams per cubic meter and the volumetric flow rate in cubic meters per second such that the total organic volatile matter mass flow rate in grams per second can be calculated) such that the control device efficiency of the control device can be calculated for each month using Equation 2 of § 63.3360.

(ii) *Capture efficiency monitoring.* Whenever a web coating line is operated, continuously monitor the operating parameters established in accordance with § 63.3350(f) to ensure capture efficiency.

(iii) Determine the percent capture efficiency in accordance with § 63.3360(f).

(iv) *Control efficiency.* Calculate the overall organic HAP control efficiency achieved for each month using Equation 11 of this section:

$$R = \frac{(E)(CE)}{100} \qquad \text{Eq. 11}$$

Where:

R = Overall organic HAP control efficiency, percent.

E = Organic volatile matter control efficiency of the control device, percent.

CE = Organic volatile matter capture efficiency of the capture system, percent.

(v) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied, organic HAP emission rate based on coating materials applied, or emission of less than the calculated allowable organic HAP, determine the mass of each coating material applied on the web coating line or group of web coating lines controlled by a common control device during the month.

(vi) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied, organic HAP emission rate based on coating material applied, or emission of less than the calculated allowable organic HAP, determine the organic HAP content of each coating material as-applied during the month following the procedure in § 63.3360(c).

(vii) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied or emission of less than the calculated allowable organic HAP, determine the coating solids content of each coating material as-applied during the month following the procedure in § 63.3360(d).

(viii) *Organic HAP emitted.* Calculate the organic HAP emitted during the month for each month using Equation 12 of this section:

$$H_e = (1 - R)\left(\sum_{i=1}^{p} C_{ahi} M_i\right) - M_{vret} \qquad \text{Eq. 12}$$

Where:

H_e = Total monthly organic HAP emitted, kg.

R = Overall organic HAP control efficiency, percent.

p = Number of different coating materials applied in a month.

C_{ahi} = Monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

M_{vret} = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in this section.

(ix) *Organic HAP emission rate based on coating solids applied.* Calculate the organic HAP emission rate based on coating solids applied using Equation 9 of this section.

(x) *Organic HAP emission rate based on coating materials applied.* Calculate the organic HAP emission rate based on coating material applied using Equation 10 of this section.

(xi) *Compare actual performance to the performance required by compliance option.* The affected source is in compliance with the emission standards in § 63.3320(b) for each month if the capture system is operated such that the average capture system operating parameter is greater than or less than (as appropriate) the operating parameter value established in accordance with § 63.3350(f); and

(A) The organic volatile matter collection and recovery efficiency is 95 percent or greater at an existing affected source and 98 percent or greater at a new affected source; or

(B) The organic HAP emission rate based on coating solids applied is no more than 0.20 kg organic HAP per kg coating solids applied at an existing affected source and no more than 0.08 kg organic HAP per kg coating solids applied at a new affected source; or

(C) The organic HAP emission rate based on coating material applied is no more than 0.04 kg organic HAP per kg coating material applied at an existing affected source and no more than 0.016 kg organic HAP per kg coating material applied at a new affected source; or

(D) The organic HAP emitted during the month is less than the calculated allowable organic HAP as determined using paragraph (l) of this section.

(j) *Capture and control system compliance demonstration procedures using a CPMS.* If you use an add-on control device, you must demonstrate initial compliance for each capture system and each control device through performance tests and demonstrate continuing compliance through continuous monitoring of capture system and control device operating parameters as specified in paragraphs (j)(1) through (3) of this section. Compliance is determined in accordance with paragraph (j)(4) of this section.

(1) Determine the control device destruction or removal efficiency using the applicable test methods and procedures in § 63.3360(e).

(2) Determine the emission capture efficiency in accordance with § 63.3360(f).

(3) Whenever a web coating line is operated, continuously monitor the operating parameters established according to § 63.3350(e) and (f).

(4) You are in compliance with the emission standards in § 63.3320(b) if the control device is operated such that the average operating parameter value

is greater than or less than (as appropriate) the operating parameter value established in accordance with § 63.3360(e) for each 3-hour period, and the capture system operating parameter is operated at an average value greater than or less than (as appropriate) the operating parameter value established in accordance with § 63.3350(f); and

(i) The overall organic HAP control efficiency is 95 percent or greater at an existing affected source and 98 percent or greater at a new affected source; or

(ii) The organic HAP emission rate based on coating solids applied is no more than 0.20 kg organic HAP per kg coating solids applied at an existing affected source and no more than 0.08 kg organic HAP per kg coating solids applied at a new affected source; or

(iii) The organic HAP emission rate based on coating material applied is no more than 0.04 kg organic HAP per kg coating material applied at an existing affected source and no more than 0.016 kg organic HAP per kg coating material applied at a new affected source; or

(iv) The organic HAP emitted during the month is less than the calculated allowable organic HAP as determined using paragraph (l) of this section.

(k) *Oxidizer compliance demonstration procedures.* If you use an oxidizer to control emissions, you must show compliance by following the procedures in paragraph (k)(1) of this section. Use the applicable equations specified in paragraph (k)(2) of this section to convert the monitoring and other data into units of the selected compliance option in paragraph (e) through (h) of this section. Compliance is determined in accordance with paragraph (k)(3) of this section.

(1) Demonstrate initial compliance through performance tests of capture efficiency and control device efficiency and continuing compliance through continuous monitoring of capture system and control device operating parameters as specified in paragraphs (k)(1)(i) through (vi) of this section:

(i) Determine the oxidizer destruction efficiency using the procedure in § 63.3360(e).

(ii) Determine the capture system capture efficiency in accordance with § 63.3360(f).

(iii) *Capture and control efficiency monitoring.* Whenever a web coating line is operated, continuously monitor the operating parameters established in accordance with § 63.3350(e) and (f) to ensure capture and control efficiency.

(iv) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied, organic HAP emission rate based on coating materials applied, or emission of less than the calculated allowable organic HAP, determine the mass of each coating material applied on the web coating line or group of web coating lines controlled by a common oxidizer during the month.

(v) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied, organic HAP emission rate based on coating material applied, or emission of less than the calculated allowable organic HAP, determine the organic HAP content of each coating material as-applied during the month following the procedure in § 63.3360(c).

(vi) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied or emission of less than the calculated allowable organic HAP, determine the coating solids content of each coating material applied during the month following the procedure in § 63.3360(d).

(2) Convert the information obtained under paragraph (p)(1) of this section into the units of the selected compliance option using the calculation procedures specified in paragraphs (k)(2)(i) through (iv) of this section.

(i) *Control efficiency.* Calculate the overall organic HAP control efficiency achieved using Equation 11 of this section.

(ii) *Organic HAP emitted.* Calculate the organic HAP emitted during the month using Equation 12 of this section.

(iii) *Organic HAP emission rate based on coating solids applied.* Calculate the organic HAP emission rate based on coating solids applied for each month using Equation 9 of this section.

(iv) *Organic HAP based on coating materials applied.* Calculate the organic HAP emission rate based on coating material applied using Equation 10 of this section.

(3) You are in compliance with the emission standards in § 63.3320(b) if the oxidizer is operated such that the average operating parameter value is greater than the operating parameter value established in accordance with § 63.3360(e) for each 3-hour period, and the capture system operating parameter is operated at an average value greater than or less than (as appropriate) the operating parameter value established in accordance with § 63.3350(f); and

(i) The overall organic HAP control efficiency is 95 percent or greater at an existing affected source and 98 percent or greater at a new affected source; or

(ii) The organic HAP emission rate based on coating solids applied is no more than 0.20 kg organic HAP per kg coating solids applied at an existing affected source and no more than 0.08 kg organic HAP per kg coating solids applied at a new affected source; or

(iii) The organic HAP emission rate based on coating material applied is no more than 0.04 kg organic HAP per kg coating material applied at an existing affected source and no more than 0.016 kg organic HAP per kg coating material applied at a new affected source; or

(iv) The organic HAP emitted during the month is less than the calculated allowable organic HAP as determined using paragraph (l) of this section.

(l) *Monthly allowable organic HAP emissions.* This paragraph provides the procedures and calculations for determining monthly allowable organic HAP emissions for use in demonstrating compliance in accordance with paragraph (d), (h), (i)(1)(x)(D), (i)(2)(xi)(D), or (k)(3)(iv) of this section. You will need to determine the amount of coating material applied at greater than or equal to 20 mass percent coating solids and the amount of coating material applied at less than 20 mass percent coating solids. The allowable organic HAP limit is then calculated based on coating material applied at greater than or equal to 20 mass percent coating solids complying with 0.2 kg organic HAP per kg coating solids at an existing affected source or 0.08 kg organic HAP per kg coating solids at a new affected source, and coating material applied at less than 20 mass percent coating solids complying with 4 mass percent organic HAP at an existing affected source and 1.6 mass-percent organic HAP at a new affected source as follows:

(1) Determine the as-purchased mass of each coating material applied each month.

(2) Determine the as-purchased coating solids content of each coating material applied each month in accordance with § 63.3360(d)(1).

(3) Determine the as-purchased mass fraction of each coating material which was applied at 20 mass percent or greater coating solids content on an as-applied basis.

(4) Determine the total mass of each solvent, diluent, thinner, or reducer added to coating materials which were applied at less than 20 mass percent coating solids content on an as-applied basis each month.

(5) Calculate the monthly allowable organic HAP emissions using Equation 13a of this section for an existing affected source:

$$H_a = 0.20\left[\sum_{i=1}^{p} M_i G_i C_{si}\right] + 0.04\left[\sum_{i=1}^{p} M_i (1 - G_i) + \sum_{j=1}^{q} M_{L_j}\right] \qquad \text{Eq. 13a}$$

Where:

H_a = Monthly allowable organic HAP emissions, kg.

p = Number of different coating materials applied in a month.

M_i = mass of as-purchased coating material, i, applied in a month, kg.

G_i = Mass fraction of each coating material, i, which was applied at 20 mass percent or greater coating solids content, on an as-applied basis, kg/kg.

C_{si} = Coating solids content of coating material, i, expressed as a mass fraction, kg/kg.

q = Number of different materials added to the coating material.

M_{Lj} = Mass of non-coating-solids-containing coating material, j, added to coating-solids-containing coating materials which were applied at less than 20 mass percent coating solids content, on an as-applied basis, in a month, kg.

or Equation 13b of this section for a new affected source:

$$H_a = 0.08\left[\sum_{i=1}^{p} M_i G_i C_{si}\right] + 0.016\left[\sum_{i=1}^{p} M_i\left(1 - G_i\right) + \sum_{j=1}^{q} M_{L_j}\right] \qquad \text{Eq. 13b}$$

Where:

H_a = Monthly allowable organic HAP emissions, kg.

p = Number of different coating materials applied in a month.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

G_i = Mass fraction of each coating material, i, which was applied at 20 mass percent or greater coating solids content, on an as-applied basis, kg/kg.

C_{si} = Coating solids content of coating material, i, expressed as a mass fraction, kg/kg.

q = Number of different materials added to the coating material.

M_{Lj} = Mass of non-coating-solids-containing coating material, j, added to coating-solids-containing coating materials which were applied at less than 20 mass percent coating solids content, on an as-applied basis, in a month, kg.

(m) [Reserved]

(n) *Combinations of capture and control.* If you operate more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controlled work stations, you must calculate organic HAP emissions according to the procedures in paragraphs (n)(1) through (4) of this section, and use the calculation procedures specified in paragraph (n)(5) of this section to convert the monitoring and other data into units of the selected control option in paragraphs (e) through (h) of this section. Use the procedures specified in paragraph (n)(6) of this section to demonstrate compliance.

(1) *Solvent recovery system using liquid-liquid material balance compliance demonstration.* If you choose to comply by means of a liquid-liquid material balance for each solvent recovery system used to control one or more web coating lines, you must determine the organic HAP emissions for those web coating lines controlled by that solvent recovery system either:

(i) In accordance with paragraphs (i)(1)(i) through (iii) and (v) through (vii) of this section, if the web coating lines controlled by that solvent recovery system have only always-controlled work stations; or

(ii) In accordance with paragraphs (i)(1)(ii), (iii), (v), and (vi) and (o) of this section, if the web coating lines controlled by that solvent recovery system have one or more never-controlled or intermittently-controlled work stations.

(2) *Solvent recovery system using performance test compliance demonstration and CEMS.* To demonstrate compliance through an initial test of capture efficiency, continuous monitoring of a capture system operating parameter, and a CEMS on each solvent recovery system used to control one or more web coating lines, you must:

(i) For each capture system delivering emissions to that solvent recovery system, monitor the operating parameter established in accordance with § 63.3350(f) to ensure capture system efficiency; and

(ii) Determine the organic HAP emissions for those web coating lines served by each capture system delivering emissions to that solvent recovery system either:

(A) In accordance with paragraphs (i)(2)(i) through (iii), (v), (vi), and (viii) of this section, if the web coating lines served by that capture and control system have only always-controlled work stations; or

(B) In accordance with paragraphs (i)(2)(i) through (iii), (vi), and (o) of this section, if the web coating lines served by that capture and control system have one or more never-controlled or intermittently-controlled work stations.

(3) *Oxidizer.* To demonstrate compliance through performance tests of capture efficiency and control device efficiency, continuous monitoring of capture system, and CPMS for control device operating parameters for each oxidizer used to control emissions from one or more web coating lines, you must:

(i) Monitor the operating parameter in accordance with §63.3350(e) to ensure control device efficiency; and

(ii) For each capture system delivering emissions to that oxidizer, monitor the operating parameter established in accordance with §63.3350(f) to ensure capture efficiency; and

(iii) Determine the organic HAP emissions for those web coating lines served by each capture system delivering emissions to that oxidizer either:

(A) In accordance with paragraphs (k)(1)(i) through (vi) of this section, if the web coating lines served by that capture and control system have only always-controlled work stations; or

(B) In accordance with paragraphs (k)(1)(i) through (iii), (v), and (o) of this section, if the web coating lines served by that capture and control system have one or more never-controlled or intermittently-controlled work stations.

(4) *Uncontrolled coating lines.* If you own or operate one or more uncontrolled web coating lines, you must determine the organic HAP applied on those web coating lines using Equation 6 of this section. The organic HAP emitted from an uncontrolled web coating line is equal to the organic HAP applied on that web coating line.

(5) Convert the information obtained under paragraphs (n)(1) through (4) of this section into the units of the selected compliance option using the calculation procedures specified in paragraphs (n)(5)(i) through (iv) of this section.

(i) *Organic HAP emitted.* Calculate the organic HAP emissions for the affected source for the month by summing all organic HAP emissions calculated according to paragraphs (n)(1), (2)(ii), (3)(iii), and (4) of this section.

(ii) *Coating solids applied.* If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied or emission of less than the calculated allowable organic HAP, the owner or operator must determine the coating solids content of each coating material applied during the month following the procedure in §63.3360(d).

(iii) *Organic HAP emission rate based on coating solids applied.* Calculate the organic HAP emission rate based on coating solids applied for each month using Equation 9 of this section.

(iv) *Organic HAP based on materials applied.* Calculate the organic HAP emission rate based on material applied using Equation 10 of this section.

(6) *Compliance.* The affected source is in compliance with the emission standards in §63.3320(b) for the month if all operating parameters required to be monitored under paragraphs (n)(1) through (3) of this section were maintained at the values established under §§63.3350 and 63.3360; and

(i) The total mass of organic HAP emitted by the affected source based on coating solids applied is no more than 0.20 kg organic HAP per kg coating solids applied at an existing affected source and no more than 0.08 kg organic HAP per kg coating solids applied at a new affected source; or

(ii) The total mass of organic HAP emitted by the affected source based on material applied is no more than 0.04 kg organic HAP per kg material applied at an existing affected source and no more than 0.016 kg organic HAP per kg material applied at a new affected source; or

(iii) The total mass of organic HAP emitted by the affected source during the month is less than the calculated allowable organic HAP as determined using paragraph (l) of this section; or

(iv) The total mass of organic HAP emitted by the affected source was not more than 5 percent of the total mass of organic HAP applied for the month at an existing affected source and no more than 2 percent of the total mass of organic HAP applied for the month at a new affected source. The total mass of organic HAP applied by the affected source in the month must be determined using Equation 6 of this section.

(o) *Intermittently-controlled and never-controlled work stations.* If you have been expressly referenced to this paragraph by paragraphs (n)(1)(ii), (n)(2)(ii)(B), or (n)(3)(iii)(B) of this section for calculation procedures to determine organic HAP emissions for your intermittently-controlled and never-controlled work stations, you must:

(1) Determine the sum of the mass of all coating materials as-applied on intermittently-controlled work stations operating in bypass mode and the mass of all coating materials as-applied on never-controlled work stations during the month.

(2) Determine the sum of the mass of all coating materials as-applied on intermittently-controlled work stations operating in a controlled mode and the mass of all coating materials applied on always-controlled work stations during the month.

(3) *Liquid-liquid material balance compliance demonstration.* For each web coating line or group of web coating lines for which you use the provisions of paragraph (n)(1)(ii) of this section, you must calculate the organic HAP emitted during the month using Equation 14 of this section:

$$H_e = \left[\sum_{i=1}^{p} M_{Ci} C_{ahi}\right]\left[1 - \frac{R_v}{100}\right] + \left[\sum_{i=1}^{p} M_{Bi} C_{ahi}\right] - M_{vret} \qquad \text{Eq. 14}$$

Where:

H_e = Total monthly organic HAP emitted, kg.

p = Number of different coating materials applied in a month.

M_{ci} = Sum of the mass of coating material, i, as-applied on intermittently-controlled work stations operating in controlled mode and the mass of coating material, i, as-applied on always-controlled work stations, in a month, kg.

C_{ahi} = Monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg.

R_v = Organic volatile matter collection and recovery efficiency, percent.

M_{Bi} = Sum of the mass of coating material, i, as-applied on intermittently-controlled work stations operating in bypass mode and the mass of coating material, i, as-applied on never-controlled work stations, in a month, kg.

C_{ahi} = Monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg.

M_{vret} = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in this section.

(4) *Performance test to determine capture efficiency and control device efficiency.* For each web coating line or group of web coating lines for which you use the provisions of paragraph (n)(2)(ii)(B) or (n)(3)(iii)(B) of this section, you must calculate the organic HAP emitted during the month using Equation 15 of this section:

$$H_e = \left[\sum_{i=1}^{p} M_{Ci} C_{ahi}\right]\left[1 - \frac{R}{100}\right] + \left[\sum_{i=1}^{p} M_{Bi} C_{ahi}\right] - M_{vret} \qquad \text{Eq. 15}$$

Where:

H_e = Total monthly organic HAP emitted, kg.

p = Number of different coating materials applied in a month.

M_{ci} = Sum of the mass of coating material, i, as-applied on intermittently-controlled work stations operating in controlled mode and the mass of coating material, i, as-applied on always-controlled work stations, in a month, kg.

C_{ahi} = Monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg.

R = Overall organic HAP control efficiency, percent.

M_{Bi} = Sum of the mass of coating material, i, as-applied on intermittently-controlled work stations operating in bypass mode and the mass of coating material, i, as-applied on never-controlled work stations, in a month, kg.

C_{ahi} = Monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg.

M_{vret} = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in this section.

(p) *Always-controlled work stations with more than one capture and control system.* If you operate more than one capture system or more than one control device and only have always-controlled work stations, then you are in compliance with the emission standards in § 63.3320(b)(1) for the month if for each web coating line or group of web coating lines controlled by a common control device:

(1) The volatile matter collection and recovery efficiency as determined by paragraphs (i)(1)(i), (iii), (v), and (vi) of this section is at least 95 percent at an existing affected source and at least 98 percent at a new affected source; or

(2) The overall organic HAP control efficiency as determined by paragraphs (i)(2)(i) through (iv) of this section for each web coating line or group of web coating lines served by that control device and a common capture system is at least 95 percent at an existing affected source and at least 98 percent at a new affected source; or

(3) The overall organic HAP control efficiency as determined by paragraphs (k)(1)(i) through (iii) and (k)(2)(i) of this section for each web coating line or group of web coating lines served by that control device and a common capture system is at least 95 percent at an existing affected source and at least 98 percent at a new affected source.

NOTIFICATIONS, REPORTS, AND RECORDS

§ 63.3400 What notifications and reports must I submit?

(a) Each owner or operator of an affected source subject to this subpart must submit the reports specified in paragraphs (b) through (g) of this section to the Administrator:

(b) You must submit an initial notification as required by § 63.9(b).

(1) Initial notification for existing affected sources must be submitted no later than 1 year before the compliance date specified in § 63.3330(a).

(2) Initial notification for new and reconstructed affected sources must be submitted as required by § 63.9(b).

(3) For the purpose of this subpart, a title V or part 70 permit application may be used in lieu of the initial notification required under § 63.9(b), provided the same information is contained in the permit application as required by § 63.9(b) and the State to which the permit application has been submitted has an approved operating permit program under part 70 of this chapter and has received delegation of

authority from the EPA to implement and enforce this subpart.

(4) If you are using a permit application in lieu of an initial notification in accordance with paragraph (b)(3) of this section, the permit application must be submitted by the same due date specified for the initial notification.

(c) You must submit a semiannual compliance report according to paragraphs (c)(1) and (2) of this section.

(1) Compliance report dates.

(i) The first compliance report must cover the period beginning on the compliance date that is specified for your affected source in § 63.3330 and ending on June 30 or December 31, whichever date is the first date following the end of the calendar half immediately following the compliance date that is specified for your affected source in § 63.3330.

(ii) The first compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date follows the end of the calendar half immediately following the compliance date that is specified for your affected source in § 63.3330.

(iii) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(iv) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(v) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 40 CFR part 71, and the permitting authority has established dates for submitting semiannual reports pursuant to § 70.6(a)(3)(iii)(A) or § 71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (c)(1)(i) through (iv) of this section.

(2) The compliance report must contain the information in paragraphs (c)(2)(i) through (vi) of this section:

(i) Company name and address.

(ii) Statement by a responsible official with that official's name, title, and signature certifying the accuracy of the content of the report.

(iii) Date of report and beginning and ending dates of the reporting period.

(iv) If there are no deviations from any emission limitations (emission limit or operating limit) that apply to you, a statement that there were no deviations from the emission limitations during the reporting period, and that no CMS was inoperative, inactive, malfunctioning, out-of-control, repaired, or adjusted.

(v) For each deviation from an emission limitation (emission limit or operating limit) that applies to you and that occurs at an affected source where you are not using a CEMS to comply with the emission limitations in this subpart, the compliance report must contain the information in paragraphs (c)(2)(i) through (iii) of this section, and:

(A) The total operating time of each affected source during the reporting period.

(B) Information on the number, duration, and cause of deviations (including unknown cause), if applicable, and the corrective action taken.

(C) Information on the number, duration, and cause for CPMS downtime incidents, if applicable, other than downtime associated with zero and span and other calibration checks.

(vi) For each deviation from an emission limit occurring at an affected source where you are using a CEMS to comply with the emission limit in this subpart, you must include the information in paragraphs (c)(2)(i) through (iii) and (vi)(A) through (J) of this section.

(A) The date and time that each malfunction started and stopped.

(B) The date and time that each CEMS and CPMS, if applicable, was inoperative except for zero (low-level) and high-level checks.

(C) The date and time that each CEMS and CPMS, if applicable, was out-of-control, including the information in § 63.8(c)(8).

(D) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(E) A summary of the total duration (in hours) of each deviation during the reporting period and the total duration of each deviation as a percent of the total source operating time during that reporting period.

(F) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(G) A summary of the total duration (in hours) of CEMS and CPMS downtime during the reporting period and the total duration of CEMS and CPMS downtime as a percent of the total source operating time during that reporting period.

(H) A breakdown of the total duration of CEMS and CPMS downtime during the reporting period into periods that are due to monitoring equipment malfunctions, nonmonitoring equipment malfunctions, quality assurance/quality control calibrations, other known causes, and other unknown causes.

(I) The date of the latest CEMS and CPMS certification or audit.

(J) A description of any changes in CEMS, CPMS, or controls since the last reporting period.

(d) You must submit a Notification of Performance Tests as specified in §§ 63.7 and 63.9(e) if you are complying with the emission standard using a control device and you are required to conduct a performance test of the control device. This notification and the site-specific test plan required under § 63.7(c)(2) must identify the operating parameters to be monitored to ensure that the capture efficiency of the capture system and the control efficiency of the control device determined during the performance test are maintained. Unless EPA objects to the parameter or requests changes, you may consider the parameter approved.

(e) You must submit a Notification of Compliance Status as specified in § 63.9(h).

(f) You must submit performance test reports as specified in § 63.10(d)(2) if you are using a control device to comply with the emission standard and you have not obtained a waiver from the performance test requirement or you are not exempted from this requirement by § 63.3360(b). The performance test reports must be submitted as part of the notification of compliance status required in § 63.3400(e).

(g) You must submit startup, shutdown, and malfunction reports as specified in § 63.10(d)(5), except that the provisions in subpart A of this part pertaining to startups, shutdowns, and malfunctions do not apply unless a control device is used to comply with this subpart.

(1) If actions taken by an owner or operator during a startup, shutdown, or malfunction of an affected source (including actions taken to correct a malfunction) are not consistent with the procedures specified in the affected source's SSMP required by § 63.6(e)(3), the owner or operator must state such information in the report. The startup, shutdown, or malfunction report must consist of a letter containing the name, title, and signature of the responsible official who is certifying its accuracy and must be submitted to the Administrator.

(2) Separate startup, shutdown, and malfunction reports are not required if the information is included in the report specified in paragraph (c)(2)(vi) of this section.

§ 63.3410 What records must I keep?

(a) Each owner or operator of an affected source subject to this subpart must maintain the records specified in paragraphs (a)(1) and (2) of this section on a monthly basis in accordance with the requirements of § 63.10(b)(1):

(1) Records specified in § 63.10(b)(2) of all measurements needed to demonstrate compliance with this standard, including:

(i) Continuous emission monitor data in accordance with the requirements of § 63.3350(d);

(ii) Control device and capture system operating parameter data in accordance with the requirements of § 63.3350(c), (e), and (f);

(iii) Organic HAP content data for the purpose of demonstrating compliance in accordance with the requirements of § 63.3360(c);

(iv) Volatile matter and coating solids content data for the purpose of demonstrating compliance in accordance with the requirements of § 63.3360(d);

(v) Overall control efficiency determination using capture efficiency and control device destruction or removal efficiency test results in accordance with the requirements of § 63.3360(e) and (f); and

(vi) Material usage, organic HAP usage, volatile matter usage, and coating solids usage and compliance demonstrations using these data in accordance with the requirements of § 63.3370(b), (c), and (d).

(2) Records specified in § 63.10(c) for each CMS operated by the owner or operator in accordance with the requirements of § 63.3350(b).

(b) Each owner or operator of an affected source subject to this subpart must maintain records of all liquid-liquid material balances performed in accordance with the requirements of § 63.3370. The records must be maintained in accordance with the requirements of § 63.10(b).

DELEGATION OF AUTHORITY

§ 63.3420 What authorities may be delegated to the States?

(a) In delegating implementation and enforcement authority to a State under 40 CFR part 63, subpart E, the authorities contained in paragraph (b) of this section must be retained by the Administrator and not transferred to a State.

(b) Authority which will not be delegated to States: § 63.3360(c), approval of alternate test method for organic HAP content determination; § 63.3360(d), approval of alternate test method for volatile matter determination.

TABLES TO SUBPART JJJJ OF PART 63

If you are required to comply with operating limits by § 63.3321, you must comply with the applicable operating limits in the following table:

TABLE 1 TO SUBPART JJJJ OF PART 63—OPERATING LIMITS IF USING ADD-ON CONTROL DEVICES AND CAPTURE SYSTEM

For the following device:	You must meet the following operating limit:	And you must demonstrate continuous compliance with operating limits by:
1. Thermal oxidizer	a. The average combustion temperature in any 3-hour period must not fall below the combustion temperature limit established according to § 63.3360(e)(3)(i).	i. Collecting the combustion temperature data according to § 63.3350(e)(9); ii. Reducing the data to 3-hour block averages; and iii. Maintain the 3-hour average combustion temperature at or above the temperature limit.
2. Catalytic oxidizer	a. The average temperature at the inlet to the catalyst bed in any 3-hour period must not fall below the combustion temperature limit established according to § 63.3360(e)(3)(ii).	i. Collecting the catalyst bed inlet temperature data according to § 63.3350(e)(9); ii. Reducing the data to 3-hour block averages; and iii. Maintain the 3-hour average catalyst bed inlet temperature at or above the temperature limit.
	b. The temperature rise across the catalyst bed must not fall below the limit established according to § 63.3360(e)(3)(ii).	i. Collecting the catalyst bed inlet and outlet temperature data according to § 63.3350(e)(9); ii. Reducing the data to 3-hour block averages; and iii. Maintain the 3-hour average temperature rise across the catalyst bed at or above the limit.
3. Emission capture system	Submit monitoring plan to the Administrator that identifies operating parameters to be monitored according to § 63.3350(f).	Conduct monitoring according to the plan (§ 63.3350(f)(3)).

You must comply with the applicable General Provisions requirements according to the following table:

TABLE 2 TO SUBPART JJJJ OF PART 63—APPLICABILITY OF 40 CFR PART 63 GENERAL PROVISIONS TO SUBPART JJJJ

General provisions reference	Applicable to subpart JJJJ	Explanation
§ 63.1(a)(1)–(4)	Yes.	
§ 63.1(a)(5)	No	Reserved.
§ 63.1(a)(6)–(8)	Yes.	
§ 63.1(a)(9)	No	Reserved.
§ 63.1(a)(10)–(14)	Yes.	
§ 63.1(b)(1)	No	Subpart JJJJ specifies applicability.
§ 63.1(b)(2)–(3)	Yes.	
§ 63.1(c)(1)	Yes.	
§ 63.1(c)(2)	No	Area sources are not subject to emission standards of subpart JJJJ.
§ 63.1(c)(3)	No	Reserved.
§ 63.1(c)(4)	Yes.	
§ 63.1(c)(5)	Yes.	
§ 63.1(d)	No	Reserved.
§ 63.1(e)	Yes.	
§ 63.1(e)(4)	No.	
§ 63.2	Yes	Additional definitions in subpart JJJJ.
§ 63.3(a)–(c)	Yes.	
§ 63.4(a)(1)–(3)	Yes.	
§ 63.4(a)(4)	No	Reserved.
§ 63.4(a)(5)	Yes.	
§ 63.4(b)–(c)	Yes.	
§ 63.5(a)(1)–(2)	Yes.	
§ 63.5(b)(1)	Yes.	
§ 63.5(b)(2)	No	Reserved.
§ 63.5(b)(3)–(6)	Yes.	
§ 63.5(c)	No	Reserved.
§ 63.5(d)	Yes.	
§ 63.5(e)	Yes.	
§ 63.5(f)	Yes.	
§ 63.6(a)	Yes	Applies only when capture and control system is used to comply with the standard.
§ 63.6(b)(1)–(5)	No.	
§ 63.6(b)(6)	No	Reserved.
§ 63.6(b)(7)	Yes.	
§ 63.6(c)(1)–(2)	Yes.	
§ 63.6(c)(3)–(4)	No	Reserved.
§ 63.6(c)(5)	Yes.	
§ 63.6(d)	No	Reserved.
§ 63.6(e)	Yes	Provisions pertaining to SSMP, and CMS do not apply unless an add–on control system is used to comply with the emission limitations.
§ 63.6(f)	Yes.	
§ 63.6(g)	Yes.	
§ 63.6(h)	No	Subpart JJJJ does not require continuous opacity monitoring systems (COMS).
§ 63.6(i)(1)–(14)	Yes.	
§ 63.6(i)(15)	No	Reserved.
§ 63.6(i)(16)	Yes.	
§ 63.6(j)	Yes.	
§ 63.7	Yes.	
§ 63.8(a)(1)–(2)	Yes.	
§ 63.8(a)(3)	No	Reserved.
§ 63.8(a)(4)	No.	
§ 63.8(b)	Yes.	
§ 63.8(c)(1)–(3)	Yes	§ 63.8(c)(1)(i) & (ii) only apply if you use capture and control systems and are required to have a start-up, shutdown, and malfunction plan.
§ 63.8(c)(4)	Yes.	
§ 63.8(c)(5)	No	Subpart JJJJ does not require COMS.
§ 63.8(c)(6)–(c)(8)	Yes	Provisions for COMS are not applicable.
§ 63.8(d)–(f)	Yes	§ 63.8(f)(6) only applies if you use CEMS.
§ 63.8(g)	Yes	Only applies if you use CEMS.

General provisions reference	Applicable to subpart JJJJ	Explanation
§63.9(a)	Yes.	
§63.9(b)(1)	Yes.	
§63.9(b)(2)	Yes	Except §63.3400(b)(1) requires submittal of initial notification for existing affected sources no later than 1 year before compliance date.
§63.9(b)(3)–(5)	Yes.	
§63.9(c)–(e)	Yes.	
§63.9(f)	No	Subpart JJJJ does not require opacity and visible emissions observations.
§63.9(g)	Yes	Provisions for COMS are not applicable.
§63.9(h)(1)–(3)	Yes.	
§63.9(h)(4)	No	Reserved.
§63.9(h)(5)–(6)	Yes.	
§63.9(i)	Yes.	
§63.9(j)	Yes.	
§63.10(a)	Yes.	
§63.10(b)(1)–(3)	Yes	§63.10(b)(2)(i) through (v) only apply if you use a capture and control system.
§63.10(c)(1)	Yes.	
§63.10(c)(2)–(4)	No	Reserved.
§63.10(c)(5)–(8)	Yes.	
§63.10(c)(9)	No	Reserved.
§63.10(c)(10)–(15)	Yes.	
§63.10(d)(1)–(2)	Yes.	
§63.10(d)(3)	No	Subpart JJJJ does not require opacity and visible emissions observations.
§63.10(d)(4)–(5)	Yes.	
§63.10(e)(1)–(2)	Yes	Provisions for COMS are not applicable.
§63.10(e)(3)–(4)	No.	
§63.10(f)	Yes.	
§63.11	No.	
§63.12	Yes.	
§63.13	Yes.	
§63.14	Yes	Subpart JJJJ includes provisions for alternative ASME test methods that are incorporated by reference.
§63.15	Yes.	

Subpart NNNN—National Emission Standards for Hazardous Air Pollutants: Surface Coating of Large Appliances

SOURCE: 67 FR 48262, July 23, 2002, unless otherwise noted.

WHAT THIS SUBPART COVERS

§63.4080 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants for large appliance surface coating facilities. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations.

§63.4081 Am I subject to this subpart?

(a) You are subject to this subpart if you own or operate a facility that applies coatings to large appliance parts or products, and is a major source, is located at a major source, or is part of a major source of emissions of hazardous air pollutants (HAP), except as provided in paragraph (d) of this section. A major source of HAP emissions is any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit any single HAP at a rate of 9.07 megagrams (Mg) (10 tons) or more per year or any combination of HAP at a rate of 22.68 Mg (25 tons) or more per year. You are not subject to this subpart if your large appliance surface coating facility is located at, or is part of, an area source of HAP emissions. An area source of HAP emissions is any stationary source or group of stationary sources located within a contiguous area and under common control that is not a major source.

(b) The large appliance surface coating source category includes any facility engaged in the surface coating of a large appliance part or product. Large appliance parts and products include but are not limited to cooking equipment; refrigerators, freezers, and refrigerated cabinets and cases; laundry equipment; dishwashers, trash compactors, and water heaters; and heating, ventilation, and air-conditioning (HVAC) units, air-conditioning (except motor vehicle) units, air-conditioning and heating combination units, comfort furnaces, and electric heat pumps. Specifically excluded are heat transfer coils and large commercial and industrial chillers.

(c) The large appliance surface coating activities and equipment to which this subpart applies are listed in paragraphs (c)(1) through (9) of this section:

(1) Surface preparation of large appliance parts and products;

(2) Preparation of a coating for application (e.g., mixing in thinners and other components);

(3) Application of a coating to large appliance parts and products using, for example, spray guns or dip tanks;

(4) Application of porcelain enamel, powder coating, and asphalt interior soundproofing coating;

(5) Flash-off, drying, or curing following the coating application operation;

(6) Cleaning of equipment used in coating operations (e.g., application equipment, hangers, racks);

(7) Storage of coatings, thinners, and cleaning materials;

(8) Conveying of coatings, thinners, and cleaning materials from storage areas to mixing areas or coating application areas, either manually (e.g., in buckets) or by automated means (e.g., transfer through pipes using pumps); and

(9) Handling and conveying of waste materials generated by coating operations.

(d) This subpart does not apply to surface coating that meets any of the criteria of paragraphs (d)(1) through (5) of this section.

(1) The surface coating of large appliance parts such as metal or plastic handles, hinges, or fasteners that have a wider use beyond large appliances is not subject to this subpart.

(2) The surface coating of large appliances conducted for the purpose of repairing or maintaining large appliances used by a facility and not for commerce is not subject to this subpart unless organic HAP emissions from the surface coating itself are as high as the rates specified in paragraph (a) of this section.

(3) The surface coating of heat transfer coils or large commercial and industrial chillers.

(4) The provisions of this subpart do not apply to research or laboratory facilities; janitorial, building, and facility maintenance operations; hobby shops operated for noncommercial purposes or coating applications using hand-held non-refillable aerosol containers.

(5) The provisions of this subpart do not apply to processes involving metal plating or phosphating of a substrate.

(e) If you own or operate an affected source that is subject to this subpart and at the same affected source you also perform surface coating subject to any other subparts in this part, you may choose for the affected source to comply with only one subpart. In order to choose this alternative, the total mass of organic HAP emissions from all surface coating operations in the affected source must be less than or equal to the total mass of organic HAP emissions that would result if it complied separately with all applicable subparts. You must make this comparison for the initial compliance period and report it in the Notification of Compliance Status as required in § 63.4110(b)(10) and in the Notification of Compliance Status required by the other subparts. If you choose this alternative, your demonstration of compliance with the other subpart constitutes compliance with this subpart.

§ 63.4082 What parts of my plant does this subpart cover?

(a) This subpart applies to each new, reconstructed, and existing affected source.

(b) The affected source is the collection of all of the items listed in paragraphs (b)(1) through (4) of this section that are part of the large appliance surface coating facility:

(1) All coating operations as defined in § 63.4181;

(2) All storage containers and mixing vessels in which coatings, thinners, and cleaning materials are stored or mixed;

(3) All manual and automated equipment and containers used for conveying coatings, thinners, and cleaning materials; and

(4) All storage containers and all manual and automated equipment and containers used for conveying waste materials generated by a coating operation.

(c) An affected source is a new affected source if you commenced its construction after July 23, 2002, and the construction is of a completely new large appliance surface coating facility where previously no large appliance surface coating facility had existed.

(d) An affected source is reconstructed if you meet the criteria as defined in §63.2.

(e) An affected source is existing if it is not new or reconstructed.

§63.4083 When do I have to comply with this subpart?

The date by which you must comply with this subpart is called the compliance date. The compliance date for each type of affected source is specified in paragraphs (a) through (c) of this section. The compliance date begins the initial compliance period during which you conduct the initial compliance demonstration described in §§63.4140, 63.4150, and 63.4160.

(a) For a new or reconstructed affected source, the compliance date is the applicable date in paragraph (a)(1) or (2) of this section.

(1) If the initial startup of your new or reconstructed affected source is before July 23, 2002, the compliance date is July 23, 2002.

(2) If the initial startup of your new or reconstructed affected source occurs after July 23, 2002, the compliance date is the date of initial startup of your affected source.

(b) For an existing affected source, the compliance date is July 25, 2005.

(c) For an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP emissions, the compliance date is specified in paragraphs (c)(1) and (2) of this section.

(1) For any portion of the source that becomes a new or reconstructed affected source subject to this subpart, the compliance date is the date of initial startup of the affected source, or the date the area source becomes a major source, or July 23, 2002, whichever is latest.

(2) For any portion of the source that becomes an existing affected source subject to this subpart, the compliance date is the date 1 year after the area source becomes a major source or July 25, 2005, whichever is later.

(d) You must meet the notification requirements in §63.4110 according to the dates specified in that section and in subpart A of this part. Some of the notifications must be submitted before the compliance dates described in paragraphs (a) through (c) of this section.

EMISSION LIMITATIONS

§63.4090 What emission limits must I meet?

(a) For an existing affected source, you must limit organic HAP emissions to the atmosphere to no more than 0.13 kilogram per liter (kg/liter) (1.1 pound per gallon (lb/gal)) of coating solids used during each compliance period.

(b) For a new or reconstructed affected source, you must limit organic HAP emissions to the atmosphere to no more than 0.022 kg/liter (0.18 lb/gal) of coating solids used during each compliance period.

§63.4091 What are my options for meeting the emission limits?

You must include all coatings, thinners, and cleaning materials used in the affected source when determining whether the organic HAP emission rate is equal to or less than the applicable emission limit in §63.4090. To make this determination, you must use at least one of the three compliance options listed in paragraphs (a) through (c) of this section. You may apply any of the compliance options to an individual coating operation or to multiple coating operations as a group or to the entire affected source. You may use different compliance options for different coating operations or at different times on the same coating operation. However, you may not use different compliance options at the same time on the same coating operation. If you switch between compliance options for any coating operation or group of coating operations, you must document this switch as required by § 63.4130(c), and you must report it in the next semiannual compliance report required in § 63.4120.

(a) *Compliant material option.* Demonstrate that the organic HAP content of each coating used in the coating operation(s) is less than or equal to the applicable emission limit in § 63.4090, and that each thinner and each cleaning material used contains no organic HAP. You must meet all the requirements of §§ 63.4140, 63.4141, and 63.4142 to demonstrate compliance with the emission limit using this option.

(b) *Emission rate without add-on controls option.* Demonstrate that, based on data on the coatings, thinners, and cleaning materials used in the coating operation(s), the organic HAP emission rate for the coating operation(s) is less than or equal to the applicable emission limit in § 63.4090. You must meet all the requirements of §§ 63.4150, 63.4151, and 63.4152 to demonstrate compliance with the emission limit using this option.

(c) *Emission rate with add-on controls option.* Demonstrate that, based on data on the coatings, thinners, and cleaning materials used in the coating operation(s) and the emission reductions achieved by emission capture and add-on controls, the organic HAP emission rate for the coating operation(s) is less than or equal to the applicable emission limit in § 63.4090. If you use this compliance option, you must also demonstrate that all emission capture systems and add-on control devices for the coating operation(s) meet the operating limits required in § 63.4092, except for solvent recovery systems for which you conduct liquid-liquid material balances according to § 63.4161(h), and that you meet the work practice standards required in § 63.4093. You must meet all the requirements of §§ 63.4160 through 63.4168 to demonstrate compliance with the emission limits, operating limits, and work practice standards using this option.

§ 63.4092 What operating limits must I meet?

(a) For any coating operation(s) on which you use the compliant material option or the emission rate without add-on controls option, you are not required to meet any operating limits.

(b) For any controlled coating operation(s) on which you use the emission rate with add-on controls option, except those for which you use a solvent recovery system and conduct a liquid-liquid material balance according to § 63.4161(h), you must meet the operating limits specified in Table 1 to this subpart. These operating limits apply to the emission capture and control systems on the coating operation(s) for which you use this option, and you must establish the operating limits during the performance test according to the requirements in § 63.4167. You must meet the operating limits at all times after you establish them.

(c) If you use an add-on control device other than those listed in Table 1 to this subpart or wish to monitor an alternative parameter and comply with a different operating limit, you must apply to the U.S. Environmental Protection Agency (EPA) Administrator for approval of alternative monitoring under § 63.8(f).

§ 63.4093 What work practice standards must I meet?

(a) For any coating operation(s) on which you use the compliant material option or the emission rate without add-on controls option, you are not required to meet any work practice standards.

(b) If you use the emission rate with add-on controls option, you must develop and implement a work practice plan to minimize organic HAP emissions from the storage, mixing, and conveying of coatings, thinners, and cleaning materials used in, and waste materials generated by, the coating operation(s) for which you use this option; or you must meet an alternative standard as provided in paragraph (c) of this section. The plan must specify practices and procedures to ensure that, at a minimum, the elements specified in paragraphs (b)(1) through (5) of this section are implemented.

(1) All organic-HAP-containing coatings, thinners, cleaning materials, and waste materials must be stored in closed containers.

(2) Spills of organic-HAP-containing coatings, thinners, cleaning materials, and waste materials must be minimized.

(3) Organic-HAP-containing coatings, thinners, cleaning materials, and waste materials must be conveyed from one location to another in closed containers or pipes.

(4) Mixing vessels which contain organic-HAP-containing coatings and other materials must be closed except when adding to, removing, or mixing the contents.

(5) Emissions of organic HAP must be minimized during cleaning of storage, mixing, and conveying equipment.

(c) As provided in §63.6(g), we, the EPA, may choose to grant you permission to use an alternative to the work practice standards in this section.

GENERAL COMPLIANCE REQUIREMENTS

§63.4100 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limitations in this subpart as specified in paragraphs (a)(1) and (2) of this section.

(1) Any coating operation(s) for which you use the compliant material option or the emission rate without add-on controls option, as specified in §63.4091(a) and (b), must be in compliance with the applicable emission limit in §63.4090 at all times.

(2) Any coating operation(s) for which you use the emission rate with add-on controls option, as specified in §63.4091(c), must be in compliance with the applicable emission limit in §63.4090 and work practice standards in §63.4093 at all times. Each controlled coating operation must be in compliance with the operating limits for emission capture systems and add-on control devices required by §63.4092 at all times, except for solvent recovery systems for which you conduct liquid-liquid material balances according to §63.4161(h).

(b) You must always operate and maintain your affected source, including all air pollution control and monitoring equipment you use for purposes of complying with this subpart, according to the provisions in §63.6(e)(1)(i).

(c) If your affected source uses an emission capture system and add-on control device, you must maintain a log detailing the operation and maintenance of the emission capture system, add-on control device, and continuous parameter monitors during the period between the compliance date specified for your affected source in §63.4083 and the date when the initial emission capture system and add-on control device performance tests have been completed as specified in §63.4160. This requirement does not apply to a solvent recovery system for which you conduct a liquid-liquid material balance according to §63.4161(h) in lieu of conducting performance tests.

(d) If your affected source uses an emission capture system and add-on control device, you must develop and implement a written startup, shutdown, and malfunction plan according to the provisions in §63.6(e)(3). The plan must address the startup, shutdown, and corrective actions in the event of a malfunction of the emission capture system or the add-on control device. The plan must also address any coating operation equipment that may cause increased emissions or that would affect capture efficiency if the process equipment malfunctions, such as conveyors that move parts among enclosures.

§63.4101 What parts of the General Provisions apply to me?

Table 2 to this subpart shows which parts of the General Provisions in §§63.1 through 63.15 apply to you.

NOTIFICATIONS, REPORTS, AND RECORDS

§63.4110 What notifications must I submit?

(a) You must submit the notifications in §§63.7(b) and (c), 63.8(f)(4), and 63.9(b) through (e) and (h) that apply to you by the dates specified in those sections, except as provided in paragraphs (a)(1) and (2) of this section.

(1) You must submit the Initial Notification required by § 63.9(b) for an existing affected source no later than July 23, 2003. For a new or reconstructed affected source, you must submit the Initial Notification no later than 120 days after initial startup or November 20, 2002, whichever is later.

(2) You must submit the Notification of Compliance Status required by § 63.9(h) no later than 30 calendar days following the end of the initial compliance period described in § 63.4140, § 63.4150, or § 63.4160 that applies to your affected source.

(b) The Notification of Compliance Status must contain the information specified in paragraphs (b)(1) through (10) of this section and the applicable information specified in § 63.9(h).

(1) Company name and address.

(2) Statement by a responsible official with that official's name, title, and signature certifying the truth, accuracy, and completeness of the content of the report.

(3) Date of the report and beginning and ending dates of the reporting period. The reporting period is the initial compliance period described in § 63.4140, § 63.4150, or § 63.4160 that applies to your affected source.

(4) Identification of the compliance option or options specified in § 63.4091 that you used on each coating operation in the affected source during the initial compliance period.

(5) Statement of whether or not the affected source achieved the emission limitations for the initial compliance period.

(6) If you had a deviation, include the information in paragraphs (b)(6)(i) and (ii) of this section.

(i) A description of and statement of the cause of the deviation.

(ii) If you failed to meet the applicable emission limit in § 63.4090, include all the calculations you used to determine the kg organic HAP emitted per liter of coating solids used. You do not need to submit information provided by the materials suppliers or manufacturers or test reports.

(7) For each of the data items listed in paragraphs (b)(7)(i) through (iv) of this section that is required by the compliance option(s) you used to demonstrate compliance with the emission limit, include an example of how you determined the value, including calculations and supporting data. Supporting data can include a copy of the information provided by the supplier or manufacturer of the example coating or material or a summary of the results of testing conducted according to § 63.4141(a), (b), or (c). You do not need to submit copies of any test reports.

(i) Mass fraction of organic HAP for one coating, for one thinner, and for one cleaning material.

(ii) Volume fraction of coating solids for one coating.

(iii) Density for one coating, one thinner, and one cleaning material, except that if you use the compliant material option, only the example coating density is required.

(iv) The amount of waste materials and the mass of organic HAP contained in the waste materials for which you are claiming an allowance in Equation 1 of § 63.4151.

(8) The determination of kg organic HAP emitted per liter of coating solids used for the compliance option(s) you use, as specified in paragraphs (b)(8)(i) through (iii) of this section.

(i) For the compliant material option, provide an example determination of the organic HAP content for one coating, according to § 63.4141(d).

(ii) For the emission rate without add-on controls option, provide the calculation of the total mass of organic HAP emissions; the calculation of the total volume of coating solids used; and the calculation of the organic HAP emission rate, using Equations 1, 1A through 1C, 2, and 3, respectively, of § 63.4151.

(iii) For the emission rate with add-on controls option, provide the calculation of the total mass of organic HAP emissions for the coatings, thinners, and cleaning materials used, using Equations 1 and 1A through 1C of § 63.4151; the calculation of the total volume of coating solids used, using Equation 2 of § 63.4151; the calculation of the mass of organic HAP emission reduction by emission capture systems and add-on control devices, using Equations 1, 1A through 1C, 2, 3, and 3A through 3C of § 63.4161, as applicable; and the calculation of the organic HAP emission rate, using Equation 4 of § 63.4161.

(9) For the emission rate with add-on controls option, you must include the information specified in paragraphs (b)(9)(i) through (v) of this section, except that the requirements in paragraphs (b)(9)(i) through (iii) of this section do not apply to solvent recovery systems for which you conduct liquid-liquid material balances according to § 63.4161(h).

(i) For each emission capture system, a summary of the data and copies of the calculations supporting the determination that the emission capture system is a permanent total enclosure (PTE) or a measurement of the emission capture system efficiency. Include a description of the protocol followed for measuring capture efficiency, summaries of any capture efficiency tests conducted, and any calculations supporting the capture efficiency determination. If you use the data quality objective (DQO) or lower confidence limit (LCL) approach, you must also include the statistical calculations to show you meet the DQO or LCL criteria in appendix A to subpart KK of this part. You do not need to submit complete test reports.

(ii) A summary of the results of each add-on control device performance test. You do not need to submit complete test reports.

(iii) A list of each emission capture system's and add-on control device's operating limits and a summary of the data used to calculate those limits.

(iv) A statement of whether or not you developed and implemented the work practice plan required by § 63.4093.

(v) A statement of whether or not you developed and implemented the startup, shutdown, and malfunction plan required by § 63.4100(d).

(10) If you have chosen for your affected source to comply with the requirements of another subpart in lieu of the requirements of this subpart, as allowed in § 63.4081(d), your Notification of Compliance Status must include a statement certifying your intent, as well as documentation and supporting materials showing that, during the initial compliance period, your affected source's total organic HAP emissions were equal to or less than the organic HAP emissions that would have resulted from complying separately with each applicable subpart.

§ 63.4120 What reports must I submit?

You must submit semiannual compliance reports for each affected source according to the requirements of this section. The semiannual compliance reporting requirements of this section may be satisfied by reports required under other parts of the Clean Air Act (CAA), as specified in paragraph (a)(5) of this section.

(a) Unless the Administrator has approved a different schedule for submission of reports under § 63.10(a), you must prepare and submit each semiannual compliance report according to the dates specified in paragraphs (a)(1) through (4) of this section.

(1) The first semiannual compliance report must cover the first semiannual reporting period which begins the day after the end of the initial compliance period described in § 63.4140, § 63.4150, or § 63.4160 that applies to your affected source and ends on June 30 or December 31, whichever date is the first date following the end of the initial compliance period.

(2) Each subsequent semiannual compliance report must cover the subsequent semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(3) Each semiannual compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(4) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 40 CFR part 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), you may submit the first and subsequent semiannual compliance reports according to the dates the permitting authority has established instead of the date specified in paragraph (a)(3) of this section.

(5) Each affected source that has obtained a title V operating permit pursuant to 40 CFR part 70 or 40 CFR part 71 must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If an affected source submits a semiannual compliance report pursuant to this section along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the semiannual compliance report includes all required information concerning deviations from any emission limitation in this subpart, its submission shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a semiannual compliance report shall not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the permitting authority.

(b) The semiannual compliance report must contain the information specified in paragraphs (b)(1) through (4) of this section and the information specified in paragraphs (c) through (j) of this section that is applicable to your affected source.

(1) Company name and address.

(2) Statement by a responsible official with that official's name, title, and signature certifying the truth, accuracy, and completeness of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period. The reporting period is the 6-month period ending on June 30 or December 31.

(4) Identification of the compliance option or options specified in § 63.4091 that you used on each coating operation during the reporting period. If you switched between compliance options during the reporting period, you must report the beginning and ending dates you used each option.

(c) If there were no deviations from the emission limitations in §§ 63.4090, 63.4092, and 63.4093 that apply to you, the semiannual compliance report must include a statement that there were no deviations from the emission limitations during the reporting period.

(d) If you use the compliant material option and there was a deviation from the applicable emission limit in § 63.4090, the semiannual compliance report must contain the information in paragraphs (d)(1) through (4) of this section.

(1) Identification of each coating used that deviated from the emission limit, each thinner and cleaning material used that contained organic HAP, and the dates and time periods each was used.

(2) The determination of the organic HAP content, according to § 63.4141(d), for each coating identified in paragraph (d)(1) of this section. You do not need to submit background data supporting this calculation, for example, information provided by coating suppliers or manufacturers or test reports.

(3) The determination of mass fraction of organic HAP for each thinner and cleaning material identified in paragraph (d)(1) of this section. You do not need to submit background data supporting this calculation, for example, information provided by material suppliers or manufacturers or test reports.

(4) A statement of the cause of each deviation.

(e) If you use the emission rate without add-on controls option and there was a deviation from the applicable emission limit in § 63.4090, the semiannual compliance report must contain the information in paragraphs (e)(1) through (3) of this section.

(1) The beginning and ending dates of each compliance period during which the organic HAP emission rate exceeded the emission limit.

(2) The calculations used to determine the organic HAP emission rate for the compliance period in which the deviation occurred. You must provide the calculations for Equations 1, 1A through 1C, 2, and 3 in § 63.4151; and, if applicable, the calculation used to determine the organic HAP in waste materials according to § 63.4151(e)(4). You do not need to submit background data supporting these calculations, for example, information provided by materials suppliers or manufacturers or test reports.

(3) A statement of the cause of each deviation.

(f) If you use the emission rate with add-on controls option and there were no periods during which the continuous parameter monitoring systems (CPMS) were out-of-control as specified in § 63.8(c)(7), the semiannual compliance report must include a statement that there were no periods during which the CPMS were out-of-control during the reporting period.

(g) If you use the emission rate with add-on controls option and there was a deviation from an emission limitation (including any periods when emissions bypassed the add-on control device and were diverted to the atmosphere), the semiannual compliance report must contain the information in paragraphs (g)(1) through (14) of this section. This includes periods of startup, shutdown, and malfunction during which deviations occurred.

(1) The beginning and ending dates of each compliance period during which the organic HAP emission rate exceeded the applicable emission limit in § 63.4090.

(2) The calculations used to determine the organic HAP emission rate for each compliance period in which a deviation occurred. You must provide the calculation of the total mass of organic HAP emissions for the coatings, thinners, and cleaning materials used during the compliance period, using Equations 1, 1A through 1C, and 2 of § 63.4151 and, if applicable, the calculation used to determine the mass of organic HAP in waste materials according to § 63.4151(e)(4); the calculation of the total volume of coating solids used during the compliance period, using Equation 2 of § 63.4151; the calculation of the mass of organic HAP emission reduction during the compliance period by emission capture systems and add-on control devices, using Equations 1, 1A through 1C, 2, 3, and 3A through 3C of § 63.4161; and the calculation of the organic HAP emission rate, using Equation 4 of § 63.4161. You do not need to submit the background data supporting these calculations, for example, information provided by materials suppliers or manufacturers or test reports.

(3) The date and time that each malfunction started and stopped.

(4) A brief description of the CPMS.

(5) The date of the latest CPMS certification or audit.

(6) The date and time that each CPMS was inoperative, except for zero (low-level) and high-level checks.

(7) The date, time, and duration that each CPMS was out-of-control, including the information in § 63.8(c)(8).

(8) The date and time period of each deviation from an operating limit in Table 1 to this subpart; date and time period of any bypass of the add-on control device; and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(9) A summary of the total duration of each deviation from an operating limit in Table 1 to this subpart and bypass of the add-on control device during the semiannual reporting period and the total duration as a percent of the total source operating time during that semiannual reporting period.

(10) A breakdown of the total duration of the deviations from the operating limits in Table 1 to this subpart and bypasses of the add-on control device during the semiannual reporting period into those that were due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(11) A summary of the total duration of CPMS downtime during the semiannual reporting period and the total duration of CPMS downtime as a percent of the total source operating time during that semiannual reporting period.

(12) A description of any changes in the CPMS, coating operation, emission capture system, or add-on control device since the last semiannual reporting period.

(13) For each deviation from the work practice standards, a description of the deviation, the date and time period of the deviation, and the actions you took to correct the deviation.

(14) A statement of the cause of each deviation.

(h) If you use the emission rate with add-on controls option, you must submit reports of performance test results for emission capture systems and add-on control devices no later than 60 days after completing the tests as specified in § 63.10(d)(2).

(i) [Reserved]

(j) If you use the emission rate with add-on controls option and you have a startup, shutdown, or malfunction during the semiannual reporting period, you must submit the reports specified in paragraphs (j)(1) and (2) of this section.

(1) If your actions were consistent with your startup, shutdown, and malfunction plan (SSMP), you must include the information specified in § 63.10(d)(5) in the semiannual compliance report required by paragraph (a) of this section.

(2) If your actions were not consistent with your SSMP, you must submit an immediate startup, shutdown, and malfunction report as described in paragraphs (j)(2)(i) and (ii) of this section.

(i) You must describe the actions taken during the event in a report delivered by facsimile (fax), telephone, or other means to the Administrator within 2 working days after starting actions that are inconsistent with the plan.

(ii) You must submit a letter to the Administrator within 7 working days after the end of the event, unless you have made alternative arrangements with the Administrator as specified in § 63.10(d)(5)(ii). The letter must contain the information specified in § 63.10(d)(5)(ii).

§ 63.4130 What records must I keep?

You must collect and keep records of the data and information specified in this section. Failure to collect and keep these records is a deviation from the applicable standard.

(a) A copy of each notification and report that you submitted to comply with this subpart and the documentation supporting each notification and report.

(b) A current copy of information provided by materials suppliers or manufacturers such as manufacturer's formulation data or test data used to determine the mass fraction of organic HAP and density for each coating, thinner, and cleaning material and the volume fraction of coating solids for each coating. If you conducted testing to determine mass fraction of organic HAP, density, or volume fraction of coating solids, you must keep a copy of the complete test report. If you use information provided to you by the manufacturer or supplier of the material that was based on testing, you must keep the summary sheet of results provided to you by the manufacturer or supplier. You are not required to obtain the test report or other supporting documentation from the manufacturer or supplier.

(c) For each compliance period, a record of the time periods (beginning and ending dates and times) and the coating operations at which each compliance option was used and a record of all determinations of kg organic HAP per liter of coating solids for the compliance option(s) you used, as specified in paragraphs (c)(1) through (3) of this section.

(1) For the compliant material option, a record of the determination of the organic HAP content for each coating, according to § 63.4141(d).

(2) For the emission rate without add-on controls option, a record of the calculation of the total mass of organic HAP emissions for the coatings, thinners, and cleaning materials used each month, using Equations 1 and 1A through 1C of § 63.4151 and, if applicable, the calculations used to determine the mass of organic HAP in waste materials according to § 63.4151(e)(4); the calculation of the total volume of coating solids used each month, using Equation 2 of § 63.4151; and the calculation of the organic HAP emission rate, using Equation 3 of § 63.4151.

(3) For the emission rate with add-on controls option, a record of the calculation of the total mass of organic HAP emissions for the coatings, thinners, and cleaning materials used each month, using Equations 1 and 1A through 1C of § 63.4151 and, if applicable, the calculation used to determine mass of organic HAP in waste materials according to § 63.4151(e)(4); the calculation of the total volume of coating solids used each month, using Equation 2 of § 63.4151; the calculation of the mass of organic HAP emission reduction by emission capture systems and add-on control devices, using Equations 1, 1A through 1C, 2, 3, and 3A

through 3C of §63.4161, as applicable; and the calculation of the organic HAP emission rate, using Equation 4 of §63.4161.

(d) A record of the name and volume of each coating, thinner, and cleaning material used during each compliance period.

(e) A record of the mass fraction of organic HAP for each coating, thinner, and cleaning material used during each compliance period.

(f) A record of the volume fraction of coating solids for each coating used during each compliance period except for zero-HAP coatings for which volume solids determination is not required as allowed in §63.4141(a).

(g) A record of the density for each coating used during each compliance period except for zero-HAP coatings for which volume solids determination is not required as allowed in §63.4141(a) and, if you use either the emission rate without add-on controls or the emission rate with add-on controls compliance option, a record of the density for each thinner and cleaning material used during each compliance period.

(h) If you use an allowance in Equation 1 of §63.4151 for organic HAP contained in waste materials sent to or designated for shipment to a treatment, storage, and disposal facility (TSDF) according to §63.4151(e)(4), you must keep records of the information specified in paragraphs (h)(1) through (3) of this section.

(1) The name and address of each TSDF to which you sent waste materials for which you use an allowance in Equation 1 of §63.4151, a statement of which subparts under 40 CFR parts 262, 264, 265, and 266 apply to the facility, and the date of each shipment.

(2) Identification of the coating operations producing waste materials included in each shipment and the month or months in which you used the allowance for these materials in Equation 1 of §63.4151.

(3) The methodology used in accordance with §63.4151(e)(4) to determine the total amount of waste materials sent to or the amount collected, stored, and designated for transport to a TSDF each month; and the methodology to determine the mass of organic HAP contained in these waste materials. This must include the sources for all data used in the determination, methods used to generate the data, frequency of testing or monitoring, and supporting calculations and documentation, including the waste manifest for each shipment.

(i) [Reserved]

(j) You must keep records of the date, time, and duration of each deviation.

(k) If you use the emission rate with add-on controls option, you must keep the records specified in paragraphs (k)(1) through (8) of this section.

(1) For each deviation, a record of whether the deviation occurred during a period of startup, shutdown, or malfunction.

(2) The records in §63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

(3) The records required to show continuous compliance with each operating limit specified in Table 1 to this subpart that applies to you.

(4) For each capture system that is a PTE, the data and documentation you used to support a determination that the capture system meets the criteria in Method 204 of appendix M to 40 CFR part 51 for a PTE and has a capture efficiency of 100 percent, as specified in §63.4165(a).

(5) For each capture system that is not a PTE, the data and documentation you used to determine capture efficiency according to the requirements specified in §§63.4164 and 63.4165(b) through (e) including the records specified in paragraphs (k)(5)(i) through (iii) of this section that apply to you.

(i) *Records for a liquid-to-uncaptured-gas protocol using a temporary total enclosure or building enclosure.* Records of the mass of total volatile hydrocarbon (TVH) as measured by Method 204A or F of appendix M to 40 CFR part 51 for each material used in the coating operation, and the total TVH for all materials used during each capture efficiency test run, including a copy of the test report. Records of the mass of TVH emissions not captured by the capture system that exited the temporary total enclosure or building enclosure during each capture efficiency test run, as measured by Method 204D or E of appendix M to 40 CFR part 51, including a copy of the test report.

Records documenting that the enclosure used for the capture efficiency test met the criteria in Method 204 of appendix M to 40 CFR part 51 for either a temporary total enclosure or a building enclosure.

(ii) *Records for a gas-to-gas protocol using a temporary total enclosure or a building enclosure.* Records of the mass of TVH emissions captured by the emission capture system as measured by Method 204B or C of appendix M to 40 CFR part 51 at the inlet to the add-on control device, including a copy of the test report. Records of the mass of TVH emissions not captured by the capture system that exited the temporary total enclosure or building enclosure during each capture efficiency test run, as measured by Method 204D or E of appendix M to 40 CFR part 51, including a copy of the test report. Records documenting that the enclosure used for the capture efficiency test met the criteria in Method 204 of appendix M to 40 CFR part 51 for either a temporary total enclosure or a building enclosure.

(iii) *Records for an alternative protocol.* Records needed to document a capture efficiency determination using an alternative method or protocol as specified in § 63.4165(e), if applicable.

(6) The records specified in paragraphs (k)(6)(i) and (ii) of this section for each add-on control device organic HAP destruction or removal efficiency determination as specified in § 63.4166.

(i) Records of each add-on control device performance test conducted according to §§ 63.4164 and 63.4166.

(ii) Records of the coating operation conditions during the add-on control device performance test showing that the performance test was conducted under representative operating conditions.

(8) Records of the data and calculations you used to establish the emission capture and add-on control device operating limits as specified in § 63.4167 and to document compliance with the operating limits as specified in Table 1 of this subpart.

(9) A record of the work practice plan required by § 63.4093, and documentation that you are implementing the plan on a continuous basis.

§ 63.4131 In what form and for how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review, according to § 63.10(b)(1). Where appropriate, the records may be maintained as electronic spreadsheets or as a data base.

(b) As specified in § 63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to § 63.10(b)(1). You may keep the records off site for the remaining 3 years.

COMPLIANCE REQUIREMENTS FOR THE COMPLIANT MATERIAL OPTION

§ 63.4140 By what date must I conduct the initial compliance demonstration?

You must complete the initial compliance demonstration for the initial compliance period according to the requirements in § 63.4141. The initial compliance period begins on the applicable compliance date specified in § 63.4083 and ends on the last day of the first full month after the compliance date. If the compliance date occurs on any day other than the first day of a month, then the initial compliance period extends through the end of that month plus the next month. The initial compliance demonstration includes the determination according to § 63.4141 and supporting documentation showing that, during the initial compliance period, you used no coating with an organic HAP content that exceeded the applicable emission limit in § 63.4090, and that you used no thinners or cleaning materials that contained organic HAP.

§ 63.4141 How do I demonstrate initial compliance with the emission limitations?

You may use the compliant material option for any individual coating operation, for any group of coating operations in the affected source, or for all the coating operations in the affected source. You must use either the emission rate without add-on controls option or the emission rate with add-on controls option for any coating operation(s) in the affected source for which you do not use this option. To demonstrate initial compliance using the compliant material option, the coating operation or group of coating operations must use no coating with an organic HAP content that exceeds the applicable emission limit in § 63.4090 and must use no thinner or cleaning material that contains organic HAP, as determined according to this section during the initial compliance period. Any coating operation(s) for which you use the compliant material option is not required to meet the operating limits or work practice standards required in §§ 63.4092 and 63.4093, respectively. To demonstrate initial compliance with the emission limitations using the compliant material option, you must meet all the requirements of this section for the coating operation(s) using this option. Use the procedures in this section on each coating, thinner, and cleaning material in the condition it is in when it is received from its manufacturer or supplier and prior to any alteration. You do not need to redetermine the HAP content of coatings, thinners, or cleaning materials that have been reclaimed onsite and reused in the coating operation(s) for which you use the compliant material option, provided these materials in their condition as received were demonstrated to comply with the compliant material option. If the mass fraction of organic HAP of a coating equals zero, determined according to paragraph (a) of this section, and you use the compliant material option, you are not required to comply with paragraphs (b) and (c) of this section for that coating.

(a) *Determine the mass fraction of organic HAP for each material used.* You must determine the mass fraction of organic HAP for each coating, thinner, and cleaning material used during the compliance period by using one of the options in paragraphs (a)(1) through (5) of this section.

(1) *Method 311 (appendix A to 40 CFR part 63).* You may use Method 311 for determining the mass fraction of organic HAP. Use the procedures specified in paragraphs (a)(1)(i) and (ii) of this section when performing a Method 311 test.

(i) Count each organic HAP that is measured to be present at 0.1 percent by mass or more for Occupational Safety and Health Administration (OSHA)-defined carcinogens as specified in 29 CFR 1910.1200(d)(4) and at 1.0 percent by mass or more for other organic HAP compounds. For example, if toluene (not an OSHA carcinogen) is measured to be 0.5 percent of the material by mass, you do not have to count it. Express the mass fraction of each organic HAP you count as a value truncated to four places after the decimal point (for example, 0.3791).

(ii) Calculate the total mass fraction of organic HAP in the test material by adding up the individual organic HAP mass fractions and truncating the result to three places after the decimal point (for example, 0.763).

(2) *Method 24 (appendix A to 40 CFR part 60).* For coatings, you may use Method 24 to determine the mass fraction of nonaqueous volatile matter and use that value as a substitute for mass fraction of organic HAP.

(3) *Alternative method.* You may use an alternative test method for determining the mass fraction of organic HAP once the Administrator has approved it. You must follow the procedure in § 63.7(f) to submit an alternative test method for approval.

(4) *Information from the supplier or manufacturer of the material.* You may rely on information other than that generated by the test methods specified in paragraphs (a)(1) through (3) of this section, such as manufacturer's formulation data if they represent each organic HAP that is present at 0.1 percent by mass or more for OSHA-defined carcinogens as specified in 29 CFR 1910.1200(d)(4) and at 1.0 percent by mass or more for other organic HAP compounds. For example, if toluene (not an OSHA carcinogen) is 0.5 percent of the material by mass, you do not have to count it. If there is a disagreement between such information and results of a test conducted according to paragraphs (a)(1) through (3) of this section, then the test method results will take precedence.

(5) *Solvent blends.* Solvent blends may be listed as single components for some materials in data provided by manufacturers or suppliers. Solvent blends may contain organic HAP which must be counted toward the total organic HAP mass fraction of the materials. When test data and manufacturer's data for solvent blends are not available, you may use the default values for mass fraction of organic HAP in these solvent blends listed in Table 3 or 4 of this subpart. If you use the tables, you must use the values in Table 3 for all solvent blends that match Table 3 entries, and you may only use Table 4 if the solvent blends in the materials you use do not match any of the solvent blends in Table 3, and you only know whether the blend is aliphatic or aromatic. However, if the results of a Method 311 test indicate higher values than those listed on Table 3 or 4 of this subpart, the Method 311 results will take precedence.

(b) *Determine the volume fraction of coating solids for each coating.* You must determine the volume fraction of coating solids (liters of coating solids per liter of coating) for each coating used during the compliance period by a test, by information provided by the supplier or the manufacturer of the material, or by calculation as specified in paragraphs (b)(1) through (3) of this section.

(1) *ASTM Method D2697–86 (Reapproved 1998) or D6093–97.* You may use ASTM Method D2697–86 (Reapproved 1998), ''Standard Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings,'' or D6093–97, ''Standard Test Method for Percent Volume Nonvolatile Matter in Clear or Pigmented Coatings Using a Helium Gas Pycnometer'' (incorporated by reference, see § 63.14) to determine the volume fraction of coating solids for each coating. Divide the nonvolatile volume percent obtained with the methods by 100 to calculate volume fraction of coating solids.

(2) *Information from the supplier or manufacturer of the material.* You may obtain the volume fraction of coating solids for each coating from the supplier or manufacturer.

(3) *Calculation of volume fraction of coating solids.* If the volume fraction of coating solids cannot be determined using the options in paragraphs (b)(1) and (2) of this section, you must determine it using Equation 1 of this section:

$$V_s = 1 - \frac{m_{volatiles}}{D_{avg}} \qquad \text{(Eq. 1)}$$

Where:

V_s = volume fraction of coating solids, liters coating solids per liter coating.

$m_{volatiles}$ = total volatile matter content of the coating, including HAP, volatile organic compounds (VOC), water, and exempt compounds, determined according to Method 24 in appendix A of 40 CFR part 60, grams volatile matter per liter coating.

D_{avg} = average density of volatile matter in the coating, grams volatile matter per liter volatile matter, determined from test results using ASTM Method D1475–98, ''Standard Test Method for Density of Liquid Coatings, Inks, and Related Products'' (incorporated by reference, see § 63.14) information from the supplier or manufacturer of the material, or reference sources providing density or specific gravity data for pure materials. If there is disagreement between ASTM Method D1475–98 test results and other information sources, the test results will take precedence.

(c) *Determine the density of each coating.* Determine the density of each coating used during the compliance period from test results using ASTM Method D1475–98, ''Standard Test Method for Density of Liquid Coatings, Inks, and Related Products'' (incorporated by reference, see § 63.14), information from the supplier or manufacturer of the material, or reference sources providing density or specific gravity data for pure materials. If there is disagreement between ASTM Method D1475–98 test results and other information sources, the test results will take precedence.

(d) Determine the organic HAP content of each coating. Determine the organic HAP content, kg organic HAP per liter coating solids, of each coating used during the compliance period, using Equation 2 of this section, except that if the mass fraction of organic HAP equals zero, then the organic HAP content also equals zero and you are not required to use Equation 2 to calculate the organic HAP content:

$$H_c = (D_c)(W_c) / V_s \qquad \text{(Eq. 2)}$$

Where:

H_c = organic HAP content of the coating, kg organic HAP per liter coating solids.

D_c = density of coating, kg coating per liter coating, determined according to paragraph (c) of this section.

W_c = mass fraction of organic HAP in the coating, kg organic HAP per kg coating, determined according to paragraph (a) of this section.

V_s = volume fraction of coating solids, liters coating solids per liter coating, determined according to paragraph (b) of this section.

(e) The organic HAP content for each coating used during the initial compliance period must be less than or equal to the applicable emission limit in §63.4090; and each thinner and cleaning material used during the initial compliance period must contain no organic HAP, determined according to paragraph (a) of this section. You must keep all records required by §§63.4130 and 63.4131. As part of the Notification of Compliance Status required in §63.4110, you must identify the coating operation(s) for which you used the compliant material option and submit a statement that the coating operation(s) was (were) in compliance with the emission limitations during the initial compliance period because you used no coatings for which the organic HAP content exceeds the applicable emission limit in §63.4090, and you used no thinners or cleaning materials that contain organic HAP, determined according to paragraph (a) of this section.

§63.4142 How do I demonstrate continuous compliance with the emission limitations?

(a) For each compliance period, to demonstrate continuous compliance, you must use no coating for which the organic HAP content, determined according to §63.4141(d), exceeds the applicable emission limit in §63.4090, and use no thinner or cleaning material that contains organic HAP, determined according to §63.4141(a). Each month following the initial compliance period described in §63.4140 is a compliance period.

(b) If you choose to comply with the emission limitations by using the compliant material option, the use of any coating, thinner, or cleaning material that does not meet the criteria specified in paragraph (a) of this section is a deviation from the emission limitations that must be reported as specified in §§63.4110(b)(6) and 63.4120(d).

(c) As part of each semiannual compliance report required by §63.4120, you must submit a statement that you were in compliance with the emission limitations during the reporting period because you used no thinners or cleaning materials that contained organic HAP, and you used no coatings for which the organic HAP content exceeded the applicable emission limit in §63.4090.

(d) You must maintain records as specified in §§63.4130 and 63.4131.

COMPLIANCE REQUIREMENTS FOR THE EMISSION RATE WITHOUT ADD-ON CONTROLS OPTION

§63.4150 By what date must I conduct the initial compliance demonstration?

You must complete the initial compliance demonstration for the initial compliance period according to the requirements of §63.4151. The initial compliance period begins on the applicable compliance date specified in §63.4083 and ends on the last day of the first full month after the compliance date. If the compliance date occurs on any day other than the first day of a month, then the initial compliance period extends through the end of that month plus the next month. The initial compliance demonstration includes the calculations according to §63.4151 and supporting documentation showing that the organic HAP emission rate for the initial compliance period was equal to or less than the applicable emission limit in §63.4090.

§ 63.4151 How do I demonstrate initial compliance with the emission limitations?

You may use the emission rate without add-on controls option for any individual coating operation, for any group of coating operations in the affected source, or for all of the coating operations in the affected source. You must use either the compliant material option or the emission rate with add-on controls option for any coating operation(s) in the affected source for which you do not use this option. To demonstrate initial compliance using the emission rate without add-on controls option, the coating operation(s) must meet the applicable emission limit in § 63.4090 but not the operating limits or work practice standards in §§ 63.4092 and 63.4093, respectively, during the initial compliance period. You must meet all of the requirements of this section to demonstrate initial compliance with the applicable emission limit in § 63.4090 for the coating operation(s). When calculating the organic HAP emission rate according to this section, do not include any coatings, thinners, or cleaning materials used on coating operations for which you use the compliant material option or the emission rate with add-on controls option. You do not need to redetermine the mass of organic HAP in coatings, thinners, or cleaning materials that have been reclaimed onsite and reused in the coating operation(s) for which you use the emission rate without add-on controls option.

(a) *Determine the mass fraction of organic HAP for each material.* Determine the mass fraction of organic HAP for each coating, thinner, and cleaning material used during the compliance period according to the requirements in § 63.4141(a).

(b) *Determine the volume fraction of coating solids for each coating.* Determine the volume fraction of coating solids for each coating used during the compliance period according to the requirements in § 63.4141(b).

(c) *Determine the density of each material.* Determine the density of each coating, thinner, and cleaning material used during the compliance period according to the requirements in § 63.4141(c).

(d) *Determine the volume of each material used during the compliance period.* Determine the volume (liters) of each coating, thinner, and cleaning material used during the compliance period by measurement or usage records.

(e) *Calculate the mass of organic HAP emissions during the compliance period.* The mass of organic HAP emissions is the combined mass of organic HAP contained in all coatings, thinners, and cleaning materials used during the compliance period minus the organic HAP in certain waste materials. Calculate it using Equation 1 of this section.

$$H_e = A + B + C - R_w \qquad \text{(Eq. 1)}$$

Where:

H_e = total mass of organic HAP emissions during the compliance period, kg.

A = total mass of organic HAP in the coatings used during the compliance period, kg, as calculated in Equation 1A of this section.

B = total mass of organic HAP in the thinners used during the compliance period, kg, as calculated in Equation 1B of this section.

C = total mass of organic HAP in the cleaning materials used during the compliance period, kg, as calculated in Equation 1C of this section.

R_w = total mass of organic HAP in waste materials sent or designated for shipment to a hazardous waste TSDF for treatment or disposal during the compliance period, kg, determined according to paragraph (e)(4) of this section. (You may assign a value of zero to R_w if you do not wish to use this allowance.)

(1) Calculate the kg organic HAP in the coatings used during the compliance period, using Equation 1A of this section:

$$A = \sum_{i=1}^{m} \left(Vol_{c,i}\right)\left(D_{c,i}\right)\left(W_{c,i}\right) \qquad \text{(Eq. 1A)}$$

Where:

A = total mass of organic HAP in the coatings used during the compliance period, kg.

$Vol_{c,i}$ = total volume of coating, i, used during the compliance period, liters.

$D_{c,i}$ = density of coating, i, kg coating per liter coating.

$W_{c,i}$ = mass fraction of organic HAP in coating, i, kg organic HAP per kg coating.

m = number of different coatings used during the compliance period.

(2) Calculate the kg of organic HAP in the thinners used during the compliance period, using Equation 1B of this section:

$$B = \sum_{j=i}^{n} \left(Vol_{t,j}\right)\left(D_{t,j}\right)\left(W_{t,j}\right) \qquad \text{(Eq. 1B)}$$

Where:

B = total mass or organic HAP in the thinners used during the compliance period, kg.

$Vol_{t,j}$ = total volume of thinner, j, used during the compliance period, liters.

$D_{t,j}$ = density of thinner, j, kg thinner per liter thinner.

$W_{t,j}$ = mass fraction of organic HAP in thinner, j, kg organic HAP per kg thinner.

n = number of different thinners used during the compliance period.

(3) Calculate the kg organic HAP in the cleaning materials used during the compliance period, using Equation 1C of this section:

$$C = \sum_{k=1}^{p} \left(Vol_{s,k}\right)\left(D_{s,k}\right)\left(W_{s,k}\right) \qquad \text{(Eq. 1C)}$$

Where:

C = total mass of organic HAP in the cleaning materials used during the compliance period, kg.

$Vol_{s,k}$ = total volume of cleaning material, k, used during the compliance period, liters.

$D_{s,k}$ = density of cleaning material, k, kg cleaning material per liter cleaning material.

$W_{s,k}$ = mass fraction of organic HAP in cleaning material, k, kg organic HAP per kg material.

p = number of different cleaning materials used during the compliance period.

(4) Determine the mass of organic HAP contained in waste materials sent to a TSDF. If you choose to account for the mass of organic HAP contained in waste materials sent or designated for shipment to a hazardous waste TSDF in the calculation of the mass of organic HAP emissions (Equation 1 of this section), then you must determine it according to paragraphs (e)(4)(i) through (v) of this section.

(i) You may include in the determination of organic HAP in waste materials only the waste materials that are generated by coating operations for which you use Equation 1 of this section and that will be treated or disposed of by a facility that is regulated as a TSDF under 40 CFR part 262, 264, 265, or 266. The TSDF may be either off-site or on-site. You may not include in the determination the organic HAP contained in wastewater.

(ii) You must determine either the amount of waste materials sent to a TSDF during the compliance period or the amount collected and stored during the compliance period and designated for future transport to a TSDF. Do not include in your determination any waste materials sent to a TSDF during a compliance period if you have already included them in the amount collected and stored during that compliance period or a previous compliance period.

(iii) Determine the total mass of organic HAP contained in the waste materials specified in paragraph (e)(4)(ii) of this section.

(iv) You must document your methodology to determine the amount of waste materials and the total mass of organic HAP they contain, as required in §63.4130(h).

(v) To the extent that waste manifests include this information, they may be used as part of the documentation of the amount of waste materials and mass of organic HAP contained in them.

(f) *Calculate the total volume of coating solids used during the compliance period.* Determine the total volume of coating solids used, liters, which is the combined volume of coating solids for all of the coatings used during the compliance period, using Equation 2 of this section.

$$V_{st} = \sum_{i=1}^{m} \left(Vol_{c,i}\right)\left(V_{s,i}\right) \qquad \text{(Eq. 2)}$$

Where:

V_{st} = total volume of coating solids used during the compliance period, liters.

$Vol_{c,i}$ = total volume of coating, i, used during the compliance period, liters.

$V_{s,i}$ = volume fraction of coating solids for coating, i, liters solids per liter coating, determined according to § 63.4141(b).

m = number of coatings used during the compliance period.

(g) Calculate the organic HAP emission rate, kg organic HAP per liter coating solids used, using Equation 3 of this section:

$$H_{avg} = \frac{H_e}{V_{st}} \qquad \text{(Eq. 3)}$$

Where:

H_{avg} = organic HAP emission rate for the compliance period, kg organic HAP per liter coating solids.

H_e = total mass organic HAP emissions from all materials used during the compliance period, kg, as calculated by Equation 1 of this section.

V_{st} = total volume coating solids used during the compliance period, liters, as calculated by Equation 2 of this section.

(h) The organic HAP emission rate for the initial compliance period must be less than or equal to the applicable emission limit in § 63.4090. You must keep all records as required by §§ 63.4130 and 63.4131. As part of the Notification of Compliance Status required by § 63.4110, you must identify the coating operation(s) for which you used the emission rate without add-on controls option and submit a statement that the coating operation(s) was (were) in compliance with the emission limitations during the initial compliance period because the organic HAP emission rate was less than or equal to the applicable emission limit in § 63.4090.

§ 63.4152 How do I demonstrate continuous compliance with the emission limitations?

(a) To demonstrate continuous compliance, the organic HAP emission rate for each compliance period, determined according to § 63.4151(a) through (g), must be less than or equal to the applicable emission limit in § 63.4090. Each month following the initial compliance period described in § 63.4150 is a compliance period.

(b) If the organic HAP emission rate for any compliance period exceeded the applicable emission limit in § 63.4090, this is a deviation from the emission limitations for that compliance period and must be reported as specified in §§ 63.4110(b)(6) and 63.4120(e).

(c) As part of each semiannual compliance report required by § 63.4120, you must submit a statement that you were in compliance with the emission limitations during the reporting period because the organic HAP emission rate for each compliance period was less than or equal to the applicable emission limit in § 63.4090.

(d) You must maintain records as specified in §§ 63.4130 and 63.4131.

COMPLIANCE REQUIREMENTS FOR THE EMISSION RATE WITH ADD-ON CONTROLS OPTION

§ 63.4160 By what date must I conduct performance tests and other initial compliance demonstrations?

(a) *Existing affected sources.* For an existing affected source, you must meet the requirements of paragraphs (a)(1) through (3) of this section.

(1) All emission capture systems, add-on control devices, and CPMS you use to demonstrate compliance must be installed and operating no later than the applicable compliance date specified in § 63.4183. Except for solvent recovery systems for which you conduct liquid-liquid material balances according to § 63.4161(h), you must conduct a performance test of each capture system and add-on control device according to the procedures in §§ 63.4164, 63.4165, and 63.4166, and establish the operating limits required by § 63.4092 no

later than the compliance date specified in § 63.4083. For a solvent recovery system for which you conduct liquid-liquid material balances according to § 63.4161(h), you must initiate the first material balance no later than the compliance date specified in § 63.4083.

(2) You must develop and begin implementing the work practice plan required by § 63.4093 no later than the compliance date specified in § 63.4083.

(3) You must complete the compliance demonstration for the initial compliance period according to the requirements of § 63.4161. The initial compliance period begins on the applicable compliance date specified in § 63.4083 and ends on the last day of the first full month after the compliance date. If the compliance date occurs on any day other than the first day of a month, then the initial compliance period extends through the end of that month plus the next month. The initial compliance demonstration includes the results of emission capture system and add-on control device performance tests conducted according to §§ 63.4164, 63.4165, and 63.4166; results of liquid-liquid material balances conducted according to § 63.4161(h); calculations according to § 63.4161 and supporting documentation showing that, during the initial compliance period, the organic HAP emission rate was equal to or less than the emission limit in § 63.4090(a); the operating limits established during the performance tests and the results of the continuous parameter monitoring required by § 63.4168; and documentation of whether you developed and implemented the work practice plan required by § 63.4093.

(b) *New and reconstructed affected sources.* For a new or reconstructed affected source, you must meet the requirements of paragraphs (b)(1) through (4) this section.

(1) All emission capture systems, add-on control devices, and CPMS you use to demonstrate compliance must be installed and operating no later than the applicable compliance date specified in § 63.4183. Except for solvent recovery systems for which you conduct liquid-liquid material balances according to § 63.4161(h), you must conduct a performance test of each capture system and add-on control device according to the procedures in §§ 63.4164, 63.4165, and 63.4166, and establish the operating limits required by § 63.4092 no later than 180 days after the applicable compliance date specified in § 63.4183. For a solvent recovery system for which you conduct liquid-liquid material balances according to § 63.4161(h), you must initiate the first material balance no later than 180 days after the applicable compliance date specified in § 63.4183.

(2) You must develop and begin implementing the work practice plan required by § 63.4093 no later than the compliance date specified in § 63.4083.

(3) You must complete the compliance demonstration for the initial compliance period according to the requirements of § 63.4161. The initial compliance period begins on the applicable compliance date specified in § 63.4083 and ends on the last day of the first full month after the compliance date, or the date you conduct the performance tests of the emission capture systems and add-on control devices, or initiate the first liquid-liquid material balance for a solvent recovery system; whichever is later. The initial compliance demonstration includes the results of emission capture system and add-on control device performance tests conducted according to §§ 63.4164, 63.4165, and 63.4166; results of liquid-liquid material balances conducted according to § 63.4161(h); calculations according to § 63.4161 and supporting documentation showing that, during the initial compliance period, the organic HAP emission rate was equal to or less than the emission limit in § 63.4090(b); the operating limits established during the performance tests and the results of the continuous parameter monitoring required by § 63.4168; and documentation of whether you developed and implemented the work practice plan required by § 63.4093.

(4) You do not need to comply with the operating limits for the emission capture system and add-on control device required by § 63.4092 until after you have completed the performance tests specified in paragraph (b)(1) of this section. Instead, you must maintain a log detailing the operation and maintenance of the emission capture system, add-on control device, and continuous

parameter monitors during the period between the compliance date and the performance test. You must begin complying with the operating limits for your affected source on the date you complete the performance tests specified in paragraph (b)(1) of this section. This requirement does not apply to solvent recovery systems for which you conduct liquid-liquid material balances according to § 63.4161(h).

§ 63.4161 How do I demonstrate initial compliance?

You may use the emission rate with add-on controls option for any coating operation, for any group of coating operations in the affected source, or for all of the coating operations in the affected source. You may include both controlled and uncontrolled coating operations in a group for which you use this option. You must use either the compliant material option or the emission rate without add-on controls option for any coating operation(s) in the affected source for which you do not use this option. To demonstrate initial compliance, the coating operation(s) for which you use the emission rate with add-on controls option must meet the applicable emission limit in § 63.4090 and the work practice standards required in § 63.4093; and each controlled coating operation must meet the operating limits required in § 63.4092. You must meet all the requirements of this section to demonstrate initial compliance with the emission limitations. When calculating the organic HAP emission rate according to this section, do not include any coatings, thinners, or cleaning materials used on coating operations for which you use the compliant material option or the emission rate without add-on controls option. You do not need to redetermine the mass of organic HAP in coatings, thinners, or cleaning materials that have been reclaimed onsite and reused in the coating operation(s) for which you use the emission rate with add-on controls option.

(a) Except as provided in § 63.4160(b)(4) and except for solvent recovery systems for which you conduct liquid-liquid material balances according to the requirements of § 63.4161(h), you must establish and demonstrate continuous compliance during the initial compliance period with the operating limits required by § 63.4092, using the procedures specified in §§ 63.4167 and 63.4168.

(b) You must develop, implement, and document your implementation of the work practice plan required by § 63.4093 during the initial compliance period as specified in § 63.4130.

(c) You must follow the procedures in paragraphs (d) through (l) of this section to demonstrate compliance with the applicable emission limit in § 63.4090.

(d) *Determine the mass fraction of organic HAP, density, volume used, and volume fraction of coating solids.* Follow the procedures specified in § 63.4151(a) through (d) to determine the mass fraction of organic HAP, density, and volume of each coating, thinner, and cleaning material used during the compliance period, and the volume fraction of coating solids for each coating used during the compliance period.

(e) *Calculate the total mass of organic HAP emissions before add-on controls.* Using Equation 1 of § 63.4151, calculate the total mass of organic HAP emissions before add-on controls from all coatings, thinners, and cleaning materials used during the compliance period in the coating operation or group of coating operations for which you use the emission rate with add-on controls option.

(f) *Calculate the organic HAP emission reduction for each controlled coating operation.* Determine the mass of organic HAP emissions reduced for each controlled coating operation during the compliance period. The emissions reduction determination quantifies the total organic HAP emissions that pass through the emission capture system and are destroyed or removed by the add-on control device. Use the procedures in paragraph (g) of this section to calculate the mass of organic HAP emissions reduction for each controlled coating operation using an emission capture system and add-on control device other than a solvent recovery system for which you conduct liquid-liquid material balances. For each controlled coating operation using a solvent recovery system for which you conduct a liquid-liquid material balance, use the procedures in paragraph (h) of this section to calculate the organic HAP emissions reduction.

(g) *Calculate the organic HAP emissions reduction for controlled coating operations not using liquid-liquid material balance.* For each controlled coating operation using an emission capture system and add-on control device other than a solvent recovery system for which you conduct liquid-liquid material balances, calculate organic HAP emissions reduction, using Equation 1 of this section, by applying the emission capture system efficiency and add-on control device efficiency to the mass of organic HAP contained in the coatings, thinners, and cleaning materials that are used in the coating operation served by the emission capture system and add-on control device during the compliance period. For any period of time a deviation specified in §63.4163(c) or (d) occurs in the controlled coating operation, including a deviation during a period of startup, shutdown, or malfunction, you must assume zero efficiency for the emission capture system and add-on control device. For the purposes of completing the compliance calculations, you must treat the materials used during a deviation on a controlled coating operation as if they were used on an uncontrolled coating operation for the time period of the deviation. You must not include those materials in the calculations of organic HAP emissions reduction in Equation 1 of this section.

$$H_c = \left(A_I + B_I + C_I\right)\left(\frac{CE}{100} \times \frac{DRE}{100}\right) \qquad \text{(Eq. 1)}$$

Where:

H_C = mass of organic HAP emissions reduction for the controlled coating operation during the compliance period, kg.

A_I = total mass of organic HAP in the coatings used in the controlled coating operation, kg, as calculated in Equation 1A of this section.

B_I = total mass of organic HAP in the thinners used in the controlled coating operation, kg, as calculated in Equation 1B of this section.

C_I = total mass of organic HAP in the cleaning materials used in the controlled coating operation during the compliance period, kg, as calculated in Equation 1C of this section.

CE = capture efficiency of the emission capture system vented to the add-on control device, percent. Use the test methods and procedures specified in §§63.4164 and 63.4165 to measure and record capture efficiency.

DRE = organic HAP destruction or removal efficiency of the add-on control device, percent. Use the test methods and procedures in §§63.4164 and 63.4166 to measure and record the organic HAP destruction or removal efficiency.

(1) Calculate the kg of organic HAP in the coatings used in the controlled coating operation, using Equation 1A of this section:

$$A_I = \sum_{i=1}^{m}\left(Vol_{c,i}\right)\left(D_{c,i}\right)\left(W_{c,i}\right) \qquad \text{(Eq. 1A)}$$

Where:

A_I = mass of organic HAP in the coatings used in the controlled coating operation, kg.

$Vol_{c,i}$ = total volume of coating, i, used, liters.

$D_{c,i}$ = density of coating, i, kg per liter.

$W_{c,i}$ = mass fraction of organic HAP in coating, i, kg per kg.

m = number of different coatings used.

(2) Calculate the kg of organic HAP in the thinners used in the controlled coating operation, using Equation 1B of this section:

$$B_I = \sum_{j=1}^{n}\left(Vol_{t,j}\right)\left(D_{t,j}\right)\left(W_{t,j}\right) \qquad \text{(Eq. 1B)}$$

Where:

B_I = mass of organic HAP in the thinners used in the controlled coating operation, kg.

$Vol_{t,j}$ = total volume of thinner, j, used, liters.

$D_{t,j}$ = density of thinner, j, kg per liter.

$W_{t,j}$ = mass fraction of organic HAP in thinner, j, kg per kg.

n = number of different thinners used.

(3) Calculate the kg of organic HAP in the cleaning materials used in the controlled coating operation during the compliance period, using Equation 1C of this section:

$$C_I = \sum_{k=1}^{P} \left(Vol_{s,k}\right)\left(D_{s,k}\right)\left(W_{s,k}\right) \qquad \text{(Eq. 1C)}$$

Where:

C_I = mass of organic HAP in the cleaning materials used in the controlled coating operation, kg.

$Vol_{s,k}$ = total volume of cleaning material, k, used, liters.

$D_{s,k}$ = density of cleaning material, k, kg per liter.

$W_{s,k}$ = mass fraction of organic HAP in cleaning material, k, kg per kg.

p = number of different cleaning materials used.

(h) *Calculate the organic HAP emissions reduction for controlled coating operations using liquid-liquid material balance.* For each controlled coating operation using a solvent recovery system for which you conduct liquid-liquid material balances, calculate the organic HAP emissions reduction by applying the volatile organic matter collection and recovery efficiency to the mass of organic HAP contained in the coatings, thinners, and cleaning materials that are used in the coating operation controlled by the solvent recovery system during the compliance period. Perform a liquid-liquid material balance for each compliance period as specified in paragraphs (h)(1) through (6) of this section. Calculate the mass of organic HAP emission reduction by the solvent recovery system as specified in paragraph (h)(7) of this section.

(1) For each solvent recovery system, install, calibrate, maintain, and operate according to the manufacturer's specifications, a device that indicates the cumulative amount of volatile organic matter recovered by the solvent recovery system each compliance period. The device must be initially certified by the manufacturer to be accurate to within ±2.0 percent of the mass of volatile organic matter recovered.

(2) For each solvent recovery system, determine the mass of volatile organic matter recovered for the compliance period, kg, based on measurement with the device required in paragraph (h)(1) of this section.

(3) Determine the mass fraction of volatile organic matter for each coating used in the coating operation controlled by the solvent recovery system during the compliance period, kg volatile organic matter per kg coating. You may determine the volatile organic matter mass fraction using Method 24 of 40 CFR part 60, appendix A, or an EPA approved alternative method, or you may use information provided by the manufacturer or supplier of the coating. In the event of any inconsistency between information provided by the manufacturer or supplier and the results of Method 24 of 40 CFR part 60, appendix A, or an approved alternative method, the test method results will govern.

(4) Determine the density of each coating, thinner, and cleaning material used in the coating operation controlled by the solvent recovery system during the compliance period, kg per liter, according to §63.4151(c).

(5) Measure the volume of each coating, thinner, and cleaning material used in the coating operation controlled by the solvent recovery system during the compliance period, liters.

(6) Calculate the solvent recovery system's volatile organic matter collection and recovery efficiency, using Equation 2 of this section:

$$R_v = 100 \frac{M_{VR}}{\sum_{i=1}^{m} Vol_i D_i C_{Vi} + \sum_{j=1}^{n} Vol_j D_j + \sum_{k=1}^{p} Vol_k D_k} \quad \text{(Eq. 2)}$$

Where:

R_V = volatile organic matter collection and recovery efficiency of the solvent recovery system during the compliance period, percent.

M_{VR} = mass of volatile organic matter recovered by the solvent recovery system during the compliance period, kg.

Vol_i = volume of coating, i, used in the coating operation controlled by the solvent recovery system during the compliance period, liters.

D_i = density of coating, i, kg coating per liter coating.

C_{Vi} = mass fraction of volatile organic matter for coating, i, kg volatile organic matter per kg coating.

Vol_j = volume of thinner, j, used in the coating operation controlled by the solvent recovery system during the compliance period, liters.

D_j = density of thinner, j, kg thinner per liter thinner.

Vol_k = volume of cleaning material, k, used in the coating operation controlled by the solvent recovery system during the compliance period, liters.

D_k = density of cleaning material, k, kg cleaning material per liter cleaning material

m = number of different coatings used in the coating operation controlled by the solvent recovery system during the compliance period.

n = number of different thinners used in the coating operation controlled by the solvent recovery system during the compliance period.

p = number of different cleaning materials used in the coating operation controlled by the solvent recovery system during the compliance period.

(7) Calculate the mass of organic HAP emissions reduction for the coating operation controlled by the solvent recovery system during the compliance period, using Equation 3 of this section:

$$H_{CSR} = \left(A_I + B_I + C_I\right)\left(\frac{R_V}{100}\right) \quad \text{(Eq. 3)}$$

Where:

H_{CSR} = mass of organic HAP emissions reduction for the coating operation controlled by the solvent recovery system using a liquid-liquid material balance during the compliance period, kg.

A_I = total mass of organic HAP in the coatings used in the coating operation controlled by the solvent recovery system, kg, calculated using Equation 1A of this section.

B_I = total mass of organic HAP in the thinners used in the coating operation controlled by the solvent recovery system, kg, calculated using Equation 1B of this section.

C_I = total mass of organic HAP in the cleaning materials used in the coating operation controlled by the solvent recovery system, kg, calculated using Equation 1C of this section.

R_V = volatile organic matter collection and recovery efficiency of the solvent recovery system, percent, from Equation 2 of this section.

(i) [Reserved]

(j) *Calculate the total volume of coating solids used.* Determine the total volume of coating solids used, liters, which is the combined volume of coating solids for all the coatings used during the compliance period, using Equation 2 of § 63.4151.

(k) *Calculate the organic HAP emission rate.* Determine the organic HAP emission rate to the atmosphere, kg organic HAP per liter coating solids used during the compliance period, using Equation 4 of this section.

$$H_{HAP} = \frac{H_e - \sum_{i=1}^{q}\left(H_{C,i}\right) - \sum_{j=1}^{r}\left(H_{CSR,j}\right)}{V_{st}} \qquad \text{(Eq. 4)}$$

Where:

H_{HAP} = organic HAP emission rate to the atmosphere during the compliance period, kg organic HAP per liter coating solids used.

H_e = total mass of organic HAP emissions before add-on controls from all the coatings, thinners, and cleaning materials used during the compliance period, kg, determined according to paragraph (e) of this section.

$H_{C,i}$ = total mass of organic HAP emissions reduction for controlled coating operation, i, during the compliance period, kg, from Equation 1 of this section.

$H_{CSR,j}$ = total mass of organic HAP emissions reduction for controlled coating operation, j, during the compliance period, kg, from Equation 3 of this section.

V_{st} = total volume of coating solids used during the compliance period, liters, from Equation 2 of § 63.4151.

q = number of controlled coating operations except those controlled with a solvent recovery system.

r = number of coating operations controlled with a solvent recovery system.

(l) To demonstrate initial compliance with the emission limit, calculated using Equation 4 of this section, must be less than or equal to the applicable emission limit in § 63.4090. You must keep all records as required by §§ 63.4130 and 63.4131. As part of the Notification of Compliance Status required by § 63.4110, you must identify the coating operation(s) for which you used the emission rate with add-on controls option and submit a statement that the coating operation(s) was (were) in compliance with the emission limitations during the initial compliance period because the organic HAP emission rate was less than or equal to the applicable emission limit in § 63.4090, and you achieved the operating limits required by § 63.4092 and the work practice standards required by § 63.4093.

§ 63.4162 [Reserved]

§ 63.4163 How do I demonstrate continuous compliance with the emission limitations?

(a) To demonstrate continuous compliance with the applicable emission limit in § 63.4090, the organic HAP emission rate for each compliance period determined according to the procedures in § 63.4161 must be equal to or less than the applicable emission limit in § 63.4090. Each month following the initial compliance period described in § 63.4160 is a compliance period.

(b) If the organic HAP emission rate for any compliance period exceeded the applicable emission limit in § 63.4090, this is a deviation from the emission limitation for that compliance period and must be reported as specified in §§ 63.4110(b)(6) and 63.4120(g).

(c) You must demonstrate continuous compliance with each operating limit required by § 63.4092 that applies to you as specified in Table 1 to this subpart.

(1) If an operating parameter is out of the allowed range specified in Table 1 to this subpart, this is a deviation from the operating limit that must be reported as specified in §§ 63.4110(b)(6) and 63.4120(g).

(2) If an operating parameter deviates from the operating limit specified in Table 1 to this subpart, then you must assume that the emission capture system and add-on control device were achieving zero efficiency during the time period of the deviation. For the purposes of completing the compliance calculations specified in § 63.4161, you must treat the materials used during a deviation on a controlled coating operation as if they were used on an uncontrolled coating operation for the time period of the deviation. You must not include those materials in the calculation of organic HAP emissions reductions in Equation 1 of § 63.4161.

(d) You must meet the requirements for bypass lines in §63.4168(b). If any bypass line is opened and emissions are diverted to the atmosphere when the coating operation is running, this is a deviation that must be reported as specified in §§63.4110(b)(6) and 63.4120(g). For the purposes of completing the compliance calculations specified in §63.4161, you must treat the materials used during a deviation on a controlled coating operation as if they were used on an uncontrolled coating operation for the time period of the deviation. You must not include those materials in the calculation of organic HAP emissions reductions in Equation 1 of §63.4161.

(e) You must demonstrate continuous compliance with the work practice standards in §63.4093. If you did not develop a work practice plan, or you did not implement the plan, or you did not keep the records required by §63.4130(k)(9), this is a deviation from the work practice standards that must be reported as specified in §§63.4110(b)(6) and 63.4120(g).

(f) As part of each semiannual compliance report required in §63.4120, you must submit a statement that you were in compliance with the emission limitations during the reporting period because the organic HAP emission rate for each compliance period was less than or equal to the applicable emission limit in §63.4090, and you achieved the operating limits required by §63.4092 and the work practice standards required by §63.4093 during each compliance period.

(g) During periods of startup, shutdown, and malfunction of the emission capture system, add-on control device, or coating operation that may affect emission capture or control device efficiency, you must operate in accordance with the SSMP required by §63.4100(d).

(h) Consistent with §§63.6(e) and 63.7(e)(1), deviations that occur during a period of startup, shutdown, or malfunction of the emission capture system, add-on control device, or coating operation that may affect emission capture or control device efficiency are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with the SSMP. The Administrator will determine whether deviations that occur during a period of startup, shutdown, or malfunction are violations according to the provisions in §63.6(e).

(i) [Reserved]

(j) You must maintain records as specified in §§63.4130 and 63.4131.

§63.4164 What are the general requirements for performance tests?

(a) You must conduct each performance test required by §63.4160 according to the requirements in §63.7(e)(1) and under the conditions in this section unless you obtain a waiver of the performance test according to the provisions in §63.7(h).

(1) *Representative coating operation operating conditions.* You must conduct the performance test under representative operating conditions for the coating operation. Operations during periods of startup, shutdown, or malfunction and periods of nonoperation do not constitute representative conditions. You must record the process information that is necessary to document operating conditions during the test and explain why the conditions represent normal operation.

(2) *Representative emission capture system and add-on control device operating conditions.* You must conduct the performance test when the emission capture system and add-on control device are operating at a representative flow rate, and the add-on control device is operating at a representative inlet concentration. You must record information that is necessary to document emission capture system and add-on control device operating conditions during the test and explain why the conditions represent normal operation.

(b) You must conduct each performance test of an emission capture system according to the requirements in §63.4165 and of an add-on control device according to the requirements in §63.4166.

(c) The performance test to determine add-on control device organic HAP destruction or removal efficiency must consist of three runs as specified in §63.7(e)(3) and each run must last at least 1 hour.

§ 63.4165 How do I determine the emission capture system efficiency?

You must use the procedures and test methods in this section to determine capture efficiency as part of the performance test required by § 63.4160.

(a) You may assume the capture system efficiency is 100 percent if both of the conditions in paragraphs (a)(1) and (2) of this section are met:

(1) The capture system meets the criteria in Method 204 of appendix M to 40 CFR part 51 for a PTE and directs all the exhaust gases from the enclosure to an add-on control device.

(2) All coatings, thinners, and cleaning materials used in the coating operation are applied within the capture system; coating solvent flash-off and coating, curing, and drying occurs within the capture system and the removal or evaporation of cleaning materials from the surfaces they are applied to occurs within the capture system. For example, this criterion is not met if parts enter the open shop environment when being moved between a spray booth and a curing oven.

(b) If the capture system does not meet both of the criteria in paragraphs (a)(1) and (2) of this section, then you must use one of the three protocols described in paragraphs (c), (d), and (e) of this section to measure capture efficiency. The capture efficiency measurements use TVH capture efficiency as a surrogate for organic HAP capture efficiency. For the protocols in paragraphs (c) and (d) of this section, the capture efficiency measurement must consist of three test runs. Each test run must be at least 3 hours duration or the length of a production run, whichever is longer, up to 8 hours. For the purposes of this test, a production run means the time required for a single part to go from the beginning to the end of production which includes surface preparation activities and drying or curing time.

(c) *Liquid-to-uncaptured-gas protocol using a temporary total enclosure or building enclosure.* The liquid-to-uncaptured-gas protocol compares the mass of liquid TVH in materials used in the coating operation, to the mass of TVH emissions not captured by the emission capture system. Use a temporary total enclosure or a building enclosure and the procedures in paragraphs (c)(1) through (6) of this section to measure emission capture system efficiency using the liquid-to-uncaptured-gas protocol.

(1) Either use a building enclosure or construct an enclosure around the coating operation where coatings, thinners, and cleaning materials are applied, and all areas where emissions from these applied coatings and materials subsequently occur, such as flash-off, curing, and drying areas. The areas of the coating operation where capture devices collect emissions for routing to an add-on control device, such as the entrance and exit areas of an oven or spray booth, must also be inside the enclosure. The enclosure must meet the applicable definition of a temporary total enclosure or building enclosure in Method 204 of appendix M to 40 CFR part 51.

(2) Use Method 204A or 204F of appendix M to 40 CFR part 51 to determine the mass fraction of TVH liquid input from each coating, thinner, and cleaning material used in the coating operation during each capture efficiency test run. To make the determination, substitute TVH for each occurrence of the term VOC in the methods.

(3) Use Equation 1 of this section to calculate the total mass of TVH liquid input from all the coatings, thinners, and cleaning materials used in the coating operation during each capture efficiency test run.

$$TVH_{used} = \sum_{i=1}^{n} (TVH_i)(Vol_i)(D_i) \qquad \text{(Eq. 1)}$$

Where:

TVH_{used} = total mass of TVH liquid input from all coatings, thinners, and cleaning materials used in the coating operation during the capture efficiency test run, kg.

TVH_i = mass fraction of TVH in coating, thinner, or cleaning material, i, that is used in the coating operation during the capture efficiency test run, kg TVH per kg material.

Vol_i = total volume of coating, thinner, or cleaning material, i, used in the coating operation during the capture efficiency test run, liters.

D_i = density of coating, thinner, or cleaning material, i, kg material per liter material.

n = number of different coatings, thinners, and cleaning materials used in the coating operation during the capture efficiency test run.

(4) Use Method 204D or E of appendix M to 40 CFR part 51 to measure the total mass, kg, of TVH emissions that are not captured by the emission capture system; they are measured as they exit the temporary total enclosure or building enclosure during each capture efficiency test run. To make the measurement substitute TVH for each occurrence of the term VOC in the methods.

(i) Use Method 204D if the enclosure is a temporary total enclosure.

(ii) Use Method 204E if the enclosure is a building enclosure. During the capture efficiency measurement, all organic compound emitting operations inside the building enclosure, other than the coating operation for which capture efficiency is being determined must be shut down, but all fans and blowers must be operating normally.

(5) For each capture efficiency test run, determine the percent capture efficiency of the emission capture system, using Equation 2 of this section:

$$CE = \frac{\left(TVH_{used} - TVH_{uncaptured}\right)}{TVH_{used}} \times 100 \qquad \text{(Eq. 2)}$$

Where:

CE = capture efficiency of the emission capture system vented to the add-on control device, percent.

TVH_{used} = total mass of TVH liquid input used in the coating operation during the capture efficiency test run, kg.

$TVH_{uncaptured}$ = total mass of TVH that is not captured by the emission capture system and that exits from the temporary total enclosure or building enclosure during the capture efficiency test run, kg.

(6) Determine the capture efficiency of the emission capture system as the average of the capture efficiencies measured in the three test runs.

(d) *Gas-to-gas protocol using a temporary total enclosure or a building enclosure.* The gas-to-gas protocol compares the mass of TVH emissions captured by the emission capture system to the mass of TVH emissions not captured. Use a temporary total enclosure or a building enclosure and the procedures in paragraphs (d)(1) through (5) of this section to measure emission capture system efficiency using the gas-to-gas protocol.

(1) Either use a building enclosure or construct an enclosure around the coating operation where coatings, thinners, and cleaning materials are applied and all areas where emissions from these applied coatings and materials subsequently occur such as flash-off, curing, and drying areas. The areas of the coating operation where capture devices collect emissions generated by the coating operation for routing to an add-on control device, such as the entrance and exit areas of an oven or a spray booth, must also be inside the enclosure. The enclosure must meet the applicable definition of a temporary total enclosure or building enclosure in Method 204 of appendix M to 40 CFR part 51.

(2) Use Method 204B or 204C of appendix M to 40 CFR part 51 to measure the total mass, kg, of TVH emissions captured by the emission capture system during each capture efficiency test run as measured at the inlet to the add-on

control device. To make the measurement, substitute TVH for each occurrence of the term VOC in the methods.

(i) The sampling points for the Method 204B or 204C measurement must be upstream from the add-on control device and must represent total emissions routed from the capture system and entering the add-on control device.

(ii) If multiple emission streams from the capture system enter the add-on control device without a single common duct, then the emissions entering the add-on control device must be simultaneously measured in each duct, and the total emissions entering the add-on control device must be determined.

(3) Use Method 204D or 204E of appendix M to 40 CFR part 51 to measure the total mass, kg, of TVH emissions that are not captured by the emission capture system; they are measured as they exit the temporary total enclosure or building enclosure during each capture efficiency test run. To make the measurement, substitute TVH for each occurrence of the term VOC in the methods.

(i) Use Method 204D if the enclosure is a temporary total enclosure.

(ii) Use Method 204E if the enclosure is a building enclosure. During the capture efficiency measurement, all organic compound emitting operations inside the building enclosure other than the coating operation for which capture efficiency is being determined must be shut down, but all fans and blowers must be operating normally.

(4) For each capture efficiency test run, determine the percent capture efficiency of the emission capture system, using Equation 3 of this section:

$$\mathrm{CE} = \frac{\mathrm{TVH}_{\mathrm{captured}}}{\left(\mathrm{TVH}_{\mathrm{captured}} + \mathrm{TVH}_{\mathrm{uncaptured}}\right)} \times 100 \qquad \text{(Eq. 3)}$$

Where:

CE = capture efficiency of the emission capture system vented to the add-on control device, percent.

$\mathrm{TVH}_{\mathrm{captured}}$ = total mass of TVH captured by the emission capture system as measured at the inlet to the add-on control device during the emission capture efficiency test run, kg.

$\mathrm{TVH}_{\mathrm{uncaptured}}$ = total mass of TVH that is not captured by the emission capture system and that exits from the temporary total enclosure or building enclosure during the capture efficiency test run, kg.

(5) Determine the capture efficiency of the emission capture system as the average of the capture efficiencies measured in the three test runs.

(e) *Alternative capture efficiency protocol.* As an alternative to the procedures specified in paragraphs (c) and (d) of this section, you may determine capture efficiency using any other capture efficiency protocol and test methods that satisfy the criteria of either the DQO or LCL approach as described in appendix A to subpart KK of this part.

§ 63.4166 How do I determine the add-on control device emission destruction or removal efficiency?

(a) For all types of add-on control devices, use the test methods as specified in paragraphs (a)(1) through (5) of this section.

(1) Use Method 1 or 1A of appendix A to 40 CFR part 60, as appropriate, to select sampling sites and velocity traverse points.

(2) Use Method 2, 2A, 2C, 2D, 2F, or 2G of appendix A to 40 CFR part 60, as appropriate, to measure gas volumetric flow rate.

(3) Use Method 3, 3A, or 3B of appendix A to 40 CFR part 60, as appropriate, for gas analysis to determine dry molecular weight. You may also use as an alternative to Method 3B, the manual method for measuring the oxygen, carbon dioxide, and carbon monoxide content of exhaust gas in ANSI/ASME, PTC 19.10–1981, ''Flue and Exhaust Gas Analyses'' (incorporated by reference, see § 63.14).

(4) Use Method 4 of appendix A to 40 CFR part 60 to determine stack gas moisture.

(5) Methods for determining gas volumetric flow rate, dry molecular weight, and stack gas moisture must be performed, as applicable, during each test run.

(b) Measure total gaseous organic mass emissions as carbon at the inlet and outlet of the add-on control device simultaneously, using either Method 25 or 25A of appendix A to 40 CFR part 60, as specified in paragraphs (b)(1) through (3) of this section. You must use the same method for both the inlet and outlet measurements.

(1) Use Method 25 if the add-on control device is an oxidizer and you expect the total gaseous organic concentration as carbon to be more than 50 parts per million (ppm) at the control device outlet.

(2) Use Method 25A if the add-on control device is an oxidizer and you expect the total gaseous organic concentration as carbon to be 50 ppm or less at the control device outlet.

(3) Use Method 25A if the add-on control device is not an oxidizer.

(c) If two or more add-on control devices are used for the same emission stream, then you must measure emissions at the outlet of each device. For example, if one add-on control device is a concentrator with an outlet for the high-volume, dilute stream that has been treated by the concentrator, and a second add-on control device is an oxidizer with an outlet for the low-volume, concentrated stream that is treated with the oxidizer, you must measure emissions at the outlet of the oxidizer and the high-volume dilute stream outlet of the concentrator.

(d) For each test run, determine the total gaseous organic emissions mass flow rates for the inlet and the outlet of the add-on control device, using Equation 1 of this section. If there is more than one inlet or outlet to the add-on control device, you must calculate the total gaseous organic mass flow rate using Equation 1 of this section for each inlet and each outlet and then total all of the inlet emissions and total all of the outlet emissions.

$$M_f = Q_{sd} C_c [12][0.0416]\left[10^{-6}\right] \quad \text{(Eq. 1)}$$

Where:

M_f = total gaseous organic emissions mass flow rate, kg/per hour (h).

C_c = concentration of organic compounds as carbon in the vent gas, as determined by Method 25 or Method 25A, parts per million by volume (ppmv), dry basis.

Q_{sd} = volumetric flow rate of gases entering or exiting the add-on control device, as determined by Method 2, 2A, 2C, 2D, 2F, or 2G, dry standard cubic meters/hour (dscm/h).

0.0416 = conversion factor for molar volume, kg-moles per cubic meter (mol/m^3) (@ 293 Kelvin (K) and 760 millimeters of mercury (mm Hg)).

(e) For each test run, determine the add-on control device organic emissions destruction or removal efficiency, using Equation 2 of this section.

$$DRE = \frac{M_{fi} - M_{fo}}{M_{fi}} \times 100 \quad \text{(Eq. 2)}$$

Where:

DRE = add-on control device organic emissions destruction or removal efficiency, percent.

M_{fi} = total gaseous organic emissions mass flow rate at the inlet(s) to the add-on control device, using Equation 1 of this section, kg/h.

M_{fo} = total gaseous organic emissions mass flow rate at the outlet(s) of the add-on control device, using Equation 1 of this section, kg/h.

(f) Determine the emission destruction or removal efficiency of the add-on control device as the average of the efficiencies determined in the three test runs and calculated in Equation 2 of this section.

§63.4167 How do I establish the emission capture system and add-on control device operating limits during the performance test?

During the performance test required by §63.4160 and described in §§63.4164, 63.4165, and 63.4166, you must establish the operating limits required by

§ 63.4092 according to this section unless you have received approval for alternative monitoring and operating limits under § 63.8(f) as specified in § 63.4092.

(a) *Thermal oxidizers.* If your add-on control device is a thermal oxidizer, establish the operating limits according to paragraphs (a)(1) and (2) of this section.

(1) During the performance test, you must monitor and record the combustion temperature at least once every 15 minutes during each of the three test runs. You must monitor the temperature in the firebox of the thermal oxidizer or immediately downstream of the firebox before any substantial heat exchange occurs.

(2) Use the data collected during the performance test to calculate and record the average combustion temperature maintained during the performance test. This average combustion temperature is the minimum operating limit for your thermal oxidizer.

(b) *Catalytic oxidizers.* If your add-on control device is a catalytic oxidizer, establish the operating limits according to either paragraphs (b)(1) and (2) or paragraphs (b)(3) and (4) of this section.

(1) During the performance test, you must monitor and record the temperature just before the catalyst bed and the temperature difference across the catalyst bed at least once every 15 minutes during each of the three test runs.

(2) Use the data collected during the performance test to calculate and record the average temperature just before the catalyst bed and the average temperature difference across the catalyst bed maintained during the performance test. These are the minimum operating limits for your catalytic oxidizer.

(3) As an alternative to monitoring the temperature difference across the catalyst bed, you may monitor the temperature just before the catalyst bed and implement a site-specific inspection and maintenance plan for your catalytic oxidizer as specified in paragraph (b)(4) of this section. During the performance test, you must monitor and record the temperature just before the catalyst bed at least once every 15 minutes during each of the three test runs. Use the data collected during the performance test to calculate and record the average temperature just before the catalyst bed during the performance test. This is the minimum operating limit for your catalytic oxidizer.

(4) You must develop and implement an inspection and maintenance plan for your catalytic oxidizer(s) for which you elect to monitor according to paragraph (b)(3) of this section. The plan must address, at a minimum, the elements specified in paragraphs (b)(4)(i) through (iii) of this section.

(i) Annual sampling and analysis of the catalyst activity (*i.e.*, conversion efficiency) following the manufacturer's or catalyst supplier's recommended procedures.

(ii) Monthly inspection of the oxidizer system including the burner assembly and fuel supply lines for problems and, as necessary, adjusting the equipment to assure proper air-to-fuel mixtures.

(iii) Annual internal and monthly external visual inspection of the catalyst bed to check for channeling, abrasion, and settling. If problems are found, you must take corrective action consistent with the manufacturer's recommendations and conduct a new performance test to determine destruction efficiency according to § 63.4166.

(c) *Carbon adsorbers.* If your add-on control device is a carbon absorber, establish the operating limits according to paragraphs (c)(1) and (2) of this section.

(1) You must monitor and record the total regeneration desorbing gas (e.g., steam or nitrogen) mass flow for each regeneration cycle and the carbon bed temperature after each carbon bed regeneration and cooling cycle for the regeneration cycle either immediately preceding or immediately following the performance test.

(2) The operating limits for your carbon absorber are the minimum total desorbing gas mass flow recorded during the regeneration cycle and the maximum carbon bed temperature recorded after the cooling cycle.

(d) *Condensers.* If your add-on control device is a condenser, establish the operating limits according to paragraphs (d)(1) and (2) of this section.

(1) During the performance test, you must monitor and record the condenser outlet (product side) gas temperature at least once every 15 minutes during each of the three test runs.

(2) Use the data collected during the performance test to calculate and record the average condenser outlet (product side) gas temperature maintained during the performance test. This average condenser outlet gas temperature is the maximum operating limit for your condenser.

(e) *Concentrators.* If your add-on control device includes a concentrator, you must establish operating limits for the concentrator according to paragraphs (e)(1) through (4) of this section.

(1) During the performance test, you must monitor and record the desorption concentrate stream gas temperature at least once every 15 minutes during each of the three runs of the performance test.

(2) Use the data collected during the performance test to calculate and record the average temperature. This is the minimum operating limit for the desorption concentrate gas stream temperature.

(3) During the performance test, you must monitor and record the pressure drop of the dilute stream across the concentrator at least once every 15 minutes during each of the three runs of the performance test.

(4) Use the data collected during the performance test to calculate and record the average pressure drop. This is the maximum operating limit for the dilute stream across the concentrator.

(f) *Emission capture system.* For each capture device that is not part of a PTE that meets the criteria of §63.4165(a), establish an operating limit for either the gas volumetric flow rate or duct static pressure as specified in paragraphs (f)(1) and (2) of this section. The operating limit for a PTE is specified in Table 1 to this subpart.

(1) During the capture efficiency determination required by §63.4160 and described in §§63.4164 and 63.4165, you must monitor and record either the gas volumetric flow rate or the duct static pressure for each separate capture device in your emission capture system at least once every 15 minutes during each of the three test runs at a point in the duct between the capture device and the add-on control device inlet.

(2) Calculate and record the average gas volumetric flow rate or duct static pressure for the three test runs for each capture device. This average gas volumetric flow rate or duct static pressure is the minimum operating limit for that specific capture device.

§63.4168 What are the requirements for continuous parameter monitoring system installation, operation, and maintenance?

(a) *General.* You must install, operate, and maintain each CPMS specified in paragraphs (c), (e), (f), and (g) of this section according to paragraphs (a)(1) through (6) of this section. You must install, operate, and maintain each CPMS specified in paragraphs (b) and (d) of this section according to paragraphs (a)(3) through (5) of this section.

(1) The CPMS must complete a minimum of one cycle of operation for each successive 15-minute period. You must have a minimum of four equally spaced successive cycles of CPMS operation in 1 hour.

(2) You must determine the average of all recorded readings for each successive 3-hour period of the emission capture system and add-on control device operation except as specified in paragraph (a)(6) of this section.

(3) You must record the results of each inspection, calibration, and validation check of the CPMS.

(4) You must maintain the CPMS at all times and have available necessary parts for routine repairs of the monitoring equipment.

(5) You must operate the CPMS and collect emission capture system and add-on control device parameter data at all times that a controlled coating operation is operating except during monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, if applicable, calibration checks and required zero and span adjustments).

(6) You must not use emission capture system or add-on control device

parameter data recorded during monitoring malfunctions, associated repairs, out-of-control periods, or required quality assurance or control activities when calculating data averages. You must use all the data collected during all other periods in calculating the data averages for determining compliance with the emission capture system and add-on control device operating limits.

(7) A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the CPMS to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. Except for periods of required quality assurance or control activities, any period during which the CPMS fails to operate and record data continuously as required by paragraph (a)(1) of this section, or generates data that cannot be included in calculating averages as specified in paragraph (a)(6) of this section, is a deviation from the monitoring requirements.

(b) *Capture system bypass line.* You must comply with the requirements of paragraphs (a)(3) through (5) and (b)(1) and (2) of this section for each emission capture system that contains bypass lines that could divert emissions away from the add-on control device to the atmosphere.

(1) You must monitor or secure the valve or closure mechanism controlling the bypass line in a nondiverting position in such a way that the valve or closure mechanism cannot be opened without creating a record that the valve was opened. The method used to monitor or secure the valve or closure mechanism must meet one of the requirements specified in paragraphs (b)(1)(i) through (iv) of this section.

(i) *Flow control position indicator.* Install, calibrate, maintain, and operate according to the manufacturer's specifications a flow control position indicator that takes a reading at least once every 15 minutes and provides a record indicating whether the emissions are directed to the add-on control device or diverted from the add-on control device. The time of occurrence and flow control position must be recorded, as well as every time the flow direction is changed. The flow control position indicator must be installed at the entrance to any bypass line that could divert the emissions away from the add-on control device to the atmosphere.

(ii) *Car-seal or lock-and-key valve closures.* Secure any bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. You must visually inspect the seal or closure mechanism at least once every month to ensure that the valve is maintained in the closed position and the emissions are not diverted away from the add-on control device to the atmosphere.

(iii) *Valve closure monitoring.* Ensure that any bypass line valve is in the closed (non-diverting) position through monitoring of valve position at least once every 15 minutes. You must inspect the monitoring system at least once every month to verify that the monitor will indicate valve position.

(iv) *Automatic shutdown system.* Use an automatic shutdown system in which the coating operation is stopped when flow is diverted by the bypass line away from the add-on control device to the atmosphere when the coating operation is running. You must inspect the automatic shutdown system at least once every month to verify that it will detect diversions of flow and shutdown the coating operation.

(2) If any bypass line is opened, you must include a description of why the bypass line was opened and the length of time it remained open in the semiannual compliance reports required in § 63.4120.

(c) *Thermal oxidizers and catalytic oxidizers.* If you are using a thermal oxidizer or catalytic oxidizer as an add-on control device (including those used with concentrators or with carbon adsorbers to treat desorbed concentrate streams), you must comply with the requirements in paragraphs (a) and (c)(1) through (3) of this section:

(1) For a thermal oxidizer, install a gas temperature monitor in the firebox of the thermal oxidizer or in the duct immediately downstream of the firebox before any substantial heat exchange occurs.

(2) For a catalytic oxidizer, install a gas temperature monitor in the gas stream immediately before the catalyst bed, and if you establish operating

limits according to §63.6167(b)(1) and (2), also install a gas temperature monitor in the gas stream immediately after the catalyst bed.

(3) For each gas temperature monitoring device, you must comply with the requirements in paragraphs (c)(3)(i) through (vii) of this section.

(i) Locate the temperature sensor in a position that provides a representative temperature.

(ii) Use a temperature sensor with a measurement sensitivity of 4 degrees Fahrenheit or 0.75 percent of the temperature value, whichever is larger.

(iii) Shield the temperature sensor system from electromagnetic interference and chemical contaminants.

(iv) If a gas temperature chart recorder is used, it must have a measurement sensitivity in the minor division of at least 20 degrees Fahrenheit.

(v) Perform an electronic calibration at least semiannually according to the procedures in the manufacturer's owners manual. Following the electronic calibration, you must conduct a temperature sensor validation check in which a second or redundant temperature sensor placed nearby the process temperature sensor must yield a reading within 30 degrees Fahrenheit of the process temperature sensor's reading.

(vi) Any time the sensor exceeds the manufacturer's specified maximum operating temperature range, either conduct calibration and validation checks or install a new temperature sensor.

(vii) At least monthly, inspect components for integrity and electrical connections for continuity, oxidation, and galvanic corrosion.

(d) *Carbon adsorbers.* If you are using a carbon adsorber as an add-on control device, you must monitor the total regeneration desorbing gas (e.g., steam or nitrogen) mass flow for each regeneration cycle, the carbon bed temperature after each regeneration and cooling cycle, and comply with paragraphs (a)(3) through (5) and (d)(1) and (2) of this section.

(1) The regeneration desorbing gas mass flow monitor must be an integrating device having a measurement sensitivity of plus or minus 10 percent, capable of recording the total regeneration desorbing gas mass flow for each regeneration cycle.

(2) The carbon bed temperature monitor must have a measurement sensitivity of 1 percent of the temperature recorded or 1 degree Fahrenheit, whichever is greater, and must be capable of recording the temperature within 15 minutes of completing any carbon bed cooling cycle.

(e) *Condensers.* If you are using a condenser, you must monitor the condenser outlet (product side) gas temperature and comply with paragraphs (a) and (e)(1) and (2) of this section.

(1) The gas temperature monitor must have a measurement sensitivity of 1 percent of the temperature recorded or 1 degree Fahrenheit, whichever is greater.

(2) The temperature monitor must provide a gas temperature record at least once every 15 minutes.

(f) *Concentrators.* If you are using a concentrator, such as a zeolite wheel or rotary carbon bed concentrator, you must comply with the requirements in paragraphs (a) and (f)(1) and (2) of this section.

(1) You must install a temperature monitor in the desorption gas stream. The temperature monitor must meet the requirements in paragraphs (a) and (c)(3) of this section.

(2) You must install a device to monitor pressure drop across the zeolite wheel or rotary carbon bed. The pressure monitoring device must meet the requirements in paragraphs (a) and (f)(2)(i) through (vii) of this section.

(i) Locate the pressure sensor(s) in or as close to a position that provides a representative measurement of the pressure.

(ii) Minimize or eliminate pulsating pressure, vibration, and internal and external corrosion.

(iii) Use a gauge with a minimum tolerance of 0.5 inch of water or a transducer with a minimum tolerance of 1 percent of the pressure range.

(iv) Check the pressure tap daily.

(v) Using a manometer, check gauge calibration quarterly and transducer calibration monthly.

(vi) Conduct calibration checks anytime the sensor exceeds the manufacturer's specified maximum operating pressure range or install a new pressure sensor.

(vii) At least monthly, inspect components for integrity, electrical connections for continuity, and mechanical connections for leakage.

(g) *Emission capture systems.* The capture system monitoring system must comply with the requirements in paragraph (a) of this section and the applicable requirements in paragraphs (g)(1) and (2) of this section.

(1) For each flow measurement device, you must meet the requirements in paragraphs (a) and (g)(1)(i) through (iv) of this section.

(i) Locate a flow sensor in a position that provides a representative flow measurement in the duct from each capture device in the emission capture system to the add-on control device.

(ii) Reduce swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.

(iii) Conduct a flow sensor calibration check at least semiannually.

(iv) At least monthly, inspect components for integrity, electrical connections for continuity, and mechanical connections for leakage.

(2) For each pressure drop measurement device, you must comply with the requirements in paragraphs (a) and (g)(2)(i) through (vi) of this section.

(i) Locate the pressure sensor(s) in or as close to a position that provides a representative measurement of the pressure drop across each opening you are monitoring.

(ii) Minimize or eliminate pulsating pressure, vibration, and internal and external corrosion.

(iii) Check pressure tap pluggage daily.

(iv) Using an inclined manometer with a measurement sensitivity of 0.0002 inch water, check gauge calibration quarterly and transducer calibration monthly.

(v) Conduct calibration checks any time the sensor exceeds the manufacturer's specified maximum operating pressure range or install a new pressure sensor.

(vi) At least monthly, inspect components for integrity, electrical connections for continuity, and mechanical connections for leakage.

OTHER REQUIREMENTS AND INFORMATION

§ 63.4180 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by us, the EPA, or a delegated authority such as your State, local, or tribal agency. If the EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency (as well as the EPA) has the authority to implement and enforce this subpart. You should contact your EPA Regional Office to find out if implementation and enforcement of this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under subpart E of this part, the authorities contained in paragraph (c) of this section are retained by the EPA Administrator and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are listed in paragraphs (c)(1) through (4) of this section.

(1) Approval of alternatives to the work practice standards in § 63.4093 under § 63.6(g).

(2) Approval of major alternatives to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.90.

(3) Approval of major alternatives to monitoring under § 63.8(f) and as defined in § 63.90.

(4) Approval of major alternatives to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

§ 63.4181 What definitions apply to this subpart?

Terms used in this subpart are defined in the CAA, in 40 CFR 63.2, the General Provisions of this part, and in this section as follows:

Add-on control device means an air pollution control device, such as a thermal oxidizer or carbon absorber, that reduces pollution in an air stream by destruction or removal before discharge to the atmosphere.

Adhesive means any chemical substance that is applied for the purpose of bonding two surfaces together.

Capture device means a hood, enclosure, room, floor sweep, or other means of containing or collecting emissions and directing those emissions into an add-on control device.

Capture efficiency or *capture system efficiency* means the portion (expressed as a percentage) of the pollutants from an emission source that is delivered to an add-on control device.

Capture system means one or more capture devices intended to collect emissions generated by a coating operation in the use of coatings and cleaning materials, both at the point of application and at subsequent points where emissions from the coatings and cleaning materials occur, such as flashoff, drying, or curing. As used in this subpart, multiple capture devices that collect emissions generated by a coating operation are considered a single capture system.

Cleaning material means a solvent used to remove contaminants and other materials such as dirt, grease, oil, and dried or wet coating (e.g., depainting) from a substrate before or after coating application or from equipment associated with a coating operation such as spray booths, spray guns, racks, tanks, and hangers. Thus, it includes cleaning materials used for substrates or equipment or both.

Coating means a material applied to a substrate for decorative, protective, or functional purposes. For the purposes of this subpart, coatings include paints, porcelain enamels, sealants, caulks, inks, adhesives, and maskants. Decorative, protective, or functional materials that consist only of protective oils, acids, bases, or any combination of these substances are not considered coatings for the purposes of this subpart.

Coating operation means equipment used to apply cleaning materials to a substrate to prepare it for coating application or to remove dried coating (surface preparation), to apply coating to a substrate (coating application) and to dry or cure the coating after application, or to clean coating operation equipment (equipment cleaning). A single coating operation may include any combination of these types of equipment but always includes at least the point at which a coating or cleaning material is applied and all subsequent points in the affected source where organic HAP emissions from that coating or cleaning material occur. There may be multiple coating operations in an affected source. Applications of coatings using hand-held, nonrefillable aerosol containers, touchup markers, or marking pens are not coating operations for the purposes of this subpart.

Coating solids means the nonvolatile portion of the coating that makes up the dry film.

Continuous parameter monitoring system means the total equipment that may be required to meet the data acquisition and availability requirements of this subpart used to sample, condition (if applicable), analyze, and provide a record of coating operation, capture system, or add-on control device parameters.

Controlled coating operation means a coating operation from which some or all of the organic HAP emissions are routed through an emission capture system and add-on control device.

Deviation means any instance in which an affected source subject to this subpart or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart including but not limited to any emission limit, or operating limit, or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limit, or operating limit, or work practice standard in this subpart during startup, shutdown, or malfunction regardless of whether or not such failure is permitted by this subpart.

Emission limitation means an emission limit, operating limit, or work practice standard.

Enclosure means a structure that surrounds a source of emissions and captures and directs the emissions to an add-on control device.

Exempt compound means a specific compound that is not considered a VOC due to negligible photochemical reactivity. The exempt compounds are listed in 40 CFR 51.100(s).

Facility maintenance means the routine repair or refurbishing (including surface coating) of the tools, equipment, machinery, and structures that comprise the infrastructure of the facility or that are necessary for the facility to function in its intended capacity. It does not mean cleaning of equipment that is part of a large appliances coating operation.

Heat transfer coil means a tube-and-fin assembly used in large appliance products to remove heat from a circulating fluid.

Large appliance part means a component of a large appliance product except for the wider use parts excluded under § 63.4081(d)(1).

Large appliance product means, but is not limited to, any of the following products (except as provided under § 63.4081(d)(3)) manufactured for household, recreational, institutional, commercial, or industrial use:

(1) Cooking equipment (ovens, ranges, and microwave ovens but not including toasters, counter-top grills, and similar small products);

(2) Refrigerators, freezers, and refrigerated cabinets and cases;

(3) Laundry equipment (washers, dryers, drycleaning machines, and pressing machines);

(4) Dishwashers, trash compactors, and water heaters; and

(5) HVAC units, air-conditioning (except motor vehicle) units, air-conditioning and heating combination units, comfort furnaces, and electric heat pumps.

Specifically excluded are heat transfer coils and large commercial and industrial chillers.

Large commercial and industrial chillers means, for the purposes of this subpart, equipment designed to produce chilled water for use in commercial or industrial HVAC systems.

Manufacturer's formulation data means data on a material (such as a coating) that are supplied by the material manufacturer based on knowledge of the ingredients used to manufacture that material, rather than based on testing of the material with the test methods specified in § 63.4141. Manufacturer's formulation data may include, but are not limited to, information on density, organic HAP content, volatile organic matter content, and coating solids content.

Mass fraction of organic HAP means the ratio of the mass of organic HAP to the mass of a material in which it is contained, expressed as kg organic HAP per kg of material.

Month means a calendar month or a pre-specified period of 28 to 35 days to allow for flexibility in recordkeeping when data are based on a business accounting period.

Organic HAP content means the mass of organic HAP per volume of coating solids for a coating, calculated using Equation 2 of § 63.4141. The organic HAP content is determined for the coating in the condition it is in when received from its manufacturer or supplier and does not account for any alteration after receipt.

Permanent total enclosure (PTE) means a permanently installed enclosure that meets the criteria of Method 204 of appendix M, 40 CFR part 51, for a PTE and that directs all the exhaust gases from the enclosure to an add-on control device.

Protective oil means an organic material that is applied to a substrate for the purpose of providing lubrication or protection from corrosion without forming a solid film. This definition of protective oils includes, but is not limited to, lubricating oils, evaporative oils (including those that evaporate completely), and extrusion oils.

Research or laboratory facility means a facility whose primary purpose is for research and development of new processes and products conducted under the close supervision of technically trained personnel and is not engaged in the manufacture of final or intermediate products for commercial purposes, except in a de minimis manner.

Responsible official means responsible official as defined in 40 CFR 70.2.

Startup, initial means the first time equipment is brought online in a facility.

Surface preparation means use of a cleaning material on a portion of or all of a substrate including use of cleaning material to remove dried coating which is sometimes called ‘‘depainting.’’

Temporary total enclosure means an enclosure constructed for the purpose of measuring the capture efficiency of pollutants emitted from a given source as defined in Method 204 of appendix M, 40 CFR part 51.

Thinner means an organic solvent that is added to a coating after the coating is received from the supplier.

Total volatile hydrocarbon (TVH) means the total amount of nonaqueous volatile organic matter determined according to Methods 204 and 204A through 204F of appendix M to 40 CFR part 51 and substituting the term TVH each place in the methods where the term VOC is used. The TVH includes both VOC and non-VOC.

Uncontrolled coating operation means a coating operation from which no organic HAP emissions are routed through an emission capture system and add-on control device.

Volatile organic compound (VOC) means any compound defined as VOC in 40 CFR 51.100(s).

Volume fraction of coating solids means the ratio of the volume of coating solids (also known as volume of nonvolatiles) to the volume of coating, expressed as liters of coating solids per liter of coating.

Wastewater means water that is generated in a coating operation and is collected, stored, or treated prior to being discarded or discharged.

Table 1 to Subpart NNNN of Part 63—Operating Limits if Using the Emission Rate With Add-On Controls Option

[If you are required to comply with operating limits by § 63.4092, you must comply with the applicable operating limits in the following table]

For following device . . .	You must meet the following operating limit . . .	And you must demonstrate continuous compliance with the operating limit by . . .
1. thermal oxidizer	a. the average combustion temperature in any 3-hour period must not fall below the combustion temperature limit established according to § 63.4167(a).	i. collecting the combustion temperature data according to § 63.4168(c); ii. reducing the data to 3-hour block averages; and iii. maintaining the 3-hour average combustion temperature at or above the combustion temperature limit.
2. catalytic oxidizer	a. the average temperature measured just before the catalyst bed in any 3-hour period must not fall below the limit established according to § 63.4167(b); and either.	i. collecting the temperature data according to § 63.4168(c); ii. reducing the data to 3-hour block before the averages; and iii. maintaining the 3-hour average temperature before the catalyst bed at or above the temperature limit.
	b. ensure that average temperature difference across the catalyst bed in any 3-hour period does not fall below the temperature difference limit established according to § 63.4167(b)(2); or.	i. collecting the temperature data according to § 63.4168(c); ii. reducing the data to 3-hour block difference across averages; and iii. maintaining the 3-hour average temperature difference at or above the temperature difference limit.
	c. develop and implement an inspection and maintenance plan according to § 63.4167(b)(4).	i. maintaining an up-to-date inspection and maintenance plan, records of annual catalyst activity checks, records monthly inspections of the oxidizer system, and records of the annual internal inspections of the catalyst bed. If a problem is discovered during a monthly or annual inspection required by § 63.4167(b)(4), you must take corrective action as soon as practicable consistent with the manufacturer's recommendations.
3. carbon adsorber	a. the total regeneration desorbing gas (e.g., steam or nitrogen) mass flow for each carbon bed regeneration cycle must not fall below the total regeneration desorbing gas mass flow limit established according to § 63.4167(c).	i. measuring the total regeneration desorbing gas (e.g., steam or nitrogen) mass flow for each regeneration cycle according to § 63.4168(d); and ii. maintaining the total regeneration desorbing gas mass flow at or above the mass flow limit.

[If you are required to comply with operating limits by § 63.4092, you must comply with the applicable operating limits in the following table]

For following device . . .	You must meet the following operating limit . . .	And you must demonstrate continuous compliance with the operating limit by . . .
	b. the temperature of the carbon bed, after completing each regeneration and any cooling cycle, must not exceed the carbon bed temperature limit established according to § 63.4167(c).	i. measuring the temperature of the carbon bed after completing each regeneration and any cooling cycle according to § 63.4168(d); and ii. operating the carbon beds such that each carbon bed is not returned to service until the recorded temperature of the carbon bed is at or below the temperature limit.
4. condenser	a. the average condenser outlet (product side) gas temperature in any 3-hour period must not exceed the temperature limit established according to § 63.4167(d).	i. collecting the condenser outlet (product side) gas temperature according to § 63.4168(e); ii. reducing the data to 3-hour block averages; and iii. maintaining the 3-hour average gas exceed the temperature at the outlet at or below the temperature limit.
5. concentrators, including zeolite wheels and rotary carbon adsorbers.	a. the average gas temperature of the desorption concentrate stream in any 3-hour period must not fall below the limit established according to § 63.4167(e).	i. collecting the temperature data according to 63.4168(f); ii. reducing the data to 3-hour block averaged; and iii. maintaining the 3-hour average temperature at or above the temperature limit.
	b. the average pressure drop of the dilute stream across the concentrator in any 3-hour period must not fall below the limit established according to § 63.4167(e).	i. collecting the pressure drop data according to 63.4168(f); and ii. reducing the pressure drop data to across the 3-hour block averages; and iii. maintaining the 3-hour average pressure drop at or above the pressure drop limit.
6. emission capture system that is a PTE according to § 63.4165(a).	a. the direction of the air flow at all times must be into the enclosure; and either.	i. collecting the direction of air flow, and either the facial velocity of air through all natural draft openings according to § 63.4168(g)(1) or the pressure drop across the enclosure according to § 63.4168(g)(2); and ii. maintaining the facial velocity of air flow through all natural draft openings or the pressure drop at or above the facial velocity limit or pressure drop limit, and maintaining the direction of air flow into the enclosure at all times.
	b. the average facial velocity of air through all natural draft openings in the enclosure must be at least 200 feet per minute; or.	See item 6.a. of this table.
	c. the pressure drop across the enclosure must be at least 0.007 inch H2O, as established in Method 204 of appendix M to 40 CFR part 51.	See item 6.a. of this table.
7. emission capture system that is not a PTE according to § 63.4165(a).	a. the average gas volumetric flow rate or duct static pressure in each duct between a capture device and add-on control device inlet in any 3-hour period must not fall below the average volumetric flow rate or duct static pressure limit established for that capture device according to § 63.4167(f).	i. collecting the gas volumetric flow rate or duct static pressure for each capture device according to § 63.4168(g); ii. reducing the data to 3-hour block averages; and iii. maintaining the 3-hour average gas volumetric flow rate or duct static pressure for each capture device at or above the gas volumetric flow rate or duct static pressure limit.

TABLE 2 TO SUBPART NNNN OF PART 63—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART NNNN

[You must comply with the applicable General Provisions requirements according to the following table]

Citation	Subject	Applicable to subpart NNNN	Explanation
§ 63.1(a)(1)–(14)	General Applicability	Yes	
§ 63.1(b)(1)–(3)	Initial Applicability Determination	Yes	Applicability to subpart NNNN is also specified in § 63.4081.
§ 63.1(c)(1)	Applicability After Standard Established.	Yes	
§ 63.1(c)(2)–(3)	Applicability of Permit Program for Area Sources.	No	Area sources are not subject to subpart NNNN.
§ 63.1(c)(4)–(5)	Extensions and Notifications	Yes	

[You must comply with the applicable General Provisions requirements according to the following table]

Citation	Subject	Applicable to subpart NNNN	Explanation
§ 63.1(e)	Applicability of Permit Program Before Relevant Standard is Set.	Yes	
§ 63.2	Definitions	Yes	Additional definitions are Specified in § 63.4181.
§ 63.3(a)–(c)	Units and Abbreviations	Yes	
§ 63.4(a)(1)–(5)	Prohibited Activities	Yes	
§ 63.4(b)–(c)	Circumvention/Severability	Yes	
§ 63.5(a)	Construction/Reconstruction	Yes	
§ 63.5(b)(1)–(6)	Requirements for Existing, Newly Constructed, and Reconstructed Sources.	Yes	
§ 63.5(d)	Application for Approval of Construction/Reconstruction.	Yes	
§ 63.5(e)	Approval of Construction/Reconstruction.	Yes	
§ 63.5(f)	Approval of Construction/Reconstruction Based on Prior State Review.	Yes	
§ 63.6(a)	Compliance With Standards and Maintenance Requirements—Applicability.	Yes	
§ 63.6(b)(1)–(7)	Compliance Dates for New and Reconstructed Sources.	Yes	Section 63.4083 specifies the compliance dates.
§ 63.6(c)(1)–(5)	Compliance Dates for Existing Sources.	Yes	Section 63.4083 specifies the compliance dates.
§ 63.6(e)(1)–(2)	Operation and Maintenance	Yes	
§ 63.6(e)(3)	SSMP	Yes	Only sources using an add—on control device to comply with the standard must complete SSMP.
§ 63.6(f)(1)	Compliance Except During Start-up, Shutdown, and Malfunction.	Yes	Applies only to sources using an and add—on control device to comply with the standards.
§ 63.6(f)(2)–(3)	Methods for Determining Compliance.	Yes	
§ 63.6(g)(1)–(3)	Use of an Alternative Standard	Yes	
§ 63.6(h)	Compliance With Opacity/Visible Emission standards.	No	Subpart NNNN does not establish opacity standards and does not require continuous opacity monitoring systems (COMS).
§ 63.6(i)(1)–(16)	Extension of Compliance	Yes	
§ 63.6(j)	Presidential Compliance Exemption.	Yes	
§ 63.7(a)(1)	Performance Test Requirements—Applicability.	Yes	Applies to all affected sources. Additional requirements for performance testing are specified in §§ 63.4164, 63.4165, and 63.4166.
§ 63.7(a)(2)	Performance Test Requirements—Dates.	Yes	Applies only to performance tests for caputre system and control device efficiency at sources using these to comply with the standards. Section 63.4160 specifies the schedule for performance test requirements that are earlier than those specified in § 63.7(a)(2).
§ 63.7(a)(3)	Performance Tests Required By the Administrator.	Yes	
§ 63.7(b)–(e)	Performance Test Requirements—Notification, Quality Assurance Facilities Necessary for Safe Testing, Conditions During Test.	Yes	Applies only to performance tests for capture system and add-on control device efficiency at sources using these to comply with the standard.
§ 63.7(f)	Performance Test Requirements—Use of Alternative Test Method.	Yes	Applies to all test methods except those used to determine capture system efficiency.

[You must comply with the applicable General Provisions requirements according to the following table]

Citation	Subject	Applicable to subpart NNNN	Explanation
§ 63.7(g)–(h)	Performance Test Requirements—Data Analysis, Recordkeeping, Reporting, Waiver of Test.	Yes	Applies only to performance tests for capture system and add-on control device efficiency at sources using these to comply with the standard.
§ 63.8(a)(1)–(3)	Monitoring Requirements—Applicability.	Yes	Applies only to monitoring of capture system and add-on control device efficiency at sources using these to comply with the standard. Additional requirements for monitoring are specified in § 63.4168.
§ 63.8(a)(4)	Additional Monitoring Requirements.	No	Subpart NNNN does not have monitoring requirements for flares.
§ 63.8(b)	Conduct of Monitoring	Yes	
§ 63.8(c)(1)–(3)	Continuous Monitoring Systems (CMS) Operation and Maintenance.	Yes	Applies only to monitoring of capture system and add-on control device efficiency at sources using these to comply with the standard. Additional requirements for CMS operations and maintenance are specified in § 63.4168.
§ 63.8(c)(4)	CMS	No	Section 63.4168 specifies the requirements for the operation of CMS for capture systems and add-on control devices at sources using these to comply.
§ 63.8(c)(5)	COMS	No	Subpart NNNN does not have opacity or visible emission standards.
§ 63.8(c)(6)	CMS Requirements	No	Section 63.4168 specifies the requirements for monitoring systems for capture systems and add-on control devices at sources using these to comply.
§ 63.8(c)(7)	CMS Out-of-Control Periods	Yes	
§ 63.8(c)(8)	CMS Out-of-Control Periods and Reporting.	No	Section 63.4120 requires reporting of CMS out-of-control periods.
§ 63.8(d)–(e)	Quality Control Program and CMS Performance Evaluation.	No	Subpart NNNN does not require the use of continuous emissions monitoring systems.
§ 63.8(f)(1)–(5)	Use of an Alternative Monitoring Method.	Yes	
§ 63.8(f)(6)	Alternative to Relative Accuracy Test.	No	Subpart NNNN does not require the use of continuous emissions monitoring systems.
§ 63.8(g)(1)–(5)	Data Reduction	No	Sections 63.4167 and 63.4168 specify monitoring data reduction.
§ 63.9(a)–(d)	Notification Requirements	Yes	
§ 63.9(e)	Notification of Performance Test	Yes	Applies only to capture system and add-on control device performance tests at sources using these to comply with the standard.
§ 63.9(f)	Notification of Visible Emissions/Opacity Test.	No	Subpart NNNN does not have opacity or visible emission standards.
§ 63.9(g)(1)–(3)	Additional Notifications When Using CMS.	No	Subpart NNNN does not require the use of continuous emissions monitoring systems.
§ 63.9(h)	Notification of Compliance Status	Yes	Section 63.4110 specifies the dates for submitting the notification of compliance status.
§ 63.9(i)	Adjustment of Submittal Deadlines.	Yes	
§ 63.9(j)	Change in Previous Information	Yes	

[You must comply with the applicable General Provisions requirements according to the following table]

Citation	Subject	Applicable to subpart NNNN	Explanation
§ 63.10(a)	Recordkeeping/Reporting—Applicability and General Information.	Yes	
§ 63.10(b)(1)	General Recordkeeping Requirements.	Yes	Additional requirements are specified in §§ 63.4130 and 63.4131.
§ 63.10(b)(2)(i)–(v)	Recordkeeping Relevant to Startup, Shutdown, and Malfunction Periods and CMS.	Yes	Requirements for startup, shutdown, and malfunction records only apply to add-on control devices used to comply with the standard.
§ 63.10(b)(2)(vi)–(xi)		Yes	
§ 63.10(b)(2)(xii)	Records	Yes	
§ 63.10(b)(2)(xiii)		No	Subpart NNNN does not require the use of continuous emissions monitoring systems.
§ 63.10(b)(2)(xiv)		Yes	
§ 63.10(b)(3)	Recordkeeping Requirements for Applicability Determinations.	Yes.	
§ 63.10(c)(1)–(6)	Additional Recordkeeping Requirements for Sources with CMS.	Yes	
§ 63.10(c)(7)–(8)		No	The same records are required in § 63.4120(a)(7).
§ 63.10(c)(9)–(15)		Yes	
§ 63.10(d)(1)	General Reporting Requirements	Yes	Additional requirements are specified in § 63.4120.
§ 63.10(d)(2)	Report of Performance Test Results.	Yes	Additional requirements are specified in § 63.4120(b).
§ 63.10(d)(3)	Reporting Opacity or Visible Emissions Observations.	No	Subpart NNNN does not require opacity or visible emissions observations.
§ 63.10(d)(4)	Progress Reports for Sources With Compliance Extensions.	Yes	
§ 63.10(d)(5)	Startup, Shutdown, and Malfunction Reports.	Yes	Applies only to add-on control devices at sources using these to comply with the standard.
§ 63.10(e)(1)–(2)	Additional CMS Reports	No	Subpart NNNN does not require the use of continuous emissions monitoring systems.
§ 63.10(e)(3)	Excess Emissions/CMS Performance Reports.	No	Section 63.4120(b) specifies the contents of periodic compliance reports.
§ 63.10(e)(4)	COMS Data Reports	No	Subpart NNNN does not specify requirements for opacity or COMS.
§ 63.10(f)	Recordkeeping/Reporting Waiver	Yes	
§ 63.11	Control Device Requirements/Flares.	No	Subpart NNNN does not specify use of flares for compliance.
§ 63.12	State Authority and Delegations	Yes	
§ 63.13	Addresses	Yes	
§ 63.14	Incorporation by Reference	Yes	
§ 63.15	Availability of Information/Confidentiality.	Yes	

TABLE 3 TO SUBPART NNNN OF PART 63—DEFAULT ORGANIC HAP MASS FRACTION FOR SOLVENTS AND SOLVENT BLENDS

[You may use the mass fraction values in the following table for solvent blends for which you do not have test data or manufacturer's formulation data.]

Solvent/solvent blend	CAS. No.	Average organic HAP mass fraction	Typical organic HAP, percent by mass
1. Toluene	108–88–3	1.0	Toluene.
2. Xylene(s)	1330–20–7	1.0	Xylenes, ethylbenzene.
3. Hexane	110–54–3	0.5	n-hexane.
4. n-Hexane	110–54–3	1.0	n-hexane.
5. Ethylbenzene	100–41–4	1.0	Ethylbenzene.
6. Aliphatic 140		0	None.
7. Aromatic 100		0.02	1% xylene, 1% cumene.
8. Aromatic 150		0.09	Naphthalene.
9. Aromatic naphtha	64742–95–6	0.02	1% xylene, 1% cumene.

[You may use the mass fraction values in the following table for solvent blends for which you do not have test data or manufacturer's formulation data.]

Solvent/solvent blend	CAS. No.	Average organic HAP mass fraction	Typical organic HAP, percent by mass
10. Aromatic solvent	64742–94–5	0.1	Naphthalene.
11. Exempt mineral spirits	8032–32–4	0	None.
12. Ligroines (VM & P)	8032–32–4	0	None.
13. Lactol spirits	64742–89–6	0.15	Toluene.
14. Low aromatic white spirit	64742–82–1	0	None.
15. Mineral spirits	64742–88–7	0.01	Xylenes.
16. Hydrotreated naphtha	64742–48–9	0	None.
17. Hydrotreated light distillate	64742–47–8	0.001	Toluene.
18. Stoddard solvent	8052–41–3	0.01	Xylenes.
19. Super high-flash naphtha	64742–95–6	0.05	Xylenes.
20. Varsol® solvent	8052–49–3	0.01	0.5% xylenes, 0.5% ethylbenzene.
21. VM & P naphtha	64742–89–8	0.06	3% toluene, 3% xylene.
22. Petroleum distillate mixture	68477–31–6	0.08	4% naphthalene, 4% biphenyl.

TABLE 4 TO SUBPART NNNN OF PART 63—DEFAULT ORGANIC HAP MASS FRACTION FOR PETROLEUM SOLVENT GROUPS[a]

[You may use the mass fraction values in the following table for solvent blends for which you do not have test data or manufacturer's formulation data.]

Solvent type	Average organic HAP mass fraction	Typical organic HAP, percent by mass
Aliphatic[b]	0.03	1% Xylene, 1% Toluene, and 1% Ethylbenzene.
Aromatic[c]	0.06	4% Xylene, 1% Toluene, and 1% Ethylbenzene.

[a] Use this table only if the solvent blend does not match any of the solvent blends in Table 3 to this subpart and you only know whether the blend is aliphatic or aromatic.

[b] e.g., Mineral Spirits 135, Mineral Spirits 150 EC, Naphtha, Mixed Hydrocarbon, Aliphatic Hydrocarbon, Aliphatic Naphtha, Naphthol Spirits, Petroleum Spirits, Petroleum Oil, Petroleum Naphtha, Solvent Naphtha, Solvent Blend.

[c] e.g., Medium-flash Naphtha, High-flash Naphtha, Aromatic Naphtha, Light Aromatic Naphtha, Light Aromatic Hydrocarbons, Aromatic Hydrocarbons, Light Aromatic Solvent.

Subpart OOOO—National Emission Standards for Hazardous Air Pollutants: Printing, Coating, and Dyeing of Fabrics and Other Textiles

SOURCE: 68 FR 32189, May 29, 2003, unless otherwise noted.

WHAT THIS SUBPART COVERS

§ 63.4280 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants (NESHAP) for fabric and other textiles printing, coating and dyeing operations. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations.

§ 63.4281 Am I subject to this subpart?

(a) Except as provided in paragraphs (c) and (d) of this section, the source category to which this subpart applies is the printing, coating, slashing, dyeing or finishing of fabric and other textiles, and it includes the subcategories listed in paragraphs (a)(1) through (3) of this section.

(1) The coating and printing subcategory includes any operation that coats or prints fabric or other textiles. Coating and printing operations are defined in § 63.4371. Coated and printed substrates are used in products including, but not limited to, architectural structures, apparel, flexible hoses, hot-air balloons, lightweight liners, luggage, military fabric, rainwear, sheets, tents, threads and V-belts. The coating and printing subcategory includes any fabric or other textile web coating line that also performs coating on another substrate unless such coating is specifically excluded from this subpart by another NESHAP in this part or is exempted from the requirements of this subpart based on the criteria in paragraph (e) of this section. Web coating lines exclusively dedicated to coating

or printing fabric and other textiles are subject to this subpart.

(2) The slashing subcategory includes any operation with slashing operations as defined in § 63.4371. In the slashing process, sizing compounds are applied to warp yarn to bind the fiber together and stiffen the yarn to provide abrasion resistance during weaving.

(3) The dyeing and finishing subcategory includes any operation that dyes or finishes a fabric or other textiles. Dyeing and finishing operations are defined in § 63.4371. Dyed and finished textiles are used in a wide range of products including, but not limited to, apparel, carpets, high-performance industrial fabrics, luggage, military fabrics, outer wear, sheets, towels, and threads.

(b) You are subject to this subpart if you own or operate a new, reconstructed, or existing affected source, as defined in § 63.4282, that is a major source, is located at a major source, or is part of a major source of hazardous air pollutants (HAP). Major source is defined in § 63.2 of this part.

(c) This subpart does not apply to coating, printing, slashing, dyeing, or finishing operations that meet any of the criteria of paragraphs (c)(1) through (5) of this section.

(1) Coating and printing, slashing, or dyeing and finishing operations conducted at a source that uses only regulated materials that contain no organic HAP as defined in § 63.4371.

(2) Coating, printing, slashing, dyeing, or finishing that occurs at research or laboratory operations or that is part of janitorial, building, and facility maintenance operations.

(3) Coating, printing, slashing, dyeing, or finishing operations used by a facility and not for commerce, unless organic HAP emissions from the coating, printing, slashing, dyeing or finishing operations are as high as the major source HAP emissions specified in paragraph (b) of this section.

(4) Fabric and other textile substrate web coating or printing operations conducted at ambient temperatures that do not involve drying or curing equipment such as ovens, tenter frames, steam cans, or dryers.

(5) Coating, printing, slashing, dyeing, or finishing operations performed on-site at installations owned or operated by the Armed Forces of the United States (including the Coast Guard and the National Guard of any State).

(d) Web coating lines specified in paragraphs (d)(1) through (3) of this section are not part of the affected source of this subpart.

(1) Any web coating operation that is part of the affected source of subpart JJJJ of this part (national emission standards for hazardous air pollutants for paper and other web coating). This would include any web coating line that coats both a paper and other web substrate and a fabric or other textile substrate for use in flexible packaging, pressure sensitive tape and abrasive materials, or any web coating line laminating a fabric substrate to paper.

(2) Any web coating operation that is part of the affected source of subpart XXXX of this part (NESHAP for tire manufacturing). This would include any web coating line that applies coatings to both tire cord and to textile cord used in the production of belts and hoses.

(3) Coating, slashing, dyeing, or finishing operations at a synthetic fiber manufacturing facility included in the affected source of another subpart of this part, such as subpart F (NESHAP for the synthetic organic chemical manufacturing industry) or subpart JJJ (NESHAP for group IV polymers and resins).

(e) Any web coating line that coats both fabric and other textiles, and another substrate such as paper, must comply with the subpart of this part that applies to the predominant activity conducted on the affected source. Predominant activity for this subpart is 90 percent of the mass of substrate coated during the compliance period. (For example, a web coating line that coats 90 percent or more of a paper substrate, and 10 percent or less of a fabric or other textile substrate, would be subject to 40 CFR 63, subpart JJJJ.)

§ 63.4282 What parts of my plant does this subpart cover?

(a) This subpart applies to each new, reconstructed, and existing affected source within each of the three subcategories listed in § 63.4281(a).

(b) The affected source for the web coating and printing subcategory is the collection of all of the items listed in paragraphs (b)(1) through (5) of this section that are used in fabric and other textiles web coating and printing operations. The regulated materials for the web coating and printing subcategory are the coating, printing, thinning and cleaning materials used in the affected source.

(1) All web coating and printing equipment used to apply cleaning materials to a substrate on the coating or printing line to prepare it for coating or printing material application, to apply coating or printing materials to a substrate and to dry or cure the coating or printing materials, or equipment used to clean web coating/printing operation equipment;

(2) All containers used for storage and vessels used for mixing coating, printing, thinning, or cleaning materials;

(3) All equipment and containers used for conveying coating, printing, thinning, or cleaning materials;

(4) All containers used for storage, and all equipment and containers used for conveying waste materials generated by a coating or printing operation; and

(5) All equipment, structures, and/or devices(s) used to convey, treat, or dispose of wastewater streams or residuals generated by a coating or printing operation.

(c) The affected source for the slashing subcategory is the collection of all of the items listed in paragraphs (c)(1) through (5) of this section that are used in slashing operations. The regulated materials for the slashing subcategory are the slashing materials used in the affected source.

(1) All slashing equipment used to apply and dry size on warp yarn;

(2) All containers used for storage and vessels used for mixing slashing materials;

(3) All equipment and containers used for conveying slashing materials;

(4) All containers used for storage and all equipment and containers used for conveying waste materials generated by a slashing operation; and

(5) All equipment, structures, and/or devices(s) used to convey, treat, or dispose of wastewater streams or residuals generated by a slashing operation.

(d) The affected source for the dyeing and finishing subcategory is the collection of all of the items listed in paragraphs (d)(1) through (5) of this section that are used in dyeing and finishing operations. The regulated materials for the dyeing and finishing subcategory are the dyeing and finishing materials used in the affected source.

(1) All dyeing and finishing equipment used to apply dyeing or finishing materials, to fix dyeing materials to the substrate, to rinse the textile substrate, or to dry or cure the dyeing or finishing materials;

(2) All containers used for storage and vessels used for mixing dyeing or finishing materials;

(3) All equipment and containers used for conveying dyeing or finishing materials;

(4) All containers used for storage, and all equipment and containers used for conveying, waste materials generated by a dyeing or finishing operation; and

(5) All equipment, structures, and/or devices(s) used to convey, treat, or dispose of wastewater streams or residuals generated by a dyeing or finishing operation.

(e) An affected source is a new source if it meets the criteria in paragraph (e)(1) of this section and the criteria in either paragraph (e)(2) or (3) of this section.

(1) You commenced the construction of the source after July 11, 2002.

(2) The web coating and printing, slashing, or dyeing and finishing operation is performed at a source where no web coating and printing, slashing, or dyeing and finishing operation was previously performed.

(3) The web coating and printing, slashing, or dyeing and finishing operation is performed in a subcategory in which no web coating and printing, slashing, or dyeing and finishing operation was previously performed.

(f) An affected source is reconstructed if you meet the criteria as defined in § 63.2.

(g) An affected source is existing if it is not new or reconstructed.

§63.4283 When do I have to comply with this subpart?

The date by which you must comply with this subpart is called the compliance date. The compliance date for each type of affected source is specified in paragraphs (a) through (c) of this section. The compliance date begins the initial compliance period during which you conduct the initial compliance demonstration described in §§63.4320, 63.4330, 63.4340, and 63.4350.

(a) For a new or reconstructed affected source, the compliance date is the applicable date in paragraph (a)(1) or (2) of this section:

(1) If the initial startup of your new or reconstructed affected source is before May 29, 2003, the compliance date is May 29, 2003.

(2) If the initial startup of your new or reconstructed affected source occurs after May 29, 2003, the compliance date is the date of initial startup of your affected source.

(b) For an existing affected source, the compliance date is the date 3 years after May 29, 2003.

(c) For an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP emissions, the compliance date is specified in paragraphs (c)(1) and (2) of this section.

(1) For any portion of the source that becomes a new or reconstructed affected source subject to this subpart, the compliance date is the date of initial startup of the affected source or May 29, 2003, whichever is later.

(2) For any portion of the source that becomes an existing affected source subject to this subpart, the compliance date is the date 1 year after the area source becomes a major source or 3 years after May 29, 2003, whichever is later.

(d) You must meet the notification requirements in §63.4310 according to the dates specified in that section and in subpart A of this part. Some of the notifications must be submitted before the compliance dates described in paragraphs (a) through (c) of this section.

EMISSION LIMITATIONS

§63.4290 What emission limits must I meet?

You must meet the emission limit for the subcategory or subcategories present in your facility. The three subcategories are: Web coating and printing, slashing, and dyeing and finishing. Table 1 to this subpart presents the emission limits for a new or reconstructed affected source and for an existing affected source in each subcategory.

§63.4291 What are my options for meeting the emission limits?

You must include all regulated materials (as defined in §63.4371) used in the affected source when determining whether the organic HAP emission rate is equal to or less than the applicable emission limit in Table 1 to this subpart. To make this determination, you must use at least one of the compliance options for the subcategory listed in paragraphs (a) through (c) of this section.

(a) *Web coating and printing.* You may apply any one of the compliance options in paragraphs (a)(1) through (5) of this section to an individual web coating/printing operation, or to multiple web coating/printing operations in the affected source as a group, or to the entire affected source in the web coating and printing subcategory. You may use different compliance options for different web coating/printing operations or at different times on the same web coating/printing operation. However, you may not use different compliance options at the same time on the same web coating/printing operation. If you switch between compliance options for any web coating/printing operation or group of operations, you must document this switch as required by §63.4312(c), and you must report it in the next semiannual compliance report required in §63.4311.

(1) *Compliant material option.* Demonstrate that the organic HAP content, as purchased, of each coating and printing material applied in the web coating/printing operation(s) is less

than or equal to the applicable emission limit in Table 1 to this subpart, and that each thinning and cleaning material as purchased contains no organic HAP (as defined in § 63.4371). You must meet all the requirements of §§ 63.4320, 63.4321, and 63.4322 to demonstrate compliance with the applicable emission limit using this option.

(2) *Emission rate without add-on controls option.* Demonstrate that, based on the regulated materials applied in the web coating/printing operation(s), the organic HAP emission rate for the web coating/printing operation(s) is less than or equal to the applicable emission limit in Table 1 to this subpart, calculated as a rolling 12-month average emission rate. You must meet all the requirements of §§ 63.4330, 63.4331, and 63.4332 to demonstrate compliance with the applicable emission limit using this option.

(3) *Emission rate with add-on controls option.* Demonstrate that, based on the regulated materials applied in the web coating/printing operation(s) and the organic HAP emissions reductions achieved by emission capture systems and add-on controls, the organic HAP emission rate for the web coating/printing operation(s) is less than or equal to the applicable emission limit in Table 1 to this subpart, calculated as a rolling 12-month average emission rate. If you use this compliance option, you must also demonstrate that all capture systems and control devices for the web coating/printing operation(s) meet the operating limits required in § 63.4292, except for solvent recovery systems for which you conduct liquid-liquid material balances according to § 63.4341(e)(5), and that you meet the work practice standards required in § 63.4293. You must meet all the requirements of §§ 63.4340 through 63.4342 and 63.4360 through 63.4364 to demonstrate compliance with the emission limits, operating limits, and work practice standards using this option.

(4) *Organic HAP overall control efficiency option.* Demonstrate that, based on the organic HAP emission capture and add-on control efficiencies achieved, the organic HAP overall control efficiency is greater than or equal to the applicable organic HAP overall control efficiency limit in Table 1 to this subpart. If you use this compliance option, you must also demonstrate that all capture systems and control devices for the web coating/printing operation(s) meet the operating limits required in § 63.4292, except for solvent recovery systems for which you conduct liquid-liquid material balances according to § 63.4351(d)(5), and that you meet the work practice standards required in § 63.4293. You must meet all the requirements of §§ 63.4350 through 63.4352 and 63.4360 through 63.4364 to demonstrate compliance with the applicable emission limits, operating limits, and work practice standards using this option.

(5) *Oxidizer outlet organic HAP concentration limit.* If you use an oxidizer to control organic HAP emissions, demonstrate that the oxidizer is operated such that the outlet organic HAP concentration is no greater than 20 parts per million by volume (ppmv) on a dry basis, and that the efficiency of the capture system is 100 percent. If you use this compliance option, you must also demonstrate that all capture systems and oxidizers for the web coating/printing operation(s) meet the operating limits required in § 63.4292, and that you meet the work practice standards required in § 63.4293. You must meet all the requirements of §§ 63.4350 through 63.4352 and 63.4360 through 63.4364 to demonstrate compliance with the applicable emission limits, operating limits, and work practice standards using this option.

(b) *Slashing.* You must use the compliant material option to demonstrate that the mass fraction of organic HAP in each slashing material as purchased for the slashing operation(s) is less than or equal to the applicable emission limit in Table 1 to this subpart. You must meet all the requirements of §§ 63.4320, 63.4321, and 63.4322 to demonstrate compliance with the applicable emission limit.

(c) *Dyeing and Finishing.* You may apply any one of the compliance options in paragraphs (c)(1) through (3) of this section to an individual dyeing/finishing operation, or to multiple dyeing/finishing operations in the affected source as a group, or to the entire affected source in the dyeing and finishing subcategory. You may use different compliance options for different dyeing/finishing operations or at different times on the same dyeing/finishing operation. However, you may not use different compliance options at the same time on the same dyeing/finishing operation. If you switch between compliance options for any dyeing/finishing operation or group of operations, you must document this switch as required by § 63.4312(c), and you must report it in the next semiannual compliance report required in § 63.4311. If you choose to apply the compliance option in paragraph (c)(4) to your dyeing/finishing operations, it must be applied to the entire affected source in the dyeing and finishing subcategory. You may not apply any of the compliance options in paragraphs (c)(1) through (3) of this section to any dyeing/finishing operation in the affected source if you use the equivalent emission rate limit in paragraph (c)(4) for your dyeing/finishing affected source.

(1) *Compliant material option*. Demonstrate that the mass fraction of organic HAP, as purchased, of each dyeing and finishing material applied in the dyeing/finishing operation(s) is less than or equal to the applicable emission limit in Table 1 to this subpart. You must meet all the requirements of §§ 63.4320, 63.4321, and 63.4322 to demonstrate compliance with the applicable emission limit using this option.

(2) *Emission rate without add-on controls option*. Demonstrate that, based on the dyeing and finishing materials applied in the dyeing/finishing operation(s), the organic HAP emission rate for the dyeing operation(s), the organic HAP emission rate for the finishing operation(s) or the combined organic HAP emission rate for dyeing and finishing is less than or equal to the applicable emission limit(s) in Table 1 to this subpart, calculated as a rolling 12-month average emission rate. You must meet all the requirements of §§ 63.4330, 63.4331, and 63.4332 to demonstrate compliance with the applicable emission limit(s) using this option.

(3) *Emission rate with add-on controls option*. Demonstrate that, based on the dyeing and finishing materials applied in the dyeing/finishing operation(s) and the organic HAP emissions reductions achieved by emission capture systems and add-on controls, the organic HAP emission rate for the dyeing/finishing operation(s) is less than or equal to the applicable emission limit in Table 1 to this subpart, calculated as a rolling 12-month average emission rate. If you use this compliance option, you must also demonstrate that all capture systems and control devices for the dyeing/finishing operation(s) meet the operating limits required in § 63.4292, except for solvent recovery systems for which you conduct liquid-liquid material balances according to § 63.4341(f)(5), and that you meet the work practice standards required in § 63.4293. You must meet all the requirements of §§ 63.4340 through 63.4342 and 63.4360 through 63.4364 to demonstrate compliance with the emission limits, operating limits, and work practice standards using this option.

(4) *Equivalent emission rate option*. Demonstrate that the dyeing and finishing affected source meets all the requirements of paragraphs (4)(i) through (iv) of this paragraph.

(i) The fraction of organic HAP applied in your dyeing/finishing affected source that is discharged to the wastewater is at least 90 percent, determined according to § 63.4331(d).

(ii) The wastewater is discharged to a POTW or onsite secondary wastewater treatment.

(iii) The total organic HAP emissions from your dyeing/finishing affected source are less than 10 tons per year, as calculated in Equation 4 of § 63.4331.

(iv) You must meet the applicable requirements of § 63.4330 and maintain records in accordance with § 63.4312(c)(2)(iv) to demonstrate compliance with the equivalent emission rate option.

§ 63.4292 What operating limits must I meet?

(a) For any web coating/printing operation, slashing operation, or dyeing/finishing operation on which you use the compliant material option; web coating/printing operation or dyeing/finishing operation on which you use the emission rate without add-on controls option; or dyeing/finishing affected source on which you use the equivalent emission rate limit option, you are not required to meet any operating limits.

(b) For any controlled web coating/printing operation or dyeing/finishing operation on which you use the emission rate with add-on controls option, or controlled web coating/printing operation on which you use the organic HAP overall control efficiency option or the oxidizer outlet organic HAP concentration option, except those web coating/printing operations for which you use a solvent recovery system and conduct a liquid-liquid material balance according to § 63.4341(e)(5) and those dyeing/finishing operations for which you use a solvent recovery system and conduct a liquid-liquid material balance according to § 63.4341(f)(5), you must meet the operating limits specified in Table 2 of this subpart. These operating limits apply to the emission capture and control systems on the web coating/printing operation(s) and dyeing/finishing operations for which you use this option, and you must establish the operating limits during the performance test according to the procedures in § 63.4363. You must meet the operating limits at all times after you establish them.

(c) If you use an add-on control device other than those listed in Table 2 of this subpart, or wish to monitor an alternative parameter and comply with a different operating limit, you must apply to the Administrator for approval of alternative monitoring under § 63.8(f).

§ 63.4293 What work practice standards must I meet?

(a) For any slashing operation, you are not required to meet any work practice standards. For any web coating/printing operation(s) or dyeing/finishing operation(s) on which you use the compliant material option or the emission rate without add-on controls option, you are not required to meet any work practice standards. For any dyeing/finishing affected source on which you use the equivalent emission rate option, you are not required to meet any work practice standards.

(b) If you use either the emission rate with add-on controls option, the organic HAP overall control efficiency option, or the oxidizer outlet organic HAP concentration option for a web coating/printing operation; or you use the emission rate with add-on controls option for a dyeing/finishing operation; you must develop and implement a work practice plan to minimize organic HAP emissions from the storage, mixing, and conveying of regulated materials used in, and waste materials generated by, the coating/printing or dyeing/finishing operations for which you use this option; or you must meet an alternative standard as provided in paragraph (c) of this section. The plan must specify practices and procedures to ensure that, at a minimum, the elements specified in paragraphs (b)(1) through (5) of this section are implemented.

(1) All organic-HAP-containing regulated materials and waste materials must be stored in closed containers.

(2) Spills of organic-HAP-containing regulated materials, and waste materials must be minimized.

(3) Organic-HAP-containing regulated materials and waste materials must be conveyed from one location to another in closed containers or pipes.

(4) Mixing vessels which contain organic-HAP-containing regulated materials must be closed except when adding to, removing, or mixing the contents.

(5) Emissions of organic HAP must be minimized during cleaning of web coating/printing or dyeing/finishing storage, mixing, and conveying equipment.

(c) As provided in § 63.6(g), you may request approval from the Administrator to use an alternative to the work practice standards in this section.

GENERAL COMPLIANCE REQUIREMENTS

§ 63.4300 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limitations in this subpart as specified in paragraphs (a)(1) through (4) of this section.

(1) Any web coating/printing, slashing, or dyeing/finishing operation(s) for which you use the compliant material

option, as specified in § 63.4291(a)(1), (b), or (c)(1) must be in compliance with the applicable emission limit in Table 1 to this subpart at all times.

(2) Any web coating/printing or dyeing/finishing operation(s) for which you use the emission rate without add-on controls option, as specified in § 63.4291(a)(2) or (c)(2), must be in compliance with the applicable emission limit in Table 1 to this subpart for all compliance periods.

(3) Any web coating/printing or dyeing/finishing operation(s) for which you use the emission rate with add-on controls option, as specified in § 63.4291(a)(3) or (c)(3), and any web coating/printing operation(s) for which you use either the organic HAP overall control efficiency option, as specified in § 63.4291(a)(4), or the oxidizer outlet organic HAP concentration option, as specified in § 63.4291(a)(5), must be in compliance with the emission limitations as specified in paragraphs (a)(3)(i) through (iii) of this section.

(i) The web coating/printing or dyeing/finishing operation(s) must be in compliance with the applicable emission limit in Table 1 to this subpart or comply with the startup, shutdown, and malfunction plan at all times.

(ii) Each controlled web coating/printing or dyeing/finishing operation must be in compliance with the operating limits for emission capture systems and add-on control devices required by § 63.4292 for all averaging time periods except for solvent recovery systems for which you conduct liquid-liquid material balances according to §§ 63.4341(e)(5) or (f)(5) or 63.4351(d)(5).

(iii) Each controlled web coating/printing or dyeing/finishing operation must be in compliance with the work practice standards in § 63.4293 at all times.

(4) Any dyeing/finishing affected source for which you use the equivalent emission rate option, as specified in § 63.4291(c)(4), must operate within the operating scenarios, as defined in § 63.4371, for which you determined the fraction of organic HAP applied in your dyeing/finishing affected source that is discharged to wastewater according to § 63.4331(d) at all times.

(b) You must always operate and maintain your affected source, including air pollution control and monitoring equipment, according to the provisions in § 63.6(e)(1)(i).

(c) If your affected source uses an emission capture system and add-on control device, you must develop and implement a written startup, shutdown, and malfunction plan according to the provisions in § 63.6(e)(3). The plan must address the startup, shutdown, and corrective actions in the event of a malfunction of the emission capture system or the add-on control device. The plan must also address any web coating/printing or dyeing/finishing operation equipment such as conveyors that move the substrate among enclosures that may cause increased emissions or that would affect capture efficiency if the process equipment malfunctions.

§ 63.4301 What parts of the General Provisions apply to me?

Table 3 to this subpart shows which parts of the General Provisions in §§ 63.1 through 63.15 apply to you.

NOTIFICATIONS, REPORTS, AND RECORDS

§ 63.4310 What notifications must I submit?

(a) You must submit the notifications in §§ 63.7(b) and (c), 63.8(f)(4), and 63.9(b) through (e) and (h) that apply to you by the dates specified in those sections, except as provided in paragraphs (b) and (c) of this section.

(b) *Initial Notification.* You must submit the Initial Notification required by § 63.9(b) for a new or reconstructed affected source no later than 120 days after initial startup or 120 days after May 29, 2003, whichever is later. For an existing affected source, you must submit the Initial Notification no later than 1 year after May 29, 2003.

(c) *Notification of Compliance Status.* You must submit the Notification of Compliance Status required by § 63.9(h) no later than 30 calendar days following the end of the initial compliance period described in §§ 63.4320, 63.4330, 63.4340, or 63.4350 that applies to your affected source. The Notification of Compliance Status must contain the information specified in paragraphs (c)(1) through (9) of this section and in § 63.9(h).

(1) Company name and address.

(2) Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.

(3) Date of the report and beginning and ending dates of the reporting period. The reporting period is the initial compliance period described in §§ 63.4320, 63.4330, 63.4340, or 63.4350 that applies to your affected source.

(4) Identification of the compliance option or options specified in § 63.4291 that you used during the initial compliance period on each web coating/printing operation in each web coating/printing affected source, on each slashing operation in each slashing affected source, and on each dyeing/finishing operation in each dyeing/finishing affected source.

(5) Statement of whether or not the affected source achieved the emission limitations for the initial compliance period.

(6) If you had a deviation, include the information in paragraphs (c)(6)(i) and (ii) of this section.

(i) A description, and statement of the cause of, the deviation.

(ii) If you failed to meet the applicable emission limit in Table 1 to this subpart, include all the calculations you used to determine the kilogram (kg) organic HAP emitted per kg of solids applied in coating and printing material or the weight percent organic HAP compounds in slashing, dyeing or finishing material to demonstrate your failure to meet the applicable emission limit. You do not need to submit information provided by the materials suppliers or manufacturers or test reports.

(7) For each of the data items listed in paragraphs (c)(7)(i) through (iii) of this section that is required by the compliance option(s) you used to demonstrate compliance with the emission limit, include an example of how you determined the value, including calculations and supporting data. Supporting data can include a copy of the information provided by the supplier or manufacturer of the example regulated material or a summary of the results of testing conducted according to § 63.4321(e)(1) or (2). You do not need to submit copies of any test reports.

(i) Mass fraction of organic HAP and mass fraction of solids for one coating or printing formulation including thinning materials, mass fraction of organic HAP for one cleaning material and mass fraction of organic HAP for all of the regulated materials as purchased used in one slashing operation or dyeing/ finishing operation.

(ii) Mass of coating or printing formulation used in web coating/printing operation or of dyeing and finishing materials used in the dyeing/finishing operation during the compliance period.

(iii) The amount of waste materials and the mass of organic HAP contained in the waste materials for which you are claiming an allowance in Equation 1 or 4 of § 63.4331.

(iv) The mass of organic HAP in the dyeing and finishing materials applied during the compliance period and the mass of organic HAP in wastewater discharged to a POTW or receiving onsite secondary treatment for which you are claiming an allowance in Equation 4 of § 63.4331.

(8) The calculation of kg organic HAP per kg of coating and printing solids applied and of kg organic HAP per kg of dyeing and finishing material as purchased for the compliance option(s) you use, as specified in paragraphs (c)(8)(i) through (vii) of this section.

(i) For the compliant material option as specified in § 63.4291(a)(1) for web coating/printing operations, provide an example calculation of the organic HAP content for one coating and one printing material, as appropriate, using Equation 1 of § 63.4321.

(ii) For the emission rate without add-on controls option as specified in § 63.4291(a)(2) for web coating/printing operations, provide the calculation of the total mass of organic HAP emissions; the calculation of the total mass of coating and printing solids applied; and the calculation of the organic HAP emission rate, using Equations 1, 2, and 3, respectively, of § 63.4331.

(iii) For the emission rate without add-on controls option as specified in § 63.4291(c)(2) for dyeing/finishing operations, provide the calculation of the total mass of organic HAP emissions; the calculation of the total mass of dyeing and finishing materials applied;

and the calculation of the organic HAP emission rate, using Equations 4, 5, and 6, respectively, of § 63.4331.

(iv) For the emission rate with add-on controls option as specified in § 63.4291(a)(3) for web coating/printing operations, provide the calculation of the total mass of organic HAP emissions before add-on controls using Equation 1 of § 63.4331, and the calculation of the organic HAP emission rate using Equation 4 of § 63.4341.

(v) For the emission rate with add-on controls option as specified in § 63.4291(c)(3) for dyeing/finishing operations, provide the calculation of the mass of organic HAP emissions before add-on controls using Equation 4 of § 63.4331, and the calculation of the organic HAP emission rate using Equation 8 of § 63.4341.

(vi) For the organic HAP overall control efficiency option as specified in § 63.4291(a)(4), provide the calculation of the total mass of organic HAP emissions before add-on controls using Equation 1 of § 63.4331 and the calculation of the organic HAP overall control efficiency using Equation 1 of § 63.4351.

(vii) For the equivalent emission rate option as specified in § 63.4291(c)(4), provide the calculation of the fraction of organic HAP applied in affected processes that is discharged to wastewater according to § 63.4331(d), the calculation of the total organic HAP emissions from your dyeing/finishing affected source using Equation 4 of § 63.4331, and documentation that organic HAP containing wastewater is either discharged to a POTW or treated onsite in a treatment system that includes at least secondary treatment.

(9) For the emission rate with add-on controls option as specified in § 63.4291(a)(3) and (c)(3), the organic HAP overall control efficiency option as specified in § 63.4291(a)(4), and the oxidizer outlet organic HAP concentration option as specified in § 63.4291(a)(5), for each controlled web coating/printing or dyeing/finishing operation using an emission capture system and add-on control device other than a solvent recovery system for which you conduct liquid-liquid material balances according to §§ 63.4341(e)(5) or (f)(5) or 63.4351(d)(5), you must include the information specified in paragraphs (c)(9)(i) through (iv) of this section.

(i) For each emission capture system, a summary of the data and copies of the calculations supporting the determination that the emission capture system is a permanent total enclosure (PTE) or a measurement of the emission capture system efficiency. If you are demonstrating compliance with the oxidizer outlet organic HAP concentration option, the emission capture system must be a PTE. Include a description of the protocol followed for measuring capture efficiency, summaries of any capture efficiency tests conducted, and any calculations supporting the capture efficiency determination. If you use the data quality objective (DQO) or lower confidence limit (LCL) approach, you must also include the statistical calculations to show you meet the DQO or LCL criteria in appendix A to subpart KK of this part. You do not need to submit complete test reports.

(ii) A summary of the results of each add-on control device performance test. You do not need to submit complete test reports.

(iii) A list of each emission capture system's and add-on control device's operating limits and a summary of the data used to calculate those limits.

(iv) A statement of whether or not you developed and implemented the work practice plan required by § 63.4293 and the startup, shutdown and malfunction plan required by § 63.4300.

§ 63.4311 What reports must I submit?

(a) *Semiannual compliance reports.* You must submit semiannual compliance reports for each affected source according to the requirements of paragraphs (a)(1) through (8) of this section. The semiannual compliance reporting requirements of this section may be satisfied by reports required under other parts of the Clean Air Act (CAA), as specified in paragraph (a)(2) of this section.

(1) *Dates.* Unless the Administrator has approved a different schedule for submission of reports under § 63.10(a), you must prepare and submit each semiannual compliance report according to the dates specified in paragraphs (a)(1)(i) through (iv) of this section.

(i) The first semiannual compliance report must cover the first semiannual reporting period which begins the day after the end of the initial compliance period described in §§ 63.4320, 63.4330, 63.4340, or 63.4350 that applies to your affected source and ends on June 30 or December 31, whichever date is the first date at least 6 months after the end of the initial compliance period.

(ii) Each subsequent semiannual compliance report must cover the subsequent semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(iii) Each semiannual compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(iv) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 40 CFR part 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the date specified in paragraph (a)(1)(iii) of this section.

(2) *Inclusion with title V report.* Each affected source that has obtained a title V operating permit pursuant to 40 CFR part 70 or 40 CFR part 71 must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If an affected source submits a semiannual compliance report pursuant to this section along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the semiannual compliance report includes all required information concerning deviations from any emission limitation in this subpart, its submission shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a semiannual compliance report shall not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the permitting authority.

(3) *General requirements.* The semiannual compliance report must contain the information specified in paragraphs (a)(3)(i) through (v) of this section, and the information specified in paragraphs (a)(4) through (8) and (c)(1) of this section that is applicable to your affected source. If your affected source is a slashing operation(s), you are only required to report the information in paragraphs (a)(3)(i) through (iii) of this section and the information in paragraph (a)(4) or (a)(5) of this section, as applicable.

(i) Company name and address.

(ii) Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.

(iii) Date of report and beginning and ending dates of the reporting period. The reporting period is the 6-month period ending on June 30 or December 31.

(iv) Identification of the compliance option or options specified in § 63.4291 that you used on each web coating/printing and dyeing/finishing operation during the reporting period. If you switched between compliance options during the reporting period, you must report the beginning and ending dates you used each option.

(v) If you used the emission rate without add-on controls, the emission rate with add-on controls, or the organic HAP overall control efficiency compliance option for web coating/printing operations (§ 63.4291(a)(2), (3), or (4)), or the emission rate without add-on controls or the emission rate with add-on controls compliance option for dyeing/finishing operations (§ 63.4291(c)(2) or (c)(3)), the calculation results for each compliance period ending each month during the 6-month reporting period.

(4) *No deviations.* If there were no deviations from the emission limitations in Table 1 to this subpart and §§ 63.4292, and 63.4293 that apply to you, the semiannual compliance report must include a statement that there were no deviations from the emission limitations during the reporting period. If you use the emission rate with add-on controls

option, the organic HAP overall control efficiency option, or the oxidizer outlet organic HAP concentration option and there were no periods during which the continuous parameter monitoring systems (CPMS) were out-of-control as specified in § 63.8(c)(7), the semiannual compliance report must include a statement that there were no periods during which the CPMS were out-of-control during the reporting period.

(5) *Deviations: compliant material option.* If you use the compliant material option, and there was a deviation from the applicable organic HAP content requirements in Table 1 to this subpart, the semiannual compliance report must contain the information in paragraphs (a)(5)(i) through (iv) of this section.

(i) Identification of each coating, printing, slashing, dyeing or finishing material applied that deviated from the emission limit and each thinning or cleaning material applied in web coating/printing operations that contained organic HAP, and the dates and time periods each was applied.

(ii) The calculation of the organic HAP content using Equation 1 of § 63.4321 for each coating or printing material identified in paragraph (a)(5)(i) of this section. You do not need to submit background data supporting this calculation (*e.g.*, information provided by material suppliers or manufacturers, or test reports).

(iii) The determination of mass fraction of organic HAP for each regulated material identified in paragraph (a)(5)(i) of this section. You do not need to submit background data supporting this calculation (*e.g.*, information provided by material suppliers or manufacturers, or test reports).

(iv) A statement of the cause of each deviation.

(6) *Deviations: emission rate without add-on controls option.* If you use the emission rate without add-on controls option and there was a deviation from the applicable emission limit in Table 1 to this subpart, the semiannual compliance report must contain the information in paragraphs (a)(6)(i) through (iii) of this section.

(i) The beginning and ending dates of each compliance period during which the organic HAP emission rate exceeded the applicable emission limit in Table 1 to this subpart.

(ii) The calculations used to determine the organic HAP emission rate for the compliance period in which the deviation occurred. You must submit the calculations for Equations 1, 1A and 1B, 2, and 3 in § 63.4331 for web coating/printing operations; and for Equations 4, 4A, 5, and 6 in § 63.4331 for dyeing/finishing operations; and if applicable, the calculation used to determine mass of organic HAP in waste materials according to § 63.4331(a)(4)(iii) or (b)(3)(ii); and, for dyeing/finishing operations, if applicable, the mass of organic HAP in wastewater streams calculation for Equation 7 in § 63.4331. You do not need to submit background data supporting these calculations (*e.g.*, information provided by materials suppliers or manufacturers, or test reports).

(iii) A statement of the cause of each deviation.

(7) *Deviations: add-on controls options.* If you use one of the add-on controls options in § 63.4291(a) or (c) and there was a deviation from an emission limitation (including any periods when emissions bypassed the add-on control device and were diverted to the atmosphere), the semiannual compliance report must contain the information in paragraphs (a)(7)(i) through (xv) of this section. This includes periods of startup, shutdown, and malfunction during which deviations occurred.

(i) The beginning and ending dates of each compliance period during which the organic HAP emission rate exceeded the applicable emission limit in Table 1 to this subpart.

(ii) If you use the emission rate option, the calculations used to determine the organic HAP emission rate for each compliance period in which a deviation occurred. You must submit the calculations that apply to you, including Equations 1, 1A, 1B, and 2 of § 63.4331 and Equations 1, 1A, 1B, 1C, 2, 3, 3A and 3B and 4 of § 63.4341 for web coating/printing operations; and Equations 4, 4A, 5, and 7 of § 63.4331 and Equations 5, 5A, 5B, 6, 7, and 8 of § 63.4341 for dyeing/finishing operations.

You do not need to submit the background data supporting these calculations (*e.g.*, information provided by materials suppliers or manufacturers, or test reports).

(iii) If you use the organic HAP overall control efficiency option, the calculations used to determine the organic HAP overall control efficiency for each compliance period in which a deviation occurred. You must submit the calculations that apply to you, including Equations 1, 1A, and 1B of § 63.4331; Equations 1, 1A, 1B, 1C, 2, 3, 3A, and 3B of § 63.4341; and Equation 1 of § 63.4351. You do not need to submit the background data supporting these calculations (*e.g.*, test reports).

(iv) The date and time that each malfunction started and stopped.

(v) A brief description of the CPMS.

(vi) The date of the latest CPMS certification or audit.

(vii) The date and time that each CPMS was inoperative, except for zero (low-level) and high-level checks.

(viii) The date, time, and duration that each CPMS was out-of-control, including the information in § 63.8(c)(8).

(ix) The date and time period of each deviation from an operating limit in Table 2 to this subpart, date and time period of any bypass of the add-on control device, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(x) A summary of the total duration of each deviation from an operating limit in Table 2 to this subpart and each bypass of the add-on control device during the semiannual reporting period and the total duration as a percent of the total source operating time during that semiannual reporting period.

(xi) A breakdown of the total duration of the deviations from the operating limits in Table 2 to this subpart and bypasses of the add-on control device during the semiannual reporting period into those that were due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(xii) A summary of the total duration of CPMS downtime during the semiannual reporting period and the total duration of CPMS downtime as a percent of the total source operating time during that semiannual reporting period.

(xiii) A description of any changes in the CPMS, web coating/printing or dyeing/finishing operation, emission capture system, or add-on control device since the last semiannual reporting period.

(xiv) For each deviation from the work practice standards, a description of the deviation, the date and time period duration of the deviation, and the actions you took to correct the deviation.

(xv) A statement of the cause of each deviation.

(8) *Deviations: Equivalent Emission Rate Option.* If you use the equivalent emission rate option, and there was a deviation from the operating scenarios, as defined in § 63.4371, used to demonstrate initial compliance, the semiannual compliance report must contain the information in paragraphs (a)(i) through (iv) of this section.

(i) The beginning and ending dates of each compliance period during which the deviation occurred.

(ii) If the deviation consisted of failure to treat the organic HAP containing wastewater by a biological treatment process, an explanation of the deviation, the duration of the deviation, and the determination of the mass of organic HAP that was discharged in the wastewater that was not treated by a biological treatment process.

(iii) The determination of the fraction of organic HAP applied in your dyeing/finishing affected source that is discharged to the wastewater according to § 63.4331(d).

(iv) The calculation of the total organic HAP emissions from your dyeing/finishing affected source using Equation 4 of § 63.4331.

(b) *Performance test reports.* If you use one of the add-on control options in § 63.4291(a) or (c), you must submit reports of performance test results for emission capture systems and add-on control devices no later than 60 days after completing the tests as specified in § 63.10(d)(2).

(c) *Startup, shutdown, malfunction reports.* If you use one of the add-on control options in §63.4291(a) or (c) and you have a startup, shutdown, or malfunction during the semiannual reporting period, you must submit the reports specified in paragraphs (c)(1) and (2) of this section.

(1) If your actions were consistent with your startup, shutdown, and malfunction plan, you must include the information specified in §63.10(d) in the semiannual compliance report.

(2) If your actions were not consistent with your startup, shutdown, and malfunction plan, you must submit an immediate startup, shutdown, and malfunction report as described in paragraphs (c)(2)(i) and (ii) of this section as required by paragraph (a) of this section.

(i) You must describe the actions taken during the event in a report delivered by facsimile, telephone, or other means to the Administrator within 2 working days after starting actions that are inconsistent with the plan.

(ii) You must submit a letter to the Administrator within 7 working days after the end of the event, unless you have made alternative arrangements with the Administrator as specified in §63.10(d)(5)(ii). The letter must contain the information specified in §63.10(d)(5)(ii).

§63.4312 What records must I keep?

You must collect and keep a record of the data and information specified in this section. Failure to collect and keep these records is a deviation from the applicable standard.

(a) A copy of each notification and report that you submitted to comply with this subpart, and the documentation supporting each notification and report.

(b) A current copy of information provided by materials suppliers or manufacturers, such as manufacturer's formulation data or test data used to determine the mass fraction of organic HAP for coating, printing, slashing, dyeing, finishing, thinning, and cleaning materials; and the mass fraction of solids for coating and printing materials. If you conducted testing to determine mass fraction of organic HAP of coating materials or the mass fraction of solids of coating materials, you must keep a copy of the complete test report. If you use information provided to you by the manufacturer or supplier of the material that was based on testing, you must keep the summary sheet of results provided to you by the manufacturer or supplier. You are not required to obtain the test report or other supporting documentation from the manufacturer or supplier.

(c) For each compliance period, the records specified in paragraph (c)(1) of this section for web coating/printing operations and the records specified in paragraph (c)(2) of this section for dyeing/finishing operations.

(1) A record of the web coating/printing operations on which you used each compliance option and the time periods (beginning and ending dates) you used each option. For each month, a record of all required calculations for the compliance option(s) you used, as specified in paragraphs (c)(1)(i) through (iv) of this section.

(i) For the compliant material option, a record of the calculation of the organic HAP content, as purchased, for each coating and printing material applied, using Equation 1 of §63.4321.

(ii) For the emission rate without add-on controls option, a record of the calculation of the total mass of organic HAP emissions for the coating, printing, thinning and cleaning materials applied each compliance period using Equations 1, 1A, and 1B of §63.4331 and, if applicable, the calculation used to determine the mass of organic HAP in waste materials according to §63.4331(a)(4)(iii); the calculation of the total mass of the solids contained in all coating and printing materials applied each compliance period using Equation 2 of §63.4331; and the calculation of the organic HAP emission rate for each compliance period using Equation 3 of §63.4331.

(iii) For the emission rate with add-on controls option, a record of the calculation of the total mass of organic HAP emissions before add-on controls for the coating, printing, thinning and cleaning materials applied each compliance period using Equations 1, 1A, and 1B of §63.4331 and, if applicable, the calculation used to determine the mass of organic HAP in waste materials according to § 63.4331(a)(4)(iii); the calculation of the total mass of the solids contained in all coating and printing materials applied each compliance period using Equation 2 of § 63.4331; the calculation of the mass of organic HAP emission reduction by emission capture systems and add-on control devices using Equations 1, 1A, 1B, and 1C of § 63.4341 and Equations 2, 3, 3A, and 3B of § 63.4341, as applicable; and the calculation of the organic HAP emission rate for each compliance period using Equation 4 of § 63.4341.

(iv) For the organic HAP overall control efficiency option or the oxidizer outlet organic HAP concentration option, the records specified in paragraph (j) of this section.

(2) A record of the dyeing/finishing operations on which you used each compliance option and the time periods (beginning and ending dates) you used each option. For each month, a record of all required calculations for the compliance option(s) you used, as specified in paragraphs (c)(2)(i) through (iv) of this section.

(i) For the compliant material option, a purchase record of the mass fraction of organic HAP for each dyeing, and finishing material applied, according to § 63.4321(e)(1)(iv).

(ii) For the emission rate without add-on controls option, the calculation for the total mass of organic HAP emissions for the dyeing and finishing materials applied each compliance period using Equations 4 and 4A of § 63.4331 and, if applicable, the calculations used to determine the mass of organic HAP in waste materials according to § 63.4331(b)(3)(ii) and the mass of organic HAP contained in wastewater discharged to a POTW or treated onsite prior to discharge according to § 63.4331(b)(3)(iii); the calculation of the total mass of dyeing and finishing materials applied each compliance period using Equation 5 of § 63.4331; and the calculation of the organic HAP emission rate for each compliance period using Equation 6 of § 63.4331.

(iii) For the emission rate with add-on controls option, a record of the calculation of the total mass of organic HAP emissions before add-on controls for the dyeing and finishing materials applied each compliance period using Equations 4 and 4A of § 63.4331 and, if applicable, the calculation used to determine the mass of organic HAP in waste materials according to § 63.4331(b)(3)(ii) and the determination of the mass of organic HAP contained in wastewater discharged to a POTW or treated onsite prior to discharge according to § 63.4331(b)(3)(iii); the calculation of the total mass of dyeing and finishing materials applied each compliance period using Equation 5 of § 63.4331; the calculation of the mass of organic HAP emission reduction by emission capture systems and add-on control devices using Equations 5, 5A, and 5B of § 63.4341 and Equations 6, 7, and 7A of § 63.4341, as applicable; and the calculation of the organic HAP emission rate for each compliance period using Equation 8 of § 63.4341.

(iv) For the equivalent emission rate option, a record that your dyeing/finishing affected source operated within the operating scenarios used to demonstrate initial compliance, documentation that affected wastewater was either discharged to a POTW or to onsite secondary treatment, and the calculation of the total organic HAP emissions from your dyeing/finishing affected source for each compliance period using Equation 4 of § 63.4331.

(d) A record of the name and mass of each regulated material applied in the web coating and printing subcategory and the dyeing and finishing subcategory during each compliance period. If you are using the compliant material option for all regulated materials at the source, you may maintain purchase records for each material used rather than a record of the mass used.

(e) A record of the mass fraction of organic HAP for each regulated material applied during each compliance period.

(f) A record of the mass fraction of coating and printing solids for each coating and printing material applied during each compliance period.

(g) If you use an allowance in Equation 1 or 4 of § 63.4331 for organic HAP contained in waste materials sent to, or designated for shipment to, a treatment, storage, and disposal facility (TSDF) according to § 63.4331(a)(4)(iii) or (b)(3)(ii), you must keep records of the information specified in paragraphs (g)(1) through (3) of this section.

(1) The name and address of each TSDF to which you sent waste materials for which you used an allowance in Equation 1 or 4 of §63.4331, a statement of which subparts under 40 CFR parts 262, 264, 265, and 266 apply to the facility, and the date of each shipment.

(2) Identification of the web coating/printing or dyeing/finishing operations producing waste materials included in each shipment and the compliance period(s) in which you used the allowance for these materials in Equation 1 or 4, respectively, of §63.4331.

(3) The methodology used in accordance with §63.4331(a)(3)(iii) or (b)(4)(ii) to determine the total amount of waste materials sent to or the amount collected, stored, and designated for transport to a TSDF each compliance period; and the methodology to determine the mass of organic HAP contained in these waste materials. This must include the sources for all data used in the determination, methods used to generate the data, frequency of testing or monitoring, and supporting calculations and documentation, including the waste manifest for each shipment.

(h) If you use an allowance in Equation 4 of §63.4331 for organic HAP contained in wastewater discharged to a POTW or treated onsite prior to discharge according to §63.4331(c), you must keep records of the information specified in paragraphs (h)(1) and (2) of this section.

(1) Documentation that the wastewater was either discharged to a POTW or onsite secondary wastewater treatment.

(2) Calculation of the allowance, WW, using the fraction of organic HAP applied in affected processes that is discharged to the wastewater determined from the most recent performance test and the mass of organic HAP in the dyeing and finishing materials applied during the compliance period, A, calculated in Equation 4 of §63.4331.

(i) You must keep records of the date, time, and duration of each deviation.

(j) If you use the emission rate with add-on controls option, the organic HAP overall control efficiency option, or the oxidizer outlet organic HAP concentration option, you must keep the records specified in paragraphs (j)(1) through (8) of this section.

(1) For each deviation, a record of whether the deviation occurred during a period of startup, shutdown, or malfunction.

(2) The records in §63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

(3) The records required to show continuous compliance with each operating limit specified in Table 2 to this subpart that applies to you.

(4) For each capture system that is a PTE, the data and documentation you used to support a determination that the capture system meets the criteria in Method 204 of appendix M to 40 CFR part 51 for a PTE and has a capture efficiency of 100 percent, as specified in §63.4361(a).

(5) For each capture system that is not a PTE, the data and documentation you used to determine capture efficiency according to the requirements specified in §§63.4360 and 63.4361(b) through (e) including the records specified in paragraphs (j)(5)(i) through (iii) of this section that apply to you.

(i) *Records for a liquid-to-fugitive protocol using a temporary total enclosure or building enclosure.* Records of the mass of total volatile hydrocarbon (TVH) as measured by Method 204A or F of appendix M to 40 CFR part 51 for each regulated material applied in the web coating/printing or dyeing/finishing operation, and the total TVH for all materials applied during each capture efficiency test run, including a copy of the test report. Records of the mass of TVH emissions not captured by the capture system that exited the temporary total enclosure or building enclosure during each capture efficiency test run, as measured by Method 204D or E of appendix M to 40 CFR part 51, including a copy of the test report. Records documenting that the enclosure used for the capture efficiency test met the criteria in Method 204 of appendix M to 40 CFR part 51 for either a temporary total enclosure or a building enclosure.

(ii) *Records for a gas-to-gas protocol using a temporary total enclosure or a building enclosure.* Records of the mass of TVH emissions captured by the emission capture system as measured by Method 204B or C of appendix M to 40 CFR part 51 at the inlet to the add-on control device, including a copy of the test report. Records of the mass of TVH emissions not captured by the capture system that exited the temporary total enclosure or building enclosure during each capture efficiency test run as measured by Method 204D or E of appendix M to 40 CFR part 51, including a copy of the test report. Records documenting that the enclosure used for the capture efficiency test met the criteria in Method 204 of appendix M to 40 CFR part 51 for either a temporary total enclosure or a building enclosure.

(iii) *Records for an alternative protocol.* Records needed to document a capture efficiency determination using an alternative method or protocol as specified in § 63.4361(e), if applicable.

(6) The records specified in paragraphs (j)(6)(i) and (ii) of this section for each add-on control device organic HAP destruction or removal efficiency determination or oxidizer outlet organic HAP concentration determination as specified in § 63.4362.

(i) Records of each add-on control device performance test conducted according to §§ 63.4360 and 63.4362.

(ii) Records of the web coating/printing or dyeing/finishing operation conditions during the add-on control device performance test showing that the performance test was conducted under representative operating conditions.

(7) Records of the data and calculations you used to establish the emission capture and add-on control device operating limits as specified in § 63.4363 and to document compliance with the operating limits as specified in Table 2 to this subpart.

(8) A record of the work practice plan required by § 63.4293 and documentation that you are implementing the plan on a continuous basis.

§ 63.4313 In what form and for how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review, according to § 63.10(b)(1). Where appropriate, the records may be maintained as electronic spreadsheets or as a database.

(b) As specified in § 63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to § 63.10(b)(1). You may keep the records off site for the remaining 3 years.

COMPLIANCE REQUIREMENTS FOR THE COMPLIANT MATERIAL OPTION

§ 63.4320 By what date must I conduct the initial compliance demonstration?

You must complete the compliance demonstration for the initial compliance period according to the requirements in § 63.4321. The initial compliance period begins on the applicable compliance date specified in § 63.4283 and ends on the last day of the first full month after the compliance date. The initial compliance demonstration includes the calculations according to § 63.4321 and supporting documentation showing that, during the initial compliance period, the organic HAP content of each coating and printing material you applied and the mass fraction of organic HAP in each slashing, dyeing, and finishing material you applied did not exceed the applicable limit in Table 1 to this subpart, and documentation that in web coating/printing operations you applied only thinners and cleaners that contained no organic HAP as defined in § 63.4371.

§ 63.4321 How do I demonstrate initial compliance with the emission limitations?

(a) You may use the compliant material option for any individual web coating/printing operation, for any group of web coating/printing operations in the affected source, or for all the web coating/printing operations in the affected source. You must use either the emission rate without add-on controls option, the emission rate with add-on controls option, the organic HAP overall control efficiency option, or the oxidizer outlet organic HAP concentration option for any web coating/printing operation(s) in the affected source for which you do not use this option. For a web coating/printing affected source to demonstrate initial compliance using the compliant material option, the web coating/printing operation or group of web coating/printing operations must apply no coating or printing material with an organic HAP content that exceeds the applicable emission limit in Table 1 to this subpart and must apply only thinning or cleaning material that contains no organic HAP, as defined in § 63.4371.

(b) You must use the compliant material option for each slashing affected source, as required in Table 1 to this subpart. For a slashing affected source to demonstrate initial compliance using the compliant material option, the slashing operation or group of slashing operations must apply only slashing material with no organic HAP as defined in § 63.4371.

(c) You may use the compliant material option for any individual dyeing/finishing operation, for any group of dyeing/finishing operations in the affected source, or for all the dyeing/finishing operations in the affected source. You must use either the emission rate without add-on controls option or the emission rate with add-on controls option for any dyeing/finishing operations in the affected source for which you do not use this option. You may not use the compliant material option for any dyeing/finishing operation in a dyeing/finishing affected source for which you use the equivalent emission rate option. For a dyeing/finishing affected source to demonstrate initial compliance using the compliant material option, the dyeing/finishing operation or group of dyeing/finishing operations must apply no dyeing or finishing material with a mass fraction of organic HAP that exceeds the applicable emission limit in Table 1 to this subpart.

(d) Any web coating/printing operation, slashing operation, or dyeing/finishing operation for which you use the compliant material option is not required to meet the operating limits or work practice standards required in §§ 63.4292 and 63.4293, respectively.

(e) To demonstrate initial compliance with the emission limitations using the compliant material option, you must meet all the requirements of this section for any web coating/printing operation, slashing operation, or dyeing/finishing operation using this option. Use the applicable procedures in this section on each regulated material in the condition it is in when it is received from its manufacturer or supplier and prior to any alteration. You do not need to redetermine the organic HAP content of regulated materials that are reclaimed onsite and reused in the web coating/printing operation, slashing operation, or dyeing/finishing operation for which you use the compliant material option, provided these regulated materials in their condition as received were demonstrated to comply with the compliant material option.

(1) *Determine the mass fraction of organic HAP for each material.* You must determine the mass fraction of organic HAP for each regulated material applied during the compliance period by using one of the options in paragraphs (e)(1)(i) through (v) of this section. You must use the option in paragraph (e)(1)(iv) of this section for each printing, slashing, dyeing, or finishing material applied during the compliance period.

(i) *Method 311 (appendix A to 40 CFR part 63).* You may use Method 311 for determining the mass fraction of organic HAP. Use the procedures specified in paragraphs (e)(1)(i)(A) and (B) of this section when performing a Method 311 test.

(A) Count each organic HAP that is measured to be present at 0.1 percent by mass or more for Occupational Safety and Health Administration (OSHA)-defined carcinogens as specified in 29 CFR 1910.1200(d)(4) and at 1.0 percent by mass or more for other compounds. For example, if toluene (not an OSHA carcinogen) is measured to be 0.5 percent of the material by mass, you don't have to count it. Express the mass fraction of each organic HAP you count as a value truncated to no more than four places after the decimal point (*e.g.*, 0.3791).

(B) Calculate the total mass fraction of organic HAP in the regulated material being tested by adding up the individual organic HAP mass fractions and truncating the result to no more than three places after the decimal point (*e.g.*, 0.763).

(ii) *Method 24 (appendix A to 40 CFR part 60).* You may use Method 24 to determine the mass fraction of nonaqueous volatile matter and use that value as a substitute for mass fraction of organic HAP. For a multi-component coating with reactive chemicals, you may use Method 24 on the coating as applied to determine the mass fraction of nonaqueous volatile matter and use that value as a substitute for the mass fraction of organic HAP determined from the sum of organic HAP in each component.

(iii) *Alternative method.* You may use an alternative test method for determining the mass fraction of organic HAP, mass fraction of solids, or fraction of organic HAP emitted from a reactive coating once the Administrator has approved it. You must follow the procedure in § 63.7(f) to submit an alternative test method for approval.

(iv) *Information from the supplier or manufacturer of the material.* You may rely on information other than that generated by the test methods specified in paragraphs (e)(1)(i) through (iii) of this section, such as manufacturer's formulation data, if it represents each organic HAP that is present at 0.1 percent by mass or more for OSHA-defined carcinogens as specified in 29 CFR 1910.1200(d)(4) and at 1.0 percent by mass or more for other compounds. For example, if toluene (not an OSHA carcinogen) is 0.5 percent of the material by mass, you do not have to count it. If there is a disagreement between such information and results of a test conducted according to paragraphs (e)(1)(i) through (iii) of this section on coating, thinning, or cleaning material, then the test method results will take precedence. Information from the supplier or manufacturer of the printing, slashing, dyeing, or finishing material is sufficient for determining the mass fraction of organic HAP.

(v) *Solvent blends.* Solvent blends may be listed as single components for some materials in data provided by manufacturers or suppliers. Solvent blends may contain organic HAP which must be counted toward the total organic HAP mass fraction of the materials. When test data and manufacturer's data for solvent blends are not available, you may use the default values for the mass fraction of organic HAP in these solvent blends listed in Table 4 or 5 to this subpart. If you use the tables, you must use the values in Table 4 for all solvent blends that match Table 4 entries, and you may only use Table 5 if the solvent blends in the materials you use do not match any of the solvent blends in Table 4 and you only know whether the blend is aliphatic or aromatic. However, if the results of a Method 311 test indicate higher values than those listed on Table 4 or 5 to this subpart, the Method 311 results will take precedence.

(2) *Determine the mass fraction of solids for each coating and printing material.* You must determine the mass fraction of solids (kg of solids per kg of coating or printing material) for each coating material applied during the compliance period by a test or by information provided by the supplier or the manufacturer of the material, as specified in paragraphs (e)(2)(i) through (iii) of this section. If test results obtained according to paragraph (e)(2)(i) or (ii) of this section for a coating material do not agree with the information obtained under paragraph (e)(2)(iii) of this section, the test results will take precedence. To determine mass fraction of solids for each printing material applied during the compliance period, you should use information provided by the supplier or manufacturer of the material, as specified in paragraph (e)(2)(iii) of this section.

(i) *Method 24 (appendix A to 40 CFR part 60).* You may use Method 24 for determining the mass fraction of solids of coating materials.

(ii) *Alternative method.* You may use an alternative test method for determining solids content of each coating material once the Administrator has approved it. You must follow the procedure in § 63.7(f) to submit an alternative test method for approval.

(iii) *Information from the supplier or manufacturer of the material.* You may obtain the mass fraction of solids for each coating and printing material from the supplier or manufacturer. If there is disagreement between such information and the test method results for a coating material, then the test method results will take precedence.

(3) *Calculate the organic HAP content of each coating or printing material.* Calculate the organic HAP content, kg organic HAP per kg of solids, of each coating and printing material applied during the compliance period, using Equation 1 of this section:

$$H_c = (W_c)/(W_f) \qquad \text{(Eq. 1)}$$

Where:

H_c = Organic HAP content of the coating or printing material, kg organic HAP per kg solids in the coating or printing material.

W_c = Mass fraction of organic HAP in the coating or printing material, kg organic HAP per kg material, determined according to paragraph (e)(1) of this section.

W_f = Mass fraction of solids in coating or printing material, kg solids per kg of coating or printing material, determined according to paragraph (e)(2) of this section.

(4) *Compliance demonstration.* The calculated organic HAP content for each coating and printing material applied during the initial compliance period must be less than or equal to the applicable emission limit in Table 1 to this subpart, and each thinning and cleaning material applied during the initial compliance period must contain no organic HAP as defined in §63.4371. Each slashing material applied during the initial compliance period must contain no organic HAP as defined in §63.4371. The mass fraction of organic HAP for each dyeing and finishing material applied during the initial compliance period, determined according to paragraph (e)(1)(iv) of this section, must be less than or equal to the applicable emission limit in Table 1 to this subpart. You must keep all records required by §§63.4312 and 63.4313. As part of the Notification of Compliance Status required in §63.4310, you must:

(i) Identify any web coating/printing operation, slashing operation, and dyeing/finishing operation for which you used the compliant material option;

(ii) Submit a statement that the web coating/printing operation(s) was (were) in compliance with the emission limitations during the initial compliance period because you applied no coating and printing material for which the organic HAP content exceeds the applicable emission limit in Table 1 to this subpart, and you applied only thinning materials and cleaning materials that contained no organic HAP, as defined in §63.4371;

(iii) Submit a statement that the slashing operation(s) was (were) in compliance with the emission limitations during the initial compliance period because you applied only slashing materials that contained no organic HAP, as defined in §63.4371; and

(iv) Submit a statement that the dyeing/finishing operation(s) was (were) in compliance with the emission limitations during the initial compliance period because you applied no dyeing and finishing material for which the mass fraction of organic HAP exceeds the applicable emission limit in Table 1 to this subpart.

§63.4322 How do I demonstrate continuous compliance with the emission limitations?

(a) For each compliance period, to demonstrate continuous compliance, you must apply no coating or printing material for which the organic HAP content determined using Equation 1 of §63.4321, exceeds the applicable emission limit in Table 1 to this subpart. For each compliance period, to demonstrate continuous compliance, you must apply only slashing material that contains no organic HAP as defined in §63.4371. For each compliance period, to demonstrate continuous compliance, you must apply no dyeing or finishing material for which the mass fraction of organic HAP, determined according to the requirements of §63.4321(e)(1)(iv), exceeds the applicable emission limit in Table 1 to this subpart. For each compliance period, you must apply only thinning or cleaning materials that contain no organic HAP (as defined in §63.4371) in a coating/printing affected source. Each month following the initial compliance period described in §63.4320 is a compliance period.

(b) If you choose to comply with the emission limitations by using the compliant material option, the application of any regulated material that does not meet the criteria specified in paragraph (a) of this section is a deviation from the emission limitations that must be reported as specified in §§ 63.4310(c)(6) and 63.4311(a)(5).

(c) As part of each semiannual compliance report required by § 63.4311, you must identify any web coating/printing operation, slashing operation, or dyeing/finishing operation for which you used the compliant material option. If there were no deviations from the applicable emission limit in Table 1 to this subpart, submit a statement that, as appropriate, the web coating/printing operations were in compliance with the emission limitations during the reporting period because you applied no coating or printing material for which the organic HAP content exceeded the applicable emission limit in Table 1 to this subpart, and you applied only thinning and cleaning materials that contained no organic HAP (as defined in § 63.4371) in a web coating/printing affected source; the slashing operations were in compliance with the emission limitations during the reporting period because you applied only slashing materials with no organic HAP (as defined in § 63.4371) in a slashing affected source; and the dyeing/finishing operations were in compliance with the emission limitations during the reporting period because you applied no dyeing or finishing material for which the mass fraction of organic HAP exceeded the applicable emission limit in Table 1 to this subpart.

(d) You must maintain records as specified in §§ 63.4312 and 63.4313.

COMPLIANCE REQUIREMENTS FOR THE EMISSION RATE WITHOUT ADD-ON CONTROLS OPTION

§ 63.4330 By what date must I conduct the initial compliance demonstration?

You must complete the compliance demonstration for the initial compliance period according to the requirements of § 63.4331. The initial compliance period begins on the applicable compliance date specified in § 63.4283 and ends on the last day of the 12th full month after the compliance date. The initial compliance demonstration includes the calculations according to § 63.4331 and supporting documentation showing that for web coating/printing operations, the organic HAP emission rate for the initial compliance period was equal to or less than the applicable emission limit in Table 1 to this subpart and for dyeing/finishing operations, the mass fraction of organic HAP for the initial compliance period was less than or equal to the applicable emission limit in Table 1 to this subpart.

§ 63.4331 How do I demonstrate initial compliance with the emission limitations?

(a) For web coating/printing operations, you may use the emission rate without add-on controls option for any individual web coating/printing operation, for any group of web coating/printing operations in the affected source, or for all the web coating/printing operations as a group in the affected source. You must use either the compliant material option, the emission rate with add-on controls option, the organic HAP overall control efficiency option, or the oxidizer outlet organic HAP concentration option for any web coating/printing operation in the affected source for which you do not use this option. To demonstrate initial compliance using the emission rate without add-on controls option, the web coating/printing operation or group of web coating/printing operations must meet the applicable emission limit in Table 1 to this subpart but is not required to meet the operating limits or work practice standards in §§ 63.4292 and 63.4293, respectively. You must meet all the requirements of paragraphs (a)(1) through (7) of this section to demonstrate initial compliance with the applicable emission limit in Table 1 to this subpart for the web coating/printing operation(s). When calculating the organic HAP emission rate according to this section, do not include any coating, printing, thinning, or cleaning materials applied on web coating/printing operations for which you use the compliant material option, the emission rate with add-on controls option, the organic HAP overall control efficiency option, or the oxidizer outlet organic HAP concentration option. Use the procedures in this section on each regulated material in the condition it is in when it is received from its manufacturer or supplier and prior to any alteration.

(1) *Determine the mass fraction of organic HAP for each material.* Determine the mass fraction of organic HAP for each coating, printing, thinning, and cleaning material applied during the compliance period according to the requirements in § 63.4321(e)(1).

(2) *Determine the mass fraction of solids for each material.* Determine the mass fraction of solids (kg of solids per kg of coating or printing material) for each coating and printing material applied during the compliance period according to the requirements in § 63.4321(e)(2).

(3) *Determine the mass of each material.* Determine the mass (kg) of each coating, printing, thinning, or cleaning material applied during the compliance period by measurement or usage records.

(4) *Calculate the mass of organic HAP emissions.* The mass of organic HAP emissions is the combined mass of organic HAP contained in all coating, printing, thinning, and cleaning materials applied during the compliance period minus the organic HAP in certain waste materials. Calculate the mass of organic HAP emissions using Equation 1 of this section:

$$H_e = A + B - R_w \qquad \text{(Eq. 1)}$$

Where:

H_e = Mass of organic HAP emissions during the compliance period, kg.

A = Total mass of organic HAP in the coating and printing materials applied during the compliance period, kg, as calculated in Equation 1A of this section.

B = Total mass of organic HAP in the thinning and cleaning materials applied during the compliance period, kg, as calculated in Equation 1B of this section.

R_w = Total mass of organic HAP in waste materials sent or designated for shipment to a hazardous waste TSDF for treatment or disposal during the compliance period, kg, determined according to paragraph (a)(4)(iii) of this section. (You may assign a value of zero to R_w if you do not wish to use this allowance.)

(i) Calculate the kg organic HAP in the coating and printing materials applied during the compliance period using Equation 1A of this section:

$$A = \sum_{i=1}^{m} \left(M_{c,i}\right)\left(W_{c,i}\right) \qquad \text{(Eq. 1A)}$$

Where:

A = Total mass of organic HAP in the coating and printing materials applied during the compliance period, kg.

$M_{c,i}$ = Total mass of coating or printing material, i, applied during the compliance period, kg.

$W_{c,i}$ = Mass fraction of organic HAP in coating or printing material, i, kg organic HAP per kg of material.

m = Number of different coating and printing, materials applied during the compliance period.

(ii) Calculate the kg of organic HAP in the thinning and cleaning materials applied during the compliance period using Equation 1B of this section:

$$B = \sum_{j=1}^{n} \left(M_{t,j}\right)\left(W_{t,j}\right) \qquad \text{(Eq. 1B)}$$

Where:

B = Total mass of organic HAP in the thinning and cleaning materials applied during the compliance period, kg.

$M_{t,j}$ = Total mass of thinning or cleaning material, j, applied during the compliance period, kg.

$W_{t,j}$ = Mass fraction of organic HAP in thinning or cleaning material, j, kg organic HAP per kg thinning or cleaning material.

n = Number of different thinning and cleaning materials applied during the compliance period.

(iii) If you choose to account for the mass of organic HAP contained in waste materials sent or designated for shipment to a hazardous waste TSDF in Equation 1 of this section, then you must determine it according to paragraphs (a)(4)(iii)(A) through (D) of this section.

(A) You may include in the determination only waste materials that are generated by web coating/printing operations in the affected source for which you use Equation 1 of this section and that will be treated or disposed of by a facility that is regulated as a TSDF under 40 CFR part 262, 264, 265, or 266. The TSDF may be either off-site or on-site. You may not include organic HAP contained in wastewater.

(B) You must determine either the amount of the waste materials sent to a TSDF during the compliance period or the amount collected and stored during the compliance period designated for future transport to a TSDF. Do not include in your determination any waste materials sent to a TSDF during a compliance period if you have already included them in the amount collected and stored during that compliance period or a previous compliance period.

(C) Determine the total mass of organic HAP contained in the waste materials specified in paragraph (a)(4)(iii)(B) of this section.

(D) You must document the methodology you use to determine the amount of waste materials and the total mass of organic HAP they contain, as required in § 63.4312(g). To the extent that waste manifests include this, they may be used as part of the documentation of the amount of waste materials and mass of organic HAP contained in them.

(5) *Calculate the total mass of coating and printing solids.* Determine the total mass of coating and printing solids applied, kg, which is the combined mass of the solids contained in all the coating and printing materials applied during the compliance period, using Equation 2 of this section:

$$H_t = \sum_{i=1}^{m} \left(M_{c,i}\right)\left(W_{f,i}\right) \qquad \text{(Eq. 2)}$$

Where:

H_t = Total mass of solids contained in coating and printing materials applied during the compliance period, kg.

$M_{c,i}$ = Mass of coating or printing material, i, applied during the compliance period, kg.

$W_{f,i}$ = mass fraction of solids in coating or printing material, i, applied during the compliance period, kg solids per kg of coating or printing material.

m = Number of coating and printing materials applied during the compliance period.

(6) Calculate the organic HAP emission rate for the compliance period, kg organic HAP emitted per kg solids used, using Equation 3 of this section:

$$H_{yr} = \frac{H_e}{H_t} \qquad \text{(Eq. 3)}$$

Where:

H_{yr} = Organic HAP emission rate for the compliance period, kg of organic HAP emitted per kg of solids in coating and printing materials applied.

H_e = Total mass organic HAP emissions from all coating, printing, thinning, and cleaning materials applied during the compliance period, kg, as calculated by Equation 1 of this section.

H_t = Total mass of coating and printing solids in materials applied during the compliance period, kg, as calculated by Equation 2 of this section.

(7) *Compliance demonstration.* The organic HAP emission rate for the initial compliance period must be less than or equal to the applicable emission limit in Table 1 to this subpart. You must keep all records as required by §§ 63.4312 and 63.4313. As part of the Notification of Compliance Status required by § 63.4310, you must identify the web coating/printing operation(s) for which you used the emission rate without add-on controls option and submit a statement that the web coating/printing operation(s) was (were) in compliance with the emission limitations during the initial compliance period because the organic HAP emission rate was less than, or equal to, the applicable emission limit in Table 1 to this subpart.

(b) For dyeing and finishing operations, you may use the emission rate without add-on controls option for any individual dyeing/finishing operation, for any group of dyeing/finishing operations in the affected source, or for dyeing/finishing operations as a group in the affected source. You must use either the compliant material option or the emission rate with add-on controls option for any dyeing/finishing operation in the affected source for which you do not use this option. You may not use the emission rate without add-on controls option for any dyeing/finishing operation in a dyeing/finishing affected source for which you use the equivalent emission rate option. To demonstrate initial compliance using the emission rate without add-on controls option, the dyeing/finishing operation or group of operations must meet the applicable emission limit in Table 1 to this subpart but is not required to meet the operating limits or work practice standards in §§ 63.4292 and 63.4293, respectively. You must meet all the requirements of paragraphs (b)(1) through (6) of this section to demonstrate initial compliance with the applicable emission limit in Table 1 to this subpart for the dyeing/finishing operation(s). When calculating the organic HAP emission rate according to this section, do not include any dyeing and finishing materials applied on dyeing/finishing operations for which you use the compliant material option or the emission rate with add-on controls option. Use the procedures in this section on each regulated material in the condition it is in when it is received from its manufacturer or supplier and prior to any alteration. Water added in mixing at the affected source is not a regulated material and should not be included in the determination of the total mass of dyeing and finishing materials applied during the compliance period, using Equation 5 of this section.

(1) *Determine the mass fraction of organic HAP for each material.* Determine the mass fraction of organic HAP for each dyeing and finishing material applied during the compliance period according to the requirements in § 63.4321(e)(1)(iv).

(2) *Determine the mass of each material.* Determine the mass (kg) of each dyeing and finishing material applied during the compliance period by measurement or usage records.

(3) *Calculate the mass of organic HAP emissions.* The mass of organic HAP emissions is the combined mass of organic HAP contained in all dyeing and finishing materials applied during the compliance period minus the organic HAP in certain waste materials and wastewater streams. Calculate the mass of organic HAP emissions using Equation 4 of this section:

$$H_e = A - R_w - WW \qquad \text{(Eq. 4)}$$

Where:

H_e = Mass of organic HAP emissions during the compliance period, kg.

A = Total mass of organic HAP in the dyeing and finishing materials applied during the compliance period, kg, as calculated in Equation 4A of this section.

R_w = Total mass of organic HAP in waste materials sent or designated for shipment to a hazardous waste TSDF for treatment or disposal during the compliance period, kg, determined according to paragraph (b)(3)(ii) of this section. (You may assign a value of zero to R_w if you do not wish to use this allowance.)

WW = Total mass of organic HAP in wastewater discharged to a POTW or receiving onsite secondary treatment during the compliance period, kg, determined according to paragraph (b)(3)(iii) of this section. (You may assign a value of zero to WW if you do not wish to use this allowance.)

(i) Calculate the kg organic HAP in the dyeing and finishing materials applied during the compliance period using Equation 4A of this section:

$$A = \sum_{i=1}^{m} \left(M_{c,i}\right)\left(W_{c,i}\right) \qquad \text{(Eq. 4A)}$$

Where:

A = Total mass of organic HAP in the dyeing and finishing materials applied during the compliance period, kg.

$M_{c,i}$ = Mass of dyeing or finishing material, i, applied during the compliance period, kg.

$W_{c,i}$ = Mass fraction of organic HAP in dyeing or finishing material, i, kg organic HAP per kg of material.

m = Number of dyeing and finishing materials applied during the compliance period.

(ii) If you choose to account for the mass of organic HAP contained in waste materials sent or designated for shipment to a hazardous waste TSDF in Equation 4 of this section, then you must determine it according to paragraphs (b)(3)(ii)(A) through (D) of this section.

(A) You may include in the determination only waste materials that are generated by dyeing/finishing operations in the affected source for which you use Equation 4 of this section and that will be treated or disposed of by a facility that is regulated as a TSDF under 40 CFR part 262, 264, 265, or 266. The TSDF may be either off-site or onsite. You may not include organic HAP contained in wastewater.

(B) You must determine either the amount of the waste materials sent to a TSDF during the compliance period or the amount collected and stored during the compliance period designated for future transport to a TSDF. Do not include in your determination any waste materials sent to a TSDF during a compliance period if you have already included them in the amount collected and stored during that compliance period or a previous compliance period.

(C) Determine the total mass of organic HAP contained in the waste materials specified in paragraph (b)(3)(ii)(B) of this section.

(D) You must document the methodology you use to determine the amount of waste materials and the total mass of organic HAP they contain, as required in § 63.4312(g). To the extent that waste manifests include this, they may be used as part of the documentation of the amount of waste materials and mass of organic HAP contained in them.

(iii) If you choose to account for the mass of organic HAP contained in wastewater discharged to a POTW or treated onsite prior to discharge in Equation 4 of this section, then you must determine it according to paragraph (c) of this section.

(4) *Calculate the total mass of dyeing and finishing materials.* Determine the total mass of dyeing and finishing materials applied, kg, which is the combined mass of all the dyeing and finishing materials applied during the compliance period, using Equation 5 of this section:

$$M_t = \sum_{i=1}^{m} \left(M_{c,i} \right) \qquad \text{(Eq. 5)}$$

Where:

M_t = Total mass of dyeing and finishing materials applied during the compliance period, kg.

$M_{c,i}$ = Mass of dyeing or finishing material, i, applied during the compliance period, kg.

m = Number of dyeing and finishing materials applied during the compliance period.

(5) Calculate the organic HAP emission rate, kg organic HAP emitted per kg dyeing and finishing material applied, using Equation 6 of this section:

$$H_{yr} = \frac{H_e}{M_t} \qquad \text{(Eq. 6)}$$

Where:

H_{yr} = The organic HAP emission rate for the compliance period, kg of organic HAP emitted per kg of dyeing and finishing materials.

H_e = Total mass of organic HAP emissions during the compliance period, kg, as calculated by Equation 4 of this section.

M_t = Total mass of dyeing and finishing materials applied during the compliance period, kg, as calculated by Equation 5 of this section.

(6) *Compliance demonstration.* The organic HAP emission rate for the initial compliance period must be less than or equal to the applicable emission limit in Table 1 to this subpart. You must keep all records as required by §§ 63.4312 and 63.4313. As part of the Notification of Compliance Status required by § 63.4310, you must identify the dyeing/finishing operation(s) for which you used the emission rate without add-on controls option and submit a statement that the dyeing/finishing operation(s) was (were) in compliance with the emission limitations during the initial compliance period because the organic HAP emission rate was less than or equal to the applicable emission limit in Table 1 to this subpart.

(i) If your affected source performs only dyeing operations, paragraphs (b)(1) through (5) of this section apply to dyeing materials only, and you must demonstrate compliance with the emission limit in Table 1 to this subpart for dyeing operations.

(ii) If your affected source performs only finishing operations, paragraphs (b)(1) through (5) of this section apply to finishing materials only, and you must demonstrate compliance with the emission limit in Table 1 to this subpart for finishing operations.

(iii) If your affected source performs both dyeing and finishing operations, paragraphs (b)(1) through (5) of this section apply to dyeing and finishing materials combined, and you must demonstrate compliance with the emission limit in Table 1 to this subpart for dyeing and finishing operations.

(c) If you choose to account for the mass of organic HAP contained in wastewater discharged to a POTW or treated onsite prior to discharge in Equation 4 of this section, then you must determine it according to paragraphs (c)(1) through (5) of this section. You may include in the determination only wastewater streams that are generated by dyeing/finishing operations in the affected source for which you use Equation 4 of this section. You must determine the mass of organic HAP from the average organic HAP concentration and mass flow rate of each wastewater stream generated by the affected dyeing/finishing operation (or group of dyeing/finishing operations discharging to a common wastewater stream) for which you use this allowance. You must consider the actual or anticipated production over the compliance period and include all wastewater streams generated by the affected dyeing/finishing operation(s) during this period. A performance test of the organic HAP loading to the wastewater shall be performed for each operating scenario, as defined in § 63.4371, during the compliance period.

(1) *Procedure to determine average organic HAP concentration.* You must determine the average organic HAP concentration, H_w, of each wastewater stream according to paragraphs (c)(1)(i) through (vi) of this section.

(i) *Sampling.* Wastewater samples may be grab samples or composite samples. Samples shall be taken at approximately equally spaced time intervals over a 1-hour period (or over the period that wastewater is being discharged from a batch process if it is shorter than a 1-hour period). Each 1-hour period constitutes a run, and a performance test shall consist of a minimum of 3 runs.

(ii) *Methods.* You may use any of the methods specified in paragraphs (c)(1)(ii)(A) through (E) of this section to determine the organic HAP content of the wastewater stream. The method shall be an analytical method for wastewater which has the organic HAP compound discharged to the wastewater as a target analyte.

(A) *Method 305.* Use procedures specified in Method 305 of 40 CFR part 63, appendix A.

(B) *Methods 624 and 625.* Use procedures specified in Method 624 and Method 625 of 40 CFR part 136, appendix A and comply with the sampling protocol requirements specified in paragraph (c)(1)(iii) of this section. If these methods are used to analyze one or more compounds that are not on the method's published list of approved compounds, the Alternative Test Procedure specified in 40 CFR 136.4 and 136.5 shall be followed. For Method 625, make corrections to the compounds for which the analysis is being conducted based on the accuracy as recovery factors in Table 7 of the method.

(C) *Methods 1624 and 1625.* Use procedures specified in Method 1624 and Method 1625 of 40 CFR part 136, appendix A and comply with the sampling protocol requirements specified in paragraph (c)(1)(iii) of this section. If these methods are used to analyze one or more compounds that are not on the method's published list of approved compounds, the Alternative Test Procedure specified in 40 CFR 136.4 and 136.5 shall be followed.

(D) *Other EPA method(s).* Use procedures specified in the method and comply with the requirements specified in paragraphs (c)(1)(iii) and either paragraph (c)(1)(iv)(A) or (B) of this section.

(E) *Methods other than EPA method.* Use procedures specified in the method and comply with the requirements specified in paragraphs (c)(1)(iii) and paragraph (c)(1)(iv)(A) of this section.

(iii) *Sampling plan.* If you have been expressly referred to this paragraph by provisions of this subpart, you shall prepare a sampling plan. Wastewater samples shall be collected using sampling procedures which minimize loss of organic compounds during sample collection and analysis and maintain sample integrity. The sampling plan shall include procedures for determining recovery efficiency of the relevant organic HAP. An example of an example sampling plan would be one that incorporates similar sampling and sample handling requirements to those of Method 25D of 40 CFR part 60, appendix A. You shall maintain the sampling plan at the facility.

(iv) *Validation of methods.* You shall validate EPA methods other than Methods 305, 624, 625, 1624, 1625 using the procedures specified in paragraph (c)(1)(iv)(A) or (B) of this section.

(A) *Validation of EPA methods and other methods.* The method used to measure organic HAP concentrations in the wastewater shall be validated according to section 5.1 or 5.3, and the corresponding calculations in section 6.1 or 6.3, of Method 301 of appendix A of this part. The data are acceptable if they meet the criteria specified in section 6.1.5 or 6.3.3 of Method 301 of appendix A of this part. If correction is required under section 6.3.3 of Method 301 of appendix A of this part, the data are acceptable if the correction factor is within the range 0.7 to 1.30. Other sections of Method 301 of appendix A of this part are not required.

(B) *Validation for EPA methods.* Follow the procedures as specified in ''Alternative Validation Procedure for EPA Waste Methods'' 40 CFR part 63, appendix D.

(v) *Calculate the average concentration.* You shall calculate the average concentration for each individually speciated organic HAP compound by adding the individual values determined for the specific compound in each sample and dividing by the number of samples.

(vi) *Adjustment for concentrations determined downstream of the point of determination.* You shall make corrections to the specific compound average concentration or total organic HAP average concentration when the concentration is determined downstream of the point of determination at a location where either wastewater streams from outside of the affected dyeing/finishing operation or group of dyeing/finishing operations have been mixed with the affected wastewater stream or one or more affected wastewater streams have been treated. You shall make the adjustments either to the individual data points or to the final average organic HAP concentration.

(2) *Procedures to determine mass flow rate.* For each operating scenario, as defined in §63.4371, for which you have determined the organic HAP content of the wastewater stream, you shall determine the annual average mass flow rate, F_w, of the wastewater stream either at the point of determination or downstream of the point of determination with adjustment for flow rate changes made according to paragraph (c)(2)(ii) of this section. The annual average mass flow rate for the wastewater stream shall be representative of actual or anticipated operation of the dyeing/finishing operation(s) generating the wastewater over the compliance period. You must determine the annual average mass flow rate of each wastewater stream according to paragraphs (c)(2)(i) and (ii) of this section.

(i) *Procedures.* The procedures specified in paragraphs (c)(2)(i)(A) through (C) of this section are considered acceptable procedures for determining the mass flow rate. They may be used in combination, and no one procedure shall take precedence over another.

(A) *Knowledge of the wastewater.* You may use knowledge of the wastewater stream and/or the process to determine the annual average mass flow rate. You shall use the maximum expected annual average production capacity of the dyeing/finishing operation(s), knowledge of the process, and/or mass balance information to either estimate directly the average wastewater mass flow rate for the compliance period or estimate the total wastewater mass flow for the compliance period and then factor the total mass by the percentage of time in the compliance period the operating scenario is expected to represent. Where you use knowledge to determine the annual average mass flow rate, you shall provide sufficient information to document the mass flow rate.

(B) *Historical records.* You may use historical records to determine the average annual mass flow rate. Derive the highest annual average mass flow rate of wastewater from historical records representing the most recent 5 years of operation, or if the dyeing/finishing operation(s) has(have) been in service for less than 5 years but at least 1 year, from historical records representing the total operating life of the process unit. Where historical records are used to determine the annual average mass flow rate, you shall provide sufficient information to document the mass flow rate.

(C) *Measurement of mass flow rate.* If you elect to measure mass flow rate, you shall comply with the requirements of this paragraph. Measurements shall be made at the point of determination, or at a location downstream of the point of determination with adjustments for mass flow rate changes made according to paragraph (c)(2)(ii) of this section. Where measurement data are used to determine the annual average mass flow rate, you shall provide sufficient information to document the mass flow rate.

(ii) *Adjustment for flow rates determined downstream of the point of determination.* You shall make corrections to the average annual mass flow rate of a wastewater stream when it is determined downstream of the point of determination at a location where either wastewater streams from outside of the affected dyeing/finishing operation or group of dyeing/finishing operations have been mixed with the affected wastewater stream or one or more wastewater streams have been treated. You shall make corrections for such changes in the annual average mass flow rate.

(3) *Wastewater treatment.* You shall document that the wastewater is either discharged to a POTW or onsite secondary wastewater treatment.

(4) *Determine the mass of organic HAP in the affected wastewater.* Determine the total mass of organic HAP, WW, contained in the wastewater streams characterized by the procedures in paragraphs (c)(1) and (2) of this section, using Equation 7 of this section:

$$WW = \sum_{k=1}^{o} \left(H_{w,k}\right)\left(F_{w,k}\right) \times 10^{-3} \qquad \text{(Eq. 7)}$$

Where:

WW = The total mass of organic HAP contained in the wastewater streams characterized by the procedures in paragraphs (c)(1) and (2) of this section, kg/yr

$H_{w,k}$ = Average organic HAP concentration of wastewater stream k, ppmw

$F_{w,k}$ = Annual average mass flow rate of wastewater stream k, Mg/yr

o = Number of wastewater streams characterized by the procedures in paragraphs (c)(1) and (2) of this section.

This is your allowance for organic HAP discharged to wastewater and not emitted to the atmosphere, WW in Equation 4.

(5) *Determine the fraction of organic HAP applied that is discharged to the wastewater.* For the purpose of taking credit for the wastewater allowance in continuous compliance demonstrations, determine the fraction of organic HAP applied in affected dyeing/finishing processes that is discharged to the wastewater, *i.e.*, divide WW by the mass of organic HAP in the dyeing and finishing materials applied during the compliance period, A, as calculated in Equation 4A of this section. The wastewater allowance for this fraction of organic HAP that is not emitted from the affected dyeing/finishing operation(s) may be taken for each compliance period that the operating scenario, as defined in §63.4371, does not change from conditions during the performance test in a way that could increase the fraction of organic HAP emitted (*e.g.*, an increase in process temperature or decrease in process pressure or a change in the type or mass fraction of organic HAP entering the dyeing/finishing operation.) The allowance, WW, must be calculated by multiplying the fraction of organic HAP applied in affected processes that is discharged to the wastewater determined from the most recent performance test by the mass of organic HAP in the dyeing and finishing materials applied during the compliance period, A, as calculated in Equation 4A of this section.

(d) If you are determining the fraction of organic HAP applied in your dyeing/finishing affected source that is discharged to the wastewater, to demonstrate compliance with the equivalent emission rate option of § 63.4291(c)(4), then you must determine it according to paragraphs (d)(1) through (5) of this section. You must include in the determination only wastewater streams generated by dyeing/finishing operations in your affected source. You shall determine the mass of organic HAP from the average organic HAP concentration and mass flow rate of each wastewater stream generated by each dyeing/finishing operation (or group of dyeing/finishing operations discharging to a common wastewater stream) in your affected source. You shall consider the actual or anticipated production over the compliance period and include all wastewater streams generated by the affected dyeing/finishing operation(s) during this period. A performance test of the organic HAP loading to the wastewater shall be conducted for each operating scenario, as defined in § 63.4371, during the compliance period.

(1) *Procedure to determine average organic HAP concentration.* You must determine the average organic HAP concentration of each wastewater stream according to paragraphs (c)(1)(i) through (vi) of this section.

(2) *Procedures to determine mass flow rate.* For each operating scenario, as defined in § 63.4371, for which you have determined the organic HAP content of the wastewater stream, you shall determine the annual average mass flow rate of the wastewater stream either at the point of determination, or downstream of the point of determination with adjustment for flow rate changes made according to paragraph (c)(2)(ii) of this section. The annual average mass flow rate for the wastewater stream shall be representative of actual or anticipated operation of the dyeing/finishing operation(s) generating the wastewater over the compliance period. You must determine the annual average mass flow rate of each wastewater stream according to paragraphs (c)(2)(i) and (ii) of this section.

(3) *Wastewater treatment.* You shall document that the wastewater is either discharged to a POTW or onsite secondary wastewater treatment.

(4) *Determine the mass of organic HAP in the affected wastewater.* Determine the total mass of organic HAP, WW, contained in the wastewater streams characterized by the procedures in paragraphs (d)(1) and (2) of this section, using Equation 7 of this section.

(5) *Determine the fraction of organic HAP applied that is discharged to the wastewater.* Determine the fraction of organic HAP applied in your dyeing/finishing affected source that is discharged to the wastewater, *i.e.*, divide WW by the mass of organic HAP in the dyeing and finishing materials applied during the compliance period, A, as calculated in Equation 4A of this section. One of the conditions that must be met to demonstrate compliance with the equivalent emission rate option is that the fraction of organic HAP applied in your dyeing/finishing affected source that is discharged to the wastewater must be at least 90 percent.

§ 63.4332 How do I demonstrate continuous compliance with the emission limitations?

(a) To demonstrate continuous compliance, the organic HAP emission rate for each compliance period, determined according to § 63.4331(a) for web coating/printing operations and according to § 63.4331(b) for dyeing/finishing operations, must be less than or equal to the applicable emission limit in Table 1 to this subpart. Each month following the initial compliance period described in § 63.4330 is a compliance period consisting of that month and the preceding 11 months. You must perform the calculations in § 63.4331 on a monthly basis.

(b) If the organic HAP emission rate for any compliance period exceeded the applicable emission limit in Table 1 to this subpart, this is a deviation from the emission limitations for that compliance period and must be reported as specified in §§ 63.4310(c)(6) and 63.4311(a)(6).

(c) As part of each semiannual compliance report required by § 63.4311, you must identify any web coating/printing operation or dyeing/finishing operation for which you used the emission rate without add-on controls option. If there were no deviations from the applicable emission limit in Table 1 to this subpart, you must submit a statement that, as appropriate, the web coating/printing operations or the dyeing/finishing operations were in compliance with the emission limitations during the reporting period because the organic HAP emission rate for each compliance period was less than or equal to the applicable emission limit in Table 1 to this subpart.

(d) You must maintain records as specified in §§ 63.4312 and 63.4313.

COMPLIANCE REQUIREMENTS FOR THE EMISSION RATE WITH ADD-ON CONTROLS OPTION

§ 63.4340 By what date must I conduct performance tests and other initial compliance demonstrations?

(a) *New and reconstructed affected sources.* For a new or reconstructed affected source, you must meet the requirements of paragraphs (a)(1) through (4) of this section.

(1) All emission capture systems, add-on control devices, and CPMS must be installed and operating no later than the applicable compliance date specified in § 63.4283. Except for solvent recovery systems for which you conduct liquid-liquid material balances according to § 63.4341(e)(5) or (f)(5), you must conduct a performance test of each capture system and add-on control device according to the procedures in §§ 63.4360, 63.4361, and 63.4362, and establish the operating limits required by § 63.4292, within 180 days of the applicable compliance date specified in § 63.4283. For a solvent recovery system for which you conduct liquid-liquid material balances according to § 63.4341(e)(5) or (f)(5), you must initiate the first material balance no later than the applicable compliance date specified in § 63.4283.

(2) You must develop and begin implementing the work practice plan required by § 63.4293 no later than the compliance date specified in § 63.4283.

(3) You must complete the compliance demonstration for the initial compliance period according to the requirements of § 63.4341. The initial compliance period begins on the applicable compliance date specified in § 63.4283 and ends on the last day of the 12th full month after the compliance date, or the date you conduct the performance tests of the emission capture systems and add-on control devices, or initiate the first liquid-liquid material balance for a solvent recovery system, whichever is later. The initial compliance demonstration includes the results of emission capture system and add-on control device performance tests conducted according to §§ 63.4360, 63.4361, and 63.4362; results of liquid-liquid material balances conducted according to § 63.4341(e)(5) or (f)(5); calculations according to § 63.4341 and supporting documentation showing that during the initial compliance period the organic HAP emission rate was equal to or less than the applicable emission limit in Table 1 to this subpart; the operating limits established during the performance tests and the results of the continuous parameter monitoring required by § 63.4364; and documentation of whether you developed and implemented the work practice plan required by § 63.4293.

(4) You do not need to comply with the operating limits for the emission capture system and add-on control device required by § 63.4292 until after you have completed the performance tests specified in paragraph (a)(1) of this section. Instead, you must maintain a log detailing the operation and maintenance of the emission capture system, add-on control device, and continuous parameter monitors during the period between the compliance date and the performance test. You must begin complying with the operating limits for your affected source on the date you complete the performance tests specified in paragraph (a)(1) of this section. This requirement does not apply to solvent recovery systems for which you conduct liquid-liquid material balances according to the requirements of § 63.4341(e)(5) or (f)(5).

(b) *Existing sources.* For an existing affected source, you must meet the requirements of paragraphs (b)(1) through (3) of this section.

(1) All emission capture systems, add-on control devices, and CPMS must be installed and operating no later than the applicable compliance date specified in § 63.4283. Except for solvent

recovery systems for which you conduct liquid-liquid material balances according to § 63.4341(e)(5) or (f)(5), you must conduct a performance test of each capture system and add-on control device according to the procedures in §§ 63.4360, 63.4361, and 63.4362, and establish the operating limits required by § 63.4292, within 180 days of the compliance date specified in § 63.4283. For a solvent recovery system for which you conduct liquid-liquid material balances according to § 63.4341(e)(5) or (f)(5), you must initiate the first material balance no later than the compliance date specified in § 63.4283.

(2) You must develop and begin implementing the work practice plan required by § 63.4293 no later than the compliance date specified in § 63.4283.

(3) You must complete the compliance demonstration for the initial compliance period according to the requirements of § 63.4341. The initial compliance period begins on the applicable compliance date specified in § 63.4283 and ends on the last day of the 12th full month after the compliance date. The initial compliance demonstration includes the results of emission capture system and add-on control device performance tests conducted according to §§ 63.4360, 63.4361, and 63.4362; results of liquid-liquid material balances conducted according to § 63.4341(e)(5) or (f)(5); calculations according to § 63.4561 and supporting documentation showing that during the initial compliance period the organic HAP emission rate was equal to or less than the applicable emission limit in Table 1 to this subpart; the operating limits established during the performance tests and the results of the continuous parameter monitoring required by § 63.4364; and documentation of whether you developed and implemented the work practice plan required by § 63.4293.

§ 63.4341 How do I demonstrate initial compliance?

(a) You may use the emission rate with add-on controls option for any individual web coating/printing operation, for any group of web coating/printing operations in the affected source, or for all of the web coating/printing operations in the affected source. You may include both controlled and uncontrolled web coating/printing operations in a group for which you use this option. You must use either the compliant material option, the emission rate without add-on controls option, the organic HAP overall control efficiency option, or the oxidizer outlet organic HAP concentration option for any web coating/printing operation in the affected source for which you do not use the emission rate with add-on controls option. To demonstrate initial compliance, any web coating/printing operation for which you use the emission rate with add-on controls option must meet the applicable emission limitations in Table 1 to this subpart, and in §§ 63.4292 and 63.4293. You must meet all the requirements of paragraphs (a), (c), (d), and (e) of this section. When calculating the organic HAP emission rate according to this section, do not include any coating, printing, thinning, or cleaning materials applied on web coating/printing operations for which you use the compliant material option, the emission rate without add-on controls option, the organic HAP overall control efficiency option, or the oxidizer outlet organic HAP concentration option. You do not need to redetermine the mass of organic HAP in coating, printing, thinning, or cleaning materials that have been reclaimed onsite and reused in the web coating/printing operation(s) for which you use the emission rate with add-on control option.

(b) You may use the emission rate with add-on controls option for any individual dyeing/finishing operation, for any group of dyeing/finishing operations in the affected source, or for all of the dyeing/finishing operations in the affected source. You may include both controlled and uncontrolled dyeing/finishing operations in a group for which you use this option. You must use either the compliant material option or the emission rate without add-on controls option for any dyeing/finishing operation in the affected source for which you do not use the emission rate with add-on controls option. You may not use the emission rate with add-on controls option for any dyeing/finishing operation in a dyeing/finishing affected source for which you use the equivalent emission rate option. To demonstrate initial compliance, any dyeing/finishing operation for which you use the emission rate with add-on controls option must meet the applicable emission limitations in Table 1 to this subpart, and in §§ 63.4292 and 63.4293. You must meet all the requirements of paragraphs (b), (c), (d), and (f) this section. When calculating the organic HAP emission rate according to this section, do not include any dyeing or finishing materials applied on dyeing/finishing operations for which you use the compliant material option or the emission rate without add-on controls option. You do not need to redetermine the mass of organic HAP in dyeing or finishing materials that have been reclaimed onsite and reused in the dyeing/finishing operation(s) for which you use the emission rate with add-on controls option.

(c) *Compliance with operating limits.* Except as provided in § 63.4340(a)(4), and except for solvent recovery systems for which you conduct liquid-liquid material balances according to § 63.4341(e)(5) or (f)(5), you must establish and demonstrate continuous compliance during the initial compliance period with the operating limits required by § 63.4292, using the procedures specified in §§ 63.4363 and 63.4364.

(d) *Compliance with work practice requirements.* You must develop, implement, and document your implementation of the work practice plan required by § 63.4293 during the initial compliance period as specified in § 63.4312.

(e) *Compliance with web coating/printing emission limits.* You must follow the procedures in paragraphs (e)(1) through (8) of this section to demonstrate compliance with the applicable web coating/printing emission limit in Table 1 to this subpart.

(1) *Determine the mass fraction of organic HAP, the mass fraction of solids, and mass of materials.* Follow the procedures specified in § 63.4331(a)(1), (2), and (3) to determine the mass fraction of organic HAP for each coating, printing, thinning, and cleaning material applied during the compliance period; the mass fraction of solids for each coating and printing material applied during the compliance period; and mass of each coating, printing, thinning, and cleaning material applied during the compliance period.

(2) *Calculate the mass of organic HAP emissions before add-on controls.* Using Equation 1 of § 63.4331, calculate the mass of organic HAP emissions before add-on controls from all coating, printing, thinning, and cleaning materials applied during the compliance period minus the organic HAP in certain waste materials in the web coating/printing operation or group of web coating/printing operations for which you use the emission rate with add-on controls.

(3) *Calculate the organic HAP emissions reductions for each controlled web coating/printing operation.* Determine the mass of organic HAP emissions reduced for each controlled web coating/printing operation during the compliance period. The emissions reductions determination quantifies the total organic HAP emissions that pass through the emission capture system and are destroyed or removed by the add-on control device. Use the procedures in paragraph (e)(4) of this section to calculate the mass of organic HAP emissions reductions for each controlled web coating/printing operation using an emission capture system and add-on control device other than a solvent recovery system for which you conduct liquid-liquid material balances. For each controlled web coating/printing operation using a solvent recovery system for which you conduct a liquid-liquid material balance, use the procedures in paragraph (e)(5) of this section to calculate the organic HAP emissions reductions.

(4) *Calculate the organic HAP emission reduction for each controlled web coating/printing operation not using liquid-liquid material balance.* For each controlled web coating/printing operation using an emission capture system and add-on control device other than a solvent recovery system for which you conduct liquid-liquid material balances, calculate the organic HAP emissions reductions using Equation 1 of this section. The equation applies the emission capture system efficiency and add-on control device efficiency to the mass of organic HAP contained in the coating,

printing, thinning, and cleaning materials applied in the web coating/printing operation served by the emission capture system and add-on control device during the compliance period. For any period of time a deviation specified in § 63.4342(c) or (d) occurs in the controlled web coating/printing operation, including a deviation during startup, shutdown, or malfunction, then you must assume zero efficiency for the emission capture system and add-on control device. Equation 1 of this section treats the coating, printing, thinning, and cleaning materials applied during such a deviation as if they were used on an uncontrolled web coating/printing operation for the time period of the deviation.

$$H_C = \left(A_I + B_I - H_{UNC}\right)\left(\frac{CE}{100} \times \frac{DRE}{100}\right) \qquad \text{(Eq. 1)}$$

Where:

H_C = Mass of organic HAP emission reduction for the controlled web coating/printing operation during the compliance period, kg.

A_I = Total mass of organic HAP in the coating and printing materials applied in the controlled web coating/printing operation during the compliance period, kg, as calculated in Equation 1A of this section.

B_I = Total mass of organic HAP in the thinning and cleaning materials applied in the controlled web coating/printing operation during the compliance period, kg, as calculated in Equation 1B of this section.

H_{UNC} = Total mass of organic HAP in the coating, printing, thinning, and cleaning materials applied during all deviations specified in § 63.4342(c) and (d) that occurred during the compliance period in the controlled web coating/printing operation, kg, as calculated in Equation 1C of this section.

CE = Capture efficiency of the emission capture system vented to the add-on control device, percent. Use the test methods and procedures specified in §§ 63.4360 and 63.4361 to measure and record capture efficiency.

DRE = Organic HAP destruction or removal efficiency of the add-on control device, percent. Use the test methods and procedures in §§ 63.4360 and 63.4362 to measure and record the organic HAP destruction or removal efficiency.

(i) Calculate the total mass of organic HAP in the coating and printing materials applied in the controlled web coating/printing operation(s) during the compliance period, kg, using Equation 1A of this section:

$$A_I = \sum_{i=1}^{m}\left(M_{c,i}\right)\left(W_{c,i}\right) \qquad \text{(Eq. 1A)}$$

Where:

A_I = Total mass of organic HAP in the coating and printing materials applied in the controlled web coating/printing operation(s) during the compliance period, kg.

$M_{c,i}$ = Mass of coating or printing material, i, applied during the compliance period, kg.

$W_{c,i}$ = Mass fraction of organic HAP in coating or printing material, i, kg per kg.

m = Number of different coating and printing materials applied during compliance period.

(ii) Calculate the total mass of organic HAP in the thinning and cleaning materials applied in the controlled web coating/printing operation(s) during the compliance period, kg, using Equation 1B of this section:

$$B_I = \sum_{j=1}^{n}\left(M_{t,j}\right)\left(W_{t,j}\right) \qquad \text{(Eq. 1B)}$$

Where:

B_I = Total mass of organic HAP in the thinning and cleaning materials applied in the controlled web coating/printing operation(s) during the compliance period, kg.

$M_{t,j}$ = Total mass of thinning or cleaning material, j, applied during the compliance period, kg.

$W_{t,j}$ = Mass fraction of organic HAP in thinning or cleaning material, j, kg per kg.

n = Number of different thinning and cleaning materials applied during the compliance period.

(iii) Calculate the mass of organic HAP in the coating, printing, thinning, and cleaning materials applied in the controlled web coating/printing operation during deviations specified in § 63.4342(c) and (d), using Equation 1C of this section.

$$H_{UNC} = \sum_{h=1}^{q} (M_h)(W_h) \qquad \text{(Eq. 1C)}$$

Where:

H_{UNC} = Total mass of organic HAP in the coating, printing, thinning, and cleaning materials applied during all deviations specified in § 63.4342 (c) and (d) that occurred during the compliance period in the controlled web coating/printing operation, kg.

M_h = Total mass of coating, printing, thinning, or cleaning material, h, applied in the controlled web coating/printing operation during deviations, kg.

W_h = Mass fraction of organic HAP in coating, printing, thinning, or cleaning material, h, kg organic HAP per kg material.

q = Number of different coating, printing, thinning, and cleaning materials applied and used.

(5) *Calculate the organic HAP emissions reductions for controlled web coating/printing operation using liquid-liquid material balances.* For each controlled web coating/printing operation using a solvent recovery system for which you conduct liquid-liquid material balances, calculate the organic HAP emissions reductions by applying the volatile organic matter collection and recovery efficiency to the mass of organic HAP contained in the coating, printing, thinning, and cleaning materials applied in the web coating/printing operation controlled by the solvent recovery system during the compliance period. Perform a liquid-liquid material balance for the compliance period as specified in paragraphs (e)(5)(i) through (v) of this section. Calculate the mass of organic HAP emissions reductions by the solvent recovery system as specified in paragraph (e)(5)(vi) of this section.

(i) For each solvent recovery system, install, calibrate, maintain, and operate according to the manufacturer's specifications, a device that indicates the cumulative amount of volatile organic matter recovered by the solvent recovery system for the compliance period. The device must be initially certified by the manufacturer to be accurate to within ±2.0 percent of the mass of volatile organic matter recovered.

(ii) For each solvent recovery system, determine the mass of volatile organic matter recovered for the compliance period, kg, based on measurement with the device required in paragraph (e)(5)(i) of this section.

(iii) Determine the mass fraction of volatile organic matter for each coating, printing, cleaning, and thinning material applied in the web coating/printing operation controlled by the solvent recovery system during the compliance period, kg volatile organic matter per kg coating, printing, cleaning, and thinning material. You may determine the volatile organic matter mass fraction using Method 24 of 40 CFR part 60, appendix A, or an EPA approved alternative method, or you may use information provided by the manufacturer or supplier of the coating or printing material. In the event of any inconsistency between information provided by the manufacturer or supplier and the results of Method 24 of 40 CFR part 60, appendix A, or an approved alternative method, the test method results will govern.

(iv) Measure the mass of each coating, printing, thinning, and cleaning material applied in the web coating/printing operation controlled by the solvent recovery system during the compliance period, kg.

(v) For the compliance period, calculate the solvent recovery system's volatile organic matter collection and recovery efficiency using Equation 2 of this section:

$$R_V = 100 \frac{M_{VR}}{\sum_{i=1}^{m} M_i WV_{c,i} + \sum_{j=1}^{n} M_j WV_{t,j}} \qquad \text{(Eq. 2)}$$

Where:

R_V = Volatile organic matter collection and recovery efficiency of the solvent recovery system during the compliance period, percent.

M_{VR} = Mass of volatile organic matter recovered by the solvent recovery system during the compliance period, kg.

M_i = Mass of coating or printing material, i, applied in the web coating/printing operation controlled by the solvent recovery system during the compliance period, kg.

$WV_{c,i}$ = Mass fraction of volatile organic matter for coating or printing material, i, kg volatile organic matter per kg coating or printing material.

M_j = Mass of thinning or cleaning material, j, applied in the web coating/printing operation controlled by the solvent recovery system during the compliance period, kg.

$WV_{t,j}$ = Mass fraction of volatile organic matter for thinning or cleaning material, j, kg volatile organic matter per kg thinning or cleaning material.

m = Number of different coating and printing materials applied in the web coating/printing operation controlled by the solvent recovery system during the compliance period.

n = Number of different thinning and cleaning materials applied in the web coating/printing operation controlled by the solvent recovery system during the compliance period.

(vi) Calculate the mass of organic HAP emission reductions for the web coating/printing operation controlled by the solvent recovery system during the compliance period using Equation 3 of this section and according to paragraphs (e)(5)(vi)(A) and (B) of this section:

$$H_{CSR} = \left(A_{CSR} + B_{CSR}\right)\left(\frac{R_V}{100}\right) \qquad \text{(Eq. 3)}$$

Where:

H_{CSR} = Mass of organic HAP emission reduction for the web coating/printing operation controlled by the solvent recovery system during the compliance period, kg.

A_{CSR} = Total mass of organic HAP in the coating and printing material applied in the web coating/printing operation controlled by the solvent recovery system during the compliance period, kg, calculated using Equation 3A of this section.

B_{CSR} = Total mass of organic HAP in the thinning and cleaning materials applied in the web coating/printing operation controlled by the solvent recovery system during the compliance period, kg, calculated using Equation 3B of this section.

R_V = Volatile organic matter collection and recovery efficiency of the solvent recovery system, percent, from Equation 2 of this section.

(A) Calculate the total mass of organic HAP in the coating and printing materials applied in the web coating/printing operation(s) controlled by the solvent recovery system during the compliance period, kg, using Equation 3A of this section:

$$A_{CSR} = \sum_{i=1}^{m} \left(M_{c,i}\right)\left(W_{c,i}\right) \qquad \text{(Eq. 3A)}$$

Where:

A_{CSR} = Total mass of organic HAP in the coating and printing materials applied in the web coating/printing operations(s) controlled by the solvent recovery system during the compliance period, kg.

$M_{c,i}$ = Mass of coating or printing material, i, applied during the compliance period in the web coating/printing operation(s) controlled by the solvent recovery system, kg.

$W_{c,i}$ = Mass fraction of organic HAP in coating or printing material, i, kg per kg.

m = Number of different coating and printing materials applied during compliance period.

(B) Calculate the total mass of organic HAP in the thinning and cleaning materials applied in the web coating/printing operation(s) controlled by the solvent recovery system during the compliance period, kg, using Equation 3B of this section:

$$B_{CSR} = \sum_{j=1}^{n} \left(M_{t,j}\right)\left(W_{t,j}\right) \qquad \text{(Eq. 3B)}$$

Where:

B_{CSR} = Total mass of organic HAP in the thinning and cleaning materials applied in the web coating/printing operation(s) controlled by the solvent recovery system during the compliance period, kg.

$M_{t,j}$ = Total mass of thinning or cleaning material, j, applied during the compliance period in the web coating/printing operation(s) controlled by the solvent recovery system, kg.

$W_{t,j}$ = Mass fraction of organic HAP in thinning or cleaning material, j, kg per kg.

n = Number of different thinning and cleaning materials applied during the compliance period.

(6) *Calculate the total mass of coating and printing solids.* Determine the total mass of coating and printing solids applied, kg, which is the combined mass of the solids contained in all the coating and printing material applied during the compliance period in the web coating/printing operation(s) for which you use the emission rate with add-on controls option, using Equation 2 of §63.4331.

(7) *Calculate the organic HAP emission rate with add-on controls for the compliance period.* Determine the organic HAP emission rate with add-on controls for the compliance period, kg organic HAP emitted per kg solids applied during the compliance period, using Equation 4 of this section.

$$H_{HAP} = \frac{H_e - \sum_{i=1}^{q}\left(H_{C,i}\right) - \sum_{j=i}^{r}\left(H_{CSR,j}\right)}{H_t} \qquad \text{(Eq. 4)}$$

Where:

H_{HAP} = Organic HAP emission rate with add-on controls for the compliance period, kg organic HAP emitted per kg solids applied.

H_e = Total mass of organic HAP emissions before add-on controls from all the coating, printing, thinning, and cleaning materials applied during the compliance period, kg, determined according to paragraph (e)(2) of this section.

$H_{C,i}$ = Total mass of organic HAP emissions reduction for controlled web coating/printing operation, i, not using a liquid-liquid material balance, during the compliance period, kg, from Equation 1 of this section.

$H_{CSR,j}$ = Total mass of organic HAP emissions reduction for web coating/printing operation, j, controlled by a solvent recovery system using a liquid-liquid material balance, during the compliance period, kg, from Equation 3 of this section.

H_t = Total mass of coating and printing solids applied during the compliance period, kg, from Equation 2 of §63.4331.

q = Number of controlled web coating/printing operations not using a liquid-liquid material balance.

r = Number of web coating/printing operations controlled by a solvent recovery system using a liquid-liquid material balance.

(8) *Compliance demonstration.* To demonstrate initial compliance with the emission limit, the organic HAP emission rate with add-on controls for the compliance period, calculated using Equation 4 of this section, must be less than or equal to the applicable emission limit in Table 1 to this subpart.

You must keep all records as required by §§ 63.4312 and 63.4313. As part of the Notification of Compliance Status required by § 63.4310, you must identify the web coating/printing operation(s) for which you used the emission rate with add-on controls option and submit a statement that the web coating/printing operation(s) was (were) in compliance with the emission limitations during the initial compliance period because the organic HAP emission rate was less than or equal to the applicable emission limit in Table 1 to this subpart, and that you achieved the operating limits required by § 63.4292 and the work practice standards required by § 63.4293.

(f) *Compliance with dyeing/finishing emission limits.* You must follow the procedures in paragraphs (f)(1) through (8) of this section to demonstrate compliance with the applicable dyeing/finishing emission limit in Table 1 to this subpart.

(1) *Determine the mass fraction of organic HAP and mass of materials.* Follow the procedures specified in § 63.4331(b)(1) and (2) to determine the mass fraction of organic HAP for each dyeing and finishing material applied and mass of each dyeing and finishing material applied during the compliance period.

(2) *Calculate the mass of organic HAP emissions before add-on controls.* Using Equation 4 of § 63.4331, calculate the mass of organic HAP emissions before add-on controls from all dyeing and finishing materials applied during the compliance period minus the organic HAP in certain waste materials and wastewaters in the dyeing/finishing operation or group of dyeing/finishing operations for which you use the emission rate with add-on controls option.

(3) *Calculate the organic HAP emissions reductions for each controlled dyeing/finishing operation.* Determine the mass of organic HAP emissions reduced for each controlled dyeing/finishing operation during the compliance period. The emissions reductions determination quantifies the total organic HAP emissions that pass through the emission capture system and are destroyed or removed by the add-on control device. Use the procedures in paragraph (f)(4) of this section to calculate the mass of organic HAP emissions reductions for each controlled dyeing/finishing operation using an emission capture system and add-on control device other than a solvent recovery system for which you conduct liquid-liquid material balances. For each controlled dyeing/finishing operation using a solvent recovery system for which you conduct a liquid-liquid material balance, use the procedures in paragraph (f)(5) of this section to calculate the organic HAP emissions reductions.

(4) *Calculate the organic HAP emission reduction for each controlled dyeing/finishing operation not using liquid-liquid material balance.* For each controlled dyeing/finishing operation using an emission capture system and add-on control device other than a solvent recovery system for which you conduct liquid-liquid material balances, calculate the organic HAP emissions reductions using Equation 5 of this section. The equation applies the emission capture system efficiency and add-on control device efficiency to the mass of organic HAP contained in the dyeing and finishing materials applied in the dyeing/finishing operation served by the emission capture system and add-on control device during the compliance period. For any period of time a deviation specified in § 63.4342(c) or (d) occurs in the controlled dyeing/finishing operation, including a deviation during startup, shutdown, or malfunction, then you must assume zero efficiency for the emission capture system and add-on control device. Equation 5 of this section treats the dyeing and finishing materials applied during such a deviation as if they were applied on an uncontrolled dyeing/finishing operation for the time period of the deviation.

$$H_C = \left(A_I - H_{UNC}\right)\left(\frac{CE}{100} \times \frac{DRE}{100}\right) \quad \text{(Eq. 5)}$$

Where:

H_C = Mass of organic HAP emission reduction for the controlled dyeing/finishing operation during the compliance period, kg.

A_I = Total mass of organic HAP in the dyeing and finishing materials applied in the controlled dyeing/finishing operation during the compliance period, kg, as calculated in Equation 5A of this section.

H_{UNC} = Total mass of organic HAP in the dyeing and finishing materials applied during all deviations specified in § 63.4342(c) and (d) that occurred during the compliance period in the controlled dyeing/finishing operation, kg, as calculated in Equation 5B of this section.

CE = Capture efficiency of the emission capture system vented to the add-on control device, percent. Use the test methods and procedures specified in §§ 63.4360 and 63.4361 to measure and record capture efficiency.

DRE = Organic HAP destruction or removal efficiency of the add-on control device, percent. Use the test methods and procedures in §§ 63.4360 and 63.4362 to measure and record the organic HAP destruction or removal efficiency.

(i) Calculate the total mass of organic HAP in the dyeing and finishing materials applied in the controlled dyeing/finishing operation(s) during the compliance period, kg, using Equation 5A of this section:

$$A_I = \sum_{i=1}^{m} \left(M_{c,i}\right)\left(W_{c,i}\right) \qquad \text{(Eq. 5A)}$$

Where:

A_I = Total mass of organic HAP in the dyeing and finishing materials applied in the controlled dyeing/finishing operations(s) during the compliance period, kg.

$M_{c,i}$ = Mass of dyeing or finishing material, i, applied during the compliance period, kg.

$W_{c,i}$ = Mass fraction of organic HAP in dyeing or finishing material, i, kg per kg.

m = Number of different dyeing and finishing materials applied during compliance period.

(ii) Calculate the mass of organic HAP in the dyeing and finishing materials applied in the controlled dyeing/finishing operation during deviations specified in § 63.4342(c) and (d), using Equation 5B of this section.

$$H_{UNC} = \sum_{h=1}^{q} \left(M_h\right)\left(W_h\right) \qquad \text{(Eq. 5B)}$$

Where:

H_{UNC} = Total mass of organic HAP in the dyeing and finishing materials applied during all deviations specified in § 63.4342(c) and (d) that occurred during the compliance period in the controlled dyeing/finishing operation, kg.

M_h = Total mass of dyeing and finishing material, h, applied in the controlled dyeing/finishing operation during deviations, kg.

W_h = Mass fraction of organic HAP in dyeing or finishing material, h, kg organic HAP per kg material.

q = Number of different dyeing and finishing materials applied.

(5) *Calculate the organic HAP emissions reductions for controlled dyeing/finishing operation using liquid-liquid material balances.* For each controlled dyeing/finishing operation using a solvent recovery system for which you conduct liquid-liquid material balances, calculate the organic HAP emissions reductions by applying the volatile organic matter collection and recovery efficiency to the mass of organic HAP contained in the dyeing and finishing materials applied in the dyeing/finishing operation controlled by the solvent recovery system during the compliance period. Perform a liquid-liquid material balance for the compliance period as specified in paragraphs (f)(5)(i) through (v) of this section. Calculate the mass of organic HAP emissions reductions by the solvent recovery system as specified in paragraph (f)(5)(vi) of this section.

(i) For each solvent recovery system, install, calibrate, maintain, and operate according to the manufacturer's specifications, a device that indicates the cumulative amount of volatile organic matter recovered by the solvent recovery system for the compliance period. The device must be initially certified by the manufacturer to be accurate to within ±2.0 percent of the mass of volatile organic matter recovered.

(ii) For each solvent recovery system, determine the mass of volatile organic matter recovered for the compliance period, kg, based on measurement with the device required in paragraph (f)(5)(i) of this section.

(iii) Determine the mass fraction of volatile organic matter for each dyeing and finishing material applied in the dyeing/finishing operation controlled by the solvent recovery system during the compliance period, kg volatile organic matter per kg dyeing and finishing material. You may determine the volatile organic matter mass fraction using information provided by the manufacturer or supplier of the dyeing or finishing material.

(iv) Measure the mass of each dyeing and finishing material applied in the dyeing/finishing operation controlled by the solvent recovery system during the compliance period, kg.

(v) For the compliance period, calculate the solvent recovery system's volatile organic matter collection and recovery efficiency using Equation 6 of this section:

$$R_V = 100\frac{M_{VR}}{\sum_{i=1}^{m} M_i WV_{c,i}} \qquad \text{(Eq. 6)}$$

Where:

R_V = Volatile organic matter collection and recovery efficiency of the solvent recovery system during the compliance period, percent.

M_{VR} = Mass of volatile organic matter recovered by the solvent recovery system during the compliance period, kg.

M_i = Mass of dyeing or finishing material, i, applied in the dyeing/finishing operation controlled by the solvent recovery system during the compliance period, kg.

$WV_{c,i}$ = Mass fraction of volatile organic matter for dyeing or finishing material, i, kg volatile organic matter per kg dyeing or finishing material.

m = Number of different dyeing and finishing materials applied in the dyeing/finishing operation controlled by the solvent recovery system during the compliance period.

(vi) Calculate the mass of organic HAP emission reductions for the dyeing/finishing operation controlled by the solvent recovery system during the compliance period using Equation 7 of this section and according to paragraph (f)(5)(vi)(A) of this section:

$$H_{CSR} = \left(A_{CSR}\right)\left(\frac{R_V}{100}\right) \qquad \text{(Eq. 7)}$$

Where:

H_{CSR} = Mass of organic HAP emission reduction for the dyeing/finishing operation controlled by the solvent recovery system during the compliance period, kg.

A_{CSR} = Total mass of organic HAP in the dyeing and finishing material applied in the dyeing/finishing operation controlled by the solvent recovery system during the compliance period, kg, calculated using Equation 7A of this section.

R_V = Volatile organic matter collection and recovery efficiency of the solvent recovery system, percent, from Equation 6 of this section.

(A) Calculate the total mass of organic HAP in the dyeing and finishing materials applied in the dyeing/finishing operation(s) controlled by the solvent recovery system during the compliance period, kg, using Equation 7A of this section:

$$A_{CSR} = \sum_{i=1}^{m}\left(M_{c,i}\right)\left(W_{c,i}\right) \qquad \text{(Eq. 7A)}$$

Where:

A_{CSR} = Total mass of organic HAP in the dyeing and finishing materials applied in the dyeing/finishing operations(s) controlled by the solvent recovery system during the compliance period, kg.

$M_{c,i}$ = Mass of dyeing or finishing material, i, applied during the compliance period in the dyeing/finishing operation(s) controlled by the solvent recovery system, kg.

$W_{c,i}$ = Mass fraction of organic HAP in dyeing or finishing material, i, kg per kg.

m = Number of different dyeing and finishing materials applied during compliance period.

(6) *Calculate the total mass of dyeing and finishing materials.* Determine the total mass of dyeing and finishing materials applied, kg, which is the combined mass of all the dyeing and finishing materials applied during the

compliance period in the dyeing/finishing operation(s) for which you use the emission rate with add-on controls option, using Equation 5 of §63.4331.

(7) *Calculate the organic HAP emission rate with add-on controls for the compliance period.* Determine the organic HAP emission rate with add-on controls for the compliance period, kg organic HAP emitted per kg dyeing and finishing materials applied during the compliance period, using Equation 8 of this section.

$$H_{HAP} = \frac{H_e - \sum_{i=1}^{q}\left(H_{C,i}\right) - \sum_{j=1}^{r}\left(H_{CSR,j}\right)}{M_t} \qquad \text{(Eq. 8)}$$

Where:

H_{HAP} = Organic HAP emission rate with add-on controls for the compliance period, kg organic HAP emitted per kg dyeing and finishing materials applied.

H_e = Total mass of organic HAP emissions before add-on controls from all the dyeing and finishing materials applied during the compliance period, kg, determined according to paragraph (f)(2) of this section.

$H_{C,i}$ = Total mass of organic HAP emissions reductions for controlled dyeing/finishing operation, i, not using a liquid-liquid material balance, during the compliance period, kg, from Equation 5 of this section.

$H_{CSR,j}$ = Total mass of organic HAP emissions reductions for dyeing/finishing operation, j, controlled by a solvent recovery system using a liquid-liquid material balance, during the compliance period, kg, from Equation 7 of this section.

M_t = Total mass of dyeing and finishing materials applied during the compliance period, kg, from Equation 5 of §63.4331.

q = Number of controlled dyeing/finishing operations not using a liquid-liquid material balance.

r = Number of dyeing/finishing operations controlled by a solvent recovery system using a liquid-liquid material balance.

(8) *Compliance demonstration.* To demonstrate initial compliance with the emission limit, the organic HAP emission rate with add-on controls for the compliance period, calculated using Equation 8 of this section, must be less than or equal to the applicable emission limit in Table 1 to this subpart. You must keep all records as required by §§63.4312 and 63.4313. As part of the Notification of Compliance Status required by §63.4310, you must identify the dyeing/finishing operation(s) for which you used the emission rate with add-on controls option and submit a statement that the dyeing/finishing operation(s) was (were) in compliance with the emission limitations during the initial compliance period because the organic HAP emission rate was less than or equal to the applicable emission limit in Table 1 to this subpart, and that you achieved the operating limits required by §63.4292 and the work practice standards required by §63.4293.

§63.4342 How do I demonstrate continuous compliance with the emission limitations?

(a) To demonstrate continuous compliance with the applicable emission limit in Table 1 to this subpart, the organic HAP emission rate for each compliance period, determined according to §63.4341(e) for web coating/printing operations and according to §63.4341(f) for dyeing/finishing operations, must be equal to or less than the applicable emission limit in Table 1 to this subpart. Each month following the initial compliance period described in §63.4340 is a compliance period consisting of that month and the preceding 11 months. You must perform the calculations in §63.4341 on a monthly basis.

(b) If the organic HAP emission rate with add-on controls for any compliance period exceeded the applicable emission limit in Table 1 to this subpart, this is a deviation from the emission limitation for that compliance period and must be reported as specified in §§ 63.4310(c)(6) and 63.4311(a)(7).

(c) You must demonstrate continuous compliance with each operating limit required by § 63.4292 that applies to you, as specified in Table 2 to this subpart.

(1) If an operating parameter is out of the allowed range specified in Table 2 to this subpart, this is a deviation from the operating limit that must be reported as specified in §§ 63.4310(c)(6) and 63.4311(a)(7).

(2) If an operating parameter deviates from the operating limit specified in Table 2 to this subpart, then you must assume that the emission capture system and add-on control device were achieving zero efficiency during the time period of the deviation. For the purposes of completing the compliance calculations specified in § 63.4341 (e)(4) and (f)(4), you must treat the regulated materials applied during a deviation on a controlled coating/printing or dyeing/finishing operation as if they were applied on an uncontrolled coating/printing or dyeing/finishing operation for the time period of the deviation, as indicated in Equation 1 of § 63.4341 for a web coating/printing operation, and in Equation 5 of § 63.4341 for a dyeing/finishing operation.

(d) You must meet the requirements for bypass lines in § 63.4364(b) for controlled coating/printing or dyeing/finishing operations for which you do not conduct liquid-liquid material balances. If any bypass line is opened and emissions are diverted to the atmosphere when the web coating/printing or dyeing/finishing operation is running, this is a deviation that must be reported as specified in §§ 63.4310(c)(6) and 63.4311(a)(7). For the purposes of completing the compliance calculations specified in § 63.4341(e)(4), you must treat the coating, printing, thinning, and cleaning materials applied during a deviation on a controlled web coating/printing operation as if they were used on an uncontrolled web coating/printing operation for the time period of the deviation, as indicated in Equation 1 of § 63.4341. For the purposes of completing the compliance calculations specified in § 63.4341(f)(4), you must treat the dyeing and finishing materials applied during a deviation on a controlled dyeing/finishing operation as if they were used on an uncontrolled dyeing/finishing operation for the time period of the deviation, as indicated in Equation 5 of § 63.4341.

(e) You must demonstrate continuous compliance with the work practice standards in § 63.4293. If you did not develop a work practice plan, or you did not implement the plan, or you did not keep the records required by § 63.4312(j)(8), this is a deviation from the work practice standards that must be reported as specified in §§ 63.4310(c)(6) and 63.4311(a)(7).

(f) As part of each semiannual compliance report required in § 63.4311, you must identify the coating/printing and dyeing/finishing operation(s) for which you use the emission rate with add-on controls option. If there were no deviations from the applicable emission limit in Table 1 to this subpart, you must submit a statement that, as appropriate, the web coating/printing operations or the dyeing/finishing operations were in compliance with the emission limitations during the reporting period because the organic HAP emission rate for each compliance period was less than or equal to the applicable emission limit in Table 1 to this subpart, and you achieved the operating limits required by § 63.4292 and the work practice standards required by § 63.4293 during each compliance period.

(g) During periods of startup, shutdown, or malfunction of the emission capture system, add-on control device, or web coating/printing or dyeing/finishing operation that may affect emission capture or control device efficiency, you must operate in accordance with the startup, shutdown, and malfunction plan required by § 63.4300(c).

(h) Consistent with §§ 63.6(e) and 63.7(e)(1), deviations that occur during a period of startup, shutdown, or malfunction of the emission capture system, add-on control device, or web coating/printing or dyeing/finishing operation that may affect emission capture or control device efficiency are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with the startup, shutdown, and malfunction plan. The Administrator will determine whether deviations that occur during a period of startup, shutdown, or malfunction are violations according to the provisions in § 63.6(e).

(i) [Reserved]

(j) You must maintain records as specified in §§ 63.4312 and 63.4313.

COMPLIANCE REQUIREMENTS FOR THE ORGANIC HAP OVERALL CONTROL EFFICIENCY AND OXIDIZER OUTLET ORGANIC HAP CONCENTRATION OPTIONS

§ 63.4350 By what date must I conduct performance tests and other initial compliance demonstrations?

(a) *New and reconstructed affected sources.* For a new or reconstructed affected source, you must meet the requirements of paragraphs (a)(1) through (4) of this section.

(1) All emission capture systems, add-on control devices, and CPMS must be installed and operating no later than the applicable compliance date specified in § 63.4283. Except for solvent recovery systems for which you conduct liquid-liquid material balances according to § 63.4351(d)(5), you must conduct a performance test of each capture system and add-on control device according to the procedures in §§ 63.4360, 63.4361, and 63.4362, and establish the operating limits required by § 63.4292, within 180 days of the applicable compliance date specified in § 63.4283. For a solvent recovery system for which you conduct liquid-liquid material balances according to § 63.4351(d)(5), you must initiate the first material balance no later than the applicable compliance date specified in § 63.4283.

(2) You must develop and begin implementing the work practice plan required by § 63.4293 no later than the compliance date specified in § 63.4283.

(3) You must complete the compliance demonstration for the initial compliance period according to the requirements of § 63.4351. The initial compliance period begins on the applicable compliance date specified in § 63.4283 and ends on the last day of the first full month after the compliance date, or the date you conduct the performance tests of the emission capture systems and add-on control devices, or initiate the first liquid-liquid material balance for a solvent recovery system, whichever is later. The initial compliance demonstration includes the results of emission capture system and add-on control device performance tests conducted according to §§ 63.4360, 63.4361, and 63.4362; results of liquid-liquid material balances conducted according to § 63.4351(d)(5); calculations according to § 63.4351 and supporting documentation showing that during the initial compliance period either the organic HAP overall control efficiency was equal to or greater than the applicable overall control efficiency limit in Table 1 to this subpart or the oxidizer outlet organic HAP concentration was no greater than 20 parts per million by weight (ppmw) on a dry basis; the operating limits established during the performance tests and the results of the continuous parameter monitoring required by § 63.4364; and documentation of whether you developed and implemented the work practice plan required by § 63.4293.

(4) You do not need to comply with the operating limits for the emission capture system and add-on control device required by § 63.4292 until after you have completed the performance tests specified in paragraph (a)(1) of this section. Instead, you must maintain a log detailing the operation and maintenance of the emission capture system, add-on control device, and continuous parameter monitors during the period between the compliance date and the performance test. You must begin complying with the operating limits for your affected source on the date you complete the performance tests specified in paragraph (a)(1) of this section. This requirement does not apply to solvent recovery systems for which you conduct liquid-liquid material balances according to the requirements of § 63.4351(d)(5).

(b) *Existing sources.* For an existing affected source, you must meet the requirements of paragraphs (b)(1) through (3) of this section.

(1) All emission capture systems, add-on control devices, and CPMS must be installed and operating no later

than the applicable compliance date specified in § 63.4283. Except for solvent recovery systems for which you conduct liquid-liquid material balances according to § 63.4351(d)(5), you must conduct a performance test of each capture system and add-on control device according to the procedures in §§ 63.4360, 63.4361, and 63.4362, and establish the operating limits required by § 63.4292, within 180 days of the compliance date specified in § 63.4283. For a solvent recovery system for which you conduct liquid-liquid material balances according to § 63.4351(d)(5), you must initiate the first material balance no later than the compliance date specified in § 63.4283.

(2) You must develop and begin implementing the work practice plan required by § 63.4293 no later than the compliance date specified in § 63.4283.

(3) You must complete the compliance demonstration for the initial compliance period according to the requirements of § 63.4351. The initial compliance period begins on the applicable compliance date specified in § 63.4283 and ends on the last day of the first full month after the compliance date. The initial compliance demonstration includes the results of emission capture system and add-on control device performance tests conducted according to §§ 63.4360, 63.4361, and 63.4362; results of liquid-liquid material balances conducted according to § 63.4351(d)(5); calculations according to § 63.4351 and supporting documentation showing that during the initial compliance period the organic HAP overall control efficiency was equal to or greater than the applicable organic HAP overall control efficiency limit in Table 1 to this subpart or the oxidizer outlet organic HAP concentration was no greater than 20 ppmw on a dry basis and the efficiency of the capture system was 100 percent; the operating limits established during the performance tests and the results of the continuous parameter monitoring required by § 63.4364; and documentation of whether you developed and implemented the work practice plan required by § 63.4293.

§ 63.4351 How do I demonstrate initial compliance?

(a) You may use the organic HAP overall control efficiency option or the oxidizer outlet organic HAP concentration option for any individual web coating/printing operation, for any group of web coating/printing operations in the affected source, or for all of the web coating/printing operations in the affected source. You may include both controlled and uncontrolled web coating/printing operations in a group for which you use the organic HAP overall control efficiency option. You must use either the compliant material option, the emission rate without add-on controls option, or the emission rate with add-on controls option for any web coating/printing operation(s) in the affected source for which you do not use either the organic HAP overall control efficiency option or the oxidizer outlet organic HAP concentration option. To demonstrate initial compliance, any web coating/printing operation for which you use the organic HAP overall control efficiency option must meet the applicable organic HAP overall control efficiency limitations in Table 1 to this subpart according to the procedures in paragraph (d) of this section. Any web coating/printing operation for which you use the oxidizer outlet organic HAP concentration option must meet the 20 ppmw on a dry basis limit and achieve 100 percent capture efficiencies according to the procedures in paragraph (e) of this section. To demonstrate initial compliance with either option, you also must meet the applicable operating limits in § 63.4292 according to the procedures in paragraph (b) of this section and the work practice standards in § 63.4293 according to the procedures in paragraph (c) of this section. When calculating the organic HAP overall control efficiency according to this section, do not include any coating, printing, thinning, or cleaning materials applied on web coating/printing operations for which you use the compliant material option, the emission rate without add-on controls option, the emission rate with add-on controls option, or the oxidizer outlet organic HAP concentration option. You do not need to redetermine the mass of organic HAP in coating, printing, thinning, or cleaning materials that have been reclaimed onsite and reused in web coating/printing operation(s) for which you use the organic HAP overall control efficiency option.

(b) *Compliance with operating limits.* Except as provided in § 63.4350(a)(4), and except for solvent recovery systems for which you conduct liquid-liquid material balances according to § 63.4351(d)(5), you must establish and demonstrate continuous compliance during the initial compliance period with the operating limits required by § 63.4292, using the procedures specified in §§ 63.4363 and 63.4364.

(c) *Compliance with work practice requirements.* You must develop, implement, and document your implementation of the work practice plan required by § 63.4293 during the initial compliance period as specified in § 63.4312.

(d) *Compliance with organic HAP overall control efficiency limits.* You must follow the procedures in paragraphs (d)(1) through (7) of this section to demonstrate compliance with the applicable organic HAP overall control efficiency limit in Table 1 to this subpart.

(1) *Determine the mass fraction of organic HAP and mass of coating or printing materials.* Follow the procedures specified in § 63.4331(a)(1) and (3) to determine the mass fraction of organic HAP and mass of each coating, printing, thinning, and cleaning material applied during the compliance period.

(2) *Calculate the total mass of organic HAP emissions before add-on controls.* Using Equation 1 of § 63.4331, calculate the total mass of organic HAP emissions before add-on controls from all coating, printing, thinning, and cleaning materials applied during the compliance period minus the organic HAP in certain waste materials in the web coating/printing operation or group of web coating/printing operations for which you use the organic HAP overall control efficiency option.

(3) *Calculate the organic HAP emissions reductions for each controlled web coating/printing operation.* Determine the mass of organic HAP emissions reduced for each controlled web coating/printing operation during the compliance period. The emissions reductions determination quantifies the total organic HAP emissions that pass through the emission capture system and are destroyed or removed by the add-on control device. Use the procedures in paragraph (d)(4) of this section to calculate the mass of organic HAP emissions reductions for each controlled web coating/printing operation using an emission capture system and add-on control device other than a solvent recovery system for which you conduct liquid-liquid material balances. For each controlled web coating/printing operation using a solvent recovery system for which you conduct a liquid-liquid material balance, use the procedures in paragraph (d)(5) of this section to calculate the organic HAP emissions reductions.

(4) *Calculate the organic HAP emissions reductions for controlled web coating/printing operations not using liquid-liquid material balance.* For each controlled web coating/printing operation using an emission capture system and add-on control device other than a solvent recovery system for which you conduct liquid-liquid material balances, calculate the organic HAP emissions reductions using Equation 1 of § 63.4341. The equation applies the emission capture system efficiency and add-on control device efficiency to the mass of organic HAP contained in the coating, printing, thinning, and cleaning materials applied in the web coating/printing operation served by the emission capture system and add-on control device during the compliance period. For any period of time a deviation specified in § 63.4352(c) or (d) occurs in the controlled web coating/printing operation, including a deviation during startup, shutdown, or malfunction, then you must assume zero efficiency for the emission capture system and add-on control device. Equation 1 of § 63.4341 treats the coating, printing, thinning, and cleaning materials applied during such a deviation as if they were applied on an uncontrolled web coating/printing operation for the time period of the deviation.

(i) Calculate the total mass of organic HAP in the coating and printing material(s) applied in the controlled web coating/printing operation during the compliance period, kg, using Equation 1A of § 63.4341.

(ii) Calculate the total mass of organic HAP in the thinning and cleaning materials applied in the controlled web coating/printing operation(s) during the compliance period, kg, using Equation 1B of § 63.4341.

(iii) Calculate the mass of organic HAP in the coating, printing, thinning, and cleaning materials applied in the controlled web coating/printing operation during deviations specified in § 63.4352(c) and (d), using Equation 1C of § 63.4341.

(5) *Calculate the organic HAP emissions reductions for controlled web coating/printing operations using liquid-liquid material balance.* For each controlled web coating/printing operation using a solvent recovery system for which you conduct liquid-liquid material balances, calculate the organic HAP emissions reductions by applying the volatile organic matter collection and recovery efficiency to the mass of organic HAP contained in the coating, printing, thinning, and cleaning materials applied in the web coating/printing operation controlled by the solvent recovery system during the compliance period. Perform a liquid-liquid material balance for the compliance period as specified in paragraphs (d)(5)(i) through (vi) of this section.

(i) For each solvent recovery system, install, calibrate, maintain, and operate according to the manufacturer's specifications, a device that indicates the cumulative amount of volatile organic matter recovered by the solvent recovery system for the compliance period. The device must be initially certified by the manufacturer to be accurate to within ±2.0 percent of the mass of volatile organic matter recovered.

(ii) For each solvent recovery system, determine the mass of volatile organic matter recovered for the compliance period, kg, based on measurement with the device required in paragraph (d)(5)(i) of this section.

(iii) Determine the mass fraction of volatile organic matter for each coating and printing material applied in the web coating/printing operation controlled by the solvent recovery system during the compliance period, kg volatile organic matter per kg coating and printing material. You may determine the volatile organic matter mass fraction using Method 24 of 40 CFR part 60, appendix A, or an EPA approved alternative method, or you may use information provided by the manufacturer or supplier of the coating or printing material. In the event of any inconsistency between information provided by the manufacturer or supplier and the results of Method 24 of 40 CFR part 60, appendix A, or an approved alternative method, the test method results will govern.

(iv) Measure the mass of each coating, printing, thinning, and cleaning material applied in the web coating/printing operation controlled by the solvent recovery system during the compliance period, kg.

(v) For the compliance period, calculate the solvent recovery system's volatile organic matter collection and recovery efficiency using Equation 2 of § 63.4341.

(vi) Calculate the mass of organic HAP emissions reductions for the web coating/printing operation controlled by the solvent recovery system during the compliance period, using Equation 3 of § 63.4341.

(6) *Calculate the organic HAP overall control efficiency.* Determine the organic HAP overall control efficiency, kg organic HAP emissions reductions per kg organic HAP emissions before add-on controls during the compliance period, using Equation 1 of this section.

$$E_{HAP} = \frac{\sum_{i=1}^{q}\left(H_{C,i}\right) + \sum_{j=1}^{r}\left(H_{CSR,j}\right)}{H_e} \times 100 \qquad \text{(Eq. 1)}$$

Where:

E_{HAP} = Organic HAP overall control efficiency for the compliance period, kg organic HAP emissions reductions per kg organic HAP emissions before add-on controls during the compliance period.

$H_{C,i}$ = Total mass of organic HAP emissions reductions for controlled web coating/printing operation, i, during the compliance period, kg, from Equation 1 of §63.4341.

$H_{CSR,j}$ = Total mass of organic HAP emissions reductions for controlled web coating/printing operation, j, during the compliance period, kg, from Equation 3 of §63.4341.

H_e = Total mass of organic HAP emissions before add-on controls from all the coating, printing, thinning, and cleaning materials applied during the compliance period, kg, determined according to paragraph (d)(2) of this section.

q = Number of controlled web coating/printing operations except those controlled with a solvent recovery system.

r = Number of web coating/printing operations controlled with a solvent recovery system.

(7) *Compliance demonstration.* To demonstrate initial compliance with the organic HAP overall control efficiency in Table 1 to this subpart, the organic HAP overall control efficiency calculated using Equation 1 of this section must be at least 98 percent for new or reconstructed affected sources and at least 97 percent for existing affected sources. You must keep all records as required by §§63.4312 and 63.4313. As part of the Notification of Compliance Status required by §63.4310, you must identify the web coating/printing operation(s) for which you used the organic HAP overall control efficiency option and submit a statement that the web coating/printing operation(s) was (were) in compliance with the emission limitations during the initial compliance period because the organic HAP overall control efficiency was greater than or equal to the applicable organic HAP overall control efficiency in Table 1 to this subpart, and you achieved the operating limits required by §63.4292 and the work practice standards required by §63.4293.

(e) *Compliance with oxidizer outlet organic HAP concentration limit.* You must follow the procedures in paragraphs (e)(1) through (3) of this section to demonstrate compliance with the oxidizer outlet organic HAP concentration limit of no greater than 20 ppmw on a dry basis.

(1) *Install and operate a PTE.* Install and operate a PTE around each work station and associated drying or curing oven in the web coating/printing operation. An enclosure that meets the requirements in §63.4361(a) is considered a PTE. Route all organic HAP emissions from each PTE to an oxidizer.

(2) *Determine oxidizer outlet organic HAP concentration.* Determine oxidizer outlet organic HAP concentration through performance tests using the procedures in §63.4362(a) and (b).

(3) *Compliance demonstration.* To demonstrate initial compliance with the oxidizer outlet organic HAP concentration limit in Table 1 to this subpart, the oxidizer outlet organic HAP concentration must be no greater than 20 ppmv on a dry basis and the efficiency of the capture system must be 100 percent. You must keep all records as required by §§63.4312 and 63.4313. As part of the Notification of Compliance Status required by §63.4310, you must identify the web coating/printing operation(s) for which you used the oxidizer outlet organic HAP concentration option and submit a statement that the web coating/printing operation(s) was (were) in compliance with the emission limitations during the initial compliance period because the oxidizer outlet organic HAP concentration was no greater than 20 ppmv on a dry basis, the efficiency of the capture system was 100 percent, and you achieved the operating limits required by §63.4292 and the work practice standards required by §63.4293.

§63.4352 How do I demonstrate continuous compliance with the emission limitations?

(a) You must meet all the requirements of this section to demonstrate continuous compliance with the organic HAP overall control efficiency. The organic HAP overall control efficiency for each compliance period, determined according to the procedures in § 63.4351(d), must be equal to or greater than the applicable organic HAP overall control efficiency limit in Table 1 to this subpart. Each month following the initial compliance period described in § 63.4350 is a compliance period. You must perform the calculations in § 63.4351(d) on a monthly basis. You must meet the applicable requirements of paragraphs (c) through (j) of this section to demonstrate continuous compliance with the oxidizer outlet organic HAP concentration limit.

(b) If the organic HAP overall control efficiency for any compliance period failed to meet the applicable organic HAP overall control efficiency in Table 1 to this subpart, this is a deviation from the emission limitation for that compliance period and must be reported as specified in §§ 63.4310(c)(6) and 63.4311(a)(7).

(c) You must demonstrate continuous compliance with each operating limit required by § 63.4292 that applies to you, as specified in Table 2 to this subpart.

(1) If an operating parameter is out of the allowed range specified in Table 2 to this subpart, this is a deviation from the operating limit that must be reported as specified in §§ 63.4310(c)(6) and 63.4311(a)(7).

(2) If an operating parameter deviates from the operating limit specified in Table 2 to this subpart, then you must assume that the emission capture system and add-on control device were achieving zero efficiency during the time period of the deviation. For the purposes of completing the compliance calculations specified in § 63.4351(d)(4), you must treat the coating, printing, thinning, and cleaning materials applied during a deviation on a controlled web coating/printing operation as if they were applied on an uncontrolled web coating/printing operation for the time period of the deviation as indicated in Equation 1 of § 63.4341.

(d) You must meet the requirements for bypass lines in § 63.4364(b) for controlled web coating/printing operations for which you do not conduct liquid-liquid material balances. If any bypass line is opened and emissions are diverted to the atmosphere when the web coating/printing operation is running, this is a deviation that must be reported as specified in §§ 63.4310(c)(6) and 63.4311(a)(7). For the purposes of completing the compliance calculations specified in § 63.4351(d)(4), you must treat the coating, printing, thinning, and cleaning materials applied during a deviation on a controlled web coating/printing operation as if they were applied on an uncontrolled web coating/printing operation for the time period of the deviation as indicated in Equation 1 of § 63.4341.

(e) You must demonstrate continuous compliance with the work practice standards in § 63.4293. If you did not develop a work practice plan, or you did not implement the plan, or you did not keep the records required by § 63.4312(j)(8), this is a deviation from the work practice standards that must be reported as specified in §§ 63.4310(c)(6) and 63.4311(a)(7).

(f) As part of each semiannual compliance report required in § 63.4311, you must identify the web coating/printing operation(s) for which you use the organic HAP overall control efficiency option or the oxidizer outlet organic HAP concentration option. If there were no deviations from the organic HAP overall control efficiency limitations, submit a statement that you were in compliance with the emission limitations during the reporting period because the organic HAP overall control efficiency for each compliance period was greater than or equal to the applicable organic HAP overall control efficiency in Table 1 to this subpart, and you achieved the operating limits required by § 63.4292 and the work practice standards required by § 63.4293 during each compliance period. If there were no deviations from the oxidizer outlet organic HAP concentration limit, submit a statement that you were in compliance with the oxidizer outlet organic HAP concentration limit, the efficiency of the capture system is 100 percent, and you achieved the operating limits required by § 63.4292 and the work practice standards required by § 63.4293 during each compliance period.

(g) During periods of startup, shutdown, or malfunction of the emission capture system, add-on control device, or web coating/printing operation that may affect emission capture or control device efficiency, you must operate in accordance with the startup, shutdown, and malfunction plan required by § 63.4300(c).

(h) Consistent with §§ 63.6(e) and 63.7(e)(1), deviations that occur during a period of startup, shutdown, or malfunction of the emission capture system, add-on control device, or web coating/printing operation that may affect emission capture or control device efficiency are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with the startup, shutdown, and malfunction plan. The Administrator will determine whether deviations that occur during a period of startup, shutdown, or malfunction are violations according to the provisions in § 63.6(e).

(i) [Reserved]

(j) You must maintain records as specified in §§ 63.4312 and 63.4313.

PERFORMANCE TESTING AND MONITORING REQUIREMENTS

§ 63.4360 What are the general requirements for performance tests?

(a) You must conduct each performance test required by §§ 63.4340 or 63.4350 according to the requirements in § 63.7(e)(1) and under the conditions in this section, unless you obtain a waiver of the performance test according to the provisions in § 63.7(h).

(1) *Representative web coating/printing or dyeing/finishing operation operating conditions.* You must conduct the performance test under representative operating conditions for the web coating/printing or dyeing/finishing operation. Operations during periods of startup, shutdown, or malfunction and during periods of nonoperation do not constitute representative conditions. You must record the process information that is necessary to document operating conditions during the test and explain why the conditions represent normal operation.

(2) *Representative emission capture system and add-on control device operating conditions.* You must conduct the performance test when the emission capture system and add-on control device are operating at a representative flow rate, and the add-on control device is operating at a representative inlet concentration. You must record information that is necessary to document emission capture system and add-on control device operating conditions during the test and explain why the conditions represent normal operation.

(b) You must conduct each performance test of an emission capture system according to the requirements in § 63.4361. You must conduct each performance test of an add-on control device according to the requirements in § 63.4362.

§ 63.4361 How do I determine the emission capture system efficiency?

You must use the procedures and test methods in this section to determine capture efficiency as part of the performance test required by §§ 63.4340 or 63.4350.

(a) *Assuming 100 percent capture efficiency.* You may assume the capture system efficiency is 100 percent if both of the conditions in paragraphs (a)(1) and (2) of this section are met.

(1) The capture system meets the criteria in Method 204 of appendix M to 40 CFR part 51 for a PTE and directs all the exhaust gases from the enclosure to an add-on control device.

(2) All regulated materials applied in the web coating/printing or dyeing/finishing operation are applied within the capture system; regulated material solvent flash-off, curing, and drying occurs within the capture system; and the removal or evaporation of cleaning materials from the web coating/printing operation surfaces they are applied to occurs within the capture system. For example, this criterion is not met if the web enters the open shop environment when moving between the application station and a curing oven.

(b) *Measuring capture efficiency.* If the capture system does not meet both of the criteria in paragraphs (a)(1) and (2) of this section, then you must use one of the three protocols described in paragraphs (c), (d), and (e) of this section to measure capture efficiency. The capture efficiency measurements use TVH capture efficiency as a surrogate for organic HAP capture efficiency. For the protocols in paragraphs (c) and (d) of this section, the capture efficiency measurement must consist of three test runs. Each test run must be at least 3 hours duration or the length of a production run, up to 8 hours.

(c) *Liquid-to-uncaptured-gas protocol using a temporary total enclosure or building enclosure.* The liquid-to-uncaptured-gas protocol compares the mass of liquid TVH in regulated materials applied in the web coating/printing or dyeing/finishing operation to the mass of TVH emissions not captured by the emission capture system. Use a temporary total enclosure or a building enclosure and the procedures in paragraphs (c)(1) through (6) of this section to measure emission capture system efficiency using the liquid-to-uncaptured-gas protocol.

(1) Either use a building enclosure or construct an enclosure around the web coating/printing or dyeing/finishing operation where regulated materials are applied, and all areas where emissions from these applied regulated materials subsequently occur, such as flash-off, curing, and drying areas. The areas of the web coating/printing or dyeing/finishing operation where capture devices collect emissions for routing to an add-on control device, such as the entrance and exit areas of an oven or tenter frame, must also be inside the enclosure. The enclosure must meet the applicable definition of a temporary total enclosure or building enclosure in Method 204 of appendix M to 40 CFR part 51.

(2) Use Method 204A or 204F of appendix M to 40 CFR part 51 to determine the mass fraction of TVH liquid input from each regulated material used in the web coating/printing or dyeing/finishing operation during each capture efficiency test run. To make the determination, substitute TVH for each occurrence of the term volatile organic compounds (VOC) in the methods.

(3) Use Equation 1 of this section to calculate the total mass of TVH liquid input from all the regulated materials applied in the web coating/printing or dyeing/finishing operation during each capture efficiency test run.

$$\mathrm{TVH}_{\mathrm{applied}} = \sum_{i=1}^{n} \left(\mathrm{TVH}_i\right)\left(\mathrm{M}_i\right) \qquad \text{(Eq. 1)}$$

Where:

$\mathrm{TVH}_{\mathrm{applied}}$ = Mass of liquid TVH in regulated materials applied in the web coating/printing or dyeing/finishing operation during the capture efficiency test run, kg.

TVH_i = Mass fraction of TVH in regulated material, i, that is applied in the web coating/printing or dyeing/finishing operation during the capture efficiency test run, kg TVH per kg material.

M_i = Total mass of regulated material, i, applied in the web coating/printing or dyeing/finishing operation during the capture efficiency test run, kg.

n = Number of different regulated materials applied in the web coating/printing or dyeing/finishing operation during the capture efficiency test run.

(4) Use Method 204D or E of appendix M to 40 CFR part 51 to measure the total mass, kg, of TVH emissions that are not captured by the emission capture system; they are measured as they exit the temporary total enclosure or building enclosure during each capture efficiency test run. To make the measurement, substitute TVH for each occurrence of the term VOC in the methods.

(i) Use Method 204D if the enclosure is a temporary total enclosure.

(ii) Use Method 204E if the enclosure is a building enclosure. During the capture efficiency measurement, all organic compound-emitting operations inside the building enclosure, other than the web coating/printing or dyeing/finishing operation for which capture efficiency is being determined, must be shut down, but all fans and blowers must be operating normally.

(5) For each capture efficiency test run, determine the percent capture efficiency of the emission capture system using Equation 2 of this section:

$$CE = \frac{\left(TVH_{applied} - TVH_{uncaptured}\right)}{TVH_{applied}} \times 100 \qquad \text{(Eq. 2)}$$

Where:

CE = Capture efficiency of the emission capture system vented to the add-on control device, percent.

$TVH_{applied}$ = Total mass of TVH liquid input applied in the web coating/printing or dyeing/finishing operation during the capture efficiency test run, kg.

$TVH_{uncaptured}$ = Total mass of TVH that is not captured by the emission capture system and that exits from the temporary total enclosure or building enclosure during the capture efficiency test run, kg.

(6) Determine the capture efficiency of the emission capture system as the average of the capture efficiencies measured in the three test runs.

(d) *Gas-to-gas protocol using a temporary total enclosure or a building enclosure.* The gas-to-gas protocol compares the mass of TVH emissions captured by the emission capture system to the mass of TVH emissions not captured. Use a temporary total enclosure or a building enclosure and the procedures in paragraphs (d)(1) through (5) of this section to measure emission capture system efficiency using the gas-to-gas protocol.

(1) Either use a building enclosure or construct an enclosure around the web coating/printing or dyeing/finishing operation where regulated materials are applied, and all areas where emissions from these applied regulated materials subsequently occur, such as flash-off, curing, and drying areas. The areas of the web coating/printing or dyeing/finishing operation where capture devices collect emissions generated by the web coating/printing or dyeing/finishing operation for routing to an add-on control device, such as the entrance and exit areas of an oven or a tenter frame, must also be inside the enclosure. The enclosure must meet the applicable definition of a temporary total enclosure or building enclosure in Method 204 of appendix M to 40 CFR part 51.

(2) Use Method 204B or 204C of appendix M to 40 CFR part 51 to measure the total mass, kg, of TVH emissions captured by the emission capture system during each capture efficiency test run as measured at the inlet to the add-on control device. To make the measurement, substitute TVH for each occurrence of the term VOC in the methods.

(i) The sampling points for the Method 204B or 204C measurement must be upstream from the add-on control device and must represent total emissions routed from the capture system and entering the add-on control device.

(ii) If multiple emission streams from the capture system enter the add-on control device without a single common duct, then the emissions entering the add-on control device must be simultaneously measured in each duct and the total emissions entering the add-on control device must be determined.

(3) Use Method 204D or 204E of appendix M to 40 CFR part 51 to measure the total mass, kg, of TVH emissions that are not captured by the emission capture system; they are measured as they exit the temporary total enclosure or building enclosure during each capture efficiency test run. To make the measurement, substitute TVH for each occurrence of the term VOC in the methods.

(i) Use Method 204D if the enclosure is a temporary total enclosure.

(ii) Use Method 204E if the enclosure is a building enclosure. During the capture efficiency measurement, all organic compound-emitting operations inside the building enclosure, other than the web coating/printing or dyeing/finishing operation for which capture efficiency is being determined, must be shut down, but all fans and blowers must be operating normally.

(4) For each capture efficiency test run, determine the percent capture efficiency of the emission capture system using Equation 3 of this section:

$$CE = \frac{TVH_{captured}}{\left(TVH_{captured} + TVH_{uncaptured}\right)} \times 100 \qquad \text{(Eq. 3)}$$

Where:

CE = Capture efficiency of the emission capture system vented to the add-on control device, percent.

$TVH_{captured}$ = Total mass of TVH captured by the emission capture system as measured at the inlet to the add-on control device during the emission capture efficiency test run, kg.

$TVH_{uncaptured}$ = Total mass of TVH that is not captured by the emission capture system and that exits from the temporary total enclosure or building enclosure during the capture efficiency test run, kg.

(5) Determine the capture efficiency of the emission capture system as the average of the capture efficiencies measured in the three test runs.

(e) *Alternative capture efficiency protocol.* As an alternative to the procedures specified in paragraphs (c) and (d) of this section, you may determine capture efficiency using any other capture efficiency protocol and test methods that satisfy the criteria of either the DQO or LCL approach as described in appendix A to subpart KK of this part.

§ 63.4362 How do I determine the add-on control device emission destruction or removal efficiency?

You must use the procedures and test methods in this section to determine the add-on control device emission destruction or removal efficiency as part of the performance test required by §§ 63.4340 and 63.4350. You must conduct three test runs as specified in § 63.7(e)(3) and each test run must last at least 1 hour.

(a) For all types of add-on control devices, use the test methods as specified in paragraphs (a)(1) through (5) of this section.

(1) Use Method 1 or 1A of appendix A to 40 CFR part 60, as appropriate, to select sampling sites and velocity traverse points.

(2) Use Method 2, 2A, 2C, 2D, 2F, or 2G of appendix A to 40 CFR part 60, as appropriate, to measure gas volumetric flow rate.

(3) Use Method 3, 3A, or 3B of appendix A to 40 CFR part 60, as appropriate, for gas analysis to determine dry molecular weight. You may also use as an alternative to Method 3B, the manual method for measuring the oxygen, carbon dioxide, and carbon monoxide content of exhaust gas in ANSI/ASME, PTC 19.10–1981, ‘‘Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus]’’ (incorporated by reference, see § 63.14).

(4) Use Method 4 of appendix A to 40 CFR part 60 to determine stack gas moisture.

(5) Methods for determining gas volumetric flow rate, dry molecular weight, and stack gas moisture must be performed, as applicable, during each test run.

(b) Measure the volatile organic matter concentration as carbon at the inlet and outlet of the add-on control device simultaneously, using Method 25 or 25A of appendix A to 40 CFR part 60. If you are demonstrating compliance with the oxidizer outlet organic HAP concentration limit, only the outlet volatile organic matter concentration must be determined. The outlet volatile organic matter concentration is determined as the average of the three test runs.

(1) Use Method 25 if the add-on control device is an oxidizer and you expect the total gaseous organic concentration as carbon to be more than 50 parts per million (ppm) at the control device outlet.

(2) Use Method 25A if the add-on control device is an oxidizer and you expect the total gaseous organic concentration as carbon to be 50 ppm or less at the control device outlet. Method 25A must be used to demonstrate compliance with the oxidizer outlet organic HAP concentration limit.

(3) Use Method 25A if the add-on control device is not an oxidizer.

(c) If two or more add-on control devices are used for the same emission stream, then you must measure emissions at the outlet to the atmosphere of each device. For example, if one add-on control device is a concentrator with an outlet to the atmosphere for the high-volume, dilute stream that has been treated by the concentrator, and a second add-on control device is an oxidizer with an outlet to the atmosphere for the low-volume, concentrated stream that is treated with the oxidizer, you must measure emissions at the outlet of the oxidizer and the high volume dilute stream outlet of the concentrator.

(d) For each test run, determine the total gaseous organic emissions mass flow rates for the inlet and the outlet of the add-on control device, using Equation 1 of this section. If there is more than one inlet or outlet to the add-on control device, you must calculate the total gaseous organic mass flow rate using Equation 1 of this section for each inlet and each outlet and then total all of the inlet emissions and total all of the outlet emissions:

$$M_f = Q_{sd} C_c [12][0.0416][10^{-6}] \qquad \text{(Eq. 1)}$$

Where:

M_f = Total gaseous organic emissions mass flow rate, kg/hour (h).

C_c = Concentration of organic compounds as carbon in the vent gas, as determined by Method 25 or Method 25A, ppmv, dry basis.

Q_{sd} = Volumetric flow rate of gases entering or exiting the add-on control device, as determined by Method 2, 2A, 2C, 2D, 2F, or 2G, dry standard cubic meters/hour (dscm/h).

0.0416 = Conversion factor for molar volume, kg-moles per cubic meter (mole/m^3) (@ 293 Kelvin (K) and 760 millimeters of mercury (mmHg)).

(e) For each test run, determine the add-on control device organic emissions destruction or removal efficiency using Equation 2 of this section.

$$DRE = \frac{M_{fi} - M_{fo}}{M_{fi}} \qquad \text{(Eq. 2)}$$

Where:

DRE = Organic emissions destruction or removal efficiency of the add-on control device, percent.

M_{fi} = Total gaseous organic emissions mass flow rate at the inlet(s) to the add-on control device, using Equation 1 of this section, kg/h.

M_{fo} = Total gaseous organic emissions mass flow rate at the outlet(s) of the add-on control device, using Equation 1 of this section, kg/h.

(f) Determine the emission destruction or removal efficiency of the add-on control device as the average of the efficiencies determined in the three test runs and calculated in Equation 2 of this section.

§63.4363 How do I establish the add-on control device operating limits during the performance test?

During the performance test required by §§63.4340 or 63.4350 and described in §§63.4360, 63.4361, and 63.4362, you must establish the operating limits required by §63.4292 according to this section, unless you have received approval for alternative monitoring and operating limits under §63.8(f) as specified in §63.4292.

(a) *Thermal oxidizers.* If your add-on control device is a thermal oxidizer, establish the operating limits according to paragraphs (a)(1) and (2) of this section.

(1) During the performance test, you must monitor and record the temperature at least once every 15 minutes during each of the three test runs. You must monitor the temperature in the firebox of the thermal oxidizer or immediately downstream of the firebox before any substantial heat exchange occurs.

(2) Use the data collected during the performance test to calculate and record the average temperature maintained during the performance test.

This average temperature is the minimum operating limit for your thermal oxidizer.

(b) *Catalytic oxidizers.* If your add-on control device is a catalytic oxidizer, establish the operating limits according to either paragraphs (b)(1) and (2) or paragraphs (b)(3) and (4) of this section.

(1) During the performance test, you must monitor and record the temperature at the inlet to the catalyst bed and the temperature difference across the catalyst bed at least once every 15 minutes during each of the three test runs.

(2) Use the data collected during the performance test to calculate and record the average temperature at the inlet to the catalyst bed and the average temperature difference across the catalyst bed maintained during the performance test. These are the minimum operating limits for your catalytic oxidizer.

(3) As an alternative to monitoring the temperature difference across the catalyst bed, you may monitor the temperature at the inlet to the catalyst bed and implement a site-specific inspection and maintenance plan for your catalytic oxidizer as specified in paragraph (b)(4) of this section. During the performance test, you must monitor and record the temperature just before the catalyst bed at least once every 15 minutes during each of the three test runs. Use the data collected during the performance test to calculate and record the average temperature just before the catalyst bed during the performance test. This is the minimum operating limit for your catalytic oxidizer.

(4) You must develop and implement an inspection and maintenance plan for your catalytic oxidizer(s) for which you elect to monitor according to paragraph (b)(3) of this section. The plan must address, at a minimum, the elements specified in paragraphs (b)(4)(i) through (iii) of this section.

(i) Annual sampling and analysis of the catalyst activity (*i.e.*, conversion efficiency) following the manufacturer's or catalyst supplier's recommended procedures.

(ii) Monthly inspection of the oxidizer system, including the burner assembly and fuel supply lines for problems and, as necessary, adjust the equipment to assure proper air-to-fuel mixtures.

(iii) Annual internal and monthly external visual inspection of the catalyst bed to check for channeling, abrasion, and settling. If problems are found, you must take corrective action consistent with the manufacturer's recommendations and conduct a new performance test to determine destruction efficiency according to § 63.4362.

§ 63.4364 What are the requirements for CPMS installation, operation, and maintenance?

(a) *General.* If you are using a control device to comply with the emission standards in § 63.4290, you must install, operate, and maintain each CPMS specified in paragraphs (c) and (d) and (e) of this section according to the requirements in paragraphs (a)(1) through (8) of this section. You must install, operate, and maintain each CPMS specified in paragraph (b) of this section according to paragraphs (a)(5) through (7) of this section.

(1) Each CPMS must complete a minimum of one cycle of operation for each successive 15-minute period. You must have a minimum of four equally spaced successive cycles of CPMS operation to have a valid hour of data.

(2) You must have valid data from at least 90 percent of the hours during which the process operated.

(3) You must determine the hourly average of all recorded readings according to paragraphs (a)(3)(i) and (ii) of this section.

(i) To calculate a valid hourly value, you must have at least three of four equally spaced data values from that hour from a continuous monitoring system (CMS) that is not out-of-control.

(ii) Provided all of the readings recorded in accordance with paragraph (a)(3) of this section clearly demonstrate continuous compliance with the standard that applies to you, then you are not required to determine the hourly average of all recorded readings.

(4) You must determine the rolling 3-hour average of all recorded readings for each operating period. To calculate the average for each 3-hour averaging

period, you must have at least two of three of the hourly averages for that period using only average values that are based on valid data (*i.e.*, not from out-of-control periods).

(5) You must record the results of each inspection, calibration, and validation check of the CPMS.

(6) At all times, you must maintain the monitoring system in proper working order including, but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment.

(7) Except for monitoring malfunctions, associated repairs, or required quality assurance or control activities (including calibration checks or required zero and span adjustments), you must conduct all monitoring at all times that the unit is operating. Data recorded during monitoring malfunctions, associated repairs, out-of-control periods, or required quality assurance or control activities shall not be used for purposes of calculating the emissions concentrations and percent reductions specified in Table 1 to this subpart. You must use all the valid data collected during all other periods in assessing compliance of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

(8) Any averaging period for which you do not have valid monitoring data and such data are required constitutes a deviation, and you must notify the Administrator in accordance with §63.4311(a).

(b) *Capture system bypass line.* You must meet the requirements of paragraphs (a)(5) through (6) and (b)(1) and (2) of this section for each emission capture system that contains bypass lines that could divert emissions away from the add-on control device to the atmosphere.

(1) You must monitor or secure the valve or closure mechanism controlling the bypass line in a nondiverting position in such a way that the valve or closure mechanism cannot be opened without creating a record that the valve was opened. The method used to monitor or secure the valve or closure mechanism must meet one of the requirements specified in paragraphs (b)(1)(i) through (iv) of this section.

(i) *Flow control position indicator.* Install, calibrate, maintain, and operate according to the manufacturer's specifications a flow control position indicator that takes a reading at least once every 15 minutes and provides a record indicating whether the emissions are directed to the add-on control device or diverted from the add-on control device. The time of occurrence and flow control position must be recorded, as well as every time the flow direction is changed. The flow control position indicator must be installed at the entrance to any bypass line that could divert the emissions away from the add-on control device to the atmosphere.

(ii) *Car-seal or lock-and-key valve closures.* Secure any bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. You must visually inspect the seal or closure mechanism at least once every month to ensure that the valve is maintained in the closed position, and the emissions are not diverted away from the add-on control device to the atmosphere.

(iii) *Valve closure continuous monitoring.* Ensure that any bypass line valve is in the closed (non-diverting) position through monitoring of valve position at least once every 15 minutes. You must inspect the monitoring system at least once every month to verify that the monitor will indicate valve position.

(iv) *Automatic shutdown system.* Use an automatic shutdown system in which the web coating/printing or dyeing/finishing operation is stopped when flow is diverted by the bypass line away from the add-on control device to the atmosphere when the web coating/printing or dyeing/finishing operation is running. You must inspect the automatic shutdown system at least once every month to verify that it will detect diversions of flow and shutdown the web coating/printing or dyeing/finishing operation.

(2) If any bypass line is opened, you must include a description of why the bypass line was opened and the length

of time it remained open in the semiannual compliance reports required in § 63.4311.

(c) *Oxidizers.* If you are using an oxidizer to comply with the emission standards, you must comply with paragraphs (c)(i) through (iii) of this section.

(i) Install, calibrate, maintain, and operate temperature monitoring equipment according to the manufacturer's specifications. The calibration of the chart recorder, data logger, or temperature indicator must be verified every 3 months or the chart recorder, data logger, or temperature indicator must be replaced.

(ii) For an oxidizer other than a catalytic oxidizer, install, calibrate, operate, and maintain a temperature monitoring device equipped with a continuous recorder. The device must have an accuracy of ±1 percent of the temperature being monitored in degrees Celsius, or ±1 °Celsius, whichever is greater. The thermocouple or temperature sensor must be installed in the combustion chamber at a location in the combustion zone.

(iii) For a catalytic oxidizer, install, calibrate, operate, and maintain a temperature monitoring device equipped with a continuous recorder. The device must be capable of monitoring temperature with an accuracy of ±1 percent of the temperature being monitored in degrees Celsius or ± 1 degree Celsius, whichever is greater. The thermocouple or temperature sensor must be installed in the vent stream at the nearest feasible point to the inlet and outlet of the catalyst bed. Calculate the temperature rise across the catalyst.

(d) *Other types of control devices.* If you use a control device other than an oxidizer or wish to monitor an alternative parameter and comply with a different operating limit, you must apply to the Administrator for approval of an alternative monitoring method under § 63.8(f).

(e) *Capture system monitoring.* If you are complying with the emission standards in § 63.4290 through the use of a capture system and control device, you must develop a site-specific monitoring plan containing the information specified in paragraphs (e)(1) and (2) of this section for these capture systems. You must monitor the capture system in accordance with paragraph (e)(3) of this section. You must make the monitoring plan available for inspection by the permitting authority upon request.

(1) The monitoring plan must:

(i) Identify the operating parameter to be monitored to ensure that the capture efficiency determined during the initial compliance test is maintained; and

(ii) Explain why this parameter is appropriate for demonstrating ongoing compliance; and

(iii) Identify the specific monitoring procedures.

(2) The monitoring plan must specify the operating parameter value or range of values that demonstrate compliance with the emission standards in § 63.4290. The specified operating parameter value or range of values must represent the conditions present when the capture system is being properly operated and maintained.

(3) You must conduct all capture system monitoring in accordance with the plan.

(4) Any deviation from the operating parameter value or range of values which are monitored according to the plan will be considered a deviation from the operating limit.

(5) You must review and update the capture system monitoring plan at least annually.

OTHER REQUIREMENTS AND INFORMATION

§ 63.4370 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by us, the U.S. EPA, or a delegated authority such as your State, local, or tribal agency. If the Administrator has delegated authority to your State, local, or tribal agency, then that agency (as well as the U.S. EPA), has the authority to implement and enforce this subpart. You should contact your EPA Regional Office to find out if implementation and enforcement of this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under subpart E of this part, the authorities contained in paragraph (c) of this section are retained by the Administrator and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are listed in paragraphs (c)(1) through (4) of this section:

(1) Approval of alternatives to the work practice standards in §63.4293 under §63.6(g).

(2) Approval of major alternatives to test methods under §63.7(e)(2)(ii) and (f) and as defined in §63.90.

(3) Approval of major alternatives to monitoring under §63.8(f) and as defined in §63.90.

(4) Approval of major alternatives to recordkeeping and reporting under §63.10(f) and as defined in §63.90.

§63.4371 What definitions apply to this subpart?

Terms used in this subpart are defined in the CAA, in 40 CFR 63.2, and in this section as follows:

Add-on control means an air pollution control device, such as a thermal oxidizer or carbon adsorber, that reduces pollution in an air stream by destruction or removal before discharge to the atmosphere.

As-applied means the condition of a coating at the time of application to a substrate, including any added solvent.

As purchased means the condition of a coating, printing, slashing, dyeing, or finishing material as delivered to the affected source, before alteration.

Capture device means a hood, enclosure, room, floor sweep, or other means of containing or collecting emissions and directing those emissions into an add-on air pollution control device.

Capture efficiency means the portion (expressed as a percentage) of the pollutants from an emission source that is delivered to an add-on control device.

Capture system means one or more capture devices intended to collect emissions generated by a web coating/printing or dyeing/finishing operation in the use of regulated materials, both at the point of application and at subsequent points where emissions from the regulated materials occur, such as flashoff, drying, or curing. As used in this subpart, multiple capture devices that collect emissions generated by a web coating/printing or dyeing/finishing operation are considered a single capture system.

Cleaning material means a solvent used to remove contaminants and other materials, such as dirt, grease, or oil, from a textile before a web coating/printing operation (surface preparation) or from equipment associated with the web coating/ printing operation, such as tanks, rollers, rotary screens, and knife or wiper blades. Thus, it includes any cleaning material used in the web coating and printing subcategory for surface preparation of substrates or process operation equipment cleaning or both with the exception of cleaning material applied to the substrate using handheld, non-refillable aerosol containers.

Coating means the application of a semi-liquid coating material to one or both sides of a textile web substrate. Once the coating material is dried (and cured, if necessary), it bonds with the textile to form a continuous solid film for decorative, protective, or functional purposes. Coating does not include finishing where the fiber is impregnated with a chemical or resin to impart certain properties, but a solid film is not formed.

Coating material means an elastomer, polymer, or prepolymer material applied as a thin layer to a textile web. Such materials include, but are not limited to, coatings, sealants, inks, and adhesives. Decorative, protective, or functional materials that consist only of acids, bases, or any combination of these substances are not considered coating material for the purposes of this subpart. Thinning materials also are not included in this definition of coating materials, but are accounted for separately.

Coating operation means equipment used to apply cleaning materials to a web substrate to prepare it for coating material application (surface preparation), to apply coating material to a web substrate (coating application) and to dry or cure the coating material after application by exposure to heat or radiation (coating drying or curing), or to clean coating operation equipment (equipment cleaning). A single coating operation may include any combination of these types of equipment, but always includes at least the point at which a coating or cleaning material is applied and all subsequent points in the affected source where organic HAP emissions from that coating or cleaning material occur. There may be multiple coating operations in an affected source. Coating material application with handheld, non-refillable aerosol containers, touch-up markers, or marking pens is not a coating operation for the purposes of this subpart. Polyurethane foam carpet backing operations are not coating operations for the purposes of this subpart.

Container means any portable device in which a material is stored, conveyed, treated, disposed of, or otherwise handled.

Continuous parameter monitoring system means the total equipment that may be required to meet the data acquisition and availability requirements of this subpart, used to sample, condition (if applicable), analyze, and provide a record of coating or printing operation, or capture system, or add-on control device parameters.

Controlled web coating/printing or dyeing/finishing operation means a web coating/printing or dyeing/finishing operation from which some or all of the organic HAP emissions are routed through an emission capture system and add-on control device.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including but not limited to any emission limit, or operating limit, or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limit, or operating limit, or work practice standard in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Dyeing means the process of applying color to the whole body of a textile substrate with either natural or synthetic dyes. Dyes are applied to yarn, fiber, cord, or fabric in aqueous solutions and dried before or after finishing, depending on the process. Continuous dyeing processes include, but are not limited to thermosol, pad/steam, pad/dry, and rope range dyeing. Batch dyeing processes include, but are not limited to, jet, beck, stock, yarn, kier, beam, pad, package and skein dyeing.

Dyeing materials means the purchased dyes and dyeing auxiliaries that are used in the dyeing process. The dyes are the substances that add color to textiles through incorporation into the fiber by chemical reaction, absorption or dispersion. Dyeing auxiliaries are various substances that can be added to the dyebath to aid dyeing. Dyeing auxiliaries may be necessary to transfer the dye from the dyebath to the fiber or they may provide improvements in the dyeing process or characteristics of the dyed fiber.

Dyeing operation means the collection of equipment used to dye a textile substrate and includes equipment used for dye application, dye fixation, and textile substrate rinsing and drying. A single dyeing operation may include any combination of these types of equipment, but always includes at least the point at which a dyeing material is applied and all subsequent points in the affected source where organic HAP emissions from that dyeing material occur. There may be multiple dyeing operations in an affected source. Dyeing material application with handheld, non-refillable aerosol containers, touch-up markers, brushes, or marking pens is not a dyeing operation for the purposes of this subpart.

Emission limitation means an emission limit, operating limit, or work practice standard.

Enclosure means a structure that surrounds a source of emissions and captures and directs the emissions to an add-on control device.

Fabric means any woven, knitted, plaited, braided, felted, or non-woven material made of filaments, fibers, or yarns including thread. This term includes material made of fiberglass, natural fibers, synthetic fibers, or composite.

Finishing means the chemical treatment of a textile (*e.g.*, with resins, softeners, stain resist or soil release agents, water repellants, flame retardants, antistatic agents, or hand builders) that improves the appearance and/or usefulness of the textile substrate.

Finishing materials means the purchased substances (including auxiliaries added to the finish to improve the finishing process or the characteristics of the finished textile) that are applied individually or as mixtures to textile substrates to impart desired properties.

Finishing operations means the collection of equipment used to finish a textile substrate including chemical finish applicator(s), flashoff area(s) and drying or curing oven(s).

Laminated fabric means fabric composed of a high-strength reinforcing base fabric between two plies of flexible thermoplastic film. Two or more fabrics or textiles or a fabric and a paper substrate may be bonded with an adhesive to form a laminate. The bonding of a fabric substrate to paper is not subject to the requirements of this subpart.

Manufacturer's formulation data means data on a material (such as a coating, printing, slashing, dyeing and finishing) that are supplied by the material manufacturer based on knowledge of the ingredients used to manufacture that material, rather than based on testing of the material. Manufacturer's formulation data may include, but are not limited to, information on density, organic HAP content, and coating, printing, dyeing, slashing, finishing, thinning, or cleaning material content.

Mass fraction of organic HAP means the ratio of the mass of organic HAP to the mass of a material in which it is contained; kg of organic HAP per kg of material.

Month means a calendar month or a pre-specified period of 28 days to 35 days to allow for flexibility in recordkeeping when data are based on a business accounting period.

No organic HAP means no organic HAP is present at 0.1 percent by mass or more for OSHA-defined carcinogens as specified in 29 CFR 1910.1200(d)(4) and at 1.0 percent by mass or more for other compounds. The organic HAP content of a regulated material is determined according to § 63.4321(e)(1).

Operating scenario means for a dyeing/finishing process operation or group of process operations, the combination of operating conditions (including but not limited to, type of substrate, type and mass fraction of organic HAP in dyeing/finishing materials applied, and the process operation temperature and pressure) affecting the fraction of organic HAP applied in dyeing and finishing operations discharged to wastewater. For example, a dyeing process operation run at atmospheric pressure would be a different operating scenario from the same dyeing process operation run under pressure.

Organic HAP content means the mass of organic HAP per mass of solids for a coating or printing material calculated using Equation 1 of § 63.4321. The organic HAP content is determined for the coating or printing material as purchased.

Organic HAP overall control efficiency means the total efficiency of a control system, determined either by:

(1) The product of the capture efficiency as determined in accordance with the requirements of § 63.4361 and the control device organic emissions destruction or removal efficiency determined in accordance with the requirements of § 63.4362; or

(2) A liquid-liquid material balance in accordance with the requirements of § 63.4341(e)(5) or (f)(5) or § 63.4351(d)(5).

Permanent total enclosure (PTE) means a permanently installed enclosure that meets the criteria of Method 204 of appendix M, 40 CFR part 51, for a PTE and that directs all the exhaust gases from the enclosure to an add-on control device.

Point of determination means each point where process wastewater exits the dyeing/finishing process unit.

Printing means the application of color and patterns to textiles, usually in the form of a paste, using a variety of techniques including, but not limited to roller, rotary screen, and ink jet printing. After application of the printing material, the textile usually is treated with steam, heat, or chemicals to fix the color.

Printing material means the purchased substances, usually including gums or thickeners, dyes and appropriate chemicals such as defoamers and resins that are mixed to produce the print pastes applied to textile substrates as patterns and colors.

Printing operation means equipment used to apply cleaning materials to a web substrate to prepare it for printing material application (surface preparation), to apply printing material to one or both sides of a web substrate (printing application) and to dry or cure the printing material after application by exposure to heat or radiation (printing material drying or curing), or to clean printing operation equipment (equipment cleaning). A single printing operation may include any combination of these types of equipment, but always includes at least the point at which a printing or cleaning material is applied and all subsequent points in the affected source where organic HAP emissions from that printing or cleaning material occur. There may be multiple printing operations in an affected source.

Publically owned treatment works or *POTW* means any device or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a ‘‘State’’ or ‘‘municipality’’ (as defined by section 502(4) of the CWA). This definition includes sewers, pipes or other conveyances only if they convey wastewater to a POTW providing treatment.

Regulated materials means the organic-containing materials that are used in the three printing, coating, and dyeing subcategories defined in § 63.4281(a). Organic-HAP containing regulated materials are the source of the organic HAP emissions limited by the requirements of this subpart. The specific regulated materials for each subcategory are defined in § 63.4282.

Research or laboratory operation means an operation whose primary purpose is for research and development of new processes and products that is conducted under the close supervision of technically trained personnel and is not engaged in the manufacture of final or intermediate products for commercial purposes, except in a *de minimis* manner.

Responsible official means responsible official as defined in 40 CFR 70.2.

Slashing means the application of a chemical sizing solution to warp yarns prior to weaving to protect against snagging or abrasion that could occur during weaving.

Slashing materials, also known as sizing, means the purchased compounds that are applied to warp yarns prior to weaving. Starch, gelatin, oil, wax, and manufactured polymers such as polyvinyl alcohol, polystyrene, polyacrylic acid and polyacetates are used as sizing compounds.

Slashing operation means the equipment used to mix and prepare size for application and the slasher, which is the equipment used to apply and dry size on warp yarn.

Solids means the nonvolatile portion of the coating and printing materials that makes up the dry film on a coated substrate and the pattern or color on a printed substrate.

Startup, initial means the first time equipment is brought online in a facility.

Surface preparation means chemical treatment of part or all of a substrate to prepare it for coating or printing material application.

Temporary total enclosure means an enclosure constructed for the purpose of measuring the capture efficiency of pollutants emitted from a given source as defined in Method 204 of appendix M, 40 CFR part 51.

Textile means any one of the following:

(1) Staple fibers and filaments suitable for conversion to or use as yarns, or for the preparation of woven, knit, or nonwoven fabrics;

(2) Yarns made from natural or manufactured fibers;

(3) Fabrics and other manufactured products made from staple fibers and filaments and from yarn; and

(4) Garments and other articles fabricated from fibers, yarns, or fabrics.

Thinning material means an organic solvent that is added to a coating or printing material after the coating or printing material is received from the supplier.

Total volatile hydrocarbon (TVH) means the total amount of nonaqueous volatile organic material determined according to Methods 204A through 204C of appendix M to 40 CFR part 51 and substituting the term TVH each place in the methods where the term VOC is used. The TVH includes both VOC and non-VOC.

Uncontrolled web coating/printing or dyeing/finishing operation means acoating/printing or dyeing/finishing operation from which none of the organic HAP emissions are routed through an emission capture system and add-on control device.

Volatile organic compounds (VOC) means any compounds defined as VOC in 40 CFR 51.100(s).

Wastewater means water that is generated in a web coating, web printing, slashing, dyeing or finishing operation and is collected, stored, or treated prior to being discarded or discharged.

Web means a continuous textile substrate which is flexible enough to be wound or unwound as rolls.

TABLES TO SUBPART OOOO OF PART 63

TABLE 1 TO SUBPART OOOO OF PART 63.—EMISSION LIMITS FOR NEW OR RECONSTRUCTED AND EXISTING AFFECTED SOURCES IN THE PRINTING, COATING AND DYEING OF FABRICS AND OTHER TEXTILES SOURCE CATEGORY

[If you are required to comply with emission limitations in accordance with §§ 63.4290 and 63.4291, you must comply with the applicable emission limits in the following table:]

If your affected source is a . . .	And it conducts . . .	Then this is the organic HAP emission limit for each compliance period . . .
1. New or reconstructed coating and printing affected source.	Coating operations only, *or* Printing operations only, *or* Both coating and printing operations.	You may choose any one of the following limits: Reduce organic HAP emissions to the atmosphere by achieving at least a 98 percent organic HAP overall control efficiency; Limit organic HAP emissions to the atmosphere to no more than 0.08 kg of organic HAP per kg of solids applied; or If you use an oxidizer to control organic HAP emissions, operate the oxidizer such that an outlet organic HAP concentration of no greater than 20 ppmv on a dry basis is achieved and the efficiency of the capture system is 100 percent.
2. Existing coating and printing affected source.	Coating operations only, *or* Printing operations only, *or* Both coating and printing operations.	You may choose any one of the following limits: Reduce organic HAP emissions to the atmosphere by achieving at least a 97 percent organic HAP overall control efficiency; Limit organic HAP emissions to the atmosphere to no more than 0.12 kg of organic HAP per kg of solids applied; or If you use an oxidizer to control organic HAP emissions, operate the oxidizer such that an outlet organic HAP concentration of no greater than 20 ppmv on a dry basis is achieved and the efficiency of the capture system is 100 percent.
3. New, reconstructed or existing dyeing finishing affected source.	a. Dyeing operations only	You must limit organic HAP emissions to the atmosphere to no more than 0.016 kg of organic HAP per kg of dyeing materials applied.
	b. Finishing operations only	You must limit organic HAP emissions to the atmosphere to no more than 0.0003 kg of organic HAP per kg of finishing materials applied.

If you are required to comply with emission limitations in accordance with §§ 63.4290 and 63.4291, you must comply with the applicable emission limits in the following table:]

If your affected source is a . . .	And it conducts . . .	Then this is the organic HAP emission limit for each compliance period . . .
	c. Both dyeing and finishing operations ..	You must limit organic HAP emissions to the atmosphere to no more than 0.016 kg of organic HAP per kg of dyeing and finishing materials applied.
4. New, reconstructed or existing slashing affected source.	Slashing operations only	You must limit organic HAP emissions to the atmosphere to no more than zero kg organic HAP per kg of slashing materials as determined according to § 63.4321(e)(1)(iv) of this subpart.

TABLE 2 TO SUBPART OOOO OF PART 63.—OPERATING LIMITS IF USING ADD-ON CONTROL DEVICES AND CAPTURE SYSTEM

[If you are required to comply with the operating limits by § 63.4292, you must comply with the applicable operating limits in the following table:]

For the following device . . .	You must meet the following operating limit . . .	And you must demonstrate continuous compliance with the operating limit by . . .
1. Thermal oxidizer	a. The average temperature in any 3-hour block period must not fall below the temperature limit established according to § 63.4363(a)	i. Collecting the temperature data according to § 63.4364(c); ii. Reducing the data to 3-hour block averages; and iii. Maintaining the 3-hour block average temperature at or above the temperature limit.
2. Catalytic oxidizer	a. The average temperature measured at the inlet to the catalyst bed in any 3-hour block period must not fall below the limit established according to § 63.4363(b); and either	i. Collecting the temperature data according to § 63.4364(c); ii. reducing the data to 3-hour block averages; and iii. maintaining the 3-hour block average catalyst bed inlet temparature at or above temperature limit.
	b. Ensure that the average temperature difference across the catalyst bed in any 3-hour block period does not fall below the temperature difference limit established according to § 63.4363(b)(2); or	Collecting the temperature data according to § 63.4364(c), reducing the data to 3-hour block averages, and maintaining the 3-hour block average temperature difference at or above the temperature difference limit.
	c. Develop and implement an inspection and maintenance plan according to § 63.4363(b)(4).	Maintaining an up-to-date inspection and maintenance plan, records of annual catalyst activity checks, records of monthly inspections of the oxidizer system, and records of the annual internal inspections of the catalyst bed. If a problem is discovered during a monthly or annual inspection required by § 63.4363(b)(4), you must take corrective action as soon as practicable consistent with the manufacturer's recommendations.
3. Emission capture system	Submit monitoring plan to the Administrator that identifies operating parameters to be monitored according to § 63.4364(e).	Conduct monitoring according to the plan (§ 63.4364(e)(3)).

TABLE 3 TO SUBPART OOOO OF PART 63.—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART OOOO

[You must comply with the applicable General Provisions requirements according to the following table:]

Citation	Subject	Applicable to subpart OOOO	Explanation
§ 63.1(a)(1)–(12)	General Applicability	Yes.	
§ 63.1(b)(1)–(3)	Initial Applicability Determination	Yes	Applicability to subpart OOOO is also specified in § 63.4281.
§ 63.1(c)(1)	Applicability After Standard Established	Yes.	
§ 63.1(c)(2)–(3)	Applicability of Permit Program for Area Sources	No	Area sources are not subject to subpart OOOO.
§ 63.1(c)(4)–(5)	Extensions and Notifications	Yes.	
§ 63.1(e)	Applicability of Permit Program Before Relevant Standard is Set.	Yes.	
§ 63.2	Definitions	Yes	Additional definitions are specified in § 63.4371.
§ 63.3(a)–(c)	Units and Abbreviations	Yes.	
§ 63.4(a)(1)–(5)	Prohibited Activities	Yes.	
§ 63.4(b)–(c)	Circumvention/Severability	Yes.	
§ 63.5(a)	Construction/Reconstruction	Yes.	
§ 63.5(b)(1)–(6)	Requirements for Existing, Newly Constructed, and Reconstructed Sources.	Yes.	
§ 63.5(d)	Application for Approval of Construction/Reconstruction	Yes.	
§ 63.5(e)	Approval of Construction/Reconstruction	Yes.	
§ 63.5(f)	Approval of Construction/Reconstruction Based on Prior State Review.	Yes.	
§ 63.6(a)	Compliance With Standards and Maintenance Requirements—Applicability.	Yes.	
§ 63.6(b)(1)–(7)	Compliance Dates for New and Reconstructed Sources	Yes	Section 63.4283 specifies the compliance dates.
§ 63.6(c)(1)–(5)	Compliance Dates for Existing Sources	Yes	Section 63.4283 specifies the compliance dates.
§ 63.6(e)(1)–(2)	Operation and Maintenance	Yes.	

[You must comply with the applicable General Provisions requirements according to the following table:]

Citation	Subject	Applicable to subpart OOOO	Explanation
§ 63.6(e)(3)	Startup, Shutdown, and Malfunction Plan	Yes	Only sources using an add-on control device to comply with the standards must complete startup, shutdown, and malfunction plans.
§ 63.6(f)(1)	Compliance Except During Startup, Shutdown, and Malfunction.	Yes	Applies only to sources using an add-on control device to comply with the standards.
§ 63.6(f)(2)–(3)	Methods for Determining Compliance	Yes.	
§ 63.6(g)(1)–(3)	Use of an Alternative Standard	Yes.	
§ 63.6(h)	Compliance With Opacity/Visible Emission Standards	No	Subpart OOOO does not establish opacity standards and does not require continuous opacity monitoring systems (COMS).
§ 63.6(i)(1)–(16)	Extension of Compliance	Yes.	
§ 63.6(j)	Presidential Compliance Exemption	Yes.	
§ 63.7(a)(1)	Performance Test Requirements—Applicability	Yes	Applies to all affected sources. Additional requirements for performance testing are specified in §§ 63.4360, 63.4361, and 63.4362.
§ 63.7(a)(2)	Performance Test Requirements—Dates	Yes	Applies only to performance tests for capture system and control device efficiency at sources using these to comply with the standard.
§ 63.7(a)(3)	Performance Tests Required by the Administrator	Yes.	
§ 63.7(b)–(e)	Performance Test Requirements—Notification, Quality Assurance, Facilities Necessary for Safe Testing, Conditions During Test.	Yes	Applies only to performance tests for capture system and control device efficiency at sources using these to comply with the standard.
§ 63.7(f)	Performance Test Requirements—Use of Alternative Test Method.	Yes	Applies to all test methods except those used to determine capture system efficiency.
§ 63.7(g)–(h)	Performance Test Requirements—Data Analysis, Recordkeeping, Waiver of Test.	Yes	Applies only to performance tests for capture system and add-on control device efficiency at sources using these to comply with the standards.
§ 63.8(a)(1)–(3)	Monitoring Requirements—Applicability	Yes	Applies only to monitoring of capture system and add-on control device efficiency at sources using these to comply with the standards. Additional requirements for monitoring are specified in § 63.4364.

§ 63.8(a)(4)	Additional Monitoring Requirements	No	Subpart OOOO does not have monitoring requirements for flares.
§ 63.8(b)	Conduct of Monitoring	Yes.	
§ 63.8(c)(1)–(3)	Continuous Monitoring Systems (CMS) Operation and Maintenance.	Yes	Applies only to monitoring of capture system and add-on control deviceefficiency at sources usingthese to comply withthe standards. Additionalrequirementsfor CMSoperations andmaintenanceare specifiedin § 63.4364.
§ 63.8(c)(4)	CMS	No	Section 63.4364 specifies the requirements for the operation of CMS for capture systems and add-on control devices at sources using these to comply.
§ 63.8(c)(5)	COMS	No	Subpart OOOO does not have opacity or visible emission standards.
§ 63.8(c)(6)	CMS Requirements	No	Section 63.4364 specifies the requirements for monitoring systems for capture systems and add-on control devices at sources using these to comply.
§ 63.8(c)(7)–(8)	CMS Out of Control Periods and Reporting	Yes.	
§ 63.8(d)—(e)	Quality Control Program and CMS Performance Evaluation	No	Subpart OOOO does not require the use of continuous emissions monitoring systems.
§ 63.8(f)(1)–(5)	Use of an Alternative Monitoring Method	Yes.	
§ 63.8(f)(6)	Alternative to Relative Accuracy Test	No	Subpart OOOO does not require the use of continuous emissions monitoring systems.
§ 63.8(g)(1)–(5)	Data Reduction	No	Sections 63.4342 and 63.4352 specify monitoring data reduction.
§ 63.9(a)	Applicability and General Information	Yes.	
§ 63.9(b)	Initial Notifications	No	Subpart OOOO provides 1 year for an existing source to submit an initial notification.
§ 63.9(c)	Request for Extension of Compliance	Yes.	
§ 63.9(d)	Notification that Source is Subject to Special Compliance Requirements.	Yes.	
§ 63.9(e)	Notification of Performance Test	Yes	Applies only to capture system and add-on control device performance tests at sources using these to comply with the standards.
§ 63.9(f)	Notification of Visible Emissions/Opacity Test	No	Subpart OOOO does not have opacity or visible emission standards.

[You must comply with the applicable General Provisions requirements according to the following table:]

Citation	Subject	Applicable to subpart OOOO	Explanation
§ 63.9(g)(1)–(3)	Additional Notifications When Using CMS	No	Subpart OOOO does not require the use of continuous emissions monitoring systems.
§ 63.9(h)	Notification of Compliance Status	Yes	Section 63.4310 specifies the dates for submitting the notification of compliance status.
§ 63.9(i)	Adjustment of Submittal Deadlines	Yes.	
§ 63.9(j)	Change in Previous Information	Yes.	
§ 63.10(a)	Recordkeeping/Reporting—Applicability and General Information	Yes.	
§ 63.10(b)(1)	General Recordkeeping Requirements	Yes	Additional Requirements are specified in §§ 63.4312 and 63.4313.
§ 63.10(b)(2)(i)–(v)	Recordkeeping Relevant to Startup, Shutdown, and Malfunction Periods and CMS.	Yes	Requirements for Startup, Shutdown, and Malfunction records only apply to add-on control devices used to comply with the standards.
§ 63.10(b)(2)(vi)–(xi)		Yes.	
§ 63.10(b)(2)(xii)	Records	Yes.	
§ 63.10(b)(2)(xiii)		No	Subpart OOOO does not require the use of continuous emissions monitoring systems.
§ 63.10(b)(2)(xiv)		Yes.	
§ 63.10(b)(3)	Recordkeeping Requirements for Applicability Determinations	Yes.	
§ 63.10(c)(1)–(6)	Additional Recordkeeping Requirements for Sources with CMS.	Yes.	
§ 63.10(c)(7)–(8)		No	The same records are required in § 63.4311(a)(7).
§ 63.10(c)(9)–(15)		Yes.	
§ 63.10(d)(1)	General Reporting Requirements	Yes	Addtional requirements are specified in § 63.4311.
§ 63.10(d)(2)	Report of Performance Test Results	Yes	Additional requirements are specified in § 63.4311(b).
§ 63.10(d)(3)	Reporting Opacity or Visible Emissions Observations	No	Subpart OOOO does not require opacity or visible emissions observations.

§ 63.10(d)(4)	Progress Reports for Sources With Compliance Extensions	Yes.	
§ 63.10(d)(5)	Startup, Shutdown, and Malfunction Reports	Yes	Applies only to add-on control devices at sources using these to comply with the standards.
§ 63.10(e)(1)–(2)	Additional CMS Reports	No	Subpart OOOO does not require the use of continuous emissions monitoring systems.
§ 63.10(e)(3)	Excess Emissions/CMS Performance Reports	No	Section 63.4311(a) specifies the contents of periodic compliance reports.
§ 63.10(e)(4)	COMS Data Reports	No	Subpart OOOO does not specify requirements for opacity or COMS.
§ 63.10(f)	Recordkeeping/Reporting Waiver	Yes.	
§ 63.11	Control Device Requirements/Flares	No	Subpart OOOO does not specify use of flares for compliance.
§ 63.12	State Authority and Delegations	Yes.	
§ 63.13	Addresses	Yes.	
§ 63.14	Incorporation by Reference	Yes	ASNI/ASME PTC 19.10–1981, Part 10
§ 63.15	Availability of Information/Confidentiality	Yes.	

Table 4 to Subpart OOOO of Part 63.—Default Organic HAP Mass Fraction for Solvents and Solvent Blends

[You may use the mass fraction values in the following table for solvent blends for which you do not have test data or manufacturer's formulation data.]

Solvent/solvent blend	CAS. No.	Average organic HAP mass fraction	Typical organic HAP, percent by mass
1. Toluene	108–88–3	1.0	Toluene.
2. Xylene(s)	1330–20–7	1.0	Xylenes, ethylbenzene.
3. Hexane	110–54–3	0.5	n-hexane.
4. n-Hexane	110–54–3	1.0	n-hexane.
5. Ethylbenzene	100–41–4	1.0	Ethylbenzene.
6. Aliphatic 140		0	None.
7. Aromatic 100		0.02	1% xylene, 1% cumene.
8. Aromatic 150		0.09	Naphthalene.
9. Aromatic naphtha	64742–95–6	0.02	1% xylene, 1% cumene.
10. Aromatic solvent	64742–94–5	0.1	Naphthalene.
11. Exempt mineral spirits	8032–32–4	0	None.
12. Ligroines (VM & P)	8032–32–4	0	None.
13. Lactol spirits	64742–89–6	0.15	Toluene.
14. Low aromatic white spirit	64742–82–1	0	None.
15. Mineral spirits	64742–88–7	0.01	Xylenes.
16. Hydrotreated naphtha	64742–48–9	0	None.
17. Hydrotreated light distillate	64742–47–8	0.001	Toluene.
18. Stoddard solvent	8052–41–3	0.01	Xylenes.
19. Super high-flash naphtha	64742–95–6	0.05	Xylenes.
20. Varsol® solvent	8052–49–3	0.01	0.5% xylenes, 0.5% ethylbenzene.
21. VM & P naphtha	64742–89–8	0.06	3% toluene, 3% xylene.
22. Petroleum distillate mixture	68477–31–6	0.08	4% naphthalene, 4% biphenyl.

Table 5 to Subpart OOOO of Part 63.—Default Organic HAP Mass Fraction for Petroleum Solvent Groups [a]

[You may use the mass fraction values in the following table for solvent blends for which you do not have test data or manufacturer's formulation data:]

Solvent type	Average organic HAP mass fraction	Typical organic HAP, percent by mass
Aliphatic [b]	0.03	1% Xylene, 1% Toluene, and 1% Ethylbenzene.
Aromatic [c]	0.06	4% Xylene, 1% Toluene, and 1% Ethylbenzene.

[a] Use this table only if the solvent blend does not match any of the solvent blends in Table 4 to this subpart and you only know whether the blend is aliphatic or aromatic.

[b] Mineral Spirits 135, Mineral Spirits 150 EC, Naphtha, Mixed Hydrocarbon, Aliphatic Hydrocarbon, Aliphatic Naphtha, Naphthol Spirits, Petroleum Spirits, Petroleum Oil, Petroleum Naphtha, Solvent Naphtha, Solvent Blend.

[c] Medium-flash Naphtha, High-flash Naphtha, Aromatic Naphtha, Light Aromatic Naphtha, Light Aromatic Hydrocarbons, Aromatic Hydrocarbons, Light Aromatic Solvent.

Subpart QQQQ—National Emission Standards for Hazardous Air Pollutants: Surface Coating of Wood Building Products

SOURCE: 68 FR 31760, May 28, 2003, unless otherwise noted.

WHAT THIS SUBPART COVERS

§ 63.4680 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants (NESHAP) for wood building products surface coating sources. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations.

§ 63.4681 Am I subject to this subpart?

(a) Except as provided in paragraphs (c) and (d) of this section, the source category to which this subpart applies is surface coating of wood building products, which means the application of coatings using, for example, roll coaters or curtain coaters in the finishing or laminating of any wood building product that contains more than 50 percent by weight wood or wood fiber excluding the weight of any glass components, and is used in the construction, either interior or exterior, of a residential, commercial, or institutional building. The wood building products source category includes the subcategories listed in paragraphs (a)(1) through (5) of this section.

(1) *Doors, windows, and miscellaneous.* The doors, windows, and miscellaneous subcategory includes doors, windows, finished doorskins, and door and window components such as millwork, moulding, or trim, and other miscellaneous wood building products including, but not limited to, all moulding and trim, shingles, and shutters.

(2) *Flooring.* The flooring subcategory includes solid wood flooring, engineered wood flooring, and wood laminate flooring.

(3) *Interior wall paneling and tileboard.* The interior wall paneling and tileboard subcategory includes interior wall paneling products. Tileboard is a premium interior wall paneling product.

(4) *Other interior panels.* The other interior panel subcategory includes panels that are sold for uses other than interior wall paneling, such as coated particleboard, hardboard, and perforated panels.

(5) *Exterior siding and primed doorskins.* The exterior siding and primed doorskins subcategory includes lap or panel siding, trimboard, and primed doorskins. Doorskins that are coated with more than primer are included in the doors, windows, and miscellaneous subcategory.

(b) You are subject to this subpart if you own or operate a new, reconstructed, or existing affected source, as defined in §63.4682, that uses 4,170 liters (1,100 gallons) per year, or more, of coatings in the source category defined in paragraph (a) of this section and that is a major source, is located at a major source, or is part of a major source of emissions of hazardous air pollutants (HAP). A major source of HAP emissions is any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit any single HAP at a rate of 9.07 megagrams (Mg) (10 tons) or more per year or any combination of HAP at a rate of 22.68 Mg (25 tons) or more per year.

(c) This subpart does not apply to surface coating and other operations that meet the criteria of paragraphs (c)(1) through (5) of this section.

(1) Surface coating in the processes identified in paragraphs (c)(1)(i) through (xi) of this section that are part of plywood and composite wood product manufacturing and would be subject to subpart DDDD of this part when promulgated:

(i) Edge seals applied to a reconstituted wood product or plywood.

(ii) Anti-skid coatings applied to reconstituted wood products.

(iii) Primers applied to waferboard or oriented strand board (OSB) siding at the site of manufacture of the waferboard or OSB siding.

(iv) Surface coating that occurs during the manufacture of fiberboard, including application of clay slurry, titanium dioxide, or asphalt coatings to fiberboard.

(v) Painting of company logo information on plywood or reconstituted wood products.

(vi) Application of trademarks and grade stamp to reconstituted wood products or plywood.

(vii) Application of nail lines to reconstituted wood products.

(viii) Synthetic patches, wood patches, and wood putty applied to plywood.

(ix) Application of concrete forming and other drying or tempering oils to wood building products.

(x) Veneer composing.

(xi) Application of shelving edge fillers to reconstituted wood products.

(2) Surface coating of wood furniture subject to subpart JJ of this part, including finishing, gluing, cleaning, and washoff operations associated with the production of wood furniture or wood furniture components. The surface coating of millwork and trim associated with cabinet manufacturing is also subject to subpart JJ of this part and not to this subpart.

(3) Surface coating that occurs during the manufacture of prefabricated homes and mobile/modular homes.

(4) Surface coating that occurs at research or laboratory facilities; janitorial, building, and facility construction or maintenance operations; or

hobby shops that are operated for personal rather than for commercial purposes. The source category also does not include non-commercial coating operations or coating applications using handheld nonrefillable aerosol containers.

(5) Wood treatment or fire retardant operations located at wood building products sources that involve impregnating the wood product with the wood treatment chemicals or fire retardant by using a retort or other pressure vessel.

(d) If you have an affected source with surface coating operations subject to the requirements of another subpart of this part that account for at least 95 percent of the total (annual) coating usage for the affected source, you may demonstrate compliance with the requirements, including all applicable emission limit(s), for that subpart for the entire affected source.

§ 63.4682 What parts of my plant does this subpart cover?

(a) This subpart applies to each new, reconstructed, and existing affected source.

(b) The affected source is the collection of all of the items listed in paragraphs (b)(1) through (4) of this section that are used for surface coating of wood building products:

(1) All coating operations as defined in § 63.4781;

(2) All storage containers and mixing vessels in which coatings, thinners, and cleaning materials are stored or mixed;

(3) All manual and automated equipment and containers used for conveying coatings, thinners, and cleaning materials; and

(4) All storage containers and all manual and automated equipment and containers used for conveying waste materials generated by a coating operation.

(c) An affected source is a new affected source if its construction commenced after June 21, 2002, and the construction is of a completely new wood building products surface coating source where previously no wood building products surface coating source had existed.

(d) An affected source is reconstructed if you meet the criteria as defined in § 63.2.

(e) An affected source is existing if it is not new or reconstructed.

§ 63.4683 When do I have to comply with this subpart?

The date by which you must comply with this subpart is called the compliance date. The compliance date for each type of affected source is specified in paragraphs (a) through (c) of this section. The compliance date begins the initial compliance period during which you conduct the initial compliance demonstration described in §§ 63.4740, 63.4750, and 63.4760.

(a) For a new or reconstructed affected source, the compliance date is the applicable date in paragraph (a)(1) or (2) of this section:

(1) If the initial startup of your new or reconstructed affected source is before May 28, 2003, the compliance date is May 28, 2003.

(2) If the initial startup of your new or reconstructed affected source occurs after May 28, 2003, the compliance date is the date of initial startup of your affected source.

(b) For an existing affected source, the compliance date is the date 3 years after May 28, 2003.

(c) For an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP emissions, the compliance date is specified in paragraphs (c)(1) and (2) of this section.

(1) For any portion of the source that becomes a new or reconstructed affected source subject to this subpart, the compliance date is the date of initial startup of the affected source or May 28, 2003, whichever is later.

(2) For any portion of the source that becomes an existing affected source subject to this subpart, the compliance date is the date 1 year after the area source becomes a major source or 3 years after May 28, 2003, whichever is later.

(d) You must meet the notification requirements in § 63.4710 according to the dates specified in that section and in subpart A of this part. Some of the notifications must be submitted before the compliance dates described in paragraphs (a) through (c) of this section.

EMISSION LIMITATIONS

§63.4690 What emission limits must I meet?

(a) For a new or reconstructed affected source, you must limit organic HAP emissions to the atmosphere to no more than the applicable emission limit(s) in Table 1 to this subpart, determined according to the requirements in §§63.4741, 63.4751, or 63.4761.

(b) For an existing affected source, you must limit organic HAP emissions to the atmosphere to no more than the applicable emission limit(s) in Table 2 to this subpart, determined according to the requirements in §63.4741, §63.4751, or §63.4761.

(c) If the affected source applies coatings to products that are in different subcategories as described in §63.4681(a), then you must demonstrate initial and continuous compliance by selecting one of the approaches described in paragraphs (c)(1) and (2) of this section.

(1) Conduct separate compliance demonstrations for each applicable subcategory emission limit and reflect these separate determinations in notifications, reports, and records required by §§63.4710, 63.4720, and 63.4730, respectively.

(2) Demonstrate compliance with the most stringent of the applicable subcategory emission limits.

§63.4691 What are my options for meeting the emission limits?

You must include all coatings, thinners, and cleaning materials used in the affected source when determining whether the organic HAP emission rate is equal to or less than the applicable emission limit in §63.4690. To make this determination, you must use at least one of the three compliance options listed in paragraphs (a) through (c) of this section. You may apply any of the compliance options to an individual coating operation or to multiple coating operations as a group or to the entire affected source. You may use different compliance options for different coating operations or at different times on the same coating operation. However, you may not use different compliance options at the same time on the same coating operation. If you switch between compliance options for any coating operation or group of coating operations, you must document this switch as required by §63.4730(c), and you must report it in the next semiannual compliance report required in §63.4720.

(a) *Compliant material option.* Demonstrate that the organic HAP content of each coating used in the coating operation(s) is less than or equal to the applicable emission limit(s) in §63.4690, and that each thinner and each cleaning material used contains no organic HAP. You must meet all the requirements of §§63.4740, 63.4741, and 63.4742 to demonstrate compliance with the emission limit using this option.

(b) *Emission rate without add-on controls option.* Demonstrate that, based on the coatings, thinners, and cleaning materials used in the coating operation(s), the organic HAP emission rate for the coating operation(s) is less than or equal to the applicable emission limit(s) in §63.4690, calculated as a rolling 12-month emission rate and determined on a monthly basis. You must meet all the requirements of §§63.4750, 63.4751, and 63.4752 to demonstrate compliance with the emission limit using this option.

(c) *Emission rate with add-on controls option.* Demonstrate that, based on the coatings, thinners, and cleaning materials used in the coating operation(s) and the emission reductions achieved by emission capture systems and add-on controls, the organic HAP emission rate for the coating operation(s) is less than or equal to the applicable emission limit(s) in §63.4690, calculated as a rolling 12-month emission rate and determined on a monthly basis. If you use this compliance option, you must also demonstrate that all emission capture systems and add-on control devices for the coating operation(s) meet the operating limits required in §63.4692, except for solvent recovery systems for which you conduct liquid-liquid material balances according to §63.4761(j), and that you meet the work practice standards required in §63.4693. You must meet all the requirements of

§§ 63.4760 through 63.4768 to demonstrate compliance with the emission limits, operating limits, and work practice standards using this option.

§ 63.4692 What operating limits must I meet?

(a) For any coating operation(s) on which you use the compliant material option or the emission rate without add-on controls option, you are not required to meet any operating limits.

(b) For any controlled coating operation(s) on which you use the emission rate with add-on controls option, except those for which you use a solvent recovery system and conduct a liquid-liquid material balance according to § 63.4761(j), you must meet the operating limits specified in Table 3 to this subpart. These operating limits apply to the emission capture and control systems on the coating operation(s) for which you use this option, and you must establish the operating limits during the performance test according to the requirements in § 63.4767. You must meet the operating limits at all times after you establish them.

(c) If you use an add-on control device other than those listed in Table 3 to this subpart, or wish to monitor an alternative parameter and comply with a different operating limit, you must apply to the Administrator for approval of alternative monitoring under § 63.8(f).

§ 63.4693 What work practice standards must I meet?

(a) For any coating operation(s) on which you use the compliant material option or the emission rate without add-on controls option, you are not required to meet any work practice standards.

(b) If you use the emission rate with add-on controls option, you must develop and implement a work practice plan to minimize organic HAP emissions from the storage, mixing, and conveying of coatings, thinners, and cleaning materials used in, and waste materials generated by, the coating operation(s); or you must meet an alternative standard as provided in paragraph (d) of this section. The plan must specify practices and procedures to ensure that, at a minimum, the elements specified in paragraphs (b)(1) through (5) of this section are implemented. You must make the plan available upon request for inspection by the Administrator.

(1) All organic-HAP coatings, thinners, cleaning materials, and waste materials must be stored in closed containers.

(2) Spills of organic-HAP coatings, thinners, cleaning materials, and waste materials must be minimized.

(3) Organic-HAP coatings, thinners, cleaning materials, and waste materials must be conveyed from one location to another in closed containers or pipes.

(4) Mixing vessels that contain organic-HAP coatings and other materials must be closed except when adding to, removing, or mixing the contents.

(5) Emissions of organic-HAP must be minimized during cleaning of storage, mixing, and conveying equipment.

(c) If your affected source has an existing documented plan that incorporates steps taken to minimize emissions from the sources specified in paragraphs (b)(1) through (5) of this section, then your existing plan can be used to meet the requirement for a work practice plan as specified in paragraph (b) of this section.

(d) As provided in § 63.6(g), we, the U.S. Environmental Protection Agency (U.S. EPA), may choose to grant you permission to use an alternative to the work practice standards in this section.

GENERAL COMPLIANCE REQUIREMENTS

§ 63.4700 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limitations in this subpart as specified in paragraphs (a)(1) and (2) of this section.

(1) Any coating operation(s) for which you use the compliant material option or the emission rate without add-on controls option, as specified in § 63.4691(a) and (b), must be in compliance with the applicable emission limit in § 63.4690 at all times.

(2) Any coating operation(s) for which you use the emission rate with add-on controls option, as specified in

§ 63.4691(c), must be in compliance with the emission limitations as specified in paragraphs (a)(2)(i) through (iii) of this section.

(i) The coating operation(s) must be in compliance with the applicable emission limit in § 63.4690 at all times, except during periods of startup, shutdown, and malfunction (SSM).

(ii) The coating operation(s) must be in compliance with the operating limits for emission capture systems and add-on control devices required by § 63.4692 at all times, except during periods of SSM, and except for solvent recovery systems for which you conduct liquid-liquid material balances according to § 63.4761(j).

(iii) The coating operation(s) must be in compliance with the work practice standards in § 63.4693 at all times.

(b) You must always operate and maintain your affected source, including all air pollution control and monitoring equipment you use for purposes of complying with this subpart, according to the provisions in § 63.6(e)(1)(i).

(c) If your affected source uses an emission capture system and add-on control device, you must maintain a log detailing the operation and maintenance of the emission capture system, add-on control device, and continuous parameter monitors during the period between the compliance date specified for your affected source in § 63.4683 and the date when the initial emission capture system and add-on control device performance tests have been completed, as specified in § 63.4760. This requirement does not apply to a solvent recovery system for which you conduct liquid-liquid material balances according to § 63.4761(j) in lieu of conducting performance tests.

(d) If your affected source uses an emission capture system and add-on control device, you must develop and implement a written startup, shutdown, and malfunction plan (SSMP) according to the provisions in § 63.6(e)(3). The SSMP must address startup, shutdown, and corrective actions in the event of a malfunction of the emission capture system or the add-on control device. The SSMP must also address any coating operation equipment that may cause increased emissions or that would affect capture efficiency if the process equipment malfunctions, such as conveyors that move parts among enclosures.

§ 63.4701 What parts of the General Provisions apply to me?

Table 4 to this subpart indicates which parts of the General Provisions in §§ 63.1 through 63.15 apply to you.

NOTIFICATIONS, REPORTS, AND RECORDS

§ 63.4710 What notifications must I submit?

(a) *General.* You must submit the notifications in §§ 63.7(b) and (c), 63.8(f)(4), and 63.9(b) through (e) and (h) that apply to you by the dates specified in those sections, except as provided in paragraphs (b) and (c) of this section.

(b) *Initial Notification.* You must submit the Initial Notification required by § 63.9(b) for a new or reconstructed affected source no later than 120 days after initial startup or 120 days after May 28, 2003, whichever is later. For an existing affected source, you must submit the Initial Notification no later than 120 days after May 28, 2003.

(c) *Notification of Compliance Status.* You must submit the Notification of Compliance Status required by § 63.9(h) no later than 30 calendar days following the end of the initial compliance period described in § 63.4740, § 63.4750, or § 63.4760 that applies to your affected source. The Notification of Compliance Status must contain the information specified in paragraphs (c)(1) through (9) of this section and in § 63.9(h).

(1) Company name and address.

(2) Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.

(3) Date of the report and beginning and ending dates of the reporting period. The reporting period is the initial compliance period described in § 63.4740, § 63.4750, or § 63.4760 that applies to your affected source.

(4) Identification of the compliance option or options specified in § 63.4691 that you used on each coating operation in the affected source during the initial compliance period.

(5) Statement of whether or not the affected source achieved the emission limitations for the initial compliance period.

(6) If you had a deviation, include the information in paragraphs (c)(6)(i) and (ii) of this section.

(i) A description and statement of the cause of the deviation.

(ii) If you failed to meet the applicable emission limit in § 63.4690, include all the calculations you used to determine the grams organic HAP emitted per liter of coating solids used (pounds (lb) organic HAP emitted per gallon of coating solids used). You do not need to submit information provided by the materials suppliers or manufacturers, or test reports.

(7) For each of the data items listed in paragraphs (c)(7)(i) through (iv) of this section that is required by the compliance option(s) you used to demonstrate compliance with the emission limit, include an example of how you determined the value, including calculations and supporting data. Supporting data can include a copy of the information provided by the supplier or manufacturer of the example coating or material or a summary of the results of testing conducted according to § 63.4741(a), (b), or (c). You do not need to submit copies of any test reports.

(i) Mass fraction of organic HAP for one coating, for one thinner, and for one cleaning material.

(ii) Volume fraction of coating solids for one coating.

(iii) Density for one coating, one thinner, and one cleaning material, except that if you use the compliant material option, only the example coating density is required.

(iv) The amount of waste materials and the mass of organic HAP contained in the waste materials for which you are claiming an allowance in Equation 1 of § 63.4751.

(8) The calculation of grams organic HAP emitted per liter coating solids used (lb organic HAP emitted per gallon coating solids used) for the compliance option(s) you used, as specified in paragraphs (c)(8)(i) through (iii) of this section.

(i) For the compliant material option, provide an example calculation of the organic HAP content for one coating, using Equation 2 of § 63.4741.

(ii) For the emission rate without add-on controls option, provide the calculation of the total mass of organic HAP emissions for each month; the calculation of the total volume of coating solids used each month; and the calculation of the 12-month organic HAP emission rate, using Equations 1 and 1A through 1C, 2, and 3, respectively, of § 63.4751.

(iii) For the emission rate with add-on controls option, provide the calculation of the total mass of organic HAP emissions for the coatings, thinners, and cleaning materials used each month, using Equations 1 and 1A through 1C of § 63.4751; the calculation of the total volume of coating solids used each month, using Equation 2 of § 63.4751; the calculation of the mass of organic HAP emission reduction each month by emission capture systems and add-on control devices, using Equations 1, 1A through 1D, 2, 3, and 3A through 3C of § 63.4761, as applicable; the calculation of the total mass of organic HAP emissions each month, using Equation 4 of § 63.4761; and the calculation of the 12-month organic HAP emission rate, using Equation 5 of § 63.4761.

(9) For the emission rate with add-on controls option, you must include the information specified in paragraphs (c)(9)(i) through (iv) of this section, except that the requirements in paragraphs (c)(9)(i) through (iii) of this section do not apply to solvent recovery systems for which you conduct liquid-liquid material balances according to § 63.4761(j).

(i) For each emission capture system, a summary of the data and copies of the calculations supporting the determination that the emission capture system is a permanent total enclosure (PTE) or a measurement of the emission capture system efficiency. Include a description of the protocol followed for measuring capture efficiency, summaries of any capture efficiency tests conducted, and any calculations supporting the capture efficiency determination. If you use the data quality objective (DQO) or lower confidence limit (LCL) approach, you must also include the statistical calculations to show you meet the DQO or LCL criteria in appendix A to subpart KK of this part. You do not need to submit complete test reports.

(ii) A summary of the results of each add-on control device performance test. You do not need to submit complete test reports.

(iii) A list of each emission capture system and add-on control device operating limits and a summary of the data used to calculate those limits.

(iv) A statement of whether or not you developed and implemented the work practice plan required by §63.4693.

§63.4720 What reports must I submit?

(a) *Semiannual compliance reports.* You must submit semiannual compliance reports for each affected source according to the requirements of paragraphs (a)(1) through (7) of this section. The semiannual compliance reporting requirements may be satisfied by reports required under other parts of the Clean Air Act (CAA), as specified in paragraph (a)(2) of this section.

(1) *Dates.* Unless the Administrator has approved a different schedule for submission of reports under §63.10(a), you must prepare and submit each semiannual compliance report according to the dates specified in paragraphs (a)(1)(i) through (iv) of this section. Note that the information reported for each of the months in the reporting period will be based on the last 12 months of data prior to the date of each monthly calculation.

(i) The first semiannual compliance report must cover the first semiannual reporting period which begins the day after the end of the initial compliance period described in §63.4740, §63.4750, or §63.4760 that applies to your affected source and ends on June 30 or December 31, whichever occurs first following the end of the initial compliance period.

(ii) Each subsequent semiannual compliance report must cover the subsequent semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(iii) Each semiannual compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(iv) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 40 CFR part 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the date specified in paragraph (a)(1)(iii) of this section.

(2) *Inclusion with title V report.* Each affected source that has obtained a title V operating permit pursuant to 40 CFR part 70 or 40 CFR part 71 must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If an affected source submits a semiannual compliance report pursuant to this section along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the semiannual compliance report includes all required information concerning deviations from any emission limitation in this subpart, its submission shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a semiannual compliance report shall not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the permitting authority.

(3) *General requirements.* The semiannual compliance report must contain the information specified in paragraphs (a)(3)(i) through (v) of this section, and the information specified in paragraphs (a)(4) through (7) and (c)(1) of this section that is applicable to your affected source.

(i) Company name and address.

(ii) Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.

(iii) Date of report and beginning and ending dates of the reporting period.

The reporting period is the 6-month period ending on June 30 or December 31. Note that the information reported for each of the 6 months in the reporting period will be based on the last 12 months of data prior to the date of each monthly calculation.

(iv) Identification of the compliance option or options specified in § 63.4691 that you used on each coating operation during the reporting period. If you switched between compliance options during the reporting period, you must report the beginning and ending dates you used each option.

(v) If you used the emission rate without add-on controls or the emission rate with add-on controls compliance option (§ 63.4691(b) or (c)), the calculation results for each rolling 12-month organic HAP emission rate during the 6-month reporting period.

(4) *No deviations.* If there were no deviations from the emission limitations in §§ 63.4690, 63.4692, and 63.4693 that apply to you, the semiannual compliance report must include a statement that there were no deviations from the emission limitations during the reporting period. If you used the emission rate with add-on controls option and there were no periods during which the continuous parameter monitoring systems (CPMS) were out-of-control as specified in § 63.8(c)(7), the semiannual compliance report must include a statement that there were no periods during which the CPMS were out-of-control during the reporting period.

(5) *Deviations: compliant material option.* If you used the compliant material option, and there was a deviation from the applicable emission limit in § 63.4690, the semiannual compliance report must contain the information in paragraphs (a)(5)(i) through (iv) of this section.

(i) Identification of each coating used that deviated from the emission limit, each thinner and cleaning material used that contained organic HAP, and the dates and time periods each was used.

(ii) The calculation of the organic HAP content (using Equation 2 of § 63.4741) for each coating identified in paragraph (a)(5)(i) of this section. You do not need to submit background data supporting this calculation (*e.g.,* information provided by coating suppliers or manufacturers, or test reports).

(iii) The determination of mass fraction of organic HAP for each coating, thinner, and cleaning material identified in paragraph (a)(5)(i) of this section. You do not need to submit background data supporting this calculation (*e.g.,* information provided by material suppliers or manufacturers, or test reports).

(iv) A statement of the cause of each deviation.

(6) *Deviations: emission rate without add-on controls option.* If you used the emission rate without add-on controls option and there was a deviation from the applicable emission limit in § 63.4690, the semiannual compliance report must contain the information in paragraphs (a)(6)(i) through (iii) of this section.

(i) The beginning and ending dates of each compliance period during which the 12-month organic HAP emission rate exceeded the applicable emission limit in § 63.4690.

(ii) The calculations used to determine the 12-month organic HAP emission rate for the compliance period in which the deviation occurred. You must provide the calculations for Equations 1, 1A through 1C, 2, and 3 in § 63.4751; and if applicable, the calculation used to determine mass of organic HAP in waste materials according to § 63.4751(e)(4). You do not need to submit background data supporting these calculations (*e.g.,* information provided by materials suppliers or manufacturers, or test reports).

(iii) A statement of the cause of each deviation.

(7) *Deviations: emission rate with add-on controls option.* If you used the emission rate with add-on controls option and there was a deviation from an emission limitation (including any periods when emissions bypassed the add-on control device and were diverted to the atmosphere), the semiannual compliance report must contain the information in paragraphs (a)(7)(i) through (xiv) of this section. This includes periods of SSM during which deviations occurred.

(i) The beginning and ending dates of each compliance period during which the 12-month organic HAP emission rate exceeded the applicable emission limit in § 63.4690.

(ii) The calculations used to determine the 12-month organic HAP emission rate for each compliance period in which a deviation occurred. You must provide the calculation of the total mass of organic HAP emissions for the coatings, thinners, and cleaning materials used each month, using Equations 1 and 1A through 1C of § 63.4751; and, if applicable, the calculation used to determine mass of organic HAP in waste materials according to § 63.4751(e)(4); the calculation of the total volume of coating solids used each month, using Equation 2 of § 63.4751; the calculation of the mass of organic HAP emission reduction each month by emission capture systems and add-on control devices, using Equations 1 and 1A through 1D of § 63.4761, and Equations 2, 3, and 3A through 3C of § 63.4761, as applicable; the calculation of the total mass of organic HAP emissions each month, using Equation 4 of § 63.4761; and the calculation of the 12-month organic HAP emission rate, using Equation 5 of § 63.4761. You do not need to submit the background data supporting these calculations (*e.g.*, information provided by materials suppliers or manufacturers, or test reports).

(iii) The date and time that each malfunction started and stopped.

(iv) A brief description of the CPMS.

(v) The date of the latest CPMS certification or audit.

(vi) The date and time that each CPMS was inoperative, except for zero (low-level) and high-level checks.

(vii) The date, time, and duration that each CPMS was out-of-control, including the information in § 63.8(c)(8).

(viii) The date and time period of each deviation from an operating limit in Table 3 to this subpart, date and time period of any bypass of the add-on control device, and whether each deviation occurred during a period of SSM or during another period.

(ix) A summary of the total duration of each deviation from an operating limit in Table 3 to this subpart, each bypass of the add-on control device during the semiannual reporting period, and the total duration as a percent of the total source operating time during that semiannual reporting period.

(x) A breakdown of the total duration of the deviations from the operating limits in Table 3 to this subpart and bypasses of the add-on control device during the semiannual reporting period by identifying deviations due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(xi) A summary of the total duration of CPMS downtime during the semiannual reporting period and the total duration of CPMS downtime as a percent of the total source operating time during that semiannual reporting period.

(xii) A description of any changes in the CPMS, coating operation, emission capture system, or add-on control device since the last semiannual reporting period.

(xiii) For each deviation from the work practice standards, a description of the deviation, the date and time period of the deviation, and the actions you took to correct the deviation.

(xiv) A statement of the cause of each deviation.

(b) *Performance test reports.* If you use the emission rate with add-on controls option, you must submit reports of performance test results for emission capture systems and add-on control devices no later than 60 days after completing the tests as specified in § 63.10(d)(2).

(c) *SSM reports.* If you used the emission rate with add-on controls option and you had an SSM during the semiannual reporting period, you must submit the reports specified in paragraphs (c)(1) and (2) of this section.

(1) If your actions were consistent with your SSMP, you must include the information specified in § 63.10(d) in the semiannual compliance report required by paragraph (a) of this section.

(2) If your actions were not consistent with your SSMP, you must submit an immediate SSM report as described in paragraphs (c)(2)(i) and (ii) of this section.

(i) You must describe the actions taken during the event in a report delivered by facsimile, telephone, or other means to the Administrator within 2 working days after starting actions that are inconsistent with the plan.

(ii) You must submit a letter to the Administrator within 7 working days after the end of the event, unless you have made alternative arrangements with the Administrator as specified in § 63.10(d)(5)(ii). The letter must contain the information specified in § 63.10(d)(5)(ii).

§ 63.4730 What records must I keep?

You must collect and keep records of the data and information specified in this section. Failure to collect and keep these records is a deviation from the applicable standard.

(a) A copy of each notification and report that you submitted to comply with this subpart, and the documentation supporting each notification and report.

(b) A current copy of information provided by materials suppliers or manufacturers, such as manufacturer's formulation data, or test data used to determine the mass fraction of organic HAP and density for each coating, thinner, and cleaning material and the volume fraction of coating solids for each coating. If you conducted testing to determine mass fraction of organic HAP, density, or volume fraction of coating solids, you must keep a copy of the complete test report. If you use information provided to you by the manufacturer or supplier of the material that was based on testing, you must keep the summary sheet of results provided to you by the manufacturer or supplier. You are not required to obtain the test report or other supporting documentation from the manufacturer or supplier.

(c) For each compliance period, the records specified in paragraphs (c)(1) through (4) of this section.

(1) A record of the coating operations at which you used each compliance option and the time periods (beginning and ending dates and times) you used each option.

(2) For the compliant material option, a record of the calculation of the organic HAP content for each coating, using Equation 2 of § 63.4741.

(3) For the emission rate without add-on controls option, a record of the calculation of the total mass of organic HAP emissions for the coatings, thinners, and cleaning materials used each month, using Equations 1, 1A through 1C, and 2 of § 63.4751; and, if applicable, the calculation used to determine mass of organic HAP in waste materials according to § 63.4751(e)(4); the calculation of the total volume of coating solids used each month, using Equation 2 of § 63.4751; and the calculation of each 12-month organic HAP emission rate, using Equation 3 of § 63.4751.

(4) For the emission rate with add-on controls option, records of the calculations specified in paragraphs (c)(4)(i) through (v) of this section.

(i) The calculation of the total mass of organic HAP emissions for the coatings, thinners, and cleaning materials used each month, using Equations 1 and 1A through 1C of § 63.4751; and, if applicable, the calculation used to determine mass of organic HAP in waste materials according to § 63.4751(e)(4).

(ii) The calculation of the total volume of coating solids used each month, using Equation 2 of § 63.4751.

(iii) The calculation of the mass of organic HAP emission reduction by emission capture systems and add-on control devices, using Equations 1 and 1A through 1D of § 63.4761, and Equations 2, 3, and 3A through 3C of § 63.4761, as applicable.

(iv) The calculation of the total mass of organic HAP emissions each month, using Equation 4 of § 63.4761.

(v) The calculation of each 12-month organic HAP emission rate, using Equation 5 of § 63.4761.

(d) A record of the name and volume of each coating, thinner, and cleaning material used during each compliance period.

(e) A record of the mass fraction of organic HAP for each coating, thinner, and cleaning material used during each compliance period.

(f) A record of the volume fraction of coating solids for each coating used during each compliance period.

(g) A record of the density for each coating used during each compliance period; and, if you use either the emission rate without add-on controls or the emission rate with add-on controls compliance option, the density for each thinner and cleaning material used during each compliance period.

(h) If you use an allowance in Equation 1 of § 63.4751 for organic HAP contained in waste materials sent to or designated for shipment to a treatment, storage, and disposal facility (TSDF) according to § 63.4751(e)(4), you must keep records of the information specified in paragraphs (h)(1) through (3) of this section.

(1) The name and address of each TSDF to which you sent waste materials for which you use an allowance in Equation 1 of § 63.4751; a statement of which subparts under 40 CFR parts 262, 264, 265, and 266 apply to the facility; and the date of each shipment.

(2) Identification of the coating operations producing waste materials included in each shipment and the month or months in which you used the allowance for these materials in Equation 1 of § 63.4751.

(3) The methodology used in accordance with § 63.4751(e)(4) to determine the total amount of waste materials sent to or the amount collected, stored, and designated for transport to a TSDF each month; and the methodology to determine the mass of organic HAP contained in these waste materials. This must include the sources for all data used in the determination, methods used to generate the data, frequency of testing or monitoring, and supporting calculations and documentation, including the waste manifest for each shipment.

(i) [Reserved]

(j) You must keep records of the date, time, and duration of each deviation.

(k) If you use the emission rate with add-on controls option, you must keep the records specified in paragraphs (k)(1) through (8) of this section.

(1) For each deviation, a record of whether the deviation occurred during a period of SSM.

(2) The records in § 63.6(e)(3)(iii) through (v) related to SSM.

(3) The records required to show continuous compliance with each operating limit specified in Table 3 to this subpart that applies to you.

(4) For each capture system that is a PTE, the data and documentation you used to support a determination that the capture system meets the criteria in Method 204 of appendix M to 40 CFR part 51 for a PTE and has a capture efficiency of 100 percent, as specified in § 63.4765(a).

(5) For each capture system that is not a PTE, the data and documentation you used to determine capture efficiency according to the requirements specified in §§ 63.4764 and 63.4765(b) through (e), including the records specified in paragraphs (k)(5)(i) through (iii) of this section that apply to you.

(i) *Records for a liquid-to-uncaptured-gas protocol using a temporary total enclosure or building enclosure.* Records of the mass of total volatile hydrocarbon (TVH) as measured by Method 204A or F of appendix M to 40 CFR part 51 for each material used in the coating operation, and the total TVH for all materials used during each capture efficiency test run, including a copy of the test report. Records of the mass of TVH emissions not captured by the capture system that exited the temporary total enclosure or building enclosure during each capture efficiency test run as measured by Method 204D or E of appendix M to 40 CFR part 51, including a copy of the test report. Records documenting that the enclosure used for the capture efficiency test met the criteria in Method 204 of appendix M to 40 CFR part 51 for either a temporary total enclosure or a building enclosure.

(ii) *Records for a gas-to-gas protocol using a temporary total enclosure or a building enclosure.* Records of the mass of TVH emissions captured by the emission capture system as measured by Method 204B or C of appendix M to 40 CFR part 51 at the inlet to the add-on control device, including a copy of the test report. Records of the mass of TVH emissions not captured by the capture system that exited the temporary total enclosure or building enclosure during each capture efficiency test run as measured by Method 204D or E of appendix M to 40 CFR part 51, including a copy of the test report. Records documenting that the enclosure used for the capture efficiency test met the criteria in Method 204 of appendix M to 40 CFR part 51 for either a temporary total enclosure or a building enclosure.

(iii) *Records for an alternative protocol.* Records needed to document a capture efficiency determination using an alternative method or protocol as specified in § 63.4765(e), if applicable.

(6) The records specified in paragraphs (k)(6)(i) and (ii) of this section for each add-on control device organic HAP destruction or removal efficiency determination as specified in § 63.4766.

(i) Records of each add-on control device performance test conducted according to §§ 63.4764 and 63.4766.

(ii) Records of the coating operation conditions during the add-on control device performance test showing that the performance test was conducted under representative operating conditions.

(7) Records of the data and calculations you used to establish the emission capture and add-on control device operating limits as specified in § 63.4767 and to document compliance with the operating limits as specified in Table 3 to this subpart.

(8) A record of the work practice plan required by § 63.4693, and documentation that you are implementing the plan on a continuous basis.

§ 63.4731 In what form and for how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review, according to § 63.10(b)(1). Where appropriate, the records may be maintained as electronic spreadsheets or as a database.

(b) As specified in § 63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record on-site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to § 63.10(b)(1). You may keep the records off-site for the remaining 3 years.

COMPLIANCE REQUIREMENTS FOR THE COMPLIANT MATERIAL OPTION

§ 63.4740 By what date must I conduct the initial compliance demonstration?

You must complete the initial compliance demonstration for the initial compliance period according to the requirements in § 63.4741. The initial compliance period begins on the applicable compliance date specified in § 63.4683 and ends on the last day of the 12th month following the compliance date. If the compliance date occurs on any day other than the first day of a month, then the initial compliance period extends through the end of that month plus the next 12 months. The initial compliance demonstration includes the calculations according to § 63.4741 and supporting documentation showing that during the initial compliance period, you used no coating with an organic HAP content that exceeded the applicable emission limit in § 63.4690, and that you used no thinners or cleaning materials that contained organic HAP.

§ 63.4741 How do I demonstrate initial compliance with the emission limitations?

You may use the compliant material option for any individual coating operation, for any group of coating operations in the affected source, or for all the coating operations in the affected source. You must use either the emission rate without add-on controls option or the emission rate with add-on controls option for any coating operation in the affected source for which you do not use this option. To demonstrate initial compliance using the compliant material option, the coating operation or group of coating operations must use no coating with an organic HAP content that exceeds the applicable emission limit in § 63.4690 and must use no thinner or cleaning material that contains organic HAP as determined according to this section. Any coating operation for which you use the compliant material option is not required to meet the operating limits or work practice standards required in §§ 63.4692 and 63.4693, respectively. To demonstrate initial compliance with the emission limitations using the compliant material option, you must meet all the requirements of this section for the coating operation or group of coating operations using this option. Use the procedures in this section on each coating, thinner, and cleaning material in the condition it is in when it is received from its manufacturer or supplier and prior to any alteration.

You do not need to redetermine the mass of organic HAP in coatings, thinners, or cleaning materials that have been reclaimed onsite and reused in the coating operation(s) for which you use the compliant material option, provided these materials in their condition as received were demonstrated to comply with the compliant material option. If the mass fraction of organic HAP of a coating equals zero, determined according to paragraph (a) of this section, and you use the compliant material option, you are not required to comply with paragraphs (b) and (c) of this section for that coating.

(a) *Determine the mass fraction of organic HAP for each material used.* You must determine the mass fraction of organic HAP for each coating, thinner, and cleaning material used during the compliance period by using one of the options in paragraphs (a)(1) through (5) of this section.

(1) *Method 311 (appendix A to 40 CFR part 63).* You may use Method 311 for determining the mass fraction of organic HAP. Use the procedures specified in paragraphs (a)(1)(i) and (ii) of this section when performing a Method 311 test. If these values cannot be determined using Method 311, the owner or operator shall submit an alternative technique for determining their values for approval by the Administrator.

(i) Count each organic HAP that is measured to be present at 0.1 percent by mass or more for OSHA-defined carcinogens as specified in 29 CFR 1910.1200(d)(4), and at 1.0 percent by mass or more for other organic HAP compounds. For example, if toluene (not an OSHA carcinogen) is measured to be 0.5 percent of the material by mass, you do not have to count it. Express the mass fraction of each organic HAP you count as a value truncated to four places after the decimal point (*e.g.*, 0.379178412 truncates to 0.3791).

(ii) Calculate the total mass fraction of organic HAP in the test material by adding up the individual organic HAP mass fractions and truncating the result to three places after the decimal point (*e.g.*, 0.763).

(2) *Method 24 (appendix A to 40 CFR part 60).* For coatings, you may use Method 24 to determine the mass fraction of nonaqueous volatile matter and use that value as a substitute for mass fraction of organic HAP. (Note: Method 24 is not appropriate for those coatings with a water content that would result in an effective detection limit greater than the applicable emission limit.)

(3) *Alternative method.* You may use an alternative test method for determining the mass fraction of organic HAP once the Administrator has approved it. You must follow the procedure in § 63.7(f) to submit an alternative test method for approval.

(4) *Information from the supplier or manufacturer of the material.* You may rely on information other than that generated by the test methods specified in paragraphs (a)(1) through (3) of this section, such as manufacturer's formulation data, if it represents each organic HAP that is present at 0.1 percent by mass or more for OSHA-defined carcinogens as specified in 29 CFR 1910.1200(d)(4), and at 1.0 percent by mass or more for other organic HAP compounds. For example, if toluene (not an OSHA carcinogen) is 0.5 percent of the material by mass, you do not have to count it. If there is a disagreement between such information and results of a test conducted according to paragraphs (a)(1) through (3) of this section, then the test method results will take precedence unless, after consultation, a regulated source could demonstrate to the satisfaction of the enforcement agency that the formulation data were correct.

(5) *Solvent blends.* Solvent blends may be listed as single components for some materials in data provided by manufacturers or suppliers. Solvent blends may contain organic HAP which must be counted toward the total organic HAP mass fraction of the materials. When test data and manufacturer's data for solvent blends are not available, you may use the default values for the mass fraction of organic HAP in these solvent blends listed in Table 5 or Table 6 to this subpart. If you use the tables, you must use the values in Table 5 for all solvent blends that match Table 5 entries, and you may only use Table 6 if the solvent blends in the materials you use do not match any of the solvent blends in Table 5 and

you only know whether the blend is aliphatic or aromatic. However, if the results of a Method 311 (40 CFR part 63, appendix A) test indicate higher values than those listed on Table 5 or Table 6 to this subpart, the Method 311 results will take precedence.

(b) *Determine the volume fraction of coating solids for each coating.* You must determine the volume fraction of coating solids (liters of coating solids per liter of coating) for each coating used during the compliance period by one of the methods specified in paragraph (b)(1), (2), or (3) of this section.

(1) *ASTM Method D2697–86 (Reapproved 1998) or D6093–97.* You may use ASTM Method D2697–86 (Reapproved 1998), ''Standard Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings' (incorporated by reference, see §63.14), or D6093–97, ''Standard Test Method for Percent Volume Nonvolatile Matter in Clear or Pigmented Coatings Using a Helium Gas Pycnometer'' (incorporated by reference, see §63.14), to determine the volume fraction of coating solids for each coating. Divide the nonvolatile volume percent obtained with the methods by 100 to calculate volume fraction of coating solids. If these values cannot be determined using these methods, the owner operator may submit an alternative technique for determining their values for approval by the Administrator.

(2) *Information from the supplier or manufacturer of the material.* You may obtain the volume fraction of coating solids for each coating from the supplier or manufacturer.

(3) *Calculation of volume fraction of coating solids.* If the volume fraction of coating solids cannot be determined using the options in paragraphs (b)(1) and (2) of this section, you must determine it using Equation 1 of this section:

$$V_s = 1 - \left(\frac{m_{volatiles}}{D_{avg}} \right) \qquad \text{(Eq. 1)}$$

Where:

V_s = Volume fraction of coating solids, liters coating solids per liter coating.

$m_{volatiles}$ = Total volatile matter content of the coating, including HAP, volatile organic compounds (VOC), water, and exempt compounds, determined according to Method 24 in appendix A of 40 CFR part 60, grams volatile matter per liter coating.

D_{avg} = Average density of volatile matter in the coating, grams volatile matter per liter volatile matter, determined from test results using ASTM Method D1475–90 information from the supplier or manufacturer of the material, or reference sources providing density or specific gravity data for pure materials. If there is disagreement between ASTM Method D1475–90 test results and other information sources, the test results will take precedence.

(c) *Determine the density of each coating.* Determine the density of each coating used during the compliance period from test results using ASTM Method D1475–90 or information from the supplier or manufacturer of the material. If there is disagreement between ASTM Method D1475–90 test results and the supplier's or manufacturer's information, the test results will take precedence.

(d) *Calculate the organic HAP content of each coating.* Calculate the organic HAP content, grams organic HAP per liter coating solids, of each coating used during the compliance period, using Equation 2 of this section:

$$H_c = \frac{(D_c)(W_c)}{V_s} \qquad \text{(Eq. 2)}$$

Where:

H_c = Organic HAP content of the coating, grams organic HAP per liter coating solids.

D_c = Density of coating, grams coating per liter coating, determined according to paragraph (c) of this section.

W_c = Mass fraction of organic HAP in the coating, grams organic HAP per gram coating, determined according to paragraph (a) of this section.

V_s = Volume fraction of coating solids, liter coating solids per liter coating, determined according to paragraph (b) of this section.

(e) *Compliance demonstration.* The organic HAP content for each coating used during the initial compliance period, determined using Equation 2 of this section, must be less than or equal to the applicable emission limit in §63.4690; and each thinner and cleaning material used during the initial compliance period must contain no organic HAP, determined according to paragraph (a) of this section. You must keep all records required by §§63.4730 and 63.4731. As part of the Notification of Compliance Status required in §63.4710, you must identify the coating operation(s) for which you used the compliant material option and submit a statement that the coating operation(s) was (were) in compliance with the emission limitations during the initial compliance period because you used no coatings for which the organic HAP content exceeded the applicable emission limit in §63.4690, and you used no thinners or cleaning materials that contained organic HAP, determined according to paragraph (a) of this section.

§63.4742 How do I demonstrate continuous compliance with the emission limitations?

(a) For each compliance period to demonstrate continuous compliance, you must use no coating for which the organic HAP content determined using Equation 2 of §63.4741 exceeds the applicable emission limit in §63.4690; and use no thinner or cleaning material that contains organic HAP, determined according to §63.4741(a). A compliance period consists of 12 months. Each month after the end of the initial compliance period described in §63.4740 is the end of a compliance period consisting of that month and the preceding 11 months.

(b) If you choose to comply with the emission limitations by using the compliant material option, the use of any coating, thinner, or cleaning material that does not meet the criteria specified in paragraph (a) of this section is a deviation from the emission limitations that must be reported as specified in §§63.4710(c)(6) and 63.4720(a)(5).

(c) As part of each semiannual compliance report required by §63.4720, you must identify the coating operation(s) for which you used the compliant material option. If there were no deviations from the emission limitations in §63.4690, submit a statement that the coating operation(s) was (were) in compliance with the emission limitations during the reporting period because you used no coating for which the organic HAP content exceeded the applicable emission limit in §63.4690, and you used no thinner or cleaning material that contained organic HAP, determined according to §63.4741(a).

(d) You must maintain records as specified in §§63.4730 and 63.4731.

COMPLIANCE REQUIREMENTS FOR THE EMISSION RATE WITHOUT ADD-ON CONTROLS OPTION

§63.4750 By what date must I conduct the initial compliance demonstration?

You must complete the initial compliance demonstration for the initial compliance period according to the requirements of §63.4751. The initial compliance period begins on the applicable compliance date specified in §63.4683 and ends on the last day of the 12th month following the compliance date. If the compliance date occurs on any day other than the first day of a month, then the initial compliance period extends through the end of that month plus the next 12 months. You must determine the mass of organic HAP emissions and volume of coating solids used each month and then calculate a 12-month organic HAP emission rate at the end of the initial 12-month compliance period. The initial compliance demonstration includes the calculations according to §63.4751 and supporting documentation showing that during the initial compliance period the organic HAP emission rate was equal to or less than the applicable emission limit in §63.4690.

§63.4751 How do I demonstrate initial compliance with the emission limitations?

You may use the emission rate without add-on controls option for any individual coating operation, for any group of coating operations in the affected source, or for all the coating operations in the affected source. You must use either the compliant material option or the emission rate with add-on controls option for any coating operation in the affected source for which you do not use this option. To demonstrate initial compliance using the emission rate without add-on controls option, the coating operation or group of coating operations must meet the applicable emission limit in § 63.4690. Any coating operation for which you use the emission rate without add-on controls option is not required to meet the operating limits or work practice standards required in §§ 63.4692 and 63.4693, respectively. You must meet all the requirements of this section to demonstrate initial compliance with the applicable emission limit in § 63.4690 for the coating operation(s). When calculating the organic HAP emission rate according to this section, do not include any coatings, thinners, or cleaning materials used on coating operations for which you use the compliant material option or the emission rate with add-on controls option. You do not need to redetermine the mass of organic HAP in coatings, thinners, or cleaning materials that have been reclaimed onsite and reused in the coating operation(s) for which you use the emission rate without add-on controls option.

(a) *Determine the mass fraction of organic HAP for each material.* Determine the mass fraction of organic HAP for each coating, thinner, and cleaning material used during each month according to the requirements in § 63.4741(a).

(b) *Determine the volume fraction of coating solids for each coating.* Determine the volume fraction of coating solids for each coating used during each month according to the requirements in § 63.4741(b).

(c) *Determine the density of each material.* Determine the density of each coating, thinner, and cleaning material used during each month from test results using ASTM Method D1475–90, information from the supplier or manufacturer of the material, or reference sources providing density or specific gravity data for pure materials. If there is disagreement between ASTM Method D1475–90 test results and such other information sources, the test results will take precedence.

(d) *Determine the volume of each material used.* Determine the volume (liters) of each coating, thinner, and cleaning material used during each month by measurement or usage records.

(e) *Calculate the mass of organic HAP emissions.* The mass of organic HAP emissions is the combined mass of organic HAP contained in all coatings, thinners, and cleaning materials used during each month minus the organic HAP in certain waste materials. Calculate it using Equation 1 of this section.

$$H_e = A + B + C - R_w \qquad \text{(Eq. 1)}$$

Where:

H_e = Total mass of organic HAP emissions during the month, grams.

A = Total mass of organic HAP in the coatings used during the month, grams, as calculated in Equation 1A of this section.

B = Total mass of organic HAP in the thinners used during the month, grams, as calculated in Equation 1B of this section.

C = Total mass of organic HAP in the cleaning materials used during the month, grams, as calculated in Equation 1C of this section.

R_w = Total mass of organic HAP in waste materials sent or designated for shipment to a hazardous waste TSDF for treatment or disposal during the month, grams, determined according to paragraph (e)(4) of this section. (You may assign a value of zero to R_w if you do not wish to use this allowance.)

(1) Calculate the mass of organic HAP in the coatings used during the month, using Equation 1A of this section:

$$A = \sum_{i=1}^{m} \left(Vol_{c,i}\right)\left(D_{c,i}\right)\left(W_{c,i}\right) \qquad \text{(Eq. 1A)}$$

Where:

A = Total mass of organic HAP in the coatings used during the month, grams.

$Vol_{c,i}$ = Total volume of coating, i, used during the month, liters.

$D_{c,i}$ = Density of coating, i, grams coating per liter coating.

$W_{c,i}$ = Mass fraction of organic HAP in coating, i, grams organic HAP per gram coating.

m = Number of different coatings used during the month.

(2) Calculate the mass of organic HAP in the thinners used during the month, using Equation 1B of this section:

$$B = \sum_{j=1}^{n} \left(Vol_{t,j}\right)\left(D_{t,j}\right)\left(W_{t,j}\right) \qquad \text{(Eq. 1B)}$$

Where:

B = Total mass of organic HAP in the thinners used during the month, grams.

$Vol_{t,j}$ = Total volume of thinner, j, used during the month, liters.

$D_{t,j}$ = Density of thinner, j, grams per liter.

$W_{t,j}$ = Mass fraction of organic HAP in thinner, j, grams organic HAP per gram thinner.

n = Number of different thinners used during the month.

(3) Calculate the mass of organic HAP in the cleaning materials used during the month using Equation 1C of this section:

$$C = \sum_{k=1}^{p} \left(Vol_{s,k}\right)\left(D_{s,k}\right)\left(W_{s,k}\right) \qquad \text{(Eq. 1C)}$$

Where:

C = Total mass of organic HAP in the cleaning materials used during the month, grams.

$Vol_{s,k}$ = Total volume of cleaning material, k, used during the month, liters.

$D_{s,k}$ = Density of cleaning material, k, grams per liter.

$W_{s,k}$ = Mass fraction of organic HAP in cleaning material, k, grams organic HAP per gram material.

p = Number of different cleaning materials used during the month.

(4) If you choose to account for the mass of organic HAP contained in waste materials sent or designated for shipment to a hazardous waste TSDF in Equation 1 of this section, then you must determine it according to paragraphs (e)(4)(i) through (iv) of this section.

(i) You may include in the determination only waste materials that are generated by coating operations for which you use Equation 1 of this section and that will be treated or disposed of by a facility regulated as a TSDF under 40 CFR part 262, 264, 265, or 266. The TSDF may be either off-site or on-site. You may not include organic HAP contained in wastewater.

(ii) You must determine either the amount of the waste materials sent to a TSDF during the month or the amount collected and stored during the month and designated for future transport to a TSDF. Do not include in your determination any waste materials sent to a TSDF during a month if you have already included them in the amount collected and stored during that month or a previous month.

(iii) Determine the total mass of organic HAP contained in the waste materials specified in paragraph (e)(4)(ii) of this section.

(iv) You may use any reasonable methodology to determine the amount of waste materials and the total mass of organic HAP they contain, and you must document your methodology as required in § 63.4730(h). To the extent that waste manifests include this information, they may be used as part of the documentation of the amount of waste materials and mass of organic HAP contained in them.

(f) *Calculate the total volume of coating solids used.* Determine the total volume of coating solids used which is the combined volume of coating solids for all the coatings used during each month, using Equation 2 of this section:

$$V_{st} = \sum_{i-1}^{m} \left(Vol_{c,i}\right)\left(V_{s,i}\right) \qquad \text{(Eq. 2)}$$

Where:

V_{st} = Total volume of coating solids used during the month, liters.

$Vol_{c,i}$ = Total volume of coating, i, used during the month, liters.

$V_{s,i}$ = Volume fraction of coating solids for coating, i, liter solids per liter coating, determined according to § 63.4741(b).

m = Number of coatings used during the month.

(g) *Calculate the organic HAP emission rate.* Calculate the organic HAP emission rate for the 12-month compliance period, grams organic HAP per liter coating solids used, using Equation 3 of this section:

$$H_{yr} = \frac{\sum_{y=1}^{12} H_e}{\sum_{y=1}^{12} V_{st}} \qquad \text{(Eq. 3)}$$

Where:

H_{yr} = Organic HAP emission rate for the 12-month compliance period, grams organic HAP per liter coating solids.

H_e = Total mass of organic HAP emissions, grams, from all materials used during month, y, as calculated by Equation 1 of this section.

V_{st} = Total volume of coating solids used during month, y, liters, as calculated by Equation 2 of this section.

y = Identifier for months.

(h) *Compliance demonstration.* The organic HAP emission rate for the initial 12-month compliance period, calculated using Equation 3 of this section, must be less than or equal to the applicable emission limit in § 63.4690. You must keep all records as required by §§ 63.4730 and 63.4731. As part of the Notification of Compliance Status required by § 63.4710, you must identify the coating operation(s) for which you used the emission rate without add-on controls option and submit a statement that the coating operation(s) was (were) in compliance with the emission limitations during the initial compliance period because the organic HAP emission rate was less than or equal to the applicable emission limit in § 63.4690, determined according to this section.

§ 63.4752 How do I demonstrate continuous compliance with the emission limitations?

(a) To demonstrate continuous compliance, the organic HAP emission rate for each compliance period, calculated using Equation 3 of § 63.4751, must be less than or equal to the applicable emission limit in § 63.4690. A compliance period consists of 12 months. Each month after the end of the initial compliance period described in § 63.4750 is the end of a compliance period consisting of that month and the preceding 11 months. You must perform the calculations in § 63.4751(a) through (g) on a monthly basis using data from the previous 12 months of operation.

(b) If the organic HAP emission rate for any 12-month compliance period exceeded the applicable emission limit in § 63.4690, this is a deviation from the emission limitations for that compliance period and must be reported as specified in §§ 63.4710(c)(6) and 63.4720(a)(6).

(c) As part of each semiannual compliance report required by § 63.4720, you must identify the coating operation(s) for which you used the emission rate without add-on controls option. If there were no deviations from the emission limitations, you must submit a statement that the coating operation(s) was (were) in compliance with the emission limitations during the reporting period because the organic HAP emission rate for each compliance period was less than or equal to the applicable emission limit in §63.4690, determined according to §63.4751(a) through (g).

(d) You must maintain records as specified in §§63.4730 and 63.4731.

COMPLIANCE REQUIREMENTS FOR THE EMISSION RATE WITH ADD-ON CONTROLS OPTION

§63.4760 By what date must I conduct performance tests and other initial compliance demonstrations?

(a) *New and reconstructed affected sources.* For a new or reconstructed affected source, you must meet the requirements of paragraphs (a)(1) through (4) of this section.

(1) All emission capture systems, add-on control devices, and CPMS must be installed and operating no later than the applicable compliance date specified in §63.4683. Except for solvent recovery systems for which you conduct liquid-liquid material balances according to §63.4761(j), you must conduct a performance test of each capture system and add-on control device according to §§63.4764, 63.4765, and 63.4766, and establish the operating limits required by §63.4692 no later than 180 days after the applicable compliance date specified in §63.4683. For a solvent recovery system for which you conduct liquid-liquid material balances according to §63.4761(j), you must initiate the first material balance no later than 180 days after the applicable compliance date specified in §63.4683.

(2) You must develop and begin implementing the work practice plan required by §63.4693 no later than the compliance date specified in §63.4683.

(3) You must complete the initial compliance demonstration for the initial compliance period according to the requirements of §63.4761. The initial compliance period begins on the applicable compliance date specified in §63.4683 and ends on the last day of the 12th month following the compliance date. If the compliance date occurs on any day other than the first day of a month, then the initial compliance period extends through the end of that month plus the next 12 months. You must determine the mass of organic HAP emissions and volume of coating solids used each month and then calculate a 12-month organic HAP emission rate at the end of the initial 12-month compliance period. The initial compliance demonstration includes the results of emission capture system and add-on control device performance tests conducted according to §§63.4764, 63.4765, and 63.4766; results of liquid-liquid material balances conducted according to §63.4761(j); calculations according to §63.4761 and supporting documentation showing that during the initial compliance period, the organic HAP emission rate was equal to or less than the emission limit in §63.4690(a); the operating limits established during the performance tests and the results of the continuous parameter monitoring required by §63.4768; and documentation of whether you developed and implemented the work practice plan required by §63.4693.

(4) You do not need to comply with the operating limits for the emission capture system and add-on control device required by §63.4692 until after you have completed the performance tests specified in paragraph (a)(1) of this section. Instead, you must maintain a log detailing the operation and maintenance of the emission capture system, add-on control device, and continuous parameter monitors during the period between the compliance date and the performance test. You must begin complying with the operating limits for your affected source on the date you complete the performance tests specified in paragraph (a)(1) of this section. The requirements in this paragraph (a)(4) do not apply to solvent recovery systems for which you conduct liquid-liquid material balances according to the requirements in §63.4761(j).

(b) *Existing affected sources.* For an existing affected source, you must meet the requirements of paragraphs (b)(1) through (3) of this section.

(1) All emission capture systems, add-on control devices, and CPMS must be installed and operating no later than the applicable compliance date specified in §63.4683. Except for solvent recovery systems for which you conduct liquid-liquid material balances according to §63.4761(j), you must conduct a performance test of each capture system and add-on control device according to the procedures in

§§63.4764, 63.4765, and 63.4766 and establish the operating limits required by §63.4692 no later than the applicable compliance date specified in §63.4683. For a solvent recovery system for which you conduct liquid-liquid material balances according to §63.4761(j), you must initiate the first material balance no later than the compliance date specified in §63.4683.

(2) You must develop and begin implementing the work practice plan required by §63.4693 no later than the compliance date specified in §63.4683.

(3) You must complete the initial compliance demonstration for the initial compliance period according to the requirements of §63.4761. The initial compliance period begins on the applicable compliance date specified in §63.4683 and ends on the last day of the 12th month following the compliance date. If the compliance date occurs on any day other than the first day of a month, then the initial compliance period extends through the end of that month plus the next 12 months. You must determine the mass of organic HAP emissions and volume of coating solids used each month and then calculate a 12-month organic HAP emission rate at the end of the initial 12-month compliance period. The initial compliance demonstration includes the results of emission capture system and add-on control device performance tests conducted according to §§63.4764, 63.4765, and 63.4766; results of liquid-liquid material balances conducted according to §63.4761(j); calculations according to §63.4761 and supporting documentation showing that during the initial compliance period the organic HAP emission rate was equal to or less than the emission limit in §63.4690(b); the operating limits established during the performance tests and the results of the continuous parameter monitoring required by §63.4768; and documentation of whether you developed and implemented the work practice plan required by §63.4693.

§63.4761 How do I demonstrate initial compliance?

(a) You may use the emission rate with add-on controls option for any coating operation, for any group of coating operations in the affected source, or for all of the coating operations in the affected source. You may include both controlled and uncontrolled coating operations in a group for which you use this option. You must use either the compliant material option or the emission rate without add-on controls option for any coating operation in the affected source for which you do not use the emission rate with add-on controls option. To demonstrate initial compliance, the coating operation(s) for which you use the emission rate with add-on controls option must meet the applicable emission limitations in §§63.4690, 63.4692, and 63.4693. You must meet all the requirements of this section to demonstrate initial compliance with the emission limitations. When calculating the organic HAP emission rate according to this section, do not include any coatings, thinners, or cleaning materials used on coating operations for which you use the compliant material option or the emission rate without add-on controls option. You do not need to redetermine the mass of organic HAP in coatings, thinners, or cleaning materials that have been reclaimed and reused in the coating operation(s) for which you use the emission rate with add-on controls option.

(b) *Compliance with operating limits.* Except as provided in §63.4760(a)(4), and except for solvent recovery systems for which you conduct liquid-liquid material balances according to the requirements of §63.4761(j), you must establish and demonstrate continuous compliance during the initial compliance period with the operating limits required by §63.4692, using the procedures specified in §§63.4767 and 63.4768.

(c) *Compliance with work practice requirements.* You must develop, implement, and document your implementation of the work practice plan required by §63.4693 during the initial compliance period, as specified in §63.4730.

(d) *Compliance with emission limits.* You must follow the procedures in paragraphs (e) through (n) of this section to demonstrate compliance with the applicable emission limit in §63.4690.

(e) *Determine the mass fraction of organic HAP, density, volume used, and volume fraction of coating solids.* Follow the procedures specified in §63.4751(a) through (d) to determine the mass fraction of organic HAP, density, and volume of each coating, thinner, and cleaning material used during each month; and the volume fraction of coating solids for each coating used during each month.

(f) *Calculate the total mass of organic HAP emissions before add-on controls.* Using Equation 1 of §63.4751, calculate the total mass of organic HAP emissions before add-on controls from all coatings, thinners, and cleaning materials used during each month in the coating operation or group of coating operations for which you use the emission rate with add-on controls option.

(g) *Calculate the organic HAP emission reduction for each controlled coating operation.* Determine the mass of organic HAP emissions reduced for each controlled coating operation during each month. The emission reduction determination quantifies the total organic HAP emissions that pass through the emission capture system and are destroyed or removed by the add-on control device. Use the procedures in paragraph (h) of this section to calculate the mass of organic HAP emission reduction for each controlled coating operation using an emission capture system and add-on control device other than a solvent recovery system for which you conduct liquid-liquid material balances. For each controlled coating operation using a solvent recovery system for which you conduct a liquid-liquid material balance, use the procedures in paragraph (j) of this section to calculate the organic HAP emission reduction.

(h) *Calculate the organic HAP emission reduction for each controlled coating operation not using liquid-liquid material balances.* For each controlled coating operation using an emission capture system and add-on control device other than a solvent recovery system for which you conduct liquid-liquid material balances, calculate the organic HAP emission reduction, using Equation 1 of this section. The calculation applies the emission capture system efficiency and add-on control device efficiency to the mass of organic HAP contained in the coatings, thinners, and cleaning materials that are used in the coating operation served by the emission capture system and add-on control device during each month. For any period of time a deviation specified in §63.4763(c) or (d) occurs in the controlled coating operation, including a deviation during a period of SSM, you must assume zero efficiency for the emission capture system and add-on control device. Equation 1 of this section treats the materials used during such a deviation as if they were used on an uncontrolled coating operation for the time period of the deviation.

$$H_c = \left(A_c + B_c + C_c - H_{unc}\right)\left(\frac{CE}{100} \times \frac{DRE}{100}\right) \qquad \text{(Eq. 1)}$$

Where:

H_c = Mass of organic HAP emission reduction for the controlled coating operation during the month, grams.

A_c = Total mass of organic HAP in the coatings used in the controlled coating operation during the month, grams.

B_c = Total mass of organic HAP in the thinners used in the controlled coating operation during the month, grams, as calculated in Equation 1B of this section.

C_c = Total mass of organic HAP in the cleaning materials used in the controlled coating operation during the month, grams, as calculated in Equation 1C of this section.

H_{unc} = Total mass of organic HAP in the coatings, thinners, and cleaning materials used during all deviations specified in §63.4763(c) and (d) that occurred during the month in the controlled coating operation, grams, as calculated in Equation 1D of this section.

CE = Capture efficiency of the emission capture system vented to the add-on control device, percent. Use the test methods and procedures specified in §§ 63.4764 and 63.4765 to measure and record capture efficiency.

DRE = Organic HAP destruction or removal efficiency of the add-on control device, percent. Use the test methods and procedures in §§ 63.4764 and 63.4766 to measure and record the organic HAP destruction or removal efficiency.

(1) Calculate the mass of organic HAP in the coatings used in the controlled coating operation, grams, using Equation 1A of this section:

$$A_c = \sum_{i=1}^{m} \left(Vol_{c,i}\right)\left(D_{c,i}\right)\left(W_{c,i}\right) \qquad \text{(Eq. 1A)}$$

Where:

A_c = Total mass of organic HAP in the coatings used in the controlled coating operation, grams.

$Vol_{c,i}$ = Total volume of coating, i, used during the month, liters.

$D_{c,i}$ = Density of coating, i, grams per liter.

$W_{c,i}$ = mass fraction of organic HAP in coating, i, grams per gram.

m = Number of different coatings used.

(2) Calculate the mass of organic HAP in the thinners used in the controlled coating operation, grams, using Equation 1B of this section:

$$B_c = \sum_{j=1}^{n} \left(Vol_{t,j}\right)\left(D_{t,j}\right)\left(W_{t,j}\right) \qquad \text{(Eq. 1B)}$$

Where:

B_c = Total mass of organic HAP in the thinners used in the controlled coating operation during the month, grams.

$Vol_{t,j}$ = Total volume of thinner, j, used during the month, liters.

$D_{t,j}$ = Density of thinner, j, grams per liter.

$W_{t,j}$ = Mass fraction of organic HAP in thinner, j, grams per gram.

n = Number of different thinners used.

(3) Calculate the mass of organic HAP in the cleaning materials used in the controlled coating operation during the month, grams, using Equation 1C of this section:

$$C_c = \sum_{k=1}^{p} \left(Vol_{s,k}\right)\left(D_{s,k}\right)\left(W_{s,k}\right) \qquad \text{(Eq. 1C)}$$

Where:

C_c = Total mass of organic HAP in the cleaning materials used in the controlled coating operation during the month, grams.

$Vol_{s,k}$ = Total volume of cleaning material, k, used during the month, liters.

$D_{s,k}$ = Density of cleaning material, k, grams per liter.

$W_{s,k}$ = Mass fraction of organic HAP in cleaning material, k, grams per gram.

p = Number of different cleaning materials used.

(4) Calculate the mass of organic HAP in the coatings, thinners, and

cleaning materials used in the controlled coating operation during deviations specified in §63.4763(c) and (d), using Equation 1D of this section:

$$H_{unc} = \sum_{h=1}^{q} \left(Vol_h\right)\left(D_h\right)\left(W_h\right) \qquad \text{(Eq. 1D)}$$

Where:

H_{unc} = Total mass of organic HAP in the coatings, thinners, and cleaning materials used during all deviations specified in §63.4763(c) and (d) that occurred during the month in the controlled coating operation, grams.

Vol_h = Total volume of coating, thinner, or cleaning material, h, used in the controlled coating operation during deviations, liters.

D_h = Density of coating, thinner, or cleaning material, h, grams per liter.

W_h = mass fraction of organic HAP in coating, thinner, or cleaning material, h, grams organic HAP per gram coating.

q = Number of different coatings, thinners, or cleaning materials.

(i) [Reserved]

(j) *Calculate the organic HAP emission reduction for each controlled coating operation using liquid-liquid material balances.* For each controlled coating operation using a solvent recovery system for which you conduct liquid-liquid material balances, calculate the organic HAP emission reduction by applying the volatile organic matter collection and recovery efficiency to the mass of organic HAP contained in the coatings, thinners, and cleaning materials that are used in the coating operation controlled by the solvent recovery system during each month. Perform a liquid-liquid material balance for each month as specified in paragraphs (j)(1) through (6) of this section. Calculate the mass of organic HAP emission reduction by the solvent recovery system as specified in paragraph (j)(7) of this section.

(1) For each solvent recovery system, install, calibrate, maintain, and operate according to the manufacturer's specifications, a device that indicates the cumulative amount of volatile organic matter recovered by the solvent recovery system each month. The device must be initially certified by the manufacturer to be accurate to within ±2.0 percent of the mass of volatile organic matter recovered.

(2) For each solvent recovery system, determine the mass of volatile organic matter recovered for the month, grams, based on measurement with the device required in paragraph (j)(1) of this section.

(3) Determine the mass fraction of volatile organic matter for each coating, thinner, and cleaning material used in the coating operation controlled by the solvent recovery system during the month, grams volatile organic matter per gram coating. You may determine the volatile organic matter mass fraction using Method 24 of 40 CFR part 60, appendix A, or an EPA approved alternative method, or you may use information provided by the manufacturer or supplier of the coating. In the event of any inconsistency between information provided by the manufacturer or supplier and the results of Method 24 of 40 CFR part 60, appendix A, or an approved alternative method, the test method results will take precedence unless after consultation, a regulated source could demonstrate to the satisfaction of the enforcement agency that the formulation data were correct.

(4) Determine the density of each coating, thinner, and cleaning material used in the coating operation controlled by the solvent recovery system during the month, grams per liter, according to §63.4751(c).

(5) Measure the volume of each coating, thinner, and cleaning material used in the coating operation controlled by the solvent recovery system during the month, liters.

(6) Each month, calculate the solvent recovery system's volatile organic

matter collection and recovery efficiency, using Equation 2 of this section:

$$R_v = 100 \times \frac{M_{vr}}{\sum_{i=1}^{m}(Vol_i)(D_i)(WV_{c,i}) + \sum_{j=1}^{n}(Vol_j)(D_j)(WV_{t,j}) + \sum_{k=1}^{p}(Vol_k)(D_k)(WV_{s,k})} \qquad \text{(Eq. 2)}$$

Where:

R_v = Volatile organic matter collection and recovery efficiency of the solvent recovery system during the month, percent.

M_{vr} = Mass of volatile organic matter recovered by the solvent recovery system during the month, grams.

Vol_i = Volume of coating, i, used in the coating operation controlled by the solvent recovery system during the month, liters.

D_i = Density of coating, i, grams per liter.

$WV_{c,i}$ = Mass fraction of volatile organic matter for coating, i, grams volatile organic matter per gram coating.

Vol_j = Volume of thinner, j, used in the coating operation controlled by the solvent recovery system during the month, liters.

D_j = Density of thinner, j, grams per liter.

$WV_{t,j}$ = Mass fraction of volatile organic matter for thinner, j, grams volatile organic matter per gram thinner.

Vol_k = Volume of cleaning material, k, used in the coating operation controlled by the solvent recovery system during the month, liters.

D_k = Density of cleaning material, k, grams per liter.

$WV_{s,k}$ = Mass fraction of volatile organic matter for cleaning material, k, grams volatile organic matter per gram cleaning material.

m = Number of different coatings used in the coating operation controlled by the solvent recovery system during the month.

n = Number of different thinners used in the coating operation controlled by the solvent recovery system during the month.

p = Number of different cleaning materials used in the coating operation controlled by the solvent recovery system during the month.

(7) Calculate the mass of organic HAP emission reduction for the coating operation controlled by the solvent recovery system during the month, using Equation 3 of this section:

$$H_{CSR} = (A_{CSR} + B_{CSR} + C_{CSR})\left(\frac{R_V}{100}\right) \qquad \text{(Eq. 3)}$$

Where:

H_{CSR} = Mass of organic HAP emission reduction for the coating operation controlled by the solvent recovery system during the month, grams.

A_{CSR} = Total mass of organic HAP in the coatings used in the coating operation controlled by the solvent recovery system, grams, calculated using Equation 3A of this section.

B_{CSR} = Total mass of organic HAP in the thinners used in the coating operation controlled by the solvent recovery system, grams, calculated using Equation 3B of this section.

C_{CSR} = Total mass of organic HAP in the cleaning materials used in the coating operation controlled by the solvent recovery system, grams, calculated using Equation 3C of this section.

R_V = Volatile organic matter collection and recovery efficiency of the solvent recovery system, percent, from Equation 2 of this section.

(i) Calculate the mass of organic HAP in the coatings used in the coating operation controlled by the solvent recovery system, grams, using Equation 3A of this section:

$$A_{CSR} = \sum_{i=1}^{m} \left(Vol_{c,i}\right)\left(D_{c,i}\right)\left(W_{c,i}\right) \qquad \text{(Eq. 3A)}$$

Where:

A_{CSR} = Total mass of organic HAP in the coatings used in the coating operation controlled by the solvent recovery system during the month, grams.

$Vol_{c,i}$ = Total volume of coating, i, used during the month in the coating operation controlled by the solvent recovery system, liters.

$D_{c,i}$ = Density of coating, i, grams per liter.

$W_{c,i}$ = Mass fraction of organic HAP in coating, i, grams per gram.

m = Number of different coatings used.

(ii) Calculate the mass of organic HAP in the thinners used in the coating operation controlled by the solvent recovery system, grams, using Equation 3B of this section:

$$B_{CSR} = \sum_{j=1}^{n} \left(Vol_{t,j}\right)\left(D_{t,j}\right)\left(W_{t,j}\right) \qquad \text{(Eq. 3B)}$$

Where:

B_{CSR} = Total mass of organic HAP in the thinners used in the coating operation controlled by the solvent recovery system during the month, grams.

$Vol_{t,j}$ = Total volume of thinner, j, used during the month in the coating operation controlled by the solvent recovery system, liters.

$D_{t,j}$ = Density of thinner, j, grams per liter.

$W_{t,j}$ = Mass fraction of organic HAP in thinner, j, grams per gram.

n = Number of different thinners used.

(iii) Calculate the mass of organic HAP in the cleaning materials used in the coating operation controlled by the solvent recovery system during the month, grams, using Equation 3C of this section.

$$C_{CSR} = \sum_{k=1}^{p} \left(Vol_{s,k}\right)\left(D_{s,k}\right)\left(W_{s,k}\right) \qquad \text{(Eq. 3C)}$$

Where:

C_{CSR} = Total mass of organic HAP in the cleaning materials used in the coating operation controlled by the solvent recovery system during the month, grams.

$Vol_{s,k}$ = Total volume of cleaning material, k, used during the month in the coating operation controlled by the solvent recovery system, liters.

$D_{s,k}$ = Density of cleaning material, k, grams per liter.

$W_{s,k}$ = Mass fraction of organic HAP in cleaning material, k, grams per gram.

p = Number of different cleaning materials used.

(k) *Calculate the total volume of coating solids used.* Determine the total volume of coating solids used, liters, which is the combined volume of coating solids for all the coatings used during each month in the coating operation or group of coating operations for which you use the emission rate with add-on controls option, using Equation 2 of § 63.4751.

(l) *Calculate the mass of organic HAP emissions for each month.* Determine the mass of organic HAP emissions, grams, during each month, using Equation 4 of this section.

$$H_{HAP} = H_e - \sum_{i=1}^{q}\left(H_{c,i}\right) - \sum_{j=1}^{r}\left(H_{CSR,j}\right) \qquad \text{(Eq. 4)}$$

Where:

H_{HAP} = Total mass of organic HAP emissions for the month, grams.

H_e = Total mass of organic HAP emissions before add-on controls from all the coatings, thinners, and cleaning materials used during the month, grams, determined according to paragraph (f) of this section.

$H_{c,i}$ = Total mass of organic HAP emission reduction for controlled coating operation, i, not using a liquid-liquid material balance, during the month, grams, from Equation 1 of this section.

$H_{CSR,j}$ = Total mass of organic HAP emission reduction for coating operation, j, controlled by a solvent recovery system using a liquid-liquid material balance, during the month, grams, from Equation 3 of this section.

q = Number of controlled coating operations not using a liquid-liquid material balance.

r = Number of coating operations controlled by a solvent recovery system using a liquid-liquid material balance.

(m) *Calculate the organic HAP emission rate for the 12-month compliance period.* Determine the organic HAP emission rate for the 12-month compliance period, grams organic HAP per liter coating solids used, using Equation 5 of this section:

$$H_{annual} = \frac{\sum_{y=1}^{12} H_{HAP,y}}{\sum_{y=1}^{12} V_{st,y}} \qquad \text{(Eq. 5)}$$

Where:

H_{annual} = Organic HAP emission rate for the 12-month compliance period, grams organic HAP per liter coating solids.

$H_{HAP,y}$ = Organic HAP emission rate for month, y, determined according to Equation 4 of this section.

$V_{st,y}$ = Total volume of coating solids, liters, used during month, y, from Equation 2 of § 63.4751.

y = Identifier for months.

(n) *Compliance demonstration.* To demonstrate initial compliance with the emission limit, the organic HAP emission rate, calculated using Equation 5 of this section, must be less than or equal to the applicable emission limit in § 63.4690. You must keep all records as required by §§ 63.4730 and 63.4731. As part of the Notification of Compliance Status required by § 63.4710, you must identify the coating operation(s) for which you used the emission rate with add-on controls option and submit a statement that the coating operation(s) was (were) in compliance with the emission limitations during the initial compliance period because the organic HAP emission rate was less than or equal to the applicable emission limit in § 63.4690, and you achieved the operating limits required by § 63.4692 and the work practice standards required by § 63.4693.

§ 63.4762 [Reserved]

§ 63.4763 How do I demonstrate continuous compliance with the emission limitations?

(a) To demonstrate continuous compliance with the applicable emission limit in § 63.4690, the organic HAP emission rate for each compliance period, calculated using Equation 5 of § 63.4761, must be equal to or less than the applicable emission limit in § 63.4690. A compliance period consists of 12 months. Each month after the end of the initial compliance period described in § 63.4760 is the end of a compliance period consisting of that month and the preceding 11 months. You must perform the calculations in § 63.4761 on a monthly basis using data from the previous 12 months of operation.

(b) If the organic HAP emission rate for any 12-month compliance period exceeded the applicable emission limit in § 63.4690, this is a deviation from the emission limitation for that compliance period and must be reported as specified in §§ 63.4710(c)(6) and 63.4720(a)(7).

(c) You must demonstrate continuous compliance with each operating limit required by § 63.4692 that applies to you, as specified in Table 3 to this subpart.

(1) If an operating parameter is out of the allowed range specified in Table 3 to this subpart, this is a deviation from the operating limit that must be reported as specified in §§ 63.4710(c)(6) and 63.4720(a)(7).

(2) If an operating parameter deviates from the operating limit specified in Table 3 to this subpart, then you must assume that the emission capture system and add-on control device were achieving zero efficiency during the time period of the deviation. For the purposes of completing the compliance calculations specified in § 63.4761(h), you must treat the materials used during a deviation on a controlled coating operation as if they were used on an uncontrolled coating operation for the time period of the deviation, as indicated in Equation 1 of § 63.4761.

(d) You must meet the requirements for bypass lines in § 63.4768(b) for controlled coating operations for which you do not conduct liquid-liquid material balances. If any bypass line is opened and emissions are diverted to the atmosphere when a controlled coating operation is running, this is a deviation that must be reported as specified in §§ 63.4710(c)(6) and 63.4720(a)(7). For the purposes of completing the compliance calculations specified in § 63.4761(h), you must treat the materials used during a deviation on a controlled coating operation as if they were used on an uncontrolled coating operation for the time period of the deviation, as indicated in Equation 1 of § 63.4761.

(e) You must demonstrate continuous compliance with the work practice standards in § 63.4693. If you did not develop a work practice plan, or you did not implement the plan, or you did not keep the records required by § 63.4730(k)(8), this is a deviation from the work practice standards that must be reported as specified in §§ 63.4710(c)(6) and 63.4720(a)(7).

(f) As part of each semiannual compliance report required in § 63.4720, you must identify the coating operation(s) for which you used the emission rate with add-on controls option. If there were no deviations from the emission limitations, submit a statement that you were in compliance with the emission limitations during the reporting period because the organic HAP emission rate for each compliance period was less than or equal to the applicable emission limit in § 63.4690, and you achieved the operating limits required by § 63.4692 and the work practice standards required by § 63.4693 during each compliance period.

(g) During periods of SSM of the emission capture system, add-on control device, or coating operation that may affect emission capture or control device efficiency, you must operate in accordance with the SSMP required by § 63.4700(d).

(h) Consistent with §§ 63.6(e) and 63.7(e)(1), deviations that occur during a period of SSM of the emission capture system, add-on control device, or coating operation that may affect emission capture or control device efficiency are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with the SSMP. The Administrator will determine whether deviations that occur during a period you identify as an SSM are violations, according to the provisions in § 63.6(e).

(i) [Reserved]

(j) You must maintain records as specified in §§ 63.4730 and 63.4731.

§ 63.4764 What are the general requirements for performance tests?

(a) You must conduct each performance test required by § 63.4760 according to the requirements in § 63.7(e)(1) and under the conditions in this section unless you obtain a waiver of the performance test according to the provisions in § 63.7(h).

(1) *Representative coating operation operating conditions.* You must conduct the performance test under representative operating conditions for the coating operation. Operations during periods of SSM, and during periods of nonoperation do not constitute representative conditions. You must record the process information that is necessary to document operating conditions during the test and explain why the conditions represent normal operation.

(2) *Representative emission capture system and add-on control device operating conditions.* You must conduct the performance test when the emission capture system and add-on control device are operating at a representative flow rate, and the add-on control device is operating at a representative inlet concentration. You must record information that is necessary to document emission capture system and add-on control device operating conditions during the test and explain why the conditions represent normal operation.

(b) You must conduct each performance test of an emission capture system according to the requirements in § 63.4765. You must conduct each performance test of an add-on control device according to the requirements in § 63.4766.

§ 63.4765 How do I determine the emission capture system efficiency?

You must use the procedures and test methods in this section to determine capture efficiency as part of the performance test required by § 63.4760.

(a) *Assuming 100 percent capture efficiency.* You may assume the capture system efficiency is 100 percent if both of the conditions in paragraphs (a)(1) and (2) of this section are met:

(1) The capture system meets the criteria in Method 204 of appendix M to 40 CFR part 51 for a PTE and directs all the exhaust gases from the enclosure to an add-on control device.

(2) All coatings, thinners, and cleaning materials used in the coating operation are applied within the capture system; coating solvent flash-off and coating, curing, and drying occurs within the capture system; and the removal or evaporation of cleaning materials from the surfaces they are applied to occurs within the capture system. For example, this criterion is not met if parts enter the open shop environment when being moved between a spray booth and a curing oven.

(b) *Measuring capture efficiency.* If the capture system does not meet both of the criteria in paragraphs (a)(1) and (2) of this section, then you must use one of the three protocols described in paragraphs (c), (d), and (e) of this section to measure capture efficiency. The capture efficiency measurements use TVH capture efficiency as a surrogate for organic HAP capture efficiency. For the protocols in paragraphs (c) and (d) of this section, the capture efficiency measurement must consist of three test runs. Each test run must be at least 3 hours in duration or the length of a production run, whichever is longer, up to 8 hours. For the purposes of this test, a production run means the time required for a single part to go from the beginning to the end of production, which includes surface preparation activities and drying or curing time.

(c) *Liquid-to-uncaptured-gas protocol using a temporary total enclosure or building enclosure.* The liquid-to-uncaptured-gas protocol compares the mass of liquid TVH in materials used in the coating operation to the mass of TVH emissions not captured by the emission capture system. Use a temporary total enclosure or a building enclosure and the procedures in paragraphs (c)(1) through (6) of this section to measure emission capture system efficiency using the liquid-to-uncaptured-gas protocol.

(1) Either use a building enclosure or construct an enclosure around the coating operation where coatings, thinners, and cleaning materials are applied, and all areas where emissions from these applied coatings and materials subsequently occur, such as flash-off, curing, and drying areas. The areas of the coating operation where capture

devices collect emissions for routing to an add-on control device, such as the entrance and exit areas of an oven or spray booth, must also be inside the enclosure. The enclosure must meet the applicable definition of a temporary total enclosure or building enclosure in Method 204 of appendix M to 40 CFR part 51.

(2) Use Method 204A or 204F of appendix M to 40 CFR part 51 to determine the mass fraction of TVH liquid input from each coating, thinner, and cleaning material used in the coating operation during each capture efficiency test run. To make the determination, substitute TVH for each occurrence of the term volatile organic compounds (VOC) in the methods.

(3) Use Equation 1 of this section to calculate the total mass of TVH liquid input from all the coatings, thinners, and cleaning materials used in the coating operation during each capture efficiency test run.

$$TVH_{used} = \sum_{i=1}^{n} \left(TVH_i\right)\left(Vol_i\right)\left(D_i\right) \qquad \text{(Eq. 1)}$$

Where:

TVH_{used} = Mass of liquid TVH in materials used in the coating operation during the capture efficiency test run, grams.

TVH_i = Mass fraction of TVH in coating, thinner, or cleaning material, i, that is used in the coating operation during the capture efficiency test run, grams TVH per gram material.

Vol_i = Total volume of coating, thinner, or cleaning material, i, used in the coating operation during the capture efficiency test run, liters.

D_i = Density of coating, thinner, or cleaning material, i, grams material per liter material.

n = Number of different coatings, thinners, and cleaning materials used in the coating operation during the capture efficiency test run.

(4) Use Method 204D or E of appendix M to 40 CFR part 51 to measure the total mass, grams, of TVH emissions that are not captured by the emission capture system; they are measured as they exit the temporary total enclosure or building enclosure during each capture efficiency test run. To make the measurement, substitute TVH for each occurrence of the term VOC in the methods.

(i) Use Method 204D of appendix M to 40 CFR part 51 if the enclosure is a temporary total enclosure.

(ii) Use Method 204E of appendix M to 40 CFR part 51 if the enclosure is a building enclosure. During the capture efficiency measurement, all organic compound emitting operations inside the building enclosure, other than the coating operation for which capture efficiency is being determined, must be shut down, but all fans and blowers must be operating normally.

(5) For each capture efficiency test run, determine the percent capture efficiency of the emission capture system using Equation 2 of this section:

$$CE = \frac{\left(TVH_{used} - TVH_{uncaptured}\right)}{TVH_{used}} \times 100 \qquad \text{(Eq. 2)}$$

Where:

CE = Capture efficiency of the emission capture system vented to the add-on control device, percent.

TVH_{used} = Total mass of TVH liquid input used in the coating operation during the capture efficiency test run, grams.

$TVH_{uncaptured}$ = Total mass of TVH that is not captured by the emission capture system and that exits from the temporary total enclosure or building enclosure during the capture efficiency test run, grams, determined according to paragraph (c)(4) of this section.

(6) Determine the capture efficiency of the emission capture system as the average of the capture efficiencies measured in the three test runs.

(d) *Gas-to-gas protocol using a temporary total enclosure or a building enclosure.* The gas-to-gas protocol compares the mass of TVH emissions captured by the emission capture system to the mass of TVH emissions not captured. Use a temporary total enclosure or a building enclosure and the procedures in paragraphs (d)(1) through (5) of this section to measure emission capture system efficiency using the gas-to-gas protocol.

(1) Either use a building enclosure or construct an enclosure around the coating operation where coatings, thinners, and cleaning materials are applied, and all areas where emissions from these applied coatings and materials subsequently occur, such as flash-off, curing, and drying areas. The areas of the coating operation where capture devices collect emissions generated by the coating operation for routing to an add-on control device, such as the entrance and exit areas of an oven or a spray booth, must also be inside the enclosure. The enclosure must meet the applicable definition of a temporary total enclosure or building enclosure in Method 204 of appendix M to 40 CFR part 51.

(2) Use Method 204B or 204C of appendix M to 40 CFR part 51 to measure the total mass, grams, of TVH emissions captured by the emission capture system during each capture efficiency test run as measured at the inlet to the add-on control device. To make the measurement, substitute TVH for each occurrence of the term VOC in the methods.

(i) The sampling points for the Method 204B or 204C of appendix M to 40 CFR part 51 measurement must be upstream from the add-on control device and must represent total emissions routed from the capture system and entering the add-on control device.

(ii) If multiple emission streams from the capture system enter the add-on control device without a single common duct, then the emissions entering the add-on control device must be simultaneously measured in each duct, and the total emissions entering the add-on control device must be determined.

(3) Use Method 204D or 204E of appendix M to 40 CFR part 51 to measure the total mass, grams, of TVH emissions that are not captured by the emission capture system; they are measured as they exit the temporary total enclosure or building enclosure during each capture efficiency test run. To make the measurement, substitute TVH for each occurrence of the term VOC in the methods.

(i) Use Method 204D of appendix M to 40 CFR part 51 if the enclosure is a temporary total enclosure.

(ii) Use Method 204E of appendix M to 40 CFR part 51 if the enclosure is a building enclosure. During the capture efficiency measurement, all organic compound emitting operations inside the building enclosure, other than the coating operation for which capture efficiency is being determined, must be shut down, but all fans and blowers must be operating normally.

(4) For each capture efficiency test run, determine the percent capture efficiency of the emission capture system using Equation 3 of this section:

$$CE = \frac{TVH_{captured}}{\left(TVH_{captured} + TVH_{uncaptured}\right)} \times 100 \qquad \text{(Eq. 3)}$$

Where:

CE = Capture efficiency of the emission capture system vented to the add-on control device, percent.

$TVH_{captured}$ = Total mass of TVH captured by the emission capture system as measured at the inlet to the add-on control device during the emission capture efficiency test run, grams, determined according to paragraph (d)(2) of this section.

$TVH_{uncaptured}$ = Total mass of TVH that is not captured by the emission capture system and that exits from the temporary total enclosure or building enclosure during the capture efficiency test run, grams, determined according to paragraph (d)(3) of this section.

(5) Determine the capture efficiency of the emission capture system as the average of the capture efficiencies measured in the three test runs.

(e) *Alternative capture efficiency protocol.* As an alternative to the procedures specified in paragraphs (c) and (d) of this section, you may determine capture efficiency using any other capture efficiency protocol and test methods that satisfy the criteria of either the DQO or LCL approach as described in appendix A to subpart KK of this part.

§63.4766 How do I determine the add-on control device emission destruction or removal efficiency?

You must use the procedures and test methods in this section to determine the add-on control device emission destruction or removal efficiency as part of the performance test required by §63.4760. You must conduct three test runs as specified in §63.7(e)(3), and each test run must last at least 1 hour.

(a) For all types of add-on control devices, use the test methods specified in paragraphs (a)(1) through (5) of this section.

(1) Use Method 1 or 1A of appendix A to 40 CFR part 60, as appropriate, to select sampling sites and velocity traverse points.

(2) Use Method 2, 2A, 2C, 2D, 2F, or 2G of appendix A to 40 CFR part 60, as appropriate, to measure gas volumetric flow rate.

(3) Use Method 3, 3A, or 3B of appendix A to 40 CFR part 60, as appropriate, for gas analysis to determine dry molecular weight. You may also use as an alternative to Method 3B, the manual method for measuring the oxygen, carbon dioxide, and carbon monoxide content of exhaust gas in ANSI/ASME PTC 19.10–1981, ‘‘Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus]’’ (incorporated by reference, see §63.14).

(4) Use Method 4 of appendix A to 40 CFR part 60 to determine stack gas moisture.

(5) Methods for determining gas volumetric flow rate, dry molecular weight, and stack gas moisture must be performed, as applicable, during each test run.

(b) Measure total gaseous organic mass emissions as carbon at the inlet and outlet of the add-on control device simultaneously, using either Method 25 or 25A of appendix A to 40 CFR part 60, as specified in paragraphs (b)(1) through (3) of this section. You must use the same method for both the inlet and outlet measurements.

(1) Use Method 25 of appendix A to 40 CFR part 60 if the add-on control device is an oxidizer, and you expect the total gaseous organic concentration as carbon to be more than 50 parts per million (ppm) at the control device outlet.

(2) Use Method 25A of appendix A to 40 CFR part 60 if the add-on control device is an oxidizer, and you expect the total gaseous organic concentration as carbon to be 50 ppm or less at the control device outlet.

(3) Use Method 25A of appendix A to 40 CFR part 60 if the add-on control device is not an oxidizer.

(c) If two or more add-on control devices are used for the same emission stream, then you must measure emissions at the outlet of each device. For example, if one add-on control device is a concentrator with an outlet for the high-volume, dilute stream that has been treated by the concentrator, and a second add-on control device is an oxidizer with an outlet for the low-volume, concentrated stream that is treated with the oxidizer, you must measure emissions at the outlet of the oxidizer and the high volume dilute stream outlet of the concentrator.

(d) For each test run, determine the total gaseous organic emissions mass flow rates for the inlet and the outlet of the add-on control device, using Equation 1 of this section. If there is more than one inlet or outlet to the add-on control device, you must calculate the total gaseous organic mass flow rate using Equation 1 of this section for each inlet and each outlet and then total all of the inlet emissions and total all of the outlet emissions.

$$M_f = Q_{sd} C_c (12)(41.6)\left(10^{-6}\right) \qquad \text{(Eq. 1)}$$

Where:

M_f = Total gaseous organic emissions mass flow rate, grams per hour (h).

C_c = Concentration of organic compounds as carbon in the vent gas, as determined by Method 25 or Method 25A, parts per million by volume (ppmv), dry basis.

Q_{sd} = Volumetric flow rate of gases entering or exiting the add-on control device, as determined by Method 2, 2A, 2C, 2D, 2F, or 2G, dry standard cubic meters/hour (dscm/h).

41.6 = Conversion factor for molar volume, gram-moles per cubic meter (mol/m^3) (@ 293 Kelvin (K) and 760 millimeters of mercury (mmHg)).

(e) For each test run, determine the add-on control device organic emissions destruction or removal efficiency, using Equation 2 of this section:

$$DRE = 100 \times \frac{M_{fi} - M_{fo}}{M_{fi}} \qquad \text{(Eq. 2)}$$

Where:

DRE = Organic emissions destruction or removal efficiency of the add-on control device, percent.

M_{fi} = Total gaseous organic emissions mass flow rate at the inlet(s) to the add-on control device, using Equation 1 of this section, grams/h.

M_{fo} = total gaseous organic emissions mass flow rate at the outlet(s) of the add-on control device, using Equation 1 of this section, grams/h.

(f) Determine the emission destruction or removal efficiency of the add-on control device as the average of the efficiencies determined in the three test runs and calculated in Equation 2 of this section.

§ 63.4767 How do I establish the emission capture system and add-on control device operating limits during the performance test?

During the performance test required by § 63.4760 and described in §§ 63.4764, 63.4765, and 63.4766, you must establish the operating limits required by § 63.4692 according to this section, unless you have received approval for alternative monitoring and operating limits under § 63.8(f) as specified in § 63.4692.

(a) *Thermal oxidizers.* If your add-on control device is a thermal oxidizer, establish the operating limits according to paragraphs (a)(1) and (2) of this section.

(1) During the performance test, you must monitor and record the combustion temperature at least once every 15 minutes during each of the three test runs. You must monitor the temperature in the firebox of the thermal oxidizer or immediately downstream of the firebox before any substantial heat exchange occurs.

(2) Use the data collected during the performance test to calculate and record the average combustion temperature maintained during the performance test. This average combustion temperature is the minimum operating limit for your thermal oxidizer.

(b) *Catalytic oxidizers.* If your add-on control device is a catalytic oxidizer, establish the operating limits according to either paragraphs (b)(1) and (2) or paragraphs (b)(3) and (4) of this section.

(1) During the performance test, you must monitor and record the temperature before the catalyst bed and the temperature difference across the catalyst bed at least once every 15 minutes during each of the three test runs.

(2) Use the data collected during the performance test to calculate and record the average temperature difference across the catalyst bed maintained during the performance test. This is the minimum operating limit for your catalytic oxidizer.

(3) As an alternative to monitoring the temperature difference across the catalyst bed, you may monitor the temperature at the inlet to the catalyst bed and implement a site-specific inspection and maintenance plan for your catalytic oxidizer as specified in paragraph (b)(4) of this section. During the performance test, you must monitor and record the temperature before the catalyst bed at least once every 15 minutes during each of the three test runs. Use the data collected during the performance test to calculate and record the average temperature before the catalyst bed during the performance test. This is the minimum operating limit for your catalytic oxidizer. (NOTE: For regenerative catalytic oxidizers, the inlet to the catalyst is defined as the general zone between the inlets to the catalyst beds located in the multiple regeneration towers; select either a monitoring location or multiple monitoring locations. If multiple monitoring locations are selected, either establish separate operating limits for each location or calculate an average of the multiple measurements and set a single operating limit.)

(4) You must develop and implement an inspection and maintenance plan for your catalytic oxidizer(s) for which you elect to monitor according to paragraph (b)(3) of this section. The plan must address, at a minimum, the elements specified in paragraphs (b)(4)(i) through (iii) of this section.

(i) Annual sampling and analysis of the catalyst activity (*i.e,* conversion efficiency) following the recommended procedures from the manufacturer, the catalyst supplier, or the catalyst test provider.

(ii) Monthly inspection of the oxidizer system, including the burner assembly and fuel supply lines for problems and, as necessary, adjust the equipment to assure proper air-to-fuel mixtures.

(iii) Annual internal and monthly external visual inspection of the catalyst bed to check for channeling, abrasion, and settling. If problems are found, you must take corrective action consistent with the manufacturer's recommendation and conduct a new performance test to determine destruction efficiency according to § 63.4766.

(c) *Carbon adsorbers.* If your add-on control device is a carbon adsorber, establish the operating limits according to paragraphs (c)(1) and (2) of this section.

(1) You must monitor and record the total regeneration desorbing gas (*e.g.*, steam or nitrogen) mass flow for each regeneration cycle, and the carbon bed temperature after each carbon bed regeneration and cooling cycle for the regeneration cycle either immediately preceding or immediately following the performance test.

(2) The operating limits for your carbon adsorber are the minimum total desorbing gas mass flow recorded during the regeneration cycle, and the maximum carbon bed temperature recorded after the cooling cycle.

(d) *Condensers.* If your add-on control device is a condenser, establish the operating limits according to paragraphs (d)(1) and (2) of this section.

(1) During the performance test, you must monitor and record the condenser outlet (product side) gas temperature at least once every 15 minutes during each of the three test runs.

(2) Use the data collected during the performance test to calculate and record the average condenser outlet (product side) gas temperature maintained during the performance test. This average condenser outlet gas temperature is the maximum operating limit for your condenser.

(e) *Concentrators.* If your add-on control device includes a concentrator, you must establish operating limits for the concentrator according to paragraphs (e)(1) through (4) of this section.

(1) During the performance test, you must monitor and record the desorption concentrate stream gas temperature at least once every 15 minutes during each of the three runs of the performance test.

(2) Use the data collected during the performance test to calculate and record the average temperature. This is the minimum operating limit for the

desorption concentrate gas stream temperature.

(3) During the performance test, you must monitor and record the pressure drop of the dilute stream across the concentrator at least once every 15 minutes during each of the three runs of the performance test.

(4) Use the data collected during the performance test to calculate and record the average pressure drop. This is the maximum operating limit for the dilute stream across the concentrator.

(f) *Emission capture system.* For each capture device that is not part of a PTE that meets the criteria of § 63.4765(a), establish an operating limit for either the gas volumetric flow rate or duct static pressure, as specified in paragraphs (f)(1) and (2) of this section. The operating limit for a PTE is specified in Table 3 to this subpart.

(1) During the capture efficiency determination required by § 63.4760 and described in §§ 63.4764 and 63.4765, you must monitor and record either the gas volumetric flow rate or the duct static pressure for each separate capture device in your emission capture system at least once every 15 minutes during each of the three test runs at a point in the duct between the capture device and the add-on control device inlet.

(2) Calculate and record the average gas volumetric flow rate or duct static pressure for the three test runs for each capture device. This average gas volumetric flow rate or duct static pressure is the minimum operating limit for that specific capture device.

§ 63.4768 What are the requirements for continuous parameter monitoring system installation, operation, and maintenance?

(a) *General.* You must install, operate, and maintain each CPMS specified in paragraphs (c), (e), (f), and (g) of this section according to paragraphs (a)(1) through (6) of this section. You must install, operate, and maintain each CPMS specified in paragraphs (b) and (d) of this section according to paragraphs (a)(3) through (5) of this section.

(1) The CPMS must complete a minimum of one cycle of operation for each successive 15-minute period. You must have a minimum of four equally spaced successive cycles of CPMS operation in 1 hour.

(2) You must determine the average of all recorded readings for each successive 3-hour period of the emission capture system and add-on control device operation.

(3) You must record the results of each inspection, calibration, and validation check of the CPMS.

(4) You must maintain the CPMS at all times and have available necessary parts for routine repairs of the monitoring equipment.

(5) You must operate the CPMS and collect emission capture system and add-on control device parameter data at all times that a controlled coating operation is operating, except during monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, if applicable, calibration checks and required zero and span adjustments).

(6) You must not use emission capture system or add-on control device parameter data recorded during periods when the control device is not receiving emissions, monitoring malfunctions, associated repairs, out-of-control periods, or required quality assurance or control activities when calculating data averages. You must use all the data collected during all other periods in calculating the data averages for determining compliance with the emission capture system and add-on control device operating limits.

(7) A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the CPMS to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. Any period for which the monitoring system is out-of-control and data are not available for required calculations is a deviation from the monitoring requirements.

(b) *Capture system bypass line.* You must meet the requirements of paragraphs (b)(1) and (2) of this section for each emission capture system that contains bypass lines that could divert emissions away from the add-on control device to the atmosphere.

(1) You must monitor or secure the valve or closure mechanism controlling

the bypass line in a nondiverting position in such a way that the valve or closure mechanism cannot be opened without creating a record that the valve was opened. The method used to monitor or secure the valve or closure mechanism must meet one of the requirements specified in paragraphs (b)(1)(i) through (iv) of this section.

(i) *Flow control position indicator.* Install, calibrate, maintain, and operate according to the manufacturer's specifications a flow control position indicator that takes a reading at least once every 15 minutes and provides a record indicating whether the emissions are directed to the add-on control device or diverted from the add-on control device. The time of occurrence and flow control position must be recorded, as well as every time the flow direction is changed. The flow control position indicator must be installed at the entrance to any bypass line that could divert the emissions away from the add-on control device to the atmosphere.

(ii) *Car-seal or lock-and-key valve closures.* Secure any bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. You must visually inspect the seal or closure mechanism at least once every month to ensure that the valve is maintained in the closed position, and the emissions are not diverted away from the add-on control device to the atmosphere.

(iii) *Valve closure monitoring.* Ensure that any bypass line valve is in the closed (non-diverting) position through monitoring of valve position at least once every 15 minutes. You must inspect the monitoring system at least once every month to verify that the monitor will indicate valve position.

(iv) *Automatic shutdown system.* Use an automatic shutdown system in which the coating operation is stopped when flow is diverted by the bypass line away from the add-on control device to the atmosphere when the coating operation is running. You must inspect the automatic shutdown system at least once every month to verify that it will detect diversions of flow and shut down the coating operation.

(2) If any bypass line is opened and there was a deviation from the applicable emission limitation, you must include a description of why the bypass line was opened and the length of time it remained open in the semiannual compliance reports required in § 63.4720.

(c) *Thermal oxidizers and catalytic oxidizers.* If you are using a thermal oxidizer or catalytic oxidizer as an add-on control device (including those used with concentrators or with carbon adsorbers to treat desorbed concentrate streams), you must comply with the requirements in paragraphs (c)(1) through (3) of this section:

(1) For a thermal oxidizer, install a gas temperature monitor in the firebox of the thermal oxidizer or in the duct immediately downstream of the firebox before any substantial heat exchange occurs.

(2) For a catalytic oxidizer, you must install a gas temperature monitor in the gas stream immediately before the catalyst bed, and if you established operating limits according to § 63.4767(b)(1) and (2), also install a gas temperature monitor in the gas stream immediately after the catalyst bed.

(i) If you establish operating limits according to § 63.4767(b)(1) and (2), then you must install the gas temperature monitors both upstream and downstream of the catalyst bed. The temperature monitors must be in the gas stream immediately before and after the catalyst bed to measure the temperature difference across the bed.

(ii) If you establish operating limits according to § 63.4767(b)(3) and (4), then you must install a gas temperature monitor upstream of the catalyst bed. The temperature monitor must be in the gas stream immediately before the catalyst bed to measure the temperature.

(3) For all thermal oxidizers and catalytic oxidizers, you must meet the requirements in paragraphs (a) and (c)(3)(i) through (vii) of this section for each gas temperature monitoring device.

(i) Locate the temperature sensor in a position that provides a representative temperature.

(ii) Use a temperature sensor with a measurement sensitivity of 4 degrees Fahrenheit or 0.75 percent of the temperature value, whichever is larger.

(iii) Shield the temperature sensor system from electromagnetic interference and chemical contaminants.

(iv) If a gas temperature chart recorder is used, it must have a measurement sensitivity in the minor division of at least 20 degrees Fahrenheit.

(v) Perform an electronic calibration at least semiannually according to the procedures in the manufacturer's owners manual. Following the electronic calibration, you must conduct a temperature sensor validation check in which a second or redundant temperature sensor placed nearby the process temperature sensor must yield a reading within 30 degrees Fahrenheit of the process temperature sensor reading.

(vi) Conduct calibration and validation checks any time the sensor exceeds the manufacturer's specified maximum operating temperature range or install a new temperature sensor.

(vii) At least monthly, inspect components for integrity and electrical connections for continuity, oxidation, and galvanic corrosion.

(d) *Carbon adsorbers.* If you are using a carbon adsorber as an add-on control device, you must monitor the total regeneration desorbing gas (*e.g.*, steam or nitrogen) mass flow for each regeneration cycle, the carbon bed temperature after each regeneration and cooling cycle, and comply with paragraphs (a)(3) through (5) and (d)(1) and (2) of this section.

(1) The regeneration desorbing gas mass flow monitor must be an integrating device having a measurement sensitivity of plus or minus 10 percent capable of recording the total regeneration desorbing gas mass flow for each regeneration cycle.

(2) The carbon bed temperature monitor must have a measurement sensitivity of 1 percent of the temperature recorded or 1 degree Fahrenheit, whichever is greater, and must be capable of recording the temperature within 15 minutes of completing any carbon bed cooling cycle.

(e) *Condensers.* If you are using a condenser, you must monitor the condenser outlet (product side) gas temperature and comply with paragraphs (a) and (e)(1) and (2) of this section.

(1) The gas temperature monitor must have a measurement sensitivity of 1 percent of the temperature recorded or 1 degree Fahrenheit, whichever is greater.

(2) The temperature monitor must provide a gas temperature record at least once every 15 minutes.

(f) *Concentrators.* If you are using a concentrator, such as a zeolite wheel or rotary carbon bed concentrator, you must comply with the requirements in paragraphs (f)(1) and (2) of this section.

(1) You must install a temperature monitor in the desorption gas stream. The temperature monitor must meet the requirements in paragraphs (a) and (c)(3) of this section.

(2) You must install a device to monitor pressure drop across the zeolite wheel or rotary carbon bed. The pressure monitoring device must meet the requirements in paragraphs (a) and (f)(2)(i) through (vii) of this section.

(i) Locate the pressure sensor(s) in or as close to a position that provides a representative measurement of the pressure.

(ii) Minimize or eliminate pulsating pressure, vibration, and internal and external corrosion.

(iii) Use a gauge with a minimum tolerance of 0.5 inch of water or a transducer with a minimum tolerance of 1 percent of the pressure range.

(iv) Check the pressure tap daily.

(v) Using a manometer, check gauge calibration quarterly and transducer calibration monthly.

(vi) Conduct calibration checks any time the sensor exceeds the manufacturer's specified maximum operating pressure range or install a new pressure sensor.

(vii) At least monthly, inspect components for integrity, electrical connections for continuity, and mechanical connections for leakage.

(g) *Emission capture systems.* The capture system monitoring system must comply with the applicable requirements in paragraphs (g)(1) and (2) of this section.

(1) For each flow measurement device, you must meet the requirements in paragraphs (a) and (g)(1)(i) through (iv) of this section.

(i) Locate a flow sensor in a position that provides a representative flow measurement in the duct from each capture device in the emission capture system to the add-on control device.

(ii) Reduce swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.

(iii) Conduct a flow sensor calibration check at least semiannually.

(iv) At least monthly, inspect components for integrity, electrical connections for continuity, and mechanical connections for leakage.

(2) For each pressure drop measurement device, you must comply with the requirements in paragraphs (a) and (g)(2)(i) through (vi) of this section.

(i) Locate the pressure sensor(s) in or as close to a position that provides a representative measurement of the pressure drop across each opening you are monitoring.

(ii) Minimize or eliminate pulsating pressure, vibration, and internal and external corrosion.

(iii) Check pressure tap pluggage daily.

(iv) Using an inclined manometer with a measurement sensitivity of 0.0002 inch water, check gauge calibration quarterly and transducer calibration monthly.

(v) Conduct calibration checks any time the sensor exceeds the manufacturer's specified maximum operating pressure range or install a new pressure sensor.

(vi) At least monthly, inspect components for integrity, electrical connections for continuity, and mechanical connections for leakage.

OTHER REQUIREMENTS AND INFORMATION

§63.4780 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by us, the EPA, or a delegated authority such as your State, local, or tribal agency. If the EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency, in addition to the EPA, has the authority to implement and enforce this subpart. You should contact your EPA Regional Office to find out if implementation and enforcement of this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the EPA Administrator and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are listed in paragraphs (c)(1) through (4) of this section:

(1) Approval of alternatives to the work practice standards under §63.4693.

(2) Approval of major alternatives to test methods under §63.7(e)(2)(ii) and (f) and as defined in §63.90.

(3) Approval of major alternatives to monitoring under §63.8(f) and as defined in §63.90.

(4) Approval of major changes to recordkeeping and reporting under §63.10(f) and as defined in §63.90.

§63.4781 What definitions apply to this subpart?

Terms used in this subpart are defined in the CAA, in 40 CFR 63.2, and in this section as follows:

Add-on control means an air pollution control device, such as a thermal oxidizer or carbon adsorber, that reduces pollution in an air stream by destruction or removal before discharge to the atmosphere.

Adhesive means any chemical substance that is applied for the purpose of bonding two surfaces together.

Block average is an average of data points collected over any specified, continuous 180-minute block of time (*e.g.*, a 3-hour block could be noon to 3 p.m., with a subsequent total of eight 3-hour blocks within a 24-hour period).

Capture device means a hood, enclosure, room, floor sweep, or other means of containing or collecting emissions and directing those emissions into an add-on air pollution control device.

Capture efficiency or *capture system efficiency* means the portion (expressed as a percentage) of the pollutants from an emission source that is delivered to an add-on control device.

Capture system means one or more capture devices intended to collect emissions generated by a coating operation in the use of coatings or cleaning materials, both at the point of application and at subsequent points where emissions from the coatings or cleaning materials occur, such as flashoff, drying, or curing. As used in this subpart, multiple capture devices that collect emissions generated by a coating operation are considered a single capture system.

Cleaning material means a solvent used to remove contaminants and other materials, such as dirt, grease, oil, and dried or wet coating (*e.g.*, depainting), from a substrate before or after coating application or from equipment associated with a coating operation, such as spray booths, spray guns, racks, tanks, and hangers. Thus, it includes any cleaning material used on substrates or equipment or both.

Coating means a material applied to a substrate for decorative, protective, or functional purposes. Such materials include, but are not limited to, paints, sealants, caulks, inks, adhesives, and maskants. Decorative, protective, or functional materials that consist only of protective oils for metal, acids, bases, or any combination of these substances are not considered coatings for the purposes of this subpart.

Coating operation means equipment used to apply cleaning materials to a substrate to prepare it for coating application or to remove dried coating (surface preparation), to apply coating to a substrate (coating application) and to dry or cure the coating after application, or to clean coating operation equipment (equipment cleaning). A single coating operation may include any combination of these types of equipment, but always includes at least the point at which a coating or cleaning material is applied and all subsequent points in the affected source where organic HAP emissions from that coating or cleaning material occur. There may be multiple coating operations in an affected source. Coating application with hand-held nonrefillable aerosol containers, touchup markers, or marking pens is not a coating operation for the purposes of this subpart.

Coating solids means the nonvolatile portion of the coating that makes up the dry film.

Continuous parameter monitoring system (CPMS) means the total equipment that may be required to meet the data acquisition and availability requirements of this subpart used to sample, condition (if applicable), analyze, and provide a record of coating operation, or capture system, or add-on control device parameters.

Controlled coating operation means a coating operation from which some or all of the organic HAP emissions are routed through an emission capture system and add-on control device.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart including, but not limited to any emission limit, or operating limit, or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limit, or operating limit, or work practice standard in this subpart during SSM, regardless of whether or not such failure is permitted by this subpart.

Emission limitation means an emission limit, operating limit, or work practice standard.

Enclosure means a structure that surrounds a source of emissions and captures and directs the emissions to an add-on control device.

Exempt compound means a specific compound that is not considered a VOC due to negligible photochemical reactivity. The exempt compounds are listed in 40 CFR 51.100(s).

Finished wood product means any wood building product to which a protective, decorative, or functional layer has been applied. Materials used include, but are not limited to, paints, stains, sealers, topcoats, basecoats, primers, enamels, inks, and adhesives.

Laminated wood product means any wood building product to which a protective, decorative, or functional layer has been bonded with an adhesive. Products that are produced by bonding layers to the substrate as a part of the substrate manufacturing process (prior to pressing) are not considered laminated products under this subpart.

Manufacturer's formulation data means data on a material (such as a coating) that are supplied by the material manufacturer based on knowledge of the ingredients used to manufacture that material, rather than based on testing of the material with the test methods specified in § 63.4741. Manufacturer's formulation data may include, but are not limited to, information on density, organic HAP content, volatile organic matter content, and coating solids content.

Mass fraction of organic HAP means the ratio of the mass of organic HAP to the mass of a material in which it is contained, expressed as grams of organic HAP per gram of material.

Millwork means lumber that has been remanufactured into a wood building product or component such as door, window, and staircase part(s), or decorative trim.

Month means a calendar month or a pre-specified period of 28 days to 35 days to allow for flexibility in recordkeeping when data are based on a business accounting period.

Organic HAP content means the mass of organic HAP per volume of coating solids for a coating calculated using Equation 2 of § 63.4741. The organic HAP content is determined for the coating in the condition it is in when received from its manufacturer or supplier and does not account for any alteration after receipt.

Permanent total enclosure (PTE) means a permanently installed enclosure that meets the criteria of Method 204 of appendix M, 40 CFR part 51, for a PTE and that directs all the exhaust gases from the enclosure to an add-on control device.

Protective oil means an organic material that is applied to metal for the purpose of providing lubrication or protection from corrosion without forming a solid film. This definition of protective oil includes, but is not limited to, lubricating oils, evaporative oils (including those that evaporate completely), and extrusion oils.

Research or laboratory facility means a facility whose primary purpose is for research and development of new processes and products, that is conducted under the close supervision of technically trained personnel, and is not engaged in the manufacture of final or intermediate products for commercial purposes, except in a de minimis manner.

Responsible official means responsible official as defined in 40 CFR 70.2.

Startup, initial means the first time equipment is brought online in a source.

Surface preparation means use of a cleaning material on a portion of or all of a substrate. This includes use of a cleaning material to remove dried coating, which is sometimes called ''depainting.''

Temporary total enclosure means an enclosure constructed for the purpose of measuring the capture efficiency of pollutants emitted from a given source as defined in Method 204 of appendix M, 40 CFR part 51.

Thinner means an organic solvent that is added to a coating after the coating is received from the supplier.

Tileboard means hardboard that meets the specifications for Class I given by the standard ANSI/AHA A135.4–1995 as approved by the American National Standards Institute. The standard specifies requirements and test methods for water absorption, thickness swelling, modulus of rupture, tensile strength, surface finish, dimensions, squareness, edge straightness, and moisture content for five classes of hardboard. Tileboard is also known as Class I hardboard or tempered hardboard.

Total volatile hydrocarbon (TVH) means the total amount of nonaqueous volatile organic matter determined according to Methods 204 and 204A through 204F of appendix M to 40 CFR part 51 and substituting the term TVH each place in the methods where the term VOC is used. The TVH includes both VOC and non-VOC.

Uncontrolled coating operation means a coating operation from which none of the organic HAP emissions are routed through an emission capture system and add-on control device.

Volatile organic compound (VOC) means any compound defined as VOC in 40 CFR 51.100(s).

Volume fraction of coating solids means the ratio of the volume of coating solids (also known as volume of nonvolatiles) to the volume of coating; liters of coating solids per liter of coating.

Wastewater means water that is generated in a coating operation and is collected, stored, or treated prior to being discarded or discharged.

Wood building product means any product that contains more than 50 percent by weight wood or wood fiber, excluding the weight of any glass components, and is used in the construction, either interior or exterior, of a residential, commercial, or institutional building.

Table 1 to Subpart QQQQ of Part 63.—Emission Limits for New or Reconstructed Affected Sources

[You must comply with the emission limits that apply to your affected source in the following table as required by § 63.4690]

If the affected source applies coating to products in the following subcategory. . .	Then, the organic HAP emission limit for the affected source, in gramsHAP/liter solids (lb HAP/gal solids)[1,2] is:
1. Exterior siding and primed doorskins.	0 (0.00)
2. Flooring	0 (0.00)
3. Interior wall paneling or tileboard.	5 (0.04)
4. Other interior panels	0 (0.00)
5. Doors, windows, and miscellaneous.	57 (0.48)

[1] Determined as a rolling 12-month emission rate according to the requirements in § 63.4741, § 63.4751, or § 63.4761, as applicable.

[2] If the affected source applies coatings to products in more than one of the subcategories listed in the table, then you must determine the applicable emission limit according to § 63.4690(c).

Table 2 to Subpart QQQQ of Part 63.—Emission Limits for Existing Affected Sources

[You must comply with the emission limits that apply to your affected source in the following table as required by § 63.4690]

If the affected source applies coating to products in the following subcategory. . .	Then, the organic HAP emission limit for the affected source, in gramsHAP/liter solids (lb HAP/gal solids) [1,2] is:
1. Exterior siding and primed doorskins.	7 (0.06)
2. Flooring	93 (0.78)
3. Interior wall paneling or tileboard.	183 (1.53)
4. Other interior panels	20 (0.17)
5. Doors, windows, and miscellaneous.	231 (1.93)

[1] Determined as a rolling 12-month emission rate according to the requirements in § 63.4741, § 63.4751, or § 63.4761, as applicable.

[2] If the affected source applies coatings to products in more than one of the subcategories listed in the table, then you must determine the applicable emission limit according to § 63.4690(c).

Table 3 to Subpart QQQQ of Part 63.—Operating Limits if Using the Emission Rate With Add-On Controls Option

[If you are required to comply with operating limits by § 63.4692, you must comply with the applicable operating limits in the following table]

For the following device . . .	You must meet the following operating limit . . .	And you must demonstrate continuous compliance with the operating limit by . . .
1. Thermal oxidizer	a. The average combustion temperature in any 3-hour period must not fall below the combustion temperature limit established according to § 63.4767(a).	i. Collecting the combustion temperature data according to § 63.4768(c); ii. Reducing the data to 3-hour block averages; and iii. Maintaining the 3-hour block average combustion temperature at or above the temperature limit.
2. Catalytic oxidizer	a. The average temperature difference measured across the catalyst bed in any 3-hour period must not fall below the limit established according to § 63.4767(b); or	i. Collecting the temperature data according to § 63.4768(c); ii. Reducing the data to 3-hour block averages; and iii. Maintaining the 3-hour block temperature difference across the catalyst bed at or above the temperature limit.
	b. Ensure that the inlet temperature of the catalyst bed in any 3-hour period does not fall below the temperature limit established according to § 63.4767(b)(2) and develop and implement an inspection and maintenance plan according to § 63.4767(b)(3) and (4).	i. Collecting the temperature data according to § 63.4768(c), reducing the data to 3-hour block averages, and maintaining the 3-hour average temperature at or above the temperature limit; and ii. Complying with the inspection and maintenance plan developed according to § 63.4767(b)(3) and (4).

[If you are required to comply with operating limits by § 63.4692, you must comply with the applicable operating limits in the following table]

For the following device . . .	You must meet the following operating limit . . .	And you must demonstrate continuous compliance with the operating limit by . . .
3. Carbon absorber	a. The total regeneration desorbing gas (*e.g.,* steam or nitrogen) mass flow for each carbon bed regeneration cycle must not fall below the total regeneration desorbing gas mass flow limit established according to § 63.4767(c).	i. Measuring the total regeneration desorbing gas (*e.g.,* steam or nitrogen) mass flow for each regeneration cycle according to § 63.4768(d); and ii. Maintaining the total regeneration desorbing gas mass flow at or above the mass flow limit.
	b. The temperature of the carbon bed, after completing each regeneration and any cooling cycle, must not exceed the carbon bed temperature limit established according to § 63.4767(c).	i. Measuring the temperature of the carbon bed, after completing each regeneration and any cooling cycle, according to § 63.4768(d); and ii. Operating and carbon beds such that each carbon bed is not returned to service until completing each regeneration and any cooling cycle until the recorded temperature of the carbon bed is at or below the temperature limit.
4. Condenser	a. The average condenser outlet (product side) gas temperature in any 3-hour period must not exceed the temperature limit established according to § 63.4767(d).	i. Collecting the condenser outlet (product side) gas temperature according to § 63.4768(e); ii. Reducing the data to 3-hour block averages; and iii. Maintaining the 3-hour block average gas temperature at the outlet at or below the temperature limit.
5. Emission capture system that is a PTE according to § 63.4765(a).	a. The direction of the air flow at all times must be into the enclosure; and either.	i. Collecting the direction of the air flow; and either the facial velocity of air through all natural draft openings according to § 63.4768(g)(1) or the pressure drop across the enclosure according to § 63.4768(g)(2); and ii. Maintaining the facial velocity of air flow through all natural draft openings or the pressure drop at or above the facial velocity limit or pressure drop limit, and maintaining the direction of air flow into the enclosure at all times.
	b. The average facial velocity of air through all natural draft openings in the enclosure must be at least 200 feet per minute; or	i. See items 5.a.i and 5.a.ii.
	c. The pressure drop across the enclosure must be at least 0.007 inch H_2O, as established in Method 204 of appendix M to 40 CFR part 51.	i. See items 5.a.i and 5.a.ii.
6. Emission capture system that is not a PTE according to § 63.4765(a).	a. The average gas volumetric flow rate or duct static pressure in each duct between a capture device and add-on control device inlet in any 3-hour period must not fall below the average volumetric flow rate or duct static pressure limit established for that capture device according to § 63.4767(f).	i. Collecting the gas volumetric flow gas or duct static pressure for each capture device according to § 63.4768(g); ii. Reducing the data to 3-hour block averages; and iii. Maintaining the 3-hour block average gas volumetric flow rate or duct static pressure for each capture device at or above the gas volumetric flow rate or duct static pressure limit
7. Concentrators, including zeolite wheels and rotary carbon absorbers.	The average gas temperature of the desorption concentrate stream in any 3-hour period must not fall below the limit established according to § 63.4767(e); and	i. Collecting the temperature data according to § 63.4768(f); ii. Reducing the data to 3-hour block averages; and iii. Maintaining the 3-hour block average temperature at or above the temperature limit.
	b. The average pressure drop of the dilute stream across the concentrator in any 3-hour period must not exceed the limit established according to § 63.4767(e).	i. Collecting the pressure drop data according to § 63.4768(f); and ii. Reducing the pressure drop data to 3-hour block averages; and iii. Maintaining the 3-hour block average pressure drop at or below at the pressure drop limit.

Table 4 to Subpart QQQQ of Part 63.—Applicability of General Provisions to Subpart QQQQ of Part 63

[You must comply with the applicable General Provisions requirements according to the following table]

Citation	Subject	Applicable to subpart QQQQ	Explanation
§ 63.1(a)(1)–(14)	General Applicability	Yes.	
§ 63.1(b)(1)–(3)	Initial Applicability Determination.	Yes	Applicability to subpart QQQQ is also specified in § 63.4681.
§ 63.1(c)(1)	Applicability After Standard Established.	Yes.	
§ 63.1(c)(2)–(3)	Applicability of Permit Program for Area Sources.	No	Area sources are not subject to subpart QQQQ.
§ 63.1(c)(4)–(5)	Extensions and Notifications	Yes.	
§ 63.1(e)	Applicability of Permit Program Before Relevant Standard is Set.	Yes.	
§ 63.2	Definitions	Yes	Additional definitions are specified in § 63.4781.
§ 63.3(a)–(c)	Units and Abbreviations	Yes.	
§ 63.4(a)(1)–(5)	Prohibited Activities	Yes.	
§ 63.4(b)–(c)	Circumvention/Severability	Yes.	
§ 63.5(a)	Construction/Reconstruction	Yes.	
§ 63.5(b)(1)–(6)	Requirements for Existing, Newly Constructed, and Reconstructed Sources.	Yes.	
§ 63.5(d)	Application for Approval of Construction/Reconstruction.	Yes.	
§ 63.5(e)	Approval of Construction/Reconstruction.	Yes.	
§ 63.5(f)	Approval of Construction/Reconstruction Based on Prior State Review.	Yes.	
§ 63.6(a)	Compliance With Standards and Maintenance Requirements—Applicability.	Yes.	
§ 63.6(b)(1)–(7)	Compliance Dates for New and Reconstructed Sources.	Yes	§ 63.4683 specifies the compliance dates.
§ 63.6(c)(1)–(5)	Compliance Dates for Existing Sources.	Yes	§ 63.4683 specifies the compliance dates.
§ 63.6(e)(1)–(2)	Operation and Maintenance	Yes.	
§ 63.6(e)(3)	SSMP	Yes	Only sources using an add-on control device to comply with the standard must complete SSMP.
§ 63.6(f)(1)	Compliance Except During SSM.	Yes	Applies only to sources using an add-on control device to comply with the standard.
§ 63.6(f)(2)–(3)	Methods for Determining Compliance.	Yes.	
§ 63.6(g)(1)–(3)	Use of an Alternative Standard	Yes.	
§ 63.6(h)	Compliance With Opacity/Visible Emission Standards.	No	Subpart QQQQ does not establish opacity standards and does not require continuous opacity monitoring systems (COMS).
§ 63.6(i)(1)–(16)	Extension of Compliance	Yes.	
§ 63.6(j)	Presidential Compliance Exemption.	Yes.	
§ 63.7(a)(1)	Performance Test Requirements—Applicability.	Yes	Applies to all affected sources. Additional requirements for performance testing are specified in §§ 63.4764, 63.4765, and 63.4766.
§ 63.7(a)(2)	Performance Test Requirements—Dates.	Yes	Applies only to performance tests for capture system and control device efficiency at sources using these to comply with the standard. § 63.4760 specifies the schedule for performance test requirements that are earlier than those specified in § 63.7(a)(2).
§ 63.7(a)(3)	Performance Tests Required By the Administrator.	Yes.	
§ 63.7(b)–(e)	Performance Test Requirements—Notification, Quality Assurance, Facilities Necessary for Safe Testing, Conditions During Test.	Yes	Applies only to performance tests for capture system and add-on control device efficiency at sources using these to comply with the standard.
§ 63.7(f)	Performance Test Requirements—Use of Alternative Test Method.	Yes	Applies to all test methods except those used to determine capture system efficiency.

[You must comply with the applicable General Provisions requirements according to the following table]

Citation	Subject	Applicable to subpart QQQQ	Explanation
§ 63.7(g)–(h)	Performance Test Requirements—Data Analysis, Recordkeeping, Reporting, Waiver of Test.	Yes	Applies only to performance tests for capture system and add-on control device efficiency at sources using these to comply with the standard.
§ 63.8(a)(1)–(3)	Monitoring Requirements—Applicability.	Yes	Applies only to monitoring of capture system and add-on control device efficiency at sources using these to comply with the standard. Additional requirements for monitoring are specified in § 63.4768.
§ 63.8(a)(4)	Additional Monitoring Requirements.	No	Subpart QQQQ does not have monitoring requirements for flares.
§ 63.8(b)	Conduct of Monitoring	Yes.	
§ 63.8(c)(1)–(3)	Continuous Monitoring System (CMS) Operation and Maintenance.	Yes	Applies only to monitoring of capture system and add-on control device efficiency at sources using these to comply with the standard.Additional requirements for CMS operations and maintenance are specified in § 63.4768.
§ 63.8(c)(4)	CMSs	No	§ 63.4768 specifies the requirements for the operation of CMS for capture systems and add-on control devices at sources using these to comply.
§ 63.8(c)(5)	COMS	No	Subpart QQQQ does not have opacity for visible emission standards.
§ 63.8(c)(6)	CMS Requirements	No	§ 63.4768 specifies the requirements for monitoring systems for capture systems and add-on control devices at sources using these to comply.
§ 63.8(c)(7)	CMS Out-of-Control Periods	Yes.	
§ 63.8(c)(8)	CMS Out-of-Control Periods Reporting.	No	§ 63.4720 requires reporting of CMS out-of-control periods.
§ 63.8(d)–(e)	Quality Control Program and CMS Performance Evaluation.	No	Subpart QQQQ does not require the use of continuousemissions monitoring systems.
§ 63.8(f)(1)–(5)	Use of an Alternative Monitoring Method.	Yes.	
§ 63.8(f)(6)	Alternative to Relative Accuracy Test.	No	Subpart QQQQ does not require the use of continuous emissions monitoring systems.
§ 63.8(g)(1)–(5)	Data Reduction	No	§§ 63.4767 and 63.4768 specify monitoring data reduction.
§ 63.9(a)–(d)	Notification Requirements	Yes.	
§ 63.9(e)	Notification of Performance Test.	Yes	Applies only to capture system and add-on controldevice performance tests at sourcesusing these to comply with the standard.
§ 63.9(f)	Notification of Visible Emissions/Opacity Test.	No	Subpart QQQQ does not have opacity or visible emission standards.
§ 63.9(g)(1)–(3)	Additional Notifications When Using CMS.	No	Subpart QQQQ does require the use of continuous emissions monitoring systems.
§ 63.9(h)	Notification of Compliance Status.	Yes	§ 63.4710 specifies the dates for submitting the notification of compliance status.
§ 63.9(i)	Adjustment of Submittal Deadlines.	Yes.	
§ 63.9(j)	Change in Previous Information.	Yes.	
§ 63.10(a)	Recordkeeping/Reporting—Applicability and General Information.	Yes.	
§ 63.10(b)(1)	General Recordkeeping Requirements.	Yes	Additional requirements are specified in §§ 63.4730 and63.4731.
§ 63.10(b)(2)(i)–(v)	Recordkeeping Relevant to SSM Periods and CMS.	Yes	Requirements for SSM records only apply to add-on control devices used to comply with the standard.
§ 63.10(b)(2)(vi)–(xi)		Yes.	
§ 63.10(b)(2)(xii)	Records	Yes.	
§ 63.10(b)(2)(xiii)		No	Subpart QQQQ does not require the use of continuous emissions monitoring systems.
§ 63.10(b)(2)(xiv)		Yes.	
§ 63.10(b)(3)	Recordkeeping Requirements for Applicability Determinations.	Yes.	

[You must comply with the applicable General Provisions requirements according to the following table]

Citation	Subject	Applicable to subpart QQQQ	Explanation
§ 63.10(c)(1)–(6)	Additional Recordkeeping Requirements for Sources with CMS.	Yes.	
§ 63.10(c)(7)–(8)		No	The same records are required in § 63.4720(a)(7).
§ 63.10(c)(9)–(15)		Yes.	
§ 63.10(d)(1)	General Reporting Requirements.	Yes	Additional requirements are specified in § 63.4720.
§ 63.10(d)(2)	Report of Performance Test Results.	Yes	Additional requirements are specified in § 63.4720(b).
§ 63.10(d)(3)	Reporting Opacity or Visible Emissions Observations.	No	Subpart QQQQ does not require opacity or visible emissions observations.
§ 63.10(d)(4)	Progress Reports for Sources With Compliance Extensions.	Yes.	
§ 63.10(d)(5)	SSM Reports	Yes	Applies only to add-on control devices at sources using these to comply with the standard.
§ 63.10(e)(1)–(2)	Additional CMS Reports	No	Subpart QQQQ does not require the use of continuous emissions monitoring systems.
§ 63.10(e)(3)	Excess Emissions/CMS Performance Reports.	No	§ 63.4720(b) specifies the contents of periodic compliance reports.
§ 63.10(e)(4)	COMS Data Reports	No	Subpart QQQQ does not specify requirements for opacity or COMS.
§ 63.10(f)	Recordkeeping/Reporting Waiver.	Yes.	
§ 63.11	Control Device Requirements/Flares.	No	Subpart QQQQ does not specify use of flares for compliance.
§ 63.12	State Authority and Delegations.	Yes.	
§ 63.13	Addresses	Yes.	
§ 63.14	Incorporation by Reference	Yes	Test Methods ANSI/ASME PTC 19.10–1981, Part 10, ASTM D2697–86 (Reapproved 1998), and ASTM D6093–97 (incorporated by reference, see § 63.14).
§ 63.15	Availability of Information/Confidentiality.	Yes.	

TABLE 5 TO SUBPART QQQQ OF PART 63.—DEFAULT ORGANIC HAP MASS FRACTION FOR SOLVENTS AND SOLVENT BLENDS

[You may use the mass fraction values in the following table for solvent blends for which you do not have test data or manufacturer's formulation data]

Solvent/solvent blend	CAS. No.	Average organic HAP mass fraction	Typical organic HAP, percent by mass
1. Toluene	108–88–3	1.0	Toluene.
2. Xylene(s)	1330–20–7	1.0	Xylenes, ethylbenzene.
3. Hexane	110–54–3	0.5	n-hexane.
4. n-Hexane	110–54–3	1.0	n-hexane.
5. Ethylbenzene	100–41–4	1.0	Ethylbenzene.
6. Aliphatic 140		0	None.
7. Aromatic 100		0.02	1% xylene, 1% cumene.
8. Aromatic 150		0.09	Naphthalene.
9. Aromatic naphtha	64742–95–6	0.02	1% xylene, 1% cumene.
10. Aromatic solvent	64742–94–5	0.1	Naphthalene.
11. Exempt mineral spirits	8032–32–4	0	None.
12. Ligroines (VM & P)	8032–32–4	0	None.
13. Lactol spirits	64742–89–6	0.15	Toluene.
14. Low aromatic white spirit	64742–82–1	0	None.
15. Mineral spirits	64742–88–7	0.01	Xylenes.
16. Hydrotreated naphtha	64742–48–9	0	None.
17. Hydrotreated light distillate	64742–47–8	0.001	Toluene.
18. Stoddard solvent	8052–41–3	0.01	Xylenes.
19. Super high-flash naphtha	64742–95–6	0.05	Xylenes.
20. Varsol® solvent	8052–49–3	0.01	0.5% xylenes, 0.5% ethylbenzene.
21. VM & P naphtha	64742–89–8	0.06	3% toluene, 3% xylene.
22. Petroleum distillate mixture	68477–31–6	0.08	4% naphthalene, 4% biphenyl.

TABLE 6 TO SUBPART QQQQ OF PART 63.—DEFAULT ORGANIC HAP MASS FRACTION FOR PETROLEUM SOLVENT GROUPS[a]

[You may use the mass fraction values in the following table for solvent blends for which you do not have test data or manufacturer's formulation data]

Solvent type	Average organic HAP mass fraction	Typical organic HAP, percent by mass
Aliphatic[b]	0.03	1% xylene, 1% toluene, and 1% ethylbenzene.
Aromatic[c]	0.06	4% xylene, 1% toluene, and 1% ethylbenzene.

[a] Use this table only if the solvent blend does not match any of the solvent blends in Table 5 to this subpart and you only know whether the blend is aliphatic or aromatic.

[b] *E.g.*, Mineral Spirits 135, Mineral Spirits 150 EC, Naphtha, Mixed Hydrocarbon, Aliphatic Hydrocarbon, Aliphatic Naphtha, Naphthol Spirits, Petroleum Spirits, Petroleum Oil, Petroleum Naphtha, Solvent Naphtha, Solvent Blend.

[c] *E.g.*, Medium-flash Naphtha, High-flash Naphtha, Aromatic Naphtha, Light Aromatic Naphtha, Light Aromatic Hydrocarbons, Aromatic Hydrocarbons, Light Aromatic Solvent.

Subpart RRRR—National Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Furniture

SOURCE: 68 FR 28619, May 23, 2003, unless otherwise noted.

WHAT THIS SUBPART COVERS

§ 63.4880 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants (NESHAP) for metal furniture surface coating facilities. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations.

§ 63.4881 Am I subject to this subpart?

(a) Except as provided in paragraph (c) of this section, the source category to which this subpart applies is surface coating of metal furniture.

(1) Surface coating is the application of coatings to a substrate using, for example, spray guns or dip tanks.

(2) Metal furniture means furniture or components of furniture constructed either entirely or partially from metal. Metal furniture includes, but is not limited to, components of the following types of products as well as the products themselves: household, office, institutional, laboratory, hospital, public building, restaurant, barber and beauty shop, and dental furniture; office and store fixtures; partitions; shelving; lockers; lamps and lighting fixtures; and wastebaskets.

(b) You are subject to this subpart if you own or operate a new, reconstructed, or existing affected source as defined in § 63.4882, in the source category defined in paragraph (a) of this section, and that is a major source, is located at a major source, or is part of a major source of emissions of hazardous air pollutants (HAP). A major source of HAP emissions is any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit any single HAP at a rate of 9.07 megagrams (Mg) (10 tons) or more per year or any combination of HAP at a rate of 22.68 Mg (25 tons) or more per year.

(c) This subpart does not apply to surface coating that meets any of the criteria of paragraphs (c)(1) through (6) of this section.

(1) Surface coating conducted at an affected source that uses only coatings, thinners, and cleaning materials that contain no organic HAP.

(2) Surface coating of metal components of wood furniture conducted in an operation that is subject to the wood furniture manufacturing NESHAP in subpart JJ of this part.

(3) Surface coating that occurs at research or laboratory facilities or that is part of janitorial, building, and facility maintenance operations.

(4) Surface coating of only small items such as knobs, hinges, or screws that have a wider use beyond metal furniture are not subject to this subpart unless the surface coating occurs at an affected metal furniture source.

(5) Surface coating of metal furniture conducted for the purpose of repairing or maintaining metal furniture used by

a major source and not for commerce is not subject to this subpart, unless organic HAP emissions from the surface coating itself are as high as the rates specified in paragraph (b) of this section.

(6) Surface coating of metal furniture performed on-site at installations owned or operated by the Armed Forces of the United States (including the Coast Guard and the National Guard of any State).

§ 63.4882 What parts of my plant does this subpart cover?

(a) This subpart applies to each new, reconstructed, and existing affected source.

(b) The affected source is the collection of all of the items listed in paragraphs (b)(1) through (4) of this section that are used for surface coating of metal furniture:

(1) All coating operations as defined in § 63.4981;

(2) All storage containers and mixing vessels in which coatings, thinners, and cleaning materials are stored or mixed;

(3) All manual and automated equipment and containers and all pumps and piping within the affected source used for conveying coatings, thinners, and cleaning materials; and

(4) All storage containers, all pumps and piping, and all manual and automated equipment and containers within the affected source used for conveying waste materials generated by a coating operation.

(c) An affected source is a new affected source if you commenced its construction after April 24, 2002, and the construction is of a completely new metal furniture surface coating facility where previously no metal furniture surface coating facility had existed.

(d) An affected source is reconstructed if you meet the criteria as defined in § 63.2.

(e) An affected source is existing if it is not new or reconstructed.

§ 63.4883 When do I have to comply with this subpart?

The date by which you must comply with this subpart is called the compliance date. The compliance date for each type of affected source is specified in paragraphs (a) through (c) of this section. The compliance date begins the initial compliance period during which you conduct the initial compliance demonstration described in §§ 63.4940, 63.4950, and 63.4960.

(a) For a new or reconstructed affected source, the compliance date is the applicable date in paragraph (a)(1) or (2) of this section:

(1) If the initial startup of your new or reconstructed affected source is before May 23, 2003, the compliance date is May 23, 2003.

(2) If the initial startup of your new or reconstructed affected source occurs after May 23, 2003, the compliance date is the date of initial startup of your affected source.

(b) For an existing affected source, the compliance date is the date 3 years after May 23, 2003.

(c) For an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP emissions, the compliance date is specified in paragraphs (c)(1) and (2) of this section.

(1) For any portion of the source that becomes a new or reconstructed affected source subject to this subpart, the compliance date is the date of initial startup of the affected source or May 23, 2003, whichever is later.

(2) For any portion of the source that becomes an existing affected source subject to this subpart, the compliance date is the date 1 year after the area source becomes a major source or 3 years after May 23, 2003, whichever is later.

(d) You must meet the notification requirements in § 63.4910 according to the dates specified in that section and in subpart A of this part. Some of the notifications must be submitted before the compliance dates described in paragraphs (a) through (c) of this section.

EMISSION LIMITATIONS

§ 63.4890 What emission limits must I meet?

(a) For a new or reconstructed affected source, you must emit no organic HAP during each compliance period, determined according to the procedures in § 63.4941.

(b) *Alternative emission limit.* You may request approval from the Administrator to use an alternative new source emission limit for specific metal furniture components or type of components for which you believe the emission limit in paragraph (a) of this section cannot be achieved.

(1) Any request to use an alternative emission limit under paragraph (b) of this section must contain specific information demonstrating why no organic HAP-free coating technology can be used on the metal furniture components. The request must be based on objective criteria related to the performance or appearance requirements of the finished coating, which may include but is not limited to the criteria listed in paragraphs (b)(1)(i) through (viii) of this section.

(i) Low dried film thickness requirements (*e.g.*, less than 0.0254 millimeters (0.001 inch)).

(ii) Flexibility requirements for parts subject to repeated bending.

(iii) Chemical resistance to withstand chemical exposure in environments such as laboratories.

(iv) Resistance to the effects of exposure to ultraviolet light.

(v) Adhesion characteristics related to the condition of the substrate.

(vi) High gloss requirements.

(vii) Custom colors such as matching the color of a corporate logo.

(viii) Non-uniform surface finishes such as an antique appearance that requires visible cracking of the dried film.

(2) If the request to use an alternative emission limit under paragraph (b) of this section is approved, the new source must meet an emission limit of 0.094 kilogram (kg) organic HAP per liter (kg/liter) (0.78 pounds per gallon (lb/gal)) coating solids used for only those components subject to the approval. All other metal furniture surface coating operations at the new source must meet the emission limit specified in paragraph (a) of this section. Until approval to use the alternative emission limit has been granted by the Administrator under this paragraph (b)(2), you must meet the emission limit specified in paragraph (a) of this section and all other applicable requirements in this subpart.

(c) For an existing affected source, you must limit organic HAP emissions to the atmosphere to no more than 0.10 kg organic HAP per liter (0.83 lb/gal) of coating solids used during each compliance period, determined according to the procedures in §63.4941, §63.4951, or §63.4961.

§63.4891 What are my options for demonstrating compliance with the emission limits?

You must include all coatings, thinners, and cleaning materials used in the affected source when determining whether the organic HAP emission rate is equal to or less than the applicable emission limit in §63.4890. To make this determination, you must use at least one of the three compliance options listed in paragraphs (a) through (c) of this section. You may apply any of the compliance options to an individual coating operation or to multiple coating operations as a group or to the entire affected source. You may use different compliance options for different coating operations or at different times on the same coating operation. However, you may not use different compliance options at the same time on the same coating operation. If you switch between compliance options for any coating operation or group of coating operations, you must document this switch as required by §63.4930(c), and you must report it in the next semiannual (6-month period) compliance report required in §63.4920.

(a) *Compliant material option*. Demonstrate that the organic HAP content of each coating used in the coating operation or group of coating operations is less than or equal to the applicable emission rate limit in §63.4890 and that each thinner and each cleaning material used contains no organic HAP. You must meet all the requirements of §§63.4940, 63.4941, and 63.4942 to demonstrate compliance with the emission limit using this option.

(b) *Emission rate without add-on controls option*. Demonstrate that, based on the coatings, thinners, and cleaning materials used in the coating operation or group of coating operations, the organic HAP emission rate for the coating operation or group of coating operations is less than or equal to the applicable emission rate limit in § 63.4890, calculated as a monthly emission rate. You must meet all the requirements of §§ 63.4950, 63.4951, and 63.4952 to demonstrate compliance with the emission rate limit using this option.

(c) *Emission rate with add-on controls option.* Demonstrate that, based on the coatings, thinners, and cleaning materials used in the coating operation or group of coating operations, and the emission reductions achieved by emission capture and add-on control systems, the organic HAP emission rate is less than or equal to the applicable emission rate limit in § 63.4890, calculated as a monthly emission rate. If you use this compliance option, you must also demonstrate that all capture systems and add-on control devices for the coating operation or group of coating operations meet the operating limits required in § 63.4892, except for solvent recovery systems for which you conduct liquid-liquid material balances according to § 63.4961(j); and that you meet the work practice standards required in § 63.4893. You must meet all the requirements of §§ 63.4960 through 63.4967 to demonstrate compliance with the emission limits, operating limits, and work practice standards using this option.

(d) If you choose to use the emission rate with add-on controls compliance option in paragraph (c) of this section and operate the coating operation, its emission capture system, or its add-on control device at multiple sets of representative operating conditions that result in different capture system or add-on control device efficiencies during a compliance period, you must follow one of the procedures in paragraph (d)(1) or (2) of this section.

(1) Determine the operating conditions that result in the lowest emission capture system and add-on control device efficiencies through performance testing conducted according to §§ 63.4963, 63.4964, and 63.4965. Use these emission capture system and add-on control device efficiencies for all representative operating conditions during the compliance period.

(2) Develop a compliance calculation procedure for determining the organic HAP emission rate for the compliance period that takes into account all of the representative operating conditions the source was operated under during the compliance period and submit the procedure to the Administrator for approval. Until you receive approval from the Administrator, you must determine compliance according to paragraph (c) of this section.

§ 63.4892 What operating limits must I meet?

(a) For any coating operation or group of coating operations for which you use the compliant material option or the emission rate without add-on controls option to demonstrate compliance, you are not required to meet any operating limits.

(b) For any coating operation or group of coating operations for which you use the emission rate with add-on controls option to demonstrate compliance, except those for which you use a solvent recovery system and conduct a liquid-liquid material balance according to § 63.4961(j), you must meet the operating limits specified in Table 1 to this subpart. These operating limits apply to the emission capture and control systems on the coating operation or group of coating operations for which you use emission capture and add-on controls to demonstrate compliance. You must establish the operating limits during the performance test according to the requirements in § 63.4966. You must meet the operating limits at all times after you establish them.

(c) If you use an add-on control device other than those listed in Table 1 to this subpart, or wish to monitor an alternative parameter and comply with a different operating limit, you must apply to the Administrator for approval of alternative monitoring under § 63.8(f).

§ 63.4893 What work practice standards must I meet?

(a) For any coating operation or group of coating operations for which you use the compliant material option or the emission rate without add-on controls option to demonstrate compliance, you are not required to meet any work practice standards.

(b) For any coating operation or group of coating operations for which you use the emission rate with add-on controls option to demonstrate compliance, you must develop and implement a work practice plan to minimize organic HAP emissions from the storage, mixing, and conveying of coatings, thinners, and cleaning materials used in, and waste materials generated by, the coating operation or group of coating operations for which you use this option; or you must meet an alternative standard as provided in paragraph (c) of this section. The plan must specify practices and procedures to ensure that, at a minimum, the elements specified in paragraphs (b)(1) through (5) of this section are implemented.

(1) All organic-HAP-containing coatings, thinners, cleaning materials, and waste materials must be stored in closed containers. You must ensure that these containers are kept closed at all times except when depositing or removing these materials from the container.

(2) Spills of organic-HAP-containing coatings, thinners, cleaning materials, and waste materials must be minimized.

(3) Organic-HAP-containing coatings, thinners, cleaning materials, and waste materials must be conveyed from one location to another in closed containers or pipes.

(4) Mixing vessels which contain organic-HAP-containing coatings and other materials must be closed except when adding to, removing, or mixing the contents.

(5) Emissions of organic HAP must be minimized during cleaning of storage, mixing, and conveying equipment.

(c) As provided in §63.6(g), the Administrator may choose to grant you permission to use an alternative to the work practice standards in this section.

GENERAL COMPLIANCE REQUIREMENTS

§63.4900 What are my general requirements for complying with this subpart?

(a) The affected source must be in compliance at all times with the emission limitations specified in §63.4890.

(b) You must always operate and maintain your affected source, including all air pollution control and monitoring equipment you use for purposes of complying with this subpart, according to the provisions in §63.6(e)(1)(i).

(c) If your affected source uses an emission capture system and add-on control device to comply with the emission limitations in §63.4890, you must develop and implement a written startup, shutdown, and malfunction plan (SSMP) according to the provisions in §63.6(e)(3). The SSMP must address the startup, shutdown, and corrective actions in the event of a malfunction of the emission capture system or the add-on control device. The SSMP must also address any coating operation equipment that may cause increased emissions or that would affect capture efficiency if the process equipment malfunctions, such as conveyors that move parts among enclosures.

§63.4901 What parts of the General Provisions apply to me?

Table 2 to this subpart shows which parts of the General Provisions in §§63.1 through 63.15 apply to you.

NOTIFICATIONS, REPORTS, AND RECORDS

§63.4910 What notifications must I submit?

(a) *General.* You must submit the notifications in §§63.7(b) and (c), 63.8(f)(4), and 63.9(b) through (e), (h), and (j) that apply to you by the dates specified in those sections, except as provided in paragraphs (b) and (c) of this section.

(b) *Initial Notification.* You must submit the Initial Notification required by §63.9(b) for a new or reconstructed affected source no later than 120 days after initial startup or 120 days after

May 23, 2003, whichever is later. For an existing affected source, you must submit the Initial Notification no later than 1 year after May 23, 2003.

(c) *Notification of Compliance Status.* You must submit the Notification of Compliance Status required by § 63.9(h) no later than 30 calendar days following the end of the initial compliance period described in § 63.4940, § 63.4950, or § 63.4960 that applies to your affected source. The Notification of Compliance Status must contain the information specified in paragraphs (c)(1) through (9) of this section and the applicable information specified in § 63.9(h).

(1) Company name and address.

(2) Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the report. Such certifications must also comply with the requirements of 40 CFR 70.5(d) or 40 CFR 71.5(d).

(3) Date of the report and beginning and ending dates of the reporting period. The reporting period is the initial compliance period described in § 63.4940, § 63.4950, or § 63.4960 that applies to your affected source.

(4) Identification of the compliance option or options specified in § 63.4891 that you used on each coating operation in the affected source during the initial compliance period and that you will use for demonstrating continuous compliance.

(5) Statement of whether or not the affected source achieved the emission limitations for the initial compliance period.

(6) If you had a deviation, include the information in paragraphs (c)(6)(i) and (ii) of this section.

(i) A description and statement of the cause of the deviation.

(ii) If you failed to meet the applicable emission limit in § 63.4890, include all the calculations you used to determine compliance. You do not need to submit information provided by material suppliers or manufacturers or test reports.

(7) For each of the data items listed in paragraphs (c)(7)(i) through (iv) of this section that is required by the compliance option(s) you used to demonstrate compliance with the emission limit, include an example of how you determined the value, including calculations and supporting data. Supporting data can include a copy of the information provided by the supplier or manufacturer of the example coating or material or a summary of the results of testing conducted according to § 63.4941(a), (b), or (c). You do not need to submit copies of any test reports.

(i) Mass fraction of organic HAP for one coating, for one thinner, and for one cleaning material.

(ii) Volume fraction of coating solids for one coating.

(iii) Density for one coating, one thinner, and one cleaning material, except that if you use the compliant material option, only the example coating density is required.

(iv) The amount of waste materials and the mass of organic HAP contained in the waste materials for which you are claiming an allowance in Equation 1 of § 63.4951.

(8) The calculation of the organic HAP emission rate for the compliance option(s) you used, as specified in paragraphs (c)(8)(i) through (iii) of this section.

(i) For the compliant materials option, provide an example calculation of the organic HAP content for one coating, using Equation 2 of § 63.4941.

(ii) For the emission rate without add-on controls option, provide the information specified in paragraphs (c)(8)(ii)(A) through (C) of this section.

(A) The calculation of the total mass of organic HAP emissions during the initial compliance period, using Equation 1 of § 63.4951.

(B) The calculation of the total volume of coating solids used during the initial compliance period, using Equation 2 of § 63.4951.

(C) The calculation of the organic HAP emission rate for the initial compliance period, using Equation 3 of § 63.4951.

(iii) For the emission rate with add-on controls option, provide the information specified in paragraphs (c)(8)(iii)(A) through (D) of this section.

(A) The calculation of the total mass of organic HAP emissions for the coatings, thinners, and cleaning materials used during the initial compliance period, using Equation 1 of § 63.4951.

(B) The calculation of the total volume of coating solids used during the initial compliance period, using Equation 2 of § 63.4951.

(C) The calculation of the mass of organic HAP emission reduction during the initial compliance period by emission capture systems and add-on control devices, using Equation 1 of § 63.4961, and the calculation of the mass of organic HAP emission reduction for the coating operations controlled by solvent recovery systems during each compliance period, using Equation 3 of § 63.4961 as applicable.

(D) The calculation of the organic HAP emission rate for the initial compliance period, using Equation 4 of § 63.4961.

(9) For the emission rate with add-on controls option, you must include the information specified in paragraphs (c)(9)(i) through (v) of this section. However, the requirements in paragraphs (c)(9)(i) through (iii) of this section do not apply to solvent recovery systems for which you conduct liquid-liquid material balances according to § 63.4961(j).

(i) For each emission capture system, a summary of the data and copies of the calculations supporting the determination that the emission capture system is a permanent total enclosure (PTE) or a measurement of the emission capture system efficiency. Include a description of the protocol followed for measuring capture efficiency, summaries of any capture efficiency tests conducted, and any calculations supporting the capture efficiency determination. If you use the data quality objective (DQO) or lower confidence limit (LCL) approach, you must also include the statistical calculations to show you meet the DQO or LCL criteria in appendix A to subpart KK of this part. You do not need to submit complete test reports.

(ii) A summary of the results of each add-on control device performance test. You do not need to submit complete test reports.

(iii) A list of each emission capture system's and add-on control device's operating limits and a summary of the data used to calculate those limits.

(iv) A statement of whether or not you developed and implemented the work practice plan required by § 63.4893.

(v) A statement of whether or not you developed and implemented the SSMP required by § 63.4900.

§ 63.4920 What reports must I submit?

(a) *Semiannual compliance reports.* You must submit semiannual compliance reports for each affected source according to the requirements of paragraphs (a)(1) through (7) of this section. The semiannual compliance reporting requirements may be satisfied by reports required under other parts of the Clean Air Act (CAA), such as those detailed in paragraph (a)(2) of this section.

(1) *Dates.* Unless the Administrator has approved a different schedule for submission of reports under § 63.10(a), you must prepare and submit each semiannual compliance report according to the dates specified in paragraphs (a)(1)(i) through (iv) of this section.

(i) The first semiannual compliance report must cover the first semiannual reporting period which begins the day after the end of the initial compliance period described in § 63.4940, § 63.4950, or § 63.4960 that applies to your affected source and ends on June 30 or December 31, whichever occurs first following the end of the initial compliance period.

(ii) Each subsequent semiannual compliance report must cover the subsequent semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(iii) Each semiannual compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(iv) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 40 CFR part 71, and if the permitting authority has established dates for submitting 6-month monitoring reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), you may submit the first and subsequent semiannual compliance reports according to the dates the permitting authority has established for the 40 CFR part 70 or 40 CFR part 71 6-month monitoring reports instead of according to the dates specified in paragraph (a)(1)(iii) of this section. However, under no circumstances shall the semiannual compliance report be submitted more than 30 days after the end of the semiannual reporting period established in paragraphs (a)(1)(i) and (ii) of this section.

(2) *Inclusion with title V report.* Each affected source that has obtained a title V operating permit pursuant to 40 CFR part 70 or 40 CFR part 71 must report all deviations as defined in this subpart in the 6-month monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If an affected source submits a semiannual compliance report pursuant to this section along with, or as part of, the 6-month monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the semiannual compliance report includes all information required by the part 70 or part 71 6-month monitoring report concerning deviations from the requirements of this subpart as defined in § 63.4981, the submission of the semiannual compliance report shall be deemed to satisfy any obligation to report the same deviation information in the part 70 or part 71 6-month monitoring report. However, in such situations, the 6-month monitoring report must cross-reference the semiannual compliance report, and submission of a semiannual compliance report shall not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the permitting authority.

(3) *General requirements.* The semiannual compliance report must contain the information specified in paragraphs (a)(3)(i) through (v) of this section, and the information specified in paragraphs (a)(4) through (7) and (c)(1) of this section that is applicable to your affected source.

(i) Company name and address.

(ii) Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the report. Such certifications must also comply with the requirements of 40 CFR 70.5(d) or 40 CFR 71.5(d)

(iii) Date of report and beginning and ending dates of the reporting period. The reporting period is the 6-month period ending on June 30 or December 31.

(iv) Identification of the compliance option or options specified in § 63.4891 that you used on each coating operation during the reporting period. If you switched between compliance options during the reporting period, you must report the beginning and ending dates you used each option.

(v) If you used the emission rate without add-on controls or the emission rate with add-on controls compliance option (§ 63.4891(b) or (c)), the calculation results for each organic HAP emission rate for each compliance period ending in the 6-month reporting period.

(4) *No deviations.* If there were no deviations from the emission limits, operating limits, and work practice standards in §§ 63.4890, 63.4892, and 63.4893, respectively, that apply to you, the semiannual compliance report must include an affirmative statement that there were no deviations from the emission limitations, operating limits, or work practice standards in §§ 63.4890, 63.4892, and 63.4893 during the reporting period. If there were no deviations from the emission limitations in § 63.4890, the semiannual compliance report must include the affirmative statement that is described in either § 63.4942(c), § 63.4952(c), or § 63.4962(f), as applicable. If you used the emission rate with add-on controls option and there were no periods during which the continuous parameter monitoring systems (CPMS) were out-of-control as specified in § 63.8(c)(7), the semiannual compliance report must include a statement that there were no periods during which the CPMS were out-of-control during the reporting period as specified in § 63.8(c)(7).

(5) *Deviations: compliant material option.* If you used the compliant material option, and there was a deviation from the applicable emission limit in § 63.4890, the semiannual compliance report must contain the information in paragraphs (a)(5)(i) through (iv) of this section.

(i) Identification of each coating used that deviated from the emission limit, and of each thinner and cleaning material used that contained organic HAP, and the dates and time periods each was used.

(ii) The calculation of the organic HAP content for each coating identified in paragraph (a)(5)(i) of this section, using Equation 2 of § 63.4941. You do not need to submit background data supporting this calculation, for example, information provided by materials suppliers or manufacturers, or test reports.

(iii) The determination of mass fraction of organic HAP for each coating, thinner, and cleaning material identified in paragraph (a)(5)(i) of this section. You do not need to submit background data supporting this calculation, for example, information provided by materials suppliers or manufacturers, or test reports.

(iv) A statement of the cause of each deviation.

(6) *Deviations: emission rate without add-on controls option.* If you used the emission rate without add-on controls option, and there was a deviation from any applicable emission limit in § 63.4890, the semiannual compliance report must contain the information in paragraphs (a)(6)(i) through (v) of this section. You do not need to submit background data supporting these calculations, for example, information provided by materials suppliers or manufacturers, or test reports.

(i) The beginning and ending dates of each compliance period during which the organic HAP emission rate exceeded the applicable emission limit in § 63.4890.

(ii) The calculation of the total mass of organic HAP emissions for each month, using Equations 1 of § 63.4951.

(iii) The calculation of the total volume of coating solids used each month, using Equation 2 of § 63.4951.

(iv) The calculation of the organic HAP emission rate for each month, using Equation 3 of § 63.4951.

(v) A statement of the cause of each deviation.

(7) *Deviations: emission rate with add-on controls option.* If you used the emission rate with add-on controls option, and there was a deviation from any applicable emission limitation (including any periods when emissions bypassed the add-on control device and were diverted to the atmosphere), the semiannual compliance report must contain the information in paragraphs (a)(7)(i) through (xvii) of this section. This includes periods of startup, shutdown, and malfunction during which deviations occurred. You do not need to submit background data supporting these calculations, for example, information provided by materials suppliers or manufacturers, or test reports.

(i) The beginning and ending dates of each compliance period during which the organic HAP emission rate exceeded the applicable emission limit in § 63.4890.

(ii) The calculation of the total mass of organic HAP emissions for the coatings, thinners, and cleaning materials used during each month, using Equation 1 of § 63.4951 and, if applicable, the calculation used to determine the total mass of organic HAP in waste materials sent or designated for shipment to a hazardous waste treatment, storage, and disposal facility (TSDF) for treatment or disposal during each compliance period, according to § 63.4951(e)(4).

(iii) The calculation of the total volume of coating solids used, using Equation 2 of § 63.4951.

(iv) The calculation of the mass of organic HAP emission reduction each month by emission capture systems and add-on control devices, using Equation 1 of § 63.4961, and Equation 3 of § 63.4961 for the calculation of the mass of organic HAP emission reduction for the coating operation controlled by solvent recovery systems each compliance period, as applicable.

(v) The calculation of the organic HAP emission rate for each compliance period, using Equation 4 of § 63.4961.

(vi) The date and time that each malfunction started and stopped.

(vii) A brief description of the CPMS.

(viii) The date of the latest CPMS certification or audit.

(ix) The date and time that each CPMS was inoperative, except for zero (low-level) and high-level checks.

(x) The date, time, and duration that each CPMS was out-of-control, including the information in § 63.8(c)(8).

(xi) The date and time period of each deviation from an operating limit in Table 1 to this subpart; date and time period of any bypass of the add-on control device; and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(xii) A summary of the total duration of each deviation from an operating limit in Table 1 to this subpart and each bypass of the add-on control device during the semiannual reporting period and the total duration as a percent of the total affected source operating time during that semiannual reporting period.

(xiii) A breakdown of the total duration of the deviations from the operating limits in Table 1 to this subpart and bypasses of the add-on control device during the semiannual reporting period into those that were due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(xiv) A summary of the total duration of CPMS downtime during the semiannual reporting period and the total duration of CPMS downtime as a percent of the total affected source operating time during that semiannual reporting period.

(xv) A description of any changes in the CPMS, coating operation, emission capture system, or add-on control device since the last semiannual reporting period.

(xvi) For each deviation from the work practice standards, a description of the deviation; the date and time period of the deviation; and the actions you took to correct the deviation.

(xvii) A statement of the cause of each deviation.

(b) *Performance test reports.* If you use the emission rate with add-on controls option, you must submit reports of performance test results for emission capture systems and add-on control devices no later than 60 days after completing the tests as specified in § 63.10(d)(2).

(c) *Startup, shutdown, and malfunction reports.* If you used the emission rate with add-on controls option and you had a startup, shutdown, or malfunction during the semiannual reporting period, you must submit the reports specified in paragraphs (c)(1) and (2) of this section.

(1) If your actions were consistent with your SSMP, you must include the information specified in § 63.10(d)(5) in the semiannual compliance report required by paragraph (a) of this section.

(2) If your actions were not consistent with your SSMP, you must submit an immediate startup, shutdown, and malfunction report as described in paragraphs (c)(2)(i) and (ii) of this section.

(i) You must describe the actions taken during the event in a report delivered by facsimile, telephone, or other means to the Administrator within 2 working days after starting actions that are inconsistent with the plan.

(ii) You must submit a letter to the Administrator within 7 working days after the end of the event, unless you have made alternative arrangements with the Administrator as specified in § 63.10(d)(5)(ii). The letter must contain the information specified in § 63.10(d)(5)(ii).

§ 63.4930 What records must I keep?

You must collect and keep records of the data and information specified in this section. Failure to collect and keep these records is a deviation from the applicable standard.

(a) A copy of each notification and report that you submitted to comply with this subpart, and the documentation supporting each notification and report.

(b) A current copy of information provided by materials suppliers or manufacturers. This would include records pertaining to the design and manufacturer's specifications for the life of the add-on control equipment. It would also include information such as manufacturer's formulation data for the materials used, or test data used to determine the mass fraction of organic HAP and density for each coating, thinner, and cleaning material and the volume fraction of coating solids for each coating. If you conducted testing to determine mass fraction of organic HAP, density, or volume fraction of coating solids, you must keep a copy of the complete test report. If you use information provided to you by the manufacturer or supplier of the material that was based on testing, you must keep the summary sheet of results provided to you by the manufacturer or supplier. You are not required to obtain the test report or other supporting documentation from the manufacturer or supplier.

(c) For each compliance period, the records specified in paragraphs (c)(1) through (4) of this section.

(1) A record of the coating operations at which you used each compliance option and the time periods (beginning and ending dates and times) you used each option.

(2) For the compliant material option, a record of the calculation of the organic HAP content for each coating, using Equation 2 of § 63.4941.

(3) For the emission rate without add-on controls option, a record of the calculation of the total mass of organic HAP emissions for the coatings, thinners, and cleaning materials used during each compliance period, using Equation 1 of § 63.4951 and, if applicable, the calculation used to determine the total mass of organic HAP in waste materials sent or designated for shipment to a hazardous waste TSDF for treatment or disposal during each compliance period, according to § 63.4951(e)(4); the calculation of the total volume of coating solids used during each compliance period, using Equation 2 of § 63.4951; and the calculation of the organic HAP emission rate for each compliance period, using Equation 3 of § 63.4951.

(4) For the emission rate with add-on controls option, records of the calculations specified in paragraphs (c)(4)(i) through (iv) of this section.

(i) The calculation of the total mass of organic HAP emissions for the coatings, thinners, and cleaning materials used during each compliance period, using Equation 1 of § 63.4951 and, if applicable, the calculation used to determine the total mass of organic HAP in waste materials sent or designated for shipment to a hazardous waste TSDF for treatment or disposal during each compliance period, according to § 63.4951(e)(4);

(ii) The calculation of the total volume of coating solids used during each compliance period, using Equation 2 of § 63.4951;

(iii) The calculation of the mass of organic HAP emission reduction by emission capture systems and add-on control devices, using Equation 1 of § 63.4961, and the calculation of the mass of organic HAP emission reduction for the coating operation controlled by a solvent recovery system during the compliance period, using Equation 3 of § 63.4961, as applicable;

(iv) The calculation of the organic HAP emission rate for each compliance period, using Equation 4 of § 63.4961.

(d) A record of the name and volume of each coating, thinner, and cleaning material used during each compliance period.

(e) A record of the mass fraction of organic HAP for each coating, thinner, and cleaning material used during each compliance period.

(f) A record of the volume fraction of coating solids for each coating used during each compliance period.

(g) If a determination of density is required by the compliance option(s) you used to demonstrate compliance with the emission limit, a record of the density for each coating used during each compliance period; and, if you use either the emission rate without add-on controls or the emission rate with add-on controls compliance option, the density for each thinner and cleaning material used during each compliance period.

(h) If you use an allowance in Equation 1 of § 63.4951 for organic HAP contained in waste materials sent to or designated for shipment to a TSDF according to § 63.4951(e)(4), you must keep records of the information specified in paragraphs (h)(1) through (3) of this section.

(1) The name and address of each TSDF to which you sent waste materials for which you use an allowance in Equation 1 of § 63.4951, a statement of which subparts under 40 CFR parts 262, 264, 265, and 266 apply to the facility, and the date of each shipment.

(2) Identification of the coating operations producing waste materials included in each shipment and the month or months in which you used the allowance for these materials in Equation 1 of § 63.4951.

(3) The methodology used in accordance with § 63.4951(e)(4) to determine

the total amount of waste materials sent to or the amount collected, stored, and designated for transport to a TSDF each month; and the methodology to determine the mass of organic HAP contained in these waste materials. This must include the sources for all data used in the determination, methods used to generate the data, frequency of testing or monitoring, and supporting calculations and documentation, including the waste manifest for each shipment.

(i) [Reserved]

(j) You must keep records of the date, time, and duration of each deviation.

(k) If you use the emission rate with add-on controls option, you must keep the records specified in paragraphs (k)(1) through (8) of this section.

(1) For each deviation, a record of whether the deviation occurred during a period of startup, shutdown, or malfunction.

(2) The records in § 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

(3) The records required to show continuous compliance with each operating limit specified in Table 1 to this subpart that applies to you.

(4) For each capture system that is a PTE, the data and documentation you used to support a determination that the capture system meets the criteria in Method 204 of appendix M to 40 CFR part 51 for a PTE and has a capture efficiency of 100 percent, as specified in § 63.4964(a).

(5) For each capture system that is not a PTE, the data and documentation you used to determine capture efficiency according to the requirements specified in §§ 63.4963 and 63.4964(b) through (e), including the records specified in paragraphs (k)(5)(i) through (iii) of this section that apply to you.

(i) *Records for a liquid-to-uncaptured-gas protocol using a temporary total enclosure or building enclosure.* Records of the mass of total volatile hydrocarbon (TVH) as measured by Method 204A or F of appendix M to 40 CFR part 51 for each material used in the coating operation, and the total TVH for all materials used, during each capture efficiency test run, including a copy of the test report. Records of the mass of TVH emissions not captured by the capture system that exited the temporary total enclosure or building enclosure during each capture efficiency test run, as measured by Method 204D or E of appendix M to 40 CFR part 51, including a copy of the test report. Records documenting that the enclosure used for the capture efficiency test met the criteria in Method 204 of appendix M to 40 CFR part 51 for either a temporary total enclosure or a building enclosure.

(ii) *Records for a gas-to-gas protocol using a temporary total enclosure or a building enclosure.* Records of the mass of TVH emissions captured by the emission capture system as measured by Method 204B or C of appendix M to 40 CFR part 51 at the inlet to the add-on control device, including a copy of the test report. Records of the mass of TVH emissions not captured by the capture system that exited the temporary total enclosure or building enclosure during each capture efficiency test run, as measured by Method 204D or E of appendix M to 40 CFR part 51, including a copy of the test report. Records documenting that the enclosure used for the capture efficiency test met the criteria in Method 204 of appendix M to 40 CFR part 51 for either a temporary total enclosure or a building enclosure.

(iii) *Records for an alternative protocol.* Records needed to document a capture efficiency determination using an alternative method or protocol as specified in § 63.4964(e), if applicable.

(6) The records specified in paragraphs (k)(6)(i) and (ii) of this section for each add-on control device organic HAP destruction or removal efficiency determination as specified in § 63.4965.

(i) Records of each add-on control device performance test conducted according to §§ 63.4963 and 63.4965.

(ii) Records of the coating operation conditions during the add-on control device performance test showing that the performance test was conducted under representative operating conditions.

(7) Records of the data and calculations you used to establish the emission capture and add-on control device operating limits as specified in § 63.4966 and to document compliance with the

operating limits as specified in Table 1 to this subpart.

(8) A record of the work practice plan required by §63.4893 and documentation that you are implementing the plan on a continuous basis.

§63.4931 In what form and for how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review, according to §63.10(b)(1). Where appropriate, the records may be maintained as electronic spreadsheets or as a database.

(b) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record on-site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §63.10(b)(1). You may keep these records off-site for the remaining 3 years. You must keep records on-site pertaining to the design and manufacturer's specifications for operation of add-on control equipment for the life of the equipment.

COMPLIANCE REQUIREMENTS FOR THE COMPLIANT MATERIAL OPTION

§63.4940 By what date must I conduct the initial compliance demonstration?

You must complete the initial compliance demonstration for the initial compliance period according to the requirements in §63.4941. The initial compliance period begins on the applicable compliance date specified in §63.4883 and ends on the last day of the first full month following the compliance date. The initial compliance demonstration includes the calculations according to §63.4941 and supporting documentation showing that, during the initial compliance period, you used no coating with an organic HAP content that exceeded the applicable emission limit in §63.4890, and you used no thinners or cleaning materials that contained organic HAP.

§63.4941 How do I demonstrate initial compliance with the emission limitations?

You may use the compliant material option for any individual coating operation, for any group of coating operations in the affected source, or for all the coating operations in the affected source to demonstrate compliance with an organic HAP emission limit. You must use either the emission rate without add-on controls option or the emission rate with add-on controls option for any coating operation in the affected source for which you do not use this option. To demonstrate initial compliance using the compliant material option, during the compliance period the coating operation or group of coating operations must use no coating with an organic HAP content that exceeds the applicable emission limit in §63.4890 and must use no thinner or cleaning material that contains organic HAP as determined according to this section. Any coating operation for which you use the compliant material option is not required to comply with the operating limits or work practice standards required in §§63.4892 and 63.4893, respectively. To demonstrate initial compliance with the emission limitations using the compliant material option, you must meet all the requirements of this section for the coating operation or group of coating operations using this option. Use the procedures in this section for each coating, thinner, and cleaning material in the condition it is in when it is received from its manufacturer or supplier and prior to any alteration. You do not need to redetermine the organic HAP content of cleaning materials that are reclaimed and reused onsite provided these materials in their condition as received were demonstrated to comply with the compliant material option.

(a) *Determine the mass fraction of organic HAP for each material used.* You must determine the mass fraction of organic HAP for each coating, thinner, and cleaning material used during the compliance period by using one of the options in paragraphs (a)(1) through (5) of this section.

(1) *Method 311 (appendix A to 40 CFR part 63).* You may use Method 311 for

determining the mass fraction of organic HAP. Use the procedures specified in paragraphs (a)(1)(i) and (ii) of this section when performing a Method 311 test.

(i) Count each organic HAP that is measured to be present at 0.1 percent by mass or more for Occupational Safety and Health Administration (OSHA)-defined carcinogens as specified in 29 CFR 1910.1200(d)(4) and at 1.0 percent by mass or more for other organic HAP compounds. For example, if toluene (not an OSHA carcinogen) is measured to be 0.5 percent of the material by mass, you do not have to count it. Express the mass fraction of each organic HAP you count as a value truncated to four places after the decimal point (for example, 0.3791).

(ii) Calculate the total mass fraction of organic HAP in the test material by adding up the individual organic HAP mass fractions and truncating the result to three places after the decimal point (for example, 0.763).

(2) *Method 24 (appendix A to 40 CFR part 60).* For coatings, you may use Method 24 to determine the mass fraction of nonaqueous volatile matter and use that value as a substitute for mass fraction of organic HAP.

(3) *Alternative method.* You may use an alternative test method for determining the mass fraction of organic HAP once the Administrator has approved it. You must follow the procedure in § 63.7(f) to submit an alternative test method for approval.

(4) *Information from the supplier or manufacturer of the material.* You may rely on information other than that generated by the test methods specified in paragraphs (a)(1) through (3) of this section, such as manufacturer's formulation data, if it represents each organic HAP that is present at 0.1 percent by mass or more for OSHA-defined carcinogens as specified in 29 CFR 1910.1200(d)(4) and at 1.0 percent by mass or more for other organic HAP compounds. For example, if toluene (not an OSHA carcinogen) is 0.5 percent of the material by mass, you do not have to count it. If there is a disagreement between such information and results of a test conducted according to paragraphs (a)(1) through (3) of this section, then the test method results will take precedence.

(5) *Solvent blends.* Solvent blends may be listed as single components for some materials in data provided by manufacturers or suppliers. Solvent blends may contain organic HAP which must be counted toward the total organic HAP mass fraction of the materials. When test data and manufacturer's data for solvent blends are not available, you may use the default values for the mass fraction of organic HAP in these solvent blends listed in Table 3 or 4 to this subpart. If you use the tables, you must use the values in Table 3 for all solvent blends that match Table 3 entries, and you may only use Table 4 if the solvent blends in the materials you use do not match any of the solvent blends in Table 3, and you only know whether the blend is aliphatic or aromatic. However, if the results of a Method 311 test indicate higher values than those listed on Table 3 or 4 of this subpart, the Method 311 results will take precedence.

(b) *Determine the volume fraction of coating solids for each coating.* You must determine the volume fraction of coating solids (liters of coating solids per liter of coating) for each coating used during the compliance period by a test or by information provided by the supplier or the manufacturer of the material, as specified in paragraphs (b)(1), (2), and (3) of this section. If test results obtained according to paragraph (b)(1) of this section do not agree with the information obtained under paragraph (b)(2) or (3) of this section, the test results will take precedence.

(1) *Test results.* You may use ASTM Method D2697–86 (Reapproved 1998), ‘‘Standard Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings’’ (incorporated by reference, see § 63.14), or D6093–97, ‘‘Standard Test Method for Percent Volume Nonvolatile Matter in Clear or Pigmented Coatings Using a Helium Gas Pycnometer’’ (incorporated by reference, see § 63.14), to determine the volume fraction of coating solids for each coating. Divide the nonvolatile volume percent obtained with the methods by 100 to calculate volume fraction of coating solids. Alternatively, you may use another test

method once you obtain approval from the Administrator according to the requirements of §63.7(f).

(2) *Information from the supplier or manufacturer of the material.* You may obtain the volume fraction of coating solids for each coating from the supplier or manufacturer.

(3) *Calculation of volume fraction of coating solids.* If the volume fraction of coating solids cannot be determined using the options in paragraphs (b)(1) and (2) of this section, you must determine it using Equation 1 of this section:

$$V_s = 1 - \frac{M_{volatiles}}{D_{avg}} \qquad \text{(Eq. 1)}$$

Where:

V_s = Volume fraction of coating solids, liters coating solids per liter coating.

$M_{volatiles}$ = Total volatile matter content of the coating, including HAP, volatile organic compounds (VOC), water, and exempt compounds, determined according to Method 24 in appendix A of 40 CFR part 60, grams volatile matter per liter coating.

D_{avg} = Average density of volatile matter in the coating, grams volatile matter per liter volatile matter, determined from test results using ASTM Method D1475–90, information from the supplier or manufacturer of the material, or reference sources providing density or specific gravity data for pure materials. If there is disagreement between ASTM Method D1475–90 test results and other information sources, the test results will take precedence.

(c) *Determine the density of each coating.* You must determine the density of each coating used during the compliance period from test results using ASTM Method D1475–90 or information from the supplier or manufacturer of the material. If there is disagreement between ASTM Method D1475–90 test results and the supplier's or manufacturer's information, the test results will take precedence.

(d) *Calculate the organic HAP content of each coating.* Calculate the organic HAP content, kg organic HAP per liter coating solids, of each coating used during the compliance period, using Equation 2 of this section, except that if the mass fraction of organic HAP in the coating equals zero, then the organic HAP content also equals zero and you are not required to use Equation 2 to calculate the organic HAP content.

$$H_c = \frac{(D_c)(W_c)}{V_s} \qquad \text{(Eq. 2)}$$

Where:

H_c = Organic HAP content of the coating, kg organic HAP per liter coating solids.

D_c = Density of coating, kg coating per liter coating, determined according to paragraph (c) of this section.

W_c = Mass fraction of organic HAP in the coating, kg organic HAP per kg coating, determined according to paragraph (a) of this section.

V_s = Volume fraction of coating solids, liter coating solids per liter coating, determined according to paragraph (b) of this section.

(e) *Compliance demonstration.* The calculated organic HAP content for each coating used during the initial compliance period must be less than or equal to the applicable emission limit in §63.4890 and each thinner and cleaning material used during the initial compliance period must contain no organic HAP, determined according to paragraph (a) of this section. You must keep all records required by §§63.4930 and 63.4931. As part of the Notification of Compliance Status required in §63.4910(c) and the semiannual compliance reports required in §63.4920, you must identify each coating operation and group of coating operations for which you used the compliant material option. If there were no deviations from the emission limit, include a statement that each was in compliance with the emission limitations during the initial compliance period because it used no coatings for which the organic HAP content exceeded the applicable emission limit in §63.4890, and it used no thinners or cleaning materials that contained organic HAP.

§ 63.4942 How do I demonstrate continuous compliance with the emission limitations?

(a) Following the initial compliance period, you must complete a compliance demonstration according to the requirements in § 63.4941(e) for each subsequent compliance period. Each month following the initial compliance period described in § 63.4940 is a compliance period.

(b) If you choose to comply with the emission limitations by using the compliant material option, the use of any coating, thinner, or cleaning material that does not meet the criteria specified in paragraph (a) of this section is a deviation from the emission limitations that must be reported as specified in §§ 63.4910(c)(6) and 63.4920(a)(5).

(c) As part of each semiannual compliance report required by § 63.4920, you must identify the coating operation or group of coating operations for which you used the compliant material option. If there were no deviations from the emission limits in § 63.4890, submit an affirmative statement that the coating operation or group of coating operations was in compliance with the emission limitations during the reporting period because you used no coating for which the organic HAP content exceeded the applicable emission limit in § 63.4890, and you used no thinner or cleaning material that contained organic HAP.

(d) You must maintain records as specified in §§ 63.4930 and 63.4931.

COMPLIANCE REQUIREMENTS FOR THE EMISSION RATE WITHOUT ADD-ON CONTROLS OPTION

§ 63.4950 By what date must I conduct the initial compliance demonstration?

You must complete the initial compliance demonstration for the initial compliance period according to the requirements of § 63.4951. The initial compliance period begins on the applicable compliance date specified in § 63.4883 and ends on the last day of the first full month following the compliance date. The initial compliance demonstration includes the calculations showing that the organic HAP emission rate for the initial compliance period was equal to or less than the applicable emission limit in § 63.4890.

§ 63.4951 How do I demonstrate initial compliance with the emission limitations?

You may use the emission rate without add-on controls option for any individual coating operation, for any group of coating operations in the affected source, or for all the coating operations in the affected source to demonstrate compliance with an organic HAP emission limit. You must use either the compliant material option or the emission rate with add-on controls option for any coating operation in the affected source for which you do not use this option. To demonstrate initial compliance using the emission rate without add-on controls option, the coating operation or group of coating operations must comply with the applicable emission limit in § 63.4890, but is not required to meet the operating limits or work practice standards in §§ 63.4892 and 63.4893, respectively. You must meet all the requirements of this section to demonstrate initial compliance with the applicable emission limit in § 63.4890 for the coating operation or group of coating operations. When calculating the organic HAP emission rate according to this section, do not include any coatings, thinners, or cleaning materials used on coating operations for which you use the compliant material option or the emission rate with add-on controls option. You do not need to include organic HAP in coatings, thinners, or cleaning materials that have been reclaimed onsite and reused in the coating operation for which you use the emission rate without add-on controls option.

(a) *Determine the mass fraction of organic HAP for each material.* You must determine the mass fraction of organic HAP for each coating, thinner, and cleaning material used during the compliance period according to the requirements in § 63.4941(a).

(b) *Determine the volume fraction of coating solids for each coating.* You must determine the volume fraction of coating solids for each coating used during the compliance period according to the requirements in § 63.4941(b).

(c) *Determine the density of each material.* You must determine the density of each coating, thinner, and cleaning material used during the compliance period according to the requirements in § 63.4941(c) from test results using ASTM Method D1475–90, information from the supplier or manufacturer of the material, or reference sources providing density or specific gravity data for pure materials. If there is disagreement between ASTM Method D1475–90 test results and such other information sources, the test results will take precedence.

(d) *Determine the volume of each material used.* You must determine the volume (liters) of each coating, thinner, and cleaning material used during the compliance period by measurement or usage records.

(e) *Calculate the mass of organic HAP emissions.* The mass of organic HAP emissions is the combined mass of organic HAP contained in all coatings, thinners, and cleaning materials used during the compliance period minus the organic HAP in certain waste materials. Use Equation 1 of this section to calculate the mass of organic HAP emissions:

$$H_e = A + B + C - R_w \qquad \text{(Eq. 1)}$$

Where:

H_e = Total mass of organic HAP emissions during the compliance period, kg.

A = Total mass of organic HAP in the coatings used during the compliance period, kg, as calculated in Equation 1A of this section.

B = Total mass of organic HAP in the thinners used during the compliance period, kg, as calculated in Equation 1B of this section.

C = Total mass of organic HAP in the cleaning materials used during the compliance period, kg, as calculated in Equation 1C of this section.

R_w = Total mass of organic HAP in waste materials sent or designated for shipment to a hazardous waste TSDF for treatment or disposal during the compliance period, kg, determined according to paragraph (e)(4) of this section. The mass of any waste material reused during the same compliance period may not be included in R_w. (You may assign a value of zero to R_w if you do not wish to use this allowance.)

(1) Calculate the mass of organic HAP in the coatings used during the compliance period, using Equation 1A of this section:

$$A = \sum_{i=1}^{m} \left(Vol_{c,i}\right)\left(D_{c,i}\right)\left(W_{c,i}\right) \qquad \text{(Eq. 1A)}$$

Where:

A = Total mass of organic HAP in the coatings used during the compliance period, kg.

$Vol_{c,i}$ = Total volume of coating, i, used during the compliance period, liters.

$D_{c,i}$ = Density of coating, i, kg coating per liter coating.

$W_{c,i}$ = Mass fraction of organic HAP in coating, i, kg organic HAP per kg coating.

m = Number of different coatings used during the compliance period.

(2) Calculate the mass of organic HAP in the thinners used during the compliance period, using Equation 1B of this section:

$$B = \sum_{j=1}^{n} \left(Vol_{t,j}\right)\left(D_{t,j}\right)\left(W_{t,j}\right) \qquad \text{(Eq. 1B)}$$

Where:

B = Total mass of organic HAP in the thinners used during the compliance period, kg.

$Vol_{t,j}$ = Total volume of thinner, j, used during the compliance period, liters.

$D_{t,j}$ = Density of thinner, j, kg per liter.

$W_{t,j}$ = Mass fraction of organic HAP in thinner, j, kg organic HAP per kg thinner.

n = Number of different thinners used during the compliance period.

(3) Calculate the mass of organic HAP in the cleaning materials used during the compliance period using Equation 1C of this section:

$$C = \sum_{k=1}^{p} \left(Vol_{s,k}\right)\left(D_{s,k}\right)\left(W_{s,k}\right) \qquad \text{(Eq. 1C)}$$

Where:

C = Total mass of organic HAP in the cleaning materials used during the compliance period, kg.

$Vol_{s,k}$ = Total volume of cleaning material, k, used during the compliance period, liters.

$D_{s,k}$ = Density of cleaning material, k, kg per liter.

$W_{s,k}$ = Mass fraction of organic HAP in cleaning material, k, kg organic HAP per kg material.

p = Number of different cleaning materials used during the compliance period.

(4) If you choose to account for the mass of organic HAP contained in waste materials sent or designated for shipment to a hazardous waste TSDF in the calculation of the total mass of organic HAP emissions during the compliance period in Equation 1 of this section, then you must determine the total mass of organic HAP in waste materials sent or designated for shipment to a hazardous waste TSDF for treatment or disposal during each compliance period, according to paragraphs (e)(4)(i) through (iv) of this section.

(i) You may include in the determination of the total mass of organic HAP in waste materials sent or designated for shipment to a hazardous waste TSDF for treatment or disposal during each compliance period only waste materials that are generated by coating operations for which you use Equation 1 of this section and that will be treated or disposed of by a facility regulated as a TSDF under 40 CFR part 262, 264, 265, or 266. The TSDF may be either off-site or on-site. You may not include in the determination of the total mass of organic HAP in waste materials sent or designated for shipment to a hazardous waste TSDF for treatment or disposal during each compliance period only waste materials that are generated by coating operations the organic HAP contained in wastewater, nor the organic HAP contained in any waste material reused during the same compliance period.

(ii) You must determine either the amount of the waste materials sent to a TSDF during the compliance period or the amount collected and stored during the compliance period and designated for future transport to a TSDF. Do not include in your determination of the total mass of organic HAP in waste materials sent or designated for shipment to a hazardous waste TSDF for treatment or disposal during each compliance period only waste materials that are generated by coating operations any waste materials sent to a TSDF during a compliance period if you have already included them in the amount collected and stored during that or a previous compliance period.

(iii) Determine the total mass of organic HAP contained in the waste materials specified in paragraph (e)(4)(ii) of this section.

(iv) You must document your methodology to determine the amount of waste materials and the total mass of organic HAP they contain, as required in § 63.4930(h). To the extent that waste manifests include this information, they may be used as part of the documentation of the amount of waste materials and mass of organic HAP contained in them.

(f) *Calculate the total volume of coating solids used.* Calculate the total volume of coating solids used, which is the combined volume of coating solids for all the coatings used during the compliance period, using Equation 2 of this section:

$$V_{st} = \sum_{i=1}^{m} \left(Vol_{c,i}\right)\left(V_{s,i}\right) \qquad \text{(Eq. 2)}$$

Where:

V_{st} = Total volume of coating solids used during the compliance period, liters.

$Vol_{c,i}$ = Total volume of coating, i, used during the compliance period, liters.

$V_{s,i}$ = Volume fraction of coating solids for coating, i, liter solids per liter coating, determined according to § 63.4941(b).

m = Number of coatings used during the compliance period.

(g) *Calculate the organic HAP emission rate.* Calculate the organic HAP emission rate for the compliance period, kg organic HAP per liter coating solids used, using Equation 3 of this section:

$$H_{avg} = \frac{H_e}{V_{st}} \qquad \text{(Eq. 3)}$$

Where:

H_{avg} = Organic HAP emission rate for the compliance period, kg organic HAP per liter coating solids.

H_e = Total mass of organic HAP emissions from all materials used during the compliance period, kg, as calculated by Equation 1 of this section.

V_{st} = Total volume of coating solids used during the compliance period, liters, as calculated by Equation 2 of this section.

(h) *Compliance demonstration.* The calculated organic HAP emission rate for the initial compliance period must be less than or equal to the applicable emission limit in § 63.4890. You must keep all records as required by §§ 63.4930 and 63.4931. As part of the Notification of Compliance Status required by § 63.4910 and the semiannual compliance reports required in § 63.4920, you must identify the coating operation or group of coating operations for which you used the emission rate without add-on controls option. If there were no deviations from the emission limit, include a statement that the coating operation or group of coating operations was in compliance with the emission limitations during the initial compliance period because the organic HAP emission rate was less than or equal to the applicable emission limit in § 63.4890, determined according to this section.

§ 63.4952 How do I demonstrate continuous compliance with the emission limitations?

(a) Following the initial compliance period, you must complete a compliance demonstration according to the requirements in § 63.4951(h) for each subsequent compliance period. Each month following the initial compliance period described in § 63.4950 is a compliance period.

(b) If the organic HAP emission rate for any compliance period exceeded the applicable emission limit in § 63.4890, this is a deviation from the emission limitations for that compliance period and must be reported as specified in §§ 63.4910(c)(6) and 63.4920(a)(6).

(c) As part of each semiannual compliance report required by § 63.4920, you must identify the coating operation or group of coating operations for which you used the emission rate without add-on controls option. If there were no deviations from the emission limitations, you must submit an affirmative statement that the coating operation or group of coating operations was in compliance with the emission limitations during the reporting period because the organic HAP emission rate for each compliance period was less than or equal to the applicable emission limit in § 63.4890.

(d) You must maintain records as specified in §§ 63.4930 and 63.4931.

COMPLIANCE REQUIREMENTS FOR THE EMISSION RATE WITH ADD-ON CONTROLS OPTION

§ 63.4960 By what date must I conduct performance tests and other initial compliance demonstrations?

(a) *New and reconstructed affected sources.* For a new or reconstructed affected source, you must meet the requirements of paragraphs (a)(1) through (4) of this section.

(1) All emission capture systems, add-on control devices, and CPMS must be installed and operating no later than the applicable compliance date specified in § 63.4883. Except for solvent recovery systems for which you conduct liquid-liquid material balances according to § 63.4961(j), you must conduct a performance test of each capture system and add-on control device according to §§ 63.4963, 63.4964, and 63.4965, and establish the operating limits required by § 63.4892, no later than 180 days after the applicable compliance date specified in § 63.4883. For a solvent recovery system for which you conduct liquid-liquid material balances according to § 63.4961(j), you must initiate the first material balance no later than 180 days after the applicable compliance date specified in § 63.4883.

(2) You must develop and begin implementing the work practice plan required by § 63.4893 no later than the compliance date specified in § 63.4883.

(3) You must complete the initial compliance demonstration for the initial compliance period according to the requirements of § 63.4961. The initial compliance period begins on the applicable compliance date specified in § 63.4883 and ends on the last day of the first full month following the compliance date. The initial compliance demonstration includes the results of emission capture system and add-on control

device performance tests conducted according to §§ 63.4963, 63.4964, and 63.4965; results of liquid-liquid material balances conducted according to § 63.4961(j); calculations showing whether the organic HAP emission rate for the initial compliance period was equal to or less than the emission limit in § 63.4890; the operating limits established during the performance tests and the results of the continuous parameter monitoring required by § 63.4967; and documentation of whether you developed and implemented the work practice plan required by § 63.4893.

(4) You do not need to comply with the operating limits for the emission capture system and add-on control device required by § 63.4892 until after you have completed the performance tests specified in paragraph (a)(1) of this section. Instead, you must maintain a log detailing the operation and maintenance of the emission capture system, add-on control device, and continuous parameter monitors during the period between the compliance date and the performance test. You must begin complying with the operating limits for your affected source on the date you complete the performance tests specified in paragraph (a)(1) of this section. The requirements in this paragraph (a)(4) do not apply to solvent recovery systems for which you conduct liquid-liquid material balances.

(b) *Existing affected sources.* For an existing affected source, you must meet the requirements of paragraphs (b)(1) through (3) of this section.

(1) All emission capture systems, add-on control devices, and CPMS must be installed and operating no later than the applicable compliance date specified in § 63.4883. Except for solvent recovery systems for which you conduct liquid-liquid material balances according to § 63.4961(j), you must conduct a performance test of each capture system and add-on control device according to the procedures in §§ 63.4963, 63.4964, and 63.4965, and establish the operating limits required by § 63.4892, no later than the compliance date specified in § 63.4883. For a solvent recovery system for which you conduct liquid-liquid material balances according to § 63.4961(j), you must initiate the first material balance no later than the compliance date specified in § 63.4883.

(2) You must develop and begin implementing the work practice plan required by § 63.4893 no later than the compliance date specified in § 63.4883.

(3) You must complete the initial compliance demonstration for the initial compliance period according to the requirements of § 63.4961. The initial compliance period begins on the applicable compliance date specified in § 63.4883 and ends on the last day of the first full month following the compliance date. The initial compliance demonstration includes the results of emission capture system and add-on control device performance tests conducted according to §§ 63.4963, 63.4964, and 63.4965; results of liquid-liquid material balances conducted according to § 63.4961(j); calculations showing whether the organic HAP emission rate for the initial compliance period was equal to or less than the emission limit in § 63.4890(c); the operating limits established during the performance tests and the results of the continuous parameter monitoring required by § 63.4967; and documentation of whether you developed and implemented the work practice plan required by § 63.4893.

§ 63.4961 How do I demonstrate initial compliance?

(a) *When add-on controls are used.* You may use the emission rate with add-on controls option for any coating operation, for any group of coating operations in the affected source, or for all of the coating operations in the affected source. You may include both controlled and uncontrolled coating operations in a group for which you use this option. You must use either the compliant material option or the emission rate without add-on controls option for any coating operation in the affected source for which you do not use the emission rate with add-on controls option. To demonstrate initial compliance, the coating operation or group of coating operations for which you use the emission rate with add-on controls option must meet the applicable emission limit in § 63.4890, and each controlled coating operation must meet the operating limits and work practice standards required in §§ 63.4892 and 63.4893, respectively. You must meet all the requirements of this section to demonstrate initial compliance with the emission limitations. When calculating the organic HAP emission rate according to this section, do not include any coatings, thinners, or cleaning materials used on coating operations for which you use the compliant material option or the emission rate without add-on controls option.

(b) *Compliance with operating limits.* Except as provided in § 63.4960(a)(4), you must establish and demonstrate continuous compliance during the initial compliance period with the operating limits required by § 63.4892, using the procedures specified in §§ 63.4966 and 63.4967.

(c) *Compliance with work practice requirements.* You must develop, implement, and document your implementation of the work practice plan required by § 63.4893 during the initial compliance period, as specified in § 63.4930.

(d) *Compliance with emission limits.* You must follow the procedures in paragraphs (e) through (m) of this section to demonstrate compliance with the applicable emission limit in § 63.4890.

(e) *Determine the mass fraction of organic HAP, density, volume used, and volume fraction of coating solids.* Follow the procedures specified in § 63.4951(a) through (d) to determine the mass fraction of organic HAP, density, and volume of each coating, thinner, and cleaning material used during each compliance period and the volume fraction of coating solids for each coating used during each compliance period.

(f) *Calculate the total mass of organic HAP emissions before add-on controls.* Using Equation 1 of § 63.4951, calculate the total mass of organic HAP emissions before add-on controls from all coatings, thinners, and cleaning materials used during the compliance period.

(g) *Calculate the organic HAP emission reduction for each controlled coating operation.* Determine the mass of organic HAP emissions reduced for each controlled coating operation during each compliance period. The emission reduction determination quantifies the total organic HAP emissions that pass through the emission capture system and are destroyed or removed by the add-on control device. Use the procedures in paragraph (h) of this section to calculate the mass of organic HAP emission reduction for each controlled coating operation using an emission capture system and add-on control device other than a solvent recovery system for which you conduct liquid-liquid material balances. For each controlled coating operation using a solvent recovery system for which you conduct a liquid-liquid material balance, use the procedures in paragraph (j) of this section to calculate the organic HAP emission reduction.

(h) *Calculate the organic HAP emission reduction for controlled coating operations not using liquid-liquid material balance.* For each controlled coating operation using an emission capture system and add-on control device other than a solvent recovery system for which you conduct liquid-liquid material balances, calculate the organic HAP emission reduction, using Equation 1 of this section. The calculation applies the emission capture system efficiency and add-on control device efficiency to the mass of organic HAP contained in the coatings, thinners, and cleaning materials that are used in the coating operation served by the emission capture system and add-on control device during the compliance period. For any period of time a deviation specified in § 63.4962(c) or (d) occurs in the controlled coating operation, including a deviation during a period of startup, shutdown, or malfunction, you must assume zero efficiency for the emission capture system and add-on control device. Equation 1 of this section treats the materials used during such a deviation as if they were used on an uncontrolled coating operation for the time period of the deviation:

$$H_R = \left(A_I + B_I + C_I - R_w\right)\left(\frac{CE}{100} \times \frac{DRE}{100}\right) + H_{unc} \qquad \text{(Eq. 1)}$$

Where:

H_R = Mass of organic HAP emission reduction for the controlled coating operation during the compliance period, kg.

A_I = Total mass of organic HAP in the coatings used in the controlled coating operation during the compliance period, excluding coatings used during deviations, kg, as calculated in Equation 1A of this section.

B_I = Total mass of organic HAP in the thinners used in the controlled coating operation during the compliance period, excluding thinners used during deviations, kg, as calculated in Equation 1B of this section.

C_I = Total mass of organic HAP in the cleaning materials used in the controlled coating operation during the compliance period, excluding cleaning materials used during deviations, kg, as calculated in Equation 1C of this section.

R_w = Total mass of organic HAP in waste materials sent or designated for shipment to a hazardous waste TSDF for treatment or disposal during the compliance period, kg, determined according to § 63.4951(e)(4). The mass of any waste material reused during the same compliance period may not be included in R_w. (You may assign a value of zero to R_w if you do not wish to use this allowance.)

CE = Capture efficiency of the emission capture system vented to the add-on control device, percent. Use the test methods and procedures specified in §§ 63.4963 and 63.4964 to measure and record capture efficiency.

DRE = Organic HAP destruction or removal efficiency of the add-on control device, percent. Use the test methods and procedures in §§ 63.4963 and 63.4965 to measure and record the organic HAP destruction or removal efficiency.

H_{unc} = Total mass of organic HAP in the coatings, thinners, and cleaning materials used during all deviations specified in § 63.4962(c) and (d) that occurred during the compliance period in the controlled coating operation, kg, as calculated in Equation 1D of this section.

(1) Calculate the mass of organic HAP in the coatings used in the controlled coating operation, using Equation 1A of this section. Do not include in the calculation the coatings used during any deviation specified in § 63.4962(c) or (d) that occurred during the month. Include such coatings in the calculation of the total mass of organic HAP in the coatings, thinners, and cleaning materials used during all deviations that occurred during the compliance period in the controlled coating operation in Equation 1D of this section.

$$A_I = \sum_{i=1}^{m} \left(Vol_{c,i}\right)\left(D_{c,i}\right)\left(W_{c,i}\right) \qquad \text{(Eq. 1A)}$$

Where:

A_I = Total mass of organic HAP in the coatings used in the controlled coating operation during the compliance period, excluding coatings used during deviations, kg.

$Vol_{c,i}$= Total volume of coating, i, used during the compliance period except during deviations, liters.

$D_{c,i}$ = Density of coating, i, kg per liter.

$W_{c,i}$ = Mass fraction of organic HAP in coating, i, kg per kg.

m = Number of different coatings used.

(2) Calculate the mass of organic HAP in the thinners used in the controlled coating operation, using Equation 1B of this section. Do not include in the calculation the thinners used during any deviation specified in § 63.4962(c) or (d) that occurred during the month. Include such coatings in the calculation of the total mass of organic HAP in the coatings, thinners, and cleaning materials used during all deviations that occurred during the compliance period in the controlled coating operation in Equation 1D of this section.

$$B_I = \sum_{j=1}^{n} \left(Vol_{t,j}\right)\left(D_{t,j}\right)\left(W_{t,j}\right) \qquad \text{(Eq. 1B)}$$

Where:

B_I = Total mass of organic HAP in the thinners used in the controlled coating operation during the compliance period, excluding thinners used during deviations, kg.

$Vol_{t,j}$ = Total volume of thinner, j, used during the compliance period except during deviations, liters.

$D_{t,j}$ = Density of thinner, j, kg per liter.

$W_{t,j}$ = Mass fraction of organic HAP in thinner, j, kg per kg.

n = Number of different thinners used.

(3) Calculate the mass of organic HAP in the cleaning materials used in the controlled coating operation, using Equation 1C of this section. Do not include in the calculation the cleaning materials used during any deviation specified in § 63.4962(c) or (d) that occurred during the compliance period. Include such cleaning materials in the calculation of the total mass of organic HAP in the coatings, thinners, and cleaning materials used during all deviations that occurred during the compliance period in the controlled coating operation in Equation 1D of this section.

$$C_I = \sum_{k=1}^{p} \left(Vol_{s,k}\right)\left(D_{s,k}\right)\left(W_{s,k}\right) \quad \text{(Eq. 1C)}$$

Where:

C_I = Total mass of organic HAP in the cleaning materials used in the controlled coating operation during the compliance period, excluding cleaning materials used during deviations, kg.

$Vol_{s,k}$ = Total volume of cleaning material, k, used during the compliance period except during deviations, liters.

$D_{s,k}$ = Density of cleaning material, k, kg per liter.

$W_{s,k}$ = Mass fraction of organic HAP in cleaning material, k, kg per kg.

p = Number of different cleaning materials used.

(4) Calculate the mass of organic HAP in the coatings, thinners, and cleaning materials used in the controlled coating operation during deviations specified in § 63.4962(c) and (d), using Equation 1D of this section:

$$H_{unc} = \sum_{h=1}^{q} \left(Vol_h\right)\left(D_h\right)\left(W_h\right) \quad \text{(Eq. 1D)}$$

Where:

H_{unc} = Total mass of organic HAP in the coatings, thinners, and cleaning materials used during all deviations specified in § 63.4962(c) and (d) that occurred during the compliance period in the controlled coating operation, kg.

Vol_h = Total volume of coating, thinner, or cleaning material, h, used in the controlled coating operation during deviations, liters.

D_h = Density of coating, thinner, or cleaning material, h, kg per liter.

W_h = Mass fraction of organic HAP in coating, thinner, or cleaning material, h, kg organic HAP per kg coating.

q = Number of different coatings, thinning solvents, or cleaning materials.

(i) [Reserved]

(j) *Calculate the organic HAP emission reduction for controlled coating operations using liquid-liquid material balance.* For each controlled coating operation using a solvent recovery system for which you conduct liquid-liquid material balances, calculate the organic HAP emission reduction by applying the volatile organic matter collection and recovery efficiency to the mass of organic HAP contained in the coatings, thinners, and cleaning materials that are used in the coating operation controlled by the solvent recovery system during the compliance period. Perform a liquid-liquid material balance for each compliance period as specified in paragraphs (j)(1) through (6) of this section. Calculate the mass of organic HAP emission reduction by the solvent recovery system as specified in paragraph (j)(7) of this section.

(1) For each solvent recovery system, you must install, calibrate, maintain, and operate according to the manufacturer's specifications, a device that indicates the cumulative amount of volatile organic matter recovered by the solvent recovery system each compliance period. The device must be initially certified by the manufacturer to be accurate to within ±2.0 percent of the mass of volatile organic matter recovered.

(2) For each solvent recovery system, determine the mass of volatile organic matter recovered for the compliance period, based on measurement with the device required in paragraph (j)(1) of this section.

(3) Determine the mass fraction of volatile organic matter for each coating, thinner, and cleaning material used in the coating operation controlled by the solvent recovery system during the compliance period. You may determine the volatile organic matter mass fraction using Method 24 of 40 CFR part 60, appendix A, or an EPA-approved alternative method, or you may use information provided by the manufacturer or supplier of the coating. In the event of any inconsistency between information provided by the manufacturer or supplier and the results of Method 24 of 40 CFR part 60, appendix A, or an approved alternative method, the test method results will govern.

(4) Determine the density of each coating, thinner, and cleaning material used in the coating operation controlled by the solvent recovery system during the compliance period according to §63.4951(c).

(5) Measure the volume of each coating, thinner, and cleaning material used in the coating operation controlled by the solvent recovery system during the compliance period.

(6) For each compliance period, calculate the solvent recovery system's volatile organic matter collection and recovery efficiency, using Equation 2 of this section:

$$R_v = 100\frac{M_{VR}}{\sum_{i=1}^{m}Vol_iD_iWV_{c,i}+\sum_{j=1}^{n}Vol_jD_jWV_{t,j}+\sum_{k=1}^{p}Vol_kD_kWV_{s,k}} \qquad \text{(Eq. 2)}$$

Where:

R_V = Volatile organic matter collection and recovery efficiency of the solvent recovery system during the compliance period, percent.

M_{VR} = Mass of volatile organic matter recovered by the solvent recovery system during the compliance period, kg.

Vol_i = Volume of coating, i, used in the coating operation controlled by the solvent recovery system during the compliance period, liters.

D_i = Density of coating, i, kg per liter.

$WV_{c,i}$ = Mass fraction of volatile organic matter for coating, i, kg volatile organic matter per kg coating.

Vol_j = Volume of thinner, j, used in the coating operation controlled by the solvent recovery system during the compliance period, liters.

D_j = Density of thinner, j, kg per liter.

$WV_{t,j}$ = Mass fraction of volatile organic matter for thinner, j, kg volatile organic matter per kg thinner.

Vol_k = Volume of cleaning material, k, used in the coating operation controlled by the solvent recovery system during the compliance period, liters.

D_k = Density of cleaning material, k, kg per liter.

$WV_{s,k}$ = Mass fraction of volatile organic matter for cleaning material, k, kg volatile organic matter per kg cleaning material.

m = Number of different coatings used in the coating operation controlled by the solvent recovery system during the compliance period.

n = Number of different thinners used in the coating operation controlled by the solvent recovery system during the compliance period.

p = Number of different cleaning materials used in the coating operation controlled by the solvent recovery system during the compliance period.

(7) Calculate the mass of organic HAP emission reduction for the coating operation controlled by the solvent recovery system during the compliance period, using Equation 3 of this section:

$$H_{CSR} = \left(A_{CSR} + B_{CSR} + C_{CSR}\right)\left(\frac{R_V}{100}\right) \qquad \text{(Eq. 3)}$$

Where:

H_{CSR} = Mass of organic HAP emission reduction for the coating operation controlled by the solvent recovery system during the compliance period, kg.

A_{CSR} = Total mass of organic HAP in the coatings used in the coating operation controlled by the solvent recovery system, kg, calculated using Equation 3A of this section.

B_{CSR} = Total mass of organic HAP in the thinners used in the coating operation controlled by the solvent recovery system, kg, calculated using Equation 3B of this section.

C_{CSR} = Total mass of organic HAP in the cleaning materials used in the coating operation controlled by the solvent recovery system, kg, calculated using Equation 3C of this section.

R_V = Volatile organic matter collection and recovery efficiency of the solvent recovery system, percent, from Equation 2 of this section.

(i) Calculate the mass of organic HAP in the coatings used in the coating operation controlled by the solvent recovery system, kg, using Equation 3A of this section.

$$A_{CSR} = \sum_{i=1}^{m}\left(Vol_{c,i}\right)\left(D_{c,i}\right)\left(W_{c,i}\right) \qquad \text{(Eq. 3A)}$$

Where:

A_{CSR} = Total mass of organic HAP in the coatings used in the coating operation controlled by the solvent recovery system during the month, kg.

$Vol_{c,i}$ = Total volume of coating, i, used during the month in the coating operation controlled by the solvent recovery system, liters.

$D_{c,i}$ = Density of coating, i, kg coating per liter coating.

$W_{c,i}$ = Mass fraction of organic HAP in coating, i, kg organic HAP per kg coating.

m = Number of different coatings used.

(ii) Calculate the mass of organic HAP in the thinners used in the coating operation controlled by the solvent recovery system, using Equation 3B of this section:

$$B_{CSR} = \sum_{j=1}^{n}\left(Vol_{t,j}\right)\left(D_{t,j}\right)\left(W_{t,j}\right) \qquad \text{(Eq. 3B)}$$

Where:

B_{CSR} = Total mass of organic HAP in the thinners used in the coating operation controlled by the solvent recovery system during the month, kg.

$Vol_{t,j}$ = Total volume of thinner, j, used during the month in the coating operation controlled by the solvent recovery system, liters.

$D_{t,j}$ = Density of thinner, j, kg thinner per liter thinner.

$W_{t,j}$ = Mass fraction of organic HAP in thinner, j, kg organic HAP per kg thinner.

n = Number of different thinners used.

(iii) Calculate the mass of organic HAP in the cleaning materials used in the coating operation controlled by the solvent recovery system during the month, using Equation 3C of this section:

$$C_{CSR} = \sum_{k=1}^{p}\left(Vol_{s,k}\right)\left(D_{s,k}\right)\left(W_{s,k}\right) \qquad \text{(Eq. 3C)}$$

Where:

C_{CSR} = Total mass of organic HAP in the cleaning materials used in the coating operation controlled by the solvent recovery system during the month, kg.

$Vol_{s,k}$ = Total volume of cleaning material, k, used during the month in the coating operation controlled by the solvent recovery system, liters.

$D_{s,k}$ = Density of cleaning material, k, kg cleaning material per liter cleaning material.

$W_{s,k}$ = Mass fraction of organic HAP in cleaning material, k, kg organic HAP per kg cleaning material.

p = Number of different cleaning materials used.

(k) *Calculate the total volume of coating solids used.* Calculate the total volume of coating solids used, which is the combined volume of coating solids for all the coatings used during the compliance period, using Equation 2 of § 63.4951.

(l) *Calculate the organic HAP emissions rate.* Calculate the organic HAP emission rate to the atmosphere, using Equation 4 of this section:

$$H_{hap} = \frac{H_e - \sum_{i=1}^{q}\left(H_{R,i}\right) - \sum_{j=1}^{r}\left(H_{CSR,j}\right)}{V_{st}} \qquad \text{(Eq. 4)}$$

Where:

H_{hap} = Organic HAP emission rate for the compliance period, kg organic HAP per liter coating solids.

H_e = Total mass of organic HAP emissions before add-on controls from all the coatings, thinners, and cleaning materials used during the compliance period, kg, determined according to paragraph (f) of this section.

$H_{R,i}$ = Total mass of organic HAP emission reduction for controlled coating operation, i, not using liquid-liquid material balances, during the compliance period, kg, from Equation 1 of this section.

$H_{CSR,j}$ = Total mass of organic HAP emission reduction for controlled coating operation, j, using a liquid-liquid material balance, during the compliance period, kg, from Equation 3 of this section.

V_{st} = Total volume of coating solids used during the compliance period, liters, from Equation 2 of § 63.4951.

q = Number of controlled coating operations except those controlled with a solvent recovery system.

r = Number of coating operations controlled with a solvent recovery system.

(m) *Compliance demonstration.* To demonstrate initial compliance with the emission limit during the compliance period as calculated using Equation 4 of this section, the HAP emission rate for the compliance period must be less than or equal to the applicable emission limit in § 63.4890. You must keep all records as required by §§ 63.4930 and 63.4931. As part of the Notification of Compliance Status required by § 63.4910 and the semiannual compliance reports required in § 63.4920, you must identify the coating operation or group of coating operations for which you used the emission rate with add-on controls option. If there were no deviations from the emission limit, include a statement that the coating operation or group of coating operations was in compliance with the emission limitations during the initial compliance period because the organic HAP emission rate was less than or equal to the applicable emission limit in § 63.4890, and you achieved the operating limits required by § 63.4892 and the work practice standards required by § 63.4893.

§ 63.4962 How do I demonstrate continuous compliance with the emission limitations?

(a) Following the initial compliance period, you must complete a compliance demonstration according to the requirements in § 63.4961(m) for each subsequent compliance period. Each month following the initial compliance period described in § 63.4960 is a compliance period.

(b) If the organic HAP emission rate for any compliance period exceeded the applicable emission limit in § 63.4890, this is a deviation from the emission limitation for that compliance period and must be reported as specified in §§ 63.4910(c)(6) and 63.4920(a)(7).

(c) You must demonstrate continuous compliance with each operating limit required by § 63.4892 that applies to you, as specified in Table 1 to this subpart.

(1) If an operating parameter is out of the allowed range specified in Table 1 to this subpart, this is a deviation from the operating limit that must be reported as specified in §§ 63.4910(c)(6) and 63.4920(a)(7).

(2) If an operating parameter deviates from the operating limit specified in Table 1 to this subpart, then you must

assume that the emission capture system and add-on control device were achieving zero efficiency during the time period of the deviation. For the purposes of completing the compliance calculations specified in §63.4961, you must treat the materials used during a deviation on a controlled coating operation as if they were used on an uncontrolled coating operation for the time period of the deviation, as indicated in Equation 1 of §63.4961.

(d) You must meet the requirements for bypass lines in §63.4967(b) for controlled coating operations for which you do not conduct liquid-liquid material balances. If any bypass line is opened and emissions are diverted to the atmosphere when the coating operation is running, this is a deviation that must be reported as specified in §§63.4910(c)(6) and 63.4920(a)(7). For the purposes of completing the compliance calculations in §63.4961, you must treat the materials used during a deviation on a controlled coating operation as if they were used on an uncontrolled coating operation for the time period of the deviation, as indicated in Equation 1 of §63.4961.

(e) You must demonstrate continuous compliance with the work practice standards in §63.4893. If you did not develop a work practice plan, or you did not implement the plan, or you did not keep the records required by §63.4930(k)(8), this is a deviation from the work practice standards that must be reported as specified in §§63.4910(c)(6) and 63.4920(a)(7).

(f) As part of each semiannual compliance report required in §63.4920, you must identify the coating operation or group of coating operations for which you used the emission rate with add-on controls option. If there were no deviations from the emission limitations, submit an affirmative statement that you were in compliance with the emission limitations during the reporting period because the organic HAP emission rate for each compliance period was less than or equal to the applicable emission limit in §63.4890, and you achieved the operating limits required by §63.4892 and the work practice standards required by §63.4893 during each compliance period.

(g) During periods of startup, shutdown, or malfunction of the emission capture system, add-on control device, or coating operation that may affect emission capture or control device efficiency, you must operate in accordance with the SSMP required by §63.4900(c).

(h) [Reserved]

(i) You must maintain records as specified in §§63.4930 and 63.4931.

§63.4963 What are the general requirements for performance tests?

(a) You must conduct each performance test required by §63.4960 according to the requirements in §63.7(e)(1) and under the conditions in this section unless you obtain a waiver of the performance test according to the provisions in §63.7(h).

(1) *Representative coating operation operating conditions.* You must conduct the performance test under representative operating conditions for the coating operation. Operations during periods of startup, shutdown, or malfunction, and during periods of nonoperation do not constitute representative conditions. You must record the process information that is necessary to document operating conditions during the test and explain why the conditions represent normal operation.

(2) *Representative emission capture system and add-on control device operating conditions.* You must conduct the performance test when the emission capture system and add-on control device are operating at a representative flow rate, and the add-on control device is operating at a representative inlet concentration. You must record information that is necessary to document emission capture system and add-on control device operating conditions during the test and explain why the conditions represent normal operation.

(b) You must conduct each performance test of an emission capture system according to the requirements in §63.4964. You must conduct each performance test of an add-on control device according to the requirements in §63.4965.

(c) The performance test to determine add-on control device organic HAP destruction or removal efficiency must consist of three runs as specified in § 63.7(e)(3) and each run must last at least 1 hour.

§ 63.4964 How do I determine the emission capture system efficiency?

You must use the procedures and test methods in this section to determine capture efficiency as part of the performance test required by § 63.4960.

(a) *Assuming 100 percent capture efficiency*. You may assume the capture system efficiency is 100 percent if both of the conditions in paragraphs (a)(1) and (2) of this section are met:

(1) The capture system meets the criteria in Method 204 of appendix M to 40 CFR part 51 for a PTE and directs all the exhaust gases from the enclosure to an add-on control device.

(2) All coatings, thinners, and cleaning materials used in the coating operation are applied within the capture system; coating solvent flash-off and coating, curing, and drying occurs within the capture system; and the removal of or evaporation of cleaning materials from the surfaces they are applied to occurs within the capture system. For example, this criterion is not met if parts enter the open shop environment when being moved between a spray booth and a curing oven.

(b) *Measuring capture efficiency*. If the capture system does not meet both of the criteria in paragraphs (a)(1) and (2) of this section, then you must use one of the three protocols described in paragraphs (c), (d), and (e) of this section to measure capture efficiency. The capture efficiency measurements use TVH capture efficiency as a surrogate for organic HAP capture efficiency. For the protocols in paragraphs (c) and (d) of this section, the capture efficiency measurement must consist of three test runs. Each test run must be at least 3 hours duration or the length of a production run, whichever is longer, up to 8 hours. For the purposes of this test, a production run means the time required for a single part to go from the beginning to the end of production, which includes surface preparation activities and drying or curing time.

(c) *Liquid-to-uncaptured-gas protocol using a temporary total enclosure or building enclosure.* The liquid-to-uncaptured-gas protocol compares the mass of liquid TVH in materials used in the coating operation to the mass of TVH emissions not captured by the emission capture system. Use a temporary total enclosure or a building enclosure and the procedures in paragraphs (c)(1) through (6) of this section to measure emission capture system efficiency using the liquid-to-uncaptured-gas protocol.

(1) Either use a building enclosure or construct an enclosure around the coating operation where coatings, thinners, and cleaning materials are applied, and all areas where emissions from these applied coatings and materials subsequently occur, such as flash-off, curing, and drying areas. The areas of the coating operation where capture devices collect emissions for routing to an add-on control device, such as the entrance and exit areas of an oven or spray booth, must also be inside the enclosure. The enclosure must meet the applicable definition of a temporary total enclosure or building enclosure in Method 204 of appendix M to 40 CFR part 51.

(2) Use Method 204A or 204F of appendix M to 40 CFR part 51 to determine the mass fraction, kg TVH per kg material, of TVH liquid input from each coating, thinner, and cleaning material used in the coating operation during each capture efficiency test run. To make the determination, substitute TVH for each occurrence of the term VOC in the methods.

(3) Use Equation 1 of this section to calculate the mass of TVH liquid input from all the coatings, thinners, and cleaning materials used in the coating operation during each capture efficiency test run:

$$\mathrm{TVH_{used}} = \sum_{i=1}^{n} \left(\mathrm{TVH_i}\right)\left(\mathrm{Vol_i}\right)\left(\mathrm{D_i}\right) \qquad \text{(Eq. 1)}$$

Where:

$\mathrm{TVH_{used}}$ = Mass of liquid total volatile hydrocarbons in materials used in the coating operation during the capture efficiency test run, lb.

$\mathrm{TVH_i}$ = Mass fraction of TVH in coating, thinner, or cleaning material, i, that is used in the coating operation during the capture efficiency test run, kg TVH per kg material.

Vol_i = Total volume of coating, thinner, or cleaning material, i, used in the coating operation during the capture efficiency test run, liters.

D_i = Density of coating, thinner, or cleaning material, i, kg material per liter material.

n = Number of different coatings, thinners, and cleaning materials used in the coating operation during the capture efficiency test run.

(4) Use Method 204D or E of appendix M to 40 CFR part 51 to measure the total mass of TVH emissions that are not captured by the emission capture system; they are measured as they exit the temporary total enclosure or building enclosure during each capture efficiency test run. To make the measurement, substitute TVH for each occurrence of the term VOC in the methods.

(i) Use Method 204D if the enclosure is a temporary total enclosure.

(ii) Use Method 204E if the enclosure is a building enclosure. During the capture efficiency measurement, all organic compound emitting operations inside the building enclosure, other than the coating operation for which capture efficiency is being determined, must be shut down, but all fans and blowers must be operating normally.

(5) For each capture efficiency test run, determine the percent capture efficiency of the emission capture system, using Equation 2 of this section:

$$CE = \frac{\left(TVH_{used} - TVH_{uncaptured}\right)}{TVH_{used}} \times 100 \qquad \text{(Eq. 2)}$$

Where:

CE = Capture efficiency of the emission capture system vented to the add-on control device, percent.

TVH_{used} = Total mass of TVH liquid input used in the coating operation during the capture efficiency test run, kg.

$TVH_{uncaptured}$ = Total mass of TVH that is not captured by the emission capture system and that exits from the temporary total enclosure or building enclosure during the capture efficiency test run, kg.

(6) Determine the capture efficiency of the emission capture system as the average of the capture efficiencies measured in the three test runs.

(d) *Gas-to-gas protocol using a temporary total enclosure or a building enclosure.* The gas-to-gas protocol compares the mass of TVH emissions captured by the emission capture system to the mass of TVH emissions not captured. Use a temporary total enclosure or a building enclosure and the procedures in paragraphs (d)(1) through (5) of this section to measure emission capture system efficiency using the gas-to-gas protocol.

(1) Either use a building enclosure or construct an enclosure around the coating operation where coatings, thinners, and cleaning materials are applied, and all areas where emissions from these applied coatings and materials subsequently occur, such as flash-off, curing, and drying areas. The areas of the coating operation where capture devices collect emissions generated by the coating operation for routing to an add-on control device, such as the entrance and exit areas of an oven or a spray booth, must also be inside the enclosure. The enclosure must meet the applicable definition of a temporary total enclosure or building enclosure in Method 204 of appendix M to 40 CFR part 51.

(2) Use Method 204B or 204C of appendix M to 40 CFR part 51 to measure the total mass of TVH emissions captured by the emission capture system during each capture efficiency test run as measured at the inlet to the add-on control device. To make the measurement, substitute TVH for each occurrence of the term VOC in the methods.

(i) The sampling points for the Method 204B or 204C measurement must be upstream from the add-on control device and must represent total emissions routed from the capture system and entering the add-on control device.

(ii) If multiple emission streams from the capture system enter the add-on control device without a single common duct, then the emissions entering the add-on control device must be simultaneously measured in each duct and the total emissions entering the add-on control device must be determined.

(3) Use Method 204D or 204E of appendix M to 40 CFR part 51 to measure the total mass of TVH emissions that are not captured by the emission capture system; they are measured as they exit the temporary total enclosure or building enclosure during each capture efficiency test run. To make the measurement, substitute TVH for each occurrence of the term VOC in the methods.

(i) Use Method 204D if the enclosure is a temporary total enclosure.

(ii) Use Method 204E if the enclosure is a building enclosure. During the capture efficiency measurement, all organic compound emitting operations inside the building enclosure, other than the coating operation for which capture efficiency is being determined, must be shut down, but all fans and blowers must be operating normally.

(4) For each capture efficiency test run, determine the percent capture efficiency of the emission capture system, using Equation 3 of this section:

$$\mathrm{CE} = \frac{\mathrm{TVH}_{\mathrm{captured}}}{\left(\mathrm{TVH}_{\mathrm{captured}} + \mathrm{TVH}_{\mathrm{uncaptured}}\right)} \times 100 \qquad \text{(Eq. 3)}$$

Where:

CE = Capture efficiency of the emission capture system vented to the add-on control device, percent.

$\mathrm{TVH}_{\mathrm{captured}}$ = Total mass of TVH captured by the emission capture system as measured at the inlet to the add-on control device during the emission capture efficiency test run, kg.

$\mathrm{TVH}_{\mathrm{uncaptured}}$ = Total mass of TVH that is not captured by the emission capture system and that exits from the temporary total enclosure or building enclosure during the capture efficiency test run, kg.

(5) Determine the capture efficiency of the emission capture system as the average of the capture efficiencies measured in the three test runs.

(e) *Alternative capture efficiency protocol.* As an alternative to the procedures specified in paragraphs (c) and (d) of this section, you may determine capture efficiency using any other capture efficiency protocol and test methods that satisfy the criteria of either the DQO or LCL approach as described in appendix A to subpart KK of this part.

§ 63.4965 How do I determine the add-on control device emission destruction or removal efficiency?

You must use the procedures and test methods in this section to determine the add-on control device emission destruction or removal efficiency as part of the performance test required by § 63.4960. You must conduct three test runs as specified in § 63.7(e)(3), and each test run must last at least 1 hour.

(a) For all types of add-on control devices, use the test methods specified in paragraphs (a)(1) through (5) of this section.

(1) Use Method 1 or 1A of appendix A to 40 CFR part 60, as appropriate, to select sampling sites and velocity traverse points.

(2) Use Method 2, 2A, 2C, 2D, 2F, or 2G of appendix A to 40 CFR part 60, as appropriate, to measure gas volumetric flow rate.

(3) Use Method 3, 3A, or 3B of appendix A to 40 CFR part 60, as appropriate, for gas analysis to determine dry molecular weight. You may also use as an alternative to Method 3B, the manual method for measuring the oxygen, carbon dioxide, and carbon monoxide content of exhaust gas in ANSI/ASME PTC

19.10–1981, ''Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus]'' (incorporated by reference, see §63.14).

(4) Use Method 4 of appendix A to 40 CFR part 60 to determine stack gas moisture.

(5) Methods for determining gas volumetric flow rate, dry molecular weight, and stack gas moisture must be performed, as applicable, during each test run.

(b) Measure total gaseous organic mass emissions as carbon at the inlet and outlet of the add-on control device simultaneously, using either Method 25 or 25A of appendix A to 40 CFR part 60, as specified in paragraphs (b)(1) through (3) of this section. You must use the same method for both the inlet and outlet measurements.

(1) Use Method 25 if the add-on control device is an oxidizer and you expect the total gaseous organic concentration as carbon to be more than 50 parts per million (ppm) at the control device outlet.

(2) Use Method 25A if the add-on control device is an oxidizer and you expect the total gaseous organic concentration as carbon to be 50 ppm or less at the control device outlet.

(3) Use Method 25A if the add-on control device is not an oxidizer.

(c) If two or more add-on control devices are used for the same emission stream, then you must measure emissions at the outlet of each device. For example, if one add-on control device is a concentrator with an outlet for the high-volume, dilute stream that has been treated by the concentrator, and a second add-on control device is an oxidizer with an outlet for the low-volume, concentrated stream that is treated with the oxidizer, you must measure emissions at the outlet of the oxidizer and the high volume dilute stream outlet of the concentrator.

(d) For each test run, determine the total gaseous organic emissions mass flow rates for the inlet and the outlet of the add-on control device, using Equation 1 of this section. If there is more than one inlet or outlet to the add-on control device, you must calculate the total gaseous organic mass flow rate using Equation 1 of this section for each inlet and each outlet and then total all of the inlet emissions and total all of the outlet emissions.

$$M_f = Q_{sd} C_c (12)(0.0416)\left(10^{-6}\right) \qquad \text{(Eq. 1)}$$

Where:

M_f= Total gaseous organic emissions mass flow rate, kg/per hour (h).

Q_{sd}= Volumetric flow rate of gases entering or exiting the add-on control device, as determined by Method 2, 2A, 2C, 2D, 2F, or 2G, dry standard cubic meters/hour (dscm/h).

C_c= Concentration of organic compounds as carbon in the vent gas, as determined by Method 25 or Method 25A, parts per million by volume (ppmv), dry basis.

0.0416 = Conversion factor for molar volume, kg-moles per cubic meter (mol/m^3) (@ 293 Kelvin (K) and 760 millimeters of mercury (mmHg)).

(e) For each test run, determine the add-on control device organic emissions destruction or removal efficiency, using Equation 2 of this section:

$$DRE = \frac{M_{fi} - M_{fo}}{M_{fi}} \qquad \text{(Eq. 2)}$$

Where:

DRE = Organic emissions destruction or removal efficiency of the add-on control device, percent.

M_{fi}= Total gaseous organic emissions mass flow rate at the inlet(s) to the add-on control device, using Equation 1 of this section, kg/h.

M_{fo}= Total gaseous organic emissions mass flow rate at the outlet(s) of the add-on control device, using Equation 1 of this section, kg/h.

(f) Determine the emission destruction or removal efficiency of the add-on control device as the average of the efficiencies determined in the three test runs and calculated in Equation 2 of this section.

§63.4966 How do I establish the emission capture system and add-on control device operating limits during the performance test?

During the performance test required by §63.4960 and described in §§63.4963, 63.4964, and 63.4965, you must establish the operating limits required by § 63.4892 according to this section, unless you have received approval for alternative monitoring and operating limits under § 63.8(f) as specified in § 63.4892.

(a) *Thermal oxidizers.* If your add-on control device is a thermal oxidizer, establish the operating limits according to paragraphs (a)(1) and (2) of this section.

(1) During the performance test, you must monitor and record the combustion temperature at least once every 15 minutes during each of the three test runs. You must monitor the temperature in the firebox of the thermal oxidizer or immediately downstream of the firebox before any substantial heat exchange occurs.

(2) Use the data collected during the performance test to calculate and record the average combustion temperature maintained during the performance test. This average combustion temperature is the minimum operating limit for your thermal oxidizer.

(b) *Catalytic oxidizers.* If your add-on control device is a catalytic oxidizer, establish the operating limits according to either paragraphs (b)(1) and (2) or paragraphs (b)(3) and (4) of this section.

(1) During the performance test, you must monitor and record the temperature just before the catalyst bed and the temperature difference across the catalyst bed at least once every 15 minutes during each of the three test runs.

(2) Use the data collected during the performance test to calculate and record the average temperature just before the catalyst bed and the average temperature difference across the catalyst bed maintained during the performance test. These are the minimum operating limits for your catalytic oxidizer.

(3) As an alternative to monitoring the temperature difference across the catalyst bed, you may monitor the temperature at the inlet to the catalyst bed and implement a site-specific inspection and maintenance plan for your catalytic oxidizer as specified in paragraph (b)(4) of this section. During the performance test, you must monitor and record the temperature just before the catalyst bed at least once every 15 minutes during each of the three test runs. Use the data collected during the performance test to calculate and record the average temperature just before the catalyst bed during the performance test. This is the minimum operating limit for your catalytic oxidizer.

(4) You must develop and implement an inspection and maintenance plan for your catalytic oxidizer(s) for which you elect to monitor according to paragraph (b)(3) of this section. The plan must address, at a minimum, the elements specified in paragraphs (b)(4)(i) through (iii) of this section.

(i) Annual sampling and analysis of the catalyst activity (*i.e.,* conversion efficiency) following the manufacturer's or catalyst supplier's recommended procedures.

(ii) Monthly inspection of the oxidizer system, including the burner assembly and fuel supply lines for problems and, as necessary, adjust the equipment to assure proper air-to-fuel mixtures.

(iii) Annual internal and monthly external visual inspection of the catalyst bed to check for channeling, abrasion, and settling. If problems are found, you must replace the catalyst bed or take corrective action consistent with the manufacturer's recommendations and conduct a new performance test to determine destruction efficiency according to § 63.4965.

(c) *Carbon adsorbers.* If your add-on control device is a carbon adsorber, establish the operating limits according to paragraphs (c)(1) and (2) of this section.

(1) You must monitor and record the total regeneration desorbing gas (*e.g.,* steam or nitrogen) mass flow for each regeneration cycle, and the carbon bed temperature after each carbon bed regeneration and cooling cycle, for the regeneration cycle either immediately preceding or immediately following the performance test.

(2) The operating limits for your carbon adsorber are the minimum total desorbing gas mass flow recorded during the regeneration cycle and the maximum carbon bed temperature recorded after the cooling cycle.

(d) *Condensers.* If your add-on control device is a condenser, establish the operating limits according to paragraphs (d)(1) and (2) of this section.

(1) During the performance test, you must monitor and record the condenser outlet (product side) gas temperature at least once every 15 minutes during each of the three test runs.

(2) Use the data collected during the performance test to calculate and record the average condenser outlet (product side) gas temperature maintained during the performance test. This average condenser outlet gas temperature is the maximum operating limit for your condenser.

(e) *Emission capture system.* For each capture device that is not part of a PTE that meets the criteria of §63.4964(a), establish an operating limit for either the gas volumetric flow rate or duct static pressure, as specified in paragraphs (e)(1) and (2) of this section. The operating limit for a PTE is specified in Table 1 to this subpart.

(1) During the capture efficiency determination required by §63.4960 and described in §§63.4963 and 63.4964, you must monitor and record either the gas volumetric flow rate or the duct static pressure for each separate capture device in your emission capture system at least once every 15 minutes during each of the three test runs at a point in the duct between the capture device and the add-on control device inlet.

(2) Calculate and record the average gas volumetric flow rate or duct static pressure for the three test runs for each capture device. This average gas volumetric flow rate or duct static pressure is the minimum operating limit for that specific capture device.

(f) *Concentrators.* If your add-on control device includes a concentrator, you must establish operating limits for the concentrator according to paragraphs (f)(1) through (4) of this section.

(1) During the performance test, you must monitor and record the desorption concentrate stream gas temperature at least once every 15 minutes during each of the three runs of the performance test.

(2) Use the data collected during the performance test to calculate and record the average temperature. This is the minimum operating limit for the desorption concentrate gas stream temperature.

(3) During the performance test, you must monitor and record the pressure drop of the dilute stream across the concentrator at least once every 15 minutes during each of the three runs of the performance test.

(4) Use the data collected during the performance test to calculate and record the average pressure drop. This is the maximum operating limit for the dilute stream across the concentrator.

(g) *Bioreactors.* If you are using a bioreactor, you must comply with the provisions for the use of an alternative monitoring method as set forth in 40 CFR 63.8(f).

§63.4967 What are the requirements for continuous parameter monitoring system installation, operation, and maintenance?

(a) *General.* You must install, operate, and maintain each CPMS specified in paragraphs (c), (e), and (f) of this section according to paragraphs (a)(1) through (6) of this section. You must install, operate, and maintain each CPMS specified in paragraphs (b) and (d) of this section according to paragraphs (a)(3) through (5) of this section.

(1) The CPMS must complete a minimum of one cycle of operation for each successive 15-minute period. You must have a minimum of four equally spaced successive cycles of CPMS operation in 1 hour.

(2) You must determine the average of all recorded readings for each 3-hour period of the emission capture system and add-on control device operation.

(3) You must record the results of each inspection, calibration, and validation check of the CPMS.

(4) You must maintain the CPMS at all times and have available necessary parts for routine repairs of the monitoring equipment.

(5) You must operate the CPMS and collect emission capture system and add-on control device parameter data at all times that a controlled coating operation is operating, except during monitoring malfunctions, repairs to correct the monitor malfunctions, and required quality assurance or control

activities (including, if applicable, calibration checks and required zero and span adjustments).

(6) You must not use emission capture system or add-on control device parameter data recorded during monitoring malfunctions, repairs to correct the monitor malfunctions, out-of-control periods, or required quality assurance or control activities when calculating data averages. You must use all the data collected during all other periods in calculating the data averages for determining compliance with the emission capture system and add-on control device operating limits.

(7) A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the CPMS to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. Any period for which the monitoring system is out-of-control and data are not available for required calculations is a deviation from the monitoring requirements.

(b) *Capture system bypass line.* You must meet the requirements of paragraphs (b)(1) and (2) of this section for each emission capture system that contains bypass lines that could divert emissions away from the add-on control device to the atmosphere.

(1) You must monitor or secure the valve or closure mechanism controlling the bypass line in a nondiverting position in such a way that the valve or closure mechanism cannot be opened without creating a record that the valve was opened. The method used to monitor or secure the valve or closure mechanism must meet one of the requirements specified in paragraphs (b)(1)(i) through (iv) of this section.

(i) *Flow control position indicator.* Install, calibrate, maintain, and operate according to the manufacturer's specifications a flow control position indicator that takes a reading at least once every 15 minutes and provides a record indicating whether the emissions are directed to the add-on control device or diverted from the add-on control device. The time of occurrence and flow control position must be recorded, as well as every time the flow direction is changed. The flow control position indicator must be installed at the entrance to any bypass line that could divert the emissions away from the add-on control device to the atmosphere.

(ii) *Car-seal or lock-and-key valve closures.* Secure any bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. You must visually inspect the seal or closure mechanism at least once every month to ensure that the valve is maintained in the closed position, and the emissions are not diverted away from the add-on control device to the atmosphere.

(iii) *Valve closure monitoring.* Ensure that any bypass line valve is in the closed (nondiverting) position through monitoring of valve position at least once every 15 minutes. You must inspect the monitoring system at least once every month to verify that the monitor will indicate valve position.

(iv) *Automatic shutdown system.* Use an automatic shutdown system in which the coating operation is stopped when flow is diverted by the bypass line away from the add-on control device to the atmosphere when the coating operation is running. You must inspect the automatic shutdown system at least once every month to verify that it will detect diversions of flow and shut down the coating operation.

(2) If any bypass line is opened, you must include a description of why the bypass line was opened and the length of time it remained open in the semiannual compliance reports required in §63.4920.

(c) *Thermal oxidizers and catalytic oxidizers.* If you are using a thermal oxidizer or catalytic oxidizer as an add-on control device (including those used with concentrators or with carbon adsorbers to treat desorbed concentrate streams), you must comply with the requirements in paragraphs (c)(1) through (3) of this section:

(1) For a thermal oxidizer, install a gas temperature monitor in the firebox of the thermal oxidizer or in the duct immediately downstream of the firebox before any substantial heat exchange occurs.

(2) For a catalytic oxidizer, install a gas temperature monitor in the gas stream immediately before the catalyst bed, and if you are establishing operating limits according to

§ 63.4966(b)(1) and (2), also install a gas temperature monitor in the gas stream immediately after the catalyst bed.

(3) For each gas temperature monitoring device, you must meet the requirements in paragraphs (a) and (c)(3)(i) through (vi) of this section for each gas temperature monitoring device.

(i) Locate the temperature sensor in a position that provides a representative temperature.

(ii) Use a temperature sensor with an accuracy of at least 5 degrees Fahrenheit or 1.0 percent of the temperature value, whichever is larger.

(iii) Perform an initial calibration according to the manufacturer's requirements.

(iv) Before using the sensor for the first time or upon relocation or replacement of the sensor, perform a validation check by comparing the sensor output to a calibrated temperature measurement device or by comparing the sensor output to a simulated temperature.

(v) Conduct an accuracy audit every quarter and after every 24 hour excursion. Accuracy audit methods include comparisons of sensor output to redundant temperature sensors, to calibrated temperature measurement devices, or to temperature simulation devices.

(vi) Conduct a visual inspection of each sensor every quarter if redundant temperature sensors are not used.

(d) *Carbon adsorbers.* If you are using a carbon adsorber as an add-on control device, you must monitor the total regeneration desorbing gas (*e.g.*, steam or nitrogen) mass flow for each regeneration cycle, the carbon bed temperature after each regeneration and cooling cycle, and comply with paragraphs (a)(3) through (5) and (d)(1) through (3) of this section.

(1) The regeneration desorbing gas mass flow monitor must be an integrating device having a measurement sensitivity of plus or minus 10 percent, capable of recording the total regeneration desorbing gas mass flow for each regeneration cycle.

(2) The carbon bed temperature monitor must be capable of recording the temperature within 15 minutes of completing any carbon bed cooling cycle.

(3) For all carbon adsorbers, you must meet the requirements in paragraphs (c)(3)(i) through (vi) of this section for each gas temperature monitoring device.

(e) *Condensers.* If you are using a condenser, you must monitor the condenser outlet (product side) gas temperature and comply with paragraphs (a) and (e)(1) and (2) of this section.

(1) The temperature monitor must provide a gas temperature record at least once every 15 minutes.

(2) For all condensers, you must meet the requirements in paragraphs (c)(3)(i) through (vi) of this section for each gas temperature monitoring device.

(f) *Emission capture systems.* The capture system monitoring system must comply with the applicable requirements in paragraphs (f)(1) and (2) of this section.

(1) For each flow measurement device, you must meet the requirements in paragraphs (a) and (f)(1)(i) through (vii) of this section.

(i) Locate a flow sensor in a position that provides a representative flow measurement in the duct from each capture device in the emission capture system to the add-on control device.

(ii) Use a flow sensor with an accuracy of at least 10 percent of the flow.

(iii) Perform an initial sensor calibration in accordance with the manufacturer's requirements.

(iv) Perform a validation check before initial use or upon relocation or replacement of a sensor. Validation checks include comparison of sensor values with electronic signal simulations or via relative accuracy testing.

(v) Perform accuracy audits every quarter and after every 24 hour excursion. Accuracy audits include comparison of sensor values with electronic signal simulations or with values obtained via relative accuracy testing.

(vi) Perform leak checks monthly.

(vii) Perform visual inspections of the sensor system quarterly if there is no redundant sensor.

(2) For each pressure drop measurement device, you must comply with the requirements in paragraphs (a) and (f)(2)(i) through (vii) of this section.

(i) Locate the pressure sensor(s) in or as close to a position that provides a representative measurement of the pressure drop across each opening you are monitoring.

(ii) Use a pressure sensor with an accuracy of at least 0.5 inches of water column or 5 percent of the measured value, whichever is larger.

(iii) Perform an initial calibration of the sensor according to the manufacturer's requirements.

(iv) Conduct a validation check before initial operation or upon relocation or replacement of the sensor. Validation checks include comparison of the sensor values to calibrated pressure measurement devices or to pressure simulation using calibrated pressure sources.

(v) Conduct accuracy audits every quarter and after every 24 hour excursion. Accuracy audits include comparison of sensor values to calibrated pressure measurement devices or to pressure simulation using calibrated pressure sources.

(vi) Perform monthly leak checks on pressure connections. A pressure of at least 1.0 inches of water column to the connection must yield a stable sensor result for at least 15 seconds.

(vii) Perform a visual inspection of the sensor at least monthly if there is no redundant sensor.

(g) *Concentrators.* If you are using a concentrator, such as a zeolite wheel or rotary carbon bed concentrator, you must comply with the requirements in paragraphs (a) and (g)(1) and (2) of this section.

(1) You must install a temperature monitor in the desorption gas stream. The temperature monitor must meet the requirements in paragraphs (a) and (c)(3) of this section.

(2) You must install a device to monitor pressure drop across the zeolite wheel or rotary carbon bed. The pressure monitoring device must meet the requirements in paragraphs (a) and (f)(2) of this section.

OTHER REQUIREMENTS AND INFORMATION

§ 63.4980 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by us, the U.S. Environmental Protection Agency (EPA), or a delegated authority such as your State, local, or tribal agency. If the Administrator has delegated authority to your State, local, or tribal agency, then that agency (as well as EPA) has the authority to implement and enforce this subpart. You should contact your EPA Regional Office to find out if implementation and enforcement of this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under subpart E of this part, the authorities contained in paragraph (c) of this section are retained by the Administrator and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are listed in paragraphs (c)(1) through (4) of this section:

(1) Approval of alternatives to the work practice standards in § 63.4893 under § 63.6(g).

(2) Approval of major alternatives to test methods under § 63.7(e)(2)(ii) and (f), and as defined in § 63.90.

(3) Approval of major alternatives to monitoring under § 63.8(f) and as defined in § 63.90.

(4) Approval of major alternatives to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

§ 63.4981 What definitions apply to this subpart?

Terms used in this subpart are defined in the CAA, in 40 CFR 63.2, and in this section as follows:

Add-on control means an air pollution control device such as a thermal oxidizer or carbon adsorber that reduces pollution in an air stream by destruction or removal before discharge to the atmosphere.

Adhesive means any chemical substance that is applied for the purpose of bonding two surfaces together.

Capture device means a hood, enclosure, room, floor sweep, or other means of containing or collecting emissions and directing those emissions into an add-on air pollution control device.

Capture efficiency or *capture system efficiency* means the portion (expressed as a percentage) of the pollutants from an emission source that is delivered to an add-on control device.

Capture system means one or more capture devices intended to collect emissions generated by a coating operation in the use of coatings or cleaning materials, both at the point of application and at subsequent points where emissions from the coatings and cleaning materials occur, such as flashoff, drying, or curing. As used in this subpart, multiple capture devices that collect emissions generated by a coating operation are considered a single capture system.

Cleaning material means a solvent used to remove contaminants and other materials, such as dirt, grease, oil, and dried or wet coating (*e.g.*, depainting), from a substrate before or after coating application or from equipment associated with a coating operation, such as spray booths, spray guns, racks, tanks, and hangers. Thus, it includes any cleaning material used on substrates or equipment or both.

Coating means a material applied to a substrate for decorative, protective, or functional purposes. Such materials include, but are not limited to, paints, sealants, caulks, inks, adhesives, and maskants. Decorative, protective, or functional materials that consist only of protective oils for metal, acids, bases, or any combination of these substances are not considered coatings for the purposes of this subpart.

Coating operation means equipment used to apply cleaning materials to a substrate to prepare it for coating application or to remove dried or wet coating (surface preparation); to apply coating to a substrate (coating application) and to dry or cure the coating after application; and to clean coating operation equipment (equipment cleaning). A single coating operation may include any combination of these types of equipment, but always includes at least the point at which a coating or cleaning material is applied and all subsequent points in the affected source where organic HAP emissions from that coating or cleaning material occur. There may be multiple coating operations in an affected source. Coating application with hand-held nonrefillable aerosol containers, touchup markers, or marking pens is not a coating operation for the purposes of this subpart.

Coating solids means the nonvolatile portion of the coating that makes up the dry film.

Continuous parameter monitoring system (CPMS) means the total equipment that may be required to meet the data acquisition and availability requirements of this subpart, used to sample, condition (if applicable), analyze, and provide a record of coating operation, or capture system, or add-on control device parameters.

Controlled coating operation means a coating operation from which some or all of the organic HAP emissions are routed through an emission capture system and add-on control device.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emission limit, or operating limit, or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limit, or operating limit, or work practice standard in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is allowed by this subpart.

Emission limitation means an emission limit, operating limit, or work practice standard.

Enclosure means a structure that surrounds a source of emissions and captures and directs the emissions to an add-on control device.

Exempt compound means a specific compound that is not considered a VOC due to negligible photochemical reactivity. The exempt compounds are listed in 40 CFR 51.100(s).

Facility maintenance means the routine repair or renovation (including surface coating) of the tools, equipment, machinery, and structures that comprise the infrastructure of the affected facility and that are necessary for the facility to function in its intended capacity.

Manufacturer's formulation data means data on a material (such as a coating) that are supplied by the material manufacturer based on knowledge of the ingredients used to manufacture that material, rather than based on testing of the material with the test methods specified in §63.4941(a)(1) through (3). Manufacturer's formulation data may include, but are not limited to, information on density, organic HAP content, volatile organic matter content, and coating solids content.

Mass fraction of coating solids means the ratio of the mass of coating solids to the mass of a coating in which it is contained, expressed as kg of coating solids per kg of coating.

Mass fraction of organic HAP means the ratio of the mass of organic HAP to the mass of a material in which it is contained, expressed as kg of organic HAP per kg of material.

Month means a calendar month or a pre-specified period of 28 days to 35 days to allow for flexibility in recordkeeping when data are based on a business accounting period.

Organic HAP content means the mass of organic HAP per volume of coating solids for a coating, calculated using Equation 2 of §63.4941. The organic HAP content is determined for the coating in the condition it is in when received from its manufacturer or supplier and does not account for any alteration after receipt.

Permanent total enclosure (PTE) means a permanently installed enclosure that meets the criteria of Method 204 of appendix M, 40 CFR part 51, for a PTE and that directs all the exhaust gases from the enclosure to an add-on control device.

Protective oil means an organic material that is applied to metal for the purpose of providing lubrication or protection from corrosion without forming a solid film. This definition of protective oil includes, but is not limited to, lubricating oils, evaporative oils (including those that evaporate completely), and extrusion oils.

Research or laboratory facility means a facility whose primary purpose is for research and development of new processes and products, that is conducted under the close supervision of technically trained personnel, and is not engaged in the manufacture of final or intermediate products for commercial purposes, except in a *de minimis* manner.

Responsible official means responsible official as defined in 40 CFR 70.2.

Startup, initial means the first time equipment is brought online in a facility.

Surface preparation means use of a cleaning material on a portion of or all of a substrate. This includes use of a cleaning material to remove dried coating, which is sometimes called ''depainting'' or ''paint stripping,'' for the purpose of preparing a substrate for coating application.

Temporary total enclosure means an enclosure constructed for the purpose of measuring the capture efficiency of pollutants emitted from a given source as defined in Method 204 of appendix M, 40 CFR part 51.

Thinner means an organic solvent that is added to a coating after the coating is received from the supplier.

Total volatile hydrocarbon (TVH) means the total amount of nonaqueous volatile organic matter determined according to Methods 204 and 204A through 204F of appendix M to 40 CFR part 51 and substituting the term TVH each place in the methods where the term VOC is used. The TVH includes both VOC and non-VOC.

Uncontrolled coating operation means a coating operation from which none of the organic HAP emissions are routed through an emission capture system and add-on control device.

Volatile organic compound (VOC) means any compound defined as VOC in 40 CFR 51.100(s).

Volume fraction of coating solids means the ratio of the volume of coating solids (also known as volume of nonvolatiles) to the volume of coating, expressed as liters of coating solids per liter of coating.

Wastewater means water that is generated in a coating operation and is collected, stored, or treated prior to being discarded or discharged.

TABLE 1 TO SUBPART RRRR OF PART 63.—OPERATING LIMITS IF USING THE EMISSION RATE WITH ADD-ON CONTROLS OPTION

[If you are required to comply with operating limits by § 63.4892, you must comply with the applicable operating limits in the following table:]

For the following device . . .	you must meet the following operating limit . . .	and you must demonstrate continuous compliance with the operating limit by . . .
1. thermal oxidizer	a. the average combustion temperature in any 3-hour period must not fall below the combustion temperature limit established according to § 63.4966(a).	i. collecting the combustion temperature data according to § 63.4967(c); ii. reducing the data to 3-hour block averages; and iii. maintaining the 3-hour average combustion temperature at or above the temperature limit.
2. catalytic oxidizer	a. the average temperature measured just before the catalyst bed in any 3-hour period must not fall below the limit established according to § 63.4966(b); and either	i. collecting the temperature data according to § 63.4967(c); ii. reducing the data to 3-hour block averages; and iii. maintaining the 3-hour average temperature before the catalyst bed at or above the temperature limit.
	b. ensure that the average temperature difference across the catalyst bed in any 3-hour period does not fall below the temperature difference limit established according to § 63.4966(b), or	i. collecting the temperature data according to § 63.4967(c); ii. reducing the data to 3-hour block averages; and iii. maintaining the 3-hour average temperature difference at or above the temperature difference limit.
	c. develop and implement an inspection and maintenance plan according to § 63.4966(b)(3) and (4).	i. maintaining an up-to-date inspection and maintenance plan, records of annual catalyst activity checks, records of monthly inspections of the oxidizer system, and records of the annual internal inspections of the catalyst bed. If a problem is discovered during a monthly or annual inspection required by § 63.4966(b)(4), you must take corrective action as soon as practicable consistent with the manufacturer's recommendations.
3. carbon adsorber	a. the total regeneration desorbing gas (*e.g.,* steam or nitrogen) mass flow for each carbon bed regeneration cycle must not fall below the total regeneration desorbing gas mass flow limit established according to § 63.4966(c).	i. measuring the total regeneration desorbing gas (*e.g.*, steam or nitrogen) mass flow for each regeneration cycle according § 63.4967(d); and ii. maintaining the total regeneration desorbing gas mass flow at or above the mass flow limit.
	b. the temperature of the carbon bed after completing each regeneration and any cooling cycle must not exceed the carbon bed temperature limit established according to § 63.4966(c).	i. measuring the temperature of the carbon bed after completing each regeneration and any cooling cycle according to § 63.4967(d); and ii. operating the carbon beds such that each carbon bed is not returned to service until completing each regeneration and any cooling cycle until the recorded temperature of the carbon bed is at or below the temperature limit.
4. condenser	a. the average condenser outlet (product side) gas temperature in any 3-hour period must not exceed the temperature limit established according to § 63.4966(d).	i. collecting the condenser outlet (product side) gas temperature according to § 63.4967(e); ii. reducing the data to 3-hour block averages; and iii. maintaining the 3-hour average gas temperature at the outlet at or below the temperature limit.

[If you are required to comply with operating limits by § 63.4892, you must comply with the applicable operating limits in the following table:]

For the following device . . .	you must meet the following operating limit . . .	and you must demonstrate continuous compliance with the operating limit by . . .
5. emission capture system that is a PTE according to § 63.4964(a).	a. the direction of the air flow at all times must be into the enclosure; and either	i. collecting the direction of air flow, and either the facial velocity of air through all natural draft openings according to § 63.4967(f)(1) or the pressure drop across the enclosure according to § 63.4967(f)(2); and ii. maintaining the facial velocity of air flow through all natural draft openings or the pressure drop at or above the facial velocity limit or pressure drop limit, and maintaining the direction of air flow into the enclosure at all times.
	b. the average facial velocity of air through all natural draft openings in the enclosure must be at least 200 feet per minute; or	i. collecting the direction of air flow, and either the facial velocity of air through all natural draft openings according to § 63.4967(f)(1) or the pressure drop across the enclosure according to § 63.4967(f)(2); and ii. maintaining the facial velocity of air flow through all natural draft openings or the pressure drop at or above the facial velocity limit or pressure drop limit, and maintaining the direction of air flow into the enclosure at all times.
	c. the pressure drop across the enclosure must be at least 0.007 inch H_2O, as established in Method 204 of appendix M to 40 CFR part 51.	i. collecting the direction of air flow, and either the facial velocity of air through all natural draft openings according to § 63.4967(f)(1) or the pressure drop across the enclosure according to § 63.4967(f)(2); and ii. maintaining the facial velocity of air flow through all natural draft openings or the pressure drop at or above the facial velocity limit or pressure drop limit, and maintaining the direction of air flow into the enclosure at all times.
6. emission capture system that is not a PTE according to § 63.4964(a).	a. the average gas volumetric flow rate or duct static pressure in each duct between a capture device and add-on control device inlet in any 3-hour period must not fall below the average volumetric flow rate or duct static pressure limit established for that capture device according to § 63.4966(e).	i. collecting the gas volumetric flow rate or duct static pressure for each capture device according to § 63.4967(f); ii. reducing the data to 3-hour block averages; and iii. maintaining the 3-hour average gas volumetric flow rate or duct static pressure for each capture device at or above the gas volumetric flow rate or duct static pressure limit.
7. concentrators, including zeolite wheels and rotary carbon adsorbers.	a. the average gas temperature of the desorption concentrate stream in any 3-hour period must not fall below the limit established according to § 63.4966(f).	i. collecting the temperature data according to § 63.4967(g); ii. reducing the data to 3-hour block averages; and iii. maintaining the 3-hour average temperature at or above the temperature limit.
	b. the average pressure drop of the dilute stream across the concentrator in any 3-hour period must not fall below the limit established according to § 63.4966(f).	i. collecting the pressure drop data according to § 63.4967(g); ii. reducing the pressure drop data to 3-hour block averages; and iii. maintaining the 3-hour average pressure drop at or above the pressure drop
8. bioreactor systems	a. the use of an alternative monitoring method as set forth in § 63.8(f)	

TABLE 2 TO SUBPART RRRR OF PART 63.—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART RRRR

[You must comply with the applicable General Provisions requirements according to the following table:]

Citation	Subject	Applicable to subpart	Explanation
§ 63.1(a)(1)–(14)	General Applicability	Yes.	
§ 63.1(b)(1)–(3)	Initial Applicability Determination.	Yes	Applicability to subpart RRRR is also specified in § 63.4881.
§ 63.1(c)(1)	Applicability After Standard Established.	Yes.	
§ 63.1(c)(2)–(3)	Applicability of Permit Program for Area Sources.	No	Area sources are not subject to subpart RRRR.
§ 63.1(c)(4)–(5)	Extensions and Notifications	Yes.	
§ 63.1(e)	Applicability of Permit Program Before Relevant Standard is Set.	Yes.	
§ 63.2	Definitions	Yes	Additional definitions are specified in § 63.4981.
§ 63.3(a)–(c)	Units and Abbreviations	Yes.	
§ 63.4(a)(1)–(5)	Prohibited Activities	Yes.	
§ 63.4(b)–(c)	Circumvention/Severability	Yes.	
§ 63.5(a)	Construction/Reconstruction	Yes.	
§ 63.5(b)(1)–(6)	Requirements for Existing, Newly Constructed, and Reconstructed Sources.	Yes.	
§ 63.5(d)	Application for Approval of Construction/Reconstruction.	Yes.	
§ 63.5(e)	Approval of Construction/Reconstruction.	Yes.	
§ 63.5(f)	Approval of Construction/Reconstruction Based on Prior State Review.	Yes.	
§ 63.6(a)	Compliance With Standards and Maintenance Requirements—Applicability.	Yes.	
§ 63.6(b)(1)–(7)	Compliance Dates for New and Reconstructed Sources.	Yes	Section 63.4883 specifies the compliance dates.
§ 63.6(c)(1)–(5)	Compliance Dates for Existing Sources.	Yes	Section 63.4883 specifies the compliance dates.
§ 63.6(e)(1)–(2)	Operation and Maintenance	Yes.	
§ 63.6(e)(3)	SSMP	Yes	Only sources using an add-on control device to comply with the standard must complete SSMP.
§ 63.6(f)(1)	Compliance Except During Startup, Shutdown, and Malfunction.	Yes	Applies only to sources using an add-on control device to comply with the standards.
§ 63.6(f)(2)–(3)	Methods for Determining Compliance.	Yes.	
§ 63.6(g)(1)–(3)	Use of Alternative Standards	Yes.	
§ 63.6(h)	Compliance With Opacity/Visible Emission Standards.	No	Subpart RRRR does not establish opacity standards and does not require continuous opacity monitoring systems (COMS).
§ 63.6(i)(1)–(16)	Extension of Compliance	Yes.	
§ 63.6(j)	Presidential Compliance Exemption.	Yes.	
§ 63.7(a)(1)	Performance Test Requirements—Applicability.	Yes	Applies to all affected sources using an add-on control device to comply with the standards. Additional requirements for performance testing are specified in §§ 63.4963, 63.4964, and 63.4965.

[You must comply with the applicable General Provisions requirements according to the following table:]

Citation	Subject	Applicable to subpart	Explanation
§ 63.7(a)(2)	Performance Test Requirements—Dates.	Yes	Applies only to performance tests for capture system and control device efficiency at sources using these to comply with the standards. Section 63.4960 specifies the schedule for performance test requirements that are earlier than those specified in § 63.7(a)(2).
§ 63.7(a)(3)	Performance Tests Required by the Administrator.	Yes.	
§ 63.7(b)–(e)	Performance Test Requirements—Notification, Quality Assurance, Facilities Necessary Safe Testing, Conditions During Test.	Yes	Applies only to performance tests for capture system and add-on control device efficiency at sources using these to comply with the standards.
§ 63.7(f)	Performance Test Requirements—Use of Alternative Test Method.	Yes	Applies to all test methods except those used to determine capture system efficiency.
§ 63.7(g)–(h)	Performance Test Requirements—Data Analysis, Recordkeeping, Reporting, Waiver of Test.	Yes	Applies only to performance tests for capture system and add-on control device efficiency at sources using these to comply with the standards.
§ 63.8(a)(1)–(3)	Monitoring Requirements—Applicability.	Yes	Applies only to monitoring of capture system and add-on control device efficiency at sources using these to comply with the standards. Additional requirements for monitoring are specified in § 63.4967.
§ 63.8(a)(4)	Additional Monitoring Requirements.	No	Subpart RRRR does not have monitoring requirements for flares.
§ 63.8(b)	Conduct of Monitoring	Yes.	
§ 63.8(c)(1)–(3)	Continuous Monitoring System (CMS) Operation and Maintenance.	Yes	Applies only to monitoring of capture system and add-on control device efficiency at sources using these to comply with the standards. Additional requirements for CMS operations and maintenance are specified in § 63.4967.
§ 63.8(c)(4)	CMS	No	Section 63.4967 specifies the requirements for the operation of CMS for capture systems and add-on control devices at sources using these to comply.
§ 63.8(c)(5)	COMS	No	Subpart RRRR does not have opacity or visible emissions standards.
§ 63.8(c)(6)	CMS Requirements	No	Section 63.4967 specifies the requirements for monitoring systems for capture systems and add-on control devices at sources using these to comply.
§ 63.8(c)(7)	COS Out-of-Control Periods	Yes.	
§ 63.8(c)(8)	CMS Out-of-Control Periods Reporting.	No	Section 63.4920 requires reporting of CMS out-of-control periods.
§ 63.8(d)–(e)	Quality Control Program and CMS Performance Evaluation.	No	Subpart RRRR does not require the use of continuous emissions monitoring systems.

[You must comply with the applicable General Provisions requirements according to the following table:]

Citation	Subject	Applicable to subpart	Explanation
§ 63.8(f)(1)–(5)	Use of an Alternative Monitoring Method.	Yes.	
§ 63.8(f)(6)	Alternative to Relative Accuracy Test.	No	Subpart RRRR does not require the use of continuous emissions monitoring systems.
§ 63.8(g)(1)–(5)	Data Reduction	No	Sections 63.4966 and 63.4967 specify monitoring data reduction.
§ 63.9(a)–(d)	Notification Requirements	Yes.	
§ 63.9(e)	Notification of Performance Test.	Yes	Applies only to capture system and add-on control device performance tests at sources using these to comply with the standards.
§ 63.9(f)	Notification of Visible Emissions/Opacity Test.	No	Subpart RRRR does not have opacity or visible emission standards.
§ 63.9(g)(1)–(3)	Additional Notifications When Using CMS.	No	Subpart RRRR does not require the use of continuous emissions monitoring systems.
63.9(h)	Notification of Compliance Status.	Yes	Section 63.4910 specifies the dates for submitting the notification of compliance status.
§ 63.9(i)	Adjustment of Submittal Deadlines.	Yes.	
§ 63.9(j)	Change in Previous Information.	Yes.	
§ 63.10(a)	Recordkeeping/Reporting—Applicability and General Information.	Yes.	
§ 63.10(b)(1)	General Recordkeeping Requirements.	Yes	Additional requirements are specified in §§ 63.4930 and 63.4931.
§ 63.10(b)(2)(i)–(v)	Recordkeeping Relevant to Startup, Shutdown, and Malfunction Periods and CMS.	Yes	Requirements for Startup, Shutdown, and Malfunction records only apply to add-on control devices used to comply with the standards.
§ 63.10(b)(2)(vi)–(xi)		Yes.	
§ 63.10(b)(2)(xii)	Records	Yes.	
§ 63.10(b)(2)(xiii)		No	Subpart RRRR does not require the use of continuous emissions monitoring systems.
§ 63.10(b)(2)(xiv)		Yes.	
§ 63.10(b)(3)	Recordkeeping Requirements for Applicability Determinations.	Yes.	
§ 63.10(c)(1)–(6)	Additional Recordkeeping Requirements for Sources with CMS.	Yes.	
§ 63.10(c)(7)–(8)		No	The same records are required in § 63.4920(a)(7).
§ 63.10(c)(9)–(15)		Yes.	
§ 63.10(d)(1)	General Reporting Requirements.	Yes	Additional requirements are specified in § 63.4920.
§ 63.10(d)(2)	Report of Performance Test Results.	Yes	Additional requirements are specified in § 63.4920(b).
§ 63.10(d)(3)	Reporting Opacity or Visible Emissions Observations.	No	Subpart RRRR does not require opacity or visible emissions observations.
§ 63.10(d)(4)	Progress Reports for Sources With Compliance Extensions.	Yes.	
§ 63.10(d)(5)	Startup, Shutdown, and Malfunction Reports.	Yes	Applies only to add-on control devices at sources using these to comply with the standards.

[You must comply with the applicable General Provisions requirements according to the following table:]

Citation	Subject	Applicable to subpart	Explanation
§ 63.10(e)(1)–(2)	Additional CMS Reports	No	Subpart RRRR does not require the use of continuous emissions monitoring systems.
§ 63.10(e)(3)	Excess Emissions/CMS Performance Reports.	No	Section63.4920(b) specifies the contents of periodic compliance reports.
§ 63.10(e)(4)	COMS Data Reports	No	Subpart RRRR does not specify requirements for opacity or COMS.
§ 63.10(f)	Recordkeeping/Reporting Waiver.	Yes.	
§ 63.11	Control Device Requirements/ Flares.	No	Subpart RRRR does not specify use of flares for compliance.
§ 63.12	State Authority and Delegations.	Yes	
§ 63.13	Addresses	Yes.	
§ 63.14	Incorporation by Reference	Yes.	
§ 63.15	Availability of Information/Confidentiality.	Yes.	

TABLE 3 TO SUBPART RRRR OF PART 63.—DEFAULT ORGANIC HAP MASS FRACTION FOR SOLVENTS AND SOLVENT BLENDS

[You may use the mass fraction values in the following table for solvent blends for which you do not have test data or manufacturer's formulation data:]

Solvent/Solvent blend	CAS. No.	Average organic HAP mass fraction	Typical organic HAP, percent by mass
1. Toluene	108–88–3	1.0	Toluene.
2. Xylene(s)	1330–20–7	1.0	Xylenes, ethylbenzene.
3. Hexane	110–54–3	0.5	n-hexane.
4. n-Hexane	110–54–3	1.0	n-hexane.
5. Ethylbenzene	100–41–4	1.0	Ethylbenzene.
6. Aliphatic 140		0	None.
7. Aromatic 100		0.02	1% xylene, 1% cumene.
8. Aromatic 150		0.09	Naphthalene.
9. Aromatic naphtha	64742–95–6	0.02	1% xylene, 1% cumene.
10. Aromatic solvent	64742–94–5	0.1	Naphthalene.
11. Exempt mineral spirits	8032–32–4	0	None.
12. Ligroines (VM & P)	8032–32–4	0	None.
13. Lactol spirits	64742–89–6	0.15	Toluene.
14. Low aromatic white spirit	64742–82–1	0	None.
15. Mineral spirits	64742–88–7	0.01	Xylenes.
16. Hydrotreated naphtha	64742–48–9	0	None.
17. Hydrotreated light distillate	64742–47–8	0.001	Toluene.
18. Stoddard solvent	8052–41–3	0.01	Xylenes.
19. Super high-flash naphtha	64742–95–6	0.05	Xylenes.
20. Varsol® solvent	8052–49–3	0.01	0.5% xylenes, 0.5% ethyl benzene.
21. VM & P naphtha	64742–89–8	0.06	3% toluene, 3% xylene.
22. Petroleum distillate mixture	68477–31–6	0.08	4% naphthalene, 4% biphenyl.

TABLE 4 TO SUBPART RRRR OF PART 63.—DEFAULT ORGANIC HAP MASS FRACTION FOR PETROLEUM SOLVENT GROUPS[1]

[You May Use the Mass Fraction Values in the Following Fable for Solvent Blends for Which You Do Not Have Test Data or Manufacturer's Formulation Data:]

Solvent type	Average organic HAP mass fraction	Typical organic percent HAP, by mass
Aliphatic[2]	0.03	1% Xylene, 1% Toluene, and 1% Ethylbenzene.
Aromatic[3]	0.06	4% Xylene, 1% Toluene, and 1% Ethylbenzene.

[1] Use this table only if the solvent blend does not match any of the solvent blends in Table 3 to this subpart and you only know whether the blend is aliphatic or aromatic.

[2] E.g., Mineral Spirits 135, Mineral Spirits 150 EC, Naphtha, Mixed Hydrocarbon, Aliphatic Hydrocarbon, Aliphatic Naphtha, Naphthol Spirits, Petroleum Spirits, Petroleum Oil, Petroleum Naphtha, Solvent Naphtha, Solvent Blend.

[3] E.g., Medium-flash Naphtha, High-flash Naphtha, Aromatic Naphtha, Light Aromatic Naphtha, Light Aromatic Hydrocarbons, Aromatic Hydrocarbons, Light Aromatic Solvent.

Subpart SSSS—National Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Coil

SOURCE: 67 FR 39812, June 10, 2002, unless otherwise noted.

WHAT THIS SUBPART COVERS

§ 63.5080 What is in this subpart?

This subpart describes the actions you must take to reduce emissions of hazardous air pollutants (HAP) if you own or operate a facility that performs metal coil surface coating operations and is a major source of HAP. This subpart establishes emission standards and states what you must do to comply. Certain requirements apply to all who must comply with the subpart; others depend on the means you use to comply with an emission standard.

§ 63.5090 Does this subpart apply to me?

(a) The provisions of this subpart apply to each facility that is a major source of HAP, as defined in § 63.2, at which a coil coating line is operated, except as provided in paragraph (b) of this section.

(b) This subpart does not apply to any coil coating line that meets the criteria of paragraph (b)(1) or (2) of this section.

(1) A coil coating line that is part of research or laboratory equipment.

(2) A coil coating line on which at least 85 percent of the metal coil coated, based on surface area, is less than 0.15 millimeter (0.006 inch) thick, except as provided in paragraph (c) of this section.

(c) If you operate a coating line subject to subpart JJJJ of this part that also meets the criteria in either paragraph (c)(1) or (2) of this section, and you choose to comply with the requirements of this subpart, then such compliance constitutes compliance with subpart JJJJ. The coating line for which you choose this option is, therefore, included in the affected source for this subpart as defined in § 63.5110 and shall not be included in the affected source for subpart JJJJ as defined in § 63.3300.

(1) The coating line is used to coat metal coil of thicknesses both less than and greater than or equal to 0.15 millimeter (0.006 inch) thick, regardless of the percentage of surface area of each thickness coated.

(2) The coating line is used to coat only metal coil that is less than 0.15 millimeter (0.006 inch) thick and the coating line is controlled by a common control device that also receives organic HAP emissions from a coil coating line that is subject to the requirements of this subpart.

(d) Each coil coating line that does not comply with the provisions of this subpart because it meets the criteria in paragraph (b)(2) of this section, that for any rolling 12-month period fails to meet the criteria in paragraph (b)(2) would from that point forward become subject to the provisions of this subpart. After becoming subject to the provisions of this subpart, the coil coating line would no longer be eligible to use the criteria of paragraph (b)(2) of this section, even if in subsequent 12-month periods at least 85 percent of the metal coil coated, based on surface area, is less than 0.15 millimeter (0.006 inch) thick.

§ 63.5100 Which of my emissions sources are affected by this subpart?

The affected source subject to this subpart is the collection of all of the coil coating lines at your facility.

§ 63.5110 What special definitions are used in this subpart?

All terms used in this subpart that are not defined in this section have the meaning given to them in the Clean Air Act (CAA) and in subpart A of this part.

Always-controlled work station means a work station associated with a curing oven from which the curing oven exhaust is delivered to a control device with no provision for the oven exhaust to bypass the control device. Sampling lines for analyzers and relief valves needed for safety purposes are not considered bypass lines.

Capture efficiency means the fraction of all organic HAP emissions generated by a process that is delivered to a control device, expressed as a percentage.

Capture system means a hood, enclosed room, or other means of collecting organic HAP emissions and conveying them to a control device.

Car-seal means a seal that is placed on a device that is used to change the position of a valve or damper (e.g., from open to closed) in such a way that the position of the valve or damper cannot be changed without breaking the seal.

Coating means material applied onto or impregnated into a substrate for decorative, protective, or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealants, inks, adhesives, maskants, and temporary coatings. Decorative, protective, or functional materials that consist only of solvents, protective oils, acids, bases, or any combination of these substances are not considered coatings for the purposes of this subpart.

Coating material means the coating and other products (e.g., a catalyst and resin in multi-component coatings) combined to make a single material at the coating facility that is applied to metal coil. For the purposes of this subpart, an organic solvent that is used to thin a coating prior to application to the metal coil is considered a coating material.

Coil coating line means a process and the collection of equipment used to apply an organic coating to the surface of metal coil. A coil coating line includes a web unwind or feed section, a series of one or more work stations, any associated curing oven, wet section, and quench station. A coil coating line does not include ancillary operations such as mixing/thinning, cleaning, wastewater treatment, and storage of coating material.

Control device means a device such as a solvent recovery device or oxidizer which reduces the organic HAP in an exhaust gas by recovery or by destruction.

Control device efficiency means the ratio of organic HAP emissions recovered or destroyed by a control device to the total organic HAP emissions that are introduced into the control device, expressed as a percentage.

Curing oven means the device that uses heat or radiation to dry or cure the coating material applied to the metal coil.

Day means a 24-consecutive-hour period.

Deviation means any instance in which an affected source, subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emission limitation (including any operating limit) or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limitation (including any operating limit) or work practice standard in this subpart during start-up, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Existing affected source means an affected source the construction of which commenced on or before July 18, 2000, and it has not subsequently undergone reconstruction as defined in § 63.2.

Facility means all contiguous or adjoining property that is under common ownership or control, including properties that are separated only by a road or other public right-of-way.

Flexible packaging means any package or part of a package the shape of which can be readily changed. Flexible packaging includes but is not limited to bags, pouches, labels, liners and wraps utilizing paper, plastic, film, aluminum foil, metalized or coated paper or film, or any combination of these materials.

HAP applied means the organic HAP content of all coating materials applied to a substrate by a coil coating line.

Intermittently-controllable work station means a work station associated with a curing oven with provisions for the curing oven exhaust to be delivered to a control device or diverted from a control device through a bypass line, depending on the position of a valve or damper. Sampling lines for analyzers and relief valves needed for safety purposes are not considered bypass lines.

Metal coil means a continuous metal strip that is at least 0.15 millimeter (0.006 inch) thick, which is packaged in a roll or coil prior to coating. After coating, it may or may not be rewound into a roll or coil. Metal coil does not include metal webs that are coated for use in flexible packaging.

Month means a calendar month or a pre-specified period of 28 days to 35 days to allow for flexibility in recordkeeping when data are based on a business accounting period.

Never-controlled work station means a work station which is not equipped with provisions by which any emissions, including those in the exhaust from any associated curing oven, may be delivered to a control device.

New affected source means an affected source the construction or reconstruction of which commenced after July 18, 2000.

Overall organic HAP control efficiency means the total efficiency of a control system, determined either by:

(1) The product of the capture efficiency as determined in accordance with the requirements of § 63.5160(e) and the control device efficiency as determined in accordance with the requirements of § 63.5160(a)(1)(i) and (ii) or § 63.5160(d); or

(2) A liquid-liquid material balance in accordance with the requirements of § 63.5170(e)(1).

Permanent total enclosure (PTE) means a permanently installed enclosure that meets the criteria of Method 204 of appendix M, 40 CFR part 51 for a PTE, and that directs all the exhaust gases from the enclosure to a control device.

Protective oil means an organic material that is applied to metal for the purpose of providing lubrication or protection from corrosion without forming a solid film. This definition of protective oil includes but is not limited to lubricating oils, evaporative oils (including those that evaporate completely), and extrusion oils.

Research or laboratory equipment means any equipment for which the primary purpose is to conduct research and development into new processes and products, where such equipment is operated under the close supervision of technically trained personnel and is not engaged in the manufacture of products for commercial sale in commerce, except in a de minimis manner.

Temporary total enclosure (TTE) means an enclosure constructed for the purpose of measuring the capture efficiency of pollutants emitted from a given source, as defined in Method 204 of 40 CFR part 51, appendix M.

Work station means a unit on a coil coating line where coating material is deposited onto the metal coil substrate.

EMISSION STANDARDS AND COMPLIANCE DATES

§ 63.5120 What emission standards must I meet?

(a) Each coil coating affected source must limit organic HAP emissions to the level specified in paragraph (a)(1), (2), or (3) of this section:

(1) No more than 2 percent of the organic HAP applied for each month during each 12-month compliance period (98 percent reduction); or

(2) No more than 0.046 kilogram (kg) of organic HAP per liter of solids applied during each 12-month compliance period; or

(3) If you use an oxidizer to control organic HAP emissions, operate the oxidizer such that an outlet organic HAP concentration of no greater than 20 parts per million by volume (ppmv) on a dry basis is achieved and the efficiency of the capture system is 100 percent.

(b) You must demonstrate compliance with one of these standards by following the applicable procedures in § 63.5170.

§ 63.5121 What operating limits must I meet?

(a) Except as provided in paragraph (b) of this section, for any coil coating line for which you use an add-on control device, unless you use a solvent recovery system and conduct a liquid-liquid material balance according to § 63.5170(e)(1), you must meet the applicable operating limits specified in Table 1 to this subpart. You must establish the operating limits during the performance test according to the requirements in § 63.5160(d)(3). You must meet the operating limits at all times after you establish them.

(b) If you use an add-on control device other than those listed in Table 1 to this subpart, or wish to monitor an alternative parameter and comply with a different operating limit, you must apply to the Administrator for approval of alternative monitoring under § 63.8(f).

§ 63.5130 When must I comply?

(a) For an existing affected source, the compliance date is 3 years after June 10, 2002.

(b) If you own or operate a new affected source subject to the provisions of this subpart, you must comply immediately upon start-up of the affected source, or by June 10, 2002, whichever is later.

(c) Affected sources which have undergone reconstruction are subject to the requirements for new affected sources.

(d) The initial compliance period begins on the applicable compliance date specified in paragraph (a) or (b) of this section and ends on the last day of the 12th month following the compliance date. If the compliance date falls on any day other than the first day of a month, then the initial compliance period extends through that month plus the next 12 months.

(e) For the purpose of demonstrating continuous compliance, a compliance period consists of 12 months. Each month after the end of the initial compliance period described in paragraph (d) of this section is the end of a compliance period consisting of that month and the preceding 11 months.

GENERAL REQUIREMENTS FOR COMPLIANCE WITH THE EMISSION STANDARDS AND FOR MONITORING AND PERFORMANCE TESTS

§ 63.5140 What general requirements must I meet to comply with the standards?

(a) You must be in compliance with the standards in this subpart at all times, except during periods of start-up, shutdown, and malfunction of any capture system and control device used to comply with this subpart. If you are complying with the emission standards of this subpart without the use of a capture system and control device, you must be in compliance with the standards at all times, including periods of start-up, shutdown, and malfunction.

(b) Table 2 of this subpart provides cross references to subpart A of this part, indicating the applicability of the General Provisions requirements to this subpart.

§ 63.5150 If I use a control device to comply with the emission standards, what monitoring must I do?

TABLE 1 TO § 63.5150—CONTROL DEVICE MONITORING REQUIREMENTS INDEX

If you operate a coil coating line and have the following:	Then you must:
1. Control device	Monitor control device operating parameters (§ 63.5150(a)(3)).
2. Capture system	Monitor capture system operating parameters (§ 63.5150(a)(4)).
3. Intermittently controllable work station	Monitor parameters related to possible exhaust flow through any bypass to a control device (§ 63.5150(a)(1)).
4. Continuous emission monitors	Operate continuous emission monitors and perform a quarterly audit (§ 63.5150(a)(2)).

(a) To demonstrate continuing compliance with the standards, you must monitor and inspect each capture system and each control device required to comply with § 63.5120 following the date on which the initial performance test of the capture system and control device is completed. You must install and operate the monitoring equipment as specified in paragraphs (a)(1) through (4) of this section.

(1) *Bypass monitoring.* If you operate coil coating lines with intermittently-controllable work stations, you must follow at least one of the procedures in paragraphs (a)(1)(i) through (iv) of this section for each curing oven associated with these work stations to monitor for potential bypass of the control device:

(i) *Flow control position indicator.* Install, calibrate, maintain, and operate according to the manufacturer's specifications a flow control position indicator that provides a record indicating whether the exhaust stream from the curing oven is directed to the control device or is diverted from the control device. The time and flow control position must be recorded at least once per hour, as well as every time the flow direction is changed. The flow control position indicator must be installed at the entrance to any bypass line that could divert the exhaust stream away from the control device to the atmosphere.

(ii) *Car-seal or lock-and-key valve closures.* Secure any bypass line valve in the closed position with a car-seal or a lock-and-key type configuration when the control device is in operation; a visual inspection of the seal or closure mechanism will be performed at least once every month to ensure that the valve or damper is maintained in the closed position, and the exhaust stream is not diverted through the bypass line.

(iii) *Valve closure continuous monitoring.* Ensure that any bypass line valve or damper is in the closed position through continuous monitoring of valve position when the control device is in operation. The monitoring system must be inspected at least once every month to verify that the monitor will indicate valve position.

(iv) *Automatic shutdown system.* Use an automatic shutdown system in which the coil coating line is stopped when flow is diverted away from the control device to any bypass line when the control device is in operation. The automatic shutdown system must be inspected at least once every month to verify that it will detect diversions of flow and shut down operations.

(2) *Continuous emission monitoring system (CEMS).* If you are demonstrating continuous compliance with the standards in § 63.5120(a)(1) or (2) through continuous emission monitoring of a control device, you must install, calibrate, operate, and maintain continuous emission monitors to measure the total organic volatile matter concentration at both the control device inlet and outlet, and you must continuously monitor flow rate. If you are demonstrating continuous compliance with the outlet organic HAP concentration limit in § 63.5120(a)(3), you must install, calibrate, operate, and maintain a continuous emission monitor to measure the total organic volatile matter concentration at the control device outlet.

(i) All CEMS must comply with performance specification 8 or 9 of 40 CFR part 60, appendix B, as appropriate for the detection principle you choose. The requirements of 40 CFR part 60, procedure 1, appendix F must also be followed. In conducting the quarterly audits of the monitors as required by procedure 1, appendix F, you must use compounds representative of the gaseous emission stream being controlled.

(ii) As specified in § 63.8(c)(4)(ii), each CEMS and each flow rate monitor must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. Information which must be determined for recordkeeping purposes, as required by § 63.5190(a)(1)(i) includes:

(A) The hourly average of all recorded readings;

(B) The daily average of all recorded readings for each operating day; and

(C) The monthly average for each month during the semiannual reporting period.

(3) *Temperature monitoring of oxidizers.* If you are complying with the requirements of the standards in § 63.5120 through the use of an oxidizer and demonstrating continuous compliance through monitoring of an oxidizer operating parameter, you must comply with paragraphs (a)(3)(i) through (iii) of this section.

(i) Install, calibrate, maintain, and operate temperature monitoring equipment according to manufacturer's specifications. The calibration of the chart recorder, data logger, or temperature indicator must be verified every 3 months; or the chart recorder, data logger, or temperature indicator must be replaced. You must replace the equipment either if you choose not to perform the calibration, or if the equipment cannot be calibrated properly. Each temperature monitoring device must be equipped with a continuous recorder. The device must have an accuracy of ±1 percent of the temperature being monitored in degrees Celsius, or ±1 °Celsius, whichever is greater.

(ii) For an oxidizer other than a catalytic oxidizer, to demonstrate continuous compliance with the operating limit established according to § 63.5160(d)(3)(i), you must install the thermocouple or temperature sensor in the combustion chamber at a location in the combustion zone.

(iii) For a catalytic oxidizer, if you are demonstrating continuous compliance with the operating limit established according to § 63.5160(d)(3)(ii)(A) and (B), then you must install the thermocouples or temperature sensors in the vent stream at the nearest feasible point to the inlet and outlet of the catalyst bed. Calculate the temperature difference across the catalyst. If you are demonstrating continuous compliance with the operating limit established according to § 63.5160(d)(3)(ii)(C) and (D), then you must install the thermocouple or temperature sensor in the vent stream at the nearest feasible point to the inlet of the catalyst bed.

(4) *Capture system monitoring.* If you are complying with the requirements of the standards in § 63.5120 through the use of a capture system and control device, you must develop a capture system monitoring plan containing the information specified in paragraphs (a)(4)(i) and (ii) of this section. You must monitor the capture system in accordance with paragraph (a)(4)(iii) of this section. You must make the monitoring plan available for inspection by the permitting authority upon request.

(i) The monitoring plan must identify the operating parameter to be monitored to ensure that the capture efficiency measured during the initial compliance test is maintained, explain why this parameter is appropriate for demonstrating ongoing compliance, and identify the specific monitoring procedures.

(ii) The plan also must specify operating limits at the capture system operating parameter value, or range of values, that demonstrates compliance with the standards in § 63.5120. The operating limits must represent the conditions indicative of proper operation and maintenance of the capture system.

(iii) You must conduct monitoring in accordance with the plan.

(b) Any deviation from the required operating parameters which are monitored in accordance with paragraphs (a)(3) and (4) of this section, unless otherwise excused, will be considered a deviation from the operating limit.

§ 63.5160 What performance tests must I complete?

TABLE 1 TO § 63.5160—REQUIRED PERFORMANCE TESTING SUMMARY

If you control HAP on your coil coating line by:	You must:
1. Limiting HAP or Volatile matter content of coatings	Determine the HAP or volatile matter and solids content of coating materials according to the procedures in § 63.5160(b) and (c).
2. Using a capture system and add-on control device	Conduct a performance test for each capture and control system to determine: (1) the destruction or removal efficiency of each control device according to § 63.5160(d), and (2) the capture efficiency of each capture system according to § 63.5160(e).

(a) If you use a control device to comply with the requirements of § 63.5120, you are not required to conduct a performance test to demonstrate compliance if one or more of the criteria in paragraphs (a)(1) through (3) of this section are met:

(1) The control device is equipped with continuous emission monitors for determining total organic volatile matter concentration, and capture efficiency has been determined in accordance with the requirements of this subpart; and the continuous emission monitors are used to demonstrate continuous compliance in accordance with § 63.5150(a)(2); or

(2) You have received a waiver of performance testing under § 63.7(h); or

(3) The control device is a solvent recovery system and you choose to comply by means of a monthly liquid-liquid material balance.

(b) *Organic HAP content*. You must determine the organic HAP weight fraction of each coating material applied by following one of the procedures in paragraphs (b)(1) through (4) of this section:

(1) *Method 311*. You may test the material in accordance with Method 311 of appendix A of this part. The Method 311 determination may be performed by the manufacturer of the material and the results provided to you. The organic HAP content must be calculated according to the criteria and procedures in paragraphs (b)(1)(i) through (iii) of this section.

(i) Count only those organic HAP that are measured to be present at greater than or equal to 0.1 weight percent for Occupational Safety and Health Administration (OSHA)-defined carcinogens as specified in 29 CFR 1910.1200(d)(4) and greater than or equal to 1.0 weight percent for other organic HAP compounds.

(ii) Express the weight fraction of each organic HAP you count according to paragraph (b)(1)(i) of this section as a value truncated to four places after the decimal point (for example, 0.3791).

(iii) Calculate the total weight fraction of organic HAP in the tested material by summing the counted individual organic HAP weight fractions and truncating the result to three places after the decimal point (for example, 0.763).

(2) *Method 24*. For coatings, you may determine the total volatile matter content as weight fraction of nonaqueous volatile matter and use it as a substitute for organic HAP, using Method 24 of 40 CFR part 60, appendix A. The Method 24 determination may be performed by the manufacturer of the coating and the results provided to you.

(3) *Alternative method*. You may use an alternative test method for determining the organic HAP weight fraction once the Administrator has approved it. You must follow the procedure in §63.7(f) to submit an alternative test method for approval.

(4) *Formulation data*. You may use formulation data provided that the information represents each organic HAP present at a level equal to or greater than 0.1 percent for OSHA-defined carcinogens as specified in 29 CFR 1910.1200(d)(4) and equal to or greater than 1.0 percent for other organic HAP compounds in any raw material used, weighted by the mass fraction of each raw material used in the material. Formulation data may be provided to you by the manufacturer of the coating material. In the event of any inconsistency between test data obtained with the test methods specified in paragraphs (b)(1) through (3) of this section and formulation data, the test data will govern.

(c) *Solids content*. You must determine the solids content of each coating material applied. You may determine the volume solids content using ASTM D2697–86 (Reapproved 1998) or ASTM D6093–97 (incorporated by reference, see §63.14), or an EPA approved alternative method. The ASTM D2697–86 (Reapproved 1998) or ASTM D6093–97 determination may be performed by the manufacturer of the material and the results provided to you. Alternatively, you may rely on formulation data provided by material providers to determine the volume solids.

(d) *Control device destruction or removal efficiency*. If you are using an add-on control device, such as an oxidizer, to comply with the standard in §63.5120, you must conduct a performance test to establish the destruction or removal efficiency of the control device or the outlet HAP concentration achieved by the oxidizer, according to the methods and procedures in paragraphs (d)(1) and (2) of this section. During the performance test, you must establish the operating limits required by §63.5121 according to paragraph (d)(3) of this section.

(1) An initial performance test to establish the destruction or removal efficiency of the control device must be conducted such that control device inlet and outlet testing is conducted simultaneously. To establish the outlet organic HAP concentration achieved by the oxidizer, only oxidizer outlet testing must be conducted. The data must be reduced in accordance with the

test methods and procedures in paragraphs (d)(1)(i) through (ix).

(i) Method 1 or 1A of 40 CFR part 60, appendix A, is used for sample and velocity traverses to determine sampling locations.

(ii) Method 2, 2A, 2C, 2D, 2F, or 2G of 40 CFR part 60, appendix A, is used to determine gas volumetric flow rate.

(iii) Method 3, 3A, or 3B of 40 CFR part 60, appendix A, used for gas analysis to determine dry molecular weight. You may also use as an alternative to Method 3B, the manual method for measuring the oxygen, carbon dioxide, and carbon monoxide content of exhaust gas, ANSI/ASME PTC 19.10–1981, ''Flue and Exhaust Gas Analyses'' (incorporated by reference, see § 63.14).

(iv) Method 4 of 40 CFR part 60, appendix A, is used to determine stack gas moisture.

(v) Methods for determining gas volumetric flow rate, dry molecular weight, and stack gas moisture must be performed, as applicable, during each test run, as specified in paragraph (d)(1)(vii) of this section.

(vi) Method 25 or 25A of 40 CFR part 60, appendix A, is used to determine total gaseous non-methane organic matter concentration. Use the same test method for both the inlet and outlet measurements, which must be conducted simultaneously. You must submit notification of the intended test method to the Administrator for approval along with notification of the performance test required under § 63.7 (b). You must use Method 25A if any of the conditions described in paragraphs (d)(1)(vi)(A) through (D) of this section apply to the control device.

(A) The control device is not an oxidizer.

(B) The control device is an oxidizer, but an exhaust gas volatile organic matter concentration of 50 ppmv or less is required to comply with the standards in § 63.5120; or

(C) The control device is an oxidizer, but the volatile organic matter concentration at the inlet to the control system and the required level of control are such that they result in exhaust gas volatile organic matter concentrations of 50 ppmv or less; or

(D) The control device is an oxidizer, but because of the high efficiency of the control device, the anticipated volatile organic matter concentration at the control device exhaust is 50 ppmv or less, regardless of inlet concentration.

(vii) Each performance test must consist of three separate runs, except as provided by § 63.7(e)(3); each run must be conducted for at least 1 hour under the conditions that exist when the affected source is operating under normal operating conditions. For the purpose of determining volatile organic matter concentrations and mass flow rates, the average of the results of all runs will apply. If you are demonstrating initial compliance with the outlet organic HAP concentration limit in § 63.5120(a)(3), only the average outlet volatile organic matter concentration must be determined.

(viii) If you are determining the control device destruction or removal efficiency, for each run, determine the volatile organic matter mass flow rates using Equation 1 of this section:

$$M_f = Q_{sd} C_C (12)(0.0416)\left(10^{-6}\right) \qquad \text{(Eq. 1)}$$

Where:

M_f=total organic volatile matter mass flow rate, kg/per hour (h).

C_c=concentration of organic compounds as carbon in the vent gas, as determined by Method 25 or Method 25A, ppmv, dry basis.

Q_{sd}=volumetric flow rate of gases entering or exiting the control device, as determined by Method 2, 2A, 2C, 2D, 2F, or 2G, dry standard cubic meters (dscm)/h.

0.0416=conversion factor for molar volume, kg-moles per cubic meter (mol/m^3) (@ 293 Kelvin (K) and 760 millimeters of mercury (mmHg)).

(ix) For each run, determine the control device destruction or removal efficiency, DRE, using Equation 2 of this section:

$$DRE = \frac{M_{fi} - M_{fo}}{M_{fi}} \times 100 \qquad \text{(Eq. 2)}$$

Where:

DRE=organic emissions destruction or removal efficiency of the add-on control device, percent.

M_{fi}=organic volatile matter mass flow rate at the inlet to the control device, kg/h.

M_{fo}=organic volatile matter mass flow rate at the outlet of the control device, kg/h.

(x) The control device destruction or removal efficiency is determined as the average of the efficiencies determined in the three test runs and calculated in Equation 2 of this section.

(2) You must record such process information as may be necessary to determine the conditions in existence at the time of the performance test. Operations during periods of start-up, shutdown, and malfunction will not constitute representative conditions for the purpose of a performance test.

(3) Operating limits. If you are using a capture system and add-on control device other than a solvent recovery system for which you conduct a liquid-liquid material balance to comply with the requirements in § 63.5120, you must establish the applicable operating limits required by § 63.5121. These operating limits apply to each capture system and to each add-on emission control device that is not monitored by CEMS, and you must establish the operating limits during the performance test required by paragraph (d) of this section according to the requirements in paragraphs (d)(3)(i) through (iii) of this section.

(i) *Thermal oxidizer.* If your add-on control device is a thermal oxidizer, establish the operating limits according to paragraphs (d)(3)(i)(A) and (B) of this section.

(A) During the performance test, you must monitor and record the combustion temperature at least once every 15 minutes during each of the three test runs. You must monitor the temperature in the firebox of the thermal oxidizer or immediately downstream of the firebox before any substantial heat exchange occurs.

(B) Use the data collected during the performance test to calculate and record the average combustion temperature maintained during the performance test. This average combustion temperature is the minimum operating limit for your thermal oxidizer.

(ii) *Catalytic oxidizer.* If your add-on control device is a catalytic oxidizer, establish the operating limits according to either paragraphs (d)(3)(ii)(A) and (B) or paragraphs (d)(3)(ii)(C) and (D) of this section.

(A) During the performance test, you must monitor and record the temperature just before the catalyst bed and the temperature difference across the catalyst bed at least once every 15 minutes during each of the three test runs.

(B) Use the data collected during the performance test to calculate and record the average temperature just before the catalyst bed and the average temperature difference across the catalyst bed maintained during the performance test. These are the minimum operating limits for your catalytic oxidizer.

(C) As an alternative to monitoring the temperature difference across the catalyst bed, you may monitor the temperature at the inlet to the catalyst bed and implement a site-specific inspection and maintenance plan for your catalytic oxidizer as specified in paragraph (d)(3)(ii)(D) of this section. During the performance test, you must monitor and record the temperature just before the catalyst bed at least once every 15 minutes during each of the three test runs. Use the data collected during the performance test to calculate and record the average temperature just before the catalyst bed during the performance test. This is the minimum operating limit for your catalytic oxidizer.

(D) You must develop and implement an inspection and maintenance plan for your catalytic oxidizer(s) for which you elect to monitor according to paragraph (d)(3)(ii)(C) of this section. The plan must address, at a minimum, the elements specified in paragraphs (d)(3)(ii)(D)(*1* (*3*) of this section.

(*1*) Annual sampling and analysis of the catalyst activity (*i.e.,* conversion efficiency) following the manufacturer's or catalyst supplier's recommended procedures.

(*2*) Monthly inspection of the oxidizer system including the burner assembly and fuel supply lines for problems and,

(*3*) Annual internal and monthly external visual inspection of the catalyst bed to check for channeling, abrasion, and settling. If problems are found, you must take corrective action consistent with the manufacturer's recommendations and conduct a new performance test to determine destruction efficiency according to § 63.5160.

(iii) *Other types of control devices.* If you use a control device other than an oxidizer or a solvent recovery system for which you choose to comply by means of a monthly liquid-liquid material balance, or wish to monitor an alternative parameter and comply with a different operating limit, you must apply to the Administrator for approval of alternative monitoring under §63.8(f).

(e) *Capture efficiency.* If you are required to determine capture efficiency to meet the requirements of §63.5170(e)(2), (f)(1) through (2), (h)(2) through (4), or (i)(2) through (3), you must determine capture efficiency using the procedures in paragraph (e)(1), (2), or (3) of this section, as applicable.

(1) For an enclosure that meets the criteria for a PTE, you may assume it achieves 100 percent capture efficiency. You must confirm that your capture system is a PTE by demonstrating that it meets the requirements of section 6 of EPA Method 204 of 40 CFR part 51, appendix M (or an EPA approved alternative method), and that all exhaust gases from the enclosure are delivered to a control device.

(2) You may determine capture efficiency, CE, according to the protocols for testing with temporary total enclosures that are specified in Method 204A through F of 40 CFR part 51, appendix M. You may exclude never-controlled work stations from such capture efficiency determinations.

(3) As an alternative to the procedures specified in paragraphs (e)(1) and (2) of this section, if you are required to conduct a capture efficiency test, you may use any capture efficiency protocol and test methods that satisfy the criteria of either the Data Quality Objective or the Lower Confidence Limit approach as described in appendix A to subpart KK of this part. You may exclude never-controlled work stations from such capture efficiency determinations.

REQUIREMENTS FOR SHOWING COMPLIANCE

§63.5170 How do I demonstrate compliance with the standards?

You must include all coating materials (as defined in §63.5110) used in the affected source when determining compliance with the applicable emission limit in §63.5120. To make this determination, you must use at least one of the four compliance options listed in Table 1 of this section. You may apply any of the compliance options to an individual coil coating line, or to multiple lines as a group, or to the entire affected source. You may use different compliance options for different coil coating lines, or at different times on the same line. However, you may not use different compliance options at the same time on the same coil coating line. If you switch between compliance options for any coil coating line or group of lines, you must document this switch as required by §63.5190(a), and you must report it in the next semiannual compliance report required in §63.5180.

TABLE 1 TO §63.5170—COMPLIANCE DEMONSTRATION REQUIREMENTS INDEX

If you choose to demonstrate compliance by:	Then you must demonstrate that:
1. Use of ''as purchased'' compliant coatings.	a. Each coating material used during the 12-month compliance period does not exceed 0.046 kg HAP per liter solids, as purchased. Paragraph (a) of this section.
2. Use of ''as applied'' compliant coatings	a. Each coating material used does not exceed 0.046 kg HAP per liter solids on a rolling 12-month average as applied basis, determined monthly. Paragraphs (b)(1) of this section; or
	b. Average of all coating materials used does not exceed 0.046 kg HAP per liter solids on a rolling 12-month average as applied basis, determined monthly. Paragraph (b)(2) of this section.
3. Use of a capture system and control device.	Overall organic HAP control efficiency is at least 98 percent on a monthly basis for individual or groups of coil coating lines; or overall organic HAP control efficiency is at least 98 percent during initial performance test and operating limits are achieved continuously for individual coil coating lines; or oxidizer outlet HAP concentration is no greater than 20 ppmv and there is 100 percent capture efficiency during initial performance test and operating limits are achieved continuously for individual coil coating lines. Paragraph (c) of this section.

Table 1 to § 63.5170—Compliance Demonstration Requirements Index—Continued

If you choose to demonstrate compliance by:	Then you must demonstrate that:
4. Use of a combination of compliant coatings and control devices and maintaining an acceptable equivalent emission rate.	Average equivalent emission rate does not exceed 0.046 kg HAP per liter solids on a rolling 12-month average as applied basis, determined monthly. Paragraph (d) of this section.

(a) *As-purchased compliant coatings.* If you elect to use coatings that individually meet the organic HAP emission limit in § 63.5120(a)(2) as-purchased, to which you will not add HAP during distribution or application, you must demonstrate that each coating material applied during the 12-month compliance period contains no more than 0.046 kg HAP per liter of solids on an as-purchased basis.

(1) Determine the organic HAP content for each coating material in accordance with § 63.5160(b) and the volume solids content in accordance with § 63.5160(c).

(2) Combine these results using Equation 1 of this section and compare the result to the organic HAP emission limit in § 63.5120(a)(2) to demonstrate that each coating material contains no more organic HAP than the limit.

$$H_{siap} = \frac{C_{hi} D_i}{V_{si}} \qquad \text{(Eq. 1)}$$

Where:

H_{siap} = as-purchased, organic HAP to solids ratio of coating material, i, kg organic HAP/liter solids applied.

C_{hi} = organic HAP content of coating material, i, expressed as a weight-fraction, kg/kg.

D_i = density of coating material, i, kg/l.

V_{si} = volume fraction of solids in coating, i, l/l.

(b) *As-applied compliant coatings.* If you choose to use ‘‘as-applied’’ compliant coatings, you must demonstrate that the average of each coating material applied during the 12-month compliance period contains no more than 0.046 kg of organic HAP per liter of solids applied in accordance with (b)(1) of this section, or demonstrate that the average of all coating materials applied during the 12-month compliance period contain no more than 0.046 kg of organic HAP per liter of solids applied in accordance with paragraph (b)(2) of this section.

(1) To demonstrate that the average organic HAP content on the basis of solids applied for each coating material applied, $H_{Si\ yr}$, is less than 0.046 kg HAP per liter solids applied for the 12-month compliance period, use Equation 2 of this section:

$$H_{Si\ yr} = \frac{\sum_{y=1}^{12} \left[V_i D_i C_{ahi} + \sum_{i=1}^{q} V_j D_j C_{hij} \right]}{\sum_{y=1}^{12} V_i V_{si}} \qquad \text{(Eq. 2)}$$

Where:

$H_{si\ yr}$ = average for the 12-month compliance period, as-applied, organic HAP to solids ratio of material, i, kg organic HAP/liter solids applied.

V_i = volume of coating material, i, l.

D_i = density of coating material, i, kg/l.

C_{ahi} = monthly average, as-applied, organic HAP content of solids-containing coating material, i, expressed as a weight fraction, kilogram (kg)/kg.

V_j = volume of solvent, j, l.

D_j = density of solvent, j, kg/l.

C_{hij} = organic HAP content of solvent, j, added to coating material, i, expressed as a weight fraction, kg/kg.

V_{si} = volume fraction of solids in coating, i, l/l.

y = identifier for months.

q = number of different solvents, thinners, reducers, diluents, or other non-solids-containing coating materials applied in a month.

(2) To demonstrte that the average organic HAP content on the basis of solids applied, $H_{S\ yr}$, of all coating materials applied is less than 0.046 kg HAP per liter solids applied for the 12-month compliance period, use Equation 3 of this section:

$$H_{S\ yr} = \frac{\sum_{y=1}^{12}\left[\sum_{i=1}^{p} V_i D_i C_{ahi} + \sum_{j=1}^{q} V_j D_j C_{hij}\right]}{\sum_{y=1}^{12}\left[\sum_{i=1}^{p} V_i V_{si}\right]} \qquad \text{(Eq. 3)}$$

Where:

$H_{S\ yr}$ = average for the 12-month compliance period, as-applied, organic HAP to solids ratio of all materials applied, kg organic HAP/liter solids applied.

Vi = volume of coating material, i, l.

D_i = density of coating material, i, kg/l.

C_{ahi} = monthly average, as-applied, organic HAP content of solids-containing coating material, i, expressed as a weight fraction, kilogram (kg)/kg.

Vj = volume of solvent, j, l.

D_j = density of solvent, j, kg/l.

C_{hij} = organic HAP content of solvent, j, added to coating material, i, expressed as a weight fraction, kg/kg.

Vsi = volume fraction of solids in coating, i, l/l.

p = number of different coating materials applied in a month.

q = number of different solvents, thinners, reducers, diluents, or other non-solids-containing coating materials applied in a month.

y = identifier for months.

(c) *Capture and control to reduce emissions to no more than the allowable limit.* If you use one or more capture systems and one or more control devices and demonstrate an average overall organic HAP control efficiency of at least 98 percent for each month to comply with §63.5120(a)(1); or operate a capture system and oxidizer so that the capture efficiency is 100 percent and the oxidizer outlet HAP concentration is no greater than 20 ppmv on a dry basis to comply with §63.5120(a)(3), you must follow one of the procedures in paragraphs (c)(1) through (4) of this section. Alternatively, you may demonstrate compliance for an individual coil coating line by operating its capture system and control device and continuous parameter monitoring system according to the procedures in paragraph (i) of this section.

(1) If the affected source uses one compliance procedure to limit organic HAP emissions to the level specified in §63.5120(a)(1) or (2) and has only always-controlled work stations, then you must demonstrate compliance with the provisions of paragraph (e) of this section when emissions from the affected source are controlled by one or more solvent recovery devices.

(2) If the affected source uses one compliance procedure to limit organic HAP emissions to the level specified in §63.5120(a)(1) or (2) and has only always-controlled work stations, then you must demonstrate compliance with the provisions of paragraph (f) of this section when emissions are controlled by one or more oxidizers.

(3) If the affected source operates both solvent recovery and oxidizer control devices, one or more never-controlled work stations, or one or more intermittently-controllable work stations, or uses more than one compliance procedure, then you must demonstrate compliance with the provisions of paragraph (g) of this section.

(4) The method of limiting organic HAP emissions to the level specified in §63.5120(a)(3) is the installation and operation of a PTE around each work station and associated curing oven in the coating line and the ventilation of all organic HAP emissions from each PTE

to an oxidizer with an outlet organic HAP concentration of no greater than 20 ppmv on a dry basis. An enclosure that meets the requirements in § 63.5160(e)(1) is considered a PTE. Initial compliance of the oxidizer with the outlet organic HAP concentration limit is demonstrated either through continuous emission monitoring according to paragraph (c)(4)(ii) of this section or through performance tests using the procedure in § 63.5160(d). If this method is selected, you must meet the requirements of paragraph (c)(4)(i) of this section to demonstrate continuing achievement of 100 percent capture of organic HAP emissions and either paragraph (c)(4)(ii) or paragraph (c)(4)(iii) of this section, respectively, to demonstrate continuous compliance with the oxidizer outlet organic HAP concentration limit through continuous emission monitoring or continuous operating parameter monitoring:

(i) Whenever a work station is operated, continuously monitor the capture system operating parameter established in accordance with § 63.5150(a)(4).

(ii) To demonstrate that the value of the exhaust gas organic HAP concentration at the outlet of the oxidizer is no greater than 20 ppmv, on a dry basis, install, calibrate, operate, and maintain CEMS according to the requirements of § 63.5150(a)(2).

(iii) To demonstrate continuous compliance with operating limits established in accordance with § 63.5150(a)(3), whenever a work station is operated, continuously monitor the applicable oxidizer operating parameter.

(d) *Capture and control to achieve the emission rate limit.* If you use one or more capture systems and one or more control devices and limit the organic HAP emission rate to no more than 0.046 kg organic HAP emitted per liter of solids applied on a 12-month average as-applied basis, then you must follow one of the procedures in paragraphs (d)(1) through (3) of this section.

(1) If you use one or more solvent recovery devices, you must demonstrate compliance with the provisions in paragraph (e) of this section.

(2) If you use one or more oxidizers, you must demonstrate compliance with the provisions in paragraph (f) of this section.

(3) If you use both solvent recovery devices and oxidizers, or operate one or more never-controlled work stations or one or more intermittently controllable work stations, you must demonstrate compliance with the provisions in paragraph (g) of this section.

(e) *Use of solvent recovery to demonstrate compliance.* If you use one or more solvent recovery devices to control emissions from always-controlled work stations, you must show compliance by following the procedures in either paragraph (e)(1) or (2) of this section:

(1) *Liquid-liquid material balance.* Perform a liquid-liquid material balance for each month as specified in paragraphs (e)(1)(i) through (vi) of this section and use Equations 4 through 6 of this section to convert the data to units of this standard. All determinations of quantity of coating and composition of coating must be made at a time and location in the process after all ingredients (including any dilution solvent) have been added to the coating, or appropriate adjustments must be made to account for any ingredients added after the amount of coating has been determined.

(i) Measure the mass of each coating material applied on the work station or group of work stations controlled by one or more solvent recovery devices during the month.

(ii) If demonstrating compliance with the organic HAP emission rate based on solids applied, determine the organic HAP content of each coating material applied during the month following the procedure in § 63.5160(b).

(iii) Determine the volatile matter content of each coating material applied during the month following the procedure in § 63.5160(c).

(iv) If demonstrating compliance with the organic HAP emission rate based on solids applied, determine the solids content of each coating material applied during the month following the procedure in § 63.5160(c).

(v) For each solvent recovery device used to comply with § 63.5120(a), install, calibrate, maintain, and operate according to the manufacturer's specifications, a device that indicates the cumulative amount of volatile matter recovered by the solvent recovery device on a monthly basis. The device must be initially certified by the manufacturer to be accurate to within ± 2.0 percent.

(vi) For each solvent recovery device used to comply with §63.5120(a), measure the amount of volatile matter recovered for the month.

(vii) *Recovery efficiency, R_v.* Calculate the volatile organic matter collection and recovery efficiency, R_v, using Equation 4 of this section:

$$R_v = 100 \frac{\sum_{k=1}^{s} M_{kvr}}{\sum_{i=1}^{p} M_i C_{vi} + \sum_{j=1}^{q} M_j} \qquad \text{(Eq. 4)}$$

Where:

R_v = organic volatile matter collection and recovery efficiency, percent.

M_{kvr} = mass of volatile matter recovered in a month by solvent recovery device, k, kg.

M_i = mass of coating material, i, applied in a month, kg.

C_{vi} = volatile matter content of coating material, i, expressed as a weight fraction, kg/kg.

M_j = mass of solvent, thinner, reducer, diluent, or other non-solids-containing coating material (excluding H_2O), j, applied in a month, kg.

p = number of different coating materials applied in a month.

q = number of different solvents, thinners, reducers, diluents, or other non-solids-containing coating materials applied in a month.

s = number of solvent recovery devices used to comply with the standard of §63.5120 of this subpart, in the facility.

(viii) *Organic HAP emitted, H_e.* Calculate the mass of organic HAP emitted during the month, H_e, using Equation 5 of this section:

$$H_e = \left[1 - \frac{R_v}{100}\right]\left[\sum_{i=1}^{p}\left(C_{hi}M_i + \sum_{j=1}^{q} C_{hij}M_{ij}\right)\right] \qquad \text{(Eq. 5)}$$

Where:

H_e = total monthly organic HAP emitted, kg.

R_v = organic volatile matter collection and recovery efficiency, percent.

C_{hi} = organic HAP content of coating material, i, expressed as a weight-fraction, kg/kg.

M_i = mass of coating material, i, applied in a month, kg.

C_{hij} = organic HAP content of solvent, j, added to coating material, i, expressed as a weight fraction, kg/kg.

M_{ij} = mass of solvent, thinner, reducer, diluent, or other non-solids-containing coating material, j, added to solids-containing coating material, i, in a month, kg.

p = number of different coating materials applied in a month.

q = number of different solvents, thinners, reducers, diluents, or other non-solids-containing coating materials applied in a month.

(ix) *Organic HAP emission rate based on solids applied for the 12-month compliance period, L_{ANNUAL}.* Calculate the organic HAP emission rate based on solids applied for the 12-month compliance period, L_{ANNUAL}, using Equation 6 of this section:

$$L_{ANNUAL} = \frac{\sum_{y=1}^{12} H_e}{\sum_{y=1}^{12}\left[\sum_{i=1}^{p} C_{si}M_i\right]} \qquad \text{(Eq. 6)}$$

Where:

L_{ANNUAL} = mass organic HAP emitted per volume of solids applied for the 12-month compliance period, kg/liter.

H_e = total monthly organic HAP emitted, kg.

C_{si} = solids content of coating material, i, expressed as liter of solids/kg of material.

M_i = mass of coating material, i, applied in a month, kg.

y = identifier for months.

p = number of different coating materials applied in a month.

(x) *Compare actual performance to performance required by compliance option.* The affected source is in compliance with § 63.5120(a) if it meets the requirement in either paragraph (e)(1)(x)(A) or (B) of this section:

(A) The average volatile organic matter collection and recovery efficiency, R_v, is 98 percent or greater each month of the 12-month compliance period; or

(B) The organic HAP emission rate based on solids applied for the 12-month compliance period, L_{ANNUAL}, is 0.046 kg organic HAP per liter solids applied or less.

(2) *Continuous emission monitoring of control device performance.* Use continuous emission monitors to demonstrate recovery efficiency, conduct an initial performance test of capture efficiency and volumetric flow rate, and continuously monitor a site specific operating parameter to ensure that capture efficiency and volumetric flow rate are maintained following the procedures in paragraphs (e)(2)(i) through (xi) of this section:

(i) *Control device destruction or removal efficiency, DRE.* For each control device used to comply with § 63.5120(a), continuously monitor the gas stream entering and exiting the control device to determine the total volatile organic matter mass flow rate (e.g., by determining the concentration of the vent gas in grams per cubic meter and the volumetric flow rate in cubic meters per second, such that the total volatile organic matter mass flow rate in grams per second can be calculated using Equation 1 of § 63.5160, and the percent destruction or removal efficiency, DRE, of the control device can be calculated for each month using Equation 2 of § 63.5160.

(ii) Determine the percent capture efficiency, CE, for each work station in accordance with § 63.5160(e).

(iii) *Capture efficiency monitoring.* Whenever a work station is operated, continuously monitor the operating parameter established in accordance with § 63.5150(a)(4).

(iv) *Control efficiency, R.* Calculate the overall organic HAP control efficiency, R, achieved for each month using Equation 7 of this section:

$$R = 100\,\frac{\sum_{A=1}^{w}\left[\left(DRE_K CE_A\right)\left(\sum_{i=1}^{p} M_{Ai} C_{vi} + \sum_{j=1}^{q} M_{Aj}\right)\right]}{\sum_{i=1}^{p} M_i C_{vi} + \sum_{j=1}^{q} M_j} \qquad \text{(Eq. 7)}$$

Where:

R=overall organic HAP control efficiency, percent.

DRE_k=organic volatile matter destruction or removal efficiency of control device, k, percent.

CE_A=organic volatile matter capture efficiency of the capture system for work station, A, percent.

M_{Ai}=mass of coating material, i, applied on work station, A, in a month, kg.

C_{vi}=volatile matter content of coating material, i, expressed as a weight fraction, kg/kg.

M_{Aj}=mass of solvent, thinner, reducer, diluent, or other non-solids-containing coating material (including H_2O), j, applied on work station, A, in a month, kg.

M_i=mass of coating material, i, applied in a month, kg.

M_j=mass of solvent, thinner, reducer, diluent, or other non-solids-containing coating material (excluding H_2O), j, applied in a month, kg.

w=number of always-controlled work stations in the facility.

p=number of different coating materials applied in a month.

q=number of different solvents, thinners, reducers, diluents, or other non-solids-containing coating materials applied in a month.

(v) If demonstrating compliance with the organic HAP emission rate based on solids applied, measure the mass of each coating material applied on each work station during the month.

(vi) If demonstrating compliance with the organic HAP emission rate based on solids applied, determine the organic HAP content of each coating material applied during the month in accordance with § 63.5160(b).

(vii) If demonstrating compliance with the organic HAP emission rate based on solids applied, determine the solids content of each coating material applied during the month in accordance with § 63.5160(c).

(viii) If demonstrating compliance with the organic HAP emission rate based on solids applied, calculate the organic HAP emitted during the month, H_e, for each month using Equation 8 of this section:

$$H_e = \sum_{A=1}^{w}\left[\left(1-\left(DRE_K CE_A\right)\right)\left(\sum_{i=1}^{p}\left(C_{hi}M_{Ai} + \sum_{j=1}^{q} C_{hij}M_{Aij}\right)\right)\right] \qquad \text{(Eq. 8)}$$

Where:

H_e=total monthly organic HAP emitted, kg.

DRE_k=organic volatile matter destruction or removal efficiency of control device, k, percent.

CE_A=organic volatile matter capture efficiency of the capture system for work station, A, percent.

C_{hi}=organic HAP content of coating material, i, expressed as a weight-fraction, kg/kg.

M_{Ai}=mass of coating material, i, applied on work station, A, in a month, kg.

C_{hij}=organic HAP content of solvent, j, added to coating material, i, expressed as a weight fraction, kg/kg.

M_{Aij}=mass of solvent, thinner, reducer, diluent, or other non-solids-containing coating material, j, added to solids-containing coating material, i, applied on work station, A, in a month, kg.

w=number of always-controlled work stations in the facility.

p=number of different coating materials applied in a month.

q=number of different solvents, thinners, reducers, diluents, or other non-solids-containing coating materials applied in a month.

(ix) *Organic HAP emission rate based on solids applied for the 12-month compliance period, L_{ANNUAL}.* Calculate the organic HAP emission rate based on solids applied for the 12-month compliance period, L_{ANNUAL}, using Equation 6 of this section.

(x) *Compare actual performance to performance required by compliance option.* The affected source is in compliance with § 63.5120(a) if each capture system operating parameter is operated at an average value greater than or less than (as appropriate) the operating parameter value established in accordance with § 63.5150 for each 3-hour period; and

(A) The overall organic HAP control efficiency, R, is 98 percent or greater for each; or

(B) The organic HAP emission rate based on solids applied for the 12-month compliance period, L_{ANNUAL}, is 0.046 kg organic HAP per liter solids applied or less.

(f) *Use of oxidation to demonstrate compliance.* If you use one or more oxidizers to control emissions from always controlled work stations, you must follow the procedures in either paragraph (f)(1) or (2) of this section:

(1) *Continuous monitoring of capture system and control device operating parameters.* Demonstrate initial compliance through performance tests of capture efficiency and control device efficiency and continuing compliance through continuous monitoring of capture system and control device operating parameters as specified in paragraphs (f)(1)(i) through (xi) of this section:

(i) For each oxidizer used to comply with § 63.5120(a), determine the oxidizer destruction or removal efficiency, DRE, using the procedure in § 63.5160(d).

(ii) Whenever a work station is operated, continuously monitor the operating parameter established in accordance with § 63.5150(a)(3).

(iii) Determine the capture system capture efficiency, CE, for each work station in accordance with § 63.5160(e).

(iv) Whenever a work station is operated, continuously monitor the operating parameter established in accordance with § 63.5150(a)(4).

(v) Calculate the overall organic HAP control efficiency, R, achieved using Equation 7 of this section.

(vi) If demonstrating compliance with the organic HAP emission rate based on solids applied, measure the mass of each coating material applied on each work station during the month.

(vii) If demonstrating compliance with the organic HAP emission rate based on solids applied, determine the organic HAP content of each coating material applied during the month following the procedure in § 63.5160(b).

(viii) If demonstrating compliance with the organic HAP emission rate based on solids applied, determine the solids content of each coating material applied during the month following the procedure in § 63.5160(c).

(ix) Calculate the organic HAP emitted during the month, H_e, for each month:

(A) For each work station and its associated oxidizer, use Equation 8 of this section.

(B) For periods when the oxidizer has not operated within its established operating limit, the control device efficiency is determined to be zero.

(x) *Organic HAP emission rate based on solids applied for the 12-month compliance period, L_{ANNUAL}.* If demonstrating compliance with the organic HAP emission rate based on solids applied for the 12-month compliance period, calculate the organic HAP emission rate based on solids applied, L_{ANNUAL}, for the 12-month compliance period using Equation 6 of this section.

(xi) *Compare actual performance to performance required by compliance option.* The affected source is in compliance with § 63.5120(a) if each oxidizer is operated such that the average operating parameter value is greater than the operating parameter value established in § 63.5150(a)(3) for each 3-hour period, and each capture system operating parameter average value is greater than or less than (as appropriate) the operating parameter value established in § 63.5150(a)(4) for each 3-hour period; and the requirement in either paragraph (f)(1)(xi)(A) or (B) of this section is met.

(A) The overall organic HAP control efficiency, R, is 98 percent or greater for each; or

(B) The organic HAP emission rate based on solids applied, L_{ANNUAL}, is 0.046 kg organic HAP per liter solids applied or less for the 12-month compliance period.

(2) *Continuous emission monitoring of control device performance.* Use continuous emission monitors, conduct an initial performance test of capture efficiency, and continuously monitor a site specific operating parameter to ensure that capture efficiency is maintained. Compliance must be demonstrated in accordance with paragraph (e)(2) of this section.

(g) *Combination of capture and control.* You must demonstrate compliance according to the procedures in paragraphs (g)(1) through (8) of this section if both solvent recovery and oxidizer control devices, one or more never controlled coil coating stations, or one or more intermittently controllable coil coating stations are operated; or more than one compliance procedure is used.

(1) *Solvent recovery system using liquid/liquid material balance compliance demonstration.* For each solvent recovery system used to control one or more work stations for which you choose to comply by means of a liquid-liquid material balance, you must determine the organic HAP emissions each month of the 12-month compliance period for those work stations controlled by that solvent recovery system according to either paragraph (g)(1)(i) or (ii) of this section:

(i) In accordance with paragraphs (e)(1)(i) through (iii) and (e)(1)(v) through (viii) of this section if the work stations controlled by that solvent recovery system are only always-controlled work stations; or

(ii) In accordance with paragraphs (e)(1)(ii) through (iii), (e)(1)(v) through (vi), and (h) of this section if the work stations controlled by that solvent recovery system include one or more never-controlled or intermittently-controllable work stations.

(2) *Solvent recovery system using performance test and continuous monitoring compliance demonstration.* For each solvent recovery system used to control one or more coil coating stations for which you choose to comply by means of an initial test of capture efficiency, continuous emission monitoring of the control device, and continuous monitoring of a capture system operating parameter, each month of the 12-month compliance period you must meet the requirements of paragraphs (g)(2)(i) and (ii) of this section:

(i) For each capture system delivering emissions to that solvent recovery system, monitor an operating parameter established in § 63.5150(a)(4) to ensure that capture system efficiency is maintained; and

(ii) Determine the organic HAP emissions for those work stations served by each capture system delivering emissions to that solvent recovery system according to either paragraph (g)(2)(ii)(A) or (B) of this section:

(A) In accordance with paragraphs (e)(2)(i) through (iii) and (e)(2)(v) through (viii) of this section if the work stations served by that capture system are only always-controlled coil coating stations; or

(B) In accordance with paragraphs (e)(2)(i) through (iii), (e)(2)(v) through (vii), and (h) of this section if the work stations served by that capture system include one or more never-controlled or intermittently-controllable work stations.

(3) *Oxidizer using performance test and continuous monitoring of operating parameters compliance demonstration.* For each oxidizer used to control emissions from one or more work stations for which you choose to demonstrate compliance through performance tests of capture efficiency, control device efficiency, and continuing compliance through continuous monitoring of capture system and control device operating parameters, each month of the 12-month compliance period you must meet the requirements of paragraphs (g)(3)(i) through (iii) of this section:

(i) Monitor an operating parameter established in § 63.5150(a)(3) to ensure that control device destruction or removal efficiency is maintained; and

(ii) For each capture system delivering emissions to that oxidizer, monitor an operating parameter established in § 63.5150(a)(4) to ensure capture efficiency; and

(iii) Determine the organic HAP emissions for those work stations served by each capture system delivering emissions to that oxidizer according to either paragraph (g)(3)(iii)(A) or (B) of this section:

(A) In accordance with paragraphs (f)(1)(i) through (v) and (ix) of this section if the work stations served by that capture system are only always-controlled work stations; or

(B) In accordance with paragraphs (f)(1)(i) through (v), (ix), and (h) of this section if the work stations served by that capture system include one or more never-controlled or intermittently-controllable work stations.

(4) *Oxidizer using continuous emission monitoring compliance demonstration.* For each oxidizer used to control emissions from one or more work stations for which you choose to demonstrate compliance through an initial capture efficiency test, continuous emission monitoring of the control device, and continuous monitoring of a capture system operating parameter, each month of the 12-month compliance period you must meet the requirements in paragraphs (g)(4)(i) and (ii) of this section:

(i) For each capture system delivering emissions to that oxidizer, monitor an operating parameter established in § 63.5150(a)(4) to ensure capture efficiency; and

(ii) Determine the organic HAP emissions for those work stations served by each capture system delivering emissions to that oxidizer according to either paragraph (g)(4)(ii)(A) or (B) of this section:

(A) In accordance with paragraphs (e)(2)(i) through (iii) and (e)(2)(v) through (viii) of this section if the work stations served by that capture system are only always-controlled work stations; or

(B) In accordance with paragraphs (e)(2)(i) through (iii), (e)(2)(v) through (vii), and (h) of this section if the work stations served by that capture system include one or more never-controlled or intermittently-controllable work stations.

(5) *Uncontrolled work stations.* For uncontrolled work stations, each month of the 12-month compliance period you must determine the organic HAP applied on those work stations using Equation 9 of this section. The organic HAP emitted from an uncontrolled work station is equal to the organic HAP applied on that work station:

$$H_m = \sum_{A=1}^{x} \left(\sum_{i=1}^{p} C_{hi} M_{Ai} + \sum_{j=1}^{q} C_{hij} M_{Aij} \right) \qquad \text{(Eq. 9)}$$

Where:

H_m=facility total monthly organic HAP applied on uncontrolled coil coating stations, kg.

C_{hi}=organic HAP content of coating material, i, expressed as a weight-fraction, kg/kg.

M_{Ai}=mass of coating material, i, applied on work station, A, in a month, kg.

C_{hij}=organic HAP content of solvent, j, added to coating material, i, expressed as a weight fraction, kg/kg.

M_{Aij}=mass of solvent, thinner, reducer, diluent, or other non-solids-containing coating material, j, added to solids-containing coating material, i, applied on work station, A, in a month, kg.

x=number of uncontrolled work stations in the facility.

p=number of different coating materials applied in a month.

q=number of different solvents, thinners, reducers, diluents, or other non-solids-containing coating materials applied in a month.

(6) If demonstrating compliance with the organic HAP emission rate based on solids applied, each month of the 12-month compliance period you must determine the solids content of each coating material applied during the month following the procedure in § 63.5160(c).

(7) *Organic HAP emitted.* You must determine the organic HAP emissions for the affected source for each 12-month compliance period by summing all monthly organic HAP emissions calculated according to paragraphs (g)(1), (g)(2)(ii), (g)(3)(iii), (g)(4)(ii), and (g)(5) of this section.

(8) *Compare actual performance to performance required by compliance option.* The affected source is in compliance with § 63.5120(a) for the 12-month compliance period if all operating parameters required to be monitored under paragraphs (g)(2) through (4) of this section were maintained at the values established in § 63.5150; and it meets the requirement in either paragraph (g)(8)(i) or (ii) of this section.

(i) The total mass of organic HAP emitted by the affected source was not more than 0.046 kg HAP per liter of solids applied for the 12-month compliance period; or

(ii) The total mass of organic HAP emitted by the affected source was not more than 2 percent of the total mass of organic HAP applied by the affected source each month. You must determine the total mass of organic HAP applied by the affected source in each month of the 12-month compliance period using Equation 9 of this section.

(h) *Organic HAP emissions from intermittently-controllable or never-controlled coil coating stations.* If you have been expressly referenced to this paragraph by paragraphs (g)(1)(ii), (g)(2)(ii)(B), (g)(3)(iii)(B), or (g)(4)(ii)(B) of this section for calculation procedures to determine organic HAP emissions, you must for your intermittently-controllable or never-controlled work stations meet the requirements of paragraphs (h)(1) through (6) of this section:

(1) Determine the sum of the mass of all solids-containing coating materials which are applied on intermittently-controllable work stations in bypass mode, and the mass of all solids-containing coating materials which are applied on never-controlled coil coating stations during each month of the 12-month compliance period, M_{Bi}.

(2) Determine the sum of the mass of all solvents, thinners, reducers, diluents, and other nonsolids-containing coating materials which are applied on intermittently-controllable work stations in bypass mode, and the mass of all solvents, thinners, reducers, diluents and other nonsolids-containing coating materials which are applied on never-controlled work stations during each month of the 12-month compliance period, M_{Bj}.

(3) Determine the sum of the mass of all solids-containing coating materials which are applied on intermittently-controllable work stations in controlled mode, and the mass of all solids-containing coating materials which are applied on always-controlled work stations during each month of the 12-month compliance period, M_{Ci}.

(4) Determine the sum of the mass of all solvents, thinners, reducers, diluents, and other nonsolids-containing coating materials which are applied on intermittently-controllable work stations in controlled mode, and the mass of all solvents, thinners, reducers, diluents, and other nonsolids-containing coating materials which are applied on always-controlled work stations during each month of the 12-month compliance period, M_{Cj}.

(5) *Liquid-liquid material balance calculation of HAP emitted.* For each work station or group of work stations for which you use the provisions of paragraph (g)(1)(ii) of this section, you must calculate the organic HAP emitted during the month using Equation 10 of this section:

$$H_e = \left[\sum_{i=1}^{p} M_{Ci}C_{hi} + \sum_{j=1}^{q} M_{Cj}C_{hj}\right]\left[1 - \frac{\sum_{k=1}^{s} M_{kvr}}{\sum_{i=1}^{p} M_{Ci}C_{vi} + \sum_{j=1}^{q} M_{Cj}}\right] + \left[\sum_{i=1}^{p} M_{Bi}C_{hi} + \sum_{j=1}^{q} M_{Bj}C_{hj}\right] \quad \text{(Eq. 10)}$$

Where:

H_e = total monthly organic HAP emitted, kg.

M_{ci}= sum of the mass of solids-containing coating material, i, applied on intermittently-controllable work stations operating in controlled mode and the mass of solids-containing coating material, i, applied on always-controlled work stations, in a month, kg.

C_{hi} = organic HAP content of coating material, i, expressed as a weight-fraction, kg/kg.

M_{cj} = sum of the mass of solvent, thinner, reducer, diluent, or other non-solids-containing coating material, j, applied on intermittently-controllable work stations operating in controlled mode and the mass of solvent, thinner, reducer, diluent, or other non-solids-containing coating material, j, applied on always-controlled work stations in a month, kg.

C_{hj} = organic HAP content of solvent, j, expressed as a weight fraction, kg/kg.

M_{kvr} = mass of volatile matter recovered in a month by solvent recovery device, k, kg.

C_{vi} = volatile matter content of coating material, i, expressed as a weight fraction, kg/kg.

M_{Bi} = sum of the mass of solids-containing coating material, i, applied on intermittently-controllable work stations operating in bypass mode and the mass of solids-containing coating material, i, applied on never-controlled work stations, in a month, kg.

M_{Bj} = sum of the mass of solvent, thinner, reducer, diluent, or other non-solids-containing coating material, j, applied on intermittently-controllable work stations operating in bypass mode and the mass of solvent, thinner, reducer, diluent, or other non-solids-containing coating material, j, applied on never-controlled work stations, in a month, kg.

p = number of different coating materials applied in a month.

q = number of different solvents, thinners, reducers, diluents, or other non-solids-containing coating materials applied in a month.

s = number of solvent recovery devices used to comply with the standard of §63.5120 of this subpart, in the facility.

(6) *Control efficiency calculation of HAP emitted.* For each work station or group of work stations for which you use the provisions of paragraphs (g)(2)(ii)(B), (g)(3)(iii)(B), or (g)(4)(ii)(B) of this section, you must calculate the organic HAP emitted during the month, H_e, using Equation 11 of this section:

$$e = \sum_{A=1}^{w_i}\left[\left(\sum_{i=1}^{p} M_{Ci}C_{hi} + \sum_{j=1}^{q} M_{Cj}C_{hj}\right)\left(1 - DRE_K CE_A\right)\right] + \left[\sum_{i=1}^{p} M_{Bi}C_{hi} + \sum_{j=1}^{q} M_{Bj}C_{hj}\right] \quad \text{(Eq. 11)}$$

Where:

H_e = total monthly organic HAP emitted, kg.

M_{ci} = sum of the mass of solids-containing coating material, i, applied on intermittently-controllable work stations operating in controlled mode and the mass of solids-containing coating material, i, applied on always-controlled work stations, in a month, kg.

C_{hi} = organic HAP content of coating material, i, expressed as a weight-fraction, kg/kg.

M_{cj} = sum of the mass of solvent, thinner, reducer, diluent, or other non-solids-containing coating material, j, applied on intermittently-controllable work stations operating in controlled mode and the mass of solvent, thinner, reducer, diluent, or other non-solids-containing coating material, j, applied on always-controlled work stations in a month, kg.

C_{hj} = organic HAP content of solvent, j, expressed as a weight fraction, kg/kg.

DRE_k = organic volatile matter destruction or removal efficiency of control device, k, percent.

CE_A = organic volatile matter capture efficiency of the capture system for work station, A, percent.

M_{Bi} = sum of the mass of solids-containing coating material, i, applied on intermittently-controllable work stations operating in bypass mode and the mass of solids-containing coating material, i, applied on never-controlled work stations, in a month, kg.

M_{Bj} = sum of the mass of solvent, thinner, reducer, diluent, or other non-solids-containing coating material, j, applied on intermittently-controllable work stations operating in bypass mode and the mass of solvent, thinner, reducer, diluent, or other non-solids-containing coating material, j, applied on never-controlled work stations, in a month, kg.

w_i = number of intermittently-controllable work stations in the facility.

p = number of different coating materials applied in a month.

q = number of different solvents, thinners, reducers, diluents, or other non-solids-containing coating materials applied in a month.

(i) *Capture and control system compliance demonstration procedures using a CPMS for a coil coating line.* If you use an add-on control device, to demonstrate initial compliance for each capture system and each control device through performance tests and continuing compliance through continuous monitoring of capture system and control device operating parameters, you must meet the requirements in paragraphs (i)(1) through (3) of this section.

(1) Conduct an initial performance test to determine the control device destruction or removal efficiency, DRE, using the applicable test methods and procedures in § 63.5160(d).

(2) Determine the emission capture efficiency, CE, in accordance with § 63.5160(e).

(3) Whenever a coil coating line is operated, continuously monitor the operating parameters established according to § 63.5150(a)(3) and (4) to ensure capture and control efficiency.

REPORTING AND RECORDKEEPING

§ 63.5180 What reports must I submit?

(a) Submit the reports specified in paragraphs (b) through (i) of this section to the EPA Regional Office that serves the State or territory in which the affected source is located and to the delegated State agency:

(b) You must submit an initial notification required in § 63.9(b).

(1) Submit an initial notification for an existing source no later than 2 years after June 10, 2002.

(2) Submit an initial notification for a new or reconstructed source as required by § 63.9(b).

(3) For the purpose of this subpart, a title V permit application may be used in lieu of the initial notification required under § 63.9(b), provided the same information is contained in the permit application as required by § 63.9(b), and the State to which the permit application has been submitted has an approved operating permit program under part 70 of this chapter and has received delegation of authority from the EPA.

(4) Submit a title V permit application used in lieu of the initial notification required under § 63.9(b) by the same due dates as those specified in paragraphs (b)(1) and (2) of this section for the initial notifications.

(c) You must submit a Notification of Performance Test as specified in §§ 63.7 and 63.9(e) if you are complying with the emission standard using a control device. This notification and the site-specific test plan required under § 63.7(c)(2) must identify the operating parameter to be monitored to ensure that the capture efficiency measured during the performance test is maintained. You may consider the operating parameter identified in the site-specific test plan to be approved unless explicitly disapproved, or unless comments received from the Administrator require monitoring of an alternate parameter.

(d) You must submit a Notification of Compliance Status as specified in § 63.9(h). You must submit the Notification of Compliance Status no later than 30 calendar days following the end of the initial 12-month compliance period described in § 63.5130.

(e) You must submit performance test reports as specified in §63.10(d)(2) if you are using a control device to comply with the emission standards and you have not obtained a waiver from the performance test requirement.

(f) You must submit start-up, shutdown, and malfunction reports as specified in §63.10(d)(5) if you use a control device to comply with this subpart.

(1) If your actions during a start-up, shutdown, or malfunction of an affected source (including actions taken to correct a malfunction) are not completely consistent with the procedures specified in the source's start-up, shutdown, and malfunction plan specified in §63.6(e)(3), you must state such information in the report. The start-up, shutdown, or malfunction report will consist of a letter containing the name, title, and signature of the responsible official who is certifying its accuracy, that will be submitted to the Administrator.

(2) Separate start-up, shutdown, or malfunction reports are not required if the information is included in the report specified in paragraph (g) of this section.

(g) You must submit semi-annual compliance reports containing the information specified in paragraphs (g)(1) and (2) of this section.

(1) Compliance report dates.

(i) The first semiannual reporting period begins 1 day after the end of the initial compliance period described in §63.5130(d) that applies to your affected source and ends 6 months later.

(ii) The first semiannual compliance report must cover the first semiannual reporting period and be postmarked or delivered no later than 30 days after the reporting period ends.

(iii) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(iv) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(v) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or part 71, and the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (g)(1)(i) through (iv) of this section.

(2) The semi-annual compliance report must contain the following information:

(i) Company name and address.

(ii) Statement by a responsible official with that official's name, title, and signature, certifying the accuracy of the content of the report.

(iii) Date of report and beginning and ending dates of the reporting period. The reporting period is the 6-month period ending on June 30 or December 31. Note that the information reported for each of the 6 months in the reporting period will be based on the last 12 months of data prior to the date of each monthly calculation.

(iv) Identification of the compliance option or options specified in Table 1 to §63.5170 that you used on each coating operation during the reporting period. If you switched between compliance options during the reporting period, you must report the beginning dates you used each option.

(v) A statement that there were no deviations from the standards during the reporting period, and that no CEMS were inoperative, inactive, malfunctioning, out-of-control, repaired, or adjusted.

(h) You must submit, for each deviation occurring at an affected source where you are not using CEMS to comply with the standards in this subpart, the semi-annual compliance report containing the information in paragraphs (g)(2)(i) through (iv) of this section and the information in paragraphs (h)(1) through (3) of this section:

(1) The total operating time of each affected source during the reporting period.

(2) Information on the number, duration, and cause of deviations (including

unknown cause, if applicable) as applicable, and the corrective action taken.

(3) Information on the number, duration, and cause for monitor downtime incidents (including unknown cause other than downtime associated with zero and span and other daily calibration checks, if applicable).

(i) You must submit, for each deviation occurring at an affected source where you are using CEMS to comply with the standards in this subpart, the semi-annual compliance report containing the information in paragraphs (g)(2)(i) through (iv) of this section, and the information in paragraphs (i)(1) through (12) of this section:

(1) The date and time that each malfunction started and stopped.

(2) The date and time that each CEMS was inoperative, except for zero (low-level) and high-level checks.

(3) The date and time that each CEMS was out-of-control, including the information in § 63.8(c)(8).

(4) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of start-up, shutdown, or malfunction or during another period.

(5) A summary of the total duration of the deviation during the reporting period, and the total duration as a percent of the total source operating time during that reporting period.

(6) A breakdown of the total duration of the deviations during the reporting period into those that are due to start-up, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(7) A summary of the total duration of CEMS downtime during the reporting period, and the total duration of CEMS downtime as a percent of the total source operating time during that reporting period.

(8) A breakdown of the total duration of CEMS downtime during the reporting period into periods that are due to monitoring equipment malfunctions, nonmonitoring equipment malfunctions, quality assurance/quality control calibrations, other known causes, and other unknown causes.

(9) A brief description of the metal coil coating line.

(10) The monitoring equipment manufacturer(s) and model number(s).

(11) The date of the latest CEMS certification or audit.

(12) A description of any changes in CEMS, processes, or controls since the last reporting period.

[67 FR 39812, June 10, 2002, as amended at 68 FR 12592, Mar. 17, 2003]

§ 63.5190 What records must I maintain?

(a) You must maintain the records specified in paragraphs (a) and (b) of this section in accordance with § 63.10(b)(1):

(1) Records of the coating lines on which you used each compliance option and the time periods (beginning and ending dates and times) you used each option.

(2) Records specified in § 63.10(b)(2) of all measurements needed to demonstrate compliance with this subpart, including:

(i) Continuous emission monitor data in accordance with § 63.5150(a)(2);

(ii) Control device and capture system operating parameter data in accordance with § 63.5150(a)(1), (3), and (4);

(iii) Organic HAP content data for the purpose of demonstrating compliance in accordance with § 63.5160(b);

(iv) Volatile matter and solids content data for the purpose of demonstrating compliance in accordance with § 63.5160(c);

(v) Overall control efficiency determination or alternative outlet HAP concentration using capture efficiency tests and control device destruction or removal efficiency tests in accordance with § 63.5160(d), (e), and (f); and

(vi) Material usage, HAP usage, volatile matter usage, and solids usage and compliance demonstrations using these data in accordance with § 63.5170(a), (b), and (d);

(3) Records specified in § 63.10(b)(3); and

(4) Additional records specified in § 63.10(c) for each continuous monitoring system operated by the owner or operator in accordance with § 63.5150(a)(2).

(b) Maintain records of all liquid-liquid material balances that are performed in accordance with the requirements of § 63.5170.

DELEGATION OF AUTHORITY

§ 63.5200 What authorities may be delegated to the States?

(a) This subpart can be implemented and enforced by us, the EPA, or a delegated authority such as your State, local, or tribal agency. If the EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency has the authority to implement and enforce this subpart. You should contact your EPA Regional Office to find out if this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under section 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the EPA Administrator and not transferred to the State, local, or tribal agency.

(c) Authority which will not be delegated to States, local, or tribal agencies:

(1) Approval of alternatives to the emission limitations in § 63.5120;

(2) Approval of major alternatives to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.5160;

(3) Approval of major alternatives to monitoring under § 63.8(f) and as defined in § 63.5150; and

(4) Approval of major alternatives to recordkeeping and reporting under § 63.10(f) and as defined in §§ 63.5180 and 63.5190.

§§ 63.5201—63.5209 [Reserved]

TABLES TO SUBPART SSSS OF PART 63

If you are required to comply with operating limits by § 63.5121, you must comply with the applicable operating limits in the following table:

TABLE 1 TO SUBPART SSSS OF PART 63—OPERATING LIMITS IF USING ADD-ON CONTROL DEVICES AND CAPTURE SYSTEM

For the following device . . .	You must meet the following operating limit . . .	And you must demonstrate continuous compliance with the operating limit by . . .
1. thermal oxidizer	a. the average combustion temperature in any 3-hour period must not fall below the combustion temperature limit established according to § 63.5160(d)(3)(i).	i. collecting the combustion temperature data according to § 63.5150(a)(3); ii. reducing the data to 3-hour block averages; and iii. maintaining the 3-hour average combustion temperature at or above the temperature limit.
2. catalytic oxidizer	a. the average temperature measured just before the catalyst bed in any 3-hour period must not fall below the limit established according to § 63.5160(d)(3)(ii); and either	i. collecting the temperature data according to § 63.5150(a)(3); ii. reducing the data to 3-hour block averages; and iii. maintaining the 3-hour average temperature before the catalyst bed at or above the temperature limit.
	b. ensure that the average temperature difference across the catalyst bed in any 3-hour period does not fall below the temperature difference limit established according to § 63.5160(d)(3)(ii); or	i. collecting the temperature data according to § 63.5150(a)(3); ii. reducing the data to 3-hour block averages; and iii. maintaining the 3-hour average temperature difference at or above the temperature difference limit.
	c. develop and implement an inspection and maintenance plan according to § 63.5160(d)(3)(ii).	maintaining an up-to-date inspection and maintenance plan, records of annual catalyst activity checks, records of monthly inspections of the oxidizer system, and records of the annual internal inspections of the catalyst bed. If a problem is discovered during a monthly or annual inspection required by § 63.5160(d)(3)(ii), you must take corrective action as soon as practicable consistent with the manufacturer's recommendations.

For the following device . . .	You must meet the following operating limit . . .	And you must demonstrate continuous compliance with the operating limit by . . .
3. emission capture system	develop a monitoring plan that identifies operating parameter to be monitored and specifies operating limits according to §63.5150(a)(4).	conducting monitoring according to the plan §63.5150(a)(4).

You must comply with the applicable General Provisions requirements according to the following table:

TABLE 2 TO SUBPART SSSS OF PART 63—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART SSSS

General provisions reference	Applicable to subpart SSSS	Explanation
§63.1(a)(1)–(4)	Yes.	
§63.1(a)(5)	No	Reserved.
§63.1(a)(6)–(8)	Yes.	
§63.1(a)(9)	No	Reserved.
§63.1(a)(10)–(14)	Yes.	
§63.1(b)(1)	No	Subpart SSSS specifies applicability.
§63.1(b)(2)–(3)	Yes.	
§63.1(c)(1)	Yes.	
§63.1(c)(2)	Yes.	
§63.1(c)(3)	No	Reserved.
§63.1(c)(4)	Yes.	
§63.1(c)(5)	Yes.	
§63.1(d)	No	Reserved.
§63.1(e)	Yes.	
§63.2	Yes	Additional definitions in subpart SSSS.
§63.3(a)–(c)	Yes.	
§63.4(a)(1)–(3)	Yes.	
§63.4(a)(4)	No	Reserved.
§63.4(a)(5)	Yes.	
§63.4(b)–(c)	Yes.	
§63.5(a)(1)–(2)	Yes.	
§63.5(b)(1)	Yes.	
§63.5(b)(2)	No	Reserved.
§63.5(b)(3)–(6)	Yes.	
§63.5(c)	No	Reserved.
§63.5(d)	Yes	Only total HAP emissions in terms of tons per year are required for §63.5(d)(1)(ii)(H).
§63.5(e)	Yes.	
§63.5(f)	Yes.	
§63.6(a)	Yes.	
§63.6(b)(1)–(5)	Yes.	
§63.6(b)(6)	No	Reserved.
§63.6(b)(7)	Yes.	
§63.6(c)(1)–(2)	Yes.	
§63.6(c)(3)–(4)	No	Reserved.
§63.6(c)(5)	Yes.	
§63.6(d)	No	Reserved.
§63.6(e)	Yes	Provisions in §63.6(e)(3) pertaining to startups, shutdowns, malfunctions, and CEMS only apply if an add-on control system is used.
§63.6(f)	Yes.	
§63.6(g)	Yes.	
§63.6(h)	No	Subpart SSSS does not require continuous opacity monitoring systems (COMS).
§63.6(i)(1)–(14)	Yes.	
§63.6(i)(15)	No	Reserved.
§63.6(i)(16)	Yes.	
§63.6(j)	Yes.	
§63.7	Yes	With the exception of §63.7(a)(2)(vii) and (viii), which are reserved.
§63.8(a)(1)–(2)	Yes.	
§63.8(a)(3)	No	Reserved.
§63.8(a)(4)	Yes.	
§63.8(b)	Yes.	
§63.8(c)(1)–(3)	Yes	Provisions only apply if an add-on control system is used.

General provisions reference	Applicable to subpart SSSS	Explanation
§63.8(c)(4)	No.	
§63.8(c)(5)	No	Subpart SSSS does not require COMS.
§63.8(c)(6)	Yes	Provisions only apply if CEMS are used.
§63.8(c)(7)–(8)	Yes.	
§63.8(d)–(e)	Yes	Provisions only apply if CEMS are used.
§63.8(f)(1)–(5)	Yes.	
§63.8(f)(6)	No	Section 63.8(f)(6) provisions are not applicable because subpart SSSS does not require CEMS.
§63.8(g)(1)–(4)	Yes.	
§63.8(g)(5)	No.	
§63.9(a)	Yes.	
§63.9(b)(1)	Yes.	
§63.9(b)(2)	Yes	With the exception that §63.5180(b)(1) provides 2 years after the proposal date for submittal of the initial notification.
§63.9(b)(3)–(5)	Yes.	
§63.9(c)–(e)	Yes.	
§63.9(f)	No	Subpart SSSS does not require opacity and visible emissions observations.
§63.9(g)	No	Provisions for COMS are not applicable.
§63.9(h)(1)–(3)	Yes.	
§63.9(h)(4)	No	Reserved.
§63.9(h)(5)–(6)	Yes.	
§63.9(i)	Yes.	
§63.9(j)	Yes.	
§63.10(a)	Yes.	
§63.10(b)(1)–(3)	Yes	Provisions pertaining to startups, shutdowns, malfunctions, and maintenance of air pollution control equipment and to CEMS do not apply unless an add-on control system is used. Also, paragraphs (b)(2)(vi), (x), (xi), and (xiii) do not apply.
§63.10(c)(1)	No.	
§63.10(c)(2)–(4)	No	Reserved.
§63.10(c)(5)–(8)	No.	
§63.10(c)(9)	No	Reserved.
§63.10(c)(10)–(15)	No.	
§63.10(d)(1)–(2)	Yes.	
§63.10(d)(3)	No	Subpart SSSS does not require opacity and visible emissions observations.
§63.10(d)(4)–(5)	Yes.	
§63.10(e)	No.	
§63.10(f)	Yes.	
§63.11	Yes.	
§63.12	Yes.	
§63.13	Yes.	
§63.14	Yes	Subpart SSSS includes provisions for alternative ASTM and ASME test methods that are incorporated by reference.
§63.15	Yes.	

Subpart TTTT—National Emission Standards for Hazardous Air Pollutants for Leather Finishing Operations

SOURCE: 67 FR 9162, Feb. 27, 2002, unless otherwise noted.

WHAT THIS SUBPART COVERS

§63.5280 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants (NESHAP) for leather finishing operations. These standards limit HAP emissions from specified leather finishing operations. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission standards.

§63.5285 Am I subject to this subpart?

(a) You are subject to this subpart if you own or operate a leather finishing operation that is a major source of hazardous air pollutants (HAP) emissions or that is located at, or is part of, a major source of HAP emissions. A leather finishing operation is defined in §63.5460. In general, a leather finishing operation is a single process or group of processes used to adjust and improve the physical and aesthetic characteristics of the leather surface through multistage application of a coating comprised of dyes, pigments, film-forming materials, and performance modifiers dissolved or suspended in liquid carriers.

(b) You are a major source of HAP emissions if you own or operate a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year.

(c) You are not subject to this subpart if your source finishes leather solely for the purpose of research and development.

§ 63.5290 What parts of my facility does this subpart cover?

(a) This subpart applies to each new, reconstructed, or existing affected source at leather finishing operations.

(b) The affected source subject to this subpart is the collection of all equipment and activities used for the multistage application of finishing materials to adjust and improve the physical and aesthetic characteristics of the leather surface. This subpart applies to the leather finishing operations listed in paragraphs (b)(1) through (4) of this section and as defined in § 63.5460, whether or not the operations are collocated with leather tanning operations:

(1) Upholstery leather with greater than or equal to 4 grams finish add-on per square foot of leather;

(2) Upholstery leather with less than 4 grams finish add-on per square foot of leather;

(3) Water-resistant/specialty leather; and

(4) Nonwater-resistant leather.

(c) An affected source does not include portions of your leather finishing operation that are listed in paragraphs (c)(1) and (2) of this section:

(1) Equipment used solely with leather tanning operations; and

(2) That portion of your leather finishing operation using a solvent degreasing process, such as in the manufacture of leather chamois, that is already subject to the Halogenated Solvent Cleaning NESHAP (40 CFR part 63, subpart T).

(d) An affected source is a new affected source if you commenced construction of the affected source on or after October 2, 2000, and you meet the applicability criteria at the time you commenced construction.

(e) An affected source is reconstructed if you meet the criteria as defined in § 63.2.

(f) An affected source is existing if it is not new or reconstructed.

§ 63.5295 When do I have to comply with this subpart?

(a) If you have a new or reconstructed affected source, you must comply with this subpart according to paragraphs (a)(1) and (2) of this section:

(1) If you startup your affected source before February 27, 2002, then you must comply with the emission standards for new and reconstructed sources in this subpart no later than February 27, 2002.

(2) If you startup your affected source after February 27, 2002, then you must comply with the emission standards for new and reconstructed sources in this subpart upon startup of your affected source.

(b) If you have an existing affected source, you must comply with the emission standards for existing sources no later than February 28, 2005.

(c) If you have an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP and an affected source subject to this subpart, paragraphs (c)(1) and (2) of this section apply.

(1) An area source that meets the criteria of a new affected source, as specified at § 63.5290(d), or a reconstructed affected source, as specified at § 63.5290(e), must be in compliance with this subpart upon becoming a major source.

(2) An area source that meets the criteria of an existing affected source, as specified at § 63.5290(f), must be in compliance with this subpart no later than 3 years after it becomes a major source.

(d) You must meet the notification requirements in § 63.5415 and in subpart A of this part. Some of the notifications must be submitted before you are required to comply with the emission standards in this subpart.

STANDARDS

§63.5305 What emission standards must I meet?

The emission standards limit the number of pounds of HAP lost per square foot of leather processed. You must meet each emission limit in Table 1 of this subpart that applies to you.

COMPLIANCE REQUIREMENTS

§63.5320 How does my affected major source comply with the HAP emission standards?

(a) All affected sources must be in compliance with the requirements of this subpart at all times, including periods of startup, shutdown, and malfunction.

(b) You must always operate and maintain your affected source, including air pollution control and monitoring equipment, according to the provisions in §63.6(e)(1)(i).

(c) You must perform all of the items listed in paragraphs (c)(1) through (10) of this section:

(1) Submit the necessary notifications in accordance with §63.5415.

(2) Develop and implement a plan for demonstrating compliance in accordance with §63.5325.

(3) Submit the necessary reports in accordance with §63.5420.

(4) Keep a finish inventory log, as specified at §63.5335(b), to record monthly the pounds of each type of finish applied for each leather product process operation and the mass fraction of HAP in each applied finish. You may be required to start recordkeeping prior to the compliance dates specified at §63.5295.

(5) Keep an inventory log, as specified at §63.5430(f), to record monthly the surface area of leather processed in 1,000's of square feet for each product process operation. You may be required to start recordkeeping prior to the compliance dates specified at §63.5295.

(6) Determine the actual HAP loss from your affected source in accordance with §63.5335.

(7) Determine the allowable HAP loss for your affected source in accordance with §63.5340.

(8) Determine the compliance ratio for your affected source each month as specified at §63.5330. The compliance ratio compares your actual HAP loss to your allowable HAP loss for the previous 12 months.

(9) Maintain the compliance ratio for your affected source at or below 1.00 in accordance with §63.5330.

(10) Maintain all the necessary records you have used to demonstrate compliance with this subpart in accordance with §63.5430.

§63.5325 What is a plan for demonstrating compliance and when must I have one in place?

(a) You must develop and implement a written plan for demonstrating compliance that provides the detailed procedures you will follow to monitor and record data necessary for demonstrating compliance with this subpart. Procedures followed for quantifying HAP loss from the source and amount of leather processed vary from source to source because of site-specific factors such as equipment design characteristics and operating conditions. Typical procedures include one or more accurate measurement methods such as weigh scales and volumetric displacement. Because the industry does not have a uniform set of procedures, you must develop and implement your own site-specific plan for demonstrating compliance not later than the compliance date for your source. You must also incorporate the plan for demonstrating compliance by reference in the source's title V permit. The plan for demonstrating compliance must include the items listed in paragraphs (a)(1) through (7) of this section:

(1) The name and address of the owner or operator.

(2) The physical address of the leather finishing operation.

(3) Provide a detailed description of all methods of measurement your source will use to determine your finish usage, HAP content of each finish, quantity of leather processed, and leather product process operation type.

(4) Specify when each measurement will be made.

(5) Provide examples of each calculation you will use to determine your compliance status. Include examples of how you will convert data measured

with one parameter to other terms for use in compliance determination.

(6) Provide example logs of how data will be recorded.

(7) Provide a quality assurance/quality control plan to ensure that the data continue to meet compliance demonstration needs.

(b) You may be required to revise your plan for demonstrating compliance. We may require reasonable revisions if the procedures lack detail, are inconsistent, or do not accurately determine finish usage, HAP content of each finish, quantity of leather processed, or leather product process operation type.

§ 63.5330 How do I determine the compliance ratio?

(a) When your source has processed leather for 12 months, you must determine the compliance ratio for your affected source by the fifteenth of each month for the previous 12 months.

(b) You must determine the compliance ratio using Equation 1 of this section as follows:

$$\text{Compliance Ratio} = \frac{\text{Actual HAP Loss}}{\text{Allowable HAP Loss}} \qquad \text{(Eq. 1)}$$

Where:

Actual HAP Loss = Pounds of actual HAP loss for the previous 12 months, as determined in § 63.5335.

Allowable HAP Loss = Pounds of allowable HAP loss for the previous 12 months, as determined in § 63.5340.

(1) If the value of the compliance ratio is less than or equal to 1.00, your affected source was in compliance with the applicable HAP emission limits of this subpart for the previous month.

(2) If the value of the compliance ratio is greater than 1.00, your affected source was deviating from compliance with the applicable HAP emission limits of this subpart for the previous month.

§ 63.5335 How do I determine the actual HAP loss?

(a) This section describes the information and procedures you must use to determine the actual HAP loss from your leather finishing operation. By the fifteenth of each month, you must determine the actual HAP loss in pounds from your leather finishing operation for the previous month.

(b) Use a finish inventory log to record the pounds of each type of finish applied for each leather product process operation and the mass fraction of HAP in each applied finish. Figure 1 of this subpart shows an example log for recording the minimum information necessary to determine your finish usage and HAP loss. The finish inventory log must contain, at a minimum, the information for each type of finish applied listed in paragraphs (b)(1) through (7) of this section:

(1) Finish type.

(2) Pounds (or density and volume) of each finish applied to the leather.

(3) Mass fraction of HAP in each applied finish.

(4) Date of the recorded entry.

(5) Time of the recorded entry.

(6) Name of the person recording the entry.

(7) Product process operation type.

(c) To determine the pounds of HAP loss for the previous month, you must first determine the pounds of HAP loss from each finish application according to paragraph (c)(1) or (2) of this section.

(1) For facilities not using add-on emission control devices, the entire HAP content of the finishes are assumed to be released to the environment. Using the finish inventory log, multiply the pounds of each recorded finish usage by the corresponding mass fraction of HAP in the finish. The result is the HAP loss in pounds from each finish application. Sum the pounds of HAP loss from all finish applications recorded during the previous month to determine the total monthly

HAP loss in pounds from your finishing operation.

(2) For facilities using add-on emission control devices, the finish inventory log and the emission reduction efficiency of the add-on capture and control devices can be used to determine the net HAP loss in pounds. The emission reduction efficiency for a control device must be determined from a performance test conducted in accordance with §§63.5375 and 63.5380. Using the finish inventory log, multiply the pounds of each recorded finish usage by the corresponding mass fraction of HAP in the finish. The result is the gross HAP loss in pounds from each finish application prior to the add-on control device. Multiply the gross HAP loss by the percent emission reduction achieved by the add-on control device and then subtract this amount from the gross HAP loss. The result is the net HAP loss in pounds from each finish application. Sum the pounds of net HAP loss from all finish applications recorded during the previous month to determine the total monthly net HAP loss in pounds from your finishing operation.

(d) After collecting HAP loss data for 12 months, you must also determine by the fifteenth of each month the annual HAP loss in pounds by summing the monthly HAP losses for the previous 12 months. The annual HAP loss is the ‘‘actual HAP loss,’’ which is used in Equation 1 of §63.5330 to calculate your compliance ratio, as described in §63.5330.

§63.5340 How do I determine the allowable HAP loss?

(a) By the fifteenth of each month, you must determine the allowable HAP loss in pounds from your leather finishing operation for the previous month.

(b) To determine the allowable HAP loss for your leather finishing operation, you must select the appropriate HAP emission limit, expressed in pounds of HAP loss per 1,000 square feet of leather processed, from Table 1 of this subpart, for each type of leather product process operation performed during the previous 12 months. Under the appropriate existing or new source column, select the HAP emission limit that corresponds to each type of product process operation performed during the previous 12 months. Next, determine the annual total of leather processed in 1,000’s of square feet for each product process operation in accordance with §63.5400. Then, multiply the annual total of leather processed in each product process operation by the corresponding HAP emission limit to determine the allowable HAP loss in pounds for the corresponding leather product process operation. Finally, sum the pounds of HAP loss from all leather product process operations performed in the previous 12 months. Equation 1 of this section illustrates the calculation of allowable HAP loss as follows:

$$\begin{matrix}\text{Allowable}\\ \text{HAP Loss}\end{matrix} = \sum_{i=1}^{n} \left(\begin{matrix}\text{Annual Total}\\ \text{of Leather}\\ \text{Processed}_i\end{matrix} * \begin{matrix}\text{HAP}\\ \text{Emission}\\ \text{Limit}_i\end{matrix} \right) \qquad \text{(Eq. 1)}$$

Where:

Annual Total of Leather Processed = 1,000’s of square feet of leather processed in the previous 12 months in product process operation ‘‘i’’.

HAP Emission Limit = From Table 1 of this subpart, the HAP emission limit in pounds of HAP loss per 1,000 square feet of leather processed for product process operation ‘‘i’’.

n = Number of leather product process operation types performed during the previous 12 months.

(c) The resulting ‘‘allowable HAP loss’’ is used in Equation 1 of §63.5330 to calculate your compliance ratio, as described in §63.5330.

§ 63.5345 How do I distinguish between the two upholstery product process operations?

(a) Product process operations that finish leather for use in automobile and furniture seat coverings are categorized as an upholstery product process operation. There are two upholstery product process operations subject to the requirements of this subpart—operations with less than 4 grams of finish add-on per square foot, and operations with 4 grams or more of finish add-on per square foot. You must distinguish between the two upholstery product process operations so that you can determine which HAP emission limit in Table 1 of this subpart applies to your affected source.

(b) You must determine finish add-on by calculating the difference in mass before and after the finishing process. You may use an empirical method to determine the amount of finish add-on applied during the finishing process, as described in paragraphs (b)(1) through (4) of this section:

(1) Weigh a one square foot representative section of polyester film, paper, cardstock, or equivalent material substrate to be finished. This will provide an initial mass and surface area prior to starting the finishing process.

(2) Use a scale with an accuracy of at least 5 percent of the mass in grams of the representative section of substrate.

(3) Upon completion of these measurements, process the representative section of substrate on the finishing line as you would for a typical section of leather.

(4) After the finishing and drying process, weigh the representative section of substrate to determine the final mass. Divide the net mass in grams gained on the representative section by its surface area in square feet to determine grams per square foot of finish add-on. Equation 1 of this section illustrates this calculation, as follows:

$$\begin{matrix}\text{Finish}\\ \text{Add-On}\end{matrix} = \frac{\left(\begin{matrix}\text{Final}\\ \text{Mass}\end{matrix} - \begin{matrix}\text{Initial}\\ \text{Mass}\end{matrix}\right)}{(\text{Surface Area})} \qquad \text{(Eq. 1)}$$

Where:

Finish Add-On = Grams per square foot of finish add-on applied to a representative section of polyester film or equivalent material substrate.

Final Mass = Final mass in grams of representative section of polyester film or equivalent material substrate, after finishing and drying.

Initial Mass = Initial mass in grams of representative section of polyester film or equivalent material substrate, prior to finishing.

Surface Area = Surface area in square feet of a representative section of polyester film or equivalent material substrate.

(c) Any appropriate engineering units may be used for determining the finish add-on. However, finish add-on results must be converted to the units of grams of finish add-on per square foot of leather processed. If multiple representative leather sections are analyzed, then use the average of these measurements for selecting the appropriate product process operation.

§ 63.5350 How do I distinguish between the water-resistant/specialty and nonwater-resistant leather product process operations?

(a) Product process operations that finish leather for nonupholstery use are categorized as either water-resistant/specialty or nonwater-resistant product process operations. You must distinguish between the water-resistant/specialty and nonwater-resistant product process operations so that you can determine which HAP emission limit in Table 1 of this subpart applies to your affected source. Water-resistant and nonwater-resistant product process operations for nonupholstery use can be distinguished using the methods described in paragraph (b) of this section. Specialty leather product process operations for nonupholstery use can be distinguished using the criteria described in paragraph (c) of this section.

(b) To determine whether your product process operation produces water-resistant or nonwater-resistant leather, you must conduct the Maeser Flexes test method according to American Society for Testing and Materials (ASTM) Designation D2099–00 (incorporated by reference-see § 63.14) or a method approved by the Administrator.

(1) Statistical analysis of initial water penetration data performed to support ASTM Designation D2099–00 indicates that poor quantitative precision is associated with this testing method. Therefore, at a minimum, 36 leather substrate samples (*i.e.,* three sections of leather substrate from at least 12 sides of leather), must be tested to determine the water-resistant characteristics of the leather. You must average the results of these tests to determine the final number of Maeser Flexes prior to initial water penetration.

(2) Results from leather samples indicating an average of 5,000 Maeser Flexes or more is considered a water-resistant product process operation, and results indicating less than 5,000 Maeser Flexes is considered a nonwater-resistant product process operation. However, leather samples resulting in less than 5,000 Maeser Flexes may be categorized as specialty leather in paragraph (c) of this section.

(c) To determine whether your product process operation produces specialty leather, you must meet the criteria in paragraphs (c)(1) and (2) of this section:

(1) The leather must be a select grade of chrome tanned, bark retanned, or fat liquored leather.

(2) The leather must be retanned through the application of greases, waxes, and oils in quantities greater than 25 percent of the dry leather weight. Specialty leather is also finished with higher solvent-based finishes that provide rich color, luster, or an oily/tacky feel. Specialty leather products may include, but not limited to, specialty shoe leather and top grade football leathers.

§ 63.5355 How do I monitor and collect data to demonstrate continuous compliance?

(a) You must monitor and collect data according to this section.

(b) You must collect data at all required intervals as specified in your plan for demonstrating compliance as specified at § 63.5325.

(c) For emission control devices, except for monitor malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), you must monitor continuously (or collect data at all required intervals) at all times that the affected source is operating.

(d) You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels, nor may such data be used in fulfilling a minimum data availability requirement, if applicable. You must use all the data collected during all other periods in assessing the compliance ratio, and, if an emission control device is used, in assessing the operation of the control device.

§ 63.5360 How do I demonstrate continuous compliance with the emission standards?

(a) You must demonstrate continuous compliance with the emission standards in § 63.5305 by following the requirements in paragraphs (a)(1) and (2) of this section:

(1) You must collect and monitor data according to the procedures in your plan for demonstrating compliance as specified in § 63.5325.

(2) If you use an emission control device, you must collect the monitoring data according to 40 CFR part 63, subpart SS.

(3) You must maintain your compliance ratio less than or equal to 1.00, as specified at § 63.5330.

(b) You must report each instance in which you did not meet the emission standards in § 63.5305. This includes periods of startup, shutdown, and malfunction. These deviations must be reported according to the requirements in § 63.5420(b).

(c) You must conduct the initial compliance demonstration before the compliance date that is specified for your source in § 63.5295.

TESTING AND INITIAL COMPLIANCE REQUIREMENTS

§ 63.5375 When must I conduct a performance test or initial compliance demonstration?

You must conduct performance tests after the installation of any emission control device that reduces HAP emissions and can be used to comply with the HAP emission requirements of this subpart. You must complete your performance tests not later than 60 calendar days before the end of the 12-month period used in the initial compliance determination.

§ 63.5380 How do I conduct performance tests?

(a) Each performance test must be conducted according to the requirements in § 63.7(e) and the procedures of § 63.997(e)(1) and (2).

(b) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in § 63.7(e)(1).

(c) You must conduct three separate test runs for each performance test required in this section, as specified in § 63.7(e)(3). Each test run must last at least 1 hour.

§ 63.5385 How do I measure the quantity of finish applied to the leather?

(a) To determine the amount of finish applied to the leather, you must measure the mass, or density, and volume of each applied finish.

(b) Determine the mass of each applied finish with a scale calibrated to an accuracy of at least 5 percent of the amount measured. The quantity of all finishes used for finishing operations must be weighed or have a predetermined weight.

(c) Determine the density and volume of each applied finish according to the criteria listed in paragraphs (c)(1) through (3) of this section:

(1) Determine the density of each applied finish in pounds per gallon in accordance with § 63.5395. The finish density will be used to convert applied finish volumes from gallons into mass units of pounds.

(2) Volume measurements of each applied finish can be obtained with a flow measurement device. For each flow measurement device, you must perform the items listed in paragraphs (c)(2)(i) through (v) of this section:

(i) Locate the flow sensor and other necessary equipment such as straightening vanes in or as close to a position that provides a representative flow.

(ii) Use a flow sensor with a minimum tolerance of 2 percent of the flow rate.

(iii) Reduce swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.

(iv) Conduct a flow sensor calibration check at least semiannually.

(v) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(3) Volume measurements of each applied finish can be obtained with a calibrated volumetric container with an accuracy of at least 5 percent of the amount measured.

§ 63.5390 How do I measure the HAP content of a finish?

(a) To determine the HAP content of a finish, the reference method is EPA Method 311 of appendix A of 40 CFR part 63. You may use EPA Method 311, an alternative method approved by the Administrator, or any other reasonable means for determining the HAP content. Other reasonable means of determining HAP content include, but are not limited to, a material safety data sheet (MSDS) or a manufacturer's hazardous air pollutant data sheet. If the HAP content is provided on a MSDS or a manufacturer's data sheet as a range of values, then the highest HAP value of the range must be used for the determination of compliance to this standard. This value must be entered on the finish log for each type of finish applied. You are not required to test the materials that you use, but the Administrator may require a test using EPA

Method 311 (or another approved method) to confirm the reported HAP content. However, if the results of an analysis by EPA Method 311 are different from the HAP content determined by another means, the EPA Method 311 results will govern compliance determinations.

(b) You may use the weighted average of the HAP content analysis as determined in paragraph (a) of this section for each finish when you perform one of the actions listed in paragraphs (b)(1) and (2) of this section:

(1) Mix your own finishes on site.

(2) Mix new quantities of finish with previous quantities of finish that may have a different HAP content.

§63.5395 How do I measure the density of a finish?

(a) To determine the density of a finish, the reference method is EPA Method 24 of appendix A of 40 CFR part 60. You may use EPA Method 24, an alternative method approved by the Administrator, or any other reasonable means for determining the density of a finish. Other reasonable means of determining density include, but are not limited to, an MSDS or a manufacturer's hazardous air pollutant data sheet. If the density is provided on a MSDS or a manufacturer's data sheet as a range of values, then the highest density value of the range must be used for the determination of compliance to this standard. This value must be entered on the finish log for each type of finish applied. You are not required to test the materials that you use, but the Administrator may require a test using EPA Method 24 (or another approved method) to confirm the reported density. However, if the results of an analysis by EPA Method 24 are different from the density determined by another means, the EPA Method 24 results will govern compliance determinations.

(b) You may use the weighted average of finish densities as determined in paragraph (a) of this section for each finish when you perform one of the actions listed in paragraphs (b)(1) and (2) of this section:

(1) Mix your own finishes on site.

(2) Mix new quantities of finish with previous quantities of finish that may have different densities.

(c) Equation 1 of this section may be used to determine the weighted average of finish densities, as follows:

$$\begin{matrix}\text{Average}\\\text{Weighted}\\\text{Density}\end{matrix} = \frac{\sum_{i=1}^{n} \text{Mass}_i * \text{Density}_i}{\sum_{i=1}^{n} \text{Mass}_i} \qquad (\text{Eq. } 1)$$

Where:

Average Weighted Density = The average weighted density of applied finishes in pounds per gallon.

Mass = Pounds of finish ''i'' applied.

Density = The density of finish ''i'' in pounds per gallon.

n = Number of finish types applied.

§63.5400 How do I measure the quantity of leather processed?

(a) This section describes the information and procedures you must use to determine the quantity of leather processed at your affected source.

(1) To determine the surface area (i.e., quantity) of leather substrate processed each month at your source for each product process operation, follow the procedures in your plan for demonstrating compliance. You must consistently measure the surface area of processed leather substrate at one of the manufacturing locations listed in paragraph (a)(1)(i) or (ii) of this section:

(i) Measure the surface area of processed leather upon exiting the leather finishing operation.

(ii) Measure the surface area of processed leather upon shipment from the source.

(2) By the fifteenth of each month, you must determine the quantity of leather processed in 1,000's of square feet for each product process operation during the previous month. After collecting data on the amount of leather processed for 12 months, you must also determine by the fifteenth of each month the annual total of leather processed in 1,000's of square feet for each product process operation by summing the monthly quantities of leather processed in each product process operation for the previous 12 months. The ''annual total of leather processed'' in each product process operation is used in Equation 1 of § 63.5340 to calculate your allowable HAP loss as described in § 63.5340. Your allowable HAP loss is then subsequently used to calculate your compliance ratio as described in § 63.5330.

(b) To determine the surface area of leather processed at your source for each product process operation, you must use one of the methods listed in paragraphs (b)(1) and (2) of this section:

(1) Premeasured leather substrate sections being supplied by another manufacturer as an input to your finishing process.

(2) Measure the surface area of each piece of processed or shipped leather with a computer scanning system accurate to 0.1 square feet. The computer scanning system must be initially calibrated for minimum accuracy to the manufacturer's specifications. For similar leather production runs, use an average based on a minimum of 500 pieces of leather in lieu of individual measurements.

(c) Except as provided in paragraph (d) of this section, you must include the surface area of each piece of processed leather only once when determining the monthly quantity of leather processed, regardless of the number of times a piece of leather is reprocessed through a portion of the finishing operations.

(d) If a piece of leather is completely stripped of all applied finishes and reprocessed through the entire finishing operation as if it were a new piece of leather, you may recount the surface area of leather reprocessed when determining the monthly quantity of leather processed.

NOTIFICATIONS, REPORTS, AND RECORDS

§ 63.5415 What notifications must I submit and when?

(a) In accordance with §§ 63.7(b) and (c) and 63.9(b) and (h) of the General Provisions, you must submit the one-time notifications listed in paragraphs (b) through (g) of this section.

(b) As specified in § 63.9(b)(2), if you start up your affected source before February 27, 2002, you must submit an Initial Notification not later than June 27, 2002.

(c) In the Initial Notification, include the items in paragraphs (c)(1) through (4) of this section:

(1) The name and address of the owner or operator.

(2) The physical address of the leather finishing operation.

(3) Identification of the relevant standard, such as the Leather Finishing Operations NESHAP, and compliance date.

(4) A brief description of the source including the types of leather product process operations and nominal operating capacity.

(d) As specified in § 63.9(b)(1) and (2), if you startup your new or reconstructed affected source on or after February 27, 2002, you must submit an Initial Notification not later than 120 calendar days after you become subject to this subpart.

(e) If you are required to conduct a performance test, you must submit a Notification of Intent to Conduct a Performance Test at least 60 calendar days before the performance test is scheduled to begin as required in § 63.7(b)(1).

(f) You must submit a Notification of Compliance Status report not later than 60 calendar days after determining your initial 12-month compliance ratio. The notification of compliance status must contain the items in paragraphs (f)(1) through (5) of this section:

(1) The name and address of the owner or operator.

(2) The physical address of the leather finishing operation.

(3) Each type of leather product process operation performed during the previous 12 months.

(4) Each HAP identified under §63.5390 in finishes applied during the 12-month period used for the initial compliance determination.

(5) A compliance status certification indicating whether the source complied with all of the requirements of this subpart throughout the 12-month period used for the initial source compliance determination. This certification must include the items in paragraphs (f)(5)(i) through (iii) of this section:

(i) The plan for demonstrating compliance, as described in §63.5325, is complete and available on site for inspection.

(ii) You are following the procedures described in the plan for demonstrating compliance.

(iii) The compliance ratio value was determined to be less than or equal to 1.00, or the value was determined to be greater than 1.00.

(g) If your source becomes a major source on or after February 27, 2002, you must submit an initial notification not later than 120 days after you become subject to this subpart.

§63.5420 What reports must I submit and when?

(a) You must submit the first annual compliance status certification 12 months after you submit the Notification of Compliance Status. Each subsequent annual compliance status certification is due 12 months after the previous annual compliance status certification. The annual compliance status certification provides the compliance status for each month during the 12-month period ending 60 days prior to the date on which the report is due. Include the information in paragraphs (a)(1) through (5) of this section in the annual certification:

(1) The name and address of the owner or operator.

(2) The physical address of the leather finishing operation.

(3) Each type of leather product process operation performed during the 12-month period covered by the report.

(4) Each HAP identified under §63.5390, in finishes applied during the 12-month period covered by the report.

(5) A compliance status certification indicating whether the source complied with all of the requirements of this subpart throughout the 12-month period covered by the report. This certification must include the items in paragraphs (a)(5)(i) and (ii) of this section:

(i) You are following the procedures described in the plan for demonstrating compliance.

(ii) The compliance ratio value was determined to be less than or equal to 1.00, or the value was determined to be greater than 1.00.

(b) You must submit a Deviation Notification Report for each compliance determination you make in which the compliance ratio exceeds 1.00, as determined under §63.5330. Submit the deviation report by the fifteenth of the following month in which you determined the deviation from the compliance ratio. The Deviation Notification Report must include the items in paragraphs (b)(1) through (4) of this section:

(1) The name and address of the owner or operator.

(2) The physical address of the leather finishing operation.

(3) Each type of leather product process operation performed during the 12-month period covered by the report.

(4) The compliance ratio comprising the deviation. You may reduce the frequency of submittal of the Deviation Notification Report if the responsible agency of these NESHAP does not object.

§63.5425 When must I start recordkeeping to determine my compliance ratio?

(a) If you have a new or reconstructed affected source, you must start recordkeeping to determine your compliance ratio according to one of the schedules listed in paragraphs (a)(1) and (2) of this section:

(1) If the startup of your new or reconstructed affected source is before February 27, 2002, then you must start recordkeeping to determine your compliance ratio no later than February 27, 2002.

(2) If the startup of your new or reconstructed affected source is after February 27, 2002, then you must start

recordkeeping to determine your compliance ratio upon startup of your affected source.

(b) If you have an existing affected source, you must start recordkeeping to determine your compliance ratio no later than February 27, 2004.

(c) If you have a source that becomes a major source of HAP emissions after February 27, 2002, then you must start recordkeeping to determine your compliance ratio immediately upon submitting your Initial Notification, as required at § 63.5415(g).

§ 63.5430 What records must I keep?

You must satisfy the recordkeeping requirements in paragraphs (a) through (g) of this section by the compliance date specified in § 63.5295.

(a) You must keep the plan for demonstrating compliance as required at § 63.5325 onsite and readily available as long as the source is operational. If you make any changes to the plan for demonstrating compliance, then you must keep all previous versions of the plan and make them readily available for inspection for at least 5 years after each revision.

(b) You must keep a copy of each notification and report that you are required to submit in accordance with this subpart.

(c) You must keep records of performance tests in accordance with this subpart.

(d) You must record and maintain a continuous log of finish usage as specified at § 63.5335(b).

(e) You must maintain all necessary records to document the methods you used and the results of all HAP content measurements of each applied finish.

(f) For each leather product process operation, you must maintain a monthly log of the items listed in paragraphs (f)(1) and (2) of this section:

(1) Dates for each leather product process operation.

(2) Total surface area of leather processed for each leather product process operation.

(g) If you use an emission control device, you must keep records of monitoring data as specified at subpart SS of this part.

§ 63.5435 In what form and how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review according to § 63.10(b)(1).

(b) As specified in § 63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record onsite for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record according to § 63.10(b)(1). You can keep the records offsite for the remaining 3 years.

OTHER REQUIREMENTS AND INFORMATION

§ 63.5450 What parts of the General Provisions apply to me?

Table 2 of this subpart shows which parts of the General Provisions in §§ 63.1 through 63.15 apply to you.

§ 63.5455 Who administers this subpart?

(a) This subpart can be administered by us, the United States Environmental Protection Agency (U.S. EPA), or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency has the primary authority to administer and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if the authority to implement and enforce this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under subpart E of this part, the authorities contained in paragraph (c) of this section are retained by the Administrator of U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are listed in paragraphs (c)(1) through (4) of this section:

(1) Approval of alternatives to the emission standards in § 63.5305 under § 63.6(g).

(2) Approval of major alternatives to test methods under §63.7(e)(2)(ii) and (f) and as defined in §63.90.

(3) Approval of major alternatives to monitoring under §63.8(f) and as defined in §63.90.

(4) Approval of major alternatives to recordkeeping and reporting under §63.10(f) and as defined in §63.90.

§63.5460 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act, §63.2, and in this section as follows:

Area source means any stationary source of hazardous air pollutants that is not a major source as defined in this part.

Compliance ratio means the ratio of the actual HAP loss from the previous 12 months to the allowable HAP loss from the previous 12 months. Equation 1 in §63.5330 is used to calculate this value. If the value is less than or equal to 1.00, the source is in compliance. If the value is greater than 1.00, the source is deviating from compliance.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including but not limited to any emission limits or work practice standards.

(2) Fails to meet any emission limits, operating limits, or work practice standards in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Drying means the process of removing all but equilibrium moisture from the leather. Drying methods currently in use include: toggling, hanging, pasting, and vacuum drying.

Finish add-on means the amount of solid material deposited on the leather substrate due to finishing operations. Typically, the solid deposition is a dye or other chemical used to enhance the color and performance of the leather. Finish add-on is quantified as mass per surface area of substrate, such as grams of finish add-on per square foot of leather substrate.

Hazardous air pollutants (HAP) means any substance or mixture of substances listed as a hazardous air pollutant under section 112(b) of the Clean Air Act.

Leather means the pelt or hide of an animal which has been transformed by a tanning process into a nonputrescible and useful material.

Leather finishing means a single process or group of processes used to adjust and improve the physical and aesthetic characteristics of the leather surface through the multistage application of a coating comprised of dyes, pigments, film-forming materials, and performance modifiers dissolved or suspended in liquid carriers.

Leather substrate means a nonputrescible leather surface intended for the application of finishing chemicals and materials. The leather substrate may be a continuous piece of material such as side leather or may be a combination of smaller leather pieces and leather fibers, which when joined together, form a integral composite leather material.

Leather tanning means the processes, commonly referred to as wet operations, used to purify and stabilize the collagen content of the hide. Wet operations are divided into three phases, the beamhouse (includes soaking and unhairing); the tanyard (includes bating, pickling, tanning, trimming/siding, and splitting); and the coloring department (includes retanning, coloring, and atliquoring operations).

Month means that all references to a month in this subpart refer to a calendar month.

Nonwater-resistant leather means nonupholstery leather that is not treated with any type of waterproof finish and, thus, cannot withstand 5,000 Maeser Flexes with a Maeser Flex Testing Machine or a method approved by the Administrator prior to initial water penetration. This leather is typically used for dress shoes, handbags, and garments.

Product process operation means any one of the four leather production classifications developed for ease of compliance with this subpart. The four leather product process operations are as follows: upholstery leather with greater than or equal to 4 grams finish add-on per square foot, upholstery leather with less than 4 grams finish add-on per square foot, water-resistant/ specialty leather, and nonwater-resistant leather.

Specialty leather means a select grade of chrome tanned, bark retanned, or fat liquored leather that is retanned through the application of greases, waxes, and oils in quantities greater than 25 percent of the dry leather weight. Specialty leather is also finished with higher solvent-based finishes that provide rich color, luster, or an oily/tacky feel. Specialty leather products are generally low volume, high-quality leather, such as specialty shoe leather and top grade football leathers.

Upholstery leather (greater than or equal to 4 grams finish add-on per square foot) means an upholstery leather with a final finish add-on to leather ratio of 4 or more grams of finish per square foot of leather. These types of finishes are used primarily for automobile seating covers. These finishes tend to be aqueous-based.

Upholstery leather (less than 4 grams finish add-on per square foot) means an upholstery leather with a final finish add-on to leather ratio of less than 4 grams of finish per square foot of leather. These types of finishes are typically used for furniture seating covers. The finishes tend to be solvent-based and leave a thinner, softer, and more natural leather texture.

Water-resistant leather means nonupholstery leather that has been treated with one or more waterproof finishes such that the leather can withstand 5,000 or more Maeser Flexes with a Maeser Flex Testing Machine or a method approved by the Administrator prior to initial water penetration. This leather is used for outerwear, boots and outdoor applications.

FIGURE 1 TO SUBPART TTTT OF PART 63—EXAMPLE LOGS FOR RECORDING LEATHER FINISH USE AND HAP CONTENT

Month:___________ Year:___________

FINISH INVENTORY LOG

Finish type	Finish usage (pounds)	HAP Content (mass fraction)	Date and time	Operator's name	Product process operation

MONTHLY SUMMARY OF FINISH USAGE

	Upholstery leather (≥4 grams)	Upholstery leather (<4 grams)	Water-resistant/ specialty leather	Nonwater-resistant leather
Number of Entries.				
Total Finish Usage (pounds).				

MONTHLY SUMMARY OF FINISH USAGE—Continued

	Upholstery leather (≥4 grams)	Upholstery leather (<4 grams)	Water-resistant/ specialty leather	Nonwater-resistant leather
Total HAP Usage (pounds).				

TABLES TO SUBPART TTTT OF PART 63

TABLE 1 TO SUBPART TTTT OF PART 63—LEATHER FINISHING HAP EMISSION LIMITS FOR DETERMINING THE ALLOWABLE HAP LOSS

As required in §§ 63.5305 and 63.5340(b), you must meet the appropriate emission limits in the following table:

Type of Leather Product Process Operation	HAP Emission Limit (pounds of HAP loss per 1,000 square feet of leather processed)	
	Existing sources	New sources
1. Upholstery Leather (≥4 grams add-on/square feet)	2.6	0.5
2. Upholstery Leather (<4 grams add-on/square feet)	6.8	2.5

As required in §§ 63.5305 and 63.5340(b), you must meet the appropriate emission limits in the following table:

Type of Leather Product Process Operation	HAP Emission Limit (pounds of HAP loss per 1,000 square feet of leather processed)	
	Existing sources	New sources
3. Water-resistant (≥5,000 Maeser Flexes)/Specialty Leather	5.6	4.9
4. Nonwater-resistant Leather (<5,000 Maeser Flexes)	3.7	2.1

TABLE 2 TO SUBPART TTTT OF PART 63—LEATHER FINISHING HAP EMISSION LIMITS FOR DETERMINING THE ALLOWABLE HAP LOSS

As required in § 63.5450, you must meet the appropriate NESHAP General Provision requirements in the following table:

General provisions citation	Subject of citation	Brief description of requirement	Applies to subpart	Explanation
§ 63.1	Applicability	Initial applicability determination; applicability after standard established; permit requirements; extensions, notifications.	Yes	
§ 63.2	Definitions	Definitions for Part 63 standards.	Yes	Except as specifically provided in this subpart.
§ 63.3	Units and abbreviations.	Units and abbreviations for Part 63 standards.	Yes	
§ 63.4	Prohibited activities and circumvention.	Prohibited activities; compliance date; circumvention, severability.	Yes	
§ 63.5	Construction/reconstruction.	Applicability; applications; approvals.	Yes	Except for paragraphs of § 63.5 as listed below.
§ 63.5(c)	[Reserved]			
§ 63.5(d)(1)(ii)(H)	Application for approval.	Type and quantity of HAP, operating parameters.	No	All sources emit HAP. Subpart TTTT does not require control from specific emission points.
§ 63.5(d)(1)(i)	[Reserved]			
§ 63.5(d)(1)(iii), (d)(2), (d)(3)(ii).		Application for approval	No	The requirements of the application for approval for new and reconstructed sources are described in § 63.5320(b). General provision requirements for identification of HAP emission points or estimates of actual emissions are not required. Descriptions of control and methods, and the estimated and actual control efficiency of such do not apply. Requirements for describing control equipment and the estimated and actual control efficiency of such equipment apply only to control equipment to which the subpart TTTT requirements for quantifying solvent destroyed by an add-on control device would be applicable.
§ 63.6	Applicability of general provisions.	Applicability of general provisions.	Yes	Except for paragraphs of § 63.6 as listed below.
§ 63.6(b)(1)–(3)	Compliance dates, new and reconstructed sources.		No	Section § 63.5283 specifies the compliance dates for new and reconstructed sources.
§ 63.6(b)(6)	[Reserved]			
§ 63.6(c)(3)–(4)	[Reserved]			
§ 63.6(d)	[Reserved]			
§ 63.6(e)	Operation and maintenance requirements.		Yes	Except for subordinate paragraphs of § 63.6(e) as listed below.
§ 63.6(e)(3)	Operation and maintenance requirements.	Startup, shutdown, and malfunction plan requirements.	No	Subpart TTTT does not have any startup, shutdown, and malfunction plan requirements.
§ 63.6(f)–(g)	Compliance with nonopacity emission standards except during SSM.	Comply with emission standards at all times except during SSM.	No	Subpart TTTT does not have nonopacity requirements.

As required in § 63.5450, you must meet the appropriate NESHAP General Provision requirements in the following table:

General provisions citation	Subject of citation	Brief description of requirement	Applies to subpart	Explanation
§ 63.6(h)	Opacity/visible emission (VE) standards.		No	Subpart TTTT has no opacity or visual emission standards.
§ 63.6(i)	Compliance extension.	Procedures and criteria for responsible agency to grant compliance extension.	Yes	
§ 63.6(j)	Presidential compliance exemption.	President may exempt source category from requirement to comply with subpart.	Yes	
§ 63.7	Performance testing requirements.	Schedule, conditions, notifications and procedures.	Yes	Except for paragraphs of § 63.7 as listed below. Subpart TTTT requires performance testing only if the source applies additional control that destroys solvent. § 63.5311 requires sources to follow the performance testing guidelines of the General Provisions if a control is added.
§ 63.7(a)(2) (i) and (iii).	Performance testing requirements.	Applicability and performance dates.	No	§ 63.5310(a) of subpart TTTT specifies the requirements of performance testing dates for new and existing sources.
§ 63.8	Monitoring requirements.		No	Subpart TTTT does not require monitoring other than as specified therein.
§ 63.9	Notification requirements.	Applicability and State delegation.	Yes	Except for paragraphs of § 63.9 as listed below.
§ 63.9(e)	Notification of performance test.	Notify responsible agency 60 days ahead.	Yes	Applies only if performance testing is performed.
§ 63.9(f)	Notification of VE/opacity observations.	Notify responsible agency 30 days ahead.	No	Subpart TTTT has no opacity or visual emission standards.
§ 63.9(g)	Additional notifications when using a continuous monitoring system (CMS).	Notification of performance evaluation; notification using COMS data; notification that exceeded criterion for relative accuracy.	No	Subpart TTTT has no CMS requirements.
§ 63.9(h)	Notification of compliance status.	Contents	No	§ 63.5320(d) specifies requirements for the notification of compliance status.
§ 63.10	Recordkeeping/reporting.	Schedule for reporting, record storage.	Yes	Except for paragraphs of § 63.10 as listed below.
§ 63.10(b)(2)	Recordkeeping	Record startup, shutdown, and malfunction events.	No	Subpart TTTT has no recordkeeping requirements for startup, shutdown, and malfunction events.
§ 63.10(c)	Recordkeeping	Additional CMS recordkeeping.	No	Subpart TTTT does not require CMS.
§ 63.10(d)(2)	Reporting	Reporting performance test results.	Yes	Applies only if performance testing is performed.
§ 63.10(d)(3)	Reporting	Reporting opacity or VE observations.	No	Subpart TTTT has no opacity or visible emission standards.
§ 63.10(d)(4)	Reporting	Progress reports	Yes	Applies if a condition of compliance extension.
§ 63.10(d)(5)	Reporting	Startup, shutdown, and malfunction reporting.	No	Subpart TTTT has no startup, shutdown, and malfunction reporting requirements.
§ 63.10(e)	Reporting	Additional CMS reports	No	Subpart TTTT does not require CMS.
§ 63.11	Control device requirements.	Requirements for flares	Yes	Applies only if your source uses a flare to control solvent emissions. Subpart TTTT does not require flares.
§ 63.12	State authority and delegations.	State authority to enforce standards.	Yes	
§ 63.13	State/regional addresses.	Addresses where reports, notifications, and requests are sent.	Yes	
§ 63.14	Incorporation by reference.	Test methods incorporated by reference.	Yes	
§ 63.15	Availability of information and confidentiality.	Public and confidential information.	Yes	

Subpart UUUU—National Emission Standards for Hazardous Air Pollutants for Cellulose Products Manufacturing

SOURCE: 67 FR 40055, June 11, 2002, unless otherwise noted.

WHAT THIS SUBPART COVERS

§ 63.5480 What is the purpose of this subpart?

This subpart establishes emission limits, operating limits, and work practice standards for hazardous air pollutants (HAP) emitted from cellulose products manufacturing operations. Carbon disulfide, carbonyl sulfide, ethylene oxide, methanol, methyl chloride, propylene oxide, and toluene are the HAP emitted in the greatest quantities from cellulose products manufacturing operations. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limits, operating limits, and work practice standards.

§ 63.5485 Am I subject to this subpart?

You are subject to this subpart if you own or operate a cellulose products manufacturing operation that is located at a major source of HAP emissions.

(a) Cellulose products manufacturing includes both the Miscellaneous Viscose Processes source category and the Cellulose Ethers Production source category. The Miscellaneous Viscose Processes source category includes all of the operations that use the viscose process. These operations include the cellulose food casing, rayon, cellulosic sponge, and cellophane operations, as defined in § 63.5610. The Cellulose Ethers Production source category includes all of the cellulose ether operations, as defined in § 63.5610, that use the cellulose ether process.

(b) A major source of HAP is any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit any single HAP at a rate of 9.1 megagrams per year (Mg/yr) (10 tons per year (tpy)) or more or any combination of HAP at a rate of 23 Mg/yr (25 tpy) or more.

(c) The provisions of this subpart do not apply to research and development facilities, as defined in section 112(b)(7) of the Clean Air Act (CAA), regardless of whether the facilities are located at the same plant site as an operation subject to the provisions of this subpart.

(d) For cellulose ether operations, the applicability provisions in paragraph (d)(1) or (2) of this section apply.

(1) The applicability provisions in §§ 63.100(a) through (f) and 63.160 apply if you are complying with the equipment leak provisions of subpart H of this part.

(2) The applicability provisions in § 63.1019 apply if you are complying with the equipment leak provisions in subpart UU of this part.

(e) For cellulose ether operations, the applicability provisions in §§ 63.100(a) through (f) and 63.110(a), (e) and (h) apply if you are complying with the wastewater provisions in subparts F and G of this part.

§ 63.5490 What parts of my plant does this subpart cover?

(a) This subpart applies to each new, reconstructed, or existing affected source for the Miscellaneous Viscose Processes and Cellulose Ethers Production source categories.

(b) The affected source for the Miscellaneous Viscose Processes source category is each cellulose food casing, rayon, cellulosic sponge, or cellophane operation, as defined in § 63.5610. The affected source for the Cellulose Ethers Production source category is each cellulose ether operation, as defined in § 63.5610.

(c) You must consider storage vessels to be part of your process unit, as defined in § 63.5610, under either of the conditions described in paragraphs (c)(1) and (2) of this section. Otherwise, you may assign your storage vessels according to paragraph (c)(3) or (4) of this section.

(1) The input to the storage vessel from your viscose process or cellulose ether process (either directly or through other storage vessels assigned to your process unit) is greater than or equal to the input from any other process.

(2) The output from the storage vessel to your viscose process or cellulose ether process (either directly or through other storage vessels assigned to your process unit) is greater than or equal to the output to any other process.

(3) If the greatest input to and/or output from a shared storage vessel is the same for two or more processes, including at least one viscose process or cellulose ether process, you may assign the storage vessel to any process unit that has the greatest input or output.

(4) If the use varies from year to year, then you must base the determination on the utilization that occurred during the year preceding June 11, 2002 or, if the storage vessel was not operating during that year, you must base the use on the expected use for the first 5-year period after startup. You must include this determination in the Notification of Compliance Status Report specified in Table 7 to this subpart.

(d) An affected source is a new affected source if you began construction of the affected source after August 28, 2000 and you meet the applicability criteria in § 63.5485 at the time you began construction.

(e) An affected source is reconstructed if you meet the criteria as defined in § 63.2.

(f) An affected source is existing if it is not new or reconstructed.

(g) For the purposes of this subpart, the definitions of new and existing affected source in paragraphs (d) through (f) of this section supersede the definitions of new and existing affected source in subparts F, G, H, U and UU of this part.

§ 63.5495 When do I have to comply with this subpart?

(a) If you have a new or reconstructed affected source, then you must comply with this subpart according to the requirements in paragraphs (a)(1) and (2) of this section.

(1) If you start up your affected source before June 11, 2002, then you must comply with the emission limits, operating limits, and work practice standards for new and reconstructed sources in this subpart no later than June 11, 2002.

(2) If you start up your affected source after June 11, 2002, then you must comply with the emission limits, operating limits, and work practice standards for new and reconstructed sources in this subpart upon startup of your affected source.

(b) If you have an existing affected source, then you must comply with this subpart according to the requirements in paragraphs (b)(1) and (2) of this section.

(1) Cellulose food casing, cellulosic sponge, cellophane, and cellulose ether operations must comply with the emission limits, operating limits, and work practice standards for existing sources in this subpart no later than June 13, 2005.

(2) Rayon operations must comply with this subpart according to the requirements in paragraphs (b)(2)(i) through (iii) of this section.

(i) Rayon operations must comply with the 35 percent reduction emission limit and associated operating limits and work practice standards for existing sources in this subpart no later than June 13, 2005.

(ii) Rayon operations must comply with the work practice standard for carbon disulfide unloading and storage operations for existing sources in this subpart no later than June 13, 2005.

(iii) Rayon operations must comply with the 40 percent reduction emission limit and associated operating limits and work practice standards for existing sources in this subpart no later than June 11, 2010.

(c) If you have an area source that increases its emissions or its potential to emit so that it becomes a major source of HAP and an affected source subject to this subpart, then the requirements in paragraphs (c)(1) and (2) of this section apply.

(1) An area source that meets the criteria of a new affected source, as specified in § 63.5490(d), or a reconstructed affected source, as specified in § 63.5490(e), must be in compliance with this subpart upon becoming a major source.

(2) An area source that meets the criteria of an existing affected source, as specified in § 63.5490(f), must be in compliance with this subpart no later than

3 years after it becomes a major source.

(d) You must meet the notification requirements in § 63.5575 and in subpart A of this part. Some of the notifications must be submitted before you are required to comply with the emission limits, operating limits, and work practice standards in this subpart.

(e) For the purposes of this subpart, the compliance dates in this section supersede the compliance dates in subparts F, G, H, U and UU of this part.

EMISSION LIMITS, OPERATING LIMITS, AND WORK PRACTICE STANDARDS

§ 63.5505 What emission limits, operating limits, and work practice standards must I meet?

(a) You must meet each emission limit and work practice standard in Table 1 to this subpart that applies to you.

(b) You must meet each operating limit in Table 2 to this subpart that applies to you.

(c) As provided in § 63.6(g), you may apply to EPA for permission to use an alternative to the work practice standards in this section.

(d) Opening of a safety device, as defined in § 63.5610, is allowed at any time that conditions require venting to avoid unsafe conditions.

(e) The emission limits in Table 1 to this subpart used to control emissions from storage vessels do not apply during periods of planned routine maintenance. Periods of planned routine maintenance of each control device, during which the control device does not meet the emission limit specified in Table 1 to this subpart, must not exceed 240 hours per year.

GENERAL COMPLIANCE REQUIREMENTS

§ 63.5515 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limits, operating limits, and work practice standards in this subpart at all times, except during periods of startup, shutdown, and malfunction.

(b) You must always operate and maintain your affected source, including air pollution control and monitoring equipment, according to the provisions in § 63.6(e)(1)(i).

(1) During the period between the compliance date specified for your affected source in § 63.5495 and the date upon which continuous monitoring systems (CMS) have been installed and validated and any applicable operating limits have been set, you must maintain a log detailing the operation and maintenance of the process and emissions control equipment.

(c) You must develop and implement a written startup, shutdown, and malfunction (SSM) plan according to the provisions in § 63.6(e)(3).

(d) After you treat a wastewater stream according to the provisions of subparts F and G of this part, it is no longer subject to this subpart.

(e) If you use a boiler or process heater to comply with an emission limit or work practice standard in Table 1 to this subpart, then the vent stream must be introduced into the flame zone of the boiler or process heater.

(f) You are not required to conduct a performance test when you use any of the units specified in paragraphs (f)(1) through (5) of this section to comply with the applicable emission limit or work practice standard in Table 1 to this subpart. You are also exempt from the continuous compliance, reporting, and recordkeeping requirements specified in Tables 5 through 9 to of this subpart for any of these units. This exemption applies to units used as control devices or wastewater treatment units.

(1) A boiler or process heater with a design heat input capacity of 44 megawatts or greater;

(2) A boiler or process heater into which the vent stream is introduced with the primary fuel or is used as the primary fuel;

(3) A boiler or process heater burning hazardous waste that meets the requirements in paragraph (f)(3)(i) or (ii) of this section.

(i) The boiler or process heater has been issued a final permit under 40 CFR part 270 and complies with the requirements of 40 CFR part 266, subpart H; or

(ii) The boiler or process heater has certified compliance with the interim status requirements of 40 CFR part 266, subpart H.

(4) A hazardous waste incinerator that has been issued a final permit under 40 CFR part 270 and that complies with the requirements of 40 CFR part 264, subpart O, or that has certified compliance with the interim status requirements of 40 CFR part 265, subpart O.

(5) A control device for which a performance test was conducted for determining compliance with a rule promulgated by EPA and the test was conducted using the same test methods specified in Table 4 to this subpart and either you have made no deliberate process changes since the test, or you can demonstrate that the results of the performance test with or without adjustments, reliably demonstrate compliance despite process changes.

(g) For purposes of meeting any of the emission limits in Table 1 to this subpart, you may use either a single control technique or any combination of control techniques, as defined in § 63.5610.

(h) You must be in compliance with the provisions of subpart A of this part, except as noted in Table 10 to this subpart.

TESTING AND INITIAL COMPLIANCE REQUIREMENTS

§ 63.5530 How do I demonstrate initial compliance with the emission limits and work practice standards?

(a) You must demonstrate initial compliance with each emission limit and work practice standard that applies to you according to Table 3 to this subpart. You must also install and operate the monitoring equipment according to the requirements in § 63.5545 that apply to you.

(b) You must establish each site-specific operating limit in Table 2 to this subpart that applies to you according to the requirements in § 63.5535 and Table 4 to this Subpart UUUU.

(c) You must submit the Notification of Compliance Status Report containing the results of the initial compliance demonstration according to the requirements in § 63.5575 and Table 7 to this Subpart UUUU.

§ 63.5535 What performance tests and other procedures must I use?

(a) You must conduct each performance test in Table 4 to this Subpart UUUU that applies to you.

(b) You must conduct each performance test for continuous process vents and combinations of batch and continuous process vents according to the requirements in § 63.7(e)(1) and under the specific conditions in Table 4 to this Subpart UUUU. Normal operating conditions will be defined by the affected source. You must conduct each performance test for batch process vents under the specific conditions in Table 4 to this subpart and not under normal operating conditions as specified in § 63.7(e)(1).

(c) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in § 63.7(e)(1).

(d) You must conduct three separate test runs for each performance test required in this section, as specified in § 63.7(e)(3). Each test run must last at least 1 hour.

(e) You must use the equations in paragraphs (e)(1) through (3) of this section to determine the control efficiency for each performance test.

(1) The total organic HAP emission rate is the sum of the emission rates of the individual HAP components. You must calculate the total organic HAP emission rate at the inlet and outlet of each control device for each test run using Equation 1 of this section:

$$ER_{HAP_t} = \sum_{j=1}^{m} ER_{HAP_j} \qquad \text{(Eq. 1)}$$

Where:

ER_{HAPt} = total emission rate of organic HAP in vent stream, kilograms per hour (kg/hr) (pounds per hour (lb/hr)).

ER_{HAPj} = emission rate of individual organic HAP in vent stream, kg/hr (lb/hr).

j = individual HAP.

m = number of individual HAP sampled in each test run.

(2) The total sulfide emission rate is the sum of the emission rates of the individual sulfide components, expressed as carbon disulfide. You must calculate

the total sulfide emission rate at the inlet and outlet of each control device for each test run using Equation 2 of this section:

$$ER_{sulf_t} = ER_{CS_2} + \left(ER_{H_2S*} \frac{M_{CS_2}}{M_{H_2S}}\right) + \left(ER_{COS*} \frac{M_{CS_2}}{M_{COS}}\right) \qquad \text{(Eq. 2)}$$

Where:

ER_{sulf_t} = total emission rate of sulfide in vent stream, kg/hr (lb/hr), as carbon disulfide.

ER_{CS_2} = emission rate of carbon disulfide in vent stream, kg/hr (lb/hr).

ER_{H_2S} = emission rate of hydrogen sulfide in vent stream, kg/hr (lb/hr).

M_{CS_2} = mass of carbon disulfide per mole of carbon disulfide, 76 kilograms per kilogram-mole (kg/kg-mol) (76 pounds per pound-mole (lb/lb-mol)).

M_{H_2S} = mass of hydrogen sulfide per mole of carbon disulfide, 68 kg/kg-mol (68 lb/lb-mol).

ER_{COS} = emission rate of carbonyl sulfide in vent stream, kg/hr (lb/hr).

M_{COS} = mass of carbonyl sulfide per mole of carbon disulfide, 120 kg/kg-mol (120 lb/lb-mol).

(3) You must calculate the control efficiency for each control device for each test run using Equation 3 of this section:

$$CE = \frac{ER_i - ER_o}{ER_i}(100\%) \qquad \text{(Eq. 3)}$$

Where:

CE = control efficiency, percent.

ER_i = total emission rate of organic HAP (ER_{HAP_t}) or sulfide (ER_{sulf_t}) in the inlet vent stream of the control device, kg/hr (lb/hr).

ER_o = total emission rate of organic HAP (ER_{HAP_t}) or sulfide (ER_{sulf_t}) in the outlet vent stream of the control device, kg/hr (lb/hr).

(f) When a flare is used to comply with the applicable emission limit or work practice standard in Table 1 to this subpart, you must comply with the requirements in paragraphs (f)(1) through (3) of this section. You are not required to conduct a performance test to determine the control efficiency of the flare or the outlet organic HAP concentration. If you have previously conducted a compliance demonstration for a flare using the techniques specified in paragraphs (f)(1) through (3) of this section, you may use that compliance demonstration to satisfy the requirements of this paragraph if either no deliberate process changes have been made since the compliance demonstration, or the results of the compliance demonstration reliably demonstrate compliance despite process changes.

(1) Conduct a visible emission test using the techniques specified in §63.11(b)(4);

(2) Determine the net heating value of the gas being combusted using the techniques specified in §63.11(b)(6); and

(3) Determine the exit velocity using the techniques specified in either §63.11(b)(7) or (b)(8), as appropriate.

(g) Viscose process affected sources must conduct a month-long initial compliance demonstration according to the requirements in paragraphs (g)(1) through (5) of this section and Table 3 to this subpart.

(1) Viscose process affected sources that must use non-recovery control devices to meet the applicable emission limit in Table 1 to this subpart must conduct an initial performance test of their non-recovery control devices according to the requirements in Table 4 to this subpart to determine the control efficiency of their non-recovery control devices and incorporate this information in their material balance.

(2) Viscose process affected sources that use recovery devices to meet the applicable emission limit in Table 1 to this subpart must determine the quantity of carbon disulfide fed to the process and the quantity of carbon disulfide recovered using the recovery device and incorporate this information in their material balance.

(3) Viscose process affected sources that use viscose process changes to meet the applicable emission limit in Table 1 to this subpart must determine the quantity of carbon disulfide used before and after the process change and incorporate this information in their material balance.

(4) Cellophane operations that use recovery devices to meet the 95 percent toluene emission limit in Table 1 to this subpart must determine the quantity of toluene fed to the process and the toluene recovered using the solvent recovery device and incorporate this information in their material balance.

(5) Using the pertinent material balance information obtained according to paragraphs (g)(1) through (4) of this section, viscose process affected sources must calculate the monthly average percent reduction for their affected source over the month-long period of the compliance demonstration.

(h) During the period of each compliance demonstration, you must establish each site-specific operating limit in Table 2 to this subpart that applies to you according to the requirements in paragraphs (h)(1) through (10) of this section.

(1) For continuous process vents and combinations of batch and continuous process vents, establish your site-specific operating limit using the procedures in § 63.505(b)(2), except that, if you demonstrate initial compliance using a month-long compliance demonstration, references to ‘‘compliance testing’’ and ‘‘1-hour runs’’ mean ‘‘compliance demonstration’’ and references to ‘‘three test runs’’ mean ‘‘daily averages during the compliance demonstration’’ for purposes of this subpart.

(2) For batch process vents, establish your site-specific operating limit using the procedures in § 63.505(b)(3), except that, if you demonstrate initial compliance using a month-long compliance demonstration, references to ‘‘compliance testing’’ and ‘‘performance test’’ mean ‘‘compliance demonstration’’ for purposes of this subpart.

(3) For condensers, record the outlet (product side) gas or condensed liquid temperature averaged over the same period as the compliance demonstration while the vent stream is routed and constituted normally. Locate the temperature sensor in a position that provides a representative temperature.

(4) For thermal oxidizers, record the firebox temperature averaged over the same period as the compliance demonstration. Locate the temperature sensor in a position that provides a representative temperature.

(5) For water scrubbers, record the pressure drop and flow rate of the scrubber liquid averaged over the same time period as the compliance demonstration while the vent stream is routed and constituted normally. Locate the pressure and flow sensors in positions that provide representative measurements of these parameters.

(6) For caustic scrubbers, record the pressure drop, flow rate of the scrubber liquid, and either the pH, conductivity, or alkalinity of the scrubber liquid averaged over the same time period as the compliance demonstration while the vent stream is routed and constituted normally. Locate the pressure sensors, flow sensors, and pH, conductivity, or alkalinity sensors in positions that provide representative measurements of these parameters. Ensure the sample is properly mixed and representative of the fluid to be measured.

(7) For flares, record the presence of a pilot flame. Locate the pilot flame sensor in a position that provides an accurate and continuous determination of the presence of the pilot flame.

(8) For biofilters, record the pressure drop across the biofilter beds, inlet gas temperature, and effluent pH, averaged over the same time period as the compliance demonstration while the vent stream is routed and constituted normally. Locate the pressure, temperature, and pH sensors in positions that provide representative measurement of these parameters. Ensure the sample is properly mixed and representative of the fluid to be measured.

(9) For carbon adsorbers, record the total regeneration stream mass or volumetric flow during each carbon bed regeneration cycle during the period of the compliance demonstration. Record the temperature of the carbon bed after each carbon bed regeneration cycle during the period of the compliance demonstration (and within 15 minutes of completion of any cooling cycle(s)).

Record the operating time since the end of the last carbon bed regeneration cycle and the beginning of the next carbon bed regeneration cycle during the period of the compliance demonstration. Locate the temperature and flow sensors in positions that provide representative measurement of these parameters.

(10) For oil absorbers, record the flow of absorption liquid through the absorber, the temperatures of the absorption liquid before and after the steam stripper, and the steam flow through the steam stripper averaged during the same period of the compliance demonstration. Locate the temperature and flow sensors in positions that provide representative measurement of these parameters.

§63.5540 By what date must I conduct a performance test or other initial compliance demonstration?

(a) You must conduct performance tests or other initial compliance demonstrations no later than 180 calendar days after the compliance date that is specified for your source in §63.5495 and according to the provisions in §63.7(a)(2).

§63.5545 What are my monitoring installation, operation, and maintenance requirements?

(a) For each CMS required in this section, you must develop and make available for inspection by the permitting authority, upon request, a site-specific monitoring plan that addresses the provisions in paragraphs (a)(1) through (3) of this section.

(1) Installation of the CMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (e.g., on or downstream of the last control device);

(2) Performance and equipment specifications for the sample interface, the pollutant concentration or parametric signal analyzer, and the data collection and reduction system; and

(3) Performance evaluation procedures and acceptance criteria (e.g., calibrations).

(b) In your site-specific monitoring plan, you must also address the provisions in paragraphs (b)(1) through (3) of this section.

(1) Ongoing operation and maintenance procedures in accordance with the general requirements of §§63.8(c)(1), (3), (4)(ii) and 63.5580(c)(6);

(2) Ongoing data quality assurance procedures in accordance with the general requirements of §63.8(d)(2); and

(3) Ongoing recordkeeping and reporting procedures in accordance with the general requirements of §§63.10(c), (e)(1), (e)(2)(i) and 63.5585.

(c) You must conduct a performance evaluation of each CMS in accordance with your site-specific monitoring plan.

(d) You must operate and maintain the CMS in continuous operation according to the site-specific monitoring plan.

(e) For each continuous emissions monitoring system (CEMS), you must meet the requirements in paragraphs (e)(1) through (6) of this section.

(1) Each CEMS must be installed, operated, and maintained according to the applicable performance specification (PS) listed in paragraphs (e)(1)(i) through (iv) of this section:

(i) PS–7 of 40 CFR part 60, appendix B, for CEMS used to measure hydrogen sulfide emissions;

(ii) PS–8 of 40 CFR part 60, appendix B, for CEMS used to measure volatile organic compound emissions;

(iii) PS–9 of 40 CFR part 60, appendix B, for CEMS that use gas chromatography to measure organic HAP emissions; and

(iv) PS–15 of 40 CFR part 60, appendix B, for CEMS that use Fourier transform infrared spectroscopy to measure organic HAP emissions.

(2) You must conduct a performance evaluation of each CEMS according to the requirements in §63.8 and according to the applicable performance specification listed in paragraphs (e)(1)(i) through (iv) of this section.

(3) As specified in §63.8(c)(4)(ii), each CEMS must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

(4) The CEMS data must be reduced to operating data averages computed using valid data from at least 75 percent of the hours during the averaging

period. To have a valid hour of data, you must have four or more data points equally spaced over the 1-hour period (or at least two data points during an hour when calibration, quality assurance, or maintenance activities are being performed), except as specified in paragraph (a)(5) of this section.

(5) The CEMS data taken during periods in which the control devices are not functioning in controlling emissions, as indicated by periods of no flow for all or a portion of an affected source, must not be considered in the averages.

(6) Determine the daily average of all recorded readings for each operating day during the semiannual reporting period described in Table 8 to this subpart.

(f) For each continuous parameter monitoring system (CPMS), you must meet the requirements in paragraphs (f)(1) through (9) of this section.

(1) Satisfy all requirements of performance specifications for CPMS upon promulgation of such performance specifications.

(2) Satisfy all requirements of quality assurance (QA) procedures for CPMS upon promulgation of such QA procedures.

(3) The CPMS must complete a minimum of one cycle of operation for each successive 15-minute period.

(4) To calculate a valid hourly average, there must be at least four equally spaced values for that hour, excluding data collected during the periods described in paragraph (f)(6) of this section.

(5) Have valid hourly data for at least 75 percent of the hours during the averaging period.

(6) The CPMS data taken during periods in which the control devices are not functioning in controlling emissions, as indicated by periods of no flow for all or a portion of an affected source, must not be considered in the averages.

(7) Calculate a daily average using all of the valid hourly averages for each operating day during the semiannual reporting period.

(8) Record the results of each inspection, calibration, and validation check.

(9) Except for redundant sensors, any device that is used to conduct an initial validation or accuracy audit of a CPMS must meet the accuracy requirements specified in paragraphs (f)(9)(i) and (ii) of this section.

(i) The device must have an accuracy that is traceable to National Institute of Standards and Technology (NIST) standards.

(ii) The device must be at least three times as accurate as the required accuracy for the CPMS.

(g) If flow to a control device could be intermittent, you must install, calibrate, and operate a flow indicator at the inlet or outlet of the control device to identify periods of no flow.

CONTINUOUS COMPLIANCE REQUIREMENTS

§ 63.5555 How do I demonstrate continuous compliance with the emission limits, operating limits, and work practice standards?

(a) You must demonstrate continuous compliance with each emission limit, operating limit, and work practice standard in Tables 1 and 2 to this subpart that applies to you according to methods specified in Tables 5 and 6 to this subpart.

(b) You must report each instance in which you were not in continuous compliance (as specified in Tables 5 and 6 to this subpart) with each emission limit, each operating limit, and each work practice standard that apply to you. This includes periods of startup, shutdown, and malfunction. These instances are deviations from the emission limits, operating limits, and work practice standards in this subpart. These deviations must be reported according to the requirements in § 63.5580.

(c) During periods of startup, shutdown, and malfunction, you must operate according to the SSM plan.

(d) Consistent with §§ 63.6(e) and 63.7(e)(1), deviations that occur during a period of startup, shutdown, or malfunction are not violations if you demonstrate to the Administrator's satisfaction that you were operating according to the SSM plan.

§ 63.5560 How do I monitor and collect data to demonstrate continuous compliance?

(a) You must monitor and collect data according to this section.

(b) Except for monitor malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), you must monitor continuously (or collect data at all required intervals) at all times that the affected source is operating, including periods of startup, shutdown, and malfunction.

(c) You may not use data recorded during monitoring malfunctions, associated repairs, required quality assurance or control activities, and periods of no flow for all or a portion of an affected source in data averages and calculations used to report emission or operating levels, nor may such data be used in fulfilling a minimum data availability requirement, if applicable. You must use all the data collected during all other periods in assessing the operation of the control device and associated control system.

(d) All terms in this subpart that define a period of time for completing required tasks (e.g., weekly, monthly, quarterly, or annually) refer to the standard calendar periods.

(1) You may change time periods specified in this subpart for completing required tasks by mutual agreement with the Administrator, as specified in subpart A of this part. For example, a period could begin on the compliance date or another date, rather than on the first day of the standard calendar period. For each time period that is changed by agreement, the revised period must remain in effect until it is changed. A new request is not necessary for each recurring period.

(2) Where the period specified for compliance is a standard calendar period, if the initial compliance date occurs after the beginning of the period, then you must comply according to the schedule specified in paragraph (d)(2)(i) or (ii) of this section, as appropriate.

(i) You must comply before the end of the standard calendar period within which the compliance deadline occurs, if there remain at least 3 days for tasks that must be performed weekly, at least 2 weeks for tasks that must be performed monthly, at least 1 month for tasks that must be performed quarterly, or at least 3 months for tasks that must be performed annually; or

(ii) In all instances where a provision of this subpart requires completing a task during each of multiple successive periods, you may perform the required task at any time during the specified period, provided that the task is conducted at a reasonable interval after completion of the task during the previous period.

NOTIFICATIONS, REPORTS, AND RECORDS

§63.5575 What notifications must I submit and when?

You must submit each notification in Table 7 to this subpart that applies to you by the date specified in Table 7 to this subpart.

§63.5580 What reports must I submit and when?

(a) You must submit each report in Table 8 to this subpart that applies to you.

(b) Unless the Administrator has approved a different schedule for submitting reports under §63.10, you must submit each compliance report by the date in Table 8 to this subpart and according to the requirements in paragraphs (b)(1) through (5) of this section.

(1) The first compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.5495 and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for your source in §63.5495.

(2) The first compliance report must be postmarked or delivered no later than August 31 or February 28, whichever date follows the end of the first calendar half after the compliance date that is specified for your affected source in §63.5495.

(3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) Each subsequent compliance report must be postmarked or delivered no later than August 31 or February 28, whichever date is the first date following the end of the semiannual reporting period.

(5) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 40 CFR part 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (4) of this section.

(c) The compliance report must contain the information in paragraphs (c)(1) through (6) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with that official's name, title, and signature, certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If you had a startup, shutdown, or malfunction during the reporting period and you took actions consistent with your startup, shutdown, and malfunction plan, the compliance report must include the information in § 63.10(d)(5)(i).

(5) If there are no deviations from any emission limits, operating limits, or work practice standards that apply to you (see Tables 5 and 6 to this subpart), the compliance report must contain a statement that there were no deviations from the emission limits, operating limits, or work practice standards during the reporting period.

(6) If there were no periods during which the CMS was out-of-control, the compliance report must contain a statement that there were no periods during which the CMS was out-of-control during the reporting period. You must include specifications for out-of-control operation in the quality control plan required under § 63.8(d)(2).

(d) For each deviation from an emission limit or work practice standard that occurs at an affected source where you are not using a CMS to demonstrate continuous compliance with the emission limits or work practice standards in this subpart (see Table 5 to this subpart), the compliance report must contain the information in paragraphs (c)(1) through (4) and (d)(1) and (2) of this section. This includes periods of startup, shutdown, and malfunction.

(1) The total operating time of each affected source during the reporting period.

(2) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

(e) For each deviation from an emission limit or operating limit occurring at an affected source where you are using a CMS to demonstrate continuous compliance with the emission limit or operating limit in this subpart (see Tables 5 and 6 to this subpart), you must include the information in paragraphs (c)(1) through (4) and (e)(1) through (13) of this section. This includes periods of startup, shutdown, and malfunction.

(1) The date and time that each malfunction started and stopped.

(2) The date and time that each CMS was inoperative, except for zero (low-level) and high-level checks.

(3) The date, time, and duration that each CMS was out-of-control.

(4) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(5) A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.

(6) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(7) A summary of the total duration of CMS downtime during the reporting period and the total duration of CMS downtime as a percent of the total source operating time during that reporting period.

(8) An identification of each HAP that is known to be in the emission stream at the affected source.

(9) A brief description of the process units.

(10) A brief description of the CMS.

(11) The date of the latest CEMS certification or audit or CPMS inspection, calibration, or validation check.

(12) A description of any changes in CMS, processes, or controls since the last reporting period.

(13) The operating day average values of monitored parameters.

(f) If you have obtained a title V operating permit according to 40 CFR part 70 or 40 CFR part 71, you must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If you submit a compliance report according to Table 8 to this subpart along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the compliance report includes all required information concerning deviations from any emission limit, operating limit, or work practice standard in this subpart, then submitting the compliance report will satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submitting a compliance report will not otherwise affect any obligation you may have to report deviations from permit requirements to the permit authority.

§63.5585 What records must I keep?

You must keep the records in Table 9 to this subpart that apply to you.

§63.5590 In what form and how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review, according to §63.10(b)(1).

(b) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record onsite for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §63.10(b)(1). You can keep the records offsite for the remaining 3 years.

(d) You may keep records in hard copy or computer-readable form including, but not limited to, paper, microfilm, computer, floppy disk, magnetic tape, or microfiche.

OTHER REQUIREMENTS AND INFORMATION

§63.5595 What compliance options do I have if part of my affected source is subject to both this subpart and another subpart?

(a) For any Group 1 or Group 2 wastewater stream that is subject to the wastewater provisions in this subpart and the wastewater provisions in 40 CFR parts 260 through 272, you must comply with the requirements of either paragraph (a)(1) or (2) of this section.

(1) You must comply with more stringent control, testing, monitoring, recordkeeping, and reporting requirements that overlap between the provisions of this subpart and the provisions of 40 CFR parts 260 through 272. You must keep a record of the information used to determine which requirements were the most stringent and submit this information if requested by the Administrator.

(2) You must submit, no later than 4 months before the applicable compliance date specified in §63.5495, a request for a case-by-case determination of requirements. The request must include the information specified in paragraphs (a)(2)(i) and (ii) of this section.

(i) Identification of the wastewater streams that are subject to this subpart and to provisions in 40 CFR parts 260 through 272, determination of the Group 1/Group 2 status of those streams, determination of whether or not those streams are listed or exhibit a characteristic as specified in 40 CFR part 261, and determination of whether the waste management unit is subject to permitting under 40 CFR part 270.

(ii) Identification of the specific control, testing, monitoring, recordkeeping, and reporting requirements that overlap between the provisions of this subject and the provisions of 40 CFR parts 260 through 272.

(b) If any combustion device, recovery device, or recapture device, as defined in §63.111, subject to this subpart is also subject to the monitoring, recordkeeping, and reporting requirements in 40 CFR part 264, subpart AA or CC, or is subject to monitoring and recordkeeping requirements in 40 CFR part 265, subpart AA or CC, and you comply with the periodic reporting requirements under 40 CFR part 264, subpart AA or CC, that would apply to the device if the affected source had final-permitted status, you may elect to comply either with the monitoring, recordkeeping, and reporting requirements of this subpart, or with the monitoring, recordkeeping, and reporting requirements in 40 CFR parts 264 and/or 265, as described in this paragraph (b), which will constitute compliance with the monitoring, recordkeeping, and reporting requirements of this subpart. You must identify which option has been selected in the Notification of Compliance Status Report required in § 63.5575 and Table 7 to this subpart.

§ 63.5600 What other requirements apply to me?

(a) Table 10 to this subpart shows which provisions of the General Provisions in §§ 63.1 through 63.15 apply to you.

(b) For the purposes of this subpart, the applicable subpart A requirements in Table 10 to this subpart supersede the applicable subpart A requirements in subparts F, G, H, U and UU of this part.

§ 63.5605 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by us, the US Environmental Protection Agency (EPA), or a delegated authority, such as your State, local, or tribal agency. If the Administrator has delegated authority to your State, local, or tribal agency, then that agency has the authority to implement and enforce this subpart. You should contact your EPA Regional Office to find out if this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under subpart E of this part, the Administrator keeps the authorities contained in paragraphs (b)(1) through (4) of this section and does not delegate such authorities to a State, local, or tribal agency.

(1) Approval of alternatives to the non-opacity emission limits, operating limits, and work practice standards in § 63.5505(a) through (c) and under § 63.6(g).

(2) Approval of major alternatives to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.90.

(3) Approval of major alternatives to monitoring under § 63.8(f) and as defined in § 63.90.

(4) Approval of major alternatives to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

§ 63.5610 What definitions apply to this subpart?

(a) For all affected sources complying with the batch process vent testing provisions in § 63.490(c) and the operating limit provisions in § 63.505(b), the terms used in this subpart and in subpart U of this part are defined in § 63.482 and paragraph (g) of this section.

(b) For all affected sources complying with the closed-vent system and bypass line requirements in § 63.148, the terms used in this subpart and in subpart G of this part are defined in § 63.111 and paragraph (g) of this section.

(c) For all affected sources complying with the heat exchanger system requirements in § 63.104, the terms used in this subpart and in subpart F of this part are defined in § 63.101 and paragraph (g) of this section.

(d) For cellulose ether affected sources complying with the maintenance wastewater, process wastewater, and liquid stream in open system requirements of subparts F and G of this part, the terms used in this subpart and in subparts F and G of this part are defined in §§ 63.101 and 63.111 and paragraph (g) of this section.

(e) For cellulose ether affected sources complying with the equipment leak requirements of subpart H of this part, the terms used in this subpart and in subpart H of this part are defined in § 63.161 and paragraph (g) of this section.

(f) For cellulose ether affected sources complying with the equipment leak requirements of subpart UU of this part, the terms used in this subpart and in subpart UU of this part are defined in § 63.1020 and paragraph (g) of this section.

(g) All other terms used in this subpart have the meaning given them in § 63.2 and this paragraph (g). If a term is defined in § 63.2, 63.101, 63.111, 63.161, or 63.1020 and in this paragraph (g), the definition in this paragraph (g) applies for purposes of this subpart.

Bottoms receiver means a tank that collects distillation bottoms before the stream is sent for storage or for further downstream processing.

Carbon disulfide unloading and storage operation means a system at an affected source that includes unloading of carbon disulfide from a railcar using nitrogen or water displacement and storage of carbon disulfide in a storage vessel using nitrogen or water padding.

Cellophane means a thin, transparent cellulose material, which is manufactured using the viscose process and used in food packaging (e.g., candy, cheese, baked goods), adhesive tapes, and membranes for industrial uses, such as batteries.

Cellophane operation means the collection of the cellophane process unit and any other equipment, such as heat exchanger systems, wastewater and waste management units, or cooling towers, that are not associated with an individual cellophane process unit, but are located at a cellophane operation for the purpose of manufacturing cellophane and are under common control.

Cellophane process unit means all equipment which collectively function to manufacture cellophane and any associated storage vessels, liquid streams in open systems (as defined in § 63.149), and equipment (as defined in § 63.161) that are used in the manufacturing of cellophane.

Cellulose ether means a compound, such as carboxymethyl cellulose, hydroxyethyl cellulose, hydroxypropyl cellulose, methyl cellulose, or hydroxypropyl methyl cellulose, which is manufactured using the cellulose ether process and used mainly as a thickener, viscosifier, or binder in a wide variety of consumer and other products.

Cellulose ether operation means the collection of the cellulose ether process unit and any other equipment, such as heat exchanger systems, wastewater and waste management units, or cooling towers, that are not associated with an individual cellulose ether process unit, but are located at a cellulose ether operation for the purpose of manufacturing a particular cellulose ether and are under common control.

Cellulose ether process means the following:

(1) A manufacturing process that includes the following process steps:

(i) Reaction of cellulose (e.g., wood pulp or cotton linters) with sodium hydroxide to produce alkali cellulose;

(ii) Reaction of the alkali cellulose with a chemical compound(s), such as ethylene oxide, propylene oxide, methyl chloride, or chloroacetic acid, to produce a particular cellulose ether;

(iii) Washing and purification of the cellulose ether; and

(iv) Drying of the cellulose ether.

(2) Solids handling steps downstream of the drying process are not considered part of the cellulose ether process.

Cellulose ether process change means a change to the cellulose ether process that occurred no earlier than January 1992 that allows the recovery of organic HAP, reduction in organic HAP usage, or reduction in organic HAP leaving the reactor. Includes extended cookout.

Cellulose ether process unit means all equipment which collectively function to manufacture a particular cellulose ether and any associated storage vessels, liquid streams in open systems (as defined in § 63.149), and equipment (as defined in § 63.161 or 63.1020) that are used in the manufacturing of a particular cellulose ether.

Cellulose Ethers Production source category means the collection of operations that use the cellulose ether process to manufacture a particular cellulose ether.

Cellulose food casing means a cellulose casing, which is manufactured using the viscose process, used in forming meat products (e.g., hot dogs, sausages) and, in most cases, removed from the meat products before sale.

Cellulose food casing operation means the collection of the cellulose food casing process unit and any other equipment, such as heat exchanger systems, wastewater and waste management units, or cooling towers, that are not associated with an individual cellulose food casing process unit, but are located at a cellulose food casing operation for the purpose of manufacturing cellulose food casings and are under common control.

Cellulose food casing process unit means all equipment which collectively function to manufacture cellulose food casings and any associated storage vessels, liquid streams in open systems (as defined in § 63.149), and equipment (as defined in § 63.161) that are used in the manufacturing of cellulose food casings.

Cellulosic sponge means a porous cellulose product, which is manufactured using the viscose process and used mainly for consumer use (e.g., for cleaning).

Cellulosic sponge operation means the collection of the cellulosic sponge process unit and any other equipment, such as heat exchanger systems, wastewater and waste management units, or cooling towers, that are not associated with an individual cellulosic sponge process unit, but are located at a cellulosic sponge operation for the purpose of manufacturing cellulosic sponges and are under common control.

Cellulosic sponge process unit means all equipment which collectively function to manufacture cellulosic sponges and any associated storage vessels, liquid streams in open systems (as defined in § 63.149), and equipment (as defined in § 63.161) that are used in the manufacturing of cellulosic sponges.

Closed-loop system means a system wherein the emission stream is not normally vented to the atmosphere but is recycled back to the process.

Control technique means any equipment or process control used for capturing, recovering, treating, or preventing HAP emissions. The equipment includes recovery devices and non-recovery control devices, as defined in this paragraph. The process control includes cellulose ether process changes and viscose process changes, as defined in this paragraph.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including, but not limited to, any emission limit, operating limit, or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limit, operating limit, or work practice standard in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Emission point means an individual process vent, storage vessel, waste management unit, or equipment leak.

Extended cookout (ECO) means a cellulose ether process change that reduces the amount of unreacted ethylene oxide, propylene oxide, methyl chloride, or chloroacetic acid leaving the reactor. This is accomplished by allowing the product to react for a longer time, thereby leaving less unreacted ethylene oxide, propylene oxide, methyl chloride, or chloroacetic acid and reducing emissions of ethylene oxide, propylene oxide, methyl chloride, or chloroacetic acid that might have occurred otherwise.

Miscellaneous Viscose Processes source category means the collection of operations that use the viscose process to manufacture a particular cellulose product. These cellulose products include cellulose food casings, rayon, cellulosic sponges, and cellophane.

Nitrogen storage system means a system of padding the carbon disulfide storage vessels with nitrogen to prevent contact with oxygen.

Nitrogen unloading and storage system means the combination of a nitrogen unloading system for unloading carbon disulfide and a nitrogen storage system for storing carbon disulfide.

Nitrogen unloading system means a system of unloading carbon disulfide from railcars to storage vessels using nitrogen displacement to prevent gaseous carbon disulfide emissions to the atmosphere and to preclude contact with oxygen.

Non-recovery control device means an individual unit of equipment capable of and normally used for the purpose of capturing or treating HAP emissions. Examples of equipment that may be non-recovery control devices include, but are not limited to, biofilters, caustic scrubbers, flares, thermal oxidizers, and water scrubbers.

Oil absorber means a packed-bed absorber that absorbs pollutant vapors using a type of oil (e.g., kerosene) as the absorption liquid.

Onsite means that records are stored at a location within a major source which encompasses the affected source. Onsite includes, but is not limited to, storage at the affected source or process unit to which the records pertain or storage in central files elsewhere at the major source.

Process vent means a point of discharge to the atmosphere (or the point of entry into a control device, if any) of a HAP-containing gas stream from the process operation. Process vents do not include vents with a flow rate less than 0.005 standard cubic meter per minute or with a concentration less than 50 parts per million by volume (ppmv), vents on storage tanks, vents on wastewater emission sources, or pieces of equipment regulated under equipment leak standards.

Rayon means cellulose fibers, which are manufactured using the viscose process and used in the production of either textiles (e.g., apparel, drapery, upholstery) or non-woven products (e.g., feminine hygiene products, wipes, computer disk liners, surgical swabs).

Rayon operation means the collection of the rayon process unit and any other equipment, such as heat exchanger systems, wastewater and waste management units, or cooling towers, that are not associated with an individual rayon process unit, but are located at a rayon operation for the purpose of manufacturing rayon and are under common control.

Rayon process unit means all equipment which collectively function to manufacture rayon and any associated storage vessels, liquid streams in open systems (as defined in §63.149), and equipment (as defined in §63.161) that are used in the manufacturing of rayon.

Recovery device means an individual unit of equipment capable of and normally used for the purpose of recovering HAP emissions for fuel value (i.e., net positive heating value), use, reuse, or for sale for fuel value, use, or reuse. Examples of equipment that may be recovery devices include, but are not limited to, absorbers, carbon adsorbers, condensers, oil-water separators or organic-water separators, or organic removal devices such as decanters, strippers, or thin-film evaporation units.

Responsible official means responsible official as defined in 40 CFR 70.2.

Safety device means a closure device such as a pressure relief valve, frangible disc, fusible plug, or any other type of device which functions exclusively to prevent physical damage or permanent deformation to a unit or its air emission control equipment by venting gases or vapors directly to the atmosphere during unsafe conditions resulting from an unplanned, accidental, or emergency event. For the purposes of this subpart, a safety device is not used for routine venting of gases or vapors from the vapor headspace underneath a cover such as during filling of the unit or to adjust the pressure in this vapor headspace in responses to normal daily diurnal ambient temperature fluctuations. A safety device is designed to remain in a closed position during normal operation and open only when the internal pressure, or another relevant parameter, exceeds the device threshold setting applicable to the air emission control equipment as determined by the owner or operator based on manufacturer recommendations, applicable regulations, fire protection and prevention codes, standard engineering codes and practices, or other requirements for the safe handling of flammable, combustible, explosive, reactive, or hazardous materials.

Solvent coating process means a manufacturing process in which cellophane film is coated (e.g., with Saran® or nitrocellulose) to impart moisture impermeability to the film and to make it printable. Both Saran and nitrocellulose use the same solvents—tetrahydrofuran and toluene.

Storage vessel means a tank or other vessel used to store liquids that contain one or more HAP. Storage vessels do not include the following:

(1) Vessels permanently attached to motor vehicles such as trucks, railcars, barges, or ships;

(2) Pressure vessels designed to operate in excess of 204.9 kilopascals (30 pounds per square inch) and without emissions to the atmosphere;

(3) Vessels with capacities smaller than 38 cubic meters (10,000 gallons);

(4) Vessels and equipment storing and/or handling material that contains no HAP or contains HAP as impurities only;

(5) Bottoms receiver tanks;

(6) Surge control vessels;

(7) Wastewater storage vessels; and

(8) Storage vessels assigned to another process unit regulated under another subpart of part 63.

Surge control vessel means feed drums, recycle drums, and intermediate vessels. Surge control vessels are used within a process unit when in-process storage, mixing, or management of flow rates or volumes is needed to assist in production of a product.

Total HAP means the sum of organic HAP emissions measured using EPA Method 18.

Total sulfide means the sum of emissions for carbon disulfide, hydrogen sulfide, and carbonyl sulfide reported as carbon disulfide. Total sulfide, as defined for the purposes of this subpart, does not include other sulfur compounds, such as sulfur dioxide.

Viscose process means the following:

(1) A manufacturing process that includes the following process steps:

(i) Reaction of cellulose (e.g., wood pulp) with sodium hydroxide to produce alkali cellulose;

(ii) Reaction of alkali cellulose with carbon disulfide to produce sodium cellulose xanthate;

(iii) Combination of sodium cellulose xanthate with additional sodium hydroxide to produce viscose solution;

(iv) Extrusion of the viscose into various shapes (e.g., hollow casings, thin fibers, thin sheets, molds);

(v) Regeneration of the cellulose product;

(vi) Washing of the cellulose product; and

(vii) Possibly acid or salt recovery.

(2) The cellulose products manufactured using the viscose process include cellulose food casings, rayon, cellulosic sponges, and cellophane.

Viscose process change means a change to the viscose process that occurred no earlier than January 1992 that allows either the recovery of carbon disulfide or a reduction in carbon disulfide usage in the process.

Wastewater means water that:

(1) Contains either:

(i) An annual average concentration of organic HAP (listed in Table 9 to subpart G of this part) of at least 5 parts per million by weight (ppmw) and has an annual average flow rate of 0.02 liter per minute or greater; or

(ii) An annual average concentration of organic HAP (listed in Table 9 to subpart G of this part) of at least 10,000 ppmw at any flow rate.

(2) Is discarded from a cellulose food casing, rayon, cellulosic sponge, cellophane, or cellulose ether process unit that is part of an affected source. Wastewater is process wastewater or maintenance wastewater.

Water storage system means a system of padding the carbon disulfide storage vessels with water to prevent contact with oxygen. The water, which is saturated with carbon disulfide, is later sent to wastewater treatment.

Water unloading and storage system means the combination of a water unloading system for unloading carbon disulfide and a water storage system for storing carbon disulfide.

Water unloading system means a system of unloading carbon disulfide from railcars to storage vessels using water displacement to prevent gaseous carbon disulfide emissions to the atmosphere and to preclude contact with oxygen.

Work practice standard means any design, equipment, work practice, or operational standard, or combination thereof, that is promulgated pursuant to section 112(h) of the Clean Air Act.

TABLES TO SUBPART UUUU OF PART 63

Table 1 to Subpart UUUU of Part 63—Emission Limits and Work Practice Standards

[As required in § 63.5505(a), you must meet the appropriate emission limits and work practice standards in the following table]

For . . .	at . . .	you must . . .
1. the sum of all viscose process vents.	a. each existing cellulose food casing operation.	i. reduce total uncontrolled sulfide emissions (reported as carbon disulfide) by at least 25% based on a 6-month rolling average; ii. for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and iii. comply with the work practice standard for closed-vent systems.
	b. each new cellulose food casing operation.	i. reduce total uncontrolled sulfide emissions (reported as carbon disulfide) by at least 75% based on a 6-month rolling average; ii. for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and iii. comply with the work practice standard for closed-vent systems.
	c. each existing rayon operation	i. (1) reduce total uncontrolled sulfide emissions (reported as carbon disulfide) by at least 35% within 3 years after the effective date based on a 6-month rolling average; (2) for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and (3) comply with the work practice standard for closed-vent systems; and ii. (1) reduce total uncontrolled sulfide emissions (reported as carbon disulfide) by at least 40% within 8 years after the effective date based on a 6-month rolling average; (2) for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and (3) comply with the work practice standard for closed-vent systems.
	d. each new rayon operation	i. reduce total uncontrolled sulfide emissions (reported as carbon disulfide) by at least 75% based on a 6-month rolling average; ii. for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and iii. comply with the work practice standard for closed-vent systems.
	e. each existing or new cellulosic sponge operation.	i. reduce total uncontrolled sulfide emissions (reported as carbon disulfide) by at least 75% based on a 6-month rolling average; ii. for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and iii. comply with the work practice standard for closed-vent systems.
	f. each existing or new cellophane operation.	i. reduce total uncontrolled sulfide emissions (reported as carbon disulfide) by at least 75% based on a 6-month rolling average; ii. for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and iii. comply with the work practice standard for closed-vent systems.
2. the sum of all solvent coating process vents.	a. each existing or new cellophane operation.	i. reduce uncontrolled toluene emissions by at least 95% based on a 6-month rolling average; ii. for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and iii. comply with the work practice standard for closed-vent systems.

[As required in § 63.5505(a), you must meet the appropriate emission limits and work practice standards in the following table]

For . . .	at . . .	you must . . .
3. the sum of all cellulose ether process vents.	a. each existing or new cellulose ether operation.	i. reduce total uncontrolled organic HAP emissions by at least 99%; ii. for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and iii. comply with the work practice standard for closed-vent systems.
4. closed-loop systems	each existing or new cellulose ether operation.	comply by operating the closed-loop system.
5. each carbon disulfide unloading and storage operation.	a. each existing or new viscose process affected source.	i. reduce uncontrolled carbon disulfide emissions by at least 83% from unloading and storage operations based on a 6-month rolling average if you use an alternative control technique not listed in this table source for carbon disulfide unloading and storage operations; if using a control device to reduce emissions, route emissions through a closed-vent system to the control device; and comply with the work practice standard for closed-vent systems; ii. reduce uncontrolled carbon disulfide emissions by at least 0.14% from viscose process vents based on a 6-month rolling average; for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and comply with the work practice standard for closed-vent systems; iii. install a nitrogen unloading and storage system (as defined in § 63.5610); or iv. install a nitrogen unloading system (as defined in § 63.5610); reduce uncontrolled carbon disulfide emissions by at least 0.045% from viscose process vents based on a 6-month rolling average; for each vent stream that you control, route the vent stream through a closed-vent to the control device; and comply with the work practice standard for closed-vent systems.
6. each toluene storage vessel	a. each existing or new cellophane operation.	i. reduce uncontrolled toluene emissions by at least 95% based on a 6-month rolling average; ii. if using a control device to reduce emissions, route the emissions through a closed-vent system to the control device; and iii. comply with the work practice standard for closed-vent systems.
7. equipment leaks	a. each existing or new cellulose ether operation.	i. comply with the applicable equipment leak standards of §§ 63.162 through 63.179, except that references to ''process unit'' mean ''cellulose ether process unit'' for the purposes of this subpart; or ii. comply with the applicable equipment leak standards of §§ 63.1021 through 63.1037, except that references to ''process unit'' mean ''cellulose ether process unit'' for the purposes of this subpart.
8. all sources of wastewater emissions.	each existing or new cellulose ether operation.	comply with the applicable wastewater provisions of §§ 63.105 and 63.132 through 63.140.
9. liquid streams in open system 2	each existing or new cellulose ether operation.	comply with the applicable provisions of § 63.149, except that references to ''chemical manufacturing process unit'' mean ''cellulose ether process unit'' for the purposes of this subpart.
10. closed-vent system used to route emissions to a control device.	each existing or new affected source	conduct annual inspections, repair leaks, and maintain records as specified in § 63.148.
11. closed-vent system containing a bypass line that could divert a vent stream away from a control device, except for equipment needed for safety purposes (described in § 63.148(f)(3)).	each existing or new affected source	i. install, calibrate, maintain, and operate a flow indicator as specified in § 63.148(f)(1); or ii. secure the bypass line valve in the closed position with a car-seal or lock-and-key type configuration and inspect the seal or closure mechanism at least once per month as specified in § 63.148(f)(2).

[As required in § 63.5505(a), you must meet the appropriate emission limits and work practice standards in the following table]

For . . .	at . . .	you must . . .
12. heat exchanger system that cools process equipment or materials in the process unit.	each existing or new affected source	monitor and repair the heat exchanger system according to § 63.104(a) through (e), except that references to ''chemical manufacturing process unit'' mean ''cellulose food casing, rayon, cellulosic sponge, cellophane, or cellulose ether process unit'' for the purposes of this subpart.

TABLE 2 TO SUBPART UUUU OF PART 63—OPERATING LIMITS

[As required in § 63.5505(b), you must meet the appropriate operating limits in the following table]

For the following control technique . . .	you must . . .
1. condenser	maintain the daily average condenser outlet gas or condensed liquid temperature no higher than the value established during the compliance demonstration.
2. thermal oxidizer	maintain the daily average thermal oxidizer firebox temperature no lower than the value established during the compliance demonstration.
3. water scrubber	maintain the daily average scrubber pressure drop and scrubber liquid flow rate within the operating values established during the compliance demonstration.
4. caustic scrubber	maintain the daily average scrubber pressure drop, scrubber liquid flow rate, and scrubber liquid pH, conductivity, or alkalinity within the operating values established during the compliance demonstration.
5. flare	maintain the presence of a pilot flame.
6. biofilter	maintain the daily average biofilter inlet gas temperature, biofilter effluent pH, and pressure drop within the operating values established during the compliance demonstration.
7. carbon absorber	maintain the regeneration frequency, total regeneration adsorber stream mass or volumetric flow during carbon bed regeneration, and temperature of the carbon bed after regeneration (and within 15 minutes of completing any cooling cycle(s)) for each regeneration cycle within the values established during the compliance demonstration.
8. oil absorber	maintain the daily average absorption liquid flow, absorption liquid temperature, and steam flow within the values established during the compliance demonstration.
9. any of the control techniques specified in this table.	if using a CEMS, maintain the daily average control efficiency of each control device no lower than the value established during the compliance demonstration.
10. any of the control techniques specified in this table.	a. if you wish to establish alternative operating parameters, submit the application for approval of the alternative operating parameters no later than the notification of the performance test or CEMS performance evaluation or no later than 60 days prior to any other initial compliance demonstration; b. the application must include: information justifying the request for alternative operating parameters (such as the infeasibility or impracticality of using the operating parameters in this final rule); a description of the proposed alternative control device operating parameters; the monitoring approach; the frequency of measuring and recording the alternative parameters; how the operating limits are to be calculated; and information documenting that the alternative operating parameters would provide equivalent or better assurance of compliance with the standard; c. install, operate, and maintain the alternative parameter monitoring systems in accordance with the application approved by the Administrator; d. establish operating limits during the initial compliance demonstration based on the alternative operating parameters included in the approved application; and e. maintain the daily average alternative operating parameter values within the values established during the compliance demonstration.
11. alternative control technique	a. submit for approval no later than the notification of the performance test or CEMS performance evaluation or no later than 60 days prior to any other initial compliance demonstration a proposed site-specific plan that includes: a description of the alternative control device; test results verifying the performance of the control device; the appropriate operating parameters that will be monitored; and the frequency of measuring and recording to establish continuous compliance with the operating limits; b. install, operate, and maintain the parameter monitoring system for the alternative control device in accordance with the plan approved by the Administrator; c. establish operating limits during the initial compliance demonstration based on the operating parameters for the alternative control device included in the approved plan; and d. maintain the daily average operating parameter values for the alternative control technique within the values established during the compliance demonstration.

TABLE 3 TO SUBPART UUUU OF PART 63—INITIAL COMPLIANCE WITH EMISSION LIMITS AND WORK PRACTICE STANDARDS

[As required in §§ 63.5530(a) and 63.5535(g), you must demonstrate initial compliance with the appropriate emission limits and work practice standards according to the requirements in the following table]

For . . .	at . . .	for the following emission limit or work practice standard . . .	you have demonstrated initial compliance if . . .
1. the sum of all viscose process vents	a. each existing cellulose food casing operation.	i. reduce total uncontrolled sulfide emissions (reported as carbon disulfide) by at least 25% based on a 6-month rolling average; ii. for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and iii. comply with the work practice standard for closed-vent systems.	(1) the average uncontrolled total sulfide emissions, measured during the month-long compliance demonstration, are reduced by at least 25%; (2) you have a record of the average operating parameter values over the month-long compliance demonstration during which the average uncontrolled total sulfide emissions were reduced by at least 25%; (3) you prepare a material balance that includes the pertinent data used to determine the percent reduction of total sulfide emissions; and (4) you comply with the initial compliance requirements for closed-vent systems.
	b. each new cellulose food casing operation	i. reduce total uncontrolled sulfide emissions (reported as carbon disulfide) by at least 75% based on a 6-month rolling average; ii. for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and iii. comply with the work practice standard for closed-vent systems.	(1) the average uncontrolled total sulfide emissions, measured during the month-long compliance demonstration, are reduced by at least 75%; (2) you have a record of the average operating parameter values over the month-long compliance demonstration during which the average uncontrolled total sulfide emissions were reduced by at least 75%; (3) you prepare a material balance that includes the pertinent data used to determine the percent reduction of total sulfide emissions; and (4) you comply with the initial compliance requirements for closed-vent systems.

c. each existing rayon operation	i. reduce total uncontrolled sulfide emissions (reported as carbon disulfide) by at least 35% within 3 years after the effective date based on a 6-month rolling average; for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and comply with the work practice standard for closed-vent systems; and	(1) the average uncontrolled total sulfide emissions, measured during the month-long compliance demonstration, are reduced by at least 35% within 3 years after the effective date; (2) you have a record of the average operating parameter values over the month-long compliance demonstration during which the average uncontrolled total sulfide emissions were reduced by at least 35%; (3) you prepare a material balance that includes the pertinent data used to determine the percent reduction of total sulfide emissions; and (4) you comply with the initial compliance requirements for closed-vent systems; and
	ii. reduce total uncontrolled sulfide emissions (reported as carbon disulfide) by at least 40% within 8 years after the effective date based on a 6-month rolling average; for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and comply with the work practice standard for closed-vent systems.	(1) the average uncontrolled total sulfide emissions, measured during the month-long compliance demonstration, are reduced by at least 40% within 8 years after the effective date; (2) you have a record of the average operating parameter values over the month-long compliance demonstration during which the average uncontrolled total sulfide emissions were reduced by at least 40%; (3) you prepare a material balance that includes the pertinent data used to determine the percent reduction of the total sulfide emissions; and (4) you comply with the initial compliance requirements for closed-vent systems.

[As required in §§ 63.5530(a) and 63.5535(g), you must demonstrate initial compliance with the appropriate emission limits and work practice standards according to the requirements in the following table]

For . . .	at . . .	for the following emission limit or work practice standard . . .	you have demonstrated initial compliance if . . .
	d. each new rayon operation	i. reduce total uncontrolled sulfide emissions (reported as carbon disulfide) by at least 75%; based on a 6-month rolling average; ii. for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and iii. comply with the work practice standard for closed-vent systems.	(1) the average uncontrolled total sulfide emissions, measured during the month-long compliance demonstration, are reduced by at least 75%; (2) you have a record of the average operating parameter values over the month-long compliance demonstration during which the average uncontrolled total sulfide emissions were reduced by at least 75%; (3) you prepare a material balance that includes the pertinent data used to determine the percent reduction of total sulfide missions; and (4) you comply with the initial compliance requirements for closed-vent systems.
	e. each existing or new cellulosic sponge operation.	i. reduce total uncontrolled sulfide emissions (reported as carbon disulfide) by at least 75% based on a 6-month rolling average; ii. for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and iii. comply with the work practice standard for closed-vent systems.	(1) the average uncontrolled total sulfide emissions, measured during the month-long compliance demonstration, are reduced by at least 75%; (2) you have a record of the average operating parameter values over the month-long compliance demonstration during which the average uncontrolled total sulfide emissions were reduced by at least 75%; (3) you prepare a material balance that includes the pertinent data used to determine and the percent reduction of total sulfide emissions; and (4) you comply with the initial compliance requirements for closed-vent systems.

	f. each existing or new cellophane operation	i. reduce total uncontrolled sulfide emissions (reported as carbon disulfide) by at least 75% based on a 6-month rolling average; ii. for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and iii. comply with the work practice standard for closed-vent systems.	(1) the average uncontrolled total sulfide emissions, measured during the month-long compliance demonstration, are reduced by at least 75%; (2) you have a record of the average operating parameter values over the month-long compliance demonstration during which the average uncontrolled total sulfide emissions were reduced by at least 75%; (3) you prepare a material balance that includes the pertinent data used to determine the percent reduction of total sulfide emissions; and (4) you comply with the initial compliance requirements for closed-vent systems.
2. the sum of all solvent coating process vents.	a. each existing or new cellophane operation	i. reduce uncontrolled toluene emissions by at least 95% based on a 6-month folling average; ii. for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and iii. comply with the work practice standard for closed-vent systems.	1. the average uncontrolled toluene emissions, measured during the month-long compliance demonstration, are reduced by at least 95%; 2. you have a record of the average operating parameter values over the month-long compliance demonstration during which the average uncontrolled toluene emissions were reduced by at least 95%; 3. you prepare a material balance that includes the pertinent data used to determine the percent reduction of toluene emissions; and 4. you comply with the initial compliance requirements for closed-vent systems.

[As required in §§ 63.5530(a) and 63.5535(g), you must demonstrate initial compliance with the appropriate emission limits and work practice standards according to the requirements in the following table]

For . . .	at . . .	for the following emission limit or work practice standard . . .	you have demonstrated initial compliance if . . .
3. the sum of all cellulose ether process vents.	a. each existing or new cellulose ether operation.	i. reduce total uncontrolled organic HAP emissions by at least 99%; ii. for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and iii. comply with the work practice standard for closed-vent systems.	(1) average uncontrolled total organic HAP emissions, measured during the 3-hour performance test are reduced by at least 99%; (2) you have a record of the average operating parameter values over the 3-hour performance test during which the average uncontrolled total organic HAP emissions were reduced by at least 99%; (3) you comply with the initial compliance requirements for closed-vent systems; and (4) if you use extended cookout to comply, you measure the HAP charged to the reactor, record the grade of product produced, and then calculate reactor emissions prior to extended cookout by taking a percentage of the total HAP charged, with the percentage determined by the grade of product being produced.
4. closed-loop systems	each existing or new cellulose ether operation.	operate and maintain the closed-loop system for cellulose ether operations.	you have a record certifying that a closed-loop system is in use for cellulose ether operations.
5. each carbon disulfide unloading and storage operation.	a. each existing or new viscose process affected source.	i. reduce uncontrolled carbon disulfide emissions by at least 83% from unloading and storage operations based on a 6-month rolling average if you use an alternative control technique not listed in this table for carbon disulfide unloading and storage operations; if using a control device to reduce emissions, route emissions through a closed-vent system to the control device; and comply with the work practice standard for closed-vent systems;	(1) you have a record documenting the 83% reduction in uncontrolled carbon disulfide emissions; and (2) if venting to a control device to reduce emissions, you comply with the initial compliance requirements for closed-vent systems;

		ii. reduce uncontrolled carbon disulfide by at least 0.14% from viscose process vents based on a 6-month rolling average; for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and comply with the work practice standard for closed-vent systems;.	(1) you comply with the initial compliance requirements for viscose process vents at existing or new cellulose food casing, rayon, cellulosic sponge, or cellophane operations, as applicable; (2) the 0.14% reduction must be in addition to the reduction already required for viscose process vents at existing or new cellulose food casing, rayon, cellulosic sponge, or cellophane operations, as applicable; and (3) you comply with the initial compliance requirements for closed-vent systems;
		iii. install a nitrogen unloading and storage system; or	you have a record certifying that a nitrogen unloading and storage system is in use; or
		iv. install a nitrogen unloading system; reduce uncontrolled carbon disulfide by at least 0.045% from viscose process vents based on a 6-month rolling average; for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and comply with the work practice standard for closed-vent systems.	(1) you have a record certifying that a nitrogen unloading system is in use; (2) you comply with the initial compliance requirements for viscose process vents at existing or new cellulose food casing, rayon, cellulosic sponge, or cellophane operations, as applicable; (3) the 0.045% reduction must be in addition to the reduction already required for viscose process vents at cellulose food casing, rayon, cellulosic sponge, or cellophane operations, as applicable; and (4) you comply with the initial compliance requirements for closed-vent systems.
6. each toluene storage vessel	a. each existing or new cellophane operation	i. reduce uncontrolled toluene emissions by at least 95% based on a 6-month rolling average; ii. if using a control device to reduce emissions, route the emissions through a closed-vent system to the control device; and iii. comply with the work practice standard for closed-vent systems.	(1) the average uncontrolled toluene emissions, measured during the month-long compliance demonstration, are reduced by at least 95%; (2) you have a record of the average operating parameter values over the month-long compliance demonstration during which the average uncontrolled toluene emissions were reduced by at least 95%; (3) you prepare a material balance that includes the pertinent data used to determine the percent reduction of toluene emissions; and (4) if venting to a control device to reduce emissions, you comply with the initial compliance requirements for closed-vent systems.

[As required in §§ 63.5530(a) and 63.5535(g), you must demonstrate initial compliance with the appropriate emission limits and work practice standards according to the requirements in the following table]

For . . .	at . . .	for the following emission limit or work practice standard . . .	you have demonstrated initial compliance if . . .
7. equipment leaks	a. each existing or new cellulose ether operation.	i. comply with the applicable equipment leak standards of §§ 63.162 through 63.179; or	you comply with the applicable requirements described in the Notification of Compliance Status Report provisions in § 63.182(a)(2) and (c)(1) through (3), except that references to the term ''process unit'' mean ''cellulose ether process unit'' for the purposes of this subpart; or
		ii. comply with the applicable equipment leak standards of §§ 63.1021 through 63.1027.	you comply with the applicable requirements described in the Initial Compliance Status Report provisions of § 63.1039(a), except that references to the term ''process unit'' mean ''cellulose ether process unit'' for the purposes of this subpart.
8. all sources of wastewater emissions	each existing or new cellulose ether operation.	comply with the applicable wastewater provisions of § 63.105 and §§ 63.132 through 63.140.	you comply with the applicability and Group 1/Group 2 determination provisions of § 63.144 and the initial compliance provisions of §§ 63.105 and 63.145.
9. liquid streams in open systems	each existing or new cellulose ether operation.	comply with the applicable provisions of § 63.149, except that references to ''chemical manufacturing process unit'' mean ''cellulose ether process unit'' for the purposes of this subpart.	you install emission suppression equipment and conduct an initial inspection according to the provisions of to §§ 63.133 through 63.137.
10. closed-vent system used to route emissions to a control device.	a. each existing or new affected source	i. conduct annual inspections, repair leaks, and maintain records as specified in § 63.148.	(1) you conduct an initial inspection of the closed-vent system and maintain records according to § 63.148; (2) you prepare a written plan for inspecting unsafe-to-inspect and difficult-to-inspect equipment according to § 63.148(g)(2) and (h)(2); and (3) you repair any leaks and maintain records according to § 63.148.
11. closed-vent system containing a bypass line that could divert a vent stream away from a control device, except for equipment needed for safety purposes (described in § 63.148(f)(3)).	a. each existing or new affected source	i. install, calibrate, maintain, and operate a flow indicator as specified in § 63.148(f)(1); or.	you have a record documenting that you installed a flow indicator as specified in Table 1 to this subpart; or
		ii. secure the bypass line valve in the closed position with a car-seal or lock-and-key type configuration and inspect the seal or closure mechanism at lease once per month as specified in § 63.148(f)(2).	you have record documenting that you have secured the bypass line valve as specified in Table 1 to this subpart.

12. heat exchanger system that cools process equipment or materials in the process unit.	a. each existing or new affected source	i. monitor and repair the heat exchanger system according to § 63.104(a) through (e), except that references to ''chemical manufacturing process unit'' mean ''cellulose food casing, rayon, cellulosic sponge, cellophane, or cellulose ether process unit'' for the purposes of this subpart.	(1) you determine that the heat exchanger system is exempt from monitoring requirements because it meets one of the conditions in § 63.104(a)(1) through (6), and you document this finding in your Notification of Compliance Status Report; or (2) if your heat exchanger system is not exempt, i. you identify in your Notification of Compliance Status Report the HAP or other representative substance that you will monitor, or ii. you prepare and maintain a site-specific plan containing the information required by § 63.104(c)(1) (i) through (iv) that documents the procedures you will use to detect leaks by monitoring surrogate indicators of the leak.

TABLE 4 TO SUBPART UUUU OF PART 63—REQUIREMENTS FOR PERFORMANCE TESTS

[As required in §§ 63.5530(b) and 63.5535(a), (b), and (g)(1), you must conduct performance tests, other initial compliance demonstrations, and CEMS performance evaluations and establish operating limits according to the requirements in the following table]

For . . .	at . . .	you must . . .	using . . .	according to the following requirements . . .
1. the sum of all process vents	a. each existing or new affected source.	i. select sampling port's location and the number of traverse points;	EPA Method 1 or 1A of 40 CFR part 60, appendix A; § 63.7(d)(1)(i);	sampling sites must be located at the inlet and outlet to each control device;
		ii. determine velocity and volumetric flow rate;	EPA Method 2, 2A, 2C, 2D, 2F, or 2G in appendix A to part 60 of this chapter;	you may use EPA Method 2A, 2C, 2D, 2F, or 2G as an alternative to using EPA Method 2, as appropriate;
		iii. conduct gas analysis; and	(1) EPA Method 3, 3A, or 3B in appendix A to part 60 of this chapter; or	you may use EPA Method 3A or 3B as an alternative to using EPA Method 3; or
			(2) ASME PTC 19.10–1981—Part 10; and	you may use ASME PTC 19.10–1981—Part 10 (available for purchase from Three Park Avenue, New York, NY 10016–5990) as an alternative to using EPA Method 3B.
		iv. measure moisture content of the stack gas.	EPA Method 4 in appendix A to part 60 of this chapter.	

[As required in §§ 63.5530(b) and 63.5535(a), (b), and (g)(1), you must conduct performance tests, other initial compliance demonstrations, and CEMS performance evaluations and establish operating limits according to the requirements in the following table]

For . . .	at . . .	you must . . .	using . . .	according to the following requirements . . .
2. the sum of all viscose process vents	a. each existing or new viscose process source.	i. measure total sulfide emissions	(1) EPA Method 15 in Appendix A to part 60 of this chapter; or	(a) you must conduct testing of emissions at the inlet and outlet of each control device; (b) you must conduct testing of emissions from continuous viscose process vents and combinations of batch and continuous viscose process vents at normal operating conditions, as specified in §§ 63.7(e)(1) and 63.5535; (c) you must conduct testing of emissions from batch viscose process vents as specified in § 63.490(c), except that the emission reductions required for process vents under this subpart supersede the emission reductions required for process vents under subpart U of this part; and (d) you must collect CPMS data during the period of the initial compliance demonstration and determine the CPMS operating limit during the period of the initial compliance demonstration; or

			(2) carbon disulfide and/or hydrogen sulfide CEMS, as applicable.	(a) you must measure emissions at the inlet and outlet of each control device using CEMS; (b) you must install, operate, and maintain the CEMS according to the applicable performance specification (PS–7, PS–8, PS–9, or PS–15) of 40 CFR part 60, appendix B; and (c) you must collect CEMS emissions data at the inlet and outlet of each control device during the period of the initial compliance demonstration and determine the CEMS operating limit during the period of the initial compliance demonstration.
			3. the sum of all solvent coating process vents.	a. each existing or new cellophane operation i. measure toluene emissions (1) EPA Method 18 in appendix A to part 60 of this chapter; or (a) you must conduct testing of emissions at the inlet and outlet of each control device; (b) you may use EPA Method 18 to determine the control efficiency of any control device for organic compounds; for a combustion device, you must use only HAP that are present in the inlet to the control device to characterize the percent reduction across the combustion device; (c) you must conduct testing of emissions from continuous solvent coating process vents and combinations of batch and continuous solvent coating process vents at normal operating conditions, as specified in §§ 63.7(e)(1) and 63.5535;

[As required in §§ 63.5530(b) and 63.5535(a), (b), and (g)(1), you must conduct performance tests, other initial compliance demonstrations, and CEMS performance evaluations and establish operating limits according to the requirements in the following table]

For . . .	at . . .	you must . . .	using . . .	according to the following requirements . . .
				(d) you must conduct testing of emissions from batch solvent coating process vents as specified in § 63.490(c), except that the emission reductions required for process vents under this subpart supersede the emission reductions required for process vents under subpart U of this part; and (e) you must collect CPMS data during the period of the initial compliance demonstration and determine the CPMS operating limit during the period of the initial compliance demonstration; or
			(2) ASTM D6420–99	(a) you must conduct testing of emissions at the inlet and outlet of each control device;

(b) you may use ASTM D6420–99 (available for purchase from at least one of the following addresses: 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959; or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106) as an alternative to EPA Method 18 only where: the target compound(s) are those listed in Section 1.1 of ASTM D6420–99; and the target concentration is between 150 parts per billion by volume (ppbv) and 100 ppmv; for target compound(s) not listed in Section 1.1 of ASTM D6420–99, but potentially detected by mass spectrometry, the additional system continuing calibration check after each run, as detailed in Section 10.5.3 of the ASTM method, must be followed, met, documented, and submitted with the data report even if there is no moisture condenser used or the compound is not considered water soluble; and for target compound(s) not listed in Section 1.1 of ASTM D6420–99 and not amenable to detection by mass spectrometry, ASTM D6420–99 does not apply;

(c) you must conduct testing of emissions from continuous solvent coating process vents and combinations of batch and continuous solvent coating process vents at normal operating conditions, as specified in §§ 63.7(e)(1) and 63.5535;

[As required in §§ 63.5530(b) and 63.5535(a), (b), and (g)(1), you must conduct performance tests, other initial compliance demonstrations, and CEMS performance evaluations and establish operating limits according to the requirements in the following table]

For . . .	at . . .	you must . . .	using . . .	according to the following requirements . . .
				(d) you must conduct testing of emissions from batch solvent coating process vents as specified in § 63.490(c), except that the emission reductions required for process vents under this subpart supersede the emission reductions required for process vents under subpart U of this part; and (e) you must collect CPMS data during the period of the initial compliance demonstration and determine the CPMS operating limit during the period of the initial compliance demonstration.
4. the sum of all cellulose ether process vents.	a. each existing or new cellulose ether operation.	i. measure total organic HAP emissions.	(1) EPA Method 18 in appendix A to part 60 of this chapter;	(a) you must conduct testing of emissions at the inlet and outlet of each control device; (b) you may use EPA Method 18 to determine the control efficiency of any control device for organic compounds; for a combustion device, you must use only HAP that are present in the inlet to the control device to characterize the percent reduction across the combustion device; (c) you must conduct testing of emissions from continuous cellulose ether process vents and combinations of batch and continuous cellulose ether process vents at normal operating conditions, as specified in §§ 63.7(e)(1) and 63.5535;

			(d) you must conduct testing of emissions from batch cellulose ether process vents as specified in §63.490(c), except that the emission reductions required for process vents under this subpart supersede the emission reductions required for process vents under subpart U of this part; and (e) you must collect CPMS data during the period of the initial performance test and determine the CPMS operating limit during the period of the initial performance test;
		(2) ASTM D6420–99	(a) you must conduct testing of emissions at the inlet and outlet of each control device;

[As required in §§ 63.5530(b) and 63.5535(a), (b), and (g)(1), you must conduct performance tests, other initial compliance demonstrations, and CEMS performance evaluations and establish operating limits according to the requirements in the following table]

For . . .	at . . .	you must . . .	using . . .	according to the following requirements . . .
				(b) you may use ASTM D6420–99 (available for purchase from at least one of the following addresses: 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959; or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI (48106) as an alternative to EPA Method 18 only where: the target compound(s) are those listed in Section 1.1 of ASTM D6420–99; and the target concentration is between 150 ppbv and 100 ppmv; for target compound(s) not listed in Section 1.1 of ASTM D6420–99, but pontentially detected by mass spectrometry, the additional system continuing calibration check after each run, as detailed in Section 10.5.3 of the ASTM method, must be followed, met, documented, and submitted with the data report even if there is no moisture condenser used or the compound is not considered water soluble; and for target compound(s) not listed in Section 1.1 of ASTM D6420–99 and not amenable to detection by mass spectrometry, ASTM D6420–99 does not apply; (c) you must conduct testing of emissions from continuous cellulose ether process vents and combinations of batch and continuous cellulose ether process vents at normal operating conditions, as specified in §§ 63.7(e)(1) and 63.5535;

				(d) you must conduct testing of emissions from batch cellulose ether process vents as specified in § 63.490(c), except that the emission reductions required for process vents under this subpart supersede the emission reductions required for process vents under subpart U of this part; and (e) you must collect CPMS data during the period of the initial performance test and determine the CPMS operating limit during the period of the initial performance test;
			(3) EPA Method 25 in appendix A to part 60 of this chapter; or	(a) you must conduct testing of emissions at the inlet and outlet of each control device; (b) you may use EPA Method 25 to determine the control efficiency of combustion devices for organic compounds; you may not use EPA Method 25 to determine the control efficiency of noncombustion control devices; (c) you must conduct testing of emissions from continuous cellulose ether process vents and combinations of batch and continuous cellulose ether process vents at normal operating conditions, as specified in §§ 63.7(e)(1) and 63.5535; (d) you must conduct testing of emissions from batch cellulose ether process vents as specified in § 63.490(c), except that the emission reductions required for process vents under this subpart supersede the emission reductions required for process vents under subpart U of this part; and

[As required in §§ 63.5530(b) and 63.5535(a), (b), and (g)(1), you must conduct performance tests, other initial compliance demonstrations, and CEMS performance evaluations and establish operating limits according to the requirements in the following table]

For . . .	at . . .	you must . . .	using . . .	according to the following requirements . . .
				(e) you must collect CPMS data during the period of the initial performance test and determine the CPMS operating limit during the period of the initial performance test; or
			(4) EPA Method 25A in appendix A to part 60 of this chapter.	(a) you must conduct testing of emissions at the inlet and outlet of each control device; (b) you may use EPA Method 25A if: an exhaust gas volatile organic matter concentration of 50 ppmv or less is required in order to comply with the emission limit; the volatile organic matter concentration at the inlet to the control device and the required level of control are such as to result in exhaust volatile organic matter concentrations of 50 ppmv or less; or because of the high control efficiency of the control device, the anticipated volatile organic matter concentration at the control device exhaust is 50 ppmv or less, regardless of the inlet concentration; (c) you must conduct testing of emissions from continuous cellulose ether process vents and combinations of batch and continuous cellulose ether process vents at normal operating conditions, as specified in §§ 63.7(e)(1) and 63.5535;

				(d) you must conduct testing of emissions from batch cellulose ether process vents as specified in § 63.490(c), except that the emission reductions required for process vents under this subpart supersede the emission reductions required for process vents under subpart U of this part; and (e) you must collect CPMS data during the period of the initial performance test and determine the CPMS operating limit during the period of the initial performance test.
5. each toluene storage vessel	a. each existing or new cellophane operation.	i. measure toluene emissions	(1) EPA Method 18 in appendix A to part 60 of this chapter; or	(a) if venting to a control device to reduce emissions, you must conduct testing of emissions at the inlet and outlet of each control device; (b) you may use EPA Method 18 to determine the control efficiency of any control device for organic compounds; for a combustion device, you must use only HAP that are present in the inlet to the control device to characterize the percent reduction across the combustion device; (c) you must conduct testing of emissions from continuous storage vessel vents and combinations of batch and continuous storage vessel vents at normal operating conditions, as specified in §§ 63.7(e)(1) and 63.5535 for continuous process vents;

[As required in §§ 63.5530(b) and 63.5535(a), (b), and (g)(1), you must conduct performance tests, other initial compliance demonstrations, and CEMS performance evaluations and establish operating limits according to the requirements in the following table]

For . . .	at . . .	you must . . .	using . . .	according to the following requirements . . .
				(d) you must conduct testing of emissions from batch storage vessel vents as specified in § 63.490(c) for batch process vents, except that the emission reductions required for process vents under this subpart supersede the emission reductions required for process vents under subpart U of this part; and (e) you must collect CPMS data during the period of the initial compliance demonstration and determine the CPMS operating limit during the period of the initial compliance demonstration; or
			(2) ASTM D6420–99	(a) if venting to a control device to reduce emissions, you must conduct testing of emissions at the inlet and outlet of each control device;

				(b) you may use ASTM D6420–99 (available for purchase from at least one of the following addresses: 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959; or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106) as an alternative to EPA Method 18 only where: the target compound(s) are those listed in Section 1.1 of ASTM D6420–99, and the target concentration is between 150 ppbv and 100 ppmv; for target compound(s) not listed in Section 1.1 of ASTM D6420-99, but potentially detected by mass spectrometry, the additional system continuing calibration check after each run, as detailed in Section 10.5.3 of the ASTM method, must be followed, met, documented, and submitted with the data report even if there is no moisture condenser used or the compound is not considered water soluble; and for target compound(s) not listed in Section 1.1 of ASTM D6420–99 and not amenable to detection by mass spectrometry, ASTM D6420–99 does not apply; (c) you must conduct testing of emissions from continuous storage vessel vents and combinations of batch and continuous storage vessel vents at normal operating conditions, as specified in §§ 63.7(e)(1) and 63.5535 for continuous process vents;

[As required in §§ 63.5530(b) and 63.5535(a), (b), and (g)(1), you must conduct performance tests, other initial compliance demonstrations, and CEMS performance evaluations and establish operating limits according to the requirements in the following table]

For . . .	at . . .	you must . . .	using . . .	according to the following requirements . . .
				(d) you must conduct testing of emissions from batch storage vessel vents as specified in § 63.490(c) for batch process vents, except that the emission reductions required for process vents under this subpart supersede the emission reductions required for process vents under subpart U of this part; and (e) you must collect CPMS data during the period of the initial compliance demonstration and determine the CPMS operating limit during the period of the initial compliance demonstration.
6. the sum of all process vents controlled using a flare.	each existing or new affected source.	measure visible emissions	EPA Method 22 in appendix A to part 60 of this chapter.	you must conduct the flare visible emissions test according to § 63.11(b).
7. equipment leaks	a. each existing or new cellulose ether operation.	i. measure leak rate	(1) applicable equipment leak test methods in § 63.180; or	you must follow all requirements for the applicable equipment leak test methods in § 63.180; or
			(2) applicable equipment leak test methods in 63.1023.	you must follow all requirements for the applicable equipment leak test methods in § 63.1023.
8. all sources of wastewater emissions	a. each existing or new cellulose ether operation.	i. measure wastewater HAP emissions.	(1) applicable wastewater test methods and procedures in §§ 63.144 and 63.145; or	You must follow all requirements for the applicable wastewater test methods and procedures in §§ 63.144 and 63.145; or

			(2) applicable wastewater test methods and procedures in §§ 63.144 and 63.145, using ASTM D5790–95 as an alternative to EPA Method 624 in appendix A to part 163 of this chapter.	you must follow all requirements for the applicable waste water test methods and procedures in §§ 63.144 and 63.145, except that you may use ASTM D5790–95 (available for purchase from at least one of the following addresses: 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959; or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106) as an alternative to EPA Method 624, under the condition that this ASTM method be used with the sampling procedures of EPA Method 25D or an equivalent method.
9. any emission point	a. each existing or new affected source using a CEMS to demonstrate compliance.	i. conduct a CEMS performance evaluation.	(1) applicable requirements in § 63.8 and applicable performance specification (PS–7, PS–8, PS–9, or PS–15) in appendix B to part 60 of this chapter.	(a) you must conduct the CEMS performance evaluation during the period of the initial compliance demonstration according to the applicable requirements in § 63.8 and the applicable performance specification (PS–7, PS–8, PS–9, or PS–15) of 40 CFR part 60, appendix B; (b) you must install, operate, and maintain the CEMS according to the applicable performance specification (PS–7, PS–8, PS–9, or PS–15) of 40 CFR part 60, appendix B; and (c) you must collect CEMS emissions data at the inlet and outlet of each control device during the period of the initial compliance demonstration and determine the CEMS operating limit during the period of the initial compliance demonstration.

TABLE 5 TO SUBPART UUUU OF PART 63—CONTINUOUS COMPLIANCE WITH EMISSION LIMITS AND WORK PRACTICE STANDARDS

[As required in § 63.5555(a), you must demonstrate continuous compliance with the appropriate emission limits and work practice standards according to the requirements in the following table]

For . . .	at . . .	for the following emission limit or work practice standard . . .	you must demonstrate continuous compliance by . . .
1. the sum of all viscose process vents	a. each existing or new viscose process affected source.	i. reduce total uncontrolled sulfide emissions (reported as carbon disulfide) by at least the specified percentage based on a 6-month rolling average; ii. for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and c. comply with the work practice standard for closed-vent systems.	(1) maintaining a material balance that includes the pertinent data used to determine the percent reduction of total sulfide emissions; (2) documenting the percent reduction of total sulfide emissions using the pertinent data from the material balance; and (3) complying with the continuous compliance requirements for closed-vent systems.
2. the sum of all solvent coating process vents.	a. each existing or new cellophane operation	i. reduce uncontrolled toluene emissions by at least 95% based on a 6-month rolling average; ii. for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and iii. comply with the work practice standard for closed-vent systems.	(1) maintaining a material balance that includes the pertinent data used to determine the percent reduction of toluene emissions; (2) documenting the percent reduction of toluene emissions using the pertinent data from the material balance; and (3) complying with the continuous compliance requirements for closed-vent systems.
3. the sum of all cellulose ether process vents.	a. each existing or new cellulose ether operation.	i. reduce total uncontrolled organic HAP emissions by at least 99%; ii. for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and iii. comply with the work practice standard for closed-vent systems.	(1) complying with the continuous compliance requirements for closed-vent systems; and (2) if using extended cookout to comply, monitoring reactor charges and keeping records to show that extended cookout was employed.
4. closed-loop systems	each existing or new cellulose either operation.	operate and maintain a closed-loop system ..	keeping a record certifying that a closed-loop system is in use for cellulose ether operations.
5. each carbon disulfide unloading and storage operation.	a. each existing or new viscose process affected source.	i. (1) reduce uncontrolled carbon disulfide emissions by at least 83% based on a 6-month rolling average if you use an alternative control technique not listed in this table for carbon disulfide unloading and storage operations; (2) if using a control device to reduce emissions, route emissions through a closed-vent system to the control device; and (3) comply with the work practice standard for closed-vent systems;	(a) keeping a record documenting the 83% reduction in carbon disulfide emissions; and (b) if venting to a control device to reduce emissions, complying with the continuous compliance requirements for closed-vent systems;

		ii. (1) reduce total uncontrolled sulfide emissions by at least 0.14% from viscose process vents based on a 6-month rolling average; (2) for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and (3) comply with the work practice standard for closed-vent systems;	(a) maintaining a material balance that includes the pertinent data used to determine the percent reduction of total sulfide emissions; (b) documenting the percent reduction of total sulfide emissions using the pertinent data from the material balance; and (c) complying with the continuous compliance requirements for closed-vent systems;
		iii. install a nitrogen unloading and storage system; or	Keeping a record certifying that a nitrogen unloading and storage system is in use; or
		iv. (1) install a nitrogen unloading system; (2) reduce total uncontrolled sulfide emissions by at least 0.045% from viscose process vents based on a 6-month rolling average; (3) for each vent stream that you control using a control device, route the vent stream through a closed-vent system to the control device; and (4) comply with the work practice standard for closed-vent systems.	(a) keeping a record certifying that a nitrogen unloading system is in use; (b) maintaining a material balance that includes the pertinent data used to determine the percent reduction of total sulfide emissions; (c) documenting the percent reduction of total sulfide emissions using the pertinent data from the material balance; and (d) complying with the continuous compliance requirements for closed-vent systems.
6. each toluene storage vessel	a. each existing or new cellophane operation	i. reduce uncontrolled toluene emissions by at least 95% based on a 6-month rolling average; ii. if using a control device to reduce emissions, route the emissions through a closed-vent system to the control device; and iii. comply with the work practice standard for closed-vent systems.	(1) maintaining a material balance that includes the pertinent data used to determine the percent reduction of toluene emissions; (2) documenting the percent reduction of toluene emissions using the pertinent data from the material balance; and (3) if venting to a control device to reduce emissions, complying with the continuous compliance requirements for closed-vent systems.
7. equipment leaks	a. each existing or new cellulose ether operation.	i. applicable equipment leak standards of §§ 63.162 through 63.179; or ii. applicable equipment leak standards of §§ 63.1021 through 63.1037.	complying with the applicable equipment leak continuous compliance provisions of §§ 63.162 through 63.179; or complying with the applicable equipment leak continuous compliance provisions of §§ 63.1021 through 63.1037.
8. all sources of wasstewater emissions	each existing or new cellulose ether operation.	applicable wastewater provisions of § 63.105 and §§ 63.132 through 63.140.	complying with the applicable wastewater continuous compliance provisions of §§ 63.105, 63.143, and 63.148.
9. liquid streams in open systems	each existing or new cellulose ether operation.	comply with the applicable provisions of § 63.149, except that references to ''chemical manufacturing process unit'' mean ''cellulose ether process unit'' for the purposes of this subpart.	conducting inspections, repairing failures, documenting delay of repair, and maintaining records of failures and corrective actions according to §§ 63.133 through 63.137.

[As required in § 63.5555(a), you must demonstrate continuous compliance with the appropriate emission limits and work practice standards according to the requirements in the following table]

For . . .	at . . .	for the following emission limit or work practice standard . . .	you must demonstrate continuous compliance by . . .
10. closed-vent system used to route emissions to a control device.	each existing or new affected source	conduct annual inspections, repair leaks, maintain records as specified in § 63.148.	conducting the inspections, repairing leaks, and maintaining records according to § 63.148.
11. closed-vent system containing a bypass line that could divert a vent stream away from a control device, except for equipment needed for safety purposes (described in § 63.148(f)(3).	a. each existing or new affected source	i. install, calibrate, maintain, and operate a flow indicator as specified in § 63.148(f)(1); or	(1) taking readings from the flow indicator at least once every 15 minutes; (2) maintaining hourly records of flow indicator operation and detection of any diversion during the hour, and (3) recording all periods when the vent stream is diverted from the control stream or the flow indicator is not operating; or
		ii. secure the bypass line valve in the closed position with a car-seal or lock-and-key type configuration and inspect the seal or mechanism at least once per month as specified in § 63.148(f)(2).	(1) maintaining a record of the monthly visual inspection of the seal or closure mechanism for the bypass line; and (2) recording all periods when the seal mechanism is broken, the bypass line valve position has changed, or the key for a lock-and-key type lock has been checked out.
12. heat exchanger system that cools process equipment or materials in the process unit.	a. each existing or new affected source	i. monitor and repair the heat exchanger system according to § 63.104(a) through (e), except that references to ''chemical manufacturing process unit'' mean ''cellulose food casing, rayon, cellulosic sponge, cellophane, or cellulose ether process unit'' for the purposes of this subpart.	(1) monitoring for HAP compounds, other substances, or surrogate indicators at the frequency specified in § 63.104(b) or (c); (2) repairing leaks within the time period specified in § 63.104(d)(1); (3) confirming that the repair is successful as specified in § 63.104(d)(2); (4) following the procedures in § 63.104(e) if you implement delay of repair; and (5) recording the results of inspections and repair according to § 63.104(f)(1).

TABLE 6 TO SUBPART UUUU OF PART 63—CONTINUOUS COMPLIANCE WITH OPERATING LIMITS

[As required in § 63.5555(a), you must demonstrate continuous compliance with the appropriate operating limits according to the requirements in the following table:]

For the following control technique . . .	for the following operating limit . . .	you must demonstrate continuous compliance by . . .
1. condenser	maintain the daily average condenser outlet gas or condensed liquid temperature no higher than the value established during the compliance demonstration.	collecting the condenser outlet gas or condensed liquid temperature data according to § 63.5545; reducing the condenser outlet gas temperature data to daily averages; and maintaining the daily average condenser outlet gas or condensed liquid temperature no higher than the value established during the compliance demonstration.
2. thermal oxidizer	maintain the daily average thermal oxidizer firebox temperature no lower than the value established during the compliance demonstration.	collecting the thermal oxidizer firebox temperature data according to § 63.5545; reducing the thermal oxidizer firebox temperature data to daily averages; and maintaining the daily average thermal oxidizer firebox temperature no lower than the value established during the compliance demonstration.
3. water scrubber	maintain the daily average scrubber pressure drop and scrubber liquid flow rate within the values established during the compliance demonstration.	collecting the scrubber pressure drop and scrubber liquid flow rate data according to § 63.5545; reducing the scrubber parameter data to daily averages; and maintaining the daily scrubber parameter values within the values established during the compliance demonstration.
4. caustic scrubber	maintain the daily average scrubber pressure drop, scrubber liquid flow rate, and scrubber liquid pH, conductivity, or alkalinity within the values established during the compliance demonstration.	collecting the scrubber pressure drop, scrubber liquid flow rate, and scrubber liquid pH, conductivity, or alkalinity data according to § 63.5545; reducing the scrubber parameter data to daily averages; and maintaining the daily scrubber parameter values within the values established during the compliance demonstration.
5. flare	maintain the presence of a pilot flame	collecting the pilot flame data according to § 63.5545; and maintaining the presence of the pilot flame.
6. biofilter	maintain the daily average biofilter inlet gas temperature, biofilter effluent pH, and pressure drop within the values established during the compliance demonstration.	collecting the biofilter inlet gas temperature, biofilter effluent pH, and biofilter pressure drop data according to § 63.5545; reducing the biofilter parameter data to daily averages; and maintaining the daily biofilter parameter values within the values established during the compliance demonstration.
7. carbon absorber	maintain the regeneration frequency, total regeneration stream mass or volumetric flow during carbon bed regeneration and temperature of the carbon bed after regeneration (and within 15 minutes of completing any cooling cycle(s)) for each regeneration cycle within the values established during the compliance demonstration.	collecting the data on regeneration frequency, total regeneration stream mass or volumetric flow during carbon bed regeneration and temperature of the carbon bed after regeneration (and within 15 minutes of completing any cooling cycle(s)) for each regeneration cycle according to § 63.5545; and maintaining carbon absorber parameter values for each regeneration cycle within the values established during the compliance demonstration.
8. oil absorber	maintain the daily average absorption liquid flow, absorption liquid temperature, and steam flow within the values established during the compliance demonstration.	collecting the absorption liquid flow, absorption liquid temperature, and steam flow data according to § 63.5545; reducing the oil absorber parameter data to daily averages; and maintaining the daily oil absorber parameter values within the values established during the compliance demonstration.

[As required in § 63.5555(a), you must demonstrate continuous compliance with the appropriate operating limits according to the requirements in the following table:]

For the following control technique . . .	for the following operating limit . . .	you must demonstrate continuous compliance by . . .
9. any of the control techniques specified in this table.	if using a CEMS, maintain the daily average control efficiency for each control device no lower than the value established during the compliance demonstration.	collecting CEMS emissions data at the inlet and outlet of each control device according to § 63.5545; determining the control efficiency values for each control device using the inlet and outlet CEMS emissions data; reducing the control efficiency values for each control device to daily averages; and maintaining the daily average control efficiency for each control device no lower than the value established during the compliance demonstration.

TABLE 7 TO SUBPART UUUU OF PART 63—NOTIFICATIONS

[As required in §§ 63.5490(c)(4), 63.5530(c), 63.5575, and 63.5595(b), you must submit the appropriate notifications specified in the following table]

If you . . .	then you must . . .
1. are required to conduct a performance test	submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin, as specified in §§ 63.7(b)(1) and 63.9(e).
2. wish to use an alternative monitoring method	submit a request to use alternative monitoring method no later than the notification of the initial performance test or CEMS performance evaluation or 60 days prior to any other initial compliance demonstration, as specified in § 63.8(f)(4).
3. start up your affected source before June 11, 2002	submit an initial notification no later than 120 days after June 11, 2002, as specified in § 63.9(b)(2).
4. start up your new or reconstructed source on or after June 11, 2002	submit an initial notification no later than 120 days after you become subject to this subpart, as specified in § 63.9(b)(3).
5. cannot comply with the relevant standard by the applicable compliance date	submit a request for extension of compliance no later than 120 days before the compliance date, as specified in §§ 63.9(c) and 63.6(i)(4).
6. are subject to special requirements as specified in § 63.6(b)(3) and (4)	notify the Administrator of your compliance obligations no later than the initial notification dates established in § 63.9(b) for new sources not subject to the special provisions, as specified in § 63.9(d).
7. are required to conduct visible emission observations to determine the compliance of flares as specified in § 63.11(b)(4).	notify the Administrator of the anticipated date for conducting the observations specified in § 63.6(h)(5), as specified in §§ 63.6(h)(4) and 63.9(f).
8. are required to conduct a performance test or other initial compliance demonstration as specified in Table 3 to this subpart.	a. submit a Notification of Compliance Status Report, as specified in § 63.9(h); and b. submit the Notification of Compliance Status Report, including the performance test, CEMS performance evaluation, and any other initial compliance demonstration results within 240 calendar days following the compliance date specified in § 63.5495.
9. comply with the equipment leak requirements of subpart H of this part for existing or new cellulose ether affected sources.	comply with the notification requirements specified in § 63.182(a)(1) and (2), (b), and (c)(1) through (3) for equipment leaks, with the Notification of Compliance Status Reports required in subpart H included in the Notification of Compliance Status Report required in this subpart.
10. comply with the equipment leak requirements of subpart UU of this part for existing or new cellulose ether affected sources.	comply with the notification requirements specified in § 63.1039(a) for equipment leaks, with the Notification Compliance Status Reports required in subpart UU of this part included in the Notification of Compliance Status Report required in this subpart.
11. comply with the wastewater requirements of subparts F and G of this part for existing or new cellulose ether affected sources.	comply with the notification requirements specified in §§ 63.146(a) and (b), 63.151, and 63.152(a)(1) through (3) and (b)(1) through (5) for wastewater, with the Notification of Compliance Status Reports required in subpart G of this part included in the Notification of Compliance Status Report required in this subpart.

TABLE 8 TO SUBPART UUUU OF PART 63—REPORTING REQUIREMENTS

[As required in § 63.5580, you must submit the appropriate reports specified in the following table]

You must submit a compliance report, which must contain the following information . . .	and you must submit the report . . .
1. if there are no deviations from any emission limit, operating limit, or work practice standard during the reporting period, then the report must contain the information specified in § 63.5580(c); 2. if there were no periods during which the CMS was out-of-control, then the report must contain a statement that there were no periods during which the CMS was out-of-control during the reporting period; you must develop and include specifications for out-of-control operation in the CMS quality control plan required under § 63.8(d)(2); 3. if there is a deviation from any emission limit, operating limit, or work practice standard during the reporting period, then the report must contain the information specified in § 63.5580(c) and (d); 4. if there were periods during which the CMS was out-of-control, then the report must contain the information specified in § 63.5580(e); 5. if you had a startup, shutdown, or malfunction during the reporting period and you took actions consistent with your SSM plan, then the report must contain the information specified in § 63.10(d)(5)(i); 6. if you had a startup, shutdown, or malfunction during the reporting period and you took actions that are not consistent with your SSM plan, then the report must contain the information specified in § 63.10(d)(5)(ii); 7. the report must contain any change in information already provided, as specified in § 63.9(j); 8. for cellulose ether affected sources complying with the equipment leak requirements of subpart H of this part, the report must contain the information specified in § 63.182(a)(3) and (6) and (d)(2) through (4); 9. for cellulose ether affected sources complying with the equipment leak requirements of subpart UU of this part, the report must contain the information specified in § 63.1039(b); 10. for cellulose ether affected sources complying with the wastewater requirements of subparts F and G of this part, the report must contain the information specified in §§ 63.146(c) through (e) and 63.152(a)(4) and (5) and (c) through (e); 11. for affected sources complying with the closed-vent system provisions in § 63.148, the report must contain the information specified in § 63.148(j)(1); 12. for affected sources complying with the bypass line provisions in § 63.148(f), the report must contain the information specified in § 63.148(j)(2) and (3); 13. for affected sources invoking the delay of repair provisions in § 63.104(e) for heat exchanger systems, the next compliance report must contain the information in § 63.104(f)(2)(i) through (iv); if the leak remains unrepaired, the information must also be submitted in each subsequent compliance report until the repair of the leak is reported; and 14. for storage vessels subject to the emission limits and work practice standards in Table 1 to Subpart UUUU, the report must contain the periods of planned routine maintenance during which the control device does not comply with the emission limits or work practice standards in Table 1 to this subpart	semiannually as specified in § 63.5580(b).

TABLE 9 TO SUBPART UUUU OF PART 63—RECORDKEEPING REQUIREMENTS

[As required in § 63.5585, you must keep the appropriate records specified in the following table]

If you operate . . .	then you must keep . . .	and the record(s) must contain . . .
1. an existing or new affected source.	a copy of each notification and report that you submitted to comply with this subpart.	all documentation supporting any Initial Notification or Notification of Compliance Status Report that you submitted, according to the requirements in § 63.10(b)(2)(xiv), and any compliance report required under this subpart.
2. an existing or new affected source.	a. the records in § 63.6(e)(3)(iii) through (iv) related to startup, shutdown, and malfunction.	i. SSM plan; ii. when actions taken during a startup, shutdown, or malfunction are consistent with the procedures specified in the SSM plan, records demonstrating that the procedures specified in the plan were followed; iii. records of the occurrence and duration of each startup, shutdown, or malfunction; and iv. when actions taken during a startup, shutdown, or malfunction are not consistent with the procedures specified in the SSM plan, records of the actions taken for that event.

[As required in § 63.5585, you must keep the appropriate records specified in the following table]

If you operate . . .	then you must keep . . .	and the record(s) must contain . . .
3. an existing or new affected source.	a. a site-specific monitoring plan.	i. information regarding the installation of the CMS sampling source probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (e.g., on or downstream of the last control device); ii. performance and equipment specifications for the sample interface, the pollutant concentration or parametric signal analyzer, and the data collection and reduction system; iii. performance evaluation procedures and acceptance criteria (e.g., calibrations); iv. ongoing operation and maintenance procedures in accordance with the general requirements of §§ 63.8(c)(1), (3), and (4)(ii) and 63.5580(c)(6); v. ongoing data quality assurance procedures in accordance with the general requirements of § 63.8(d)(2); and vi. ongoing recordkeeping and reporting procedures in accordance with the general requirements of §§ 63.10(c), (e)(1), and (e)(2)(i) and 63.5585.
4. an existing or new affected source.	records of performance tests and CEMS performance evaluations, as required in § 63.10(b)(2)(viii) and any other initial compliance demonstrations.	all results of performance tests, CEMS performance evaluations, and any other initial compliance demonstrations, including analysis of samples, determination of emissions, and raw data.
5. an existing or new affected source.	a. records for each CEMS	i. records described in § 63.10(b)(2)(vi) through (xi); ii. previous (superseded) versions of the performance evaluation plan as required in § 63.8(d)(3); iii. request for alternatives to relative accuracy test for CEMS as required in § 63.8(f)(6)(i); iv. records of the date and time that each deviation started and stopped, and whether the deviation occurred during a period of startup, shutdown, or malfunction or during another period; and v. records required in Table 6 to Subpart UUUU to show continuous compliance with the operating limit.
6. an existing or new affected source.	a. records for each CPMS	i. records required in Table 6 to Subpart UUUU to show continuous compliance with each operating limit that applies to you; and ii. results of each CPMS calibration, validation check, and inspection required by § 63.5545(b)(4).
7. an existing or new cellulose ether affected ether source.	records of closed-loop systems.	records certifying that a closed-loop system is in use for cellulose ether operations.
8. an existing or new viscose process affected source.	records of nitrogen unloading and storage systems or nitrogen unloading systems.	records certifying that a nitrogen unloading and storage system or nitrogen unloading system is in use.
9. an existing or new viscose process affected source.	records of material balances	all pertinent data from the material balances used to estimate the 6-month rolling average percent reduction in HAP emissions.
10. an existing or new viscose process affected source.	records of calculations	documenting the percent reduction in HAP emissions using pertinent data from the material balances.
11. an existing or new cellulose ether affected source.	a. extended cookout records	i. the amount of HAP charged to the reactor; ii. the grade of product produced; iii. the calculated amount of HAP remaining before extended cookout; and iv. information showing that extended cookout was employed.
12. an existing or new cellulose ether affected source.	a. equipment leak records	i. the records specified in § 63.181 for equipment leaks; or ii. the records specified in 63.1038 for equipment leaks.
13. an existing or new cellulose ether affected source.	wastewater records	the records specified in §§ 63.105, 63.147, and 63.152(f) and (g) for wastewater.
14. an existing or new affected source.	closed-vent system records ..	the records specified in § 63.148(i).
15. an existing or new affected source.	a. bypass line records	i. hourly records of flow indicator operation and detection of any diversion during the hour and records of all periods when the vent stream is diverted from the control stream or the flow indicator is not operating; or ii. the records of the monthly visual inspection of the seal or closure mechanism and of all periods when the seal mechanism is broken, the bypass line valve position has changed, or the key for a lock-and-key type lock has been checked out and records of any car-seal that has broken.
16. an existing or new affected source.	heat exchanger system records.	records of the results of inspections and repair according to source § 63.104(f)(1).

[As required in § 63.5585, you must keep the appropriate records specified in the following table]

If you operate . . .	then you must keep . . .	and the record(s) must contain . . .
17. an existing or new affected source.	control device maintenance records.	records of planned routine maintenance for control devices used to comply with the percent reduction emission limit for storage vessels in Table 1 to Subpart UUUU.
18. an existing or new affected source.	safety device records	a record of each time a safety device is opened to avoid unsafe conditions according to § 63.5505(d).

TABLE 10 TO SUBPART UUUU OF PART 63—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART UUUU

[As required in §§ 63.5515(h) and 63.5600, you must comply with the appropriate General Provisions requirements specified in the following table]

Citation	Subject	Brief description	Applies to Subpart UUUU
§ 63.1	Applicability	Initial applicability determination; applicability after standard established; permit requirements; extensions, notifications.	Yes.
§ 63.2	Definitions	Definitions for part 63 standards	Yes.
§ 63.3	Units and Abbreviations	Units and abbreviations for part 63 standards.	Yes.
§ 63.4	Prohibited Activities	Prohibited activities; compliance date; circumvention, severability.	Yes.
§ 63.5	Construction and Reconstruction	Applicability; applications; approvals.	Yes.
§ 63.6(a)	Applicability	General provisions apply unless compliance extension; general provisions apply to area sources that become major.	Yes.
§ 63.6(b)(1) through(4).	Compliance Dates for New and Reconstructed sources.	Standards apply at effective date; 3 years after effective date; upon startup; 10 years after construction or reconstruction commences for CAA section 112(f).	Yes.
§ 63.6(b)(5)	Notification	Must notify if commenced construction or reconstruction after proposal.	Yes.
§ 63.6(b)(6)	[Reserved].		
§ 63.6(b)(7)	Compliance Dates for New and Reconstructed Area Sources That Become Major.	Area sources that become major must comply with major source and standards immediately upon becoming major, regardless of whether required to comply when they were an area source.	Yes.
§ 63.6(c)(1) and (2)	Compliance Dates for Existing Sources.	Comply according to date in subpart, which must be no later than 3 years after effective date; for CAA section 112(f) standards, comply within 90 days of effective date unless compliance extension.	Yes, except that existing rayon operations are given 8 years to comply with 40% reduction emission limit, as specified in § 63.5495(b)(2)(iii).
§ 63.6(c)(3) and (4)	[Reserved].		
§ 63.6(c)(5)	Compliance Dates for Existing Area Sources That Become Major.	Area sources that become major must comply with major source standards by date indicated in subpart or by equivalent time period (e.g., 3 years).	Yes.
§ 63.6(d)	[Reserved].		
§ 63.6(e)(1) and (2)	Operation and Maintenance	Operate to minimize emissions at all times; correct malfunctions as soon as practicable; operation and maintenance requirements independently enforceable; information Administrator will use to determine if operation and maintenance requirements were met.	Yes.

[As required in §§63.5515(h) and 63.5600, you must comply with the appropriate General Provisions requirements specified in the following table]

Citation	Subject	Brief description	Applies to Subpart UUUU
§63.6(e)(3)	Startup, Shutdown, and Malfunction Plan.	Requirement for startup, shutdown, and malfunction and SSM plan; content of SSM plan.	Yes.
§63.6(f)(1)	Compliance Except During SSM	You must comply with emission standards at all times except during SSM.	Yes.
§63.6(f)(2) and (3)	Methods for Determining Compliance.	Compliance based on performance test, operation and maintenance plans, records, inspection.	Yes.
§63.6(g)(1) through (3).	Alternative Standard	Procedures for getting an alternative standard.	Yes.
§63.6(h)	Opacity and Visible Emission (VE) Standards.	Requirements for opacity and visible emission limits.	Yes, but only for flares for which EPA Method 22 observations are required under §63.11(b).
§63.6(i)(1) through (14).	Compliance Extension	Procedures and criteria for Administrator to grant compliance extension.	Yes.
§63.6(j)	Presidential Compliance Exemption.	President may exempt source category from requirement to comply with subpart.	Yes.
§63.7(a)(1) and (2)	Performance Test Dates	Dates for conducting initial performance test; testing and other compliance demonstrations; must conduct 180 days after first subject to subpart.	Yes.
§63.7(a)(3)	Section 114 Authority	Administrator may require a performance test under CAA Section 114 at any time.	Yes.
§63.7(b)(1)	Notification of Performance Test	Must notify Administrator 60 days before the test.	Yes.
§63.7(b)(2)	Notification of Rescheduling	If rescheduling a performance test is necessary, must notify Administrator 5 days before scheduled date of rescheduled test.	Yes.
§63.7(c)	Quality Assurance and Test Plan	Requirement to submit site-specific test plan 60 days before the test or on date Administrator agrees with; test plan approval procedures; performance audit requirements; internal and external QA procedures for testing.	No.
§63.7(d)	Testing Facilities	Requirements for testing facilities	Yes.
§63.7(e)(1)	Conditions for Conducting Performance Tests.	Performance tests must be conducted under representative conditions; cannot conduct performance tests during SSM; not a violation to exceed standard during SSM.	Yes, except that performance tests for batch process vents must be conducted under other conditions, as specified in Table 4 to this subpart.
§63.7(e)(2)	Conditions for Conducting Performance Tests.	Must conduct according to this subpart and EPA test methods unless Administrator approves alternative.	Yes.
§63.7(e)(3)	Test Run Duration	Must have three test runs of at least 1 hour each; compliance is based on arithmetic mean of three runs; conditions when data from an additional test run can be used.	Yes.
§63.7(f)	Alternative Test Method	Procedures by which Administrator can grant approval to use an alternative test method.	Yes.

[As required in §§ 63.5515(h) and 63.5600, you must comply with the appropriate General Provisions requirements specified in the following table]

Citation	Subject	Brief description	Applies to Subpart UUUU
§ 63.7(g)	Performance Test Data Analysis	Must include raw data in performance test report; must submit performance test data 60 days after end of test with the Notification of Compliance Status Report; keep data for 5 years.	Yes.
§ 63.7(h)	Waiver of Tests	Procedures for Administrator to waive performance test.	Yes.
§ 63.8(a)(1)	Applicability of Monitoring Requirements.	Subject to all monitoring requirements in standard.	Yes.
§ 63.8(a)(2)	Performance Specifications	Performance specifications in Appendix B of 40 CFR part 60 apply.	Yes.
§ 63.8(a)(3)	[Reserved].		
§ 63.8(a)(4)	Monitoring with Flares	Unless your subpart says otherwise, the requirements for flares in § 63.11 apply.	Yes.
§ 63.8(b)(1)	Monitoring	Must conduct monitoring according to standard unless Administrator approves alternative.	Yes.
§ 63.8(b)(2) and (3)	Multiple Effluents and Multiple Monitoring Systems.	Specific requirements for installing monitoring systems; must install on each effluent before it is combined and before it is released to the atmosphere unless Administrator approves otherwise; if more than one monitoring system on an emission point, must report all monitoring system results, unless one monitoring system is a backup.	Yes.
§ 63.8(c)(1)	Monitoring System Operation and Maintenance.	Maintain monitoring system in a manner consistent with good air pollution control practices.	Yes.
§ 63.8(c)(1)(i)	Routine and Predictable SSM	Follow the SSM plan for routine repairs; keep parts for routine repairs readily available; reporting requirements for SSM when action is described in SSM plan.	Yes.
§ 63.8(c)(1)(ii)	SSM Not in SSM plan	Reporting requirements for SSM when action is not described in SSM plan.	Yes.
§ 63.8(c)(1)(iii)	Compliance with Operation and Maintenance Requirements.	How Administrator determines if source complying with operation and maintenance requirements; review of source operation and maintenance procedures, records; manufacturer's instructions, recommendations; inspection.	Yes.
§ 63.8(c)(2) and (3)	Monitoring System Installation	Must install to get representative emission of parameter measurements; must verify operational status before or at performance test.	Yes.
§ 63.8(c)(4)	Continuous Monitoring System (CMS) Requirements.	CMS must be operating except during breakdown, out-of control, repair, maintenance, and high-level calibration drifts.	No. Replaced with language in § 63.5560.

[As required in §§ 63.5515(h) and 63.5600, you must comply with the appropriate General Provisions requirements specified in the following table]

Citation	Subject	Brief description	Applies to Subpart UUUU
§ 63.8(c)(4)(i) and (ii)	Continuous Monitoring System (CMS) Requirements.	Continuous opacity monitoring systems (COMS) must have a minimum of one cycle of sampling and analysis for each successive 10-second period and one cycle of data recording for each successive 6-minute period; CEMS must have a minimum of one cycle of operation for each successive 15-minute period.	Yes, except that § 63.8(c)(4)(i) does not apply because subpart UUUU does not require COMS.
§ 63.8(c)(5)	COMS Minimum Procedures	COMS minimum procedures	No. Subpart UUUU does not require COMS.
§ 63.8(c)(6)	CMS Requirements	Zero and high level calibration check requirements; out-of-control periods.	No. Replaced with language in § 63.5545.
§ 63.8(c)(7) and (8)	CMS Requirements	Out-of-control periods, including reporting.	No. Replaced with language in § 63.5580(c)(6).
§ 63.8(d)	CMS Quality Control	Requirements for CMS quality control, including calibration, etc.; must keep quality control plan on record for 5 years; keep old versions for 5 years after revisions.	No, except for requirements in § 63.8(d)(2).
§ 63.8(e)	CMS Performance Evaluation	Notification, performance evaluation test plan, reports.	Yes, except that § 63.8(e)(5)(ii) does not apply because subpart UUUU does not require COMS.
§ 63.8(f)(1) through (5).	Alternative Monitoring Method	Procedures for Administrator to approve alternative monitoring.	Yes, except that no site-specific test plan is required. The request to use an alternative monitoring method must be submitted with the notification of performance test or CEMS performance evaluation or 60 days prior to any initial compliance demonstration.
§ 63.8(f)(6)	Alternative to Relative Accuracy Test.	Procedures for Administrator to approve alternative relative accuracy tests for CEMS.	Yes.
§ 63.8(g)(1) through (4).	Data Reduction	COMS 6-minute averages calculated over at least 36 evenly spaced data points; CEMS 1-hour averages computed over at least four equally spaced data points; data that cannot be used in average.	No. Replaced with language in § 63.5545(e).
§ 63.8(g)(5)	Data Reduction	Data that cannot be used in computing averages for CEMS and COMS.	No. Replaced with language in § 63.5560(b).
§ 63.9(a)	Notification Requirements	Applicability and State delegation	Yes.
§ 63.9(b)(1) through (5).	Initial Notifications	Submit notification subject 120 days after effective date; notification of intent to construct or reconstruct; notification of commencement of construction or reconstruction; notification of startup; contents of each.	Yes.
§ 63.9(c)	Request for Compliance Extension.	Can request if cannot comply by date or if installed BACT/LAER.	Yes.
§ 63.9(d)	Notification of Special Compliance Requirements for New Source.	For sources that commence construction between proposal and promulgation and want to comply 3 years after effective date.	Yes.
§ 63.9(e)	Notification of Performance Test	Notify Administrator 60 days prior	Yes.
§ 63.9(f)	Notification of VE or Opacity Test	Notify Administrator 30 days prior	Yes, but only for flares for which EPA Method 22 observations are required as part of a flare compliance assessment.

[As required in §§ 63.5515(h) and 63.5600, you must comply with the appropriate General Provisions requirements specified in the following table]

Citation	Subject	Brief description	Applies to Subpart UUUU
§ 63.9(g)	Additional Notifications When Using CMS.	Notification of performance evaluation; notification using COMS data; notification that exceeded criterion for relative accuracy.	Yes, except that § 63.9(g)(2) does not apply because subpart UUUU does not require COMS.
§ 63.9(h)(1) through (6).	Notification of Compliance Status Report.	Contents; due 60 days after end of performance test or other compliance demonstration, except for opacity or VE, which are due 30 days after; when to submit to Federal vs. State authority.	Yes, except that Table 7 to this subpart specifies the submittal date for the notification. The contents of the notification will also include the results of EPA Method 22 observations required as part of a flare compliance assessment.
§ 63.9(i)	Adjustment of Submittal Deadlines.	Procedures for Administrator to approve change in when notifications must be submitted.	Yes.
§ 63.9(j)	Change in Previous Information	Must submit within 15 days after the change.	Yes, except that the notification must be submitted as part of the next semiannual compliance report, as specified in Table 8 to this subpart.
§ 63.10(a)	Recordkeeping and Reporting	Applies to all, unless compliance extension; when to submit to Federal vs. State authority; procedures for owners of more than one source.	Yes.
§ 63.10(b)(1)	Recordkeeping and Reporting	General requirements; keep all records readily available; keep for 5 years.	Yes.
§ 63.10(b)(2)(i) through (iv).	Records Related to Startup, Shutdown, and Malfunction.	Occurrence of each of operation (process equipment); occurrence of each malfunction of air pollution equipment; maintenance on air pollution control equipment; actions during startup, shutdown, and malfunction.	Yes.
§ 63.10(b)(2)(vi), (x), and (xi).	CMS Records	Malfunctions, inoperative, out-of-control; calibration checks, adjustments, maintenance.	Yes.
§ 63.10(b)(2)(vii) and (ix).	Records	Measurements to demonstrate compliance with emission limits; performance test, performance evaluation, and VE observation results; measurements to determine conditions of performance tests and performance evaluations.	Yes, including results of EPA Method 22 observations required as part of a flare compliance assessment.
§ 63.10(b)(2)(xii)	Records	Records when under waiver	Yes.
§ 63.10(b)(2)(xiii)	Records	Records when using alternative to relative accuracy test.	Yes.
§ 63.10(b)(2)(xiv)	Records	All documentation supporting Initial Notification and Notification of Compliance Status Report.	Yes.
§ 63.10(b)(3)	Records	Applicability determinations	Yes.
§ 63.10(c)(1) through (6), (9) through (15).	Records	Additional records for CMS	Yes.
§ 63.10(c)(7) and (8)	Records	Records of excess emissions and parameter monitoring exceedances for CMS.	No. Replaced with language in Table 9 to this subpart.
§ 63.10(d)(1)	General Reporting Requirements	Requirement to report	Yes.
§ 63.10(d)(2)	Report of Performance Test Results.	When to submit to Federal or State authority.	Yes, except that Table 7 to this subpart specifies the submittal date for the Notification of Compliance Status Report.
§ 63.10(d)(3)	Reporting Opacity or VE Observations.	What to report and when	Yes, but only for flares for which EPA Method 22 observations are required as part of a flare compliance assessment.

[As required in §§ 63.5515(h) and 63.5600, you must comply with the appropriate General Provisions requirements specified in the following table]

Citation	Subject	Brief description	Applies to Subpart UUUU
§ 63.10(d)(4)	Progress Reports	Must submit progress reports on schedule if under compliance extension.	Yes.
§ 63.10(d)(5)	Startup, Shutdown, and Malfunction Reports.	Contents and submission	Yes, except that the immediate SSM report must be submitted as part of the next semiannual compliance report, as specified in Table 8 to this subpart.
§ 63.10(e)(1) and (2)	Additional CMS Reports	Must report results for each CEMS on a unit; written copy of performance evaluation; three copies of COMS performance evaluation.	Yes, except that § 63.10(e)(2)(ii) does not apply because subpart UUUU does not require COMS.
§ 63.10(e)(3)	Reports	Excess emission reports	No. Replaced with language in § 63.5580.
§ 63.10(e)(3)(i) through (iii).	Reports	Schedule for reporting excess emissions and parameter monitor exceedance (now defined as deviations).	No. Replaced with language in § 63.5580.
§ 63.10(e)(3)(iv) through (v).	Excess Emissions Reports	Requirement to revert to quarterly submission if there is an excess emissions and parameter monitor exceedance (now defined as deviations); provision to request semiannual reporting after compliance for 1 year; submit report by 30th day following end of quarter or calendar half; if there has not been an exceedance or excess emission (now defined as deviations), report contents is a statement that there have been no deviations.	No. Replaced with language in § 63.5580.
§ 63.10(e)(3)(iv) and (v).	Excess Emissions Reports	Must submit report containing all of the information in § 63.10(c)(5) through (13), § 63.8(c)(7) and (8).	No. Replaced with language in § 63.5580.
§ 63.10(e)(3)(vi) through (viii).	Excess Emissions Report and Summary Report.	Requirements for reporting excess emissions for CMS (now called deviations); requires all of the information in § 63.10(c)(5) through (13), § 63.8(c)(7) and (8).	No. Replaced with language in § 63.5580.
§ 63.10(e)(4)	Reporting COMS data	Must submit COMS data with performance test data.	No. Subpart UUUU does not require COMS.
§ 63.10(f)	Waiver for Recordkeeping or Reporting.	Procedures for Administrator to waive.	Yes.
§ 63.11	Flares	Requirements for flares	Yes.
§ 63.12	Delegation	State authority to enforce standards.	Yes.
§ 63.13	Addresses	Addresses where reports, notifications, and requests are sent.	Yes.
§ 63.14	Incorporation by Reference	Test methods incorporated by reference.	Yes.
§ 63.15	Availability of Information	Public and confidential information.	Yes.

Subpart VVVV—National Emission Standards for Hazardous Air Pollutants for Boat Manufacturing

SOURCE: 66 FR 44232, Aug. 22, 2001, unless otherwise noted.

WHAT THE SUBPART COVERS

§ 63.5680 What is the purpose of this subpart?

(a) This subpart establishes national emission standards for hazardous air pollutants (HAP) for new and existing boat manufacturing facilities with resin and gel coat operations, carpet and fabric adhesive operations, or aluminum recreational boat surface coating operations. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission standards.

§ 63.5683 Does this subpart apply to me?

(a) This subpart applies to you if you meet both of the criteria listed in paragraphs (a)(1) and (2) of this section.

(1) You are the owner or operator of a boat manufacturing facility that builds fiberglass boats or aluminum recreational boats.

(2) Your boat manufacturing facility is a major source of HAP either in and of itself, or because it is collocated with other sources of HAP, such that all sources combined constitute a major source.

(b) A boat manufacturing facility is a facility that manufactures hulls or decks of boats from fiberglass or aluminum, or assembles boats from premanufactured hulls and decks, or builds molds to make fiberglass hulls or decks. A facility that manufactures only parts of boats (such as hatches, seats, or lockers) or boat trailers is not considered a boat manufacturing facility for the purpose of this subpart.

(c) A major source is any stationary source or group of stationary sources located within a contiguous area and under common control that emits or can potentially emit, considering controls, in the aggregate, 9.1 megagrams (10 tons) or more per year of a single HAP or 22.7 megagrams (25 tons) or more per year of a combination of HAP.

(d) This subpart does not apply to aluminum coating operations on aluminum boats intended for commercial or military (nonrecreational) use, antifoulant coatings, assembly adhesives, fiberglass hull and deck coatings, research and development activities, mold sealing and release agents, mold stripping and cleaning solvents, and wood coatings as defined in § 63.5779. This subpart does not apply to materials contained in handheld aerosol cans.

§ 63.5686 How do I demonstrate that my facility is not a major source?

You can demonstrate that your facility is not a major source by using the procedures in either paragraph (a) or (b) of this section.

(a) *Emission option.* You must demonstrate that your facility does not emit, and does not have the potential to emit as defined in § 63.2, considering federally enforceable permit limits, 9.1 megagrams (10 tons) or more per year of a single HAP or 22.7 megagrams (25 tons) or more per year of a combination of HAP. To calculate your facility's potential to emit, you must include emissions from the boat manufacturing facility and all other sources that are collocated and under common ownership or control with the boat manufacturing facility.

(b) *Material consumption option.* This option can be used if you manufacture either fiberglass boats or aluminum recreational boats at your facility. You must meet the criteria in paragraph (b)(1), (2), or (3) of this section and comply with the requirements in paragraph (c) of this section. If you initially rely on the limits and criteria specified in paragraph (b)(1), (2), or (3) of this section to become an area source, but then exceed the relevant limit (without first obtaining and complying with other limits that keep your potential to emit HAP below major source levels), your facility will then become a major source, and you must comply with all applicable provisions of this subpart beginning on the compliance date specified in § 63.5695. Nothing in this paragraph is intended to preclude you from limiting your facility's potential to emit through other federally enforceable mechanisms available through your permitting authority.

(1) If your facility is primarily a fiberglass boat manufacturing facility, you must demonstrate that you consume less than 45.4 megagrams per rolling 12-month period of all combined polyester-and vinylester-based resins and gel coats (including tooling and production resins and gel coats, and clear gel coats), and you must demonstrate that at least 90 percent of

total annual HAP emissions at the facility (including emissions from aluminum recreational boat manufacturing or other source categories) originate from the fiberglass boat manufacturing materials.

(2) If your facility is primarily an aluminum recreational boat manufacturing facility, you must demonstrate that it consumes less than 18.2 megagrams per rolling 12-month period of all combined surface coatings, aluminum wipedown solvents, application gun cleaning solvents, and carpet and fabric adhesives; and you must demonstrate that at least 90 percent of total annual HAP emissions at the facility (including emissions from fiberglass boat manufacturing or other source categories) originate from the aluminum recreational boat manufacturing materials.

(3) If your facility is a fiberglass boat or an aluminum recreational boat manufacturing facility, you must demonstrate that the boat manufacturing materials consumed per rolling 12-month period contain a total of less than 4.6 megagrams of any single HAP and less than 11.4 megagrams of all combined HAP, and you must demonstrate that at least 90 percent of total annual HAP emissions at the facility (including emissions from other source categories) originate from these boat manufacturing materials.

(c) If you use the material consumption option described in paragraph (b) of this section to demonstrate that you are not a major source, you must comply with the requirements of paragraphs (c)(1) through (3) of this section.

(1) If your facility has HAP emissions that do not originate from boat manufacturing operations or materials described in paragraph (b), then you must keep any records necessary to demonstrate that the 90 percent criterion is met.

(2) A rolling 12-month period includes the previous 12 months of operation. You must maintain records of the total amount of materials described in paragraph (b) of this section used each month, and, if necessary, the HAP content of each material and the calculation of the total HAP consumed each month. Because records are needed for a 12-month period, you must keep records beginning no later than 12 months before the compliance date specified in §63.5695. Records must be kept for 5 years after they are created.

(3) In determining whether the 90 percent criterion included in paragraph (b) of this section is met, you do not need to include materials used in routine janitorial, building, or facility grounds maintenance; personal uses by employees or other persons; or products used for maintaining motor vehicles operated by the facility.

§63.5689 What parts of my facility are covered by this subpart?

The affected source (the portion of your boat manufacturing facility covered by this subpart) is the combination of all of the boat manufacturing operations listed in paragraphs (a) through (f) of this section.

(a) Open molding resin and gel coat operations (including pigmented gel coat, clear gel coat, production resin, tooling gel coat, and tooling resin).

(b) Closed molding resin operations.

(c) Resin and gel coat mixing operations.

(d) Resin and gel coat application equipment cleaning operations.

(e) Carpet and fabric adhesive operations.

(f) Aluminum hull and deck coating operations, including solvent wipedown operations and paint spray gun cleaning operations, on aluminum recreational boats.

§63.5692 How do I know if my boat manufacturing facility is a new source or an existing source?

(a) A boat manufacturing facility is a new source if it meets the criteria in paragraphs (a)(1) through (3) of this section.

(1) You commence construction of the affected source after July 14, 2000.

(2) It is a major source.

(3) It is a completely new boat manufacturing affected source where no other boat manufacturing affected source existed prior to the construction of the new source.

(b) For the purposes of this subpart, an existing source is any source that is not a new source.

§ 63.5695 When must I comply with this subpart?

You must comply with the standards in this subpart by the compliance dates specified in Table 1 to this subpart.

STANDARDS FOR OPEN MOLDING RESIN AND GEL COAT OPERATIONS

§ 63.5698 What emission limit must I meet for open molding resin and gel coat operations?

(a) You must limit organic HAP emissions from the five open molding operations listed in paragraphs (a)(1) through (5) of this section to the emission limit specified in paragraph (b) of this section. Operations listed in paragraph (d) are exempt from this limit.

(1) Production resin.

(2) Pigmented gel coat.

(3) Clear gel coat.

(4) Tooling resin.

(5) Tooling gel coat.

(b) You must limit organic HAP emissions from open molding operations to the limit specified by equation 1 of this section, based on a 12-month rolling average.

$$\text{HAP Limit} = \left[46(M_R) + 159(M_{PG}) + 291(M_{CG}) + 54(M_{TR}) + 214(M_{TG})\right] \qquad (\text{Eq. } 1)$$

Where:

HAP Limit= total allowable organic HAP that can be emitted from the open molding operations, kilograms.

M_R = mass of production resin used in the past 12 months, excluding any materials exempt under paragraph (d) of this section, megagrams.

M_{PG} = mass of pigmented gel coat used in the past 12 months, excluding any materials exempt under paragraph (d) of this section, megagrams.

M_{CG} = mass of clear gel coat used in the past 12 months, excluding any materials exempt under paragraph (d) of this section, megagrams.

M_{TR} = mass of tooling resin used in the past 12 months, excluding any materials exempt under paragraph (d) of this section, megagrams.

M_{TG} = mass of tooling gel coat used in the past 12 months, excluding any materials exempt under paragraph (d) of this section, megagrams.

(c) The open molding emission limit is the same for both new and existing sources.

(d) The materials specified in paragraphs (d)(1) through (3) of this section are exempt from the open molding emission limit specified in paragraph (b) of this section.

(1) Production resins (including skin coat resins) that must meet specifications for use in military vessels or must be approved by the U.S. Coast Guard for use in the construction of lifeboats, rescue boats, and other lifesaving appliances approved under 46 CFR subchapter Q or the construction of small passenger vessels regulated by 46 CFR subchapter T. Production resins for which this exemption is used must be applied with nonatomizing (nonspray) resin application equipment. You must keep a record of the resins for which you are using this exemption.

(2) Pigmented, clear, and tooling gel coat used for part or mold repair and touch up. The total gel coat materials included in this exemption must not exceed 1 percent by weight of all gel coat used at your facility on a 12-month rolling-average basis. You must keep a record of the amount of gel coats used per month for which you are using this exemption and copies of calculations showing that the exempt amount does not exceed 1 percent of all gel coat used.

(3) Pure, 100 percent vinylester resin used for skin coats. This exemption does not apply to blends of vinylester and polyester resins used for skin coats. The total resin materials included in the exemption cannot exceed 5 percent by weight of all resin used at your facility on a 12-month rolling-average basis. You must keep a record of the amount of 100 percent vinylester skin coat resin used per month that is eligible for this exemption and copies

of calculations showing that the exempt amount does not exceed 5 percent of all resin used.

§63.5701 What are my options for complying with the open molding emission limit?

You must use one or more of the options listed in paragraphs (a) through (c) of this section to meet the emission limit in §63.5698 for the resins and gel coats used in open molding operations at your facility.

(a) *Maximum achievable control technology (MACT) model point value averaging (emissions averaging) option.*

(1) Demonstrate that emissions from the open molding resin and gel coat operations that you average meet the emission limit in §63.5698 using the procedures described in §63.5710. Compliance with this option is based on a 12-month rolling average.

(2) Those operations and materials not included in the emissions average must comply with either paragraph (b) or (c) of this section.

(b) *Compliant materials option.* Demonstrate compliance by using resins and gel coats that meet the organic HAP content requirements in Table 2 to this subpart. Compliance with this option is based on a 12-month rolling average.

(c) *Add-on control option.* Use an enclosure and add-on control device, and demonstrate that the resulting emissions meet the emission limit in §63.5698. Compliance with this option is based on control device performance testing and control device monitoring.

§63.5704 What are the general requirements for complying with the open molding emission limit?

(a) *Emissions averaging option.* For those open molding operations and materials complying using the emissions averaging option, you must demonstrate compliance by performing the steps in paragraphs (a)(1) through (5) of this section.

(1) Use the methods specified in §63.5758 to determine the organic HAP content of resins and gel coats.

(2) Complete the calculations described in §63.5710 to show that the organic HAP emissions do not exceed the limit specified in §63.5698.

(3) Keep records as specified in paragraphs (a)(3)(i) through (iv) of this section for each resin and gel coat.

(i) Hazardous air pollutant content.

(ii) Amount of material used per month.

(iii) Application method used for production resin and tooling resin. This record is not required if all production resins and tooling resins are applied with nonatomized technology.

(iv) Calculations performed to demonstrate compliance based on MACT model point values, as described in §63.5710.

(4) Prepare and submit the implementation plan described in §63.5707 to the Administrator and keep it up to date.

(5) Submit semiannual compliance reports to the Administrator as specified in §63.5764.

(b) *Compliant materials option.* For each open molding operation complying using the compliant materials option, you must demonstrate compliance by performing the steps in paragraphs (b)(1) through (4) of this section.

(1) Use the methods specified in §63.5758 to determine the organic HAP content of resins and gel coats.

(2) Complete the calculations described in §63.5713 to show that the weighted-average organic HAP content does not exceed the limit specified in Table 2 to this subpart.

(3) Keep records as specified in paragraphs (b)(3)(i) through (iv) of this section for each resin and gel coat.

(i) Hazardous air pollutant content.

(ii) Application method for production resin and tooling resin. This record is not required if all production resins and tooling resins are applied with nonatomized technology.

(iii) Amount of material used per month. This record is not required for an operation if all materials used for that operation comply with the organic HAP content requirements.

(iv) Calculations performed, if required, to demonstrate compliance based on weighted-average organic HAP content as described in §63.5713.

(4) Submit semiannual compliance reports to the Administrator as specified in §63.5764.

(c) *Add-on control option.* If you are using an add-on control device, you must demonstrate compliance by performing the steps in paragraphs (c)(1) through (5) of this section.

(1) Conduct a performance test of the control device as specified in §§ 63.5719 and 63.5722 to demonstrate initial compliance.

(2) Use the performance test results to determine control device parameters to monitor after the performance test as specified in § 63.5725.

(3) Comply with the operating limits specified in § 63.5715 and the control device and emission capture system monitoring requirements specified in § 63.5725 to demonstrate continuous compliance.

(4) Keep the records specified in § 63.5767.

(5) Submit to the Administrator the notifications and reports specified in §§ 63.5761 and 63.5764.

§ 63.5707 What is an implementation plan for open molding operations and when do I need to prepare one?

(a) You must prepare an implementation plan for all open molding operations for which you comply by using the emissions averaging option described in § 63.5704(a).

(b) The implementation plan must describe the steps you will take to bring the open molding operations covered by this subpart into compliance. For each operation included in the emissions average, your implementation plan must include the elements listed in paragraphs (b)(1) through (3) of this section.

(1) A description of each operation included in the average.

(2) The maximum organic HAP content of the materials used, the application method used (if any atomized resin application methods are used in the average), and any other methods used to control emissions.

(3) Calculations showing that the operations covered by the plan will comply with the open molding emission limit specified in § 63.5698.

(c) You must submit the implementation plan to the Administrator with the notification of compliance status specified in § 63.5761.

(d) You must keep the implementation plan on site and provide it to the Administrator when asked.

(e) If you revise the implementation plan, you must submit the revised plan with your next semiannual compliance report specified in § 63.5764.

§ 63.5710 How do I demonstrate compliance using emissions averaging?

(a) Compliance using the emissions averaging option is demonstrated on a 12-month rolling-average basis and is determined at the end of every month (12 times per year). The first 12-month rolling-average period begins on the compliance date specified in § 63.5695.

(b) At the end of the twelfth month after your compliance date and at the end of every subsequent month, use equation 1 of this section to demonstrate that the organic HAP emissions from those operations included in the average do not exceed the emission limit in § 63.5698 calculated for the same 12-month period. (Include terms in equation 1 of § 63.5698 and equation 1 of this section for only those operations and materials included in the average.)

$$\text{HAP emissions} = \left[(PV_R)(M_R) + (PV_{PG})(M_{PG}) + (PV_{CG})(M_{CG}) + (PV_{TR})(M_{TR}) + (PV_{TG})(M_{TG})\right] \qquad \text{(Eq. 1)}$$

Where:

HAP emissions= Organic HAP emissions calculated using MACT model point values for each operation included in the average, kilograms.

PV_R= Weighted-average MACT model point value for production resin used in the past 12 months, kilograms per megagram.

M_R= Mass of production resin used in the past 12 months, megagrams.

PV_{PG}= Weighted-average MACT model point value for pigmented gel coat used in the past 12 months, kilograms per megagram.

M_{PG}= Mass of pigmented gel coat used in the past 12 months, megagrams.

PV_{CG}= Weighted-average MACT model point value for clear gel coat used in the past 12 months, kilograms per megagram.

M_{CG}= Mass of clear gel coat used in the past 12 months, megagrams.

PV_{TR}= Weighted-average MACT model point value for tooling resin used in the past 12 months, kilograms per megagram.

M_{TR}= Mass of tooling resin used in the past 12 months, megagrams.

PV_{TG}= Weighted-average MACT model point value for tooling gel coat used in the past 12 months, kilograms per megagram.

M_{TG}= Mass of tooling gel coat used in the past 12 months, megagrams.

(c) At the end of every month, use equation 2 of this section to compute the weighted-average MACT model point value for each open molding resin and gel coat operation included in the average.

$$PV_{OP} = \frac{\sum_{i=1}^{n} \left(M_i \, PV_i\right)}{\sum_{i=1}^{n} \left(M_i\right)} \qquad (\text{Eq. } 2)$$

Where:

PV_{OP}=weighted-average MACT model point value for each open molding operation (PV_R, PV_{PG}, PV_{CG}, PV_{TR}, and PV_{TG}) included in the average, kilograms of HAP per megagram of material applied.

M_i=mass of resin or gel coat i used within an operation in the past 12 months, megagrams.

n=number of different open molding resins and gel coats used within an operation in the past 12 months.

PV_i=the MACT model point value for resin or gel coat i used within an operation in the past 12 months, kilograms of HAP per megagram of material applied.

(d) You must use the equations in Table 3 to this subpart to calculate the MACT model point value (PV_i) for each resin and gel coat used in each operation in the past 12 months.

(e) If the organic HAP emissions, as calculated in paragraph (b) of this section, are less than the organic HAP limit calculated in §63.5698(b) for the same 12-month period, then you are in compliance with the emission limit in §63.5698 for those operations and materials included in the average.

[66 FR 44232, Aug. 22, 2001; 66 FR 50504, Oct. 3, 2001]

§63.5713 How do I demonstrate compliance using compliant materials?

(a) Compliance using the organic HAP content requirements listed in Table 2 to this subpart is based on a 12-month rolling average that is calculated at the end of every month. The first 12-month rolling-average period begins on the compliance date specified in §63.5695. If you are using filled material (production resin or tooling resin), you must comply according to the procedure described in §63.5714.

(b) At the end of the twelfth month after your compliance date and at the end of every subsequent month, review the organic HAP contents of the resins and gel coats used in the past 12 months in each operation. If all resins and gel coats used in an operation have organic HAP contents no greater than the applicable organic HAP content limits in Table 2 to this subpart, then you are in compliance with the emission limit specified in §63.5698 for that 12-month period for that operation. In addition, you do not need to complete the weighted-average organic HAP content calculation contained in paragraph (c) of this section for that operation.

(c) At the end of every month, you must use equation 1 of this section to calculate the weighted-average organic HAP content for all resins and gel coats used in each operation in the past 12 months.

$$\text{Weighted-Average HAP Content }(\%) = \frac{\sum_{i=1}^{n}\left(M_i\ HAP_i\right)}{\sum_{i=1}^{n}\left(M_i\right)} \qquad (\text{Eq. } 1)$$

Where:

M_i = mass of open molding resin or gel coat i used in the past 12 months in an operation, megagrams.

HAP_i = Organic HAP content, by weight percent, of open molding resin or gel coat i used in the past 12 months in an operation. Use the methods in § 63.5758 to determine organic HAP content.

n = number of different open molding resins or gel coats used in the past 12 months in an operation.

(d) If the weighted-average organic HAP content does not exceed the applicable organic HAP content limit specified in Table 2 to this subpart, then you are in compliance with the emission limit specified in § 63.5698.

§ 63.5714 How do I demonstrate compliance if I use filled resins?

(a) If you are using a filled production resin or filled tooling resin, you must demonstrate compliance for the filled material on an as-applied basis using equation 1 of this section.

$$PV_F = PV_u \times \frac{(100 - \%\ \text{Filler})}{100} \qquad (\text{Eq. } 1)$$

Where:

PV_F = The as-applied MACT model point value for a filled production resin or tooling resin, kilograms organic HAP per megagram of filled material.

PV_u = The MACT model point value for the neat (unfilled) resin, before filler is added, as calculated using the formulas in Table 3 to this subpart.

% Filler =The weight-percent of filler in the as-applied filled resin system.

(b) If the filled resin is used as a production resin and the value of PV_F calculated by equation 1 of this section does not exceed 46 kilograms of organic HAP per megagram of filled resin applied, then the filled resin is in compliance.

(c) If the filled resin is used as a tooling resin and the value of PV_F calculated by equation 1 of this section does not exceed 54 kilograms of organic HAP per megagram of filled resin applied, then the filled resin is in compliance.

(d) If you are including a filled resin in the emissions averaging procedure described in § 63.5710, then use the value of PV_F calculated using equation 1 of this section for the value of PV i in equation 2 of § 63.5710.

DEMONSTRATING COMPLIANCE FOR OPEN MOLDING OPERATIONS CONTROLLED BY ADD-ON CONTROL DEVICES

§ 63.5715 What operating limits must I meet?

(a) For open molding operations on which you use a thermal oxidizer as an add-on control device, you must meet the operating limits specified in Table 4 to this subpart that apply to the emission capture system and thermal oxidizer. You must establish the operating limits during the performance test according to the procedures in § 63.5725. You must meet the operating limits at all times after you establish them.

(b) If you use an add-on control device other than a thermal oxidizer, or wish to monitor an alternative parameter and comply with a different operating limit, you must apply to the Administrator for approval of alternative monitoring under § 63.8(f).

§ 63.5716 When must I conduct a performance test?

(a) If your source is an existing source, you must complete the add-on control device performance test no later than the compliance date specified in § 63.5695.

(b) If your source is a new source, you must complete the add-on control device performance test no later than 180 days after the compliance date specified in §63.5695.

(c) You must conduct a performance test every 5 years as part of renewing your 40 CFR part 70 or 71 operating permit.

§63.5719 How do I conduct a performance test?

(a) You must capture the emissions using a permanent enclosure (such as a spray booth or similar containment device) and direct the captured emissions to the add-on control device.

(b) You must measure emissions as specified in paragraph (b)(1) or (2) of this section.

(1) If the enclosure vented to the control device is a permanent total enclosure as defined in Method 204 of appendix M to 40 CFR part 51, then you may measure emissions only at the outlet of the control device.

(2) If the permanent enclosure vented to the control device is not a total enclosure, you must build a temporary total enclosure, as defined in Method 204 of appendix M to 40 CFR part 51, around the permanent enclosure. You must then simultaneously measure emissions from the control device outlet and the emissions from the temporary total enclosure outlet. You determine compliance from the combined emissions from the control device outlet and the temporary total enclosure outlet.

(c) You must conduct the control device performance test using the emission measurement methods specified in paragraphs (c)(1) through (4) of this section.

(1) Use either Method 1 or 1A of appendix A to 40 CFR part 60, as appropriate, to select the sampling sites.

(2) Use Method 2, 2A, 2C, 2D, 2F or 2G of appendix A to 40 CFR part 60, as appropriate, to measure gas volumetric flow rate.

(3) Use Method 18 of appendix A to 40 CFR part 60 to measure organic HAP emissions or use Method 25A of appendix A to 40 CFR part 60 to measure total gaseous organic emissions as a surrogate for total organic HAP emissions. If you use Method 25A, you must assume that all gaseous organic emissions measured as carbon are organic HAP emissions. If you use Method 18 and the number of organic HAP in the exhaust stream exceeds five, you must take into account the use of multiple chromatographic columns and analytical techniques to get an accurate measure of at least 90 percent of the total organic HAP mass emissions. Do not use Method 18 to measure organic HAP emissions from a combustion device; use instead Method 25A and assume that all gaseous organic mass emissions measured as carbon are organic HAP emissions.

(4) You may use American Society for Testing and Materials (ASTM) D6420–99 (available for purchase from at least one of the following addresses: 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959; or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.) in lieu of Method 18 of 40 CFR part 60, appendix A, under the conditions specified in paragraphs (c)(4)(i) through (iii) of this section.

(i) If the target compound(s) is listed in Section 1.1 of ASTM D6420–99 and the target concentration is between 150 parts per billion by volume and 100 parts per million by volume.

(ii) If the target compound(s) is not listed in Section 1.1 of ASTM D6420–99, but is potentially detected by mass spectrometry, an additional system continuing calibration check after each run, as detailed in Section 10.5.3 of ASTM D6420–99, must be followed, met, documented, and submitted with the performance test report even if you do not use a moisture condenser or the compound is not considered soluble.

(iii) If a minimum of one sample/analysis cycle is completed at least every 15 minutes.

(d) The control device performance test must consist of three runs and each run must last at least 1 hour. The production conditions during the test runs must represent normal production conditions with respect to the types of parts being made and material application methods. The production conditions during the test must also represent maximum potential emissions with respect to the organic HAP content of the materials being applied and the material application rates.

(e) During the test, you must also monitor and record separately the amounts of production resin, tooling resin, pigmented gel coat, clear gel coat, and tooling gel coat applied inside the enclosure that is vented to the control device.

§ 63.5722 How do I use the performance test data to demonstrate initial compliance?

Demonstrate initial compliance with the open molding emission limit as described in paragraphs (a) through (c) of this section:

(a) Calculate the organic HAP limit you must achieve using equation 1 of § 63.5698. For determining initial compliance, the organic HAP limit is based on the amount of material used during the performance test, in megagrams, rather than during the past 12 months. Calculate the limit using the megagrams of resin and gel coat applied inside the enclosure during the three runs of the performance test and equation 1 of § 63.5698.

(b) Add the total measured emissions, in kilograms, from all three of the 1-hour runs of the performance test.

(c) If the total emissions from the three 1-hour runs of the performance test are less than the organic HAP limit calculated in paragraph (a) of this section, then you have demonstrated initial compliance with the emission limit in § 63.5698 for those operations performed in the enclosure and controlled by the add-on control device.

§ 63.5725 What are the requirements for monitoring and demonstrating continuous compliance?

(a) You must establish control device parameters that indicate proper operation of the control device.

(b) You must install, operate, and maintain a continuous parameter monitoring system as specified in paragraphs (b)(1) through (8) of this section.

(1) The continuous parameter monitoring system must complete a minimum of one cycle of operation for each successive 15-minute period. You must have a minimum of four successive cycles of operation to have a valid hour of data.

(2) You must have valid data from at least 90 percent of the hours during which the process operated.

(3) You must determine the average of all recorded readings for each successive 3-hour period of the emission capture system and add-on control device operation.

(4) You must maintain the continuous parameter monitoring system at all times and have available necessary parts for routine repairs of the monitoring equipment.

(5) You must operate the continuous parameter monitoring system and collect emission capture system and add-on control device parameter data at all times that a controlled open molding operation is being performed, except during monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, if applicable, calibration checks and required zero and span adjustments).

(6) You must not use emission capture system or add-on control device parameter data recorded during monitoring malfunctions, associated repairs, out-of-control periods, or required quality assurance or control activities when calculating data averages. You must use all the data collected during all other periods in calculating the data averages for determining compliance with the emission capture system and add-on control device operating limits.

(7) You must record the results of each inspection, calibration, and validation check.

(8) Any period for which the monitoring system is out-of-control, as defined in § 63.7(d)(7), or malfunctioning, and data are not available for required calculations is a deviation from the monitoring requirements. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the continuous parameter monitoring system to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

(c) *Enclosure bypass line.* You must meet the requirements of paragraphs (c)(1) and (2) of this section for each emission capture system enclosure that contains bypass lines that could divert emissions away from the add-on control device to the atmosphere.

(1) You must monitor or secure the valve or closure mechanism controlling the bypass line in a nondiverting position in such a way that the valve or closure mechanism cannot be opened without creating a record that the valve was opened. The method used to monitor or secure the valve or closure mechanism must meet one of the requirements specified in paragraphs (c)(1)(i) through (iv) of this section.

(i) *Flow control position indicator.* Install, calibrate, maintain, and operate according to the manufacturer's specifications a flow control position indicator that takes a reading at least once every 15 minutes and provides a record indicating whether the emissions are directed to the add-on control device or diverted from the add-on control device. The time of occurrence and flow control position must be recorded, as well as every time the flow direction is changed. The flow control position indicator must be installed at the entrance to any bypass line that could divert the emissions away from the add-on control device to the atmosphere.

(ii) *Car-seal or lock-and-key valve closures.* Secure any bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. You must visually inspect the seal or closure mechanism at least once every month to ensure that the valve is maintained in the closed position, and the emissions are not diverted away from the add-on control device to the atmosphere.

(iii) *Valve closure continuous monitoring.* Ensure that any bypass line valve is in the closed (non-diverting) position through monitoring of valve position at least once every 15 minutes. You must inspect the monitoring system at least once every month to verify that the monitor will indicate valve position.

(iv) *Automatic shutdown system.* Use an automatic shutdown system in which the open molding operation is stopped when flow is diverted by the bypass line away from the add-on control device to the atmosphere when the open molding operation is running. You must inspect the automatic shutdown system at least once every month to verify that it will detect diversions of flow and shut down the open molding operation.

(2) If any bypass line is opened, you must include a description of why the bypass line was opened and the length of time it remained open in the semiannual compliance reports required in §63.5764(d).

(d) *Thermal oxidizers.* If you are using a thermal oxidizer or incinerator as an add-on control device, you must comply with the requirements in paragraphs (d)(1) through (6) of this section.

(1) You must install a combustion temperature monitoring device in the firebox of the thermal oxidizer or incinerator, or in the duct immediately downstream of the firebox before any substantial heat exchange occurs. You must meet the requirements in paragraphs (b) and (d)(1)(i) through (vii) of this section for each temperature monitoring device.

(i) Locate the temperature sensor in a position that provides a representative temperature.

(ii) Use a temperature sensor with a minimum tolerance of 2.2 °C or 0.75 percent of the temperature value, whichever is larger.

(iii) Shield the temperature sensor system from electromagnetic interference and chemical contaminants.

(iv) If a chart recorder is used, it must have a sensitivity in the minor division of at least 10 °C.

(v) Perform an electronic calibration at least semiannually according to the procedures in the manufacturer's owners manual. Following the electronic calibration, you must conduct a temperature sensor validation check in which a second or redundant temperature sensor placed nearby the process temperature sensor must yield a reading within 16.7 °C of the process temperature sensor's reading.

(vi) Conduct calibration and validation checks any time the sensor exceeds the manufacturer's specified maximum operating temperature range or install a new temperature sensor.

(vii) At least monthly, inspect all components for integrity and all electrical connections for continuity, oxidation, and galvanic corrosion.

(2) Before or during the performance test, you must conduct a performance evaluation of the combustion temperature monitoring system according to § 63.8(e). Section 63.8(e) specifies the general requirements for continuous monitoring systems and requirements for notifications, the site-specific performance evaluation plan, conduct of the performance evaluation, and reporting of performance evaluation results.

(3) During the performance test required by § 63.5716, you must monitor and record the combustion temperature and determine the average combustion temperature for the three 1-hour test runs. This average temperature is the minimum operating limit for the thermal oxidizer.

(4) Following the performance test, you must continuously monitor the combustion temperature and record the average combustion temperature no less frequently than every 15 minutes.

(5) You must operate the incinerator or thermal oxidizer so that the average combustion temperature in any 3-hour period does not fall below the average combustion temperature recorded during the performance test.

(6) If the average combustion temperature in any 3-hour period falls below the average combustion temperature recorded during the performance test, or if you fail to collect the minimum data specified in paragraph (d)(4) of this section, it is a deviation for the operating limit in § 63.5715.

(e) *Other control devices.* If you are using a control device other a thermal oxidizer, then you must comply with alternative monitoring requirements and operating limits approved by the Administrator under § 63.8(f).

(f) *Emission capture system.* For each enclosure in the emission capture system, you must comply with the requirements in paragraphs (f)(1) through (5) of this section.

(1) You must install a device to measure and record either the flow rate or the static pressure in the duct from each enclosure to the add-on control device.

(2) You must install a device to measure and record the pressure drop across at least one opening in each enclosure.

(3) Each flow measurement device must meet the requirements in paragraphs (b) and (f)(3)(i) through (iv) of this section.

(i) Locate the flow sensor in a position that provides a representative flow measurement in the duct between each enclosure in the emission capture system and the add-on control device.

(ii) Reduce swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.

(iii) Conduct a flow sensor calibration check at least semiannually.

(iv) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(4) For each pressure measurement device, you must comply with the requirements in paragraphs (a) and (f)(4)(i) through (vii) of this section.

(i) Locate each pressure drop sensor in or as close to a position that provides a representative measurement of the pressure drop across each enclosure opening you are monitoring.

(ii) Locate each duct static pressure sensor in a position that provides a representative measurement of the static pressure in the duct between the enclosure and control device.

(iii) Minimize or eliminate pulsating pressure, vibration, and internal and external corrosion.

(iv) Check the pressure tap for plugging daily.

(v) Use an inclined manometer with a measurement sensitivity of 0.0004 millimeters mercury (mmHg) to check gauge calibration quarterly and transducer calibration monthly.

(vi) Conduct calibration checks any time the sensor exceeds the manufacturer's specified maximum operating pressure range or install a new pressure sensor.

(vii) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(5) For each capture device that is not part of a permanent total enclosure as defined in Method 204 in appendix M

to 40 CFR part 51, you must establish an operating limit for either the gas volumetric flow rate or duct static pressure, as specified in paragraphs (f)(5)(i) and (ii) of this section. You must also establish an operating limit for pressure drop across at least one opening in each enclosure according to paragraphs (f)(5)(iii) and (iv) of this section. The operating limits for a permanent total enclosure are specified in Table 4 to this subpart.

(i) During the emission test required by §63.5716 and described in §63.5719, you must monitor and record either the gas volumetric flow rate or the duct static pressure for each separate enclosure in your emission capture system at least once every 15 minutes during each of the three test runs at a point in the duct between the enclosure and the add-on control device inlet.

(ii) Following the emission test, calculate and record the average gas volumetric flow rate or duct static pressure for the three test runs for each enclosure. This average gas volumetric flow rate or duct static pressure is the minimum operating limit for that specific enclosure.

(iii) During the emission test required by §63.5716 and described in §63.5719, you must monitor and record the pressure drop across the opening of each enclosure in your emission capture system at least once every 15 minutes during each of the three test runs.

(iv) Following the emission test, calculate and record the average pressure drop for the three test runs for each enclosure. This average pressure drop is the minimum operating limit for that specific enclosure.

STANDARDS FOR CLOSED MOLDING RESIN OPERATIONS

§63.5728 What standards must I meet for closed molding resin operations?

(a) If a resin application operation meets the definition of closed molding specified in §63.5779, there is no requirement to reduce emissions from that operation.

(b) If the resin application operation does not meet the definition of closed molding, then you must comply with the limit for open molding resin operations specified in §63.5698.

(c) Open molding resin operations that precede a closed molding operation must comply with the limit for open molding resin and gel coat operations specified in §63.5698. Examples of these operations include gel coat or skin coat layers that are applied before lamination is performed by closed molding.

STANDARDS FOR RESIN AND GEL COAT MIXING OPERATIONS

§63.5731 What standards must I meet for resin and gel coat mixing operations?

(a) All resin and gel coat mixing containers with a capacity equal to or greater than 208 liters, including those used for on-site mixing of putties and polyputties, must have a cover with no visible gaps in place at all times.

(b) The work practice standard in paragraph (a) of this section does not apply when material is being manually added to or removed from a container, or when mixing or pumping equipment is being placed in or removed from a container.

(c) To demonstrate compliance with the work practice standard in paragraph (a) of this section, you must visually inspect all mixing containers subject to this standard at least once per month. The inspection should ensure that all containers have covers with no visible gaps between the cover and the container, or between the cover and equipment passing through the cover.

(d) You must keep records of which mixing containers are subject to this standard and the results of the inspections, including a description of any repairs or corrective actions taken.

STANDARDS FOR RESIN AND GEL COAT APPLICATION EQUIPMENT CLEANING OPERATIONS

§63.5734 What standards must I meet for resin and gel coat application equipment cleaning operations?

(a) For routine flushing of resin and gel coat application equipment (e.g., spray guns, flowcoaters, brushes, rollers, and squeegees), you must use a cleaning solvent that contains no more than 5 percent organic HAP by weight. For removing cured resin or gel coat from application equipment, no organic HAP content limit applies.

(b) You must store organic HAP-containing solvents used for removing cured resin or gel coat in containers with covers. The covers must have no visible gaps and must be in place at all times, except when equipment to be cleaned is placed in or removed from the container. On containers with a capacity greater than 7.6 liters, the distance from the top of the container to the solvent surface must be no less than 0.75 times the diameter of the container. Containers that store organic HAP-containing solvents used for removing cured resin or gel coat are exempt from the requirements of 40 CFR part 63, subpart T. Cured resin or gel coat means resin or gel coat that has changed from a liquid to a solid.

§ 63.5737 How do I demonstrate compliance with the resin and gel coat application equipment cleaning standards?

(a) Determine and record the organic HAP content of the cleaning solvents subject to the standards specified in § 63.5734 using the methods specified in § 63.5758.

(b) If you recycle cleaning solvents on site, you may use documentation from the solvent manufacturer or supplier or a measurement of the organic HAP content of the cleaning solvent as originally obtained from the solvent supplier for demonstrating compliance, subject to the conditions in § 63.5758 for demonstrating compliance with organic HAP content limits.

(c) At least once per month, you must visually inspect any containers holding organic HAP-containing solvents used for removing cured resin and gel coat to ensure that the containers have covers with no visible gaps. Keep records of the monthly inspections and any repairs made to the covers.

STANDARDS FOR CARPET AND FABRIC ADHESIVE OPERATIONS

§ 63.5740 What emission limit must I meet for carpet and fabric adhesive operations?

(a) You must use carpet and fabric adhesives that contain no more than 5 percent organic HAP by weight.

(b) To demonstrate compliance with the emission limit in paragraph (a) of this section, you must determine and record the organic HAP content of the carpet and fabric adhesives using the methods in § 63.5758.

STANDARDS FOR ALUMINUM RECREATIONAL BOAT SURFACE COATING OPERATIONS

§ 63.5743 What standards must I meet for aluminum recreational boat surface coating operations?

(a) For aluminum wipedown solvent operations and aluminum surface coating operations, you must comply with either the separate emission limits in paragraphs (a)(1) and (2) of this section, or the combined emission limit in paragraph (a)(3) of this section. Compliance with these limitations is based on a 12-month rolling average that is calculated at the end of every month.

(1) You must limit emissions from aluminum wipedown solvents to no more than 0.33 kilograms of organic HAP per liter of total coating solids applied from aluminum primers, clear coats, and top coats combined. No limit applies when cleaning surfaces are receiving decals or adhesive graphics.

(2) You must limit emissions from aluminum recreational boat surface coatings (including thinners, activators, primers, topcoats, and clear coats) to no more than 1.22 kilograms of organic HAP per liter of total coating solids applied from aluminum primers, clear coats, and top coats combined.

(3) You must limit emissions from the combined aluminum surface coatings and aluminum wipedown solvents to no more than 1.55 kilograms of organic HAP per liter of total coating solids applied from aluminum primers, clear coats, and top coats combined.

(b) You must comply with the work practice standard in paragraph (b)(1), (2), (3), or (4) of this section when cleaning aluminum coating spray guns with solvents containing more than 5 percent organic HAP by weight.

(1) Clean spray guns in an enclosed device. Keep the device closed except when you place spray guns in or remove them from the device.

(2) Disassemble the spray gun and manually clean the components in a vat. Keep the vat closed when you are not using it.

(3) Clean spray guns by placing solvent in the pressure pot and forcing the solvent through the gun. Do not use atomizing air during this procedure. Direct the used cleaning solvent from the spray gun into a container that you keep closed when you are not using it.

(4) An alternative gun cleaning process or technology approved by the Administrator according to the procedures in § 63.6(g).

§ 63.5746 How do I demonstrate compliance with the emission limits for aluminum wipedown solvents and aluminum coatings?

To demonstrate compliance with the emission limits for aluminum wipedown solvents and aluminum coatings specified in § 63.5743(a), you must meet the requirements of paragraphs (a) through (f) of this section.

(a) Determine and record the organic HAP content (kilograms of organic HAP per kilogram of material, or weight fraction) of each aluminum wipedown solvent and aluminum coating (including primers, topcoats, clear coats, thinners, and activators). Use the methods in § 63.5758 to determine organic HAP content.

(b) Use the methods in § 63.5758(b) to determine the solids content (liters of solids per liter of coating, or volume fraction) of each aluminum surface coating, including primers, topcoats, and clear coats. Keep records of the solids content.

(c) Use the methods in § 63.5758(c) to determine the density of each aluminum surface coating and wipedown solvent.

(d) Compliance is based on a 12-month rolling average calculated at the end of every month. The first 12-month rolling-average period begins on the compliance date specified in § 63.5695.

(e) At the end of the twelfth month after your compliance date and at the end of every subsequent month, use the procedures in § 63.5749 to calculate the organic HAP from aluminum wipedown solvents per liter of coating solids, and use the procedures in § 63.5752 to calculate the kilograms of organic HAP from aluminum coatings per liter of coating solids.

(f) Keep records of the calculations used to determine compliance.

(g) *Approval of alternative means of demonstrating compliance.* You may apply to the Administrator for permission to use an alternative means (such as an add-on control system) of limiting emissions from aluminum wipedown solvent and coating operations and demonstrating compliance with the emission limits in § 63.5743(a).

(1) The application must include the information listed in paragraphs (g)(1)(i) through (iii) of this section.

(i) An engineering evaluation that compares the emissions using the alternative means to the emissions that would result from using the strategy specified in paragraphs (a) through (e) of this section. The engineering evaluation may include the results from an emission test that accurately measures the capture efficiency and control device efficiency achieved by the control system and the composition of the associated coatings so that the emissions comparison can be made.

(ii) A proposed monitoring protocol that includes operating parameter values to be monitored for compliance and an explanation of how the operating parameter values will be established through a performance test.

(iii) Details of appropriate recordkeeping and reporting procedures.

(2) The Administrator will approve the alternative means of limiting emissions if the Administrator determines that HAP emissions will be no greater than if the source uses the procedures described in paragraphs (a) through (e) of this section to demonstrate compliance.

(3) The Administrator's approval may specify operation, maintenance, and monitoring requirements to ensure that emissions from the regulated operations are no greater than those that would otherwise result from regulated operations in compliance with this subpart.

§ 63.5749 How do I calculate the organic HAP content of aluminum wipedown solvents?

(a) Use equation 1 of this section to calculate the weighted-average organic HAP content of aluminum wipedown solvents used in the past 12 months.

$$HAP_{WD} = \frac{\sum_{j=1}^{n} (Vol_j)(D_j)(W_j)}{\sum_{i=1}^{m} (Vol_i)(Solids_i)} \qquad \text{(Eq. 1)}$$

Where:

HAP_{WD}= weighted-average organic HAP content of aluminum wipedown solvents, kilograms of HAP per liter of total coating solids from aluminum primers, top coats, and clear coats.

n = number of different wipedown solvents used in the past 12 months.

Vol_j= volume of aluminum wipedown solvent j used in the past 12 months, liters.

D_j= density of aluminum wipedown solvent j, kilograms per liter.

W_j= mass fraction of organic HAP in aluminum wipedown solvent j.

m = number of different aluminum surface coatings (primers, top coats, and clear coats) used in the past 12 months.

Vol_i = volume of aluminum primer, top coat, or clear coat i used in the past 12 months, liters.

$Solids_i$= solids content aluminum primer, top coat, or clear coat i, liter solids per liter of coating.

(b) Compliance is based on a 12-month rolling average. If the weighted-average organic HAP content does not exceed 0.33 kilograms of organic HAP per liter of total coating solids, then you are in compliance with the emission limit specified in § 63.5743(a)(1).

§ 63.5752 How do I calculate the organic HAP content of aluminum recreational boat surface coatings?

(a) Use equation 1 of this section to calculate the weighted-average HAP content for all aluminum surface coatings used in the past 12 months.

$$HAP_{SC} = \frac{\sum_{i=1}^{m} (Vol_i)(D_i)(W_i) + \sum_{k=1}^{D} (Vol_k)(D_k)(W_k)}{\sum_{i=1}^{m} (Vol_i)(Solids_i)} \qquad \text{(Eq. 1)}$$

Where:

HAP_{SC} = weighted-average organic HAP content for all aluminum coating materials, kilograms of organic HAP per liter of coating solids.

m = number of different aluminum primers, top coats, and clear coats used in the past 12 months.

Vol_i = volume of aluminum primer, top coat, or clear coat i used in the past 12 months, liters.

D_i= density of coating i, kilograms per liter.

W_i= mass fraction of organic HAP in coating i, kilograms of organic HAP per kilogram of coating.

p = number of different thinners, activators, and other coating additives used in the past 12 months.

Vol_k= total volume of thinner, activator, or additive k used in the past 12 months, liters.

D_k= density of thinner, activator, or additive k, kilograms per liter.

W_k= mass fraction of organic HAP in thinner, activator, or additive k, kilograms of organic HAP per kilogram of thinner or activator.

$Solids_i$= solids content of aluminum primer, top coat, or clear coat i, liter solids per liter of coating.

(b) Compliance is based on a 12-month rolling average. If the weighted-average organic HAP content does not exceed 1.22 kilograms of organic HAP per liter of coating solids, then you are in compliance with the emission limit specified in § 63.5743(a)(2).

§63.5753 How do I calculate the combined organic HAP content of aluminum wipedown solvents and aluminum recreational boat surface coatings?

(a) Use equation 1 of this section to calculate the combined weighted-average organic HAP content of aluminum wipedown solvents and aluminum recreational boat surface coatings.

$$HAP_{Combined} = HAP_{WD} + HAP_{SC} \qquad \text{(Eq. 1)}$$

Where:

HAP_{WD} = the weighted-average organic HAP content of aluminum wipedown solvents used in the past 12 months, calculated using equation 1 of §63.5749.

HAP_{SC} = the weighted average organic HAP content of aluminum recreational boat surface coatings used in the past 12 months, calculated using equation 1 of §63.5752.

(b) Compliance is based on a 12-month rolling average. If the combined organic HAP content does not exceed 1.55 kilograms of organic HAP per liter of total coating solids, then you are in compliance with the emission limit specified in §63.5743(a)(3).

§63.5755 How do I demonstrate compliance with the aluminum recreational boat surface coating spray gun cleaning work practice standards?

You must demonstrate compliance with the aluminum coating spray gun cleaning work practice standards by meeting the requirements of paragraph (a) or (b) of this section.

(a) Demonstrate that solvents used to clean the aluminum coating spray guns contain no more than 5 percent organic HAP by weight by determining organic HAP content with the methods in §63.5758. Keep records of the organic HAP content determination.

(b) For solvents containing more than 5 percent organic HAP by weight, comply with the requirements in paragraph (b)(1) or (b)(2), and paragraph (b)(3) of this section.

(1) If you are using an enclosed spray gun cleaner, visually inspect it at least once per month to ensure that covers are in place and the covers have no visible gaps when the cleaner is not in use, and that there are no leaks from hoses or fittings.

(2) If you are manually cleaning the gun or spraying solvent into a container that can be closed, visually inspect all solvent containers at least once per month to ensure that the containers have covers and the covers fit with no visible gaps.

(3) Keep records of the monthly inspections and any repairs that are made to the enclosed gun cleaners or the covers.

METHODS FOR DETERMINING HAZARDOUS AIR POLLUTANT CONTENT

§63.5758 How do I determine the organic HAP content of materials?

(a) *Determine the organic HAP content for each material used.* To determine the organic HAP content for each material used in your open molding resin and gel coat operations, carpet and fabric adhesive operations, or aluminum recreational boat surface coating operations, you must use one of the options in paragraphs (a)(1) through (6) of this section.

(1) *Method 311 (appendix A to 40 CFR part 63).* You may use Method 311 for determining the mass fraction of organic HAP. Use the procedures specified in paragraphs (a)(1)(i) and (ii) of this section when determining organic HAP content by Method 311.

(i) Include in the organic HAP total each organic HAP that is measured to be present at 0.1 percent by mass or more for Occupational Safety and Health Administration (OSHA)-defined carcinogens as specified in 29 CFR 1910.1200(d)(4) and at 1.0 percent by mass or more for other compounds. For example, if toluene (not an OSHA carcinogen) is measured to be 0.5 percent of the material by mass, you do not need to include it in the organic HAP total. Express the mass fraction of each organic HAP you measure as a value truncated to four places after the decimal point (for example, 0.1234).

(ii) Calculate the total organic HAP content in the test material by adding up the individual organic HAP contents and truncating the result to three places after the decimal point (for example, 0.123).

(2) *Method 24 (appendix A to 40 CFR part 60).* You may use Method 24 to determine the mass fraction of non-aqueous volatile matter of aluminum coatings and use that value as a substitute for mass fraction of organic HAP.

(3) *ASTM D1259–85 (Standard Test Method for Nonvolatile Content of Resins).* You may use ASTM D1259–85 (available for purchase from ASTM) to measure the mass fraction of volatile matter of resins and gel coats for open molding operations and use that value as a substitute for mass fraction of organic HAP.

(4) *Alternative method.* You may use an alternative test method for determining mass fraction of organic HAP if you obtain prior approval by the Administrator. You must follow the procedure in § 63.7(f) to submit an alternative test method for approval.

(5) *Information from the supplier or manufacturer of the material.* You may rely on information other than that generated by the test methods specified in paragraphs (a)(1) through (4) of this section, such as manufacturer's formulation data, according to paragraphs (a)(5)(i) through (iii) of this section.

(i) Include in the organic HAP total each organic HAP that is present at 0.1 percent by mass or more for OSHA-defined carcinogens as specified in 29 CFR 1910.1200(d)(4) and at 1.0 percent by mass or more for other compounds. For example, if toluene (not an OSHA carcinogen) is 0.5 percent of the material by mass, you do not have to include it in the organic HAP total.

(ii) If the organic HAP content is provided by the material supplier or manufacturer as a range, then you must use the upper limit of the range for determining compliance. If a separate measurement of the total organic HAP content using the methods specified in paragraphs (a)(1) through (4) of this section exceeds the upper limit of the range of the total organic HAP content provided by the material supplier or manufacturer, then you must use the measured organic HAP content to determine compliance.

(iii) If the organic HAP content is provided as a single value, you may assume the value is a manufacturing target value and actual organic HAP content may vary from the target value. If a separate measurement of the total organic HAP content using the methods specified in paragraphs (a)(1) through (4) of this section is less than 2 percentage points higher than the value for total organic HAP content provided by the material supplier or manufacturer, then you may use the provided value to demonstrate compliance. If the measured total organic HAP content exceeds the provided value by 2 percentage points or more, then you must use the measured organic HAP content to determine compliance.

(6) *Solvent blends.* Solvent blends may be listed as single components for some regulated materials in certifications provided by manufacturers or suppliers. Solvent blends may contain organic HAP which must be counted toward the total organic HAP content of the materials. When detailed organic HAP content data for solvent blends are not available, you may use the values for organic HAP content that are listed in Table 5 or 6 to this subpart. You may use Table 6 to this subpart only if the solvent blends in the materials you use do not match any of the solvent blends in Table 5 to this subpart and you know only whether the blend is either aliphatic or aromatic. However, if test results indicate higher values than those listed in Table 5 or 6 to this subpart, then the test results must be used for determining compliance.

(b) *Determine the volume fraction solids in aluminum recreational boat surface coatings.* To determine the volume fraction of coating solids (liters of coating solids per liter of coating) for each aluminum recreational boat surface coating, you must use one of the methods specified in paragraphs (b)(1) through

(3) of this section. If the results obtained with paragraphs (b)(2) or (3) of this section do not to agree with those obtained according to paragraph (b)(1) of this section, you must use the results obtained with paragraph (b)(1) of this section to determine compliance.

(1) *ASTM Method D2697–86(1998) or D6093–97.* You may use ASTM Method D2697–86(1998) or D6093–97 (available for purchase from ASTM) to determine the volume fraction of coating solids for each coating. Divide the nonvolatile volume percent obtained with the methods by 100 to calculate volume fraction of coating solids.

(2) *Information from the supplier or manufacturer of the material.* You may obtain the volume fraction of coating solids for each coating from the supplier or manufacturer.

(3) *Calculation of volume fraction of coating solids.* You may determine it using equation 1 of this section:

$$\text{Solids} = 1 - \frac{m_{\text{volatiles}}}{D_{\text{avg}}} \qquad \text{(Eq. 1)}$$

Where:

Solids=volume fraction of coating solids, liters coating solids per liter coating.

$m_{\text{volatiles}}$=Total volatile matter content of the coating, including organic HAP, volatile organic compounds, water, and exempt compounds, determined according to Method 24 in appendix A of 40 CFR part 60, grams volatile matter per liter coating.

D_{avg}=average density of volatile matter in the coating, grams volatile matter per liter volatile matter, determined from test results using ASTM Method D1475–90 (available for purchase from ASTM), information from the supplier or manufacturer of the material, or reference sources providing density or specific gravity data for pure materials. If there is disagreement between ASTM Method D1475–90 test results and other information sources, the test results will take precedence.

(c) *Determine the density of each aluminum recreational boat wipedown solvent and surface coating.* Determine the density of all aluminum recreational boat wipedown solvents, surface coatings, thinners, and other additives from test results using ASTM Method D1475–90, information from the supplier or manufacturer of the material, or reference sources providing density or specific gravity data for pure materials. If there is disagreement between ASTM Method D1475–90 test results and other information sources, you must use the test results to demonstrate compliance.

NOTIFICATIONS, REPORTS, AND RECORDS

§63.5761 What notifications must I submit and when?

(a) You must submit all of the notifications in Table 7 to this subpart that apply to you by the dates in the table. The notifications are described more fully in 40 CFR part 63, subpart A, General Provisions, referenced in Table 8 to this subpart.

(b) If you change any information submitted in any notification, you must submit the changes in writing to the Administrator within 15 calendar days after the change.

§63.5764 What reports must I submit and when?

(a) You must submit the applicable reports specified in paragraphs (b) through (e) of this section. To the extent possible, you must organize each report according to the operations covered by this subpart and the compliance procedure followed for that operation.

(b) Unless the Administrator has approved a different schedule for submission of reports under §63.10(a), you must submit each report by the dates in paragraphs (b)(1) through (5) of this section.

(1) If your source is not controlled by an add-on control device (i.e., you are complying with organic HAP content limits, application equipment requirements, or MACT model point value averaging provisions), the first compliance report must cover the period beginning 12 months after the compliance date specified for your source in §63.5695 and ending on June 30 or December 31, whichever date is the first date following the end of the first 12-month period after the compliance

date that is specified for your source in § 63.5695. If your source is controlled by an add-on control device, the first compliance report must cover the period beginning on the compliance date specified for your source in § 63.5695 and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for your source in § 63.5695.

(2) The first compliance report must be postmarked or delivered no later than 60 calendar days after the end of the compliance reporting period specified in paragraph (b)(1) of this section.

(3) Each subsequent compliance report must cover the applicable semiannual reporting period from January 1 through June 30 or from July 1 through December 31.

(4) Each subsequent compliance report must be postmarked or delivered no later than 60 calendar days after the end of the semiannual reporting period.

(5) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (4) of this section.

(c) The compliance report must include the information specified in paragraphs (c)(1) through (7) of this section.

(1) Company name and address.

(2) A statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the report.

(3) The date of the report and the beginning and ending dates of the reporting period.

(4) A description of any changes in the manufacturing process since the last compliance report.

(5) A statement or table showing, for each regulated operation, the applicable organic HAP content limit, application equipment requirement, or MACT model point value averaging provision with which you are complying. The statement or table must also show the actual weighted-average organic HAP content or weighted-average MACT model point value (if applicable) for each operation during each of the rolling 12-month averaging periods that end during the reporting period.

(6) If you were in compliance with the emission limits and work practice standards during the reporting period, you must include a statement to that effect.

(7) If you deviated from an emission limit or work practice standard during the reporting period, you must also include the information listed in paragraphs (c)(7)(i) through (iv) of this section in the semiannual compliance report.

(i) A description of the operation involved in the deviation.

(ii) The quantity, organic HAP content, and application method (if relevant) of the materials involved in the deviation.

(iii) A description of any corrective action you took to minimize the deviation and actions you have taken to prevent it from happening again.

(iv) A statement of whether or not your facility was in compliance for the 12-month averaging period that ended at the end of the reporting period.

(d) If your facility has an add-on control device, you must submit semiannual compliance reports and quarterly excess emission reports as specified in § 63.10(e). The contents of the reports are specified in § 63.10(e).

(e) If your facility has an add-on control device, you must complete a startup, shutdown, and malfunction plan as specified in § 63.6(e), and you must submit the startup, shutdown, and malfunction reports specified in § 63.10(e)(5).

§ 63.5767 What records must I keep?

You must keep the records specified in paragraphs (a) through (d) of this section in addition to records specified in individual sections of this subpart.

(a) You must keep a copy of each notification and report that you submitted to comply with this subpart.

(b) You must keep all documentation supporting any notification or report that you submitted.

(c) If your facility is not controlled by an add-on control device (i.e., you are complying with organic HAP content limits, application equipment requirements, or MACT model point value averaging provisions), you must keep the records specified in paragraphs (c)(1) through (3) of this section.

(1) The total amounts of open molding production resin, pigmented gel coat, clear gel coat, tooling resin, and tooling gel coat used per month and the weighted-average organic HAP contents for each operation, expressed as weight-percent. For open molding production resin and tooling resin, you must also record the amounts of each applied by atomized and nonatomized methods.

(2) The total amount of each aluminum coating used per month (including primers, top coats, clear coats, thinners, and activators) and the weighted-average organic HAP content as determined in §63.5752.

(3) The total amount of each aluminum wipedown solvent used per month and the weighted-average organic HAP content as determined in §63.5749.

(d) If your facility has an add-on control device, you must keep the records specified in §63.10(b) relative to control device startup, shut down, and malfunction events; control device performance tests; and continuous monitoring system performance evaluations.

§63.5770 In what form and for how long must I keep my records?

(a) Your records must be readily available and in a form so they can be easily inspected and reviewed.

(b) You must keep each record for 5 years following the date that each record is generated.

(c) You must keep each record on site for at least 2 years after the date that each record is generated. You can keep the records offsite for the remaining 3 years.

(d) You can keep the records on paper or an alternative media, such as microfilm, computer, computer disks, magnetic tapes, or on microfiche.

OTHER INFORMATION YOU NEED TO KNOW

§63.5773 What parts of the General Provisions apply to me?

You must comply with the requirements of the General Provisions in 40 CFR part 63, subpart A, as specified in Table 8 to this subpart.

§63.5776 Who implements and enforces this subpart?

(a) If the Administrator has delegated authority to your State or local agency, the State or local agency has the authority to implement and enforce this subpart.

(b) In delegating implementation and enforcement authority of this subpart to a State or local agency under 40 CFR part 63, subpart E, the authorities that are retained by the Administrator of the U.S. EPA and are not transferred to the State or local agency are listed in paragraphs (b)(1) through (4) of this section.

(1) Under §63.6(g), the authority to approve alternatives to the standards listed in paragraphs (b)(1)(i) through (vii) of this section is not delegated.

(i) §63.5698—Emission limit for open molding resin and gel coat operations.

(ii) §63.5728—Standards for closed molding resin operations.

(iii) §63.5731(a)—Standards for resin and gel coat mixing operations.

(iv) §63.5734—Standards for resin and gel coat application equipment cleaning operations.

(v) §63.5740(a)—Emission limit for carpet and fabric adhesive operations.

(vi) §63.5743—Standards for aluminum recreational boat surface coating operations.

(vii) §63.5746(g)—Approval of alternative means of demonstrating compliance with the emission limits for aluminum recreational boat surface coating operations.

(2) Under §63.7(e)(2)(ii) and (f), the authority to approve alternatives to the test methods listed in paragraphs (b)(2)(i) through (iv) of this section is not delegated.

(i) §63.5719(b)—Method for determining whether an enclosure is a total enclosure.

(ii) § 63.5719(c)—Methods for measuring emissions from a control device.

(iii) § 63.5725(d)(1)—Performance specifications for thermal oxidizer combustion temperature monitors.

(iv) § 63.5758—Method for determining hazardous air pollutant content of regulated materials.

(3) Under § 63.8(f), the authority to approve major alternatives to the monitoring requirements listed in § 63.5725 is not delegated. A ''major alternative'' is defined in § 63.90.

(4) Under § 63.10(f), the authority to approve major alternatives to the reporting and recordkeeping requirements listed in §§ 63.5764, 63.5767, and 63.5770 is not delegated. A ''major alternative'' is defined in § 63.90.

DEFINITIONS

§ 63.5779 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act, in § 63.2, and in this section as follows:

Add-on control means an air pollution control device, such as a thermal oxidizer, that reduces pollution in an air stream by destruction or removal before discharge to the atmosphere.

Administrator means the Administrator of the United States Environmental Protection Agency (U.S. EPA) or an authorized representative (for example, a State delegated the authority to carry out the provisions of this subpart).

Aluminum recreational boat means any marine or freshwater recreational boat that has a hull or deck constructed primarily of aluminum. A recreational boat is a vessel which by design and construction is intended by the manufacturer to be operated primarily for pleasure, or to be leased, rented or chartered to another for the latter's pleasure (rather than for commercial or military purposes); and whose major structural components are fabricated and assembled in an indoor, production-line manufacturing plant or similar land-side operation and not in a dry dock, graving dock, or marine railway on the navigable waters of the United States.

Aluminum recreational boat surface coating operation means the application of primers or top coats to aluminum recreational boats. It also includes the application of clear coats over top coats. Aluminum recreational boat surface coating operations do not include the application of wood coatings or antifoulant coatings to aluminum recreational boats.

Aluminum coating spray gun cleaning means the process of flushing or removing paints or coatings from the interior or exterior of a spray gun used to apply aluminum primers, clear coats, or top coats to aluminum recreational boats.

Aluminum wipedown solvents means solvents used to remove oil, grease, welding smoke, or other contaminants from the aluminum surfaces of a boat before priming or painting. Aluminum wipedown solvents contain no coating solids; aluminum surface preparation materials that contain coating solids are considered coatings for the purpose of this subpart and are not wipedown solvents.

Antifoulant coating means any coating that is applied to the underwater portion of a boat specifically to prevent or reduce the attachment of biological organisms and that is registered with EPA as a pesticide under the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. section 136, *et seq.*). For the purpose of this subpart, primers used with antifoulant coatings to prepare the surface to accept the antifoulant coating are considered antifoulant coatings.

Assembly adhesive means any chemical material used in the joining of one fiberglass, metal, foam, or wood parts to another to form a temporary or permanently bonded assembly. Assembly adhesives include, but are not limited to, methacrylate adhesives and putties made from polyester or vinylester resin mixed with inert fillers or fibers.

Atomized resin application means a resin application technology in which the resin leaves the application equipment and breaks into droplets or an aerosol as it travels from the application equipment to the surface of the part. Atomized resin application includes, but is not limited to, resin spray guns and resin chopper spray guns.

Boat means any type of vessel, other than a seaplane, that can be used for transportation on the water.

Boat manufacturing facility means a facility that manufactures the hulls or decks of boats from fiberglass or aluminum or assembles boats from premanufactured hulls and decks, or builds molds to make fiberglass hulls or decks. A facility that manufactures only parts of boats (such as hatches, seats, or lockers) or boat trailers, but no boat hulls or decks or molds for fiberglass boat hulls or decks, is not considered a boat manufacturing facility for the purpose of this subpart.

Carpet and fabric adhesive means any chemical material that permanently attaches carpet, fabric, or upholstery to any surface of a boat.

Clear gel coat means gel coats that are clear or translucent so that underlying colors are visible. Clear gel coats are used to manufacture parts for sale. Clear gel coats do not include tooling gel coats used to build or repair molds.

Closed molding means any molding process in which pressure is used to distribute the resin through the reinforcing fabric placed between two mold surfaces to either saturate the fabric or fill the mold cavity. The pressure may be clamping pressure, fluid pressure, atmospheric pressure, or vacuum pressure used either alone or in combination. The mold surfaces may be rigid or flexible. Closed molding includes, but is not limited to, compression molding with sheet molding compound, infusion molding, resin injection molding (RIM), vacuum-assisted resin transfer molding (VARTM), resin transfer molding (RTM), and vacuum-assisted compression molding. Processes in which a closed mold is used only to compact saturated fabric or remove air or excess resin from the fabric (such as in vacuum bagging), are not considered closed molding. Open molding steps, such as application of a gel coat or skin coat layer by conventional open molding prior to a closed molding process, are not closed molding.

Cured resin and gel coat means resin or gel coat that has been polymerized and changed from a liquid to a solid.

Deviation means any instance in which an affected source subject to this subpart or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including, but not limited to, any emission limit, operating limit, or work practice requirement;

(2) Fails to meet any term or condition which is adopted to implement an applicable requirement in this subpart and which is included in the operating permit for any affected source required to obtain such permit; or

(3) Fails to meet any emission limit, operating limit, or work practice requirement in this subpart during any startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Enclosure means a structure, such as a spray booth, that surrounds a source of emissions and captures and directs the emissions to an add-on control device.

Fiberglass boat means a vessel in which either the hull or deck is built from a composite material consisting of a thermosetting resin matrix reinforced with fibers of glass, carbon, aramid, or other material.

Fiberglass hull and deck coatings means coatings applied to the exterior or interior surface of fiberglass boat hulls and decks on the completed boat. Polyester and vinylester resins and gel coats used in building fiberglass parts are not fiberglass hull and deck coatings for the purpose of this subpart.

Filled resin means a resin to which an inert material has been added to change viscosity, density, shrinkage, or other physical properties.

Gel coat means a thermosetting resin surface coating containing styrene (Chemical Abstract Service or CAS No. 100–42–5) or methyl methacrylate (CAS No. 80–62–6), either pigmented or clear, that provides a cosmetic enhancement or improves resistance to degradation from exposure to the elements. Gel coat layers do not contain any reinforcing fibers and gel coats are applied directly to mold surfaces or to a finished laminate.

Hazardous air pollutant or HAP means any air pollutant listed in, or pursuant to section 112(b) of the Clean Air Act.

Hazardous air pollutant content or HAP content means the amount of HAP contained in a regulated material at the time it is applied to the part being manufactured. If no HAP is added to a material as a thinner or diluent, then the HAP content is the same as the HAP content of the material as purchased from the supplier. For resin and gel coat, HAP content does not include any HAP contained in the catalyst added to the resin or gel coat during application to initiate curing.

Hazardous air pollutant data sheet (HDS) means documentation furnished by a material supplier or an outside laboratory to provide the organic HAP content of the material by weight, measured using an EPA Method, manufacturer's formulation data, or an equivalent method. For aluminum coatings, the HDS also documents the solids content by volume, determined from the manufacturer's formulation data. The purpose of the HDS is to help the affected source in showing compliance with the organic HAP content limits contained in this subpart. The HDS must state the maximum total organic HAP concentration, by weight, of the material. It must include any organic HAP concentrations equal to or greater than 0.1 percent by weight for individual organic HAP that are carcinogens, as defined by the Occupational Safety and Health Administration Hazard Communication Standard (29 CFR part 1910), and 1.0 percent by weight for all other individual organic HAP, as formulated. The HDS must also include test conditions if EPA Method 311 is used for determining organic HAP content.

Maximum achievable control technology (MACT) model point value means a number calculated for open molding operations that is a surrogate for emissions and is used to determine if your open molding operations are in compliance with the provisions of this subpart. The units for MACT model point values are kilograms of organic HAP per megagram of resin or gel coat applied.

Manufacturer's certification means documentation furnished by a material supplier that shows the organic HAP content of a material and includes a HDS.

Mold means the cavity or surface into or on which gel coat, resin, and fibers are placed and from which finished fiberglass parts take their form.

Mold sealing and release agents means materials applied to a mold to seal, polish, and lubricate the mold to prevent parts from sticking to the mold. Mold sealers, waxes, and glazing and buffing compounds are considered mold sealing and release agents for the purposes of this subpart.

Mold stripping and cleaning solvents means materials used to remove mold sealing and release agents from a mold before the mold surface is repaired, polished, or lubricated during normal mold maintenance.

Month means a calendar month.

Neat resin means a resin to which no filler has been added.

Nonatomized resin application means any application technology in which the resin is not broken into droplets or an aerosol as it travels from the application equipment to the surface of the part. Nonatomized resin application technology includes, but is not limited to, flowcoaters, chopper flowcoaters, pressure fed resin rollers, resin impregnators, and hand application (for example, paint brush or paint roller).

Open molding resin and gel coat operation means any process in which the reinforcing fibers and resin are placed in the mold and are open to the surrounding air while the reinforcing fibers are saturated with resin. For the purposes of this subpart, open molding includes operations in which a vacuum bag or similar cover is used to compress an uncured laminate to remove air bubbles or excess resin, or to achieve a bond between a core material and a laminate.

Pigmented gel coat means opaque gel coats used to manufacture parts for sale. Pigmented gel coats do not include tooling gel coats used to build or repair molds.

Production resin means any resin used to manufacture parts for sale. Production resins do not include tooling resins used to build or repair molds, or assembly adhesives as defined in this section.

Recycled resin and gel coat application equipment cleaning solvent means cleaning solvents recycled on-site or returned to the supplier or another party to remove resin or gel coat residues so that the solvent can be reused.

Research and development activities means:

(1) Activities conducted at a laboratory to analyze air, soil, water, waste, or product samples for contaminants, environmental impact, or quality control;

(2) Activities conducted to test more efficient production processes or methods for preventing or reducing adverse environmental impacts, provided that the activities do not include the production of an intermediate or final product for sale or exchange for commercial profit, except in a *de minimis* manner; and

(3) Activities conducted at a research or laboratory facility that is operated under the close supervision of technically trained personnel, the primary purpose of which is to conduct research and development into new processes and products and that is not engaged in the manufacture of products for sale or exchange for commercial profit, except in a *de minimis* manner.

Resin means any thermosetting resin with or without pigment containing styrene (CAS No. 100–42–5) or methyl methacrylate (CAS No. 80–62–6) and used to encapsulate and bind together reinforcement fibers in the construction of fiberglass parts.

Resin and gel coat application equipment cleaning means the process of flushing or removing resins and gel coats from the interior or exterior of equipment that is used to apply resin or gel coat in the manufacture of fiberglass parts.

Resin and gel coat mixing operation means any operation in which resin or gel coat, including the mixing of putties or polyputties, is combined with additives that include, but are not limited to, fillers, promoters, or catalysts.

Roll-out means the process of using rollers, squeegees, or similar tools to compact reinforcing materials saturated with resin to remove trapped air or excess resin.

Skin coat is a layer of resin and fibers applied over the gel coat to protect the gel coat from being deformed by the next laminate layers.

Tooling resin means the resin used to build or repair molds (also known as tools) or prototypes (also known as plugs) from which molds will be made.

Tooling gel coat means the gel coat used to build or repair molds (also known as tools) or prototypes (also known as plugs) from which molds will be made.

Vacuum bagging means any molding technique in which the reinforcing fabric is saturated with resin and then covered with a flexible sheet that is sealed to the edge of the mold and where a vacuum is applied under the sheet to compress the laminate, remove excess resin, or remove trapped air from the laminate during curing. Vacuum bagging does not include processes that meet the definition of closed molding.

Vinylester resin means a thermosetting resin containing esters of acrylic or methacrylic acids and having double-bond and ester linkage sites only at the ends of the resin molecules.

Volume fraction of coating solids means the ratio of the volume of coating solids (also known as volume of nonvolatiles) to the volume of coating; liters of coating solids per liter of coating.

Wood coatings means coatings applied to wooden parts and surfaces of boats, such as paneling, cabinets, railings, and trim. Wood coatings include, but are not limited to, primers, stains, sealers, varnishes, and enamels. Polyester and vinylester resins or gel coats applied to wooden parts to encapsulate them or bond them to other parts are not wood coatings.

TABLE 1 TO SUBPART VVVV—COMPLIANCE DATES FOR NEW AND EXISTING BOAT MANUFACTURING FACILITIES

As specified in § 63.5695, you must comply by the dates in the following table:

If your facility is—	And—	Then you must comply by this date—
1. An existing source	Is a major source on or before August 22, 2001[1].	August 23, 2004.
2. An existng or new area source	Becomes a major source after August 22, 2001[1].	1 year after becoming a major source or August 22, 2002, whichever is later.
3. A new source	Is a major source at startup[1]	Upon startup or August 22, 2001, whichever is later.

[1] Your facility is a major source if it is a stationary source or group of stationary sources located within a contiguous area and under common control that emits or can potentially emit, considering controls, in the aggregate, 9.1 megagrams or more per year of a single hazardous air pollutant or 22.7 megagrams or more per year of a combination of hazardous air pollutants.

TABLE 2 TO SUBPART VVVV OF PART 63—ALTERNATIVE ORGANIC HAP CONTENT REQUIREMENTS FOR OPEN MOLDING RESIN AND GEL COAT OPERATIONS

As specified in §§ 63.5701(b), 63.5704(b)(2), and 63.5713(a), (b), and (d), you must comply with the requirements in the following table:

For this operation—	And this applicaton method—	You must not exceed this weighted-average organic HAP content (weight percent) requirement—
1. Production resin operations	Atomized (spray)	28 percent.
2. Production resin operations	Nonatomized (nonspray)	35 percent.
3. Pigmented gel coat operations	Any method	33 percent.
4. Clear gel coat operations	Any method	48 percent
5. Tooling resin operations	Atomized (spray)	30 percent.
6. Tooling resin operations	Nonatomized (nonspray)	39 percent.
7. Tooling gel coat operations	Any method	40 percent.

TABLE 3 TO SUBPART VVVV OF PART 63—MACT MODEL POINT VALUE FORMULAS FOR OPEN MOLDING OPERATIONS[1]

As specified in §§ 63.5710(d) and 63.5714(a), you must calculate point values using the formulas in the following table:

For this operation—	And this application method—	Use this formula to calculate the MACT model plant value for each resin and gel coat—
1. Production resin, tooling resin	a. Atomized	$0.014 \times (\text{Resin HAP\%})^{2.425}$
	b. Atomized, plus vacuum bagging with roll-out.	$0.01185 \times (\text{Resin HAP\%})^{2.425}$
	c. Atomized, plus vacuum bagging without roll-out.	$0.00945 \times (\text{Resin HAP\%})^{2.425}$
	d. Nonatomized	$0.014 \times (\text{Resin HAP\%})^{2.275}$
	e. Nonatomized, plus vaccum bagging with roll-out.	$0.0110 \times (\text{Resin HAP\%})^{2.275}$
	f. Nonatomized, plus vacuum bagging without roll-out.	$0.0076 \times (\text{Resin HAP\%})^{2.275}$
2. Pigmented gel coat, clear gel coat, tooling gel coat.	All methods	$0.445 \times (\text{Gel coat HAP\%})^{1.675}$

[1] Equations calculate MACT model point value in kilograms of organic HAP per megagrams of resin or gel coat applied. The equations for vacuum bagging with roll-out are applicable when a facility rolls out the applied resin and fabric prior to applying the vacuum bagging materials. The equations for vacuum bagging without roll-out are applicable when a facility applies the vacuum bagging materials immediately after resin application without rolling out the resin and fabric. HAP% = organic HAP content as supplied, expressed as a weight-percent value between 0 and 100 percent.

[66 FR 44232, Aug. 22, 2001; 66 FR 50504, Oct. 3, 2001]

Table 4 to Subpart VVVV of Part 63—Operating Limits if Using an Add-on Control Device for Open Molding Operations

As specified in §§ 63.5715(a) and 63.5725(f)(5), you must meet the operating limits in the following table:

For the following device—	You must meet the following operating limit—	And you must demonstrate continuous compliance with the operating limit by—
1. Thermal oxidizer	The average combustion temperature in any 3-hour period must not fall below the combustion temperature limit established according to § 63.5725(d).	a. Collecting the combustion temperature data according to § 63.5725(d); b. reducing the data to 3-hour block averages; and c. maintaining the 3-hour average combustion temperature at or above the temperature limit.
2. Other control devices	An operating limit approved by the Administrator according to § 63.8(f).	a. Collecting parameter monitoring as approved by the Administrator according to § 63.8(f); and b. maintaining the parameters within the operating limits approved according to § 63.8(f).
3. Emission capture system that is a PTE according to § 63.5719(b).	a. The direction of the air flow at all times must be into the enclosure; and b. in any 3-hour period, either the average facial velocity of air through all natural draft openings in the enclosure must be at least 200 feet per minute; or c. the pressure drop across the enclosure must be at least 0.007 inch H_2O, as established in Method 204 of appendix M to 40 CFR part 51.	i. Collecting the direction of air flow, and either the facial velocity of air through all natural draft openings according to § 63.5725(f)(3) or the pressure drop across the enclosure according to § 63.5725(f)(4); and ii. reducing the data for facial velocity or pressure drop to 3-hour block averages; and iii. maintaining the 3-hour average facial velocity of air flow through all natural draft openings or the pressure drop at or above the facial velocity limit or pressure drop limit, and maintaining the direction of air flow into the enclosure at all times.
4. Emission capture system that is not a PTE according to § 63.5719(b).	a. The average gas volumetric flow rate or duct static pressure in each duct between a capture device and add-on control device inlet in any 3-hour period must not fall below the average volumetric flow rate or duct static pressure limit established for that capture device according to § 63.5725(f)(5); and b. the average pressure drop across an opening in each enclosure in any 3-hour period must not fall below the average pressure drop limit established for that capture device according to § 63.5725(f)(5).	i. Collecting the gas volumetric flow rate or duct static pressure for each capture device according to § 63.5725(f)(1) and (3); ii. reducing the data to 3-hour block averages; iii. maintaining the 3-hour average gas volumetric flow rate or duct static pressure for each capture device at or above the gas volumetric flow rate or duct static pressure limit; iv. collecting data for the pressure drop across an opening in each enclosure according to § 63.5725(f)(2) and (4); v. reducing the data to 3-hour block averages; and vi. maintaining the 3-hour average pressure drop across the opening for each enclosure at or above the gas volumetric flow rate or duct static pressure limit.

Table 5 to Subpart VVVV of Part 63—Default Organic HAP Contents of Solvents and Solvent Blends

As specified in § 63.5758(a)(6), when detailed organic HAP content data for solvent blends are not available, you may use the values in the following table:

Solvent/solvent blend	CAS No.	Average organic HAP content, percent by mass	Typical organic HAP, percent by mass
1. Toluene	108–88–3	100	Toluene.
2. Xylene(s)	1330–20–7	100	Xylenes, ethylbenzene.
3. Hexane	110–54–3	50	n-hexane.
4. n-hexane	110–54–3	100	n-hexane.
5. Ethylbenzene	100–41–4	100	Ethylbenzene.
6. Aliphatic 140		0	None.
7. Aromatic 100		2	1% xylene, 1% cumene.
8. Aromatic 150		9	Naphthalene.
9. Aromatic naptha	64742–95–6	2	1% xylene, 1% cumene.
10. Aromatic solvent	64742–94–5	10	Naphthalene.
11. Exempt mineral spirits	8032–32–4	0	None.
12. Ligroines (VM & P)	8032–32–4	0	None.
13. Lactol spirits	64742–89–6	15	Toluene.
14. Low aromatic white spirit	64742–82–1	0	None.
15. Mineral spirits	64742–88–7	1	Xylenes.
16. Hydrotreated naphtha	64742–48–9	0	None.
17. Hydrotreated light distillate	64742–47–8	0.1	Toluene.
18. Stoddard solvent	8052–41–3	1	Xylenes.
19. Super high-flash naphtha	64742–95–6	5	Xylenes.
20. Varol® solvent	8052–49–3	1	0.5% xylenes, 0.5% ethyl benzene.
21. VM & P naphtha	64742–89–8	6	3% toluene, 3% xylene.

As specified in § 63.5758(a)(6), when detailed organic HAP content data for solvent blends are not available, you may use the values in the following table:

Solvent/solvent blend	CAS No.	Average organic HAP content, percent by mass	Typical organic HAP, percent by mass
22. Petroleum distillate mixture	68477–31–6	8	4% naphthalene, 4% biphenyl.

TABLE 6 TO SUBPART VVVV OF PART 63—DEFAULT ORGANIC HAP CONTENTS OF PETROLEUM SOLVENT GROUPS

As specified in § 63.5758(a)(6), when detailed organic HAP content data for solvent blends are not available, you may use the values in the following table:

Solvent type	Average organic HAP content, percent by mass	Typical organic HAP, percent by mass
Aliphatic (Mineral Spirits 135, Mineral Spirits 150 EC, Naphtha, Mixed Hydrocarbon, Aliphatic Hydrocarbon, Aliphatic Naptha, Naphthol Spirits, Petroleum Spirits, Petroleum Oil, Petroleum Naphtha, Solvent Naphtha, Solvent Blend.).	3	1% Xylene, 1% Toluene, and 1% Ethylbenzene.
Aromatic (Medium-flash Naphtha, High-flash Naphtha, Aromatic Naphtha, Light Aromatic Naphtha, Light Aromatic Hydrocarbons, Aromatic Hydrocarbons, Light Aromatic Solvent.).	6	4% Xylene, 1% Toluene, and 1% Ethylbenzene.

TABLE 7 TO SUBPART VVVV OF PART 63—APPLICABILITY AND TIMING OF NOTIFICATIONS

As specified in § 63.5761(a), you must submit notifications according to the following table:

If your facility—	You must submit—	By this date—
1. Is an existing source subject to this subpart.	An initial notification containing the information specified in § 63.9(b)(2).	No later than the dates specified in § 63.9(b)(2).
2. Is a new source subject to this subpart	The notifications specified in § 63.9(b) (3) to (5).	No later than the dates specified § 63.9(b)(4) and (5).
3. Qualifies for a compliance extension as specified in § 63.9(c).	A request for a compliance extension as specified in § 63.9(c).	No later than the dates specified in § 63.6(i).
4. Is complying with organic HAP content limits, application equipment requirements; or MACT model point value averaging provisions.	A notification of compliance status as specified in § 63.9(h).	No later than 30 calendar days after the end of the first 12-month averaging period after your facility's compliance date.
5. Is complying by using an add-on control device.	a. notification of intent to conduct a performance test as specified in § 63.9(e).	No later than the date specified in § 63.9(e).
	b. A notification of the date for the continuous monitoring system performance evaluation as specified in § 63.9(g).	With the notification of intent to conduct a performance test.
	c. A notification of compliance status as specified in § 63.9(h).	No later than 60 calendar days after the completion of the add-on control device performance test and continuous monitoring system performance evaluation.

TABLE 8 TO SUBPART VVVV OF PART 63—APPLICABILITY OF GENERAL PROVISIONS (40 CFR PART 63, SUBPART A) TO SUBPART VVVV

As specified in § 63.5773, you must comply with the applicable requirements of the General Provisions according to the following table:

Citation	Requirement	Applies to subpart VVVV	Explanation
§ 63.1(a)	General Applicability	Yes.	
§ 63.1(b)	Initial Applicability Determination	Yes.	
§ 63.1(c)(1)	Applicability After Standard Established.	Yes.	
§ 63.1(c)(2)		Yes	Area sources are not regulated by subpart VVVV.
§ 63.1(c)(3)		No	[Reserved]
§ 63.1(c)(4)–(5)		Yes.	
§ 63.1(d)		No	[Reserved]
63.1(e)	Applicability of Permit Program	Yes.	

As specified in § 63.5773, you must comply with the applicable requirements of the General Provisions according to the following table:

Citation	Requirement	Applies to subpart VVVV	Explanation
§ 63.2	Definitions	Yes	Additional definitions are found in § 63.5779.
§ 63.3	Units and Abbreviations	Yes.	
§ 63.4(a)	Prohibited Activities	Yes.	
§ 63.4(b)–(c)	Circumvention/Severability	Yes.	
§ 63.5(a)	Construction/Reconstruction	Yes.	
§ 63.5(b)	Requirements for Existing, Newly Constructed, and Reconstructed Sources.	Yes.	
§ 63.5(c)		No	[Reserved]
§ 63.5(d)	Application for Approval of Construction/Reconstruction.	Yes.	
§ 63.5(e)	Approval of Construction/Reconstruction.	Yes.	
§ 63.5(f)	Approval of Construction/Reconstruction Based on prior State Review.	Yes.	
§ 63.6(a)	Compliance with Standards and Maintenance Requirements—Applicability.	Yes.	
§ 63.6(b)	Compliance Dates for New and Reconstructed Sources.	Yes	§ 63.695 specifies compliance dates, including the compliance date for new area sources that become major sources after the effective date of the rule.
§ 63.6(c)	Compliance Dates for Existing Sources.	Yes	§ 63.5695 specifies compliance dates, including the compliance date for existing area sources that become major sources after the effective date of the rule.
§ 63.6(d)		No	[Reserved]
§ 63.6(e)(1)–(2)	Operation and Maintenance Requirements.	No	Operating requirements for open molding operations with add-on controls are specified in § 63.5725.
§ 63.6(e)(3)	Startup, Shut Down, and Malfunction Plans.	Yes	Only sources with add-on controls must complete startup, shutdown, and malfunction plans.
§ 63.6(f)	Compliance with Nonopacity Emission Standards.	Yes.	
§ 63.6(g)	Use of an Alternative Nonopacity Emission Standard.	Yes.	
§ 63.6(h)	Compliance with Opacity/Visible Emissions Standards.	No	Subpart VVVV does not specify opacity or visible emission standards.
§ 63.6(i)	Extension of Compliance with Emission Standards.	Yes.	
§ 63.6(j)	Exemption from Compliance with Emission Standards.	Yes.	
§ 63.7(a)(1)	Performance Test Requirements	Yes.	
§ 63.7(a)(2)	Dates for performance tests	No	§ 63.5716 specifies performance test dates.
§ 63.7(a)(3)	Performance testing at other times	Yes.	
§ 63.7(b)–(h)	Other performance testing requirements.	Yes.	
§ 63.8(a)(1)–(2)	Monitoring Requirements—Applicability.	Yes	All of § 63.8 applies only to sources with add-on controls. Additional monitoring requirements for sources with add-on controls are found in § 63.5725.
§ 63.8(a)(3)		No	[Reserved]
§ 63.8(a)(4)		No	Subpart VVVV does not refer directly or indirectly to § 63.11.
§ 63.8(b)(1)	Conduct of Monitoring	Yes.	
§ 63.8(b)(2)–(3)	Multiple Effluents and Multiple Continuous Monitoring Systems (CMS).	Yes	Applies to sources that use a CMS on the control device stack.
§ 63.8(c)(1)–(4)	Continuous Monitoring System Operation and Maintenance.	Yes.	
§ 63.8(c)(5)	Continuous Opacity Monitoring Systems (COMS).	No	Subpart VVVV does not have opacity or visible emission standards.

As specified in § 63.5773, you must comply with the applicable requirements of the General Provisions according to the following table:

Citation	Requirement	Applies to subpart VVVV	Explanation
§ 63.8(c)(6)–(8)	Continuous Monitoring System Calibration Checks and Out-of-Control Periods.	Yes.	
§ 63.8(d)	Quality Control Program	Yes.	
§ 63.8(e)	CMS Performance Evaluation	Yes.	
§ 63.8(f)(1)–(5)	Use of an Alternative Monitoring Method.	Yes.	
§ 63.8(f)(6)	Alternative to Relative Accuracy Test.	Yes	Applies only to sources that use continuous emission monitoring systems (CEMS).
§ 63.8(g)	Data Reduction	Yes	
§ 63.9(a)	Notification Requirements—Applicability.	Yes.	
§ 63.9(b)	Initial Notifications	Yes	
§ 63.9(c)	Request for Compliance Extension	Yes.	
§ 63.9(d)	Notification That a New Source Is Subject to Special Compliance Requirements.	Yes.	
§ 63.9(e)	Notification of Performance Test	Yes	Applies only to sources with add-on controls.
§ 63.9(f)	Notification of Visible Emissions/Opacity Test.	No	Subpart VVVV does not have opacity or visible emission standards.
§ 63.9(g)(1)	Additional CMS Notifications—Date of CMS Performance Evaluation.	Yes	Applies only to sources with add-on controls.
§ 63.9(g)(2)	Use of COMS Data	No	Subpart VVVV does not require the use of COMS.
§ 63.9(g)(3)	Alternative to Relative Accuracy Testing.	Yes	Applies only to sources with CEMS.
§ 63.9(h)	Notification of Compliance Status	Yes.	
§ 63.9(i)	Adjustment of Deadlines	Yes.	
§ 63.9(j)	Change in Previous Information	Yes.	
§ 63.10(a)	Recordkeeping/Reporting—Applicability.	Yes.	
§ 63.10(b)(1)	General Recordkeeping Requirements.	Yes	§§ 63.567 and 63.5770 specify additional recordkeeping requirements.
§ 63.10(b)(2)(i)–(xi)	Recordkeeping Relevant to Startup, Shutdown, and Malfunction Periods and CMS.	Yes	Applies only to sources with add-on controls.
§ 63.10(b)(2)(xii)–(xiv)	General Recordkeeping Requirements.	Yes.	
§ 63.10(b)(3)	Recordkeeping Requirements for Applicability Determinations.	Yes	§ 63.5686 specifies applicability determinations for non-major sources.
§ 63.10(c)	Additional Recordkeeping for Sources with CMS.	Yes	Applies only to sources with add-on controls.
§ 63.10(d)(1)	General Reporting Requirements	Yes	§ 63.5764 specifies additional reporting requirements.
§ 63.10(d)(2)	Performance Test Results	Yes	§ 63.5764 specifies additional requirements for reporting performance test results.
§ 63.10(d)(3)	Opacity or Visible Emissions Observations.	No	Subpart VVVV does not specify opacity or visible emission standards.
§ 63.10(d)(4)	Progress Reports for Sources with Compliance Extensions.	Yes.	
§ 63.10(d)(5)	Startup, Shutdown, and Malfunction Reports.	Yes	Applies only to sources with add-on controls.
§ 63.10(e)(1)	Additional CMS Reports—General	Yes	Applies only to sources with add-on controls.
§ 63.10(e)(2)	Reporting Results of CMS Performance Evaluations.	Yes	Applies only to sources with add-on controls.
§ 63.10(e)(3)	Excess Emissions/CMS Performance Reports.	Yes	Applies only to sources with add-on controls.
§ 63.10(e)(4)	COMS Data Reports	No	Subpart VVVV does not specify opacity or visible emission standards.
§ 63.10(f)	Recordkeeping/Reporting Waiver	Yes.	
§ 63.11	Control Device Requirements—Applicability.	No	Facilities subject to subpart VVVV do not use flares as control devices.

As specified in § 63.5773, you must comply with the applicable requirements of the General Provisions according to the following table:

Citation	Requirement	Applies to subpart VVVV	Explanation
§ 63.12	State Authority and Delegations	Yes	§ 63.5776 lists those sections of subpart A that are not delegated.
§ 63.13	Addresses	Yes.	
§ 63.14	Incorporation by Reference	Yes.	
§ 63.15	Availability of Information/Confidentiality.	Yes.	

Subpart WWWW—National Emissions Standards for Hazardous Air Pollutants: Reinforced Plastic Composites Production

SOURCE: 68 FR 19402, Apr. 21, 2003, unless otherwise noted.

WHAT THIS SUBPART COVERS

§ 63.5780 What is the purpose of this subpart?

This subpart establishes national emissions standards for hazardous air pollutants (NESHAP) for reinforced plastic composites production. This subpart also establishes requirements to demonstrate initial and continuous compliance with the hazardous air pollutants (HAP) emissions standards.

§ 63.5785 Am I subject to this subpart?

(a) You are subject to this subpart if you own or operate a reinforced plastic composites production facility that is located at a major source of HAP emissions. Reinforced plastic composites production is limited to operations in which reinforced and/or nonreinforced plastic composites or plastic molding compounds are manufactured using thermoset resins and/or gel coats that contain styrene to produce plastic composites. The resins and gel coats may also contain materials designed to enhance the chemical, physical, and/or thermal properties of the product. Reinforced plastic composites production also includes cleaning, mixing, HAP-containing materials storage, and repair operations associated with the production of plastic composites.

(b) You are not subject to this subpart if your facility only repairs reinforced plastic composites. Repair includes the non-routine manufacture of individual components or parts intended to repair a larger item as defined in § 63.5935

(c) You are not subject to this subpart if your facility is a research and development facility as defined in section 112(c)(7) of the Clean Air Act (CAA).

(d) You are not subject to this subpart if your reinforced plastic composites operations use less than 1.2 tons per year (tpy) of thermoset resins and gel coats that contain styrene combined.

§ 63.5787 What if I also manufacture fiberglass boats or boat parts?

(a) If your source meets the applicability criteria in § 63.5785, and is not subject to the Boat Manufacturing NESHAP (40 CFR part 63, subpart VVVV), you are subject to this subpart regardless of the final use of the parts you manufacture.

(b) If your source is subject to 40 CFR part 63, subpart VVVV, and all the reinforced plastic composites you manufacture are used in manufacturing your boats, you are not subject to this subpart.

(c) If you are subject to 40 CFR part 63, subpart VVVV, and meet the applicability criteria in § 63.5785, and produce reinforced plastic composites that are not used in fiberglass boat manufacture at your facility, all operations associated with the manufacture of the reinforced plastic composites parts that are not used in fiberglass boat manufacture at your facility are subject to this subpart, except as noted in paragraph (d) of this section.

(d) Facilities potentially subject to both this subpart and 40 CFR part 63, subpart VVVV may elect to have the operations in paragraph (c) of this section covered by 40 CFR part 63, subpart VVVV, in lieu of this subpart, if they can demonstrate that this will not result in any organic HAP emissions increase compared to complying with this subpart.

§ 63.5790 What parts of my plant does this subpart cover?

(a) This subpart applies to each new or existing affected source at reinforced plastic composites production facilities.

(b) The affected source consists of all parts of your facility engaged in the following operations: Open molding, closed molding, centrifugal casting, continuous lamination, continuous casting, polymer casting, pultrusion, sheet molding compound (SMC) manufacturing, bulk molding compound (BMC) manufacturing, mixing, cleaning of equipment used in reinforced plastic composites manufacture, HAP-containing materials storage, and repair operations on parts you also manufacture.

(c) The following operations are specifically excluded from any requirements in this subpart: Application of mold sealing and release agents, mold stripping and cleaning, repair of parts that you did not manufacture, including non-routine manufacturing of parts, personal activities that are not part of the manufacturing operations (such as hobby shops on military bases), prepreg materials as defined in § 63.5935, non-gel coat surface coatings, repair or production materials that do not contain resin or gel coat, and research and development operations as defined in section 112(c)(7) of the CAA.

(d) Production resins that must meet military specifications are allowed to meet the organic HAP limit contained in that specification. In order for this exemption to be used, you must supply to the permitting authority the specifications certified as accurate by the military procurement officer, and those specifications must state a requirement for a specific resin, or a specific resin HAP content. Production resins for which this exemption is used must be applied with nonatomizing resin application equipment unless you can demonstrate this is infeasible. You must keep a record of the resins for which you are using this exemption.

§ 63.5795 How do I know if my reinforced plastic composites production facility is a new affected source or an existing affected source?

(a) A reinforced plastic composites production facility is a new affected source if it meets all the criteria in paragraphs (a)(1) and (2) of this section.

(1) You commence construction of the affected source after August 2, 2001.

(2) You commence construction, and no other reinforced plastic composites production affected source exists at that site.

(b) For the purposes of this subpart, an existing affected source is any affected source that is not a new affected source.

CALCULATING ORGANIC HAP EMISSIONS FACTORS FOR OPEN MOLDING AND CENTRIFUGAL CASTING

§ 63.5796 What are the organic HAP emissions factor equations in Table 1 to this subpart, and how are they used in this subpart?

Emissions factors are used in this subpart to determine compliance with certain organic HAP emissions limits in Tables 3 and 5 to this subpart. You may use the equations in Table 1 to this subpart to calculate your emissions factors. Equations are available for each open molding operation and centrifugal casting operation and have units of pounds of organic HAP emitted per ton (lb/ton) of resin or gel coat applied. These equations are intended to provide a method for you to demonstrate compliance without the need to conduct for a HAP emissions test. In lieu of these equations, you can elect to use site-specific organic HAP emissions factors to demonstrate compliance provided your site-specific organic HAP emissions factors are incorporated in the facility's air emissions permit and are based on actual facility HAP emissions test data. You may also use the organic HAP emissions factors calculated using the equations in Table 1 to this subpart, combined with resin and gel coat use data, to calculate your organic HAP emissions.

63.5797 How do I determine the organic HAP content of my resins and gel coats?

In order to determine the organic HAP content of resins and gel coats, you may rely on information provided by the material manufacturer, such as manufacturer's formulation data and material safety data sheets (MSDS), using the procedures specified in paragraphs (a) through (c) of this section, as applicable.

(a) Include in the organic HAP total each organic HAP that is present at 0.1 percent by mass or more for Occupational Safety and Health Administration-defined carcinogens, as specified in 29 CFR 1910.1200(d)(4) and at 1.0 percent by mass or more for other organic HAP compounds.

(b) If the organic HAP content is provided by the material supplier or manufacturer as a range, you must use the upper limit of the range for determining compliance. If a separate measurement of the total organic HAP content, such as an analysis of the material by EPA Method 311 of appendix A to 40 CFR part 63, exceeds the upper limit of the range of the total organic HAP content provided by the material supplier or manufacturer, then you must use the measured organic HAP content to determine compliance.

(c) If the organic HAP content is provided as a single value, you may use that value to determine compliance. If a separate measurement of the total organic HAP content is made and is less than 2 percentage points higher than the value for total organic HAP content provided by the material supplier or manufacturer, then you still may use the provided value to demonstrate compliance. If the measured total organic HAP content exceeds the provided value by 2 percentage points or more, then you must use the measured organic HAP content to determine compliance.

§63.5798 What if I want to use, or I manufacture, an application technology (new or existing) whose organic HAP emissions characteristics are not represented by the equations in Table 1 to this subpart?

If you wish to use a resin or gel coat application technology (new or existing), whose emission characteristics are not represented by the equations in Table 1 to this subpart, you may use the procedures in paragraphs (a) or (b) of this section to establish an organic HAP emissions factor. This organic HAP emissions factor may then be used to determine compliance with the emission limits in this subpart, and to calculate facility organic HAP emissions.

(a) Perform a organic HAP emissions test to determine a site-specific organic HAP emissions factor using the test procedures in §63.5850.

(b) Submit a petition to the Administrator for administrative review of this subpart. This petition must contain a description of the resin or gel coat application technology and supporting organic HAP emissions test data obtained using EPA test methods or their equivalent. The emission test data should be obtained using a range of resin or gel coat HAP contents to demonstrate the effectiveness of the technology under the different conditions, and to demonstrate that the technology will be effective at different sites. We will review the submitted data, and, if appropriate, update the equations in Table 1 to this subpart.

§63.5799 How do I calculate my facility's organic HAP emissions on a tpy basis for purposes of determining which paragraphs of §63.5805 apply?

To calculate your facility's organic HAP emissions in tpy for purposes of determining which paragraphs in §63.5805 apply to you, you must use the procedures in either paragraph (a) of this section for new facilities prior to startup, or paragraph (b) of this section for existing facilities and new facilities after startup. You are not required to calculate or report emissions under this section if you are an existing facility that does not have centrifugal casting or continuous lamination/casting operations, or a new facility that does not have any of the following operations: Open molding, centrifugal casting, continuous lamination/casting, pultrusion, SMC and BMC manufacturing, and mixing. Emissions calculation and emission reporting procedures in other sections of this subpart still apply. Calculate organic HAP emissions prior to any add-on control device, and do not include organic HAP emissions from any resin or gel coat used in operations subject to the Boat Manufacturing NESHAP, 40 CFR part 63, subpart VVVV, or from the manufacture of large parts as defined in § 63.5805(d)(2). For centrifugal casting operations at existing facilities, do not include any organic HAP emissions where resin or gel coat is applied to an open centrifugal mold using open molding application techniques. Table 1 and the Table 1 footnotes to this subpart present more information on calculating centrifugal casting organic HAP emissions. The timing and reporting of these calculations is discussed in paragraph (c) of this section.

(a) For new facilities prior to startup, calculate a weighted average organic HAP emissions factor for the operations specified in § 63.5805(b) and (d) on a lbs/ton of resin and gel coat basis. Base the weighted average on your projected operation for the 12 months subsequent to facility startup. Multiply the weighted average organic HAP emissions factor by projected resin use over the same period. You may calculate your organic HAP emissions factor based on the factors in Table 1 to this subpart, or you may use any HAP emissions factor approved by us, such as factors from the Compilation of Air Pollutant Emissions Factors, Volume I: Stationary Point and Area Sources (AP–42), or organic HAP emissions test data from similar facilities.

(b) For existing facilities and new facilities after startup, you may use the procedures in either paragraph (b)(1) or (2) of this section. If the emission factors for an existing facility have changed over the period of time prior to their initial compliance date due to incorporation of pollution-prevention control techniques, existing facilities may base the average emission factor on their operations as they exist on the compliance date. If an existing facility has accepted an enforceable permit limit of less than 100 tons per year of HAP, and can demonstrate that they will operate at that level subsequent to the compliance date, the they can be deemed to be below the 100 tpy threshold.

(1) *Use a calculated emission factor.* Calculate a weighted average organic HAP emissions factor on a lbs/ton of resin and gel coat basis. Base the weighted average on the prior 12 months of operation. Multiply the weighted average organic HAP emissions factor by resin and gel coat use over the same period. You may calculate this organic HAP emissions factor based on the equations in Table 1 to this subpart, or you may use any organic HAP emissions factor approved by us, such as factors from AP–42, or site-specific organic HAP emissions factors if they are supported by HAP emissions test data.

(2) *Conduct performance testing.* Conduct performance testing using the test procedures in § 63.5850 to determine a site-specific organic HAP emissions factor in units of lbs/ton of resin and gel coat used. Conduct the test under conditions expected to result in the highest possible organic HAP emissions. Multiply this factor by annual resin and gel coat use to determine annual organic HAP emissions. This calculation must be repeated and reported annually.

(c) Existing facilities must initially perform this calculation based on their 12 months of operation prior to April 21, 2003, and include this information with their initial notification report. Existing facilities must repeat the calculation based on their resin and gel coat use in the 12 months prior to their initial compliance date, and submit this information with their initial compliance report. After their initial compliance date, existing and new facilities must recalculate organic HAP emissions over the 12-month period ending June 30 or December 31, whichever date is the first date following their compliance date specified in § 63.5800. Subsequent calculations should cover the periods in the semiannual compliance reports.

COMPLIANCE DATES AND STANDARDS

§ 63.5800 When do I have to comply with this subpart?

You must comply with the standards in this subpart by the dates specified in Table 2 to this subpart. Facilities meeting a organic HAP emissions standard based on a 12-month rolling average must begin collecting data on the compliance date in order to demonstrate compliance.

§63.5805 What standards must I meet to comply with this subpart?

You must meet the requirements of paragraphs (a) through (h) of this section that apply to you. You may elect to comply using any options to meeting these standards described in §§63.5810 through 63.5830. Use the procedures in §63.5799 to determine if you meet or exceed the 100 tpy threshold.

(a) If you have an existing facility that does not have any centrifugal casting or continuous lamination/casting operations, or an existing facility that does have centrifugal casting or continuous lamination/casting operations, but the combination of all centrifugal casting and continuous lamination/casting operations emit less than 100 tpy of HAP, you must meet the annual average organic HAP emissions limits in Table 3 to this subpart and the work practice standards in Table 4 to this subpart that apply to you.

(b) If you have an existing facility that emits 100 tpy or more of HAP from the combination of all centrifugal casting and continuous lamination/casting operations, you must reduce the total organic HAP emissions from these operations by at least 95 percent by weight and meet any applicable work practice standards in Table 4 to this subpart that apply to you. Operations other than centrifugal casting, and continuous lamination/casting, must meet the requirements in Tables 3 and 4 to this subpart. As an alternative to meeting 95 percent by weight, you may meet the organic HAP emissions limits in Table 5 to this subpart. If you have a continuous lamination/casting operation, that operation may alternatively meet a organic HAP emissions limit of 1.47 lbs/ton of neat resin plus and neat gel coat plus applied. For centrifugal casting, the percent reduction requirement does not apply to organic HAP emissions that occur during resin application onto an open centrifugal casting mold using open molding application techniques.

(c) If you have a new facility that emits less than 100 tpy of HAP from the combination of all open molding, centrifugal casting, continuous lamination/casting, pultrusion, SMC manufacturing, mixing, and BMC manufacturing, you must meet the annual average organic HAP emissions limits in Table 3 to this subpart and the work practice standards in Table 4 to this subpart that apply to you.

(d)(1) Except as provided in paragraph (d)(2) of this section, if you have a new facility that emits 100 tpy or more of HAP from the combination of all open molding, centrifugal casting, continuous lamination/casting, pultrusion, SMC manufacturing, mixing, and BMC manufacturing, you must reduce the total organic HAP emissions from these operations by at least 95 percent by weight and meet any applicable work practice standards in Table 4 to this subpart that apply to you. As an alternative to meeting 95 percent by weight, you may meet the organic HAP emissions limits in Table 5 to this subpart. If you have a continuous lamination/casting operation, that operation may alternatively meet a organic HAP emissions limit of 1.47 lbs/ton of neat resin plus and neat gel coat plus applied.

(2)(i) If your new facility manufactures large reinforced plastic composites parts using open molding or pultrusion operations, the specific open molding and pultrusion operations used to produce large parts are not required to reduce HAP emissions by 95 weight percent, but must meet the emission limits in Table 3 to this subpart.

(ii) A large open molding part is defined as a part that, when the final finished part is enclosed in the smallest rectangular six-sided box into which the part can fit, the total interior volume of the box exceeds 250 cubic feet, or any interior sides of the box exceed 50 square feet.

(iii) A large pultruded part is a part that exceeds an outside perimeter of 24 inches or has more than 350 reinforcements.

(e) If you have a new or existing facility subject to paragraphs (a) or (c) of this section at their initial compliance date, that subsequently meets or exceeds the 100 tpy threshold in any calendar year, you must notify your permitting authority in your compliance report. You may at the same time request a one-time exemption from the requirements of paragraphs (b) or (d) of this section in your compliance report if you can demonstrate all of the following:

(1) The exceedance of the threshold was due to circumstances that will not to be repeated.

(2) The average annual organic HAP emissions from the potentially affected operations for the last 3 years were below 100 tpy.

(3) Projected organic HAP emissions for the next calendar year are below 100 tpy, based on projected resin and gel coat use and the HAP emission factors calculated according to the procedures in § 63.5799

(f) If you apply for an exemption in paragraph (e) of this section, and subsequently exceed the HAP emission thresholds specified in paragraphs (a) or (c) of this section over the next 12-month period, you must notify the permitting authority in your semi-annual report, the exemption is removed, and your facility must comply with paragraphs (b) or (d) of this section within 3 years from the time your organic HAP emissions first exceeded the threshold.

(g) If you have repair operations subject to this subpart as defined in § 63.5785, these repair operations must meet the requirements in Tables 3 and 4 to this subpart, and are not required to meet the 95 percent organic HAP emissions reduction requirements in paragraphs (b) or (d) of this section.

(h) If you use an add-on control device to comply with this subpart, you must meet all requirements contained in 40 CFR part 63, subpart SS.

OPTIONS FOR MEETING STANDARDS

§ 63.5810 What are my options for meeting the standards for open molding and centrifugal casting operations at new and existing sources?

You must use one of the following methods in paragraphs (a) through (d) of this section to meet the standards in § 63.5805. When you are complying with an emission limit in Tables 3 or 5 to this subpart, you may use any control method that reduces organic HAP emissions, including reducing resin and gel coat organic HAP content, changing to nonatomized mechanical application, covered curing techniques, and routing part or all of your emissions to an add-on control. The necessary calculations must be completed within 30 days after the end of each month. You may switch between the compliance options in paragraphs (a) through (d) of this section. When you change to an option based on a 12-month rolling average, you must base the average on the previous 12 months of data calculated using the compliance option you are currently using unless you were using the compliant materials option in paragraph (d) of this section. In this case, you must immediately begin collecting resin and gel coat use data and demonstrate compliance 12 months after changing options.

(a) *Meet the individual organic HAP emissions limits for each operation*. Demonstrate that you meet the individual organic HAP emissions limits for each open molding operation and for each centrifugal casting operation type in Tables 3, or 5 to this subpart that apply to you. This is done in two steps. First, determine an organic HAP factor for each individual resin and gel coat, application method, and control method you use in a particular operation. Second, calculate, for each particular operation type, a weighted average of those organic HAP emissions factors based on resin and gel coat use. Your calculated organic HAP emissions factor must either be at or below the applicable organic HAP emissions limit in Tables 3 or 5 to this subpart based on a 12-month rolling average. Use the procedures described in paragraphs (a)(1) through (3) of this section to calculate average organic HAP emissions factors for each of your operations.

(1) Calculate your actual organic HAP emissions factor for each different process stream within each operation type. A process stream is defined as each individual combination of resin or gel coat, application technique, and control technique. Process streams within operations types are considered different from each other if any of the

following three characteristics vary: The neat resin plus or neat gel coat plus organic HAP content, the application technique, or the control technique. You must calculate organic HAP emissions factors for each different process stream by using the appropriate equations in Table 1 to this subpart for open molding and for centrifugal casting, or site-specific organic HAP emissions factors discussed in § 63.5796. If you want to use vapor suppressants to meet the organic HAP emissions limit for open molding, you must determine the vapor suppressant effectiveness by conducting testing according to the procedures specified of appendix A to subpart WWWW of 40 CFR part 63. If you want to use an add-on control device to meet the organic HAP emissions limit, you must determine the add-on control factor by conducting capture and control efficiency testing, using the procedures specified in § 63.5850. The organic HAP emissions factor calculated from the equations in Table 1 to this subpart, or site-specific emissions factors, is multiplied by the add-on control factor to calculate the organic HAP emissions factor after control. Use Equation 1 of this section to calculate the add-on control factor used in the organic HAP emissions factor equations.

$$\text{Add-on Control Factor} = 1 - \frac{\text{\% Control Efficiency}}{100} \qquad \text{(Eq. 1)}$$

Where:

Percent Control Efficiency=a value calculated from organic HAP emissions test measurements made according to the requirements of § 63.5850 to this subpart

(2) Calculate your actual operation organic HAP emissions factor for the last 12 months for each open molding operation type and for each centrifugal casting operation type by calculating the weighted average of the individual process stream organic HAP emissions factors within each respective operation. To do this, sum the product of each individual organic HAP emissions factor calculated in paragraph (a)(1) of this section and the amount of neat resin plus and neat gel coat plus usage that correspond to the individual factors and divide the numerator by the total amount of neat resin plus and neat gel coat plus used in that operation type. Use Equation 2 of this section to calculate your actual organic HAP emissions factor for each open molding operation type and each centrifugal casting operation type.

$$\begin{array}{c}\text{Actual Operation}\\ \text{Organic HAP}\\ \text{Emissions Factor}\end{array} = \frac{\sum_{i=1}^{n}\left(\text{Actual Process Stream EF}_i * \text{Material}_i\right)}{\sum_{i=1}^{n}\text{Material}_i} \qquad \text{(Eq. 2)}$$

Where:

Actual Process Stream EF_i=actual organic HAP emissions factor for process stream i, lbs/ton

$Material_i$=neat resin plus or neat gel coat plus used during the last 12 calendar months for process stream i, tons

n=number of process streams where you calculated an organic HAP emissions factor

(3) Compare each organic HAP emissions factor calculated in paragraph (b)(2) of this section with its corresponding organic HAP emissions limit in Tables 3 or 5 to this subpart. If all emissions factors are equal to or

less than their corresponding emission limits, then you are in compliance.

(b) *HAP Emissions factor averaging option.* Demonstrate each month that you meet each weighted average of the organic HAP emissions limits in Tables 3 or 5 to this subpart that apply to you. When using this option, you must demonstrate compliance with the weighted average organic HAP emissions limit for all your open molding operations, and then separately demonstrate compliance with the weighted average organic HAP emissions limit for all your centrifugal casting operations. Open molding operations and centrifugal casting operations may not be averaged with each other.

(1) Each month calculate the weighted average organic HAP emissions limit for all open molding operations and the weighted average organic HAP emissions limit for all centrifugal casting operations for your facility for the last 12-month period to determine the organic HAP emissions limit you must meet. To do this, multiply the individual organic HAP emissions limits in Tables 3 or 5 to this subpart for each open molding (centrifugal casting) operation type by the amount of neat resin plus or neat gel coat plus used in the last 12 months for each open molding (centrifugal casting) operation type, sum these results, and then divide this sum by the total amount of neat resin plus and neat gel coat plus used in open molding (centrifugal casting) over the last 12 months. Use Equation 3 of this section to calculate the weighted average organic HAP emissions limit for all open molding operations and separately for all centrifugal casting operations.

$$\text{Weighted Average Emission Limit} = \frac{\sum_{i=1}^{n}\left(EL_i * \text{Material}_i\right)}{\sum_{i=1}^{n}\text{Material}_i} \qquad \text{(Eq. 3)}$$

Where:

EL_i=organic HAP emissions limit for operation type i, lbs/ton from Tables 3, 5 or 7 to this subpart

Material_i=neat resin plus or neat gel coat plus used during the last 12-month period for operation type i, tons

n=number of operations

(2) Each month calculate your actual weighted average organic HAP emissions factor for open molding and centrifugal casting. To do this, multiply your actual open molding (centrifugal casting) operation organic HAP emissions factors and the amount of neat resin plus and neat gel coat plus used in each open molding (centrifugal casting) operation type, sum the results, and divide this sum by the total amount of neat resin plus and neat gel coat plus used in open molding (centrifugal casting) operations. You must calculate your actual individual HAP emissions factors for each operation type as described in paragraphs (a)(1) and (2) of this section. Use Equation 4 of this section to calculate your actual weighted average organic HAP emissions factor.

$$\begin{array}{c}\text{Actual Weighted}\\ \text{Average Organic HAP}\\ \text{Emissions Factor}\end{array} = \frac{\sum_{i=1}^{n}\left(\text{Actual Operation } EF_i * \text{Material}_i\right)}{\sum_{i=1}^{n}\text{Material}_i} \qquad \text{(Eq. 4)}$$

Where:

Actual Individual EF_i=Actual organic HAP emissions factor for operation type i, lbs/ton

$Material_i$=neat resin plus or neat gel coat plus used during the last 12 calendar months for operation type i, tons

n=number of operations

(3) Compare the values calculated in paragraphs (b)(1) and (2) of this section. If each 12-month rolling average organic HAP emissions factor is less than or equal to the corresponding 12-month rolling average organic HAP emissions limit, then you are in compliance.

(c) *If you have multiple operation types, meet the organic HAP emissions limit for one operation type, and use the same resin(s) for all operations of that resin type.* If you have more than one operation type, you may meet the emission limit for one of those operations, and use the same resin(s) in all other open molding and centrifugal casting operations.

(1) This option is limited to resins of the same type. The resin types for which this option may be used are noncorrosion-resistant, corrosion-resistant and/or high strength, and tooling.

(2) For any combination of manual resin application, mechanical resin application, filament application, or centrifugal casting, you may elect to meet the organic HAP emissions limit for any one of these operations and use that operation's same resin in all of the resin operations listed in this paragraph. Table 7 to this subpart presents the possible combinations based on a facility selecting the application process that results in the highest allowable organic HAP content resin. If your resin organic HAP content is below the applicable values shown in Table 7 to this subpart, you are in compliance.

(3) You may also use a weighted average organic HAP content for each operation described in paragraph (c)(2) of this section. Calculate the weighted average organic HAP content monthly. Use Equation 2 in §63.5810(a)(2) except substitute organic HAP content for organic HAP emissions factor. You are in compliance if the weighted average organic HAP content based on the last 12 months of resin use is less than or equal to the applicable organic HAP contents in Table 7 to this subpart.

(4) You may simultaneously use the averaging provisions in paragraph (b) of this section to demonstrate compliance for any operations and/or resins you do not include in your compliance demonstrations is paragraphs (c)(2) and (3) of this section. However, any resins for which you claim compliance under the option in paragraphs (c)(2) and (3) of this section may not be included in any of the averaging calculations described in paragraphs (a) or (b) of this section used for resins for which you are not claiming compliance under this option.

(d) Use resins and gel coats that do not exceed the maximum organic HAP contents shown in Table 3 to this subpart.

§63.5820 What are my options for meeting the standards for continuous lamination/casting operations?

You must use one or more of the options in paragraphs (a) through (d) of this section to meet the standards in §63.5805. Use the calculation procedures in §§63.5865 through 63.5890.

(a) *Compliant line option.* Demonstrate that each continuous lamination line and each continuous casting line complies with the applicable standard.

(b) *Averaging option.* Demonstrate that all continuous lamination and continuous casting lines combined, comply with the applicable standard.

(c) *Add-on control device option.* If your operation must meet the 58.5 weight percent organic HAP emissions reduction limit in Table 3 to this subpart, you have the option of demonstrating that you achieve 95 percent reduction of all wet-out area organic HAP emissions.

(d) *Combination option.* Use any combination of options in paragraphs (a) and (b) of this section or, for affected sources at existing facilities, any combination of options in paragraphs (a), (b), and (c) of this section (in which one or more lines meet the standards on their own, two or more lines averaged together meet the standards, and one or more lines have their wet-out areas controlled to a level of 95 percent).

§ 63.5830 What are my options for meeting the standards for pultrusion operations subject to the 60 weight percent organic HAP emissions reductions requirement?

You must use one or more of the options in paragraphs (a) through (e) of this section to meet the 60 weight percent organic HAP emissions limit in Table 3 to this subpart, as required in § 63.5805.

(a) Achieve an overall reduction in organic HAP emissions of 60 weight percent by capturing the organic HAP emissions and venting them to a control device or any combination of control devices. Conduct capture and destruction efficiency testing as specified in 63.5850 to this subpart to determine the percent organic HAP emissions reduction.

(b) Design, install, and operate wet area enclosures and resin drip collection systems on pultrusion machines that meet the criteria in paragraphs (b)(1) through (10) of this section.

(1) The enclosure must cover and enclose the open resin bath and the forming area in which reinforcements are pre-wet or wet-out and moving toward the die(s). The surfaces of the enclosure must be closed except for openings to allow material to enter and exit the enclosure.

(2) For open bath pultrusion machines with a radio frequency pre-heat unit, the enclosure must extend from the beginning of the resin bath to within 12.5 inches or less of the entrance of the radio frequency pre-heat unit. If the stock that is within 12.5 inches or less of the entrance to the radio frequency pre-heat unit has any drip, it must be enclosed. The stock exiting the radio frequency pre-heat unit is not required to be in an enclosure if the stock has no drip between the exit of the radio frequency pre-heat unit to within 0.5 inches of the entrance of the die.

(3) For open bath pultrusion machines without a radio frequency preheat unit, the enclosure must extend from the beginning of the resin bath to within 0.5 inches or less of the die entrance.

(4) For pultrusion lines with a prewet area prior to direct die injection, the enclosure must extend from the point at which the resin is applied to the reinforcement to within 12.5 inches or less of the entrance of the die(s). If the stock that is within 12.5 inches or less of the entrance to the die has any drip, it must be enclosed.

(5) The total open area of the enclosure must not exceed two times the cross sectional area of the puller window(s) and must comply with the requirements in paragraphs (b)(5)(i) through (iii) of this section.

(i) All areas that are open need to be included in the total open area calculation with the exception of access panels, doors, and/or hatches that are part of the enclosure.

(ii) The area that is displaced by entering reinforcement or exiting product is considered open.

(iii) Areas that are covered by brush covers are considered closed.

(6) Open areas for level control devices, monitoring devices, agitation shafts, and fill hoses must have no more than 1.0 inch clearance.

(7) The access panels, doors, and/or hatches that are part of the enclosure must close tightly. Damaged access panels, doors, and/or hatches that do not close tightly must be replaced.

(8) The enclosure may not be removed from the pultrusion line, and access panels, doors, and/or hatches that are part of the enclosure must remain closed whenever resin is in the bath, except for the time period discussed in paragraph (b)(9) of this section.

(9) The maximum length of time the enclosure may be removed from the pultrusion line or the access panels, doors, and/or hatches and may be open, is 30 minutes per 8 hour shift, 45 minutes per 12 hour shift, or 90 minutes per day if the machine is operated for 24 hours in a day. The time restrictions do not apply if the open doors or panels do not cause the limit of two times the puller window area to be exceeded. Facilities may average the times that access panels, doors, and/or hatches are open across all operating lines. In that case the average must not exceed the times shown in this paragraph (b)(9). All lines included in the average must have operated the entire time period being averaged.

(10) No fans, blowers, and/or air lines may be allowed within the enclosure. The enclosure must not be ventilated.

(c) Use direct die injection pultrusion machines with resin drip collection systems that meet all the criteria specified in paragraphs (c)(1) through (3) of this section.

(1) All the resin that is applied to the reinforcement is delivered directly to the die.

(2) No exposed resin is present, except at the face of the die.

(3) Resin drip is captured in closed piping and recycled directly to the resin injection chamber.

(d) Use a preform injection system that meets the definition in §63.5935

(e) Use any combination of options in paragraphs (a) through (d) of this section in which different pultrusion lines comply with different options described in paragraphs (a) through (d) of this section, and

(1) Each individual pultrusion machine meets the 60 percent reduction requirement, or

(2) The weighted average reduction based on resin throughout of all machines combined is 60 percent. For purposes of the average percent reduction calculation, wet area enclosures reduce organic HAP emissions by 60 percent, and direct die injection and preform injection reduce organic HAP emissions by 90 percent.

GENERAL COMPLIANCE REQUIREMENTS

§63.5835 What are my general requirements for complying with this subpart?

(a) You must be in compliance at all times with the work practice standards in Table 4 to this subpart, as well as the organic HAP emissions limits in Tables 3, or 5, or the organic HAP content limits in Table 7 to this subpart, as applicable, that you are meeting without the use of add-on controls.

(b) You must be in compliance with all organic HAP emissions limits in this subpart that you meet using add-on controls, except during periods of startup, shutdown, and malfunction.

(c) You must always operate and maintain your affected source, including air pollution control and monitoring equipment, according to the provisions in §63.6(e)(1)(i).

(d) You must develop and implement a written startup, shutdown, and malfunction plan according to the provisions in §63.6(e)(3) for any organic HAP emissions limits you meet using an add-on control.

TESTING AND INITIAL COMPLIANCE REQUIREMENTS

§63.5840 By what date must I conduct a performance test or other initial compliance demonstration?

You must conduct performance tests, performance evaluations, design evaluations, capture efficiency testing, and other initial compliance demonstrations by the compliance date specified in Table 2 to this subpart, with three exceptions. Open molding and centrifugal casting operations that elect to meet a organic HAP emissions limit on a 12-month rolling average must initiate collection of the required data on the compliance date, and demonstrate compliance 1 year after the compliance date. New sources that use add-on controls to initially meet compliance must demonstrate compliance within 180 days after their compliance date.

§63.5845 When must I conduct subsequentperformance tests?

You must conduct a performance test every 5 years following the initial performance test for any standard you meet with an add-on control device.

§63.5850 How do I conduct performance tests, performance evaluations, and design evaluations?

(a) If you are using any add-on controls to meet a organic HAP emissions limit in this subpart, you must conduct each performance test, performance evaluation, and design evaluation in 40 CFR part 63, subpart SS, that applies to you. The basic requirements for performance tests, performance evaluations, and design evaluations are presented in Table 6 to this subpart.

(b) Each performance test must be conducted according to the requirements in §63.7(e)(1) and under the specific conditions that 40 CFR part 63, subpart SS, specifies.

(c) Each performance evaluation must be conducted according to the requirements in §63.8(e) as applicable and under the specific conditions that 40 CFR part 63, subpart SS, specifies.

(d) You may not conduct performance tests or performance evaluations during periods of startup, shutdown, or malfunction, as specified in § 63.7(e)(1).

(e) You must conduct the control device performance test using the emission measurement methods specified in paragraphs (e)(1) through (5) of this section.

(1) Use either Method 1 or 1A of appendix A to 40 CFR part 60, as appropriate, to select the sampling sites.

(2) Use Method 2, 2A, 2C, 2D, 2F or 2G of appendix A to 40 CFR part 60, as appropriate, to measure gas volumetric flow rate.

(3) Use Method 18 of appendix A to 40 CFR part 60 to measure organic HAP emissions or use Method 25A of appendix A to 40 CFR part 60 to measure total gaseous organic emissions as a surrogate for total organic HAP emissions. If you use Method 25A, you must assume that all gaseous organic emissions measured as carbon are organic HAP emissions. If you use Method 18 and the number of organic HAP in the exhaust stream exceeds five, you must take into account the use of multiple chromatographic columns and analytical techniques to get an accurate measure of at least 90 percent of the total organic HAP mass emissions. Do not use Method 18 to measure organic HAP emissions from a combustion device; use instead Method 25A and assume that all gaseous organic mass emissions measured as carbon are organic HAP emissions.

(4) You may use American Society for Testing and Materials (ASTM) D6420–99 (available for purchase from at least one of the following addresses: 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959; or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.) in lieu of Method 18 of 40 CFR part 60, appendix A, under the conditions specified in paragraphs (c)(4)(i) through (iii) of this section.

(i) If the target compound(s) is listed in Section 1.1 of ASTM D6420–99 and the target concentration is between 150 parts per billion by volume and 100 parts per million by volume.

(ii) If the target compound(s) is not listed in Section 1.1 of ASTM D6420–99, but is potentially detected by mass spectrometry, an additional system continuing calibration check after each run, as detailed in Section 10.5.3 of ASTM D6420–99, must be followed, met, documented, and submitted with the performance test report even if you do not use a moisture condenser or the compound is not considered soluble.

(iii) If a minimum of one sample/analysis cycle is completed at least every 15 minutes.

(5) Use the procedures in EPA Method 3B of appendix A to 40 CFR part 60 to determine an oxygen correction factor if required by § 63.997(e)(2)(iii)(C). You may use American Society of Mechanical Engineers (ASME) PTC 19–10–1981–Part 10 (available for purchase from ASME, P.O. Box 2900, 22 Law Drive, Fairfield, New Jersey, 07007–2900, or online at *www.asme.org/catalog*) as an alternative to EPA Method 3B of appendix A to 40 CFR part 60.

(f) The control device performance test must consist of three runs and each run must last at least 1 hour. The production conditions during the test runs must represent normal production conditions with respect to the types of parts being made and material application methods. The production conditions during the test must also represent maximum potential emissions with respect to the organic HAP content of the materials being applied and the material application rates.

(g) If you are using a concentrator/oxidizer control device, you must test the combined flow upstream of the concentrator, and the combined outlet flow from both the oxidizer and the concentrator to determine the overall control device efficiency. If the outlet flow from the concentrator and oxidizer are exhausted in separate stacks, you must test both stacks simultaneously with the inlet to the concentrator to determine the overall control device efficiency.

(h) During the test, you must also monitor and record separately the amounts of production resin, tooling resin, pigmented gel coat, clear gel coat, and tooling gel coat applied inside the enclosure that is vented to the control device.

§63.5855 What are my monitor installation and operation requirements?

You must monitor and operate all add-on control devices according to the procedures in 40 CFR part 63, subpart SS.

§63.5860 How do I demonstrate initial compliance with the standards?

(a) You demonstrate initial compliance with each organic HAP emissions standard in paragraphs (a) through (h) of §63.5805 that applies to you by using the procedures shown in Tables 8 and 9 to this subpart.

(b) If using an add-on control device to demonstrate compliance, you must also establish each control device operating limit in 40 CFR part 63, subpart SS, that applies to you.

EMISSION FACTOR, PERCENT REDUCTION, AND CAPTURE EFFICIENCY CALCULATION PROCEDURES FOR CONTINUOUS LAMINATION/CASTING OPERATIONS

§63.5865 What data must I generate to demonstrate compliance with the standards for continuous lamination/casting operations?

(a) For continuous lamination/casting affected sources complying with a percent reduction requirement, you must generate the data identified in Tables 10 and 11 to this subpart for each data requirement that applies to your facility.

(b) For continuous lamination/casting affected sources complying with a lbs/ton limit, you must generate the data identified in Tables 11 and 12 to this subpart for each data requirement that applies to your facility.

§63.5870 How do I calculate annual uncontrolled and controlled organic HAP emissions from my wet-out area(s) and from my oven(s) for continuous lamination/casting operations?

To calculate your annual uncontrolled and controlled organic HAP emissions from your wet-out areas and from your ovens, you must develop uncontrolled and controlled wet-out area and uncontrolled and controlled oven organic HAP emissions estimation equations or factors to apply to each formula applied on each line, determine how much of each formula for each end product is applied each year on each line, and assign uncontrolled and controlled wet-out area and uncontrolled and controlled oven organic HAP emissions estimation equations or factors to each formula. You must determine the overall capture efficiency using the procedures in §63.5850 to this subpart.

(a) To develop uncontrolled and controlled organic HAP emissions estimation equations and factors, you must, at a minimum, do the following, as specified in paragraphs (a)(1) through (6) of this section:

(1) Identify each end product and the thickness of each end product produced on the line. Separate end products into the following end product groupings, as applicable: corrosion-resistant gel coated end products, noncorrosion-resistant gel coated end products, corrosion-resistant nongel coated end products, and noncorrosion-resistant nongel coated end products. This step creates end product/thickness combinations.

(2) Identify each formula used on the line to produce each end product/thickness combination. Identify the amount of each such formula applied per year. Rank each formula used to produce each end product/thickness combination according to usage within each end product/thickness combination.

(3) For each end product/thickness combination being produced, select the formula with the highest usage rate for testing.

(4) If not already selected, also select the worst-case formula (likely to be associated with the formula with the highest organic HAP content, type of HAP, application of gel coat, thin product, low line speed, higher resin table temperature) amongst all formulae. (You may use the results of the worst-case formula test for all formulae if desired to limit the amount of testing required.)

(5) For each formula selected for testing, conduct at least one test (consisting of three runs). During the test, track information on organic HAP content and type of HAP, end product thickness, line speed, and resin temperature on the wet-out area table.

(6) Using the test results, develop uncontrolled and controlled organic HAP

emissions estimation equations (or factors) or series of equations (or factors) that best fit the results for estimating uncontrolled and controlled organic HAP emissions, taking into account the organic HAP content and type of HAP, end product thickness, line speed, and resin temperature on the wet-out area table.

(b) In lieu of using the method specified in paragraph (a) of this section for developing uncontrolled and controlled organic HAP emissions estimation equations and factors, you may either method specified in paragraphs (b)(1) and (2) of this section, as applicable.

(1) For either uncontrolled or controlled organic HAP emissions estimates, you may use previously established, facility-specific organic HAP emissions equations or factors, provided they allow estimation of both wet-out area and oven organic HAP emissions, where necessary, and have been approved by your permitting authority. If a previously established equation or factor is specific to the wet-out area only, or to the oven only, then you must develop the corresponding uncontrolled or controlled equation or factor for the other organic HAP emissions source.

(2) For uncontrolled (controlled) organic HAP emissions estimates, you may use controlled (uncontrolled) organic HAP emissions estimates and control device destruction efficiency to calculate your uncontrolled (controlled) organic HAP emissions provided the control device destruction efficiency was calculated at the same time you collected the data to develop your facility's controlled (uncontrolled) organic HAP emissions estimation equations and factors.

(c) Assign to each formula an uncontrolled organic HAP emissions estimation equation or factor based on the end product/thickness combination for which that formula is used.

(d)(1) To calculate your annual uncontrolled organic HAP emissions from wet-out areas that do not have any capture and control and from wet-out areas that are captured by an enclosure but are vented to the atmosphere and not to a control device, multiply each formula's annual usage by its appropriate organic HAP emissions estimation equation or factor and sum the individual results.

(2) To calculate your annual uncontrolled organic HAP emissions that escape from the enclosure on the wet-out area, multiply each formula's annual usage by its appropriate uncontrolled organic HAP emissions estimation equation or factor, sum the individual results, and multiply the summation by 1 minus the percent capture (expressed as a fraction).

(3) To calculate your annual uncontrolled oven organic HAP emissions, multiply each formula's annual usage by its appropriate uncontrolled organic HAP emissions estimation equation or factor and sum the individual results.

(4) To calculate your annual controlled organic HAP emissions, multiply each formula's annual usage by its appropriate organic HAP emissions estimation equation or factor and sum the individual results to obtain total annual controlled organic HAP emissions.

(e) Where a facility is calculating both uncontrolled and controlled organic HAP emissions estimation equations and factors, you must test the same formulae. In addition, you must develop both sets of equations and factors from the same tests.

§ 63.5875 How do I determine the capture efficiency of the enclosure on my wet-out area and the capture efficiency of my oven(s) for continuous lamination/casting operations?

(a) The capture efficiency of a wet-out area enclosure is assumed to be 100 percent if it meets the design and operation requirements for a permanent total enclosure (PTE) specified in EPA Method 204 of appendix M to 40 CFR part 51. If a PTE does not exist, then a temporary total enclosure must be constructed and verified using EPA Method 204, and capture efficiency testing must be determined using EPA Methods 204B through E of appendix M to 40 CFR part 51.

(b) The capture efficiency of an oven is to be considered 100 percent, provided the oven is operated under negative pressure.

§63.5880 How do I determine how much neat resin plus is applied to the line and how much neat gel coat plus is applied to the line for continuous lamination/casting operations?

Use the following procedures to determine how much neat resin plus and neat gel coat plus is applied to the line each year.

(a) Track formula usage by end product/thickness combinations.

(b) Use in-house records to show usage. This may be either from automated systems or manual records.

(c) Record daily the usage of each formula/end product combination on each line. This is to be recorded at the end of each run (*i.e.*, when a changeover in formula or product is made) and at the end of each shift.

(d) Sum the amounts from the daily records to calculate annual usage of each formula/end product combination by line.

§63.5885 How do I calculate percent reduction to demonstrate compliance for Continuous Lamination/Casting Operations?

You may calculate percent reduction using any of the methods in paragraphs (a) through (d) of this section.

(a) *Compliant line option*. If all of your wet-out areas have PTE that meet the requirements of EPA Method 204 of appendix M of 40 CFR part 51, and all of your wet-out area organic HAP emissions and oven organic HAP emissions are vented to an add-on control device, use Equation 1 of this section to demonstrate compliance. In all other situations, use Equation 2 of this section to demonstrate compliance.

$$\mathrm{PR} = \frac{(\mathrm{Inlet}) - (\mathrm{Outlet})}{(\mathrm{Inlet})} \times 100 \qquad \text{(Eq. 1)}$$

Where:

PR=percent reduction

Inlet=HAP emissions entering the control device, lbs per year

Outlet=HAP emissions exiting the control device to the atmosphere, lbs per year

$$\mathrm{PR} = \frac{\left(\mathrm{WAE_u} + \mathrm{O_u}\right) - \left(\mathrm{WAE_c} + \mathrm{O_c}\right)}{\left(\mathrm{WAE_u} + \mathrm{O_u}\right)} \times 100 \qquad \text{(Eq. 2)}$$

Where:

PR=percent reduction

$\mathrm{WAE_u}$=uncontrolled wet-out area organic HAP emissions, lbs per year

$\mathrm{O_u}$=uncontrolled oven organic HAP emissions, lbs per year

$\mathrm{WAE_c}$=controlled wet-out area organic HAP emissions, lbs per year

$\mathrm{O_c}$=controlled oven organic HAP emissions, lbs per year

(b) *Averaging option*. Use Equation 3 of this section to calculate percent reduction.

$$\mathrm{PR} = \frac{\left(\sum_{i=1}^{m} \mathrm{WAE_{ui}} + \sum_{j=1}^{n} \mathrm{O_{uj}}\right) - \left(\sum_{i=1}^{o} \mathrm{WAE_{ci}} + \sum_{j=1}^{p} \mathrm{O_{cj}}\right)}{\left(\sum_{i=1}^{m} \mathrm{WAE_{ui}} + \sum_{j=1}^{n} \mathrm{O_{uj}}\right)} \times 100 \qquad \text{(Eq. 3)}$$

Where:

PR=percent reduction

WAE_{ui}=uncontrolled organic HAP emissions from wet-out area i, lbs per year

O_{uj}=uncontrolled organic HAP emissions from oven j, lbs per year

WAE_{ci}=controlled organic HAP emissions from wet-out area i, lbs per year

O_{cj}=controlled organic HAP emissions from oven j, lbs per year

i=number of wet-out areas

j=number of ovens

m=number of wet-out areas uncontrolled

n=number of ovens uncontrolled

o=number of wet-out areas controlled

p=number of ovens controlled

(c) *Add-on control device option.* Use Equation 1 of this section to calculate percent reduction.

(d) *Combination option.* Use Equations 1 through 3 of this section, as applicable, to calculate percent reduction.

§ 63.5890 How do I calculate a organic HAP emissions factor to demonstrate compliance for continuous lamination/casting operations?

(a) *Compliant line option.* Use Equation 1 of this section to calculate a organic HAP emissions factor in lbs/ton.

$$E = \frac{WAE_u + WAE_c + O_u + O_c}{(R + G)} \quad \text{(Eq. 1)}$$

Where:

E=HAP emissions factor in lbs/ton of resin and gel coat

WAE_u=uncontrolled wet-out area organic HAP emissions, lbs per year

WAE_c=controlled wet-out area organic HAP emissions, lbs per year

O_u=uncontrolled oven organic HAP emissions, lbs per year

O_c=controlled oven organic HAP emissions, lbs per year

R=total usage of neat resin plus, tpy

G=total usage of neat gel coat plus, tpy

(b) *Averaging option.* Use Equation 2 of this section to demonstrate compliance.

$$E = \frac{\sum_{i=1}^{m} WAE_{ui} + \sum_{i=1}^{o} WAE_{ci} + \sum_{j=1}^{n} O_{uj} + \sum_{j=1}^{p} O_{cj}}{(R + G)} \quad \text{(Eq. 2)}$$

Where:

E=HAP emissions factor in lbs/ton of resin and gel coat

WAE_{ui}=uncontrolled organic HAP emissions from wet-out area i, lbs per year

WAE_{ci}=controlled organic HAP emissions from wet-out area i, lbs per year

O_{uj}=uncontrolled organic HAP emissions from oven j, lbs per year

O_{cj}=controlled organic HAP emissions from oven j, lbs per year

i=number of wet-out areas

j=number of ovens

m=number of wet-out areas uncontrolled

n=number of ovens uncontrolled

o=number of wet-out areas controlled

p=number of ovens controlled

R=total usage of neat resin plus, tpy

G=total usage of neat gel coat plus, tpy

(c) *Combination option.* Use Equations 1 and 2 of this section, as applicable, to demonstrate compliance.

CONTINUOUS COMPLIANCE REQUIREMENTS

§63.5895 How do I monitor and collect data to demonstrate continuous compliance?

(a) During production, you must collect and keep a record of data as indicated in 40 CFR part 63, subpart SS, if you are using an add-on control device.

(b) You must monitor and collect data as specified in paragraphs (b)(1) through (4) of this section.

(1) Except for monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), you must conduct all monitoring in continuous operation (or collect data at all required intervals) at all times that the affected source is operating.

(2) You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities for purposes to this subpart, including data averages and calculations, or fulfilling a minimum data availability requirement, if applicable. You must use all the data collected during all other periods in assessing the operation of the control device and associated control system.

(3) At all times, you must maintain necessary parts for routine repairs of the monitoring equipment.

(4) A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring equipment to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

(c) You must collect and keep records of resin and gel coat use, organic HAP content, and operation where the resin is used if you are meeting any organic HAP emissions limits based on an organic HAP emissions limit in Tables 3 or 5 to this subpart. You must collect and keep records of resin and gel coat use, organic HAP content, and operation where the resin is used if you are meeting any organic HAP content limits in Table 7 to this subpart if you are averaging organic HAP contents. Resin use records may be based on purchase records if you can reasonably estimate how the resin is applied. The organic HAP content records may be based on MSDS or on resin specifications supplied by the resin supplier.

(d) If you initially demonstrate that all resins and gel coats individually meet the applicable organic HAP emissions limits, or organic HAP content limits, then resin and gel coat use records are not required. However, you must include a statement in each compliance report that all resins and gel coats still meet the organic HAP limits for compliant resins and gel coats shown in Tables 3 or 7 to this subpart. If after this initial demonstration, you change to a higher organic HAP resin or gel coat, or increase the resin or gel coat organic HAP content, or change to a higher-emitting resin or gel coat application method, then you must either again demonstrate that all resins and gel coats still meet the applicable organic HAP emissions limits, or begin collecting resin and gel coat use records and calculate compliance on a 12-month rolling average.

(e) For each of your pultrusion machines, you must record all times that wet area enclosures doors or covers are open and there is resin present in the resin bath.

§63.5900 How do I demonstrate continuous compliance with the standards?

(a) You must demonstrate continuous compliance with each standard in §63.5805 that applies to you according to the methods specified in paragraphs (a)(1) through (3) of this section.

(1) Compliance with organic HAP emissions limits for sources using add-on control devices is demonstrated following the procedures in 40 CFR part 63, subpart SS. Sources using add-on controls may also use continuous emissions monitors to demonstrate continuous compliance as an alternative to control parameter monitoring.

(2) Compliance with organic HAP emissions limits is demonstrated by maintaining a organic HAP emissions factor value less than or equal to the appropriate organic HAP emissions limit listed in Tables 3, or 5 to this subpart, on a 12-month rolling average, or by including in each compliance report a statement that all resins and gel

coats meet the appropriate organic HAP emissions limits, as discussed in § 63.5895(d).

(3) Compliance with organic HAP content limits in Table 7 to this subpart is demonstrated by maintaining an average organic HAP content value less than or equal to the appropriate organic HAP contents listed in Table 7 to this subpart, on a 12-month rolling average, or by including in each compliance report a statement that all resins and gel coats individually meet the appropriate organic HAP content limits, as discussed in § 63.5895(d).

(4) Compliance with the work practice standards in Table 4 to this subpart is demonstrated by performing the work practice required for your operation.

(b) You must report each deviation from each standard in § 63.5805 that applies to you. The deviations must be reported according to the requirements in § 63.5910.

(c) Except as provided in paragraph (d) of this section, during periods of startup, shutdown or malfunction, you must meet the organic HAP emissions limits and work practice standards that apply to you.

(d) When you use an add-on control device to meet standards in § 63.5805, you are not required to meet those standards during periods of startup, shutdown, or malfunction, but you must operate your affected source in accordance with the startup, shutdown, and malfunction plan.

(e) Consistent with §§ 63.6(e) and 63.7(e)(1), deviations that occur during a period of malfunction for those affected sources and standards specified in paragraph (d) of this section are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with the startup, shutdown, and malfunction plan. The Administrator will determine whether deviations that occur during a period of startup, shutdown, and malfunction are violations, according to the provisions in § 63.6(e).

NOTIFICATIONS, REPORTS, AND RECORDS

§ 63.5905 What notifications must I submit and when?

(a) You must submit all of the notifications in Table 13 to this subpart that apply to you by the dates specified in Table 13 to this subpart. The notifications are described more fully in 40 CFR part 63, subpart A, referenced in Table 13 to this subpart.

(b) If you change any information submitted in any notification, you must submit the changes in writing to the Administrator within 15 calendar days after the change.

§ 63.5910 What reports must I submit and when?

(a) You must submit each report in Table 14 to this subpart that applies to you.

(b) Unless the Administrator has approved a different schedule for submission of reports under § 63.10(a), you must submit each report by the date specified in Table 14 to this subpart and according to paragraphs (b)(1) through (5) of this section.

(1) The first compliance report must cover the period beginning on the compliance date that is specified for your affected source in § 63.5800 and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for your source in § 63.5800.

(2) The first compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date follows the end of the first calendar half after the compliance date that is specified for your affected source in § 63.5800.

(3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31,

whichever date is the first date following the end of the semiannual reporting period.

(5) For each affected source that is subject to permitting requirements pursuant to 40 CFR part 70 or 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to § 70.6 (a)(3)(iii)(A) or § 71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (4) of this section.

(c) The compliance report must contain the information in paragraphs (c)(1) through (6) of this section:

(1) Company name and address.

(2) Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.

(3) Date of the report and beginning and ending dates of the reporting period.

(4) If you had a startup, shutdown, or malfunction during the reporting period and you took actions consistent with your startup, shutdown, and malfunction plan, the compliance report must include the information in § 63.10(d)(5)(i).

(5) If there are no deviations from any organic HAP emissions limitations (emissions limit and operating limit) that apply to you, and there are no deviations from the requirements for work practice standards in Table 4 to this subpart, a statement that there were no deviations from the organic HAP emissions limitations or work practice standards during the reporting period.

(6) If there were no periods during which the continuous monitoring system (CMS), including a continuous emissions monitoring system (CEMS) and an operating parameter monitoring system were out of control, as specified in § 63.8(c)(7), a statement that there were no periods during which the CMS was out of control during the reporting period.

(d) For each deviation from a organic HAP emissions limitation (*i.e.,* emissions limit and operating limit) and for each deviation from the requirements for work practice standards that occurs at an affected source where you are not using a CMS to comply with the organic HAP emissions limitations or work practice standards in this subpart, the compliance report must contain the information in paragraphs (c)(1) through (4) of this section and in paragraphs (d)(1) and (2) of this section. This includes periods of startup, shutdown, and malfunction.

(1) The total operating time of each affected source during the reporting period.

(2) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

(e) For each deviation from a organic HAP emissions limitation (*i.e.,* emissions limit and operating limit) occurring at an affected source where you are using a CMS to comply with the organic HAP emissions limitation in this subpart, you must include the information in paragraphs (c)(1) through (4) of this section and in paragraphs (e)(1) through (12) of this section. This includes periods of startup, shutdown, and malfunction.

(1) The date and time that each malfunction started and stopped.

(2) The date and time that each CMS was inoperative, except for zero (low-level) and high-level checks.

(3) The date, time, and duration that each CMS was out of control, including the information in § 63.8(c)(8).

(4) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction, or during another period.

(5) A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.

(6) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(7) A summary of the total duration of CMS downtime during the reporting period and the total duration of CMS downtime as a percent of the total

source operating time during that reporting period.

(8) An identification of each organic HAP that was monitored at the affected source.

(9) A brief description of the process units.

(10) A brief description of the CMS.

(11) The date of the latest CMS certification or audit.

(12) A description of any changes in CMS, processes, or controls since the last reporting period.

(f) You must report if you have exceeded the 100 tpy organic HAP emissions threshold if that exceedance would make your facility subject to § 63.5805(b) or (d). Include with this report any request for an exemption under § 63.5805(e). If you receive an exemption under § 63.5805(e) and subsequently exceed the 100 tpy organic HAP emissions threshold, you must report this exceedance as required in § 63.5805(f).

(g) Each affected source that has obtained a title V operating permit pursuant to 40 CFR part 70 or 71 must report all deviations as defined in this subpart in the semiannual monitoring report required by § 70.6(a)(3)(iii)(A) or § 71.6(a)(3)(iii)(A). If an affected source submits a compliance report pursuant to Table 14 to this subpart along with, or as part of, the semiannual monitoring report required by § 70.6(a)(3)(iii)(A) or § 71.6(a)(3)(iii)(A), and the compliance report includes all required information concerning deviations from any organic HAP emissions limitation (including any operating limit) or work practice requirement in this subpart, submission of the compliance report shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a compliance report shall not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the permitting authority.

(h) Submit compliance reports and startup, shutdown, and malfunction reports based on the requirements in Table 14 to this subpart, and not based on the requirements in § 63.999.

§ 63.5915 What records must I keep?

(a) You must keep the records listed in paragraphs (a)(1) through (3) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirements in § 63.10(b)(2)(xiv).

(2) The records in § 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

(3) Records of performance tests, design, and performance evaluations as required in § 63.10(b)(2).

(b) If you use an add-on control device, you must keep all records required in 40 CFR part 63, subpart SS, to show continuous compliance with this subpart.

(c) You must keep all data, assumptions, and calculations used to determine organic HAP emissions factors or average organic HAP contents for operations listed in Tables 3, 5, and 7 to this subpart.

(d) You must keep a certified statement that you are in compliance with the work practice requirements in Table 4 to this subpart, as applicable.

(e) For a new or existing continuous lamination/casting operation, you must keep the records listed in paragraphs (e)(1) through (4) of this section, when complying with the percent reduction and/or lbs/ton requirements specified in paragraphs (a) through (d) of § 63.5805.

(1) You must keep all data, assumptions, and calculations used to determine percent reduction and/or lbs/ton as applicable;

(2) You must keep a brief description of the rationale for the assignment of an equation or factor to each formula;

(3) When using facility-specific organic HAP emissions estimation equations or factors, you must keep all data, assumptions, and calculations used to derive the organic HAP emissions estimation equations and factors and identification and rationale for the worst-case formula; and

(4) For all organic HAP emissions estimation equations and organic HAP

emissions factors, you must keep documentation that the appropriate permitting authority has approved them.

§63.5920 In what form and how long must I keep my records?

(a) You must maintain all applicable records in such a manner that they can be readily accessed and are suitable for inspection according to §63.10(b)(1).

(b) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record onsite for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §63.10(b)(1). You can keep the records offsite for the remaining 3 years.

(d) You may keep records in hard copy or computer readable form including, but not limited to, paper, microfilm, computer floppy disk, magnetic tape, or microfiche.

OTHER REQUIREMENTS AND INFORMATION

§63.5925 What parts of the General Provisions apply to me?

Table 15 to this subpart shows which parts of the General Provisions in §§63.1 through 63.15 apply to you.

§63.5930 Who implements and enforces this subpart?

(a) This subpart can be administered by us, the EPA, or a delegated authority such as your State, local, or tribal agency. If the EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency has the authority to administer and enforce this subpart. You should contact your EPA Regional Office to find out if this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are not delegated.

(c) The authorities that will not be delegated to State, local, or tribal agencies are listed in paragraphs (c)(1) through (4) of this section:

(1) Approval of alternatives to the organic HAP emissions standards in §63.5805 under §63.6(g).

(2) Approval of major changes to test methods under §63.7(e)(2)(ii) and (f) and as defined in §63.90.

(3) Approval of major changes to monitoring under §63.8(f) and as defined in §63.90.

(4) Approval of major changes to recordkeeping and reporting under §63.10(f) and as defined in §63.90.

§63.5935 What definitions apply to this subpart?

Terms used in this subpart are defined in the CAA, in 40 CFR 63.2, and in this section as follows:

Atomized mechanical application means application of resin or gel coat with spray equipment that separates the liquid into a fine mist. This fine mist may be created by forcing the liquid under high pressure through an elliptical orifice, bombarding a liquid stream with directed air jets, or a combination of these techniques.

Bulk molding compound (BMC) means a putty-like molding compound containing resin(s) in a form that is ready to mold. In addition to resins, BMC may contain catalysts, fillers, and reinforcements. Bulk molding compound can be used in compression molding and injection molding operations to manufacture reinforced plastic composites products.

BMC manufacturing means a process that involves the preparation of BMC.

Centrifugal casting means a process for fabricating cylindrical composites, such as pipes, in which composite materials are positioned inside a rotating hollow mandrel and held in place by centrifugal forces until the part is sufficiently cured to maintain its physical shape.

Charge means the amount of SMC or BMC that is placed into a compression or injection mold necessary to complete one mold cycle.

Cleaning means removal of composite materials, such as cured and uncured resin from equipment, finished surfaces, floors, hands of employees, or any other surfaces.

Clear production gel coat means an unpigmented, quick-setting resin used to improve the surface appearance and/

or performance of composites. It can be used to form the surface layer of any composites other than those used for molds in tooling operations.

Closed molding means a grouping of processes for fabricating composites in a way that HAP-containing materials are not exposed to the atmosphere except during the material loading stage (*e.g.*, compression molding, injection molding, and resin transfer molding). Processes where the mold is covered with plastic (or equivalent material) prior to resin application, and the resin is injected into the covered mold are also considered closed molding.

Composite means a shaped and cured part produced by using composite materials.

Composite materials means the raw materials used to make composites. The raw materials include styrene containing resins. They may also include gel coat, monomer, catalyst, pigment, filler, and reinforcement.

Compression molding means a closed molding process for fabricating composites in which composite materials are placed inside matched dies that are used to cure the materials under heat and pressure without exposure to the atmosphere. The addition of mold paste or in-mold coating is considered part of the closed molding process. The composite materials used in this process are generally SMC or BMC.

Compression/injection molding means a grouping of processes that involves the use of compression molding and/or injection molding.

Continuous casting means a continuous process for fabricating composites in which composite materials are placed on an in-line conveyor belt to produce cast sheets that are cured in an oven.

Continuous lamination means a continuous process for fabricating composites in which composite materials are typically sandwiched between plastic films, pulled through compaction rollers, and cured in an oven. This process is generally used to produce flat or corrugated products on an in-line conveyor.

Continuous lamination/casting means a grouping of processes that involves the use of continuous lamination and/or continuous casting.

Controlled emissions means those organic HAP emissions that are vented from a control device to the atmosphere.

Corrosion-resistant gel coat means a gel coat used on a product made with a corrosion-resistant resin that has a corrosion-resistant end-use application.

Corrosion-resistant end-use applications means applications where the product is manufactured specifically for an application that requires a level of chemical inertness or resistance to chemical attack above that required for typical reinforced plastic composites products. These applications include, but are not limited to, chemical processing and storage; pulp and paper production; sewer and wastewater treatment; power generation; potable water transfer and storage; food and drug processing; pollution or odor control; metals production and plating; semiconductor manufacturing; petroleum production, refining, and storage; mining; textile production; nuclear materials storage; swimming pools; and cosmetic production, as well as end-use applications that require high strength resins.

Corrosion-resistant industry standard includes the following standards: ASME RTP–1 or Sect. X; ASTM D5364, D3299, D4097, D2996, D2997, D3262, D3517, D3754, D3840, D4024, D4160, D4161, D4162, D4184, D3982, or D3839; ANSI/AWWA C950; UL 215, 1316 or 1746, IAPMO PS–199, or written customer requirements for resistance to specified chemical environments.

Corrosion-resistant product means a product made with a corrosion-resistant resin and is manufactured to a corrosion-resistant industry standard, or a food contact industry standard, or is manufactured for corrosion-resistant end-use applications involving continuous or temporary chemical exposures.

Corrosion-resistant resin means a resin that either:

(1) Displays substantial retention of mechanical properties when undergoing ASTM C–581 coupon testing, where the resin is exposed for 6 months or more to one of the following materials: Material with a pH ≥ 12.0 or ≤ 3.0, oxidizing or reducing agents, organic

solvents, or fuels or additives as defined in 40 CFR 79.2. In the coupon testing, the exposed resin needs to demonstrate a minimum of 50 percent retention of the relevant mechanical property compared to the same resin in unexposed condition. In addition, the exposed resin needs to demonstrate an increased retention of the relevant mechanical property of at least 20 percentage points when compared to a similarly exposed general-purpose resin. For example, if the general-purpose resin retains 45 percent of the relevant property when tested as specified above, then a corrosion-resistant resin needs to retain at least 65 percent (45 percent plus 20 percent) of its property. The general-purpose resin used in the test needs to have an average molecular weight of greater than 1,000, be formulated with a 1:2 ratio of maleic anhydride to phthalic anhydride and 100 percent diethylene glycol, and a styrene content between 43 to 48 percent; or

(2) Complies with industry standards that require specific exposure testing to corrosive media, such as UL 1316, UL 1746, or ASTM F–1216.

Doctor box means the box or trough on an SMC machine into which the liquid resin paste is delivered before it is metered onto the carrier film.

Filament application means an open molding process for fabricating composites in which reinforcements are fed through a resin bath and wound onto a rotating mandrel. The materials on the mandrel may be rolled out or worked by using nonmechanical tools prior to curing. Resin application to the reinforcement on the mandrel by means other than the resin bath, such as spray guns, pressure-fed rollers, flow coaters, or brushes is not considered filament application.

Filled Resin means that fillers have been added to a resin such that the amount of inert substances is at least 10 percent by weight of the total resin plus filler mixture. Filler putty made from a resin is considered a filled resin.

Fillers means inert substances dispersed throughout a resin, such as calcium carbonate, alumina trihydrate, hydrous aluminum silicate, mica, feldspar, wollastonite, silica, and talc. Materials that are not considered to be fillers are glass fibers or any type of reinforcement and microspheres.

Fire retardant gel coat means a gel coat used for products for which low-flame spread/low-smoke resin is used.

Fluid impingement technology means a spray gun that produces an expanding non-misting curtain of liquid by the impingement of low-pressure uninterrupted liquid streams.

Food contact industry standard means a standard related to food contact application contained in Food and Drug Administration’s regulations at 21 CFR 177.2420.

Gel Coat means a quick-setting resin used to improve surface appearance and/or performance of composites. It can be used to form the surface layer of any composites other than those used for molds in tooling operations.

Gel coat application means a process where either clear production, pigmented production, white/off-white or tooling gel coat is applied.

HAP-containing materials storage means an ancillary process which involves keeping HAP-containing materials, such as resins, gel coats, catalysts, monomers, and cleaners, in containers or bulk storage tanks for any length of time. Containers may include small tanks, totes, vessels, and buckets.

High Performance gel coat means a gel coat used on products for which National Science Foundation, United States Department of Agriculture, ASTM, durability, or other property testing is required.

High strength gel coat means a gel coat applied to a product that requires high strength resin.

High strength resins means polyester resins which have a casting tensile strength of 10,000 pounds per square inch or more and which are used for manufacturing products that have high strength requirements such as structural members and utility poles.

Injection molding means a closed molding process for fabricating composites in which composite materials are injected under pressure into a heated mold cavity that represents the exact shape of the product. The composite materials are cured in the heated mold cavity.

Low Flame Spread/Low Smoke Products means products that meet the following requirements. The products must meet both the applicable flame spread requirements and the applicable smoke requirements. Interior or exterior building application products must meet an ASTM E–84 Flame Spread Index of less than or equal to 25, and Smoke Developed Index of less than or equal to 450, or pass National Fire Protection Association 286 Room Corner Burn Test with no flash over and total smoke released not exceeding 1000 meters square. Mass transit application products must meet an ASTM E–162 Flame Spread Index of less than or equal to 35 and ASTM E662 Smoke Density Ds @ 1.5 minutes less than or equal to 100 and Ds @ 4 minutes less than to equal to 200. Duct application products must meet ASTM E084 Flame Spread Index less than or equal to 25 and Smoke Developed Index less than or equal to 50 on the interior and/or exterior of the duct.

Manual resin application means an open molding process for fabricating composites in which composite materials are applied to the mold by pouring or by using hands and nonmechanical tools, such as brushes and rollers. Materials are rolled out or worked by using nonmechanical tools prior to curing. The use of pressure-fed rollers and flow coaters to apply resin is not considered manual resin application.

Mechanical resin application means an open molding process for fabricating composites in which composite materials (except gel coat) are applied to the mold by using mechanical tools such as spray guns, pressure-fed rollers, and flow coaters. Materials are rolled out or worked by using nonmechanical tools prior to curing.

Mixing means the blending or agitation of any HAP-containing materials in vessels that are 5.00 gallons (18.9 liters) or larger. Mixing may involve the blending of resin, gel coat, filler, reinforcement, pigments, catalysts, monomers, and any other additives.

Mold means a cavity or matrix into or onto which the composite materials are placed and from which the product takes its form.

Neat gel coat means the resin as purchased for the supplier, but not including any inert fillers.

Neat gel coat plus means neat gel coat plus any organic HAP-containing materials that are added to the gel coat by the supplier or the facility, excluding catalysts and promoters. Neat gel coat plus does include any additions of styrene or methyl methacrylate monomer in any form, including in catalysts and promoters.

Neat resin means the resin as purchased from the supplier, but not including any inert fillers.

Neat resin plus means neat resin plus any organic HAP-containing materials that are added to the resin by the supplier or the facility. Neat resin plus does not include any added filler, reinforcements, catalysts, or promoters. Neat resin does include any additions of styrene or methyl methacrylate monomer in any form, including in catalysts and promoters.

Nonatomized mechanical application means the use of application tools other than brushes to apply resin and gel coat where the application tool has documentation provided by its manufacturer or user that this design of the application tool has been organic HAP emissions tested, and the test results showed that use of this application tool results in organic HAP emissions that are no greater than the organic HAP emissions predicted by the applicable nonatomized application equation(s) in Table 1 to this subpart. In addition, the device must be operated according to the manufacturer's directions, including instructions to prevent the operation of the device at excessive spray pressures. Examples of nonatomized application include flow coaters, pressure fed rollers, and fluid impingement spray guns.

Noncorrosion-resistant resin means any resin other than a corrosion-resistant resin or a tooling resin.

Noncorrosion-resistant product means any product other than a corrosion-resistant product or a mold.

Non-routine manufacture means that you manufacture parts to replace worn or damaged parts of a reinforced plastic composites product, or a product containing reinforced plastic composite parts, that was originally manufactured in another facility. For a part to qualify as non-routine manufacture, it must be used for repair or replacement, and the manufacturing schedule must be based on the current or anticipated repair needs of the reinforced plastic composites product, or a product containing reinforced plastic composite parts.

Operation means a specific process typically found at a reinforced plastic composites facility. Examples of operations are noncorrosion-resistant manual resin application, corrosion-resistant mechanical resin application, pigmented gel coat application, mixing and HAP-containing materials storage.

Operation group means a grouping of individual operations based primarily on mold type. Examples are open molding, closed molding, and centrifugal casting.

Open molding means a process for fabricating composites in a way that HAP-containing materials are exposed to the atmosphere. Open molding includes processes such as manual resin application, mechanical resin application, filament application, and gel coat application. Open molding also includes application of resins and gel coats to parts that have been removed from the open mold.

Pigmented gel coat means a gel coat that has a color, but does not contain 10 percent of more titanium dioxide by weight. It can be used to form the surface layer of any composites other than those used for molds in tooling operations.

Polymer casting means a process for fabricating composites in which composite materials are ejected from a casting machine or poured into an open, partially open, or closed mold and cured. After the composite materials are poured into the mold, they are not rolled out or worked while the mold is open. The composite materials may or may not include reinforcements. Products produced by the polymer casting process include cultured marble products and polymer concrete.

Preform Injection means a form of pultrusion where liquid resin is injected to saturate reinforcements in an enclosed system containing one or more chambers with openings only large enough to admit reinforcements. Resin, which drips out of the chamber(s) during the process, is collected in closed piping or covered troughs and then into a covered reservoir for recycle. Resin storage vessels, reservoirs, transfer systems, and collection systems are covered or shielded from the ambient air. Preform injection differs from direct die injection in that the injection chambers are not directly attached to the die.

Prepreg materials means reinforcing fabric received precoated with resin which is usually cured through the addition of heat.

Pultrusion means a continuous process for manufacturing composites that have a uniform cross-sectional shape. The process consists of pulling a fiber-reinforcing material through a resin impregnation chamber or bath and through a shaping die, where the resin is subsequently cured. There are several types of pultrusion equipment, such as open bath, resin injection, and direct die injection equipment.

Repair means application of resin or gel coat to a part to correct a defect, where the resin or gel coat application occurs after the part has gone through all the steps of its typical production process, or the application occurs outside the normal production area. For purposes of this subpart, rerouting a part back through the normal production line, or part of the normal production line, is not considered repair.

Resin transfer molding means a process for manufacturing composites whereby catalyzed resin is transferred or injected into a closed mold in which fiberglass reinforcement has been placed.

Sheet molding compound (SMC) means a ready-to-mold putty-like molding compound that contains resin(s) processed into sheet form. The molding compound is sandwiched between a top and a bottom film. In addition to resin(s), it may also contain catalysts, fillers, chemical thickeners, mold release agents, reinforcements, and other ingredients. Sheet molding compound can be used in compression molding to manufacture reinforced plastic composites products.

Shrinkage controlled resin means a resin that when promoted, catalyzed, and filled according to the resin manufacturer's recommendations demonstrates less than 0.3 percent linear shrinkage when tested according to ASTM D2566.

SMC manufacturing means a process which involves the preparation of SMC.

Tooling gel coat means a gel coat that is used to form the surface layer of molds. Tooling gel coats generally have high heat distortion temperatures, low shrinkage, high barcol hardness, and high dimensional stability.

Tooling resin means a resin that is used to produce molds. Tooling resins generally have high heat distortion temperatures, low shrinkage, high barcol hardness, and high dimensional stability.

Uncontrolled oven organic HAP emissions means those organic HAP emissions emitted from the oven through closed vent systems to the atmosphere and not to a control device. These organic HAP emissions do not include organic HAP emissions that may escape into the workplace through the opening of panels or doors on the ovens or other similar fugitive organic HAP emissions in the workplace.

Uncontrolled wet-out area organic HAP emissions means any or all of the following: Organic HAP emissions from wet-out areas that do not have any capture and control, organic HAP emissions that escape from wet-out area enclosures, and organic HAP emissions from wet-out areas that are captured by an enclosure but are vented to the atmosphere and not to an add-on control device.

Unfilled means that there has been no addition of fillers to a resin or that less than 10 percent of fillers by weight of the total resin plus filler mixture has been added.

Vapor suppressant means an additive, typically a wax, that migrates to the surface of the resin during curing and forms a barrier to seal in the styrene and reduce styrene emissions.

Vapor-suppressed resin means a resin containing a vapor suppressant added for the purpose of reducing styrene emissions during curing.

White and off-white gel coat means a gel coat that contains 10 percent of more titanium dioxide by weight.

TABLE 1 TO SUBPART WWWW OF PART 63—EQUATIONS TO CALCULATE ORGANIC HAP EMISSIONS FACTORS FOR SPECIFIC OPEN MOLDING AND CENTRIFUGAL CASTING PROCESS STREAMS

[As required in §§ 63.5796, 63.5799(a)(1) and (b), and 63.5810(a)(1), to calculate organic HAP emissions factors for specific open molding and centrifugal casting process streams you must use the equations in the following table:]

If your operation type is a new or existing . . .	And you use . . .	With . . .	Use this organic HAP Emissions Factor (EF) Equation for materials with less than 33 percent organic HAP (19 percent organic HAP for nonatomized gel coat) [1,2,3] . . .	Use this organic HAP Emissions Factor (EF) Equation for materials with 33 percent or more organic HAP (19 percent for nonatomized gel coat) [1,2,3] . . .
1. Open molding operation.	a. Manual resin application.	i. Nonvapor-suppressed resin.	EF = 0.126 × % HAP × 2000.	EF = ((0.286 × %HAP) − 0.0529) × 2000
		ii. Vapor-suppressed resin.	EF = 0.126 × % HAP × 2000 × (1 − (0.5 × VSE factor)).	EF = ((0.286 × %HAP) − 0.0529) × 2000 × (1 − (0.5 × VSE factor))
		iii. Vacuum bagging/closed-mold curing with roll out.	EF = 0.126 × % HAP × 2000 × 0.8.	EF = ((0.286 × %HAP) − 0.0529) × 2000 × 0.8
		iv. Vacuum bagging/closed-mold curing without roll-out.	EF = (0.126 × % HAP × 2000 × 0.5.	EF = ((0.286 × %HAP) − 0.0529) × 2000 × 0.5
	b. Atomized mechanical resin application.	i. Nonvapor-suppressed resin.	EF = 0.169 × %HAP × 2000.	EF = ((0.714 × %HAP) − 0.18) × 2000
		ii. Vapor-suppressed resin.	EF = 0.169 × %HAP × 2000 × (1 − (0.45 × VSE factor)).	EF = ((0.714 × %HAP) − 0.18) × 2000 × (1 − (0.45 × VSE factor))

[As required in §§ 63.5796, 63.5799(a)(1) and (b), and 63.5810(a)(1), to calculate organic HAP emissions factors for specific open molding and centrifugal casting process streams you must use the equations in the following table:]

If your operation type is a new or existing . . .	And you use . . .	With . . .	Use this organic HAP Emissions Factor (EF) Equation for materials with less than 33 percent organic HAP (19 percent organic HAP for nonatomized gel coat)[1][2][3] . . .	Use this organic HAP Emissions Factor (EF) Equation for materials with 33 percent or more organic HAP (19 percent for nonatomized gel coat)[1][2][3] . . .
		iii. Vacuum bagging/closed-mold curing with roll-out.	EF = 0.169 × %HAP × 2000 × 0.85.	EF = ((0.714 × %HAP) − 0.18) × 2000 × 0.85
		iv. Vacuum bagging/closed-mold curing without roll-out.	EF = 0.169 × %HAP × 2000 × 0.55.	EF = ((0.714 × %HAP) − 0.18) × 2000 × 0.55
	c. Nonatomized mechanical resin application.	v. Nonvapor-suppressed resin.	EF = 0.107 × %HAP × 2000.	EF = ((0.157 × %HAP) − 0.0165) × 2000
		vi. Vapor-suppressed resin.	EF = 0.107 × %HAP × 2000 × (1 − (0.45 × VSE factor)).	EF = ((0.157 × %HAP) − 0.0165) × 2000 × (1 − (0.45 × VSE factor))
		vii. Closed-mold curing with roll-out.	EF = 0.107 × %HAP × 2000 × 0.85.	EF = ((0.157 × %HAP) − 0.0165) × 2000 × 0.85
		viii. Vacuum bagging/closed-mold curing without roll-out.	EF = 0.107 × %HAP × 2000 × 0.55.	EF = ((0.157 × %HAP) − 0.0165) × 2000 × 0.55
	d. Atomized mechanical resin application with robotic or automated spray control[4].	Nonvapor-suppressed resin.	EF = 0.169 × %HAP × 2000 × 0.77.	EF = 0.77 × ((0.714 × %HAP) − 0.18) × 2000
	e. Filament application[5]	i. Nonvapor-suppressed resin.	EF = 0.184 × %HAP × 2000.	EF = ((0.2746 × %HAP) − 0.0298) × 2000
		ii. Vapor-suppressed resin.	EF = 0.12 × %HAP × 2000.	EF = ((0.2746 × %HAP) − 0.0298) × 2000 × 0.65
	f. Atomized spray gel coat application.	Nonvapor-suppressed gel coat.	EF = 0.446 × %HAP × 2000.	EF = ((1.03646 × %HAP) − 0.195) × 2000.
	g. Nonatomized spray gel coat application.	Nonvapor-suppressed gel coat.	EF = 0.185 × %HAP × 2000.	EF = ((0.4506 × %HAP) − 0.0505) × 2000.
	h. Manual gel coat application[6].	Nonvapor-suppressed gel coat.	EF = 0.126 × % HAP × 2000 (for emissions estimation only, see footnote 6).	EF = ((0.286 × %HAP) − 0.0529) × 2000 (for emissions estimation only, see footnote 6)
2. Centrifugal casting operations.[7][8].	Heated air blown through molds.	Nonvapor-suppressed resin.	EF = 0.558 × (%HAP) × 2000.	EF = 0.558 × (%HAP) × 2000.
	Vented molds, but air vented through the molds is not heated.	Nonvapor-suppressed resin.	EF = 0.026 × (%HAP) × 2000.	EF = 0.026 × (%HAP) × 2000.

Footnotes to Table 1

[1] To obtain the organic HAP emissions factor value for an operation with an add-on control device multiply the EF above by the add-on control factor calculated using Equation 1 of § 63.5810. The organic HAP emissions factors have units of lbs of organic HAP per ton of resin or gel coat applied.

[2] Percent HAP means total weight percent of organic HAP (styrene, methyl methacrylate, and any other organic HAP) in the resin or gel coat prior to the addition of fillers, catalyst, and promoters. Input the percent HAP as a decimal, *i.e.* 33 percent HAP should be input as 0.33, not 33.

[3] The VSE factor means the percent reduction in organic HAP emissions expressed as a decimal measured by the VSE test method of appendix A to this subpart.

[4] This equation is based on a organic HAP emissions factor equation developed for mechanical atomized controlled spray. It may only be used for automated or robotic spray systems with atomized spray. All spray operations using hand held spray guns must use the appropriate mechanical atomized or mechanical nonatomized organic HAP emissions factor equation. Automated or robotic spray systems using nonatomized spray should use the appropriate nonatomized mechanical resin application equation.

[5] Applies only to filament application using an open resin bath. If resin is applied manually or with a spray gun, use the appropriate manual or mechanical application organic HAP emissions factor equation.

[6] Do not use this equation for determining compliance with emission limits in Tables 3 or 5 to this subpart. To determine compliance with emission limits you must treat all gel coat as if it were applied as part of your gel coat spray application operations. If you apply gel coat by manual techniques only, you must treat the gel coat as if it were applied with atomized spray and use Equation 1.f. to determine compliance with the appropriate emission limits in Tables 3 or 5 to this subpart. To estimate emissions from manually applied gel coat, you may either include the gel coat quantities you apply manually with the quantities applied using spray, or use this equation to estimate emissions from the manually applied portion of your gel coat.

[7] These equations are for centrifugal casting operations where the mold is vented during spinning. Centrifugal casting operations where the mold is completely sealed after resin injection are considered to be closed molding operations.

[8] If a centrifugal casting operation uses mechanical or manual resin application techniques to apply resin to an open centrifugal casting mold, use the appropriate open molding equation with covered cure and no rollout to determine an emission factor for operations prior to the closing of the centrifugal casting mold. If the closed centrifugal casting mold is vented during spinning, use the appropriate centrifugal casting equation to calculate an emission factor for the portion of the process where spinning and cure occur. If a centrifugal casting operation uses mechanical or manual resin application techniques to apply resin to an open centrifugal casting mold, and the mold is then closed and is not vented, treat the entire operation as open molding with covered cure and no rollout to determine emission factors.

TABLE 2 TO SUBPART WWWW OF PART 63.—COMPLIANCE DATES FOR NEW AND EXISTING REINFORCED PLASTIC COMPOSITES FACILITIES

[As required in §§ 63.5800 and 63.5840 you must demonstrate compliance with the standards by the dates in the following table:]

If your facility is . . .	And . . .	Then you must comply by this date . . .
1. An existing source	a. Is a major source on or before the publication date of this subpart.	i. April 21, 2006, or ii. You must accept and meet an enforceable HAP emissions limit below the major source threshold prior to April 21, 2006.
2. An existing source that is an area source.	Becomes a major source after the publication date of this subpart.	3 years after becoming a major source or April 21, 2006, whichever is later.
3. An existing source, and emits less than 100 tpy of organic HAP from the combination of all centrifugal casting and continuous lamination/casting operations at the time of initial compliance with this subpart.	Subsequently increases its actual organic HAP emissions to 100 tpy or more from these operations, which requires that the facility must now comply with the standards in § 63.5805(b).	3 years of the date your semi-annual compliance report indicates your facility meets or exceeds the 100 tpy threshold.
4. A new source	Is a major source at startup	Upon startup or April 21, 2003, whichever is later.
5. A new source	Is an area source at startup and becomes a major source.	Immediately upon becoming a major source.
6. A new source, and emits less than 100 tpy of organic HAP from the combination of all open molding, centrifugal casting, continuous lamination/casting, pultrusion, SMC and BMC manufacturing, and mixing operations at the time of initial compliance with this subpart.	Subsequently increases its actual organic HAP emissions to 100 tpy or more from the combination of these operations, which requires that the facility must now meet the standards in § 63.5805(d).	3 years from the date that your semi-annual compliance report indicates your facility meets or exceeds the 100 tpy threshold.

TABLE 3 TO SUBPART WWWW OF PART 63.—ORGANIC HAP EMISSIONS LIMITS FOR EXISTING OPEN MOLDING SOURCES, NEW OPEN MOLDING SOURCES EMITTING LESS THAN 100 TPY OF HAP, AND NEW AND EXISTING CENTRIFUGAL CASTING AND CONTINUOUS LAMINATION/CASTING SOURCES THAT EMIT LESS THAN 100 TPY OF HAP

[As required in §§ 63.5796, 63.5805 (a) through (c) and (g), 63.5810(a), (b), and (d), 63.5820(c), 63.5830, 63.5835(a), 63.5895(c) and (d), 63.5900(a)(2), and 63.5915(c), you must meet the appropriate organic HAP emissions limits in the following table:]

If your operation type is . . .	And you use . . .	Your organic HAP emissions limit is [1] . . .	And the highest organic HAP content for a compliant resin or gel coat is [2] . . .
1. Open molding—corrosion-resistant and/or high strength (CR/HS).	a. Mechanical resin application.	112 lb/ton	46.2 with nonatomized resin application.
	b. Filament application	171 lb/ton	42.0.
	c. Manual resin application	123 lb/ton	40.0.
2. Open molding—non-CR/HS	a. Mechanical resin application.	87 lb/ton	38.4 with nonatomized resin application.
	b. Filament application	188 lb/ton	45.0.
	c. Manual resin application	87 lb/ton	33.6.
3. Open molding—tooling	a. Mechanical resin application.	254 lb/ton	43.0 with atomized application, 91.4 with nonatomized application.
	b. Manual resin application	157 lb/ton	45.9.
4. Open molding—low-flame spread/low-smoke products.	a. Mechanical resin application.	497 lb/ton	60.0.
	b. Filament application	270 lb/ton	60.0.
	c. Manual resin application	238 lb/ton	60.0.
5. Open molding—shrinkage controlled resins.	a. Mechanical resin application.	354 lb/ton	50.0.
	b. Filament application	215 lb/ton	50.0.
	c. Manual resin application	180 lb/ton	50.0.

[As required in §§ 63.5796, 63.5805 (a) through (c) and (g), 63.5810(a), (b), and (d), 63.5820(c), 63.5830, 63.5835(a), 63.5895(c) and (d), 63.5900(a)(2), and 63.5915(c), you must meet the appropriate organic HAP emissions limits in the following table:]

If your operation type is . . .	And you use . . .	Your organic HAP emissions limit is[1] . . .	And the highest organic HAP content for a compliant resin or gel coat is[2] . . .
6. Open molding—gel coat[3]	a. Tooling gel coating	437 lb/ton	40.0.
	b. White/off white pigmented gel coating.	267 lb/ton	30.0.
	c. All other pigmented gel coating.	377 lb/ton	37.0.
	d. CR/HS or high performance gel coat.	605 lb/ton	48.0.
	e. Fire retardant gel coat	854 lb/ton	60.0.
	f. Clear production gel coat	522 lb/ton	44.0.
7. Centrifugal casting—CR/HS[4] [5].	N/A	25 lb/ton	48.0.
8. Centrifugal casting—non-CR/HS[4] [5].	N/A	20 lb/ton	37.5.
9. Pultrusion[6]	N/A	Reduce total organic HAP emissions by at least 60 weight percent.	NA.
10. Continuous lamination/casting.	N/A	Reduce total organic HAP emissions by at least 58.5 weight percent or not exceed a organic HAP emissions limit of 15.7 lbs of organic HAP per ton of neat resin plus and neat gel coat plus.	NA.

Footnotes to Table 3

[1] Organic HAP emissions limits for open molding and centrifugal casting are expressed as lb/ton. You must be at or below these values based on a 12-month rolling average.

[2] A compliant resin or gel coat means that if its organic HAP content is used to calculate an organic HAP emissions factor, the factor calculated does not exceed the appropriate organic HAP emissions limit shown in the table.

[3] These limits are for spray application of gel coat. Manual gel coat application must be included as part of spray gel coat application for compliance purposes using the same organic HAP emissions factor equation and organic HAP emissions limit. If you only apply gel coat with manual application, treat the manually applied gel coat as if it were applied with atomized spray for compliance determinations.

[4] Centrifugal casting operations where the mold is not vented during spinning and cure are considered to be closed molding and are not subject to any emissions limit. Centrifugal casting operations where the mold is not vented during spinning and cure, and the resin is applied to the open centrifugal casting mold using mechanical or manual open molding resin application techniques are considered to be open molding operations and the appropriate open molding emission limits apply.

[5] Centrifugal casting operations where the mold is vented during spinning and the resin is applied to the open centrifugal casting mold using mechanical or manual open molding resin application techniques, use the appropriate centrifugal casting emission limit to determine compliance. Calculate your emission factor using the appropriate centrifugal casting emission factor in Table 1 to this subpart, or a site specific emission factor as discussed in § 63.5796.

[6] Pultrusion machines that produce parts with 1000 or more reinforcements and a cross sectional area of 60 inches or more are not subject to this requirement. Their requirement is the work practice of air flow management which is described in Table 4 to this subpart.

TABLE 4 TO SUBPART WWWW OF PART 63.—WORK PRACTICE STANDARDS

[As required in §§ 63.5805 (a) through (d) and (g), 63.5835(a), 63.5900(a)(3), 63.5910(c)(5), and 63.5915(d), you must meet the appropriate work practice standards in the following table:]

For . . .	You must . . .
1. A new or existing closed molding operation using compression/injection molding.	Uncover, unwrap or expose only one charge per mold cycle per compression/injection molding machine. For machines with multiple molds, one charge means sufficient material to fill all molds for one cycle. For machines with robotic loaders, no more than one charge may be exposed prior to the loader. For machines fed by hoppers, sufficient material may be uncovered to fill the hopper. Hoppers must be closed when not adding materials. Materials may be uncovered to feed to slitting machines. Materials must be recovered after slitting.
2. A new or existing cleaning operation	Not use cleaning solvents that contain HAP, except that styrene may be used as a cleaner in closed systems, and organic HAP containing cleaners may be used to clean cured resin from application equipment. Application equipment includes any equipment that directly contacts resin.
3. A new or existing materials HAP-containing materials storage operation.	Keep containers that store HAP-containing materials closed or covered except during the addition or removal of materials. Bulk HAP-containing materials storage tanks may be vented as necessary for safety.
4. An existing or new SMC manufacturing operation.	Close or cover the resin delivery system to the doctor box on each SMC manufacturing machine. The doctor box itself may be open.
5. An existing or new SMC manufacturing operation.	Use a nylon containing film to enclose SMC.

[As required in §§ 63.5805 (a) through (d) and (g), 63.5835(a), 63.5900(a)(3), 63.5910(c)(5), and 63.5915(d), you must meet the appropriate work practice standards in the following table:]

For . . .	You must . . .
6. An existing or new mixing or BMC manufacturing operation.	Use mixer covers with no visible gaps present in the mixer covers, except that gaps of up to 1 inch are permissible around mixer shafts and any required instrumentation.
7. An existing mixing or BMC manufacturing operation.	Close any mixer vents when actual mixing is occurring, except that venting is allowed during addition of materials, or as necessary prior to adding materials or opening the cover for safety.
8. A new or existing mixing or BMC manufacturing operation[1].	Keep the mixer covers closed while actual mixing is occurring except when adding materials or changing covers to the mixing vessels.
9. A new or existing pultrusion operation manufacturing parts with 1,000 or more reinforcements and a cross section area of 60 square inches or more that is not subject to the 95 percent organic HAP emission reduction requirement.	i. Not allow vents from the building ventilation system, or local or portable fans to blow directly on or across the wet-out area(s), ii. Not permit point suction of ambient air in the wet-out area(s) unless that air is directed to a control device, iii. Use devices such as deflectors, baffles, and curtains when practical to reduce air flow velocity across the wet-out area(s), iv. Direct any compressed air exhausts away from resin and wet-out area(s), v. convey resin collected from drip-off pans or other devices to reservoirs, tanks, or sumps via covered troughs, pipes, or other covered conveyance that shields the resin from the ambient air, vi. Cover all reservoirs, tanks, sumps, or HAP-containing materials storage vessels except when they are being charged or filled, and vii. Cover or shield from ambient air resin delivery systems to the wet-out area(s) from reservoirs, tanks, or sumps where practical.

[1] Containers of 5 gallons or less may be open when active mixing is taking place, or during periods when they are in process (*i.e.*, they are actively being used to apply resin). For polymer casting mixing operations, containers with a surface area of 500 square inches or less may be open while active mixing is taking place.

TABLE 5 TO SUBPART WWWW OF PART 63.—ALTERNATIVE ORGANIC HAP EMISSIONS LIMITS FOR OPEN MOLDING, CENTRIFUGAL CASTING, AND SMC MANUFACTURING OPERATIONS WHERE THE STANDARD IS BASED ON A 95 PERCENT REDUCTION REQUIREMENT

[As specified in §§ 63.5796, 63.5805(b) and (d), 63.5810(a) and (b), 63.5835(a), 63.5895(c), 63.5900(a)(2), and 63.5915(c), as an alternative to the 95 percent organic HAP emissions reductions requirement, you may meet the appropriate organic HAP emissions limits in the following table:]

If your operation type is . . .	And you use . . .	LYour organic HAP emissions limit is a[1]. . .
1. Open molding—corrosion-resistant and/or high strength (CR/HS).	a. Mechanical resin application	6 lb/ton.
	b. Filament application	9 lb/ton.
	c. Manual resin application	7 lb/ton.
2. Open molding—non-CR/HS	a. mechanical resin application	13 lb/ton.
	b. Filament application	10 lb/ton.
	c. Manual resin application	5 lb/ton.
3. Open molding—tooling	a. Mechanical resin application	13 lb/ton.
	b. Manual resin application	8 lb/ton.
4. Open molding—low flame spread/low smoke products.	a. Mechanical resin application	25 lb/ton.
	b. Filament application	14 lb/ton.
	c. Manual resin application	12 lb/ton.
5. Open molding—shrinkage controlled resins	a. Mechanical resin application	18 lb/ton.
	b. Filament application	11 lb/ton.
	c. Manual resin application	9 lb/ton.
6. Open molding—gel coat[2]	a. Tooling gel coating	22 lb/ton.
	b. White/off white pigmented gel coating	22 lb/ton.
	c. All other pigmented gel coating	19 lb/ton.
	d. CR/HS or high performance gel coat	31 lb/ton.
	e. Fire retardant gel coat	43 lb/ton.
	f. Clear production gel coat	27 lb/ton.
7. Centrifugal casting—CR/HS[3,4]	A vent system that moves heated air through the mold.	27 lb/ton.
8. Centrifugal casting—non-CR/HS[3,4]	A vent system that moves heated air through the mold.	21 lb/ton.
7. Centrifugal casting—CR/HS[3,4]	A vent system that moves ambient air through the mold.	2 lb/ton.
8. Centrifugal casting—non-CR/HS[3,4]	A vent system that moves ambient air through the mold.	1 lb/ton.

[As specified in §§ 63.5796, 63.5805(b) and (d), 63.5810(a) and (b), 63.5835(a), 63.5895(c), 63.5900(a)(2), and 63.5915(c), as an alternative to the 95 percent organic HAP emissions reductions requirement, you may meet the appropriate organic HAP emissions limits in the following table:]

If your operation type is . . .	And you use . . .	LYour organic HAP emissions limit is a[1]. . .
9. SMC Manufacturing	N/A	2.4 lb/ton.

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[1] Organic HAP emissions limits for open molding and centrifugal casting expressed as lb/ton are calculated using the equations shown in Table 1 to this subpart. You must be at or below these values based on a 12-month rolling average.

[2] These limits are for spray application of gel coat. Manual gel coat application must be included as part of spray gel coat application for compliance purposes using the same organic HAP emissions factor equation and organic HAP emissions limit. If you only apply gel coat with manual application, treat the manually applied gel coat as if it were applied with atomized spray for compliance determinations.

[3] Centrifugal casting operations where the mold is not vented during spinning and cure are considered to be closed molding and are not subject to any emissions limit. Centrifugal casting operations where the mold is not vented during spinning and cure, and the resin is applied to the open centrifugal casting mold using mechanical or manual open molding resin application techniques are considered to be open molding operations and the appropriate open molding emission limits apply.

[4] Centrifugal casting operations where the mold is vented during spinning and the resin is applied to the open centrifugal casting mold using mechanical or manual open molding resin application techniques, use the appropriate centrifugal casting emission limit to determine compliance. Calculate your emission factor using the appropriate centrifugal casting emission factor in Table 1 to this subpart, or a site specific emission factor as discussed in § 63.5796.

TABLE 6 TO SUBPART WWWW OF PART 63—BASIC REQUIREMENTS FOR PERFORMANCE TESTS, PERFORMANCE EVALUATIONS, AND DESIGN EVALUATIONS FOR NEW AND EXISTING SOURCES USING ADD-ON CONTROL DEVICES

[As required in § 63.5850 you must conduct performance tests, performance evaluations, and design evaluation according to the requirements in the following table:]

For . . .	You must . . .	Using . . .	According to the following requirements . . .
1. Each enclosure used to collect and route organic HAP emissions to an add-on control device that is a PTE.	Meet the requirements for a PTE.	EPA method 204 of appendix M of 40 CFR part 51.	Enclosures that meet the requirements of EPA Method 204 of appendix M of 40 CFR part 51 for a PTE are assumed to have a capture efficiency of 100%. Note that the criteria that all access doors and windows that are not treated as natural draft openings shall be closed during routine operation of the process is not intended to require that these doors and windows be closed at all times. It means that doors and windows must be closed any time that you are not actually moving parts or equipment through them. Also, any styrene retained in hollow parts and liberated outside the PTE is not considered to be a violation of the EPA Method 204 criteria.
2. Each enclosure used to collect and route organic HAP emissions to an add-on control device that is not a PTE.	a. Determine the capture efficiency of each enclosure used to capture organic HAP emissions sent to an add-on control device.	i. EPA methods 204B through E of appendix M of 40 CFR part 51, or	(1) Enclosures that do not meet the requirements for a PTE must determine the capture efficiency by constructing a temporary total enclosure according to the requirements of EPA Method 204 of appendix M of 40 CFR part 51 and measuring the mass flow rates of the organic HAP in the exhaust streams going to the atmosphere and to the control device. Test runs for EPA Methods 204B through E of appendix M of 40 CFR part 51 must be at least 3 hours.

[As required in § 63.5850 you must conduct performance tests, performance evaluations, and design evaluation according to the requirements in the following table:]

For . . .	You must . . .	Using . . .	According to the following requirements . . .
		ii. An alternative test method that meets the requirements in 40 CFR part 51, appendix M.	(1) The alternative test method must the data quality objectives and lower confidence limit approaches for alternative capture efficiency protocols requirements contained in 40 CFR part 63 subpart KK, appendix A.
3. Each control device used to comply with a percent reduction requirement, or a organic HAP emissions limit.	Determine the control efficiency of each control device used to control organic HAP emissions.	The test methods specified in § 63.5850 to this subpart.	Testing and evaluation requirements are contained in 40 CFR part 63, subpart SS, and § 63.5850 to this subpart.
4. Determining organic HAP emission factors for any operation.	Determine the mass organic HAP emissions rate.	The test methods specified in § 63.5850 to this subpart.	Testing and evaluation requirements are contained in 40 CFR part 63, subpart SS, and § 63.5850 to this subpart.

TABLE 7 TO SUBPART WWWW OF PART 63.—OPTIONS ALLOWING USE OF THE SAME RESIN ACROSS DIFFERENT OPERATIONS THAT USE THE SAME RESIN TYPE

[As required in §§ 63.5810(a) through (d), 63.5835(a), 63.5895(c), and 63.5900(a)(2), when electing to use the same resin(s) for multiple resin application methods you may use any resin(s) with an organic HAP contents less than or equal to the values shown in the following table, or any combination of resins whose weighted average organic HAP content based on a 12-month rolling average is less than or equal to the values shown the following table:]

If your facility has the following resin type and application method . . .	The highest resin weight percent organic HAP content, or weighted average weight percent organic HAP content, you can use for . . .	Is . . .
1. CR/HS resins, centrifugal casting	a. CR/HS mechanical	48.0
	b. CR/HS filament application	48.0
	c. CR/HS manual	48.0
2. CR/HS resins, nonatomized mechanical	a. CR/HS filament application	46.2
	b. CR/HS manual	46.2
3. CR/HS resins, filament application	CR/HS manual	42.0
4. Non-CR/HS resins, filament application	a. non-CR/HS mechanical	45.0
	b. non-CR/HS manual	45.0
	c. non-CR/HS centrifugal casting	45.0
5. Non-CR/HS resins, nonatomized mechanical	a. Non-CR/HS manual	38.4
	b. non-CR/HS centrifugal casting	38.4
6. Non-CR/HS resins, centrifugal casting	Non-CR/HS manual	37.5
7. Tooling resins, nonatomized mechanical	Tooling manual	91.4
8. Tooling resins, manual	Tooling atomized mechanical	45.9

TABLE 8 TO SUBPART WWWW OF PART 63.—INITIAL COMPLIANCE WITH ORGANIC HAP EMISSIONS LIMITS

[As required in § 63.5860(a), you must demonstrate initial compliance with organic HAP emissions limits as specified in the following table:]

For . . .	That must meet the following organic HAP emissions limit . . .	You have demonstrated initial compliance if . . .
1. Open molding and centrifugal casting operations.	a. An organic HAP emissions limit shown in Tables 3 or 5 to this subpart, or an organic HAP content limit shown in Table 7 to this subpart.	i. You have met the appropriate organic HAP emissions limits for these operations as calculated using the procedures in § 63.5810 on a 12-month rolling average 1 year after the appropriate compliance date, or ii. You demonstrate by using the appropriate values in Tables 3, or 7 to this subpart that all resins and gel coats considered individually meet the appropriate organic HAP contents, or

[As required in § 63.5860(a), you must demonstrate initial compliance with organic HAP emissions limits as specified in the following table:]

For . . .	That must meet the following organic HAP emissions limit . . .	You have demonstrated initial compliance if . . .
		iii. You demonstrate by using the appropriate values in Table 7 to this subpart that the weighted average of all resins and gel coats for each resin type and application method meet the appropriate organic HAP contents.
2. Open molding, centrifugal casting, continuous lamination/casting, SMC and BMC manufacturing, and mixing operations.	a. Reduce total organic HAP emissions, by at least 95 percent by weight.	Total organic HAP emissions, based on the results of the capture efficiency and destruction efficiency testing specified in Table 6 to this subpart, are reduced by at least 95 percent by weight.
3. Continuous lamination/casting operations.	a. Reduce total organic HAP emissions by at least 58.5 weight percent, or.	Total organic HAP emissions, based on the results of the capture efficiency and destruction efficiency testing specified in Table 6 to this subpart and the calculation procedures specified in §§ 63.5865 through 63.5890, are reduced by at least 58.5 percent by weight.
	b. Not exceed an HAP emissions limit of 15.7 lbs of organic HAP per ton of neat resin plus and neat gel coat plus.	Total organic HAP emissions, based on the results of the capture efficiency and destruction efficiency testing specified in Table 6 to this subpart and the calculation procedures specified in §§ 63.5865 through 63.5890, do not exceed 15.7 lbs of organic HAP per ton of neat resin plus and neat gel coat plus.
4. Continuous lamination/casting operations.	a. Reduce total organic HAP emissions by at least 95 weight percent or	Total organic HAP emissions, based on the results of the capture efficiency and destruction efficiency testing specified in Table 6 to this subpart, and the calculation procedures specified in §§ 63.5865 through 63.5890, are reduced by at least 95 percent by weight.
	b. Not exceed an organic HAP emissions limit of 1.47 lbs of organic HAP per ton of neat resin plus and neat gel coat plus.	Total organic HAP emissions, based on the results of the capture efficiency and destruction efficiency testing specified in Table 6 and the calculation procedures specified in §§ 63.5865 through 63.5890, do not exceed 1.47 lbs of organic HAP per ton of neat resin plus and neat gel coat plus.
5. Pultrusion operations	a. Reduce total organic HAP emissions by at least 60 percent by weight.	i. Total organic HAP emissions, based on the results of the capture efficiency and add-on control device destruction efficiency testing specified in Table 6 to this subpart, are reduced by at least 60 percent by weight and
		ii. As part of the notification of initial compliance status, the owner/operator submits a certified statement that all pultrusion lines not controlled with an add-on control device are using direct die injection, preform injection, and/or wet-area enclosures that meet the criteria of § 63.5830.
6. Pultrusion operations	a. Reduce total organic HAP emissions by at least 95 percent by weight.	i. Total organic HAP emissions, based on the results of the capture efficiency and add-on control device destruction efficiency testing specified in Table 6 to this subpart, are reduced by at least 95 percent by weight.

TABLE 9 TO SUBPART WWWW OF PART 63.—INITIAL COMPLIANCE WITH WORK PRACTICE STANDARDS

[As required in § 63.5860(a), you must demonstrate initial compliance with work practice standards as specified in the following table:]

For . . .	That must meet the following standard . . .	You have demonstrated initial compliance if . . .
1. A new or existing closed or molding operation using compression/injection molding.	Uncover, unwrap or expose only one charge per mold cycle per compression/injection molding machine. For machines with multiple molds, one charge means sufficient material to fill all molds for one cycle. For machines with robotic loaders, no more than one charge may be exposed prior to the loader. For machines fed by hoppers, sufficient material may be uncovered to fill the hopper. Hoppers must be closed when not adding materials. Materials may be uncovered to feed to slitting machines. Materials must be recovered after slitting.	The owner operator submits a certified statement in the notice of compliance status that only one charge is uncovered, unwrapped or exposed per mold cycle per compression/injection molding machine, or prior to the loader, hoppers are closed except when adding materials, and materials are recovered after slitting.
2. A new or existing cleaning operation	Not use cleaning solvents that contain HAP, except that styrene may be used in closed systems, and organic HAP containing materials may be used to clean cured resin from application equipment. Application equipment includes any equipment that directly contacts resin between storage and applying resin to the mold or reinforcement.	The owner or operator submits a certified statement in the notice of compliance status that all cleaning materials, except styrene contained in closed systems, or materials used to clean cured resin from application equipment contain no HAP.
3. A new or existing materials HAP-containing materials storage operation.	Keep containers that store HAP-containing materials closed or covered except during the addition or removal of materials. Bulk HAP-containing materials storage tanks may be vented as necessary for safety.	The owner or operator submits a certified statement in the notice of compliance status that all HAP-containing storage containers are kept closed or covered except when adding or removing materials, and that any bulk storage tanks are vented only as necessary for safety.
4. An existing or new SMC manufacturing operation.	Close or cover the resin delivery system to the doctor box on each SMC manufacturing machine. The doctor box itself may be open.	The owner or operator submits a certified statement in the notice of compliance status that the resin delivery system is closed or covered.
5. An existing or new SMC manufacturing operation.	Use a nylon containing film to enclose SMC.	The owner or operator submits a certified statement in the notice of compliance status that a nylon-containing film is used to enclose SMC.
6. An existing or new mixing or BMC manufacturing operation.	Use mixer covers with no visible gaps present in the mixer covers, except that gaps of up to 1 inch are permissible around mixer shafts and any required instrumentation.	The owner or operator submits a certified statement in the notice of compliance status that mixer covers are closed during mixing except when adding materials to the mixers, and that gaps around mixer shafts and required instrumentation are less than 1 inch.
7. An existing mixing or BMC manufacturing operation.	Not actively vent mixers to the atmosphere while the mixing agitator is turning, except that venting is allowed during addition of materials, or as necessary prior to adding materials for safety.	The owner or operator submits a certified statement in the notice of compliance status that mixers are not actively vented to the atmosphere when the agitator is turning, except when adding materials or as necessary for safety.
8. A new or existing mixing or BMC manufacturing operation.	Keep the mixer covers closed during mixing except when adding materials to the mixing vessels.	The owner or operator submits a certified statement in the notice of compliance status that mixers closed except when adding materials to the mixing vessels.

[As required in § 63.5860(a), you must demonstrate initial compliance with work practice standards as specified in the following table:]

For . . .	That must meet the following standard . . .	You have demonstrated initial compliance if . . .
9. A new or existing pultrusion operation manufacturing parts with 1000 or more reinforcements and a cross section area of 60 square inches or more that is not subject to the 95 percent organic HAP emission reduction requirement.	i. Not allow vents from the building ventilation system, or local or portable fans to blow directly on or across the wet-out area(s), ii. not permit point suction of ambient air in the wet-out area(s) unless that air is directed to a control device, iii. use devices such as deflectors, baffles, and curtains when practical to reduce air flow velocity across wet-out area(s), iv. direct any compressed air exhausts away from resin and wet-out area(s), v. convey resin collected from drip-off pans or other devices to reservoirs, tanks, or sumps via covered troughs, pipes, or other covered conveyance that shields the resin from the ambient air, vi. cover all reservoirs, tanks, sumps, or HAP-containing materials storage vessels except when they are being charged or filled, and vii. cover or shield from ambient air resin delivery systems to the wet-out area(s) from reservoirs, tanks, or sumps where practical.	The owner or operator submits a certified statement in the notice of compliance status that they have complied with all the requirements listed in the 9.i through 9.vii.

TABLE 10 TO SUBPART WWWW OF PART 63.—DATA REQUIREMENTS FOR NEW AND EXISTING CONTINUOUS LAMINATION LINES AND CONTINUOUS CASTING LINES COMPLYING WITH A PERCENT REDUCTION LIMIT ON A PER LINE BASIS

[As required in § 63.5865(a), in order to comply with a percent reduction limit for continuous lamination lines and continuous casting lines you must determine the data in the following table:]

For each line where the wet-out area . . .	And the oven . . .	You must determine . . .
1. Has an enclosure that is not a permanent total enclosure (PTE) and the captured organic HAP emissions are controlled by an add-on control device.	a. Is uncontrolled	i. Annual uncontrolled wet-out area organic HAP emissions, ii. Annual controlled wet-out area organic HAP emissions, iii. Annual uncontrolled oven organic HAP emissions, iv. The capture efficiency of the wet-out area enclosure, v. The destruction efficiency of the add-on control device, and vi. The amount of neat resin plus and neat gel coat plus applied.
2. Has an enclosure that is a PTE and the captured organic HAP emissions are controlled by an add-on control device.	a. Is uncontrolled	i. Annual uncontrolled wet-out area organic HAP emissions, ii. Annual controlled wet-out area organic HAP emissions, iii. Annual uncontrolled oven organic HAP emissions, iv. That the wet-out area enclosure meets the requirements of EPA Method 204 of appendix M to 40 CFR part 51 for a PTE, v. The destruction efficiency of the add-on control device, and vi. The amount of neat resin plus and neat gel coat plus applied.

[As required in § 63.5865(a), in order to comply with a percent reduction limit for continuous lamination lines and continuous casting lines you must determine the data in the following table:]

For each line where the wet-out area . . .	And the oven . . .	You must determine . . .
3. Is uncontrolled	a. Is controlled by an add-on control device.	i. Annual uncontrolled wet-out area organic HAP emissions, ii. Annual uncontrolled oven organic HAP emissions, iii. Annual controlled oven organic HAP emissions, iv. The capture efficiency of the oven, v. the destruction efficiency of the add-on control device, and vi. the amount of neat resin plus and neat gel coat plus applied.
4. Has an enclosure that is not a PTE and the captured organic HAP emissions are controlled by an add-on control device.	a. Is controlled by an add-on control device.	i. Annual uncontrolled wet-out area organic HAP emissions, ii. Annual controlled wet-out area organic HAP emissions, iii. Annual uncontrolled oven organic HAP emissions, iv. Annual controlled oven organic HAP emissions; v. The capture efficiency of the wet-out area enclosure, vi. Inlet organic HAP emissions to the add-on control device, vii. Outlet organic HAP emissions from the add-on control device, and viii. The amount of neat resin plus and neat gel coat plus applied.
5. Has an enclosure that is a PTE and the captured organic HAP emissions are controlled by an add-on control device.	a. Is controlled by an add-on control device.	i. That the wet-out area enclosure meets the requirements of EPA Method 204 of appendix M to 40 CFR part 51 for a PTE, ii. The capture efficiency of the oven, and iii. The destruction efficiency of the add-on control device.

Table 11 to Subpart WWWW of Part 63.—Data Requirements for New and Existing Continuous Lamination and Continuous Casting Lines Complying with a Percent Reduction Limit or a Lbs/Ton Limit on an Averaging Basis

[As required in § 63.5865, in order to comply with a percent reduction limit or a lbs/ton limit on an averaging basis for continuous lamination lines and continuous casting lines you must determine the data in the following table:]

For each . . .	That . . .	You must determine . . .
1. Wet-out area	Is uncontrolled	Annual uncontrolled wet-out area organic HAP emissions.
2. Wet-out area	a. Has an enclosure that is not a PTE	i. The capture efficiency of the enclosure, and ii. Annual organic HAP emissions that escape the enclosure.
3. Wet-out area	Has an enclosure that is a PTE	That the enclosure meets the requirements of EPA Method 204 of appendix M to 40 CFR part 51 for a PTE.
4. Oven	Is uncontrolled	Annual uncontrolled oven organic HAP emissions.
5. Line	a. Is controlled or uncontrolled	i. The amount of neat resin plus applied, and ii. The amount of neat gel coat plus applied.
6. Add-on control device	....	i. Total annual inlet organic HAP emissions, and total annual outlet organic HAP emissions.

Table 12 to Subpart WWWW of Part 63.—Data Requirements for New and Existing Continuous Lamination Lines and Continuous Casting Lines Complying With a Lbs/Ton Organic HAP Emissions Limit on a Per Line Basis

[As required in § 63.5865(b), in order to comply with a lbs/ton organic HAP emissions limit for continuous lamination lines and continuous casting lines you must determine the data in the following table:]

For each line where the wet- out area . . .	And the oven . . .	You must determine . . .
1. Is uncontrolled	a. Is uncontrolled	i. Annual uncontrolled wet-out area organic HAP emissions, ii. Annual uncontrolled oven organic HAP emissions, and iii. Annual neat resin plus and neat gel coat plus applied.
2. Has an enclosure that is not a PTE and the captured organic HAP emissions are controlled by an add-on control device.	a. Is uncontrolled	i. Annual uncontrolled wet-out area organic HAP emissions, ii. Annual controlled wet-out area organic HAP emissions, iii. Annual uncontrolled oven organic HAP emissions, iv. The capture efficiency of the wet-out area enclosure, v. The destruction efficiency of the add-on control device, and vi. The amount of neat resin plus and neat gel coat plus applied.
3. Has an enclosure that is a PTE, and the captured organic HAP emissions are controlled by an add-on control device.	a. Is uncontrolled	i. Annual uncontrolled wet-out area organic HAP emissions, ii. Annual controlled wet-out area organic HAP emissions, iii. Annual uncontrolled oven organic HAP emissions, iv. That the wet-out area enclosure meets the requirements of EPA Method 204 of appendix M to 40 CFR part 51 for a PTE, v. The destruction efficiency of the add-on control device, and vi. The amount of neat resin plus and neat gel coat plus applied.
4. Is uncontrolled	a. Is controlled by an add-on control device.	i. Annual uncontrolled wet-out area organic HAP emissions, ii. Annual uncontrolled oven organic HAP emissions, iii. Annual controlled oven organic HAP emissions, iv. The capture efficiency of the oven, v. The destruction efficiency of the add-on control device, and vi. The amount of neat resin plus and neat gel coat plus applied.
5. Has an enclosure that is not a PTE and the captured organic HAP emissions are controlled by an add-on control device.	a. Is controlled by an add-on control device.	i. Annual uncontrolled wet-out area organic HAP emissions, ii. Annual controlled wet-out area organic HAP emissions, iii. Annual uncontrolled oven organic HAP emissions, iv. Annual controlled oven organic HAP emissions, v. The capture efficiency of the wet-out area enclosure, vi. The capture efficiency of the oven, vii. The destruction efficiency of the add-on control device, and viii. The amount of neat resin plus and neat gel coat plus applied.
6. Has an enclosure that is a PTE, and the captured organic HAP emissions are controlled by add-on control device.	a. Is controlled by an add-on control device.	i. That the wet-out area enclosure meets the requirements of EPA Method 204 of appendix M to 40 CFR part 51 for a PTE, ii. The capture efficiency of the oven, iii. Inlet organic HAP emissions to the an add-on control device, and

[As required in § 63.5865(b), in order to comply with a lbs/ton organic HAP emissions limit for continuous lamination lines and continuous casting lines you must determine the data in the following table:]

For each line where the wet- out area . . .	And the oven . . .	You must determine . . .
		iv. Outlet organic HAP emissions from the add-on control device.

TABLE 13 TO SUBPART WWWW OF PART 63.—APPLICABILITY AND TIMING OF NOTIFICATIONS

[As required in § 63.5905(a), you must determine the applicable notifications and submit them by the dates shown in the following table:]

If your facility . . .	You must submit . . .	By this date . . .
1. Is an existing source subject to this subpart.	An Initial Notification containing the information specified in § 63.9(b)(2).	No later than the dates specified in § 63.9(b)(2).
2. Is a new source subject to this subpart	The notifications specified in § 63.9(b)(4) and (5).	No later than the dates specified § 63.9(b)(4) and (5).
3. Qualifies for a compliance extension as specified in § 63.9(c).	A request for a compliance extension as specified in § 63.9(c).	No later than the dates specified in § 63.6(i).
4. Is complying with organic HAP emissions limit averaging provisions.	A Notification of Compliance Status as specified in § 63.9(h).	No later than 1 year plus 30 days after your facility's compliance date.
5. Is complying with organic HAP content limits, application equipment requirements, or organic HAP emissions limit other than organic HAP emissions limit averaging.	A Notification of Compliance Status as specified in § 63.9(h).	No later than 30 calendar days after your facility's compliance date.
6. Is complying by using an add-on control device.	a. A notification of intent to conduct a performance test as specified in § 63.9(e).	No later than the date specified in § 63.9(e).
	b. A notification of the date for the CMS performance evaluation as specified in § 63.9(g).	The date of submission of notification of intent to conduct a performance test.
	c. A Notification of Compliance Status as specified in § 63.9(h).	No later than 60 calendar days after the completion of the add-on control device performance test and CMS performance evaluation.

TABLE 14 TO SUBPART WWWW OF PART 63.—REQUIREMENTS FOR REPORTS

[As required in § 63.5910(a), (b), (g), and (h), you must submit reports on the schedule shown in the following table:]

You must submit a(n)	The report must contain . . .	You must submit the report . . .
1. Compliance report	a. A statement that there were no deviations during that reporting period if there were no deviations from any emission limitations (emission limit, operating limit, opacity limit, and visible emission limit) that apply to you and there were no deviations from the requirements for work practice standards in Table 4 to this subpart that apply to you. If there were no periods during which the CMS, including CEMS, and operating parameter monitoring systems, was out of control as specified in § 63.8(c)(7), the report must also contain a statement that there were no periods during which the CMS was out of control during the reporting period.	Semiannually according to the requirements in § 63.5910(b).
	b. The information in § 63.5910(d) if you have a deviation from any emission limitation (emission limit, operating limit, or work practice standard) during the reporting period. If there were periods during which the CMS, including CEMS, and operating parameter monitoring systems, was out of control, as specified in § 63.8(c)(7), the report must contain the information in § 63.5910(e).	Semiannually according to the requirements in § 63.5910(b).
	c. The information in § 63.10(d)(5)(i) if you had a startup, shutdown or malfunction during the reporting period, and you took actions consistent with your startup, shutdown, and malfunction plan.	Semiannually according to the requirements in § 63.5910(b).

[As required in § 63.5910(a), (b), (g), and (h), you must submit reports on the schedule shown in the following table:]

You must submit a(n)	The report must contain . . .	You must submit the report . . .
2. An immediate startup, shutdown, and malfunction report if you had a startup, shutdown, or malfunction during the reporting period that is not consistent with your startup, shutdown, and malfunction plan.	a. Actions taken for the event	By fax or telephone within 2 working days after starting actions inconsistent with the plan.
	b. The information in § 63.10(d)(5)(ii)	By letter within 7 working days after the end of the event unless you have made alternative arrangements with the permitting authority. (§ 63.10(d)(5)(ii)).

TABLE 15 TO SUBPART WWWW OF PART 63.—APPLICABILITY OF GENERAL PROVISIONS (SUBPART A) TO SUBPART WWWW OF PART 63

[As specified in § 63.5925, the parts of the General Provisions which apply to you are shown in the following table:]

The general provisions reference . . .	That addresses . . .	And applies to subpart WWWW of part 63 . . .	Subject to the following additional information . . .
§ 63.1(a)(1)	General applicability of the general provisions.	Yes	Additional terms defined in subpart WWWW of Part 63, when overlap between subparts A and WWWW of Part 63 of this part, subpart WWWW of Part 63 takes precedence.
§ 63.1(a)(2) through (4)	General applicability of the general provisions.	Yes.	
§ 63.1(a)(5)	Reserved	No.	
§ 63.1(a)(6)	General applicability of the general provisions.	Yes.	
§ 63.1(a)(7) through (9)	Reserved	No.	
§ 63.1(a)(10) through (14).	General applicability of the general provisions.	Yes.	
§ 63.1(b)(1)	Initial applicability determination	Yes	Subpart WWWW of Part 63 clarifies the applicability in§§ 63.5780 and 63.5785.
§ 63.1(b)(2)	Reserved	No..	
§ 63.1(b)(3)	Record of the applicability determination.	Yes.	
§ 63.1(c)(1)	Applicability of this part after a relevant standard has been set under this part.	Yes	Subpart WWWW of Part 63 clarifies the applicability of each paragraph of subpart A to sources subject to subpart WWWW of Part 63.
§ 63.1(c)(2)	Title V operating permit requirement	Yes	All major affected sources are required to obtain a title V operating permit. Area sources are not subject to subpart WWWW of Part 63.
§ 63.1(c)(3) and (4)	Reserved	No.	
§ 63.1(c)(5)	Notification requirements for an area source that increases HAP emissions to major source levels.	Yes.	
§ 63.1(d)	Reserved	No.	
§ 63.1(e)	Applicability of permit program before a relevant standard has been set under this part.	Yes.	
§ 63.2	Definitions	Yes	Subpart WWWW of Part 63 defines terms in § 63.5935. When overlap between subparts A and WWWW of Part 63 occurs, you must comply with the subpart WWWW of Part 63 definitions, which take precedence over the subpart A definitions.

[As specified in § 63.5925, the parts of the General Provisions which apply to you are shown in the following table:]

The general provisions reference . . .	That addresses . . .	And applies to subpart WWWW of part 63 . . .	Subject to the following additional information . . .
§ 63.3	Units and abbreviations	Yes	Other units and abbreviations used in subpart WWWW of Part 63 are defined in subpart WWWW of Part 63.
§ 63.4	Prohibited activities and circumvention.	Yes	§ 63.4(a)(3) through (5) is reserved and does not apply.
§ 63.5(a)(1) and (2)	Applicability of construction and reconstruction.	Yes	Existing facilities do not become reconstructed under subpart WWWW of Part 63.
§ 63.5(b)(1)	Relevant standards for new sources upon construction.	Yes	Existing facilities do not become reconstructed under subpart WWWW of Part 63.
§ 63.5(b)(2)	Reserved	No.	
§ 63.5(b)(3)	New construction/reconstruction	Yes	Existing facilities do not become reconstructed under subpart WWWW of Part 63.
§ 63.5(b)(4)	Construction/reconstruction notification.	Yes	Existing facilities do not become reconstructed under subpart WWWW of Part 63.
§ 63.5(b)(5)	Reserved	No.	
§ 63.5(b)(6)	Equipment addition or process change.	Yes	Existing facilities do not become reconstructed under subpart WWWW of Part 63.
§ 63.5(c)	Reserved	No.	
§ 63.5(d)(1)	General application for approval of construction or reconstruction.	Yes	Existing facilities do not become reconstructed under subpart WWWW of Part 63.
§ 63.5(d)(2)	Application for approval of construction.	Yes.	
§ 63.5(d)(3)	Application for approval of reconstruction.	No.	
§ 63.5(d)(4)	Additional information	Yes.	
§ 63.5(e)(1) through (5)	Approval of construction or reconstruction.	Yes.	
§ 63.5(f)(1) and (2)	Approval of construction or reconstruction based on prior State preconstruction review.	Yes.	
§ 63.6(a)(1)	Applicability of compliance with standards and maintenance requirements.	Yes.	
§ 63.6(a)(2)	Applicability of area sources that increase HAP emissions to become major sources.	Yes.	
§ 63.6(b)(1) through (5)	Compliance dates for new and reconstructed sources.	Yes	Subpart WWWW of Part 63 clarifies compliance dates in § 63.5800.
§ 63.6(b)(6)	Reserved	No.	
§ 63.6(b)(7)	Compliance dates for new operations or equipment that cause an area source to become a major source.	Yes	New operations at an existing facility are not subject to new source standards.
§ 63.6(c)(1) and (2)	Compliance dates for existing sources.	Yes	Subpart WWWW of Part 63 clarifies compliance dates in § 63.5800.
§ 63.6(c)(3) and (4)	Reserved	No.	
§ 63.6(c)(5)	Compliance dates for existing area sources that become major.	Yes	Subpart WWWW of Part 63 clarifies compliance dates in § 63.5800.
§ 63.6(d)	Reserved	No.	
§ 63.6(e)(1) and (2)	Operation & maintenance requirements.	Yes.	
§ 63.6(e)(3)	Startup, shutdown, and malfunction plan and recordkeeping.	Yes	Subpart WWWW of Part 63 requires a startup, shutdown, and malfunction plan only for sources using add-on controls.
§ 63.6(f)(1)	Compliance except during periods of startup, shutdown, and malfunction.	No	Subpart WWWW of Part 63 requires compliance during periods of startup, shutdown, and malfunction, except startup, shutdown, and malfunctions for sources using add-on controls.
§ 63.6(f)(2) and (3)	Methods for determining compliance	Yes.	
§ 63.6(g)(1) through (3)	Alternative standard	Yes.	

[As specified in § 63.5925, the parts of the General Provisions which apply to you are shown in the following table:]

The general provisions reference . . .	That addresses . . .	And applies to subpart WWWW of part 63 . . .	Subject to the following additional information . . .
§ 63.6(h)	Opacity and visible emission Standards.	No	Subpart WWWW of Part 63 does not contain opacity or visible emission standards.
§ 63.6(i)(1) through (14)	Compliance extensions	Yes.	
§ 63.6(i)(15)	Reserved	No.	
§ 63.6(i)(16)	Compliance extensions	Yes.	
§ 63.6(j)	Presidential compliance exemption	Yes.	
§ 63.7(a)(1)	Applicability of performance testing requirements.	Yes.	
§ 63.7(a)(2)	Performance test dates	No	Subpart WWWW of Part 63initial compliance requirements are in § 63.5840.
§ 63.7(a)(3)	CAA Section 114 authority	Yes.	
§ 63.7(b)(1)	Notification of performance test	Yes.	
§ 63.7(b)(2)	Notification rescheduled performance test.	Yes.	
§ 63.7(c)	Quality assurance program, including test plan.	Yes	Except that the test plan must be submitted with the notification of the performance test.
§ 63.7(d)	Performance testing facilities	Yes.	
§ 63.7(e)	Conditions for conducting performance tests.	Yes	Performance test requirements are contained in § 63.5850. Additional requirements for conducting performance tests for continuous lamination/casting are included in § 63.5870.
§ 63.7(f)	Use of alternative test method	Yes.	
§ 63.7(g)	Performance test data analysis, recordkeeping, and reporting.	Yes.	
§ 63.7(h)	Waiver of performance tests	Yes.	
§ 63.8(a)(1) and (2)	Applicability of monitoring requirements.	Yes.	
§ 63.8(a)(3)	Reserved	No.	
§ 63.8(a)(4)	Monitoring requirements when using flares.	Yes.	
§ 63.8(b)(1)	Conduct of monitoring exceptions	Yes.	
§ 63.8(b)(2) and (3)	Multiple effluents and multiple monitoring systems.	Yes.	
§ 63.8(c)(1)	Compliance with CMS operation and maintenance requirements.	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§ 63.8(c)(2) and (3)	Monitoring system installation	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§ 63.8(c)(4)	CMS requirements	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§ 63.8(c)(5)	Continuous Opacity Monitoring System (COMS) minimum procedures.	No	Subpart WWWW of Part 63 does not contain opacity standards.
§ 63.8(c)(6) through (8)	CMS calibration and periods CMS is out of control.	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§ 63.8(d)	CMS quality control program, including test plan and all previous versions.	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§ 63.8(e)(1)	Performance evaluation of CMS	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§ 63.8(e)(2)	Notification of performance evaluation.	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.

[As specified in § 63.5925, the parts of the General Provisions which apply to you are shown in the following table:]

The general provisions reference . . .	That addresses . . .	And applies to subpart WWWW of part 63 . . .	Subject to the following additional information . . .
§ 63.8(e)(3) and (4)	CMS requirements/alternatives	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§ 63.8(e)(5)(i)	Reporting performance evaluation results.	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§ 63.8(e)(5)(ii)	Results of COMS performance evaluation.	No	Subpart WWWW of Part 63 does not contain opacity standards.
§ 63.8(f)(1) through (3)	Use of an alternative monitoring method.	Yes.	
§ 63.8(f)(4)	Request to use an alternative monitoring method.	Yes.	
§ 63.8(f)(5)	Approval of request to use an alternative monitoring method.	Yes.	
§ 63.8(f)(6)	Request for alternative to relative accuracy test and associated records.	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§ 63.8(g)(1) through (5)	Data reduction	Yes.	
§ 63.9(a)(1) through (4)	Notification requirements and general information.	Yes.	
§ 63.9(b)(1)	Initial notification applicability	Yes.	
§ 63.9(b)(2)	Notification for affected source with initial startup before effective date of standard.	Yes.	
§ 63.9(b)(3)	Reserved	No.	
§ 63.9(b)(4)(i)	Notification for a new or reconstructed major affected source with initial startup after effective date for which an application for approval of construction or reconstruction is required.	Yes.	
§ 63.9(b)(4)(ii) through (iv).	Reserved	No.	
§ 63.9(b)(4)(v)	Notification for a new or reconstructed major affected source with initial startup after effective date for which an application for approval of construction or reconstruction is required.	Yes	Existing facilities do not become reconstructed under subpart WWWW of Part 63.
§ 63.9(b)(5)	Notification that you are subject to this subpart for new or reconstructed affected source with initial startup after effective date and for which an application for approval of construction or reconstruction is not required.	Yes	Existing facilities do not become reconstructed under subpart WWWW of Part 63.
§ 63.9(c)	Request for compliance extension	Yes.	
§ 63.9(d)	Notification of special compliance requirements for new source.	Yes.	
§ 63.9(e)	Notification of performance test	Yes.	
§ 63.9(f)	Notification of opacity and visible emissions observations.	No	Subpart WWWW of Part 63 does not contain opacity or visible emission standards.
§ 63.9(g)(1)	Additional notification requirements for sources using CMS.	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§ 63.9(g)(2)	Notification of compliance with opacity emission standard.	No	Subpart WWWW of Part 63 does not contain opacity emission standards.
§ 63.9(g)(3)	Notification that criterion to continue use of alternative to relative accuracy testing has been exceeded.	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§ 63.9(h)(1) through (3)	Notification of compliance status	Yes.	
§ 63.9(h)(4)	Reserved	No.	
§ 63.9(h)(5) and (6)	Notification of compliance status	Yes.	
§ 63.9(i)	Adjustment of submittal deadlines	Yes.	

[As specified in § 63.5925, the parts of the General Provisions which apply to you are shown in the following table:]

The general provisions reference . . .	That addresses . . .	And applies to subpart WWWW of part 63 . . .	Subject to the following additional information . . .
§ 63.9(j)	Change in information provided	Yes.	
§ 63.10(a)	Applicability of recordkeeping and reporting.	Yes.	
§ 63.10(b)(1)	Records retention	Yes.	
§ 63.10(b)(2)(i) through (v).	Records related to startup, shutdown, and malfunction.	Yes	Only applies to facilities that use an add-on control device.
§ 63.10(b)(2)(vi) through (xi).	CMS records, data on performance tests, CMS performance evaluations, measurements necessary to determine conditions of performance tests, and performance evaluations.	Yes.	
§ 63.10(b)(2)(xii)	Record of waiver of recordkeeping and reporting.	Yes.	
§ 63.10(b)(2)(xiii)	Record for alternative to the relative accuracy test.	Yes.	
§ 63.10(b)(2)(xiv)	Records supporting initial notification and notification of compliance status.	Yes.	
§ 63.10(b)(3)	Records for applicability determinations.	Yes.	
§ 63.10(c)(1)	CMS records	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§ 63.10(c)(2) through (4)	Reserved	No.	
§ 63.10(c)(5) through (8)	CMS records	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§ 63.10(c)(9)	Reserved	No.	
§ 63.10(c)(10) through (15).	CMS records	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§ 63.10(d)(1)	General reporting requirements	Yes.	
§ 63.10(d)(2)	Report of performance test results	Yes.	
§ 63.10(d)(3)	Reporting results of opacity or visible emission observations.	No	Subpart WWWW of Part 63 does not contain opacity or visible emission standards.
§ 63.10(d)(4)	Progress reports as part of extension of compliance.	Yes.	
§ 63.10(d)(5)	Startup, shutdown, and malfunction reports.	Yes	Only applies if you use an add-on control device.
§ 63.10(e)(1) through (3)	Additional reporting requirements for CMS.	Yes	This section applies if you have an add-on control device and elect to use a CEM to demonstrate continuous compliance with an emission limit.
§ 63.10(e)(4)	Reporting COMS data	No	Subpart WWWW of Part 63 does not contain opacity standards.
§ 63.10(f)	Waiver for recordkeeping or reporting.	Yes.	
§ 63.11	Control device requirements	Yes	Only applies if you elect to use a flare as a control device.
§ 63.12	State authority and delegations	Yes.	
§ 63.13	Addresses of State air pollution control agencies and EPA Regional Offices.	Yes.	
§ 63.14	Incorporations by reference	Yes.	
§ 63.15	Availability of information and confidentiality.	Yes.	

APPENDIX A TO SUBPART WWWW—TEST METHOD FOR DETERMINING VAPOR SUPPRESSANT EFFECTIVENESS

1. Scope and Application

1.1 *Applicability*. If a facility is using vapor suppressants to reduce hazardous air pollutant (HAP) emissions, the organic HAP emission factor equations in Table 1 to this subpart require that the vapor suppressant effectiveness factor be determined. The vapor suppressant effectiveness factor is then used as one of the inputs into the appropriate organic HAP emission factor equation. The vapor suppressant effectiveness factor test is not intended to quantify overall volatile emissions from a resin, nor to be used as a stand-alone test for emissions determination. This test is designed to evaluate the performance of film forming vapor suppressant resin additives. The results of this test are used only in combination with the organic HAP emissions factor equations in Table 1 to this subpart to generate emission factors.

1.1.1 The open molding process consists of application of resin and reinforcements to the mold surface, followed by a manual rollout process to consolidate the laminate, and the curing stage where the laminate surface is not disturbed. Emission studies have shown that approximately 50 percent to 55 percent of the emissions occur while the resin is being applied to the mold. Vapor suppressants have little effect during this portion of the lamination process, but can have a significant effect during the curing stage. Therefore, if a suppressant is 100 percent effective, the overall emissions from the process would be reduced by 45 percent to 50 percent, representing the emissions generated during the curing stage. In actual practice, vapor suppressant effectiveness will be less than 100 percent and the test results determine the specific effectiveness in terms of the vapor suppressant effectiveness factor. This factor represents the effectiveness of a specific combination of suppressant additive and resin formulation.

1.1.2 A resin manufacturer may supply a molder with a vapor-suppressed resin, and employ this test to provide the molder with the vapor suppressant effectiveness factor for that combination of resin and vapor suppressant. The factor qualifies the effectiveness of the vapor suppressant when the resin is tested in the specific formulation supplied to the molder. The addition of fillers or other diluents by the molder may impact the effectiveness of the vapor suppressant. The formulation, including resin/glass ratio and filler content, used in the test should be similar to the formulation to be used in production. The premise of this method is to compare laminate samples made with vapor suppressant additive and made without the additive. The difference in emissions between the two yields the vapor suppressant effectiveness factor.

1.1.3 The method uses a mass balance determination to establish the relative loss of the volatile component from unsaturated polyester or vinyl ester resins, with and without vapor suppressant additives. The effectiveness of a specific vapor suppressant and resin mixture is determined by comparing the relative volatile weight losses from vapor suppressed and non-suppressed resins. The volatile species are not separately analyzed. While the species contained in the volatile component are not determined, an extended listing of potential monomer that may be contained in unsaturated polyester or vinyl ester resins is provided in Table 1.1. However, most polyester and vinyl ester resin formulations presently used by the composites industry only contain styrene monomer.

TABLE 1.1.—LIST OF MONOMERS POTENTIALLY PRESENT IN UNSATURATED POLYESTER/VINYL ESTER RESINS

Monomer	CAS No.
Styrene	100–42–5.
Vinyl toluene	25013–15–4.
Methyl methacrylate	80–62–6.
Alpha methyl styrene	98–83–9.
Para methyl styrene	Vinyl toluene isomer.
Chlorostyrene	1331–28–8.
Diallyl phthalate	131–17–9.
Other volatile monomers	Various.

2. Summary of Method

2.1 Differences in specific resin and suppressant additive chemistry affect the performance of a vapor suppressant. The purpose of this method is to quantify the effectiveness of a specific combination of vapor suppressant and unsaturated polyester or vinyl ester resin as they are to be used in production. This comparative test quantifies the loss of volatiles from a fiberglass reinforced laminate during the roll-out and curing emission phases, for resins formulated with and without a suppressant additive. A criterion for this method is the testing of a non-vapor suppressed resin system and testing the same resin with a vapor suppressant. The two resins are as identical as possible with the exception of the addition of the suppressant to one. The exact formulation used for the test will be determined by the in-use production requirements. Each formulation of resin, glass, fillers, and additives is developed to meet particular customer and or performance specifications.

2.2 The result of this test is used as an input factor in the organic HAP emissions factor equations in Table 1 to this subpart, which allows these equations to predict emissions from a specific combination of resin and suppressant. This test does not provide an emission rate for the entire lamination process.

3. Definitions and Acronyms

3.1 Definitions

3.1.1 *Vapor suppressant.* An additive that inhibits the evaporation of volatile components in unsaturated polyester or vinyl ester resins.

3.1.2 *Unsaturated polyester resin.* A thermosetting resin commonly used in composites molding.

3.1.3 *Unsaturated vinyl ester resin.* A thermosetting resin used in composites molding for corrosion resistant and high performance applications.

3.1.4 *Laminate.* A combination of fiber reinforcement and a thermoset resin.

3.1.5 *Chopped strand mat.* Glass fiber reinforcement with random fiber orientation.

3.1.6 *Initiator.* A curing agent added to an unsaturated polyester or vinyl ester resin.

3.1.7 *Resin application roller.* A tool used to saturate and compact a wet laminate.

3.1.8 *Gel time.* The time from the addition of initiator to a resin to the state of resin gelation.

3.1.9 *Filled resin system.* A resin, which includes the addition of inert organic or inorganic materials to modify the resin properties, extend the volume and to lower the cost. Fillers include, but are not limited to; mineral particulates; microspheres; or organic particulates. This test is not intended to be used to determine the vapor suppressant effectiveness of a filler.

3.1.10 *Material safety data sheet.* Data supplied by the manufacturer of a chemical product, listing hazardous chemical components, safety precautions, and required personal protection equipment for a specific product.

3.1.11 *Tare(ed).* Reset a balance to zero after a container or object is placed on the balance; that is to subtract the weight of a container or object from the balance reading so as to weigh only the material placed in the container or on the object.

3.1.12 *Percent glass.* The specified glass fiber weight content in a laminate. It is usually determined by engineering requirements for the laminate.

3.2 Acronyms:

3.2.1 *VS*—vapor suppressed or vapor suppressant.

3.2.2 *NVS*—non-vapor suppressed.

3.2.3 *VSE*—vapor suppressant effectiveness.

3.2.4 *VSE Factor*—vapor suppressant effectiveness, factor used in the equations in Table 1 to this subpart.

3.2.5 *CSM*—chopped strand mat.

3.2.6 *MSDS*—material safety data sheet.

4. Interferences

There are no identified interferences which affect the results of this test.

5. Safety

Standard laboratory safety procedures should be used when conducting this test. Refer to specific MSDS for handling precautions.

6. Equipment and Supplies

NOTE: Mention of trade names or specific products or suppliers does not constitute an endorsement by the Environmental Protection Agency.

6.1 Required Equipment.

6.1.1 Balance enclosure.[1]

6.1.2 Two (2) laboratory balances—accurate to ±0.01g.[2]

6.1.3 Stop watch or balance data recording output to data logger with accuracy ±1 second.[3]

6.1.4 Thermometer—accurate to ±2.0 °F(±1.0 °C).[4]

6.1.5 A lipped pan large enough to hold the cut glass without coming into contact with the vertical sides, *e.g.* a pizza pan.[5]

6.1.6 Mylar film sufficient to cover the bottom of the pan.[6]

6.1.7 Tape to keep the Mylar from shifting in the bottom of the pan.[7]

6.1.8 Plastic tri-corner beakers of equivalent—250 ml to 400 ml capacity.[8]

6.1.9 Eye dropper or pipette.[9]

6.1.10 Disposable resin application roller, 3⁄16″–3⁄4″ diameter × 3″–6″ roller length.[10]

6.1.11 Hygrometer or psychrometer[11] accurate to ±5 percent

6.1.12 Insulating board, (Teflon, cardboard, foam board etc.) to prevent the balance from becoming a heat sink.[12]

6.2 Optional Equipment.

6.2.1 Laboratory balance—accurate to ±.01g with digital output, such as an RS–232 bi-directional interface[13] for use with automatic data recording devices.

6.2.2 Computer with recording software configured to link to balance digital output. Must be programmed to record data at the minimum intervals required for manual data acquisition.

6.3 Supplies.

6.3.1 Chopped strand mat—1.5 oz/ft.^{2} [14]

7. Reagents and Standards

7.1 *Initiator.* The initiator type, brand, and concentration will be specified by resin manufacturer, or as required by production operation.

7.2 Polyester or vinyl ester resin.

7.3 Vapor suppressant additive.

8. Sample Collection, Preservation, and Storage

This test method involves the immediate recording of data during the roll out and curing phases of the lamination process during each test run. Samples are neither collected, preserved, nor stored.

9. Quality Control

Careful attention to the prescribed test procedure, routing equipment calibration, and replicate testing are the quality control activities for this test method. Refer to the procedures in section 11. A minimum of six test runs of a resin system without a suppressant and six test runs of the same resin with a suppressant shall be performed for each resin and suppressant test combination.

10. Calibration and Standardization

10.1 The laboratory balances, stopwatch, hygrometer and thermometer shall be maintained in a state of calibration prior to testing and thereafter on a scheduled basis as determined by the testing laboratory. This shall be accomplished by using certified calibration standards.

10.2 Calibration records shall be maintained for a period of 3 years.

11. Test Procedure

11.1 Test Set-up.

11.1.1 The laboratory balance is located in an enclosure to prevent fluctuations in balance readings due to localized air movement. The front of enclosure is open to permit work activity, but positioned so that local airflow will not effect balance readings. The ambient temperature is determined by suspending the thermometer at a point inside the enclosure.

11.1.2 The bottom of the aluminum pan is covered with the Mylar film. The film is held in position with tape or by friction between the pan and the film.

11.1.3 The resin and pan are brought to room temperature. This test temperature must be between 70 °F and 80 °F. The testing temperature cannot vary more than ±2 °F during the measurement of test runs. Temperature shall be recorded at the same time weight is recorded on suppressed and non-suppressed test data sheets, shown in Table 17.1.

11.1.4 The relative humidity may not change more than ±15 percent during the test runs. This is determined by recording the relative humidity in the vicinity of the test chamber at the beginning and end of an individual test run. This data is recorded on the test data sheets shown in Table 17.1.

11.1.5 Two plies of nominal 1.5 oz/ft^2 chopped strand mat (CSM) are cut into a square or rectangle with the minimum surface area of 60 square inches (*i.e.* a square with a side dimension of 7.75 inches).

11.1.6 The appropriate resin application roller is readily available.

11.2 Resin Gel Time/Initiator Percentage

11.2.1 Previous testing has indicated that resin gel time influences the emissions from composite production. The testing indicated that longer the gel times led to higher emissions. There are a number of factors that influence gel time including initiator type, initiator brand, initiator level, temperature and resin additives. Under actual usage conditions a molder will adjust the initiator to meet a gel time requirement. In this test procedure, the vapor suppressed and non-vapor suppressed resin systems will be adjusted to the same gel time by selecting the appropriate initiator level for each.

11.2.2 All test runs within a test will be processed in a manner that produces the same resin gel time ±2 minutes. To facilitate the resin mixing procedure, master batches of resin and resin plus vapor suppressant of resin are prepared. These resin master batches will have all of the required ingredients except initiator; this includes filler for filled systems. The gel times for the tests are conducted using the master batch and adjustments to meet gel time requirements shall be made to the master batch before emission testing is conducted. Test temperatures must be maintained within the required range, during gel time testing. Further gel time testing is not required after the non-vapor suppressed and vapor suppressed master batches are established with gel times within ±2 minutes. A sufficient quantity of each resin should be prepared to allow for additional test specimens in the event one or more test fails to meet the data acceptance criteria discussed in Section 11.5 and shown in Table 17.2.

11.2.3 The specific brand of initiator and the nominal percentage level recommended by the resin manufacturer will be indicated on the resin certificate of analysis[15]; or, if a unique gel time is required in a production laminate, initiator brand and percentage will be determined by that specific requirement.

11.2.4 Examples:

11.2.4.1 The resin for a test run is specified as having a 15-minute cup gel time at 77 °F using Brand X initiator at 1.5 percent by weight. The non-suppressed control resin has a 15-minute gel time. The suppressed resin has a gel time of 17-minutes. An initiator level of 1.5 percent would be selected for the both the non-suppressed and the suppressed test samples.

11.2.4.2 Based on a specific production requirement, a resin is processed in production using 2.25 percent of Brand Y initiator, which produces a 20-minute gel time. This initiator at level of 2.25 percent produces a 20 minute gel time for the non-suppressed control resin, but yields a 25-minute gel time for the suppressed resin sample. The suppressed resin is retested at 2.50 percent initiator and produces a 21-minute gel time. The initiator levels of 2.25 percent and 2.50 percent respectively would yield gel times within ±2 minutes.

11.3 Test Run Procedure for Unfilled Resin (see the data sheet shown in Table 17.1).

11.3.1 The insulating board is placed on the balance.

11.3.2 The aluminum pan with attached Mylar film is placed on the balance, and the balance is tared (weight reading set to zero with the plate on the balance.)

11.3.3 Place two plies of 1.5 oz. CSM on the balance and record the weight (glass weight).

11.3.4 The resin beaker and stirring rod are put on the second balance and tared.

11.3.5 The required resin weight and initiator weight are calculated (refer to calculation formulas in 12.2).

11.3.6 The disposable resin application roller is placed on the edge of the plate.

11.3.7 The balance is tared, with the aluminum pan, Mylar film, glass mat, and resin application roller on the balance pan.

11.3.8 Resin is weighed into a beaker, as calculated, using the second balance. The mixing stick should be tared with the beaker weight.

11.3.9 Initiator is weighed into the resin, as calculated, using an eyedropper or a pipette, and the combination is mixed.

11.3.10 Initiated resin is poured on chopped strand mat in a pe-determined pattern (see Figure 11.6).

11.3.11 A stopwatch is started from zero.

11.3.12 The initial laminate weight is recorded.

11.3.13 The plate is removed from balance to enable roll-out of the laminate.

11.3.14 The wet laminate is rolled with the resin application roller to completely distribute the resin, saturate the chopped strand mat, and eliminate air voids. Roll-out time should be in the range of 2 to 3[16] minutes and vary less than ±10 percent of the average time required for the complete set of six suppressed and six non-suppressed runs.

11.3.15 Record the rollout end time (time from start to completion of rollout).

11.3.16 Place the resin application roller on the edge of the plate when rollout is completed.

11.3.17 Place the plate back on the balance pan. Immediately record the weight.

11.3.18 For the first test in a series of six tests, weight is recorded every 5-minute interval (suppressed and non-suppressed). The end of the test occurs when three consecutive equal weights are recorded or a weight gain is observed (the last weight before the increased weight is the end of test weight). For the remaining five tests in the series, after the initial weights are taken, the next weight is recorded 30 minutes before the end of the test, as suggested by the results from the first test. It is likely that the time to reach the end point of a suppressed resin test will be shorter than the time required to complete a non-suppressed test. Therefore, the time to start taking data manually may be different for suppressed and non-suppressed resins.

11.4 Test Run Procedures for Filled Resin Systems[17] Note that the procedure for filled systems differs from the procedure for unfilled systems. With filled systems, resin is applied to one ply of the CSM and the second ply is placed on top of the resin.

11.4.1 The insulating board is placed on the balance.

11.4.2 The aluminum pan with attached Mylar film is placed on the balance, and the balance is tared (weight reading set to zero with the plate on the balance.)

11.4.3 Place two plies of 1.5 oz. CSM on the balance and record the weight (glass weight).

11.4.4 Remove the top ply of fiberglass and record its weight (weight of 1st layer of glass).

11.4.5 The required resin weight and initiator weight are calculated (refer to calculation formulas in 12.2). Calculate the weight of filled resin and initiator based on the 2 layers of fiberglass.

11.4.6 The resin beaker and stirring rod are put on the second balance and tared.

11.4.7 A disposable resin application roller is placed on the edge of the plate.

11.4.8 The balance is tared, with the aluminum pan, Mylar film, glass mat, and resin application roller on the balance pan.

11.4.9 Resin is weighed into the beaker, as calculated, using the second balance. The mixing stick should be tared with the beaker weight.

11.4.10 Initiator is weighed into the resin, as calculated, using an eyedropper or a pipette, and the combination is mixed.

11.4.11 Initiated resin is poured on the single ply of CSM in a pre-determined pattern. Refer to Figure 11.6.

11.4.12 A stopwatch is started from zero.

11.4.13 Record the weight of the resin ans single ply of CSM (L_1). The initial laminate weight equals L_1 plus the weight of second glass layer.

11.4.14 Replace the second layer of fiberglass.

11.4.15 Remove the plate from the balance to allow roll-out of the laminate.

11.4.16 Roll the wet laminate with the resin application roller to completely distribute the resin, saturate the chopped strand mat, and eliminate air voids. Roll-out time should be in the range of 2 to 3[16] minutes and vary less than ± 10 percent of the average time required for the complete set of six suppressed and six non-suppressed runs.

11.4.17 Record the roll-out end time (time from start to completion of rollout).

11.4.18 Place the resin application roller on the edge of the plate when rollout is completed.

11.4.19 Place the plate back on the balance pan. The initial weight is recorded immediately.

11.4.20 For the first test run in a series of six, weight is recorded at every 5-minute interval (suppressed and non-suppressed). The end of the test occurs when three consecutive equal weights are recorded or a weight gain is observed (the last weight before the increased weight is the end of test weight). For the remaining five tests in the series, after the initial weights are taken, the next weight is recorded 30 minutes before the end of the test, as suggested by the results from the first test. It is likely that the time to reach the end point of a suppressed resin test will be shorter than the time required to complete a non-suppressed test. Therefore, the time to start taking data manually may be different for suppressed and non-suppressed resins.

11.5 Data Acceptance Criteria:

11.5.1 A test set is designed as twelve individual test runs using the same resin, initiator, and gel time, six of the test runs use the resin non-vapor suppressed and the other six use it vapor suppressed.

11.5.2 If a test run falls outside any of the time, temperature, weight or humidity variation requirements, it must be discarded and run again.

11.5.3 The laminate roll out time for each individual test run must vary less than ± 10 percent of the average time required for the complete set of six suppressed and six non-suppressed runs.

11.5.4 Test temperature for each test run must be maintained within ±2 °F and the average must be between 70° and 80 °F. Refer to 11.1.3.

11.5.5 The difference in the amount of resin for each run must be within ±10 percent of the average weight for the complete set of six suppressed and six non-suppressed runs.

11.5.6 The relative humidity from each test run must be within ±15 percent of the average humidity for the complete set of six suppressed and six non-suppressed tests. Refer to 11.1.4

11.5.7 The glass content for each test set must be within ±10 percent of the average resin-to-/glass ratio for the complete set of six suppressed and six non-suppressed runs. Refer to 12.2).

11.5.8 The filler content for each test of a test set must be within ±5 percent of the average filler content for the complete set of six suppressed and six non-suppressed runs. Refer to 12.2.

11.6 Resin Application Pour Pattern:

11.6.1 To facilitate the distribution of resin across the chopped strand mat, and to provide consistency from test to test, a uniform pour pattern should be used. A typical pour pattern is shown below:

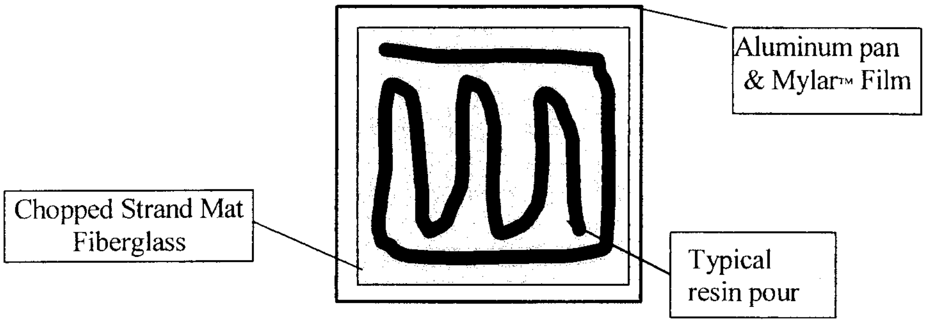


Figure 11.6 Resin Distribution Diagram

11.6.2 The resin is to be evenly distributed across the entire surface of the chopped strand mat using the resin application roller to achieve a wet look across the surface of the laminate. Pushing excess resin off the reinforcement and onto the Mylar sheet should be avoided. No resin is to be pushed more than ½ inch beyond the edge of the glass mat. If excess resin is pushed further from the glass mat, it will void the test run. As part of this process, typical visible air voids are to be eliminated by the rollout process. If the pour pattern is different from the above, it must be recorded and attached to test data sheet 17.1.

12. Data Analysis and Calculations

12.1 Data Analysis:

This test method requires a simple mass balance calculation, no special data analysis is necessary.

12.2 Calculations:

12.2.1 The target glass content (percent) for unfilled resin systems is determined from the specific production parameters being evaluated. In absence of any specific production requirements the target may be set at the tester's discretion.

12.2.2 Glass content determination (expressed as a per cent):

% Glass = Glass wt(g)/(Glass wt(g) + Resin weight (g))

12.2.3 Weight of resin required:

Resin weight required = (Glass wt (g)/% glass)—Glass wt (g)

12.2.4 Filled resin formulation determination for filled resin systems (*e.g.* >30 percent filler by weight for a particulate filler, or >1 percent by weight for a lightweight filler, such as hollow microspheres):

% Resin content = resin weight(g)/(resin weight(g) + glass weight(g) + filler weight(g))

% Glass content = glass weight(g)/(resin weight(g) + glass weight(g) + filler weight(g))

Filler content = filler weight(g)/(resin weight(g) + glass weight(g) + filler weight(g))

12.2.5 Initiator weight determination:

Initiator weight (g) = Resin weight(g) × Initiator %

12.2.6 Emission weight loss determination:

Emissions weight loss (g) = Initial resin weight (g) − Final resin weight (g)

12.2.7 % Emission weight loss:

% Emission Weight Loss = (Emission weight loss (g) Initial resin weight (g) × 100

12.2.8 Average % Emission Weight Loss (assuming six test runs):

$$\text{Average \% Emission Weight Loss} = \sum_{i}^{N=6} \left(\text{\% Emission Weight Loss}_{i}\right)/6$$

12.2.9 VSE Factor calculation:

VSE Factor = 1 −(Average % VS Emission Weight Loss/Average NVS Emission Weight Loss)

TABLE 12.1.—EXAMPLE CALCULATION

Test #	% VS weight loss	% NVS weight loss
1	6.87	10.86
2	6.76	11.23
3	5.80	12.02
4	5.34	11.70
5	6.11	11.91
6	6.61	10.63
Average Weight Loss	6.25	11.39
VSE Factor	....	0.4

VSE Factor = 0.45

VSE Factor is used as input into the appropriate equation in Table 1 to this subpart.

Example from Table 1 to this subpart:

Manual Resin Application, 35 percent HAP resin, VSE Factor of 0.45

HAP Emissions with vapor suppresants = ((0.286 × %HAP) − 0.0529) × 2000 × (1–(0.5 × VSE factor))

HAP Emissions with vapor suppresants = ((0.286 × .35) − 0.0529) × 2000 × (1 − (0.5 × .45))

HAP Emissions with vapor suppresants = 73 pounds of HAP emissions per ton of resin.

13. Method Performance

13.1 Bias:

The bias of this test method has not been determined.

13.2 Precision Testing

13.2.1 Subsequent to the initial development of this test protocol by the Composites Fabricators Association, a series of tests were conducted in three different laboratory facilities. The purpose of this round robin testing was to verify the precision of the test method in various laboratories. Each laboratory received a sample of an orthophthalic polyester resin from the same production batch, containing 48 per cent styrene by weight. Each testing site was also provided with the same vapor suppressant additive. The suppressant manufacturer specified the percentage level of suppressant additive. The resin manufacturer specified the type and level of initiator required to produce a 20 minute gel time. The target glass content was 30 percent by weight.

13.2.2 Each laboratory independently conducted the VSE test according to this method. A summary of the results is included in Table 13.1.

TABLE 13.1.—ROUND ROBIN TESTING RESULTS

	Test Lab 1		Test Lab 2		Test Lab 3	
	NVS	VS	NVS	S	NVS	VS
Average percent WT Loss	4.24	1.15	4.69	1.84	5.73	1.61
Standard Deviation	0.095	0.060	0.002	0.002	0.020	0.003
VSE Factor	....	0.730	....	0.607	....	0.720

13.3 Comparison to EPA Reference Methods This test has no corresponding EPA reference method.

14. Pollution Prevention

The sample size used in this method produces a negligible emission of HAP, and has an insignificant impact upon the atmosphere.

15. Waste Management

The spent and waste materials generated during this test are disposed according to required facility procedures, and waste management recommendations on the corresponding material safety data sheets.

16. References and footnotes

16.1 Footnotes:

[1] Balance Enclosure—The purpose of the balance enclosure is to prevent localized airflow from adversely affecting the laboratory balance. The enclosure may be a simple three-sided box with a top and an open face. The configuration of the enclosure is secondary to the purpose of providing a stable and steady balance reading, free from the effects of airflow, for accurate measurements. The enclosure can be fabricated locally. A typical enclosure is shown in Figure 17.1.

[2] Laboratory Balance—Ohaus Precision Standard Series P/N TS400D or equivalent—Paul N. Gardner Co. 316 NE 1st St. Pompano Beach, FL 33060 or other suppliers.

[3] Stop Watch—Local supply.

[4] Thermometer—Mercury thermometer—ASTM No. 21C or equivalent; Digital thermometer—P/N TH–33033 or equivalent—Paul N. Gardner Co. 316 NE 1st St. Pompano Beach, FL 33060 or other suppliers.

[5] Aluminum Pan—Local supply.

[6] Mylar—Local supply.

[7] Double Sided Tape—3M Double Stick Tape or equivalent, local supply.

[8] Laboratory Beakers—250 to 400ml capacity—Local laboratory supply.

[9] Eye Dropper or Pipette—Local laboratory supply.

[10] Disposable Resin Application Roller Source—Wire Handle Roller P/N 205–050–300 or Plastic Handle Roller P/N 215–050–300 or equivalent; ES Manufacturing Inc., 2500 26st Ave. North, St. Petersburg, FL 33713, *www.esmfg.com*, or other source. Refer to Figure 17.3.

[11] Hygrometer or Psychrometer—Model# THWD–1, or equivalent—Part # 975765 by Amprobe Instrument, 630 Merrick Road, P.O. Box 329, Lynbrook, NY 11563, 516–593–5600

[12] Insulating Board (Teflon, cardboard, foam board etc.)—Local supply.

[13] Laboratory Balance With Digital Output—Ohaus Precision Standard Series P/N TS120S or equivalent—Paul N. Gardner Co. 316 NE 1st St. Pompano Beach, FL 33060 or other suppliers.

[14] Chopped Strand Mat—1.5 oz/ft^2 Sources: Owens Corning Fiberglas—Fiberglas M–723; PPG Industries—ABM HTX; Vetrotex America—M–127 or equivalent.

[15] Certificate of Analysis: Resin gel time, as recorded on the resin certificate of analysis, is measured using a laboratory standard gel time procedure. This procedure typically uses a 100 gram cup sample at 77 °F (25 °C), a specific type of initiator and a specified percentage.

[16] Roll-out times may vary with resin viscosity or resin additive. The important aspect of this step is to produce the same roll-out time for both the suppressed and non-suppressed samples.

[17] While this test can be used with filled resin systems, the test is not designed to determine the effect of the filler on emissions, but rather to measure the effect of the suppressant additive in the resin system. When evaluating a filled system both the non-vapor suppressed and vapor suppressed samples should be formulated with the same type and level of filler.

16.2 References

1. Phase 1—Baseline Study Hand Lay-up, CFA, 1996

2. CFA Vapor Suppressant Effectiveness Test Development, 4/3/98, correspondence with Dr. Madeleine Strum, EPA, OAQPS

3. CFA Vapor Suppressant Effectiveness Screening Tests, 4/4/98

4. Styrene Suppressant Systems Study, Reichhold Chemical, 11/30/98

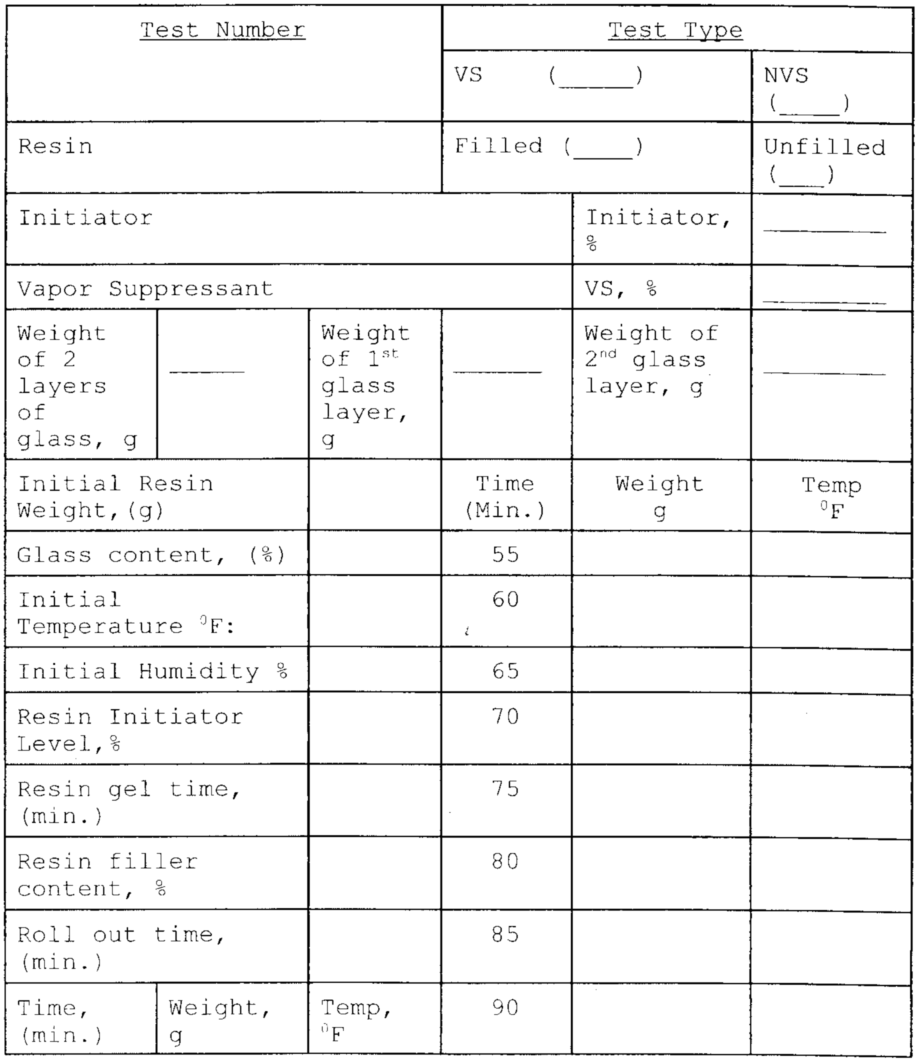
5. Evaluation of the CFA's New Proposed Vapor Suppressant Effectiveness Test, Technical Service Request #: ED–01–98, BYK Chemie, 6/3/98

6. Second Evaluation of the CFA's New Proposed Vapor Suppressant Effectiveness Test, Technical Service Request #: ED–02–98, BYK Chemie, 1/26/99

17. Data Sheets and Figures

17.1 This data sheet, or a similar data sheet, is used to record the test data for filled, unfilled, suppressed and non-suppressed tests. If additional time is required, the data sheet may be extended.

Table 17.1 Test Data Sheet



Test Number			Test Type		
			VS (_____)		NVS (_____)
Resin			Filled (_____)		Unfilled (____)
Initiator				Initiator, %	__________
Vapor Suppressant				VS, %	__________
Weight of 2 layers of glass, g	______	Weight of 1st glass layer, g	_______	Weight of 2nd glass layer, g	__________
Initial Resin Weight, (g)			Time (Min.)	Weight g	Temp ^{0}F
Glass content, (%)			55		
Initial Temperature ^{0}F:			60		
Initial Humidity %			65		
Resin Initiator Level, %			70		
Resin gel time, (min.)			75		
Resin filler content, %			80		
Roll out time, (min.)			85		
Time, (min.)	Weight, g	Temp, ^{0}F	90		

Initial			95		
			100		
0			105		
5			110		
10			115		
15			120		
20			125		
25			130		
30			135		
35			140		
40			145		
45			150		
50			155		
Final Time, min.	Final Weight, g.		Final Temp, ^{0}F	Final Humidity, %	

17.2 Data Acceptance Criteria Worksheet: The following worksheet is used to determine the quality of collected data (*i.e.* insure the data collected all meets acceptance criteria)

TABLE 17.2.—DATA ACCEPTANCE CRITERIA WORKSHEET

Test No.	Temperature			Laminate roll out time, min	Relative humidity, %		Resin weight, (g)	Glass content, %	Resin distribution	Meets criteria Y/N
	Min	Max	Delta		Initial	Final				
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
Average										
Criteria			± 2 °F	±10% of Average	± 15 of Average	± 15 of Average	± 10% of Avg.	± 10% of Avg.	<½ inch off mat	All Y

17.3 VSE Factor Calculation

TABLE 17.3.—CALCULATIONS WORKSHEET

Vapor suppressed		Non-vapor suppressed	
Test #	% Weight loss	Test #	% Weight loss
Average Weight Loss			
VSE Factor			

VSE Factor = 1—(% Average Weight Loss $_{VS}$/ % Average Weight Loss$_{NVS}$)

17.4 Figures

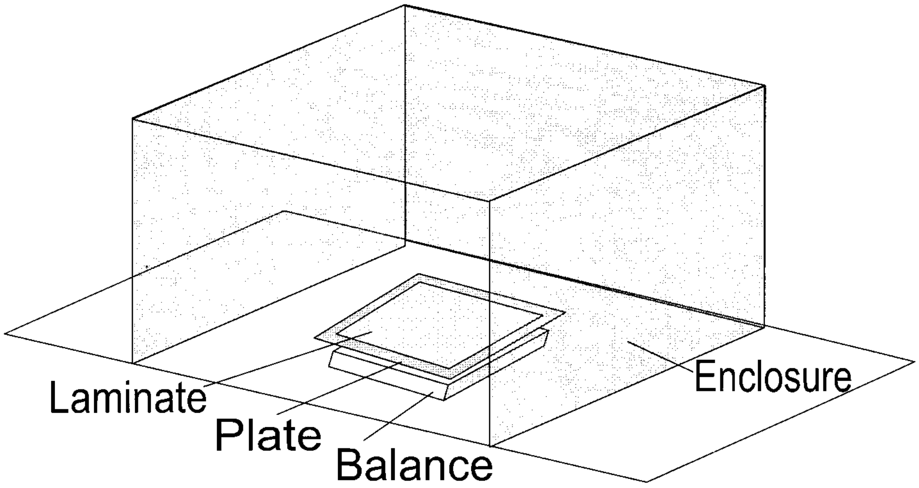


Figure 17.1. Typical Balance Enclosure

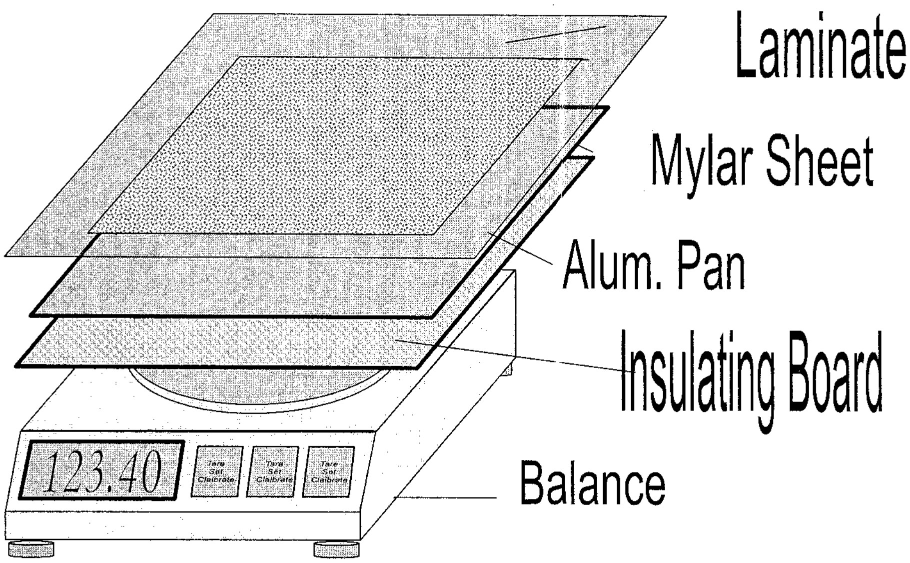
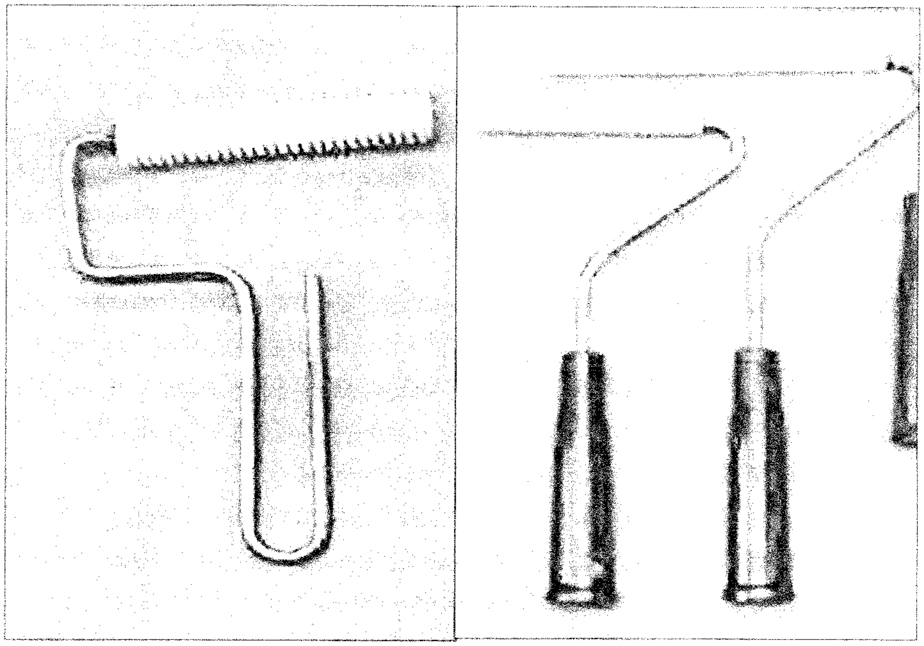


Figure 17.2. Scale, Plate, Insulating Board, Mylar, Laminate Order



FRP Rollers

Figure 17.5. Typical FRP Rollers

Subpart XXXX—National Emissions Standards for Hazardous Air Pollutants: Rubber Tire Manufacturing

SOURCE: 67 FR 45598, July 9, 2002, unless otherwise noted.

WHAT THIS SUBPART COVERS

§63.5980 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants (NESHAP) for rubber tire manufacturing. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations.

§ 63.5981 Am I subject to this subpart?

(a) You are subject to this subpart if you own or operate a rubber tire manufacturing facility that is located at, or is a part of, a major source of hazardous air pollutant (HAP) emissions.

(1) Rubber tire manufacturing includes the production of rubber tires and/or the production of components integral to rubber tires, the production of tire cord, and the application of puncture sealant. Components of rubber tires include, but are not limited to, rubber compounds, sidewalls, tread, tire beads, tire cord and liners. Other components often associated with rubber tires but not integral to the tire, such as wheels, inner tubes, tire bladders, and valve stems, are not components of rubber tires or tire cord and are not subject to this subpart.

(2) A major source of HAP emissions is any stationary source or group of stationary sources within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, any single HAP at a rate of 9.07 megagrams (10 tons) or more per year or any combination of HAP at a rate of 22.68 megagrams (25 tons) or more per year.

(b) You are not subject to this subpart if the affected source at your rubber tire manufacturing facility meets either of the conditions described in paragraph (b)(1) or (2) of this section.

(1) You own or operate a tire cord production affected source, but the primary product produced at the affected source is determined to be subject to another subpart under this part 63 as of the effective date of that subpart (publication date of the final rule) or startup of the source, whichever is later. In this case, you must determine which subpart applies to your source and you must be in compliance with the applicable subpart by the compliance date of that subpart. The primary product is the product that is produced for the greatest operating time over a 5-year period, based on expected utilization for the 5 years following the compliance date or following initial startup of the source, whichever is later.

(2) Your rubber tire manufacturing affected source is a research and development facility whose primary purpose is to conduct research and development into new processes and products, where such source is operated under the close supervision of technically trained personnel and is not engaged in the manufacture of products for commercial sale in commerce, except in a de minimis manner.

§ 63.5982 What parts of my facility does this subpart cover?

(a) This subpart applies to each existing, new, or reconstructed affected source at facilities engaged in the manufacture of rubber tires or their components.

(b) The affected sources are defined in paragraph (b)(1) of this section (tire production), paragraph (b)(2) of this section (tire cord production), paragraph (b)(3) of this section (puncture sealant application), and paragraph (b)(4) of this section (rubber processing).

(1) The tire production affected source is the collection of all processes that use or process cements and solvents as defined in § 63.6015, located at any rubber tire manufacturing facility. It includes, but is not limited to: Storage and mixing vessels and the transfer equipment containing cements and/or solvents; wastewater handling and treatment operations; tread and cement operations; tire painting operations; ink and finish operations; undertread cement operations; process equipment cleaning materials; bead cementing operations; tire building operations; green tire spray operations; extruding, to the extent cements and solvents are used; cement house operations; marking operations; calendar operations, to the extent solvents are used; tire striping operations; tire repair operations; slab dip operations; other tire building operations, to the extent that cements and solvents are used; and balance pad operations.

(2) The tire cord production affected source is the collection of all processes engaged in the production of tire cord. It includes, but is not limited to: dipping operations, drying ovens, heat-set

ovens, bulk storage tanks, mixing facilities, general facility vents, air pollution control devices, and warehouse storage vents.

(3) The puncture sealant application affected source is the puncture sealant application booth operation used to apply puncture sealant to finished tires.

(4) The rubber processing affected source is the collection of all rubber mixing processes (e.g., banburys and associated drop mills) that either mix compounds or warm rubber compound before the compound is processed into components of rubber tires. The mixed rubber compound itself is also included in the rubber processing affected source. There are no emission limitations or other requirements for the rubber processing affected source.

(c) An affected source is a new affected source if construction of the affected source commenced after October 18, 2000, and it met the applicability criteria of §63.5981 at the time construction commenced.

(d) An affected source is reconstructed if it meets the criteria as defined in §63.2.

(e) An affected source is existing if it is not new or reconstructed.

§63.5983 When do I have to comply with this subpart?

(a) If you have a new or reconstructed affected source, except as provided in §§63.5982(b)(4) and 63.5981(b)(1), you must comply with the emission limitations for new and reconstructed sources in this subpart upon startup.

(b) If you have an existing affected source, you must comply with the emission limitations for existing sources no later than July 11, 2005.

(c) If you have an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP, the affected source(s) must be in compliance with existing source emission limitations no later than 3 years after the date on which the area source became a major source.

(d) You must meet the notification requirements in §63.6009 according to the schedule in §63.6009 and in subpart A of this part. Some of the notifications must be submitted before the date you are required to comply with the emission limitations in this subpart.

EMISSION LIMITS FOR TIRE PRODUCTION AFFECTED SOURCES

§63.5984 What emission limits must I meet for tire production affected sources?

You must meet each emission limit in either option 1 or option 2 of Table 1 to this subpart that applies to you.

§63.5985 What are my alternatives for meeting the emission limits for tire production affected sources?

You must use one of the compliance alternatives in paragraphs (a) through (c) of this section to meet either of the emission limits in §63.5984.

(a) *Purchase alternative.* Use only cements and solvents that, as purchased, contain no more HAP than allowed by the emission limits in Table 1 to this subpart, option 1 (HAP constituent option).

(b) *Monthly average alternative, without using an add-on control device.* Use cements and solvents in such a way that the monthly average HAP emissions do not exceed the emission limits in Table 1 to this subpart, option 1 or option 2.

(c) *Monthly average alternative, using an add-on control device.* Use a control device to reduce HAP emissions so that the monthly average HAP emissions do not exceed the emission limits in Table 1 to this subpart, option 1 or option 2.

EMISSION LIMITS FOR TIRE CORD PRODUCTION AFFECTED SOURCES

§63.5986 What emission limits must I meet for tire cord production affected sources?

You must meet each emission limit in either option 1 or option 2 of Table 2 to this subpart that applies to you.

§63.5987 What are my alternatives for meeting the emission limits for tire cord production affected sources?

You must use one of the compliance alternatives in paragraph (a) or (b) of this section to meet the emission limits in §63.5986.

(a) *Monthly average alternative, without using an add-on control device.* Use coatings in such a way that the monthly average HAP emissions do not exceed the emission limits in Table 2 to this subpart.

(b) *Monthly average alternative, using an add-on control device.* Use a control device to reduce HAP emissions so that the monthly average HAP emissions do not exceed the emission limits in Table 2 to this subpart.

EMISSION LIMITATIONS FOR PUNCTURE SEALANT APPLICATION AFFECTED SOURCES

§ 63.5988 What emission limitations must I meet for puncture sealant application affected sources?

(a) You must meet each emission limit in either option 1 or option 2 of Table 3 to this subpart that applies to you.

(b) If you use an add-on control device to meet the emission limits in Table 3 to this subpart, you must also meet each operating limit in Table 4 to this subpart that applies to you.

§ 63.5989 What are my alternatives for meeting the emission limitations for puncture sealant application affected sources?

You must use one of the compliance alternatives in paragraphs (a) through (d) of this section to meet the emission limitations in § 63.5988.

(a) *Overall control efficiency alternative.* Use an emissions capture system and control device and demonstrate that the application booth emissions meet the emission limits in Table 3 to this subpart, option 1a or 1b, and the control device and capture system meet the operating limits in Table 4 to this subpart.

(b) *Permanent total enclosure and control device efficiency alternative.* Use a permanent total enclosure that satisfies the Method 204 criteria in 40 CFR part 51, appendix M. Demonstrate that the control device meets the emission limits in Table 3 to this subpart, option 1a or 1b. You must also show that the control device and capture system meet the operating limits in Table 4 to this subpart.

(c) *Monthly average alternative, without using an add-on control device.* Use puncture sealants in such a way that the monthly average HAP emissions do not exceed the emission limits in Table 3 to this subpart, option 2.

(d) *Monthly average alternative, using an add-on control device.* Use a control device to reduce HAP emissions so that monthly average HAP emissions do not exceed the emission limits in Table 3 to this subpart, option 2.

GENERAL COMPLIANCE REQUIREMENTS

§ 63.5990 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the applicable emission limitations specified in Tables 1 through 4 to this subpart at all times, except during periods of startup, shutdown, and malfunction if you are using a control device to comply with an emission limit.

(b) Except as provided in § 63.5982(b)(4), you must always operate and maintain your affected source, including air pollution control and monitoring equipment, according to the provisions in § 63.6(e)(1)(i).

(c) During the period between the compliance date specified for your source in § 63.5983 and the date upon which continuous compliance monitoring systems (CMS) have been installed and validated and any applicable operating limits have been set, you must maintain a log detailing the operation and maintenance of the process and emission control equipment.

(d) For each affected source that complies with the emission limits in Tables 1 through 3 to this subpart using a control device, you must develop and implement a written startup, shutdown, and malfunction plan according to the provisions in § 63.6(e)(3).

(e) For each monitoring system required in this section, you must develop and submit for approval a site-specific monitoring plan that addresses the requirements in paragraphs (e)(1) through (3) of this section as follows:

(1) Installation of the CMS sampling probe or other interface at a measurement location relative to each affected process unit so that the measurement is representative of control of the exhaust emissions (*e.g.,* on or downstream of the last control device);

(2) Performance and equipment specifications for the sample interface, the pollutant concentration or parametric

signal analyzer, and the data collection and reduction system; and

(3) Performance evaluation procedures and acceptance criteria (*e.g.*, calibrations).

(f) In your site-specific monitoring plan, you must also address the ongoing procedures specified in paragraphs (f)(1) through (3) of this section as follows:

(1) Ongoing operation and maintenance procedures in accordance with the general requirements of § 63.8(c)(1), (3), (4)(ii), (7), and (8), and this section;

(2) Ongoing data quality assurance procedures in accordance with the general requirements of § 63.8(d); and

(3) Ongoing recordkeeping and reporting procedures in accordance with the general requirements of § 63.10(c), (e)(1), and (e)(2)(i).

GENERAL TESTING AND INITIAL COMPLIANCE REQUIREMENTS

§ 63.5991 By what date must I conduct an initial compliance demonstration or performance test?

(a) If you have a new or reconstructed affected source, you must conduct each required initial compliance demonstration or performance test within 180 calendar days after the compliance date that is specified for your new or reconstructed affected source in § 63.5983(a). If you are required to conduct a performance test, you must do so according to the provisions of § 63.7(a)(2).

(b) If you have an existing affected source, you must conduct each required initial compliance demonstration or performance test no later than the compliance date that is specified for your existing affected source in § 63.5983(b). If you are required to conduct a performance test, you must do so according to the provisions of § 63.7(a)(2).

(c) If you commenced construction or reconstruction between October 18, 2000 and July 9, 2002, you must demonstrate initial compliance with either the proposed emission limitations or the promulgated emission limitations no later than January 6, 2003, or within 180 calendar days after startup of the source, whichever is later, according to § 63.7(a)(2)(ix).

(d) If you commenced construction or reconstruction between October 18, 2000 and July 9, 2002, and you chose to comply with the proposed emission limitation when demonstrating initial compliance, you must conduct a second compliance demonstration for the promulgated emission limitation no later than January 5, 2006, or after startup of the source, whichever is later, according to § 63.7(a)(2)(ix).

§ 63.5992 When must I conduct subsequent performance tests?

If you use a control system (add-on control device and capture system) to meet the emission limitations, you must also conduct a performance test at least once every 5 years following your initial compliance demonstration to verify control system performance and reestablish operating parameters or operating limits for control systems used to comply with the emissions limits.

§ 63.5993 What performance tests and other procedures must I use?

(a) If you use a control system to meet the emission limitations, you must conduct each performance test in Table 5 to this subpart that applies to you.

(b) Each performance test must be conducted according to the requirements in § 63.7(e)(1) and under the specific conditions specified in Table 5 to this subpart.

(c) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in § 63.7(e)(1).

(d) You must conduct three separate test runs for each performance test required in this section, as specified in § 63.7(e)(1), unless otherwise specified in the test method. Each test run must last at least 1 hour.

(e) If you are complying with the emission limitations using a control system, you must also conduct performance tests according to the requirements in paragraphs (e)(1) through (3) of this section as they apply to you.

(1) *Determining capture efficiency of permanent or temporary total enclosure.* Determine the capture efficiency of a

capture system by using one of the procedures in Table 5 to this subpart.

(2) *Determining capture efficiency of an alternative method.* As an alternative to constructing a permanent or temporary total enclosure, you may determine the capture efficiency using any capture efficiency protocol and test methods if the data satisfy the criteria of either the Data Quality Objective or the Lower Confidence Limit approach in appendix A to subpart KK of this part.

(3) *Determining efficiency of an add-on control device.* Use Table 5 to this subpart to select the test methods for determining the efficiency of an add-on control device.

TESTING AND INITIAL COMPLIANCE REQUIREMENTS FOR TIRE PRODUCTION AFFECTED SOURCES

§ 63.5994 How do I conduct tests and procedures for tire production affected sources?

(a) *Methods to determine the mass percent of HAP in cements and solvents.* To determine the HAP content in the cements and solvents used at your tire production affected source, use EPA Method 311 of appendix A of this part, an approved alternative method, or any other reasonable means for determining the HAP content of your cements and solvents. Other reasonable means include, but are not limited to: a material safety data sheet (MSDS), provided it contains appropriate information; a certified product data sheet (CPDS); or a manufacturer's hazardous air pollutant data sheet. You are not required to test the materials that you use, but the Administrator may require a test using EPA Method 311 (or an approved alternative method) to confirm the reported HAP content. If the results of an analysis by EPA Method 311 are different from the HAP content determined by another means, the EPA Method 311 results will govern compliance determinations.

(b) *Methods to demonstrate compliance with the HAP constituent emission limits in Table 1 to this subpart (option 1).* Use the method in paragraph (b)(1) of this section to demonstrate initial and continuous compliance with the applicable emission limits for tire production affected sources using the compliance alternative described in § 63.5985(a), purchase alternative. Use the equations in paragraphs (b)(2) and (3) of this section to demonstrate initial and continuous compliance with the emission limits for tire production affected sources using the monthly average compliance alternatives described in § 63.5985(b) and (c).

(1) Determine the mass percent of each HAP in each cement and solvent according to the procedures in paragraph (a) of this section.

(2) Use Equation 1 of this section to calculate the HAP emission rate for each monthly operating period when complying by using cements and solvents without using an add-on control device so that the monthly average HAP emissions do not exceed the HAP constituent emission limits in Table 1 to this subpart, option 1. Equation 1 follows:

$$E_{\text{month}} = \frac{\left(\sum_{i=1}^{n} (\text{HAP}_i)(\text{TMASS}_i)\right)(10^6)}{\sum_{i=1}^{n} \text{TMASS}_i} \qquad \text{(Eq. 1)}$$

Where:

E_{month}=mass of the specific HAP emitted per total mass cements and solvents from all cements and solvents used in tire production per month, grams per megagram.

HAP_i=mass percent, expressed as a decimal, of the specific HAP in cement and solvent i, as purchased, determined in accordance with paragraph (a) of this section.

TMASS_i=total mass of cement and solvent i used in the month, grams.

n=number of cements and solvents used in the month.

(3) Use Equation 2 of this section to calculate the HAP emission rate for each monthly period when complying by using a control device to reduce HAP emissions so that the monthly average HAP emissions do not exceed the HAP constituent emission limits in Table 1 to this subpart (option 1). Equation 2 follows:

$$E_{month} = \frac{\left\{\sum_{i=1}^{n}(HAP_i)(TMASS_i) + \sum_{j=1}^{m}(HAP_j)(TMASS_j)\left(1-\frac{EFF}{100}\right) + \sum_{k=1}^{p}(HAP_k)(TMASS_k)\right\}(10^6)}{\sum_{i=1}^{n}TMASS_i + \sum_{j=1}^{m}TMASS_j + \sum_{k=1}^{p}TMASS_k} \qquad \text{(Eq. 2)}$$

Where:

E_{month}=mass of the specific HAP emitted per total mass cements and solvents from all cements and solvents used in tire production per month, grams per megagram.

HAP_i=mass percent, expressed as a decimal, of the specific HAP in cement and solvent i, as purchased, determined in accordance with paragraph (a) of this section for cements and solvents used in the month in processes that are not routed to a control device.

$TMASS_i$=total mass of cement and solvent i used in the month in processes that are not routed to a control device, grams.

n=number of cements and solvents used in the month in processes that are not routed to a control device.

HAP_j=mass percent, expressed as a decimal, of the specific HAP in cement and solvent j, as purchased, determined in accordance with paragraph (a) of this section, for cements and solvents used in the month in processes that are routed to a control device during operating days, which are defined as days when the control system is operating within the operating range established during the performance test and when monitoring data are collected.

$TMASS_j$=total mass of cement and solvent j used in the month in processes that are routed to a control device during all operating days, grams.

EFF=efficiency of the control system determined during the performance test (capture system efficiency multiplied by the control device efficiency), percent.

m=number of cements and solvents used in the month that are routed to a control device during all operating days.

HAP_k=mass percent, expressed as a decimal, of the specific HAP in cement and solvent k, as purchased, for cements and solvents used in the month in processes that are routed to a control device during non-control operating days, which are defined as days when either the control system is not operating within the operating range established during the performance test or when monitoring data are not collected.

$TMASS_k$=total mass of cement and solvent k used in the month in processes that are routed to a control device during all non-control operating days, grams.

p=number of cements and solvents used in the month that are routed to a control device during all non-control operating days.

(4) Each monthly calculation is a compliance demonstration for the purpose of this subpart.

(c) *Methods to demonstrate compliance with the production-based emission limits in Table 1 to this subpart, option 2.* Use the methods and equations in paragraphs (c)(1) through (6) of this section to demonstrate initial and continuous compliance with the production-based emission limits for tire production affected sources using the compliance alternatives described in § 63.5985(b) and (c).

(1) *Methods to determine the mass percent of each HAP in cements and solvents.* Determine the mass percent of all HAP in cements and solvents using the applicable methods specified in paragraph (a) of this section.

(2) *Quantity of rubber used.* Determine your quantity of rubber used (megagrams) by accounting for the total mass of mixed rubber compound that is delivered to the tire production operation.

(3) *Compliance without use of an add-on control device.* If you do not use an add-on control device to meet the emission limits, use Equation 3 of this section to calculate the monthly HAP emission rate in grams of HAP emitted per megagram of rubber used, using the quantity of rubber used per month

(megagrams), as determined in paragraph (c)(2) of this section so that the monthly average HAP emission does not exceed the HAP emission limit in Table 1 to this subpart, option 2. Equation 3 follows:

$$E_{month} = \frac{\sum_{i=1}^{n} (HAP_i)(TMASS_i)}{RMASS} \quad \text{(Eq. 3.)}$$

Where:

E_{month}=mass of all HAP emitted per total mass of rubber used month, grams per megagram.

HAP_i=mass percent, expressed as a decimal, of all HAP in cement and solvent i, as purchased, determined in accordance with paragraph (a) of this section.

$TMASS_i$=total mass of cement and solvent i used in the month, grams.

n=number of cements and solvents used in the month.

RMASS=total mass of rubber used per month, megagrams.

(4) *Compliance with use of an add-on control device.* If you use a control device to meet the emission limits, use Equation 4 of this section to calculate the monthly HAP emission rate in grams of HAP emitted per megagram of rubber used, using the quantity of rubber used per month (megagrams), as determined in paragraph (c)(2) of this section so that the monthly average HAP emission does not exceed the HAP emission limit in Table 1 of this subpart, option 2. Equation 4 follows:

$$E_{month} = \frac{\sum_{i=1}^{n} (HAP_i)(TMASS_i) + \sum_{j=1}^{m} (HAP_j)(TMASS_j)\left(1 - \frac{EFF}{100}\right) + \sum_{k=1}^{p} (HAP_k)(TMASS_k)}{RMASS} \quad \text{(Eq. 4)}$$

Where:

E_{month}=mass of all HAP emitted per total mass rubber used per month, grams per megagram.

HAP_i=mass percent, expressed as a decimal, of all HAP in cement and solvent i, as purchased, determined in accordance with paragraph (a) of this section for cements and solvents used in the month in processes that are not routed to a control device.

$TMASS_i$=total mass of cement and solvent i used in the month in processes that are not routed to a control device, grams.

n=number of cements and solvents used in the month in processes that are not routed to a control device.

HAP_j=mass percent, expressed as a decimal, of all HAP in cement and solvent j, as purchased, determined in accordance with paragraph (a) of this section, for cements and solvents used in the month in processes that are routed to a control device during operating days, which are defined as days when the control system is operating within the operating range established during the performance test and when monitoring data are collected.

$TMASS_j$=total mass of cement and solvent j used in the month in processes that are routed to a control device during all operating days.

EFF=efficiency of the control system determined during the performance test (capture system efficiency multiplied by the control device efficiency), percent.

m=number of cements and solvents used in the month that are routed to a control device during all operating days.

HAP_k=mass percent, expressed as a decimal, of all HAP in cement and solvent k, as purchased, for cements and solvents used in the month in processes that are routed to a control device during non-control operating days, which are defined as days when either the control system is not operating within the operating range established during the performance test or when monitoring data are not collected.

$TMASS_k$=total mass of cement and solvent k used in the month in processes that are routed to a control device during all non-control operating days, grams.

p=number of cements and solvents used in the month that are routed to a control device during all non-control operating days.

RMASS=total mass of rubber used per month, megagrams.

(5) Each monthly calculation is a compliance demonstration for the purpose of this subpart.

(d) *Specific compliance demonstration requirements for tire production affected sources.* (1) Conduct any required compliance demonstration according to the requirements in § 63.5993.

(2) If you are demonstrating compliance with the HAP constituent option in Table 1 to this subpart, option 1, conduct the compliance demonstration

using cements and solvents that are representative of cements and solvents typically used at your tire production affected source.

(3) Establish an operating range that corresponds to the control efficiency as described in Table 5 to this subpart.

(e) *How to take credit for HAP emissions reductions from add-on control devices.* If you want to take credit in Equations 2 and 4 of this section for HAP emissions reduced using a control system, you must meet the requirements in paragraphs (e)(1) and (2) of this section.

(1) Monitor the established operating parameters as appropriate.

(i) If you use a thermal oxidizer, monitor the firebox secondary chamber temperature.

(ii) If you use a carbon adsorber, monitor the total regeneration stream mass or volumetric flow for each regeneration cycle, and the carbon bed temperature after each regeneration, and within 15 minutes of completing any cooling cycle.

(iii) If you use a control device other than a thermal oxidizer or a regenerative carbon adsorber, install and operate a continuous parameter monitoring system according to your site-specific performance test plan submitted according to §63.7(c)(2)(i).

(iv) If you use a permanent total enclosure, monitor the face velocity across the natural draft openings (NDO) in the enclosure. Also, if you use an enclosure, monitor to ensure that the sizes of the NDO have not changed, that there are no new NDO, and that a HAP emission source has not been moved closer to an NDO since the last compliance demonstration was conducted.

(v) If you use other capture systems, monitor the parameters identified in your monitoring plan.

(2) Maintain the operating parameters within the operating range established during the compliance demonstration.

(f) *How to take credit for HAP emissions reductions when streams are combined.* When performing material balances to demonstrate compliance, if the storage of materials, exhaust, or the wastewater from more than one affected source are combined at the point where control systems are applied, any credit for emissions reductions needs to be prorated among the affected sources based on the ratio of their contribution to the uncontrolled emissions.

[67 FR 45598, July 9, 2002, as amended at 68 FR 11747, Mar. 12, 2003]

§63.5995 What are my monitoring installation, operation, and maintenance requirements?

(a) For each operating parameter that you are required by §63.5994(e)(1) to monitor, you must install, operate, and maintain a continuous parameter monitoring system (CPMS) according to the requirements in §63.5990(e) and (f) and in paragraphs (a)(1) through (6) of this section.

(1) You must operate your CPMS at all times that the process is operating.

(2) You must collect data from at least four equally spaced periods each hour.

(3) For at least 75 percent of the hours in an operating day, you must have valid data (as defined in your site-specific monitoring plan) for at least four equally spaced periods each hour.

(4) For each hour that you have valid data from at least four equally spaced periods, you must calculate the hourly average value using all valid data.

(5) You must calculate the daily average using all of the hourly averages calculated according to paragraph (a)(3) of this section for the 24-hour period.

(6) You must record the results for each inspection, calibration, and validation check as specified in your site-specific monitoring plan.

(b) For each temperature monitoring device, you must meet the requirements in paragraphs (a) and (b)(1) through (8) of this section.

(1) Locate the temperature sensor in a position that provides a representative temperature.

(2) For a non-cryogenic temperature range, use a temperature sensor with a minimum measurement sensitivity of 2.2 degrees centigrade or 0.75 percent of the temperature value, whichever is larger.

(3) For a cryogenic temperature range, use a temperature sensor with a minimum measurement sensitivity of 2.2 degrees centigrade or 2 percent of

the temperature value, whichever is larger.

(4) Shield the temperature sensor system from electromagnetic interference and chemical contaminants.

(5) If a chart recorder is used, it must have a sensitivity in the minor division of at least 20 degrees Fahrenheit.

(6) Perform an electronic calibration at least semiannually according to the procedures in the manufacturer's owners manual. Following the electronic calibration, you must conduct a temperature sensor validation check in which a second or redundant temperature sensor placed near the process temperature sensor must yield a reading within 16.7 degrees centigrade of the process temperature sensor's reading.

(7) Conduct calibration and validation checks any time the sensor exceeds the manufacturer's specified maximum operating temperature range or install a new temperature sensor.

(8) At least monthly, inspect all components for integrity and all electrical connections for continuity, oxidation, and galvanic corrosion.

(c) For each integrating regeneration stream flow monitoring device associated with a carbon adsorber, you must meet the requirements in paragraphs (a) and (c)(1) and (2) of this section.

(1) Use a device that has an accuracy of ±10 percent or better.

(2) Use a device that is capable of recording the total regeneration stream mass or volumetric flow for each regeneration cycle.

(d) For any other control device, or for other capture systems, ensure that the CPMS is operated according to a monitoring plan submitted to the Administrator with the compliance status report required by § 63.9(h). The monitoring plan must meet the requirements in paragraphs (a) and (d)(1) through (3) of this section. Conduct monitoring in accordance with the plan submitted to the Administrator unless comments received from the Administrator require an alternate monitoring scheme.

(1) Identify the operating parameter to be monitored to ensure that the control or capture efficiency measured during the initial compliance test is maintained.

(2) Discuss why this parameter is appropriate for demonstrating ongoing compliance.

(3) Identify the specific monitoring procedures.

(e) For each pressure differential monitoring device, you must meet the requirements in paragraphs (a) and (e)(1) and (2) of this section.

(1) Conduct a quarterly EPA Method 2 procedure (found in 40 CFR part 60, appendix A) on the applicable NDOs and use the results to calibrate the pressure monitor if the difference in results are greater than 10 percent.

(2) Inspect the NDO monthly to ensure that their size has not changed, that there are no new NDO, and that no HAP sources have been moved closer to the NDO than when the last performance test was conducted.

§ 63.5996 How do I demonstrate initial compliance with the emission limits for tire production affected sources?

(a) You must demonstrate initial compliance with each emission limit that applies to you according to Table 6 to this subpart.

(b) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in § 63.6009(e).

TESTING AND INITIAL COMPLIANCE REQUIREMENTS FOR TIRE CORD PRODUCTION AFFECTED SOURCES

§ 63.5997 How do I conduct tests and procedures for tire cord production affected sources?

(a) *Methods to determine the mass percent of each HAP in coatings.* (1) To determine the HAP content in the coating used at your tire cord production affected source, use EPA Method 311 of appendix A of this part, an approved alternative method, or any other reasonable means for determining the HAP content of your coatings. Other reasonable means include, but are not limited to: an MSDS, provided it contains appropriate information; a CPDS; or a manufacturer's HAP data sheet. You are not required to test the materials that you use, but the Administrator may require a test using EPA Method 311 (or an approved alternative method) to confirm the reported HAP content. If the results of an analysis by EPA Method 311 are different from the HAP content determined by another means, the EPA Method 311 results will govern compliance determinations.

(2) Unless you demonstrate otherwise, the HAP content analysis must be based on coatings prior to any cross-linking reactions, *i.e.*, curing. However, you may account for differences in HAP emissions resulting from chemical reactions based on the conversion rates of the individual coating formulations, chemistry demonstrations, or other demonstrations that are verifiable to the approving agency. Use the revised value in your compliance demonstration in the relevant equations in paragraph (b) of this section.

(b) *Methods to determine compliance with the emission limits in Table 2 to this subpart, option 1.* Use the equations in this paragraph (b) to demonstrate initial and continuous compliance with the emission limits for tire cord production sources using the compliance alternatives described in §63.5987(a) and (b).

(1) *Determine mass percent of HAP.* Determine the mass percent of all HAP in each coating according to the procedures in paragraph (a) of this section.

(2) *Compliance without use of an add-on control device.* If you do not use an add-on control device to meet the emission limits, use Equation 1 of this section to calculate the monthly HAP emission rate in grams of HAP emitted per megagram of fabric processed at the tire cord production source to show that the monthly average HAP emissions do not exceed the emission limits in Table 2 to this subpart, option 1. Equation 1 follows:

$$E_{\text{month}} = \frac{\sum_{i=1}^{n} \left(\text{HAP}_i\right)\left(\text{TCOAT}_i\right)}{\text{TFAB}} \qquad \text{(Eq. 1)}$$

Where:

E_{month}=mass of all HAP emitted per total mass of fabric processed in the month, grams per megagram.

HAP_i=mass percent, expressed as a decimal, of all HAP in the coating i, prior to curing and including any application station dilution, determined in accordance with paragraph (a) of this section.

TCOAT_i=total mass of coating i made and used for application to fabric at the facility in the month, grams.

n=number of coatings used in the month.

TFAB=total mass of fabric processed in the month, megagrams.

(3) *Compliance with use of an add-on control device.* If you use a control device to meet the emission limits, use Equation 2 of this section to calculate the monthly HAP emission rate in grams of HAP emitted per megagram of fabric processed to show that the monthly average HAP emissions do not exceed the HAP emission limit in Table 2 of this subpart, option 1. Equation 2 follows:

$$E_{\text{month}} = \frac{\sum_{i=1}^{n} \left(\text{HAP}_i\right)\left(\text{TCOAT}_i\right) + \sum_{j=1}^{m} \left(\text{HAP}_j\right)\left(\text{TCOAT}_j\right)\left(1 - \frac{\text{EFF}}{100}\right) + \sum_{k=1}^{p} \left(\text{HAP}_k\right)\left(\text{TCOAT}_k\right)}{\text{TFAB}} \qquad \text{(Eq. 2)}$$

Where:

E_{month}=mass of all HAP emitted per total mass of fabric processed in the month, grams per megagram.

HAP_i=mass percent, expressed as a decimal, of all HAP in coating i, prior to curing and including any application stations dilution, determined in accordance with paragraph (a) of this section, for coatings used in the month in processes that are not routed to a control device.

TCOAT_i=total mass of coating i made and used for application to fabric at the facility in the month in processes that are not routed to a control device, grams.

n=number of coatings used in the month in processes that are not routed to a control device.

HAP_j=mass percent, expressed as a decimal, of all HAP in coating j, prior to curing and including any application station dilution, determined in accordance with paragraph (a) of this section, for coatings used in the month in processes that are routed to a control device during operating days, which are defined as days when the control system is operating within the operating range established during the performance test and when monitoring data are collected.

$TCOAT_j$=total mass of coating j made and used for application to fabric at the facility in the month in processes that are routed to a control device during all operating days, grams.

EFF=efficiency of the control system determined during the performance test (capture system efficiency multiplied by the control device efficiency), percent.

m=number of coatings used in the month that are routed to a control device during all operating days.

HAP_k=mass percent, expressed as a decimal, of all HAP in coating k, prior to curing and including any application station dilution, for coatings used in the month in processes that are routed to a control device during non-control operating days, which are defined as days when either the control system is not operating within the operating range established during the performance test or when monitoring data are not collected.

$TCOAT_k$=total mass of coating k made and used for application to fabric at the facility in the month in processes that are routed to a control device during all non-control operating days, grams.

p=number of coatings used in the month that are routed to a control device during all non-control operating days.

TFAB=total mass of fabric processed in the month, megagrams.

(4) Each monthly calculation is a compliance demonstration for the purpose of this subpart.

(c) *Methods to determine compliance with the emission limits in Table 2 of this subpart, option 2.* Use the equations in this paragraph (c) to demonstrate initial and continuous compliance with the emission limits for tire cord production sources using the compliance alternatives described in § 63.5987(a) and (b).

(1) Determine the mass percent of each HAP in each coating according to the procedures in paragraph (a) of this section.

(2) Use Equation 3 of this section to calculate the monthly average HAP emission rate when complying by using coatings without using an add-on control device to show that the monthly average HAP emissions do not exceed the emission limits in Table 2 to this subpart, option 2. Equation 3 follows:

$$E_{month} = \frac{\left(\sum_{i=1}^{n}(HAP_i)(TCOAT_i)\right)(10^6)}{\sum_{i=1}^{n} TCOAT_i} \qquad \text{(Eq. 3)}$$

Where:

E_{month}=mass of the specific HAP emitted per total mass of coatings from all coatings made and used in tire cord fabric production per month, grams per megagram.

HAP_i=mass percent, expressed as a decimal, of the specific HAP in the coating i, prior to curing and including any application station dilution, determined in accordance with paragraph (a) of this section.

$TCOAT_i$=total mass of coating i made and used for application to fabric at the facility in the month, grams.

n=number of coatings used in the month.

(3) Use Equation 4 of this section to calculate the monthly average HAP emission rate when complying by using an add-on control device to show that the monthly average HAP emissions do not exceed the emission limits in Table 2 to this subpart, option 2. Equation 4 follows:

$$E_{month} = \frac{\left\{\sum_{i=1}^{n}\left(HAP_i\right)\left(TCOAT_i\right)+\sum_{j=1}^{m}\left(HAP_j\right)\left(TCOAT_j\right)\left(1-\frac{EFF}{100}\right)+\sum_{k=1}^{p}\left(HAP_k\right)\left(TMASS_k\right)\right\}\left(10^6\right)}{\sum_{i=1}^{n}TCOAT_i+\sum_{j=1}^{m}TCOAT_j+\sum_{k=1}^{p}TCOAT_k} \qquad \text{(Eq. 4)}$$

Where:

E_{month}=mass of the specific HAP emitted per total mass of coatings from all coatings made and used in tire cord fabric production per month, grams per megagram.

HAP_i=mass percent, expressed as a decimal, of the specific HAP in coating i, prior to curing and including any application station dilution, determined in accordance with paragraph (a) of this section, for coatings used in the month in processes that are not routed to a control device.

$TCOAT_i$=total mass of coating i made and used for application to fabric at the facility in the month in processes that are not routed to a control device, grams.

n=number of coatings used in the month in processes that are not routed to a control device.

HAP_j=mass percent, expressed as a decimal, of the specific HAP in coating j, prior to curing and including any application station dilution, determined in accordance with paragraph (a) of this section, for coatings used in the month in processes that are routed to a control device during operating days, which are defined as days when the control system is operating within the operating range established during the performance test and when monitoring data are collected.

$TCOAT_j$=total mass of coating i made and used for application to fabric at the facility in the month in processes that are routed to a control device during all operating days, grams.

EFF=efficiency of the control system determined during the performance test (capture system efficiency multiplied by the control device efficiency), percent.

m=number of coatings used in the month that are routed to a control device during all operating days.

HAP_k=mass percent, expressed as a decimal, of the specific HAP in coating k, prior to curing and including any application station dilution, for coatings used in the month in processes that are routed to a control device during non-control operating days, which are defined as days when either the control system is not operating within the operating range established during the performance test or when monitoring data are not collected.

$TCOAT_k$=total mass of coating i made and used for application to fabric at the facility in the month in processes that are routed to a control device during all non-control operating days, grams.

p = number of coatings used in the month that are routed to a control device during all non-control operating days.

(4) Each monthly calculation is a compliance demonstration for the purpose of this subpart.

(d) *Specific compliance demonstration requirements for tire cord production affected sources.* (1) Conduct any required compliance demonstrations according to the requirements in § 63.5993.

(2) Conduct the compliance demonstration using coatings with average mass percent HAP content that are representative of the coatings typically used at your tire cord production affected source.

(3) Establish an operating range that corresponds to the control efficiency as described in Table 5 to this subpart.

(e) *How to take credit for HAP emissions reductions from add-on control devices.* If you want to take credit in Equations 2 and 4 of this section for HAP emissions reduced using a control system, you must meet the requirements in paragraphs (e)(1) and (2) of this section.

(1) Monitor the established operating parameters as appropriate.

(i) If you use a thermal oxidizer, continuously monitor the firebox secondary chamber temperature.

(ii) If you use a carbon adsorber, monitor the total regeneration stream mass or volumetric flow for each regeneration cycle and the carbon bed temperature after each regeneration and within 15 minutes of completing any cooling cycle.

(iii) If you use a control device other than a thermal oxidizer or a regenerative carbon adsorber, install and operate a continuous parameter monitoring system according to your site-specific performance test plan submitted according to § 63.7(c)(2)(i).

(iv) If you use a permanent total enclosure, monitor the face velocity across the NDO in the enclosure. Also, if you use an enclosure, monitor to ensure that the sizes of the NDO have not changed, that there are no new NDO, and that a HAP emission source has not been moved closer to an NDO since the last performance test was conducted.

(v) If you use other capture systems, monitor the parameters identified in your monitoring plan.

(2) Maintain the operating parameter within the operating range established during the compliance demonstration.

(f) *How to take credit for HAP emissions reductions when streams are combined.* When performing material balances to demonstrate compliance, if the storage of materials, exhaust, or the wastewater from more than one affected source are combined at the point where control systems are applied, any credit for emissions reductions needs to be prorated among the affected sources based on the ratio of their contribution to the uncontrolled emissions.

§ 63.5998 What are my monitoring installation, operation, and maintenance requirements?

For each operating parameter that you are required by § 63.5997(e)(1) to monitor, you must install, operate, and maintain a continuous parameter monitoring system according to the provisions in § 63.5995(a) through (e).

§ 63.5999 How do I demonstrate initial compliance with the emission limits for tire cord production affected sources?

(a) You must demonstrate initial compliance with each emission limit that applies to you according to Table 7 to this subpart.

(b) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in § 63.6009(e).

TESTING AND INITIAL COMPLIANCE REQUIREMENTS FOR PUNCTURE SEALANT APPLICATION AFFECTED SOURCES

§ 63.6000 How do I conduct tests and procedures for puncture sealant application affected sources?

(a) *Methods to determine compliance with the puncture sealant application emission limitations in Table 3 to this subpart.* Use the methods and equations in paragraph (b) of this section to demonstrate initial and continuous compliance with the overall control efficiency compliance alternatives described in § 63.5989(a) and (b). Use the methods and equations in paragraphs (c) through (g) of this section to demonstrate initial and continuous compliance with the HAP constituent compliance alternative described in § 63.5989(c) and (d).

(b) *Methods to determine compliance with the emission limits in Table 3 to this subpart, option 1.* Follow the test procedures described in § 63.5993 to determine the overall control efficiency of your system.

(1) You must also meet the requirements in paragraphs (b)(1)(i) and (ii) of this section.

(i) Conduct the performance test using a puncture sealant with an average mass percent HAP content that is representative of the puncture sealants typically used at your puncture sealant application affected source.

(ii) Establish all applicable operating limit ranges that correspond to the control system efficiency as described in Table 5 to this subpart.

(2) Use Equation 1 of this section to calculate the overall efficiency of the control system. If you have a permanent total enclosure that satisfies EPA Method 204 (found in 40 CFR part 51, appendix M) criteria, assume 100 percent capture efficiency for variable F. Equation 1 follows:

$$R = \frac{(F)(E)}{100} \qquad \text{(Eq. 1)}$$

Where:

R=overall control system efficiency, percent.

F=capture efficiency of the capture system on add-on control device, percent, determined during the performance test.

E=control efficiency of add-on control device k, percent, determined during the performance test.

(3) Monitor the established operating limits as appropriate.

(i) If you use a thermal oxidizer, monitor the firebox secondary chamber temperature.

(ii) If you use a carbon adsorber, monitor the total regeneration stream mass or volumetric flow for each regeneration cycle, and the carbon bed temperature after each regeneration, and within 15 minutes of completing any cooling cycle.

(iii) For each control device used other than a thermal oxidizer or a regenerative carbon adsorber, install and operate a continuous parameter monitoring system according to your site-specific performance test plan submitted according to § 63.7(c)(2)(i).

(iv) If you use a permanent total enclosure, monitor the face velocity across the NDO in the enclosure. Also, if you use an enclosure, monitor to ensure that the sizes of the NDO have not changed, that there are no new NDO, and that a HAP emission source has not been moved closer to an NDO since the last performance test was conducted.

(v) If you use other capture systems, monitor the parameters identified in your monitoring plan.

(vi) Maintain the operating parameter within the operating range established during the performance test.

(c) *Methods to determine the mass percent of each HAP in puncture sealants.* To determine the HAP content in the puncture sealant used at your puncture sealant application affected source, use EPA Method 311 of appendix A of 40 CFR part 63, an approved alternative method, or any other reasonable means for determining the HAP content of your puncture sealants. Other reasonable means include, but are not limited to: an MSDS, provided it contains appropriate information; a CPDS; or a manufacturer's hazardous air pollutant data sheet. You are not required to test the materials that you use, but the Administrator may require a test using EPA Method 311 (or an approved alternative method) to confirm the reported HAP content. If the results of an analysis by EPA Method 311 are different from the HAP content determined by another means, the EPA Method 311 results will govern compliance determinations.

(d) *Methods to determine compliance with the emission limits in Table 3 to this subpart, option 2.* Use the equations in this paragraph (d) to demonstrate initial and continuous compliance with the HAP constituent emission limits for puncture sealant application affected sources using the compliance alternatives described in § 63.5989(c) and (d).

(1) Use Equation 2 of this section to calculate the monthly average HAP emission rate when complying by using puncture sealants without using an add-on control device to show that the monthly average HAP emissions do not exceed the emission limits in Table 3 to this subpart, option 2. Equation 2 follows:

$$E_{month} = \frac{\left(\sum_{i=1}^{n}(HAP_i)(TPSEAL_i)\right)(10^6)}{\sum_{i=1}^{n} TPSEAL_i} \qquad \text{(Eq. 2)}$$

Where:

E_{month}=mass of the specific HAP emitted per total mass of puncture sealants from all puncture sealants used at the puncture sealant affected source per month, grams per megagram.

HAP_i=mass percent, expressed as a decimal, of the specific HAP in puncture sealant i, including any application booth dilution, determined in accordance with paragraph (c) of this section.

$TPSEAL_i$=total mass of puncture sealant i used in the month, grams.

n=number of puncture sealants used in the month.

(2) Use Equation 3 of this section to calculate the monthly average HAP emission rate when complying by using

puncture sealants by using an add-on control device to show that the monthly average HAP emissions do not exceed the emission limits in Table 3 to this subpart, option 2. Equation 3 follows:

$$E_{\text{month}} = \frac{\left\{ \sum_{i=1}^{n} \left(\text{HAP}_i\right)\left(\text{TPSEAL}_i\right) + \sum_{j=1}^{m} \left(\text{HAP}_j\right)\left(\text{TPSEAL}_j\right)\left(1 - \frac{\text{EFF}}{100}\right) + \sum_{k=1}^{p} \left(\text{HAP}_k\right)\left(\text{TPSEAL}_k\right) \right\}\left(10^6\right)}{\sum_{i=1}^{n} \text{TPSEAL}_i + \sum_{j=1}^{m} \text{TPSEAL}_j + \sum_{k=1}^{p} \text{TPSEAL}_k} \qquad \text{(Eq. 3)}$$

Where:

E_{month}=mass of the specific HAP emitted per total mass of puncture sealants used at the puncture sealant affected source per month, grams per megagram.

HAP_i=mass percent, expressed as a decimal, of the specific HAP in puncture sealant i, including any application booth dilution, determined in accordance with paragraph (c) of this section for puncture sealants used in the month in processes that are not routed to a control device.

$TPSEAL_i$=total mass of puncture sealant i used in the month in processes that are not routed to a control device, gram.

n=number of puncture sealants used in the month in processes that are not routed to a control device.

HAP_j=mass percent, expressed as a decimal, of the specific HAP, in puncture sealant j, including any application booth dilution, determined in accordance with paragraph (c) of this section, for puncture sealants used in the month in processes that are routed to a control device during operating days, which are defined as days when the control system is operating within the operating range established during the performance test and when monitoring data are collected.

$TPSEAL_j$=total mass of puncture sealant j used in the month in processes that are routed to a control device during all operating days, grams.

EFF=efficiency of the control system determined during the performance test (capture system efficiency multiplied by the control device efficiency), percent.

m=number of puncture sealants used in the month that are routed to a control device during all operating days.

HAP_k=mass percent, expressed as a decimal, of the specific HAP, in puncture sealant k, including any application booth dilution, for puncture sealants used in the month in processes that are routed to a control device during non-control operating days, which are defined as days when either the control system is not operating within the operating range established during the performance test or when monitoring data are not collected.

$TPSEAL_k$=total mass of total mass of puncture sealant k used in the month in processes that are routed to a control device during all non-control operating days, grams.

p=number of puncture sealants used in the month that are routed to a control device during all non-control operating days.

(3) Each monthly calculation is a compliance demonstration for the purpose of this subpart.

(e) *Specific compliance demonstration requirements for puncture sealant application affected sources.* (1) Conduct any required compliance demonstrations according to the requirements in § 63.5993.

(2) Conduct the compliance demonstration using a puncture sealant with average mass percent HAP content that is representative of the puncture sealants typically used at your puncture sealant application affected source.

(3) Establish an operating range that corresponds to the appropriate control efficiency described in Table 5 to this subpart.

(f) *How to take credit for HAP emissions reductions from add-on control devices.* If you want to take credit in Equation 3 of this section for HAP emissions reduced using a control system, you must monitor the established operating parameters as appropriate and meet the requirements in paragraph (b)(3) of this section.

(g) *How to take credit for HAP emissions reductions when streams are combined.* When performing material balances to demonstrate compliance, if the storage of materials, exhaust, or the wastewater from more than one affected source are combined at the point where control systems are applied, any credit for emissions reductions needs to be prorated among the affected sources based on the ratio of their contribution to the uncontrolled emissions.

§ 63.6001 What are my monitoring installation, operation, and maintenance requirements?

For each operating limit that you are required by § 63.6000(b)(3) to monitor or each operating parameter that you are required by § 63.6000(f) to monitor, you must install, operate, and maintain a continuous parameter monitoring system according to the provisions in § 63.5995(a) through (e).

§ 63.6002 How do I demonstrate initial compliance with the emission limits for puncture sealant application affected sources?

(a) You must demonstrate initial compliance with each emission limit that applies to you according to Table 8 to this subpart.

(b) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in § 63.6009(e).

CONTINUOUS COMPLIANCE REQUIREMENTS FOR TIRE PRODUCTION AFFECTED SOURCES

§ 63.6003 How do I monitor and collect data to demonstrate continuous compliance with the emission limits for tire production affected sources?

(a) You must monitor and collect data as specified in Table 9 to this subpart.

(b) Except for periods of monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), you must monitor continuously (or collect data at all required intervals) while the affected source is operating. This includes periods of startup, shutdown, and malfunction when the affected source is operating.

(c) In data average calculations and calculations used to report emission or operating levels, you may not use data recorded during periods of monitoring malfunctions or associated repairs, or recorded during required quality assurance or control activities. Such data may not be used in fulfilling any applicable minimum data availability requirement. You must use all the data collected during all other periods in assessing the operation of the control device and associated control system.

§ 63.6004 How do I demonstrate continuous compliance with the emission limits for tire production affected sources?

(a) You must demonstrate continuous compliance with each applicable limit in Table 1 to this subpart using the methods specified in Table 10 to this subpart.

(b) You must report each instance in which you did not meet an emission limit in Table 1 to this subpart. You must also report each instance in which you did not meet the applicable requirements in Table 10 to this subpart. These instances are deviations from the emission limits in this subpart. The deviations must be reported in accordance with the requirements in § 63.6010(e).

(c) You also must meet the following requirements if you are complying with the purchase alternative for tire production sources described in § 63.5985(a):

(1) If, after you submit the Notification of Compliance Status, you use a cement or solvent for which you have not previously verified percent HAP mass using the methods in § 63.5994(a), you must verify that each cement and solvent used in the affected source meets the emission limit, using any of the methods in § 63.5994(a).

(2) You must update the list of all the cements and solvents used at the affected source.

(3) With the compliance report for the reporting period during which you used the new cement or solvent, you must submit the updated list of all cements and solvents and a statement certifying that, as purchased, each cement and solvent used at the affected source during the reporting period met the emission limits in Table 1 to this subpart.

CONTINUOUS COMPLIANCE REQUIREMENTS FOR TIRE CORD PRODUCTION AFFECTED SOURCES

§ 63.6005 How do I monitor and collect data to demonstrate continuous compliance with the emission limits for tire cord production affected sources?

(a) You must monitor and collect data to demonstrate continuous compliance with the emission limits for tire cord production affected sources as specified in Table 11 to this subpart.

(b) You must monitor and collect data according to the requirements in § 63.6003(b) and (c).

§ 63.6006 How do I demonstrate continuous compliance with the emission limits for tire cord production affected sources?

(a) You must demonstrate continuous compliance with each applicable emission limit in Table 2 to this subpart using the methods specified in Table 12 to this subpart.

(b) You must report each instance in which you did not meet an applicable emission limit in Table 2 to this subpart. You must also report each instance in which you did not meet the applicable requirements in Table 12 to this subpart. These instances are deviations from the emission limits in this subpart. The deviations must be reported in accordance with the requirements in § 63.6010(e).

CONTINUOUS COMPLIANCE REQUIREMENTS FOR PUNCTURE SEALANT APPLICATION AFFECTED SOURCES

§ 63.6007 How do I monitor and collect data to demonstrate continuous compliance with the emission limitations for puncture sealant application affected sources?

(a) You must monitor and collect data to demonstrate continuous compliance with the emission limitations for puncture sealant application affected sources as specified in Table 13 to this subpart.

(b) You must monitor and collect data according to the requirements in § 63.6003(b) and (c).

§ 63.6008 How do I demonstrate continuous compliance with the emission limitations for puncture sealant application affected sources?

(a) You must demonstrate continuous compliance with each applicable emission limitation in Tables 3 and 4 to this subpart using the methods specified in Table 14 to this subpart.

(b) You must report each instance in which you did not meet an applicable emission limit in Table 3 to this subpart. You must also report each instance in which you did not meet the applicable requirements in Table 14 to this subpart. These instances are deviations from the emission limits in this subpart. The deviations must be reported in accordance with the requirements in § 63.6010(e).

NOTIFICATIONS, REPORTS, AND RECORDS

§ 63.6009 What notifications must I submit and when?

(a) You must submit all of the notifications in §§ 63.7 (b) and (c), 63.8(f) (4) and (6), and 63.9 (b) through (e) and (h) that apply to you by the dates specified.

(b) As specified in § 63.9(b)(2), if you startup your affected source before July 9, 2002, you must submit an Initial Notification not later than November 6, 2002.

(c) As specified in § 63.9(b)(3), if you startup your new or reconstructed affected source on or after July 9, 2002, you must submit an Initial Notification not later than 120 calendar days after you become subject to this subpart.

(d) If you are required to conduct a performance test, you must submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin as required in § 63.7(b)(1).

(e) If you are required to conduct a performance test, design evaluation, or other initial compliance demonstration as specified in Tables 5 through 8 to this subpart, you must submit a Notification of Compliance Status according to § 63.9(h)(2)(ii). The Notification must contain the information listed in Table 15 to this subpart for compliance reports. The Notification of Compliance

Status must be submitted according to the following schedules, as appropriate:

(1) For each initial compliance demonstration required in Tables 6 through 8 to this subpart that does not include a performance test, you must submit the Notification of Compliance Status before the close of business on the 30th calendar day following the completion of the initial compliance demonstration.

(2) For each initial compliance demonstration required in Tables 6 through 8 to this subpart that includes a performance test conducted according to the requirements in Table 5 to this subpart, you must submit the Notification of Compliance Status, including the performance test results, before the close of business on the 60th calendar day following the completion of the performance test according to §63.10(d)(2).

(f) For each tire production affected source, the Notification of Compliance Status must also identify the emission limit option in §63.5984 and the compliance alternative in §63.5985 that you have chosen to meet.

(g) For each tire production affected source complying with the purchase compliance alternative in §63.5985(a), the Notification of Compliance Status must also include the information listed in paragraphs (g)(1) and (2) of this section.

(1) A list of each cement and solvent, as purchased, that is used at the affected source and the manufacturer or supplier of each.

(2) The individual HAP content (percent by mass) of each cement and solvent that is used.

(h) For each tire production or tire cord production affected source using a control device, the Notification of Compliance Status must also include the information in paragraphs (h) (1) and (2) of this section for each operating parameter in §§63.5994(e)(1) and 63.5997(e)(1) that applies to you.

(1) The operating parameter value averaged over the full period of the performance test (e.g., average secondary chamber firebox temperature over the period of the performance test was 1,500 degrees Fahrenheit).

(2) The operating parameter range within which HAP emissions are reduced to the level corresponding to meeting the applicable emission limits in Tables 1 and 2 to this subpart.

(i) For each puncture sealant application affected source using a control device, the Notification of Compliance Status must include the information in paragraphs (i)(1) and (2) of this section for each operating limit in §63.6000(b)(3) and each operating parameter in §63.6000(f).

(1) The operating limit or operating parameter value averaged over the full period of the performance test.

(2) The operating limit or operating parameter range within which HAP emissions are reduced to the levels corresponding to meeting the applicable emission limitations in Table 3 to this subpart.

(j) For each tire cord production affected source required to assess the predominant use for coating web substrates as required by §63.5981(b), you must submit a notice of the results of the reassessment within 30 days of completing the reassessment. The notice shall specify whether this subpart XXXX is still the applicable subpart and, if it is not, which part 63 subpart is applicable.

§63.6010 What reports must I submit and when?

(a) You must submit each applicable report in Table 15 to this subpart.

(b) Unless the Administrator has approved a different schedule for submission of reports under §63.10(a), you must submit each report by the date in Table 15 to this subpart and according to the requirements in paragraphs (b)(1) through (5) of this section.

(1) The first compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.5983 and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for your source in §63.5983.

(2) The first compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date follows the end of the first calendar half after the compliance date that is specified for your affected source in §63.5983.

(3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(5) For each affected source that is subject to permitting subparts pursuant to 40 CFR part 70 or 40 CFR part 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (4) of this section.

(c) The compliance report must contain information specified in paragraphs (c)(1) through (10) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with that official's name, title, and signature, certifying the accuracy of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If you had a startup, shutdown or malfunction during the reporting period and you took actions consistent with your startup, shutdown, and malfunction plan, the compliance report must include the information in § 63.10(d)(5)(i).

(5) If there are no deviations from any emission limitations (emission limit or operating limit) that applies to you, a statement that there were no deviations from the emission limitations during the reporting period.

(6) If there were no periods during which the operating parameter monitoring systems were out-of-control as specified in § 63.8(c)(7), a statement that there were no periods during which the operating parameter monitoring systems or CPMS were out-of-control during the reporting period.

(7) For each tire production affected source, the emission limit option in § 63.5984 and the compliance alternative in § 63.5985 that you have chosen to meet.

(8) For each tire production affected source complying with the purchase compliance alternative in § 63.5985(a), and for each annual reporting period during which you use a cement and solvent that, as purchased, was not included in the list submitted with the Notification of Compliance Status in § 63.6009(g), an updated list of all cements and solvents used, as purchased, at the affected source. You must also include a statement certifying that each cement and solvent, as purchased, that was used at the affected source during the reporting period met the HAP constituent limits (option 1) in Table 1 to this subpart.

(9) For each tire cord production affected source, the emission limit option in § 63.5986 and the compliance alternative in § 63.5987 that you have chosen to meet.

(10) For each puncture sealant application affected source, the emission limit option in § 63.5988 and the compliance alternative in § 63.5989 that you have chosen to meet.

(d) For each deviation from an emission limitation (emission limit or operating limit) that occurs at an affected source where you are not using a CPMS to comply with the emission limitations in this subpart, the compliance report must contain the information in paragraphs (c)(1) through (4) and paragraphs (d)(1) and (2) of this section. This includes periods of startup, shutdown, and malfunction when the affected source is operating.

(1) The total operating time of each affected source during the reporting period.

(2) Information on the number, duration, and cause of deviations (including unknown cause, if applicable) and the corrective action taken.

(e) Each affected source that has obtained a title V operating permit pursuant to 40 CFR part 70 or 40 CFR part 71 must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If an affected source submits a compliance report (pursuant to Table 10 to this subpart along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A) which includes all required information concerning deviations from any emission limitation (including any operating limit) or work practice requirement in this subpart, submission of the compliance report shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a compliance report shall not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the permit authority.

(f) Upon notification to the Administrator that a tire production affected source has eliminated or reformulated cement and solvent so that the source can demonstrate compliance using the purchase alternative in § 63.5985(a), future compliance reports for this affected source may be submitted annually.

(g) If acceptable to both the Administrator and you, you may submit reports and notifications electronically.

§ 63.6011 What records must I keep?

(a) You must keep the records specified in paragraphs (a)(1) through (3) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirements in § 63.10(b)(2)(xiv).

(2) Records of performance tests as required in § 63.10(b)(2)(viii).

(3) The records in § 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

(b) For each tire production affected source, you must keep the records specified in Table 9 to this subpart to show continuous compliance with each emission limit that applies to you.

(c) For each tire cord production affected source, you must keep the records specified in Table 11 to this subpart to show continuous compliance with each emission limit that applies to you.

(d) For each puncture sealant application affected source, you must keep the records specified in Table 13 to this subpart to show continuous compliance with each emission limit that applies to you.

§ 63.6012 In what form and how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review, according to § 63.10(b)(1).

(b) As specified in § 63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to § 63.10(b)(1). You can keep the records offsite for the remaining 3 years.

OTHER REQUIREMENTS AND INFORMATION

§ 63.6013 What parts of the General Provisions apply to me?

Table 17 to this subpart shows which parts of the General Provisions in §§ 63.1 through 63.15 apply to you.

§ 63.6014 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by us, the United States Environmental Protection Agency, or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA has delegated authority to your State, local, or tribal agency, then that agency, in addition to the U.S. EPA, has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if implementation and enforcement of this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that cannot be delegated to State, local, or tribal agencies are listed in paragraphs (c)(1) through (4) of this section.

(1) Approval of alternatives to the requirements in §§ 63.5981 through 63.5984, 63.5986, and 63.5988.

(2) Approval of major changes to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.90.

(3) Approval of major changes to monitoring under § 63.8(f) and as defined in § 63.90.

(4) Approval of major changes to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

§ 63.6015 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act and in § 63.2, the General Provisions. The following are additional definitions of terms used in this subpart:

As purchased means the condition of a cement and solvent as delivered to the facility, prior to any mixing, blending, or dilution.

Capture system means a hood, enclosed room, or other means of collecting organic HAP emissions into a closed-vent system that conveys these emissions to a control device.

Cements and solvents means the collection of all organic chemicals, mixtures of chemicals, and compounds used in the production of rubber tires, including cements, solvents, and mixtures used as process aids. Cements and solvents include, but are not limited to, tread end cements, undertread cements, bead cements, tire building cements and solvents, green tire spray, blemish repair paints, side wall protective paints, marking inks, materials used to clean process equipment, and slab dip mixtures. Cements and solvents do not include coatings or process aids used in tire cord production, puncture sealant application, rubber processing, or materials used to construct, repair, or maintain process equipment, or chemicals and compounds that are not used in the tire production process such as materials used in routine janitorial or facility grounds maintenance, office supplies (*e.g.*, dry-erase markers, correction fluid), architectural paint, or any substance to the extent it is used for personal, family, or household purposes, or is present in the same form and concentration as a product packaged for distribution to and use by the general public.

Coating means a compound or mixture of compounds that is applied to a fabric substrate in the tire cord production operation that allows the fabric to be prepared (*e.g.*, by heating, setting, curing) for incorporation into a rubber tire.

Components of rubber tires means any piece or part used in the manufacture of rubber tires that becomes an integral portion of the rubber tire when manufacture is complete and includes mixed rubber compounds, sidewalls, tread, tire beads, and liners. Other components often associated with rubber tires such as wheels, valve stems, tire bladders and inner tubes are not considered components of rubber tires for the purposes of these standards. Tire cord and puncture sealant, although components of rubber tires, are considered as separate affected sources in these standards and are defined separately.

Control device means a combustion device, recovery device, recapture device, or any combination of these devices used for recovering or oxidizing organic hazardous air pollutant vapors. Such equipment includes, but is not limited to, absorbers, carbon adsorbers, condensers, incinerators (oxidizers), flares, boilers, and process heaters.

Control system efficiency means the percent of total volatile organic compound emissions, as measured by EPA Method 25 or 25A (40 CFR part 60, appendix A), recovered or destroyed by a control device multiplied by the percent of total volatile organic compound emissions, as measured by Method 25 or 25A, that are captured and conveyed to the control device.

Deviation means any instance in which an affected source, subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emission limitation (including any operating limit) or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limitation (including any operating limit) or work practice standard in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Emission limitation means any emission limit, opacity limit, operating limit, or visible emission limit.

Fabric processed means the amount of fabric coated and finished for use in subsequent product manufacturing.

Mixed rubber compound means the material, commonly referred to as rubber, from which rubber tires and components of rubber tires are manufactured. For the purposes of this definition, mixed rubber compound refers to the compound that leaves the rubber mixing process (*e.g.,* banburys) and is then processed into components from which rubber tires are manufactured.

Monthly operating period means the period in the Notification of Compliance Status report comprised of the number of operating days in the month.

Operating day means the period defined in the Notification of Compliance Status report. It may be from midnight to midnight or a portion of a 24-hour period.

Process aid means a solvent, mixture, or cement used to facilitate or assist in tire component identification; component storage; tire building; tire curing; and tire repair, finishing, and identification.

Puncture sealant means a mixture that may include, but is not limited to, solvent constituents, mixed rubber compound, and process oil that is applied to the inner liner of a finished tire for the purpose of sealing any future hole which might occur in the tread when an object penetrates the tire.

Responsible official means responsible official as defined in 40 CFR 70.2.

Rubber means the sum of the materials (for example, natural rubber, synthetic rubber, carbon black, oils, sulfur) that are combined in specific formulations for the sole purpose of making rubber tires or components of rubber tires.

Rubber mixing means the physical process of combining materials for use in rubber tire manufacturing to make mixed rubber compound using the collection of banburys and associated drop mills.

Rubber tire means a continuous solid or pneumatic cushion typically encircling a wheel and usually consisting, when pneumatic, of an external rubber covering.

Rubber used means the total mass of mixed rubber compound delivered to the tire production operations in a tire manufacturing facility (*e.g.,* the collection of warm-up mills, extruders, calendars, tire building, or other tire component and tire manufacturing equipment).

Tire cord means any fabric (*e.g.,* polyester, cotton) that is treated with a coating mixture that allows the fabric to more readily accept impregnation with rubber to become an integral part of a rubber tire.

[67 FR 45598, July 9, 2002, as amended at 68 FR 11747, Mar. 12, 2003]

TABLES TO SUBPART XXXX OF PART 63

TABLE 1 TO SUBPART XXXX OF PART 63—EMISSION LIMITS FOR TIRE PRODUCTION AFFECTED SOURCES

As stated in § 63.5984, you must comply with the emission limits for each new, reconstructed, or existing tire production affected source in the following table:

For each . . .	You must meet the following emission limits.
1. Option 1—HAP constituent option	a. Emissions of each HAP in Table 16 to this subpart must not exceed 1,000 grams HAP per megagram (2 pounds per ton) of total cements and solvents used at the tire production affected source, and b. Emissions of each HAP not in Table 16 to this subpart must not exceed 10,000 grams HAP per megagram (20 pounds per ton) of total cements and solvents used at the tire production affected source.
2. Option 2—production-based option	Emissions of HAP must not exceed 0.024 grams per megagram (0.00005 pounds per ton) of rubber used at the tire production affected source.

TABLE 2 TO SUBPART XXXX OF PART 63—EMISSION LIMITS FOR TIRE CORD PRODUCTION AFFECTED SOURCES

As stated in § 63.5986, you must comply with the emission limits for tire cord production affected sources in the following table:

For each . . .	You must meet the following emission limits.
1. Option 1.a (production-based option)—Existing tire cord production affected source.	Emissions must not exceed 280 grams HAP per megagram (0.56 pounds per ton) of fabric processed at the tire cord production affected source.
2. Option 1.b (production-based option)—New or reconstructed tire cord production affected source.	Emissions must not exceed 220 grams HAP per megagram (0.43 pounds per ton) of fabric processed at the tire cord production affected source.
3. Option 2 (HAP constituent option)—Existing, new or reconstructed tire cord production affected source.	a. Emissions of each HAP in Table 16 to this subpart must not exceed 1,000 grams HAP per megagram (2 pounds per ton) of total coatings used at the tire cord production affected source, and b. Emissions of each HAP not in Table 16 to this subpart must not exceed 10,000 grams HAP per megagram (20 pounds per ton) of total coatings used at the tire cord production affected source.

TABLE 3 TO SUBPART XXXX OF PART 63—EMISSION LIMITS FOR PUNCTURE SEALANT APPLICATION AFFECTED SOURCES

As stated in § 63.5988(a), you must comply with the emission limits for puncture sealant application affected sources in the following table:

For each . . .	You must meet the following emission limit.
1. Option 1.a (percent reduction option)—Existing puncture sealant application spray booth.	Reduce spray booth HAP (measured as volatile organic compounds (VOC)) emissions by at least 86 percent by weight.
2. Option 1.b (percent reduction option)—New or reconstructed puncture sealant application spray booth.	Reduce spray booth HAP (measured as VOC) emissions by at least 95 percent by weight.
3. Option 2 (HAP constituent option) Existing, new or reconstructed puncture sealant application spray booth.	a. Emissions of each HAP in Table 16 to this subpart must not exceed 1,000 grams HAP per megagram (2 pounds per ton) of total puncture sealants used at the puncture sealant affected source, and b. Emissions of each HAP not in Table 16 to this subpart must not exceed 10,000 grams HAP per megagram (20 pounds per ton) of total puncture sealants used at the puncture sealant affected source.

TABLE 4 TO SUBPART XXXX OF PART 63—OPERATING LIMITS FOR PUNCTURE SEALANT APPLICATION CONTROL DEVICES

As stated in § 63.5988(b), you must comply with the operating limits for puncture sealant application affected sources in the following table unless you are meeting Option 2 (HAP constituent option) limits in Table 3 to this subpart:

For each . . .	You must . . .
1. Thermal oxidizer to which puncture sealant application spray booth emissions are ducted.	Maintain the daily average firebox secondary chamber temperature within the operating range established during the performance test.

As stated in § 63.5988(b), you must comply with the operating limits for puncture sealant application affected sources in the following table unless you are meeting Option 2 (HAP constituent option) limits in Table 3 to this subpart:

For each . . .	You must . . .
2. Carbon adsorber (regenerative) to which puncture sealant application spray booth emissions are ducted.	a. Maintain the total regeneration mass, volumetric flow, and carbon bed temperature at the operating range established during the performance test. b. Reestablish the carbon bed temperature to the levels established during the performance test within 15 minutes of each cooling cycle.
3. Other type of control device to which puncture sealant application spray booth emissions are ducted.	Maintain your operating parameter(s) within the range(s) established during the performance test and according to your monitoring plan.
4. Permanent total enclosure capture system.	a. Maintain the face velocity across any NDO at least at the levels established during the performance test. b. Maintain the size of NDO, the number of NDO, and their proximity to HAP emission sources consistent with the parameters established during the performance test.
5. Other capture system	Maintain the operating parameters within the range(s) established during the performance test and according to your monitoring plan.

TABLE 5 TO SUBPART XXXX OF PART 63—REQUIREMENTS FOR PERFORMANCE TESTS

As stated in § 63.5993, you must comply with the requirements for performance tests in the following table:

If you are using . . .	You must . . .	Using . . .	According to the following requirements . . .
1. A thermal oxidizer.	a. Measure total HAP emissions, determine destruction efficiency of the control device, and establish a site-specific firebox secondary chamber temperature limit at which the emission limit that applies to the affected source is achieved.	i. Method 25 or 25A performance test and data from the temperature monitoring system.	(1). Measure total HAP emissions and determine the destruction efficiency of the control device using Method 25 (40 CFR part 60, appendix A). You may use Method 25A (40 CFR part 60, appendix A) if: an exhaust gas volatile organic matter concentration of 50 parts per million (ppmv) or less is required to comply with the standard; the volatile organic matter concentration at the inlet to the control system and the required level of control are such that exhaust volatile organic matter concentrations are 50 ppmv or less; or because of the high efficiency of the control device exhaust, is 50 ppmv or less, regardless of the inlet concentration. (2). Collect firebox secondary chamber temperature data every 15 minutes during the entire period of the initial 3-hour performance test, and determine the average firebox temperature over the 3-hour performance test by computing the average of all of the 15-minute reading.

As stated in § 63.5993, you must comply with the requirements for performance tests in the following table:

If you are using . . .	You must . . .	Using . . .	According to the following requirements . . .
2. A carbon adsorber (regenerative).	a. Measure total organic HAP emissions, establish the total regeneration mass or volumetric flow, and establish the temperature of the carbon bed within 15 minutes of completing any cooling cycles. The total regeneration mass, volumetric flow, and carbon bed temperature must be those at which the emission limit that applies to the affected source is achieved.	i. Method 25 or Method 25A performance test and data from the carbon bed temperature monitoring device.	(1). Measure total HAP emissions using Method 25. You may use Method 25A, if an exhaust gas volatile organic matter concentration of 50 ppmv or less; or because of the high efficiency of the control device, exhaust is 50 ppmv or less is required to comply with the standard; the volatile organic matter concentration (VOMC) at the inlet to the control system and the required level of control are such that exhaust VOMCs are 50 ppmv or less; or because of the high efficiency of the control device, exhaust is 50 ppmv or less, regardless of the inlet concentration. (2). Collect carbon bed total regeneration mass or volumetric flow for each carbon bed regeneration cycle during the performance test. (3). Record the maximum carbon bed temperature data for each carbon bed regeneration cycle during the performance test. (4). Record the carbon bed temperature within 15 minutes of each cooling cycle during the performance test. (5). Determine the average total regeneration mass or the volumetric flow over the 3-hour performance test by computing the average of all of the readings. (6). Determine the average maximum carbon bed temperature over the 3-hour performance test by computing the average of all of the readings. (7). Determine the average carbon bed temperature within 15 minutes of the cooling cycle over the 3-hour performance test.
3. Any control device other than a thermal oxidizer or carbon adsorber.	Determine control device efficiency and establish operating parameter limits with which you will demonstrate continuous compliance with the emission limit that applies to the affected source.	EPA-approved methods and data from the continuous parameter monitoring system.	Conduct the performance test according to the site-specific plan submitted according to § 63.7(c)(2)(i).
4. All control devices.	a. Select sampling ports' location and the number of traverse ports.	Method 1 or 1A of 40 CFR part 60, appendix A.	Locate sampling sites at the inlet and outlet of the control device and prior to any releases to the atmosphere.
	b. Determine velocity and volumetric flow rate.	Method 2, 2A, 2C, 2D, 2F, or 2G of 40 CFR part 60, appendix A.	
	c. Conduct gas analysis	Method 3, 3A, or 3B of 40 CFR part 60 appendix A.	
	d. Measure moisture content of the stack gas.	Method 4 of 40 CFR part 60, appendix A.	
5. A permenent total enclosure (PTE).	Measure the face velocity across natural draft openings and document the design features of the enclosure.	Method 204 of CFR part 51, appendix M.	Capture efficiency is assumed to be 100 percent if the criteria are met
6. Temporary total enclosure (TTE).	Construct a temporarily installed enclosure that allows you to determine the efficiency of your capture system and establish operating parameter limits.	Method 204 and the appropriate combination of Methods 204A–204F of 40 CFR part 51, appendix M.	

TABLE 6 TO SUBPART XXXX OF PART 62—INITIAL COMPLIANCE WITH THE EMISSION LIMITS FOR TIRE PRODUCTION AFFECTED SOURCES

As stated in § 63.5996, you must show initial compliance with the emission limits for tire production affected sources according to the following table:

For . . .	For the following emission limit . . .	You have demonstrated initial compliance if . . .
1. Sources complying with the purchase compliance alternative in § 63.5985(a).	The HAP constituent option in Table 1 to this subpart, option 1.	You demonstrate for each monthly period that no cements and solvents were purchased and used at the affected source containing HAP in amounts above the composition limits in Table 1 to this subpart, option 1, determined according to the procedures in § 63.5994(a) and (b)(1).
2. Sources complying with the monthly average compliance alternative without using a control device in § 63.5985(b).	The HAP constituent option in Table 1 to this subpart, option 1.	You demonstrate that the monthly average HAP emissions for each monthly operating period do not exceed the emission limits in Table 1 to this subpart, option 1, determined according to the applicable procedures in § 63.5994(a) and (b)(2).
3. Sources complying with the monthly average compliance alternative using a control device in § 63.5985(c).	The HAP constituent option in Table 1 to this subpart, option 1.	You demonstrate that the monthly average HAP emissions for each monthly operating period do not exceed the emission limits in Table 1 to this subpart, option 1, determined according to the applicable procedures in § 63.5994(a), (b)(3) and (4), and (d) through (f).
4. Sources complying with the monthly average compliance alternative without use of a control device in § 63.5985(b).	The production-based option in Table 1 to this subpart, option 2.	You demonstrate that the monthly average HAP emissions for each monthly operating period do not exceed the emission limits in Table 1 to this subpart, option 2, determined according to the applicable procedures in § 63.5994(c)(1) through (3).
5. Sources complying with the monthly average compliance alternative using a control device in § 63.5985(c).	The production-based option in Table 1 to this subpart, option 2.	You demonstrate that the monthly average HAP emissions for each monthly operating period do not exceed the emission limits in Table 1 to this subpart, option 2, determined according to the applicable procedures in § 63.5994(c)(1) and (2), (4) and (5), and (d) through (f).

TABLE 7 TO SUBPART XXXX OF PART 63—INITIAL COMPLIANCE WITH THE EMISSION LIMITS FOR TIRE CORD PRODUCTION AFFECTED SOURCES

As stated in § 63.5999, you must show initial compliance with the emission limits for tire cord production affected sources according to the following table:

For . . .	For the following emission limit . . .	You have demonstrated initial compliance if . . .
1. Sources complying with the monthly average alternative without using an add-on control device according to § 63.5987(a).	The production-based option in Table 2 to this subpart, option 1.	You demonstrate that the monthly average HAP emissions for each monthly operating period do not exceed the emission limits in Table 2 to this subpart, option 1, determined according to the procedures in § 63.5997(a), (b)(1) and (2).
2. Sources complying with the monthly average alternative using an add-on control device according to § 63.5987(b).	The production-based option in Table 2 to this subpart, option 1.	You demonstrate that the monthly average HAP emissions for each monthly operating period do not exceed the emission limits in Table 2 to this subpart, option 1, determined according to the procedures in § 63.5997(a), (b)(1) and (3) through (4), and (d) through (f).
3. Sources complying with the monthly average alternative without using an add-on control device according to § 63.5987(a).	The HAP constituent option in Table 2 to this subpart, option 2.	You demonstrate that the monthly average HAP emissions for each monthly operating period do not exceed the HAP constituent emission limits in Table 2 to this subpart, option 2, determined according to the applicable procedures in § 63.5997(a) and (c)(1) and (2).
4. Sources complying with the monthly average alternative using an add-on control device according to § 63.5987(b).	The HAP constituent option in Table 2 to this subpart, option 2.	You demonstrate that the monthly average HAP emissions for each monthly operating period do not exceed the HAP constituent emission limits in Table 2 to this subpart, option 2, determined according to the applicable procedures in § 63.5997(c)(1) and (3) through (4), and (d) through (f).

TABLE 8 TO SUBPART XXXX OF PART 63—INITIAL COMPLIANCE WITH THE EMISSION

As stated in § 63.6002, you must show initial compliance with the emission limits for puncture sealant application affected sources according to the following table:

For . . .	For the following emission limit . . .	You have demonstrated initial compliance if . . .
1. Sources complying with the overall control efficiency alternative in § 63.5989(a).	The percent reduction option in Table 3 to this subpart, option 1.	You demonstrate that you conducted the performance tests, determined the overall efficiency of your control system, demonstrated that the applicable limits in Table 3 to this subpart, option 1, have been achieved, and established the operating limits in Table 4 of this subpart for your equipment according to the applicable procedures in § 63.6000(b).
2. Sources complying with the permanent total enclosure and control device efficiency alternative in § 63.5989(b).	The percent reduction option in Table 3 to this subpart, option 1.	You demonstrate that you conducted the performance tests, determined the individual efficiencies of your capture and control systems, demonstrated that the applicable limits in Table 3 to this subpart, option 1, have been achieved, and established the operating limits in Table 4 of this subpart for your equipment according to the applicable procedures in § 63.6000(b).
3. Sources complying with the monthly average alternative in § 63.5989(c) without using an add-on control device.	The HAP constituent option in Table 3 to this subpart, option 2.	You demonstrate that the monthly average HAP emissions for each monthly operating period do not exceed the HAP constituent emission limits in Table 3 to this subpart, option 2, determined according to the applicable procedures in § 63.6000(c) and (d)(1).
4. Sources complying with the HAP constituent alternative in § 63.5989(d) by using an add-on control device.	The HAP constituent option in Table 3 to this subpart, option 2.	You demonstrate that the monthly average HAP emissions for each monthly operating period do not exceed the HAP constituent emission limits in Table 3 to this subpart, option 2, determined according to the applicable procedures in § 63.6000(c), (d)(2) and (3), and (e) through (f).

TABLE 9 TO SUBPART XXXX OF PART 63—MINIMUM DATA FOR CONTINUOUS COMPLIANCE WITH THE EMISSION LIMITS FOR TIRE PRODUCTION AFFECTED SOURCES

As stated in § 63.6003, you must maintain minimum data to show continuous compliance with the emission limits for tire production affected sources according to the following table:

For . . .	You must maintain . . .
1. Sources complying with purchase compliance alternative in § 63.5985(a) that are meeting the HAP constituent emission limit (option 1) in Table 1 to this subpart.	a. A list of each cement and solvent as purchased and the manufacturer or supplier of each. b. A record of Method 311 (40 CFR part 60, appendix A), or approved alternative method, test results indicating the mass percent of each HAP for each cement and solvent as purchased.
2. Sources complying with the monthly average compliance alternative without using a control device according to § 63.5985(b) that are meeting emission limits in Table 1 to this subpart.	a. A record of Method 311, or approved alternative method, test results, indicating the mass percent of each HAP for each cement and solvent, as purchased. b. The mass of each cement and solvent used each monthly operating period. c. The total mass of rubber used each monthly operating period (if complying with the production-based emission limit, option 2, in Table 1 to this subpart). d. All data and calculations used to determine the monthly average mass percent for each HAP for each monthly operating period. e. Monthly averages of emissions in the appropriate emission limit format.
3. Sources complying with the monthly average compliance alternative using a control device according to § 63.5985(c) that are meeting emission limits in Table 1 to this subpart.	a. The same information as sources complying with the monthly average alternative without using a control device. b. Records of operating parameter values for each operating parameter that applies to you.

TABLE 10 TO SUBPART XXXX OF PART 63—CONTINUOUS COMPLIANCE WITH THE EMISSION LIMITS FOR TIRE PRODUCTION AFFECTED SOURCES

As stated in § 63.6004, you must show continuous compliance with the emission limits for tire production affected sources according to the following table:

For . . .	For the following emission limit . . .	You must demonstrate continuous compliance by . . .
1. Sources complying with purchase compliance alternative in § 63.5985(a).	The HAP constituent option in Table 1 to this subpart, option 1.	Demonstrating for each monthly period that no cements and solvents were purchased and used at the affected source containing HAP in amounts above the composition limits in Table 1 to this subpart, option 1, determined according to the procedures in § 63.5994(a) and (b)(1).
2. Sources complying with the monthly average compliance alternative without using a control device according to § 63.5985(b).	The HAP constituent option in Table 1 to this subpart, option 1.	Demonstrating that the monthly average HAP emissions for each monthly operating period do not exceed the emission limits in Table 1 to this subpart, option 1, determined according to the applicable procedures in § 63.5994(a) and (b)(2).
3. Sources complying with the monthly average compliance alternative using a control device according to § 63.5985(c).	The HAP constituent option in Table 1 to this subpart, option 1.	Demonstrating that the monthly average HAP emissions for each monthly operating period do not exceed the emission limits in Table 1 to this subpart, option 1, determined according to the applicable procedures in § 63.5994(a), (b)(3) and (4), and (d) through (f).
4. Sources complying with the monthly average compliance alternative without using a control device according to § 63.5985(b).	The production-based option in Table 1 to this subpart, option 2.	Demonstrating that the monthly average HAP emissions for each monthly operating period do not exceed the emission limits in Table 1 to this subpart, option 2, determined according to the applicable procedures in § 63.5994(c)(1) through (3).
5. Sources complying with the monthly average compliance alternative using a control device according to § 63.5985(c).	The production-based option in Table 1 to this subpart, option 2.	Demonstrating that the monthly average HAP emissions for each monthly operating period do not exceed the emission limits in Table 1 to this subpart, option 2, determined according to the applicable procedures in § 63.5994(c)(1) and (2), (4) and (5), and (d) through (f).

TABLE 11 TO SUBPART XXXX OF PART 63—MINIMUM DATA FOR CONTINUOUS COMPLIANCE WITH THE EMISSION LIMITS FOR TIRE CORD PRODUCTION AFFECTED SOURCES

As stated in § 63.6005, you must maintain minimum data to show continuous compliance with the emission limits for tire cord production affected sources according to the following table:

For . . .	You must maintain . . .
1. Sources complying with the monthly average alternative without using an add-on control device according to § 63.5987(a) that are meeting emission limits in Table 2 to this subpart.	a. A record of Method 311 (40 CFR part 63, appendix A), or approved alternative method, test results, indicating the mass percent of each HAP for coating used. b. The mass of each coating used each monthly operating period. c. The total mass of fabric processed each monthly operating period (if complying with the production-based option in Table 2 to this subpart, option 1). d. All data and calculations used to determine the monthly average mass percent for each HAP for each monthly operating period. e. Monthly averages of emissions in the appropriate emission emission limit format.
2. Sources complying with the monthly average alternative using an add-on control device according to § 63.5987(b) that are meeting emission limits in Table 2 to this subpart.	a. The same information as sources complying with the monthly average alternative without using a control device. b. Records of operating parameter values for each operating parameter that applies to you.

TABLE 12 TO SUBPART XXXX OF PART 63—CONTINUOUS COMPLIANCE WITH THE EMISSION LIMITS FOR TIRE CORD PRODUCTION AFFECTED SOURCES

As stated in § 63.6006, you must show continuous compliance with the emission limits for tire cord production affected sources according to the following table:

For . . .	For the following emission limit . . .	You must demonstrate continuous compliance by . . .
1. Sources complying with the monthly average compliance alternative without using an add-on control device according to § 63.5987(a).	In Table 2 to this subpart	a. Demonstrating that the monthly average HAP emissions for each monthly operating period do not exceed the emission limits in Table 2 to this subpart, option 1, determined according to the applicable procedures in § 63.5997(a) and (b)(1) and (2). b. Demonstrating that the monthly average HAP emissions for each monthly operating period do not exceed the HAP constituent emission limits in Table 2 to this subpart, option 2, determined according to the applicable procedures in § 63.5997(a) and (c)(1) and (2).
2. Sources complying with the monthly average compliance alternative using an add-on control device according to § 63.5987(b).	In Table 2 to this subpart	a. Demonstrating that the monthly average HAP emissions for each monthly operating period do not exceed the emission limits in Table 2 to this subpart, option 1, determined according to the applicable procedures in § 63.5997(a), (b)(1) and (3) through (4), and (d) through (f). b. Demonstrating that the monthly HAP emissions for each monthly operating period do not exceed the HAP constituent emission limits in Table 2 to this subpart, option 2, determined according to the applicable procedures in § 63.5997(c)(1) and (3) through (4), and (d) through (f).

TABLE 13 TO SUBPART XXXX OF PART 63—MINIMUM DATA FOR CONTINUOUS COMPLIANCE WITH THE EMISSION LIMITATIONS FOR PUNCTURE SEALANT APPLICATION AFFECTED SOURCES

As stated in § 63.6007, you must maintain minimum data to show continuous compliance with the emission limitations for puncture sealant application affected sources according to the following table:

For . . .	You must maintain . . .
1. Sources complying with the control efficiency alternatives in § 63.5989(a) or (b) that are meeting the percent reduction emission limits in Table 3 to this subpart, option 1, using a thermal oxidizer to reduce HAP emissions so that they do not exceed the operating limits in Table 4 to this subpart.	Records of the secondary chamber firebox temperature for 100 percent of the hours during which the process was operated.
2. Sources complying with the control efficiency alternatives in § 63.5989(a) or (b) that are meeting the percent reduction emission limits in Table 3 to this subpart, option 1, using a carbon adsorber to reduce HAP emissions so that they do not exceed the operating limits in Table 4 to this subpart.	Records of the total regeneration stream mass or volumetric flow for each regeneration cycle for 100 percent of the hours during which the process was operated, and a record of the carbon bed temperature after each regeneration, and within 15 minutes of completing any cooling cycle for 100 percent of the hours during which the process was operated.
3. Sources complying with the control efficiency alternatives in § 63.5989(a) or (b) that are meeting the percent reduction emission limits in Table 3 to this subpart, option 1, using any other type of control device to which puncture sealant application spray booth HAP emissions are ducted so that they do not exceed the operating limits in Table 4 to this subpart.	Records of operating parameter values for each operating parameter that applies to you.

As stated in § 63.6007, you must maintain minimum data to show continuous compliance with the emission limitations for puncture sealant application affected sources according to the following table:

For . . .	You must maintain . . .
4. Sources complying with the permanent total enclosure compliance alternative in § 63.5989(b) that are meeting the percent reduction emission limits in Table 3 to this subpart, option 1, using a permanent total enclosure capture system to capture HAP emissions so that they do not exceed the operating limits in Table 4 to this subpart.	Records of the face velocity across any NDO, the size of NDO, the number of NDO, and their proximity to HAP emission sources.
5. Sources complying with the overall control efficiency alternative in § 63.5989(a) that are meeting the percent reduction emission limits in Table 3 to this subpart, option 1, using any other capture system to capture HAP emissions so that they do not exceed the operating limits in Table 4 to this subpart.	Records of operating parameter values for each operating parameter that applies to you.
6. Sources complying with the monthly average alternative without using an add-on control device according to § 63.5988(a) that are meeting the HAP constituent emission limits in Table 3 to this subpart, option 2.	a. A record of Method 311 (40 CFR part 63, appendix A), or approved alternative method, test results, indicating the mass percent of each HAP for puncture sealant used. b. The mass of each puncture sealant used each monthly operating period. c. All data and calculations used to determine the monthly average mass percent for each HAP for each monthly operating period. d. Monthly averages of emissions in the appropriate emission limit format.
7. Sources complying with the monthly average alternative using an add-on control device according to § 63.5988(a) that are meeting the HAP constituent emission limits in Table 3 to this subpart, option 2.	a. The same information as sources complying with the monthly average alternative that are not using a control device. b. Records of operating parameter values for each operating parameter that applies to you.

TABLE 14 TO SUBPART XXXX OF PART 63—CONTINUOUS COMPLIANCE WITH THE EMISSION LIMITATIONS FOR PUNCTURE SEALANT APPLICATION AFFECTED SOURCES

As stated in § 63.6008, you must show continuous compliance with the emission limitations for puncture sealant application affected sources according to the following table:

For . . .	You must demonstrate continuous compliance by . . .
1. Each carbon adsorber used to comply with the operating limits in Table 4 to this subpart.	a. Monitoring and recording every 15 minutes the total regeneration stream mass or volumetric flow, and the carbon bed temperature after each regeneration, and within 15 minutes of completing any cooling cycle, and b. Maintaining the total regeneration stream mass or volumetric flow, and the carbon bed temperature after each regeneration, and within 15 minutes of completing any cooling cycle within the operating levels established during your performance test.
2. Each thermal oxidizer used to comply with operating limits in Table 4 to this subpart.	a. Continuously monitoring and recording the firebox temperature every 15 minutes, and b. Maintaining the daily average firebox temperature within the operating level established during your performance test.
3. Other ''add-on'' control or capture system hardware used to comply with the operating limits in Table 4 to this subpart.	Continuously monitoring and recording specified parameters identified through compliance testing and identified in the Notification of Compliance Status report.
4. Sources complying with the monthly average compliance alternative without using an add-on control device according to § 63.5989(c) that are meeting the HAP constituent emission limits in Table 3 to this subpart, option 2.	Demonstrating that the monthly average HAP emissions for each monthly operating period do not exceed the HAP constituent emission limits in Table 3 to this subpart, option 2, determined according to the applicable procedures in § 63.6000(c) and (d)(1).

As stated in § 63.6008, you must show continuous compliance with the emission limitations for puncture sealant application affected sources according to the following table:

For . . .	You must demonstrate continuous compliance by . . .
5. Sources complying with the monthly average compliance alternative by using an add-on control device according to § 63.5989(d) that are the HAP constituent emission limits in Table 3 to this subpart, option 2.	Demonstrating that the monthly average HAP emissions for each monthly operating period do not exceed the HAP constituent emission limits in Table 3 to this subpart, option 2, determined according to the applicable procedures in § 63.6000(c), (d)(2) and (3), and (e) through (g).

TABLE 15 TO SUBPART XXXX OF PART 63—REQUIREMENTS FOR REPORTS

As stated in § 63.6010, you must submit each report that applies to you according to the following table:

You must submit a(n)	The report must contain . . .	You must submit the report . . .
1. Compliance report	a. If there are no deviations from any emission limitations that apply to you, a statement that there were no deviations from the emission limitations during the reporting period. If there were no periods during which the CPMS was out-of-control as specified in § 63.8(c)(7), a statement that there were no periods during which the CPMS was out-of-control during the reporting period.	Semiannually according to the requirements in § 63.6010(b), unless you meet the requirements for annual reporting in § 63.6010(f).
	b. If you have a deviation from any emission limitation during the reporting period at an affected source where you are not using a CPMS, the report must contain the information in § 63.6010(d). If the deviation occurred at a source where you are using a CMPS or if there were periods during which the CPMS were out-of-control as specified in § 63.8(c)(7), the report must contain the information required by § 63.5990(f)(3).	Semiannually according to the requirements in § 63.6010(b), unless you meet the requirements for annual reporting in § 63.6010(f).
	c. If you had a startup, shutdown or malfunction during the reporting period and you took actions consistent with your startup, shutdown, and malfunction plan, the compliance report must include the information in § 63.10(d)(5)(i).	Semiannually according to the requirements in § 63.6010(b), unless you meet the requirements for annual reporting in § 63.6010(f).
2. Immediate startup, shutdown, and malfunction report if you had a startup, shutdown, or malfunction during the reporting period that is not consistent with your startup, shutdown, and malfunction plan..	a. Actions taken for the event	By fax or telephone within 2 working days after starting actions inconsistent with the plan.
	b. The information in § 63.10(d)(5)(ii)	By letter within 7 working days after the end of the event unless you have made alternative arrangements with the permitting authority (§ 63.10(d)(5)(ii)).

TABLE 16 TO SUBPART XXXX OF PART 63—SELECTED HAZARDOUS AIR POLLUTANTS

You must use the information listed in the following table to determine which emission limit in the HAP constituent options in Tables 1 through 3 to this subpart is applicable to you:

CAS No.	Selected hazardous air pollutants
50000	Formaldehyde
51796	Ethyl carbamate (Urethane)
53963	2-Acetylaminofluorene
56235	Carbon tetrachloride
57147	1,1-Dimethyl hydrazine
57578	beta-Propiolactone
58899	Lindane (all isomers)
59892	N-Nitrosomorpholine
60117	Dimethyl aminoazobenzene
62759	N-Nitrosodimethylamine

You must use the information listed in the following table to determine which emission limit in the HAP constituent options in Tables 1 through 3 to this subpart is applicable to you:

CAS No.	Selected hazardous air pollutants
64675	Diethyl sulfate
67663	Chloroform
67721	Hexachloroethane
71432	Benzene (including benzene from gasoline)
75014	Vinyl chloride
75070	Acetaldehyde
75092	Methylene chloride (Dichloromethane)
75218	Ethylene oxide
75558	1,2-Propylenimine (2-Methyl aziridine)
75569	Propylene oxide
77781	Dimethyl sulfate
79061	Acrylamide
79447	Dimethyl carbamoyl chloride
79469	2-Nitropropane
88062	2,4,6-Trichlorophenol
91941	3,3-Dichlorobenzidene
92671	4-Aminobiphenyl
92875	Benzidine
95534	o-Toluidine
95807	2,4-Toluene diamine
96128	1,2-Dibromo-3-chloropropane
96457	Ethylene thiourea
98077	Benzotrichloride
101144	4,4-Methylene bis(2-chloroaniline)
101779	4,4-Methylenedianiline
106467	1,4-Dichlorobenzene(p)
106898	Epichlorohydrin (l-Chloro-2,3-epoxypropane)
106934	Ethylene dibromide (Dibromoethane)
106990	1,3-Butadiene
107062	Ethylene dichloride (1,2-Dichloroethane)
107131	Acrylonitrile
107302	Chloromethyl methyl ether
117817	Bis(2-ethylhexyl)phthalate (DEHP)
118741	Hexachlorobenzene
119904	3,3-Dimethoxybenzidine
119937	3,3-Dimethyl benzidine
122667	1,2-Diphenylhydrazine
123911	1,4-Dioxane (1,4-Diethyleneoxide)
127184	Tetrachloroethylene (Perchloroethylene)
140885	Ethyl acrylate
302012	Hydrazine
542756	1,3-Dichloropropene
542881	Bis(chloromethyl)ether
680319	Hexamethylphosphoramide
684935	N-Nitroso-N-methylurea
1120714	1,3-Propane sultone
1332214	Asbestos
1336363	Polychlorinated biphenyls (Aroclors)
1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin
8001352	Toxaphene (chlorinated camphene)
	Arsenic Compounds
	Chromium Compounds
	Coke Oven Emissions

Table 17 to Subpart XXXX of Part 63—Applicability of General Provisions to This Subpart XXXX

As stated in § 63.6013, you must comply with the applicable General Provisions (GP) requirements according to the following table:

Citation	Subject	Brief description of applicable sections	Applicable to Subpart XXXX?	
			Using a control device	Not using a control device
§ 63.1	Applicability	Initial applicability determination; applicability after standard established; permit requirements; extensions; notifications.	Yes	Yes.
§ 63.2	Definitions	Definitions for part 63 standards	Yes	Yes.
§ 63.3	Units and Abbreviations	Units and abbreviations for part 63 standards	Yes	Yes.

As stated in § 63.6013, you must comply with the applicable General Provisions (GP) requirements according to the following table:

Citation	Subject	Brief description of applicable sections	Applicable to Subpart XXXX?	
			Using a control device	Not using a control device
§ 63.4	Prohibited Activities	Prohibited activities; compliance date; circumvention; severability.	Yes	Yes.
§ 63.5	Construction/Reconstruction.	Applicability; applications; approvals	Yes	Yes.
§ 63.6(a)	Applicability	GP apply unless compliance extension; GP apply to area sources that become major.	Yes	Yes.
§ 63.6(b)(1)–(4)	Compliance Dates for New and Reconstructed Sources.	Standards apply at effective date; 3 years after effective date; upon startup; 10 years after construction or reconstruction commences for section 112(f).	Yes	Yes.
§ 63.6(b)(5)	Notification	Must notify if commenced construction or reconstruction after proposal.	Yes	Yes.
§ 63.6(b)(6)	[Reserved]			
§ 63.6(b)(7)	Compliance Dates for New and Reconstructed Area Sources that Become Major.		No	No.
§ 63.6(c)(1)–(2)	Compliance Dates for Existing Sources.	Comply according to date in subpart, which must be no later than 3 years after effective date; for CAA section 112(f) standards, comply within 90 days of effective date unless compliance extension.	Yes	Yes.
§ 63.6(c)(3)–(4)	[Reserved]			
§ 63.6(c)(5)	Compliance Dates for Existing Area Sources that Become Major.	Area sources that become major must comply with major source standards by date indicated in subpart or by equivalent time period (for example, 3 years).	Yes	Yes.
§ 63.6(d)	[Reserved]			
§ 63.6(e)(1)–(2)	Operation & Maintenance.	Operate to minimize emissions at all times; correct malfunctions as soon as practicable; and operation and maintenance requirements independently enforceable; information Administrator will use to determine if operation and maintenance requirements were met.	Yes	Yes.
§ 63.6(e)(3)	Startup, Shutdown, and Malfunction Plan (SSMP).		Yes	No.
§ 63.6(f)(1)	Compliance Except During SSM.		Yes	No.
§ 63.6(f)(2)–(3)	Methods for Determining Compliance.	Compliance based on performance test; operation and maintenance plans; records; inspection.	Yes	Yes.
§ 63.6(g)(1)–(3)	Alternative Standard	Procedures for getting an alternative standard	Yes	Yes.
§ 63.6(h)	Opacity/Visible Emission (VE) Standards.		No	No.
§ 63.6(i)	Compliance Extension	Procedures and criteria for Administrator to grant compliance extension.	Yes	Yes.
§ 63.6(j)	Presidential Compliance Exemption.	President may exempt source category from requirement to comply with rule.	Yes	Yes.

As stated in § 63.6013, you must comply with the applicable General Provisions (GP) requirements according to the following table:

Citation	Subject	Brief description of applicable sections	Applicable to Subpart XXXX?	
			Using a control device	Not using a control device
§ 63.7(a)(1)–(2)	Performance Test Dates.		No	No.
§ 63.7(a)(3)	CAA section 114 Authority.	Administrator may require a performance test under CAA section 114 at any time.	Yes	No.
§ 63.7(b)(1)	Notification of Performance Test.	Must notify Administrator 60 days before the test.	Yes	No.
§ 63.7(b)(2)	Notification of Rescheduling.	If rescheduling a performance test is necessary, must notify Administrator 5 days before scheduled date of rescheduled date.	Yes	No.
§ 63.7(c)	Quality Assurance/Test Plan.	Requirement to submit site-specific test plan 60 days before the test or on date Administrator agrees with: test plan approval procedures; performance audit requirements; and internal and external quality assurance procedures for testing.	Yes	No.
§ 63.7(d)	Testing Facilities	Requirements for testing facilities	Yes	No.
§ 63.7(e)(1)	Conditions for Conducting Performance Tests.	Performance tests must be conducted under representative conditions; cannot conduct performance tests during SSM; not a violation to exceed standard during SSM.	Yes	No.
§ 63.7(e)(2)	Conditions for Conducting Performance Tests.	Must conduct according to rule and EPA test methods unless Administrator approves alternative.	Yes	No.
§ 63.7(e)(3)	Test Run Duration	Must have three test runs of at least 1 hour each; compliance is based on arithmetic mean of three runs; and conditions when data from an additional test run can be used.	Yes	No.
§ 63.7(f)	Alternative Test Method	Procedures by which Administrator can grant approval to use an alternative test method.	Yes	No.
§ 63.7(g)	Performance Test Data Analysis.	Must include raw data in performance test report; must submit performance test data 60 days after end of test with the Notification of Compliance Status report; and keep data for 5 years.	Yes	No.
§ 63.7(h)	Waiver of Tests	Procedures for Administrator to waive performance test.	Yes	No.
§ 63.8(a)(1)	Applicability of Monitoring Requirements.	Subject to all monitoring requirements in standard.	Yes	Yes.
§ 63.8(a)(2)	Performance Specifications.	Performance Specifications in appendix B of 40 CFR part 60 apply.	Yes	No.
§ 63.8(a)(3)	[Reserved]			
§ 63.8(a)(4)	Monitoring with Flares		No	No.
§ 63.8(b)(1)	Monitoring	Must conduct monitoring according to standard unless Administrator approves alternative.	Yes	Yes.
§ 63.8(b)(2)–(3)	Multiple Effluents and Multiple Monitoring Systems.	Specific requirements for installing monitoring systems; must install on each effluent before it is combined and before it is released to the atmosphere unless Administrator approves otherwise; if more than one monitoring system on an emission point, must report all monitoring system results, unless one monitoring system is a backup.	Yes	Yes.

As stated in § 63.6013, you must comply with the applicable General Provisions (GP) requirements according to the following table:

Citation	Subject	Brief description of applicable sections	Applicable to Subpart XXXX?	
			Using a control device	Not using a control device
§ 63.8(c)(1)	Monitoring System Operation and Maintenance.	Maintain monitoring system in a manner consistent with good air pollution control practices.	Applies as modified by § 63.5990(e) and (f).	No.
§ 63.8(c)(1)(i)	Routine and Predictable SSM.		No	No.
§ 63.8(c)(1)(ii)	SSM not in SSMP		No	No.
§ 63.8(c)(1)(iii)	Compliance with Operation and Maintenance Requirements.	How Administrator determines if source complying with operation and maintenance requirements; review of source operation and maintenance procedures, records, manufacturer's instructions, recommendations, and inspection of monitoring system.	Yes	Yes.
§ 63.8(c)(2)–(3)	Monitoring System Installation.	Must install to get representative emission and parameter measurements; must verify operational status before or at performance test.	Yes	No.
§ 63.8(c)(4)	Continuous Monitoring System (CMS) Requirements.		Applies as modified by § 63.5990(f).	No.
§ 63.8(c)(5)	Continuous Opacity Monitoring Systems (COMS) Minimum Procedures.		No	No.
§ 63.8(c)(6)	CMS Requirements		Applies as modified by § 63.5990(e).	No.
§ 63.8(c)(7)–(8)	CMS Requirements	Out-of-control periods, including reporting	Yes	No.
§ 63.8(d)	CMS Quality Control		Applies as modified by § 63.5990(e) and (f).	No.
§ 63.8(e)	CMS Performance Evaluation.		No	No.
§ 63.8(f)(1)–(5)	Alternative Monitoring Method.	Procedures for Administrator to approve alternative monitoring.	Yes	Yes.
§ 63.8(f)(6)	Alternative to Relative Accuracy Test.		No	No.
§ 63.8(g)	Data Reduction		Applies as modified by § 63.5990(f).	No.
§ 63.9(a)	Notification Requirements.	Applicability and state delegation	Yes	Yes.
§ 63.9(b)(1)-(5)	Initial Notifications	Submit notification 120 days after effective date; notification of intent to construct/reconstruct, notification of commencement of construct/reconstruct, notification of startup; and contents of each.	Yes	Yes.
§ 63.9(c)	Request for Compliance Extension.	Can request if cannot comply by date or if installed best available control technology or lowest achievable emission rate.	Yes	Yes.

As stated in § 63.6013, you must comply with the applicable General Provisions (GP) requirements according to the following table:

Citation	Subject	Brief description of applicable sections	Applicable to Subpart XXXX?	
			Using a control device	Not using a control device
§ 63.9(d)	Notification of Special Compliance Requirements for New Source.	For sources that commence construction between proposal and promulgation and want to comply 3 years after effective date.	Yes	Yes.
§ 63.9(e)	Notification of Performance Test.	Notify Administrator 60 days prior	Yes	No.
§ 63.9(f)	Notification of VE/Opacity Test.	No	No.	
§ 63.9(g)	Additional Notifications When Using CMS.	No	No.	
§ 63.9(h)	Notification of Compliance Status.	Contents; due 60 days after end of performance test or other compliance demonstration, except for opacity/VE, which are due 30 days after; when to submit to Federal vs. State authority.	Yes	Yes.
§ 63.9(i)	Adjustment of Submittal Deadlines.	Procedures for Administrator to approve change in when notifications must be submitted.	Yes	Yes.
§ 63.9(j)	Change in Previous Information.	Must submit within 15 days after the change	Yes	Yes.
§ 63.10(a)	Recordkeeping/Reporting.	Applies to all, unless compliance extension; when to submit to Federal vs. State authority; procedures for owners of more than 1 source.	Yes	Yes.
§ 63.10(b)(1)	Recordkeeping/Reporting.	General Requirements; keep all records readily available; and keep for 5 years..	Yes	Yes.
§ 63.10(b)(2)(i)-(iv).	Records related to Startup, Shutdown, and Malfunction..	Yes	No.	
§ 63.10(b)(2)(vi) and (x)–(xi).	CMS Records	Malfunctions, inoperative, out-of-control; calibration checks; adjustments, maintenance.	Yes	No.
§ 63.10(b)(2)(vii)–(ix).	Records	Measurements to demonstrate compliance with emission limitations; performance test, performance evaluation, and visible emission observation results; and measurements to determine conditions of performance tests and performance evaluations.	Yes	Yes.
§ 63.10(b)(2)(xii).	Records	Records when under waiver	Yes	Yes.
§ 63.10(b)(2)(xiii).	Records		No	No.
§ 63.10(b)(2)(xiv).	Records	All documentation supporting Initial Notification and Notification of Compliance Status.	Yes	Yes.
§ 63.10(b)(3)	Records	Applicability determinations	Yes	Yes.
§ 63.10(c)	Records		No	No.
§ 63.10(d)(1)	General Reporting Requirements.	Requirement to report	Yes	Yes.
§ 63.10(d)(2)	Report of Performance Test Results.	When to submit to Federal or State authority	Yes	No.
§ 63.10(d)(3)	Reporting Opacity or VE Observations.		No	No.

As stated in § 63.6013, you must comply with the applicable General Provisions (GP) requirements according to the following table:

Citation	Subject	Brief description of applicable sections	Applicable to Subpart XXXX?	
			Using a control device	Not using a control device
§ 63.10(d)(4)	Progress Reports	Must submit progress reports on schedule if under compliance extension.	Yes	Yes.
§ 63.10(d)(5)	Startup, Shutdown, and Malfunction Reports.		Yes	No.
§ 63.10(e)	Additional CMS Reports		No	No.
§ 63.10(f)	Waiver for Recordkeeping/Reporting.	Procedures for Administrator to waive	Yes	Yes.
§ 63.11	Flares		No	No.
§ 63.12	Delegation	State authority to enforce standards	Yes	Yes.
§ 63.13	Addresses	Addresses where reports, notifications, and requests are sent.	Yes	Yes.
§ 63.14	Incorporation by Reference.	Test methods incorporated by reference	Yes	Yes.
§ 63.15	Availability of Information.	Public and confidential information	Yes	Yes.

Subpart YYYY—AAAAA [Reserved]

Subpart BBBBB—National Emission Standards for Hazardous Air Pollutants for Semiconductor Manufacturing

SOURCE: 68 FR 27925, May 22, 2003, unless otherwise noted.

WHAT THIS SUBPART COVERS

§ 63.7180 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants (NESHAP) for semiconductor manufacturing facilities. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission standards.

§ 63.7181 Am I subject to this subpart?

(a) You are subject to this subpart if you own or operate a semiconductor manufacturing process unit that is a major source of hazardous air pollutants (HAP) emissions or that is located at, or is part of, a major source of HAP emissions.

(b) A major source of HAP emissions is any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit, considering controls, in the aggregate, any single HAP at a rate of 10 tons per year (tpy) or more or any combination of HAP at a rate of 25 tpy or more.

§ 63.7182 What parts of my facility does this subpart cover?

(a) This subpart applies to each new, reconstructed, or existing affected source that you own or operate that manufactures semiconductors.

(b) An affected source subject to this subpart is the collection of all semiconductor manufacturing process units used to manufacture p-type and n-type semiconductors and active solid-state devices from a wafer substrate, including research and development activities integrated into a semiconductor manufacturing process unit. A semiconductor manufacturing process unit includes the equipment assembled and connected by ductwork or hard-piping including furnaces and associated unit operations; associated wet and dry work benches; associated recovery devices; feed, intermediate, and product storage tanks; product transfer racks and connected ducts and piping; pumps, compressors, agitators, pressure-relief devices, sampling connecting systems, open-ended valves or lines, valves, connectors, and instrumentation systems; and control devices.

(c) Your affected source is a new affected source if you commence construction of the affected source after May 8, 2002, and you meet the applicability criteria in §63.7181 at the time you commence construction.

(d) Your affected source is a reconstructed affected source if you meet the criteria for ''reconstruction,'' as defined in §63.2.

(e) Your source is an existing affected source if it is not a new or reconstructed affected source.

§63.7183 When do I have to comply with this subpart?

(a) If you have a new or reconstructed affected source, you must comply with this subpart according to paragraphs (a)(1) and (2) of this section.

(1) If you start up your affected source before May 22, 2003, then you must comply with the emission standards for new and reconstructed sources in this subpart no later than May 22, 2003.

(2) If you start up your affected source after May 22, 2003, then you must comply with the emission standards for new and reconstructed sources in this subpart upon startup of your affected source.

(b) If you have an existing affected source, you must comply with the emission standards for existing sources no later than 3 years from May 22, 2003.

(c) If you have an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP and an affected source subject to this subpart, paragraphs (c)(1) and (2) of this section apply.

(1) Any portion of your existing facility that is a new affected source as specified at §63.7182(c), or a reconstructed affected source as specified at §63.7182(d), must be in compliance with this subpart upon startup.

(2) Any portion of your facility that is an existing affected source, as specified at §63.7182(e), must be in compliance with this subpart by not later than 3 years after it becomes a major source.

(d) You must meet the notification requirements in §63.7189 and in subpart A of this part. You must submit some of the notifications (*e.g.*, Initial Notification) before the date you are required to comply with the emission limitations in this subpart.

EMISSION STANDARDS

§63.7184 What emission limitations, operating limits, and work practice standards must I meet?

(a) If you have a new, reconstructed, or existing affected source, as defined in §63.7182(b), you must comply with all applicable emission limitations in this section on and after the compliance dates specified in §63.7183.

(b) *Process vents—organic HAP emissions.* For each process vent that emits organic HAP, other than process vents from storage tanks, you must limit organic HAP emissions to the level specified in paragraph (b)(1) or (2) of this section. These limitations can be met by venting emissions from your process vent through a closed vent system to any combination of control devices meeting the requirements of §63.982(a)(2).

(1) Reduce the emissions of organic HAP from the process vent stream by 98 percent by weight.

(2) Reduce or maintain the concentration of emitted organic HAP from the process vent to less than or equal to 20 parts per million by volume (ppmv).

(c) *Process vents—inorganic HAP emissions.* For each process vent that emits inorganic HAP, other than process vents from storage tanks, you must limit inorganic HAP emissions to the level specified in paragraph (c)(1) or (2) of this section. These limitations can be met by venting emissions from your process vent through a closed vent system to a halogen scrubber meeting the requirements of §§63.983 (closed vent system requirements) and 63.994 (halogen scrubber requirements); the applicable general monitoring requirements of §63.996; the applicable performance test requirements; and the monitoring, recordkeeping and reporting requirements referenced therein.

(1) Reduce the emissions of inorganic HAP from the process vent stream by 95 percent by weight.

(2) Reduce or maintain the concentration of emitted inorganic HAP from the process vent to less than or equal to 0.42 ppmv.

(d) *Storage tanks.* For each storage tank, 1,500 gallons or larger, you must limit total HAP emissions to the level specified in paragraph (d)(1) or (2) of this section if the emissions from the storage tank vent contains greater than 0.42 ppmv inorganic HAP. These limitations can be met by venting emissions from your storage tank through a closed vent system to a halogen scrubber meeting the requirements of §§ 63.983 (closed vent system requirements) and 63.994 (halogen scrubber requirements); the applicable general monitoring requirements of § 63.996; the applicable performance test requirements; and the monitoring, recordkeeping and reporting requirements referenced therein.

(1) Reduce the emissions of inorganic HAP from each storage tank by 95 percent by weight.

(2) Reduce or maintain the concentration of emitted inorganic HAP from the process vent to less than or equal to 0.42 ppmv.

(e) You must comply with the applicable work practice standards and operating limits contained in § 63.982(a)(1) and (2). The closed vent system inspection requirements of § 63.983(c), as referenced by § 63.982(a)(1) and (2), do not apply.

COMPLIANCE REQUIREMENTS

§ 63.7185 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the requirements of § 63.7184 at all times, except during periods of startup, shutdown, or malfunction.

(b) You must always operate and maintain your affected source, including air pollution control and monitoring equipment, according to the provisions in § 63.6(e)(1)(i).

(c) You must develop and implement a written startup, shutdown, and malfunction plan (SSMP). Your SSMP must be prepared in accordance with the provisions in § 63.6(e)(3).

(d) You must perform all the items listed in paragraphs (d)(1) through (3) of this section:

(1) Submit the necessary notifications in accordance with § 63.7189.

(2) Submit the necessary reports in accordance with § 63.7190.

(3) Maintain all necessary records you have used to demonstrate compliance with this subpart in accordance with § 63.7191.

§ 63.7186 By what date must I conduct performance tests or other initial compliance demonstrations?

For each process vent or storage tank vent emission limitation in § 63.7184 for which initial compliance is demonstrated by meeting a percent by weight HAP emissions reduction, or a HAP concentration limitation, you must conduct performance tests or an initial compliance demonstration within 180 days after the compliance date that is specified for your source in § 63.7183 and according to the provisions in § 63.7(a)(2).

§ 63.7187 What performance tests and other compliance procedures must I use?

(a) You must conduct each performance test in Table 1 to this subpart that applies to you as specified for process vents in § 63.982(a)(2) and storage tanks in § 63.982(a)(1). Performance tests must be conducted under maximum operating conditions or HAP emissions potential. Section 63.982(a)(1) and (2) only includes methods to measure the total organic regulated material or total organic carbon (TOC) concentration. The EPA Methods 26 and 26A are included in Table 1 to this subpart in addition to the test methods contained within § 63.982(a)(1) and (2). The EPA Method 26 or 26A must be used for testing regulated material containing inorganic HAP. Method 320 of 40 CFR part 63, appendix A, must be used to measure total vapor phase organic and inorganic HAP concentrations.

(b) If, without the use of a control device, your process vent stream has an organic HAP concentration of 20 ppmv or less or an inorganic HAP concentration of 0.42 ppmv or less, or your storage tank vent stream has an inorganic HAP concentration of 0.42 ppmv or less, you may demonstrate that the vent stream is compliant by engineering assessments and calculations or by conducting the applicable performance test requirements specified in Table 1 to this subpart. Your engineering assessments and calculations, as with performance tests (as specified in § 63.982(a)(1) and (2)), must represent your maximum operating conditions or HAP emissions potential and must be approved by the Administrator. You must demonstrate continuous compliance by certifying that your operations will not exceed the maximum operating conditions or HAP emissions potential represented by your engineering assessments, calculations, or performance test.

(c) If you are using a control device to comply with the emission limitations in § 63.7184 and the inlet concentration of HAP to the control device is 20 ppmv or less, then you may demonstrate that the control device meets the percent by weight HAP emission reduction limitation in § 63.7184(c)(1) or (d)(1) by conducting a design evaluation as specified in paragraph (i) of this section. Your design evaluation must represent your maximum operating conditions or HAP emissions potential and must be approved by the Administrator. You must demonstrate continuous compliance by certifying that your operations will not exceed the maximum operating conditions or HAP emissions potential represented by your design evaluation.

(d) During periods of startup, shutdown, and malfunction, you must operate in accordance with your SSMP.

(e) For each monitoring system required in this section, you must develop and submit for approval a site-specific monitoring plan that addresses the criteria specified in paragraphs (e)(1) through (3) of this section.

(1) Installation of the continuous monitoring system (CMS) sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (*e.g.*, on or downstream of the last control device);

(2) Performance and equipment specifications for the sample interface, the pollutant concentration or parametric signal analyzer, and the data collection and reduction system; and

(3) Performance evaluation procedures and acceptance criteria (*e.g.*, calibrations).

(f) In your site-specific monitoring plan, you must also address the procedural processes in paragraphs (f)(1) through (3) of this section.

(1) Ongoing operation and maintenance procedures in accordance with the general requirements of § 63.8(c)(1), (3), (4)(ii), (7), and (8);

(2) Ongoing data quality assurance procedures in accordance with the general requirements of § 63.8(d); and

(3) Ongoing recordkeeping and reporting procedures in accordance with the general requirements of § 63.10(c), (e)(1), and (e)(2)(i).

(g) You must conduct a performance evaluation of each CMS in accordance with your site-specific monitoring plan.

(h) You must operate and maintain the CMS in continuous operation according to the site-specific monitoring plan.

(i) *Design evaluation.* To demonstrate that a control device meets the required percent by weight inorganic HAP emission reduction limitation in § 63.7184(c)(1) or (d)(1), a design evaluation must address the composition of the inorganic HAP concentration of the vent stream entering the control device. A design evaluation also must address other vent stream characteristics and control device operating parameters as specified in any one of paragraphs (i)(1) through (5) of this section, depending on the type of control device that is used. If the vent stream is not the only inlet to the control device, the efficiency demonstration must also consider all other vapors, gases, and liquids, other than fuels, received by the control device.

(1) For a condenser, the design evaluation shall consider the vent stream flow rate, relative humidity, and temperature and shall establish the design

outlet organic HAP compound concentration level, design average temperature of the condenser exhaust vent stream, and the design average temperatures of the coolant fluid at the condenser inlet and outlet. The temperature of the gas stream exiting the condenser must be measured and used to establish the outlet organic HAP concentration.

(2) For a carbon adsorption system that regenerates the carbon bed directly onsite in the control device such as a fixed-bed adsorber, the design evaluation shall consider the vent stream flow rate, relative humidity, and temperature and shall establish the design exhaust vent stream organic compound concentration level, adsorption cycle time, number and capacity of carbon beds, type and working capacity of activated carbon used for carbon beds, design total regeneration stream mass or volumetric flow over the period of each complete carbon bed regeneration cycle, design carbon bed temperature after regeneration, design carbon bed regeneration time, and design service life of carbon. For vacuum desorption, the pressure drop shall be included.

(3) For a carbon adsorption system that does not regenerate the carbon bed directly onsite in the control device such as a carbon canister, the design evaluation shall consider the vent stream mass or volumetric flow rate, relative humidity, and temperature and shall establish the design exhaust vent stream organic compound concentration level, capacity of carbon bed, type and working capacity of activated carbon used for carbon bed, and design carbon replacement interval based on the total carbon working capacity of the control device and source operating schedule.

(4) For a scrubber, the design evaluation shall consider the vent stream composition, constituent concentrations, liquid-to-vapor ratio, scrubbing liquid flow rate and concentration, temperature, and the reaction kinetics of the constituents with the scrubbing liquid. The design evaluation shall establish the design exhaust vent stream organic compound concentration level and will include the additional information in paragraphs (i)(5)(i) and (ii) of this section for trays and a packed column scrubber.

(i) Type and total number of theoretical and actual trays;

(ii) Type and total surface area of packing for entire column, and for individual packed sections if column contains more than one packed section.

§ 63.7188 What are my monitoring installation, operation, and maintenance requirements?

If you comply with the emission limitations of § 63.7184 by venting the emissions of your semiconductor process vent through a closed vent system to a control device, you must comply with the requirements of paragraphs (a) and (b) of this section.

(a) You must meet the applicable general monitoring, installation, operation, and maintenance requirements specified in § 63.996.

(b) You must meet the monitoring, installation, operation, and maintenance requirements specified for closed vent systems and applicable control devices in §§ 63.983 through 63.995. If you used the design evaluation procedure in § 63.7187(i) to demonstrate compliance, you must use the information from the design evaluation to establish the operating parameter level for monitoring of the control device.

APPLICATIONS, NOTIFICATIONS, REPORTS, AND RECORDS

§ 63.7189 What applications and notifications must I submit and when?

(a) You must submit all of the applications and notifications in §§ 63.7(b) and (c); 63.8(e), (f)(4) and (f)(6); and 63.9(b) through (e), (g) and (h) that apply to you by the dates specified.

(b) As specified in § 63.9(b)(2), if you start up your affected source before May 22, 2003, you must submit an Initial Notification not later than 120 calendar days after May 22, 2003.

(c) As specified in § 63.9(b)(3), if you start up your new or reconstructed affected source on or after May 22, 2003. you must submit an Initial Notification not later than 120 calendar days after you become subject to this subpart.

(d) If you are required to conduct a performance test, you must submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin as required in § 63.7(b)(1).

(e) If you are required to conduct a performance test or other initial compliance demonstration, you must submit a Notification of Compliance Status according to § 63.9(h)(2)(ii) and according to paragraphs (e)(1) and (2) of this section.

(1) For each initial compliance demonstration that does not include a performance test, you must submit the Notification of Compliance Status before the close of business on the 30th calendar day following the completion of the initial compliance demonstration. If you used the design evaluation procedure in § 63.7187(i) to demonstrate compliance, you must include the results of the design evaluation in the Notification of Compliance Status.

(2) For each initial compliance demonstration required that includes a performance test conducted according to the requirements in Table 1 to this subpart, you must submit a notification of the date of the performance evaluation at least 60 days prior to the date the performance evaluation is scheduled to begin as required in § 63.8(e)(2).

§ 63.7190 What reports must I submit and when?

(a) You must submit each of the following reports that apply to you.

(1) *Periodic compliance reports.* You must submit a periodic compliance report that contains the information required under paragraphs (c) through (e) of this section, and any requirements specified to be reported for process vents in § 63.982(a)(2) and storage tanks in § 63.982(a)(1).

(2) *Immediate startup, shutdown, and malfunction report.* You must submit an Immediate Startup, Shutdown, and Malfunction Report if you had a startup, shutdown, or malfunction during the reporting period that is not consistent with your SSMP. Your report must contain actions taken during the event. You must submit this report by fax or telephone within 2 working days after starting actions inconsistent with you SSMP. You are required to follow up this report with a report specifying the information in § 63.10(d)(5)(ii) by letter within 7 working days after the end of the event unless you have made alternative arrangements with your permitting authority.

(b) Unless the Administrator has approved a different schedule for submission of reports under § 63.10(a), you must submit each report by the date according to paragraphs (b)(1) through (5) of this section.

(1) The first periodic compliance report must cover the period beginning on the compliance date that is specified for your affected source in § 63.7183 and ending on June 30 or December 31, whichever date is the first date following the end of the first 12 calendar months after the compliance date that is specified for your source in § 63.7183.

(2) The first periodic compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date follows the end of the first 12 calendar months after the compliance date that is specified for your affected source in § 63.7183.

(3) Each subsequent periodic compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) Each subsequent periodic compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(5) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 40 CFR part 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), you may submit the first and subsequent periodic compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (4) of this section.

(c) The periodic compliance report must contain the information specified in paragraphs (c)(1) through (5) of this section.

(1) Company name and address.

(2) Statement by a responsible official with that official's name, title, and

signature, certifying the truth, accuracy, and completeness of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If there are no deviations from any emission limitations that apply to you, a statement that there were no deviations from the emission limitations during the reporting period and that no CMS was inoperative, inactive, malfunctioning, out-of-control, repaired, or adjusted.

(5) If you had a startup, shutdown, or malfunction during the reporting period and you took actions consistent with your SSMP, your periodic compliance report must include the information in § 63.10(d)(5) for each startup, shutdown, and malfunction.

(d) For each deviation from an emission limitation that occurs at an affected source where you are not using a CMS to comply with the emission limitations, the periodic compliance report must contain the information in paragraphs (d)(1) through (2) of this section.

(1) The total operating time of each affected source during the reporting period.

(2) Information on the number, duration, and cause of deviations (including unknown cause), if applicable.

(e) For each deviation from an emission limitation occurring at an affected source where you are using a CMS to demonstrate compliance with the emission limitation, you must include the information in paragraphs (e)(1) through (8) of this section.

(1) The date and time that each malfunction started and stopped, and the reason it was inoperative.

(2) The date and time that each CMS was inoperative, except for calibration checks.

(3) The date and time that each CMS was out-of-control, including the information in § 63.8(c)(8).

(4) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period, and the cause of the deviation.

(5) A summary of the total duration of the deviation during the reporting period, and the total duration as a percent of the total source operating time during that reporting period.

(6) A summary of the total duration of CMS downtime during the reporting period, and the total duration of CMS downtime as a percent of the total source operating time during the reporting period.

(7) An identification of each HAP that was monitored at the affected source.

(8) The date of the latest CMS certification or audit.

§ 63.7191 What records must I keep?

(a) You must keep the records listed in paragraphs (a)(1) through (3) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Notification of Compliance Status and periodic report of compliance that you submitted, according to the requirements in § 63.10(b)(2)(xiv).

(2) The records in § 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunctions.

(3) Records of performance tests and performance evaluations as required in § 63.10(b)(2)(viii).

(b) For each CMS, you must keep the records listed in paragraphs (b)(1) through (5) of this section.

(1) Records described in § 63.10(b)(2)(vi) through (xi).

(2) All required measurements needed to demonstrate compliance with a relevant standard (*e.g.*, 30-minute averages of CMS data, raw performance testing measurements, raw performance evaluation measurements).

(3) All required CMS measurements (including monitoring data recorded during unavoidable CMS breakdowns and out-of-control periods).

(4) Records of the date and time that each deviation started and stopped, and whether the deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(5) Records for process vents according to the requirements specified in § 63.982(a)(2) and storage tank vents according to the requirements specified in § 63.982(a)(1).

§63.7192 In what form and how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review, according to §63.10(b)(1).

(b) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §63.10(b)(1). You can keep the records offsite for the remaining 3 years.

OTHER REQUIREMENTS AND INFORMATION

§63.7193 What parts of the General Provisions apply to me?

Table 2 to this subpart shows which parts of the General Provisions in §§63.1 through 63.13 apply to you.

§63.7194 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by us, the U.S. Environmental Protection Agency (EPA), or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the U.S. EPA Administrator and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are as listed in paragraphs (c)(1) through (4) of this section.

(1) Approval of alternatives to the non-opacity emission limitations in §63.7184 under §63.6(g).

(2) Approval of major alternatives to test methods under §63.7(e)(2)(ii) and (f) and as defined in §63.90.

(3) Approval of major alternatives to monitoring under §63.8(f) and as defined in §63.90.

(4) Approval of major alternatives to recordkeeping and reporting under §63.10(f) and as defined in §63.90.

§63.7195 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act, in §§63.2 and 63.981, the General Provisions of this part (40 CFR part 63, subpart A), and in this section as follows:

Control device means a combustion device, recovery device, recapture device, or any combination of these devices used for the primary purpose of reducing emissions to comply with this subpart. Devices that are inherent to a process or are integral to the operation of a process are not considered control devices for the purposes of this subpart, even though these devices may have the secondary effect of reducing emissions.

Process vent means the point at which HAP emissions are released to the atmosphere from a semiconductor manufacturing process unit or storage tank by means of a stack, chimney, vent, or other functionally equivalent opening. The HAP emission points originating from wastewater treatment equipment, other than storage tanks, are not considered to be a process vent, unless the wastewater treatment equipment emission points are connected to a common vent or exhaust plenum with other process vents.

Semiconductor manufacturing means the collection of semiconductor manufacturing process units used to manufacture p-type and n-type semiconductors or active solid state devices from a wafer substrate, including processing from crystal growth through wafer fabrication, and testing and assembly. Examples of semiconductor or related solid state devices include semiconductor diodes, semiconductor stacks, rectifiers, integrated circuits, and transistors.

Semiconductor manufacturing process unit means the collection of equipment used to carry out a discrete operation in the semiconductor manufacturing process. These operations include, but are not limited to, crystal growing; solvent stations used to prepare and clean materials for subsequent processing or for parts cleaning; wet chemical stations used for cleaning (other than solvent cleaning); photoresist application, developing, and stripping; etching; gaseous operation stations used for stripping, cleaning, doping, etching, and layering; separation; encapsulation; and testing. Research and development operations associated with semiconductor manufacturing and conducted at a semiconductor manufacturing facility are considered to be semiconductor manufacturing process units.

Storage tank means a stationary unit that is constructed primarily from nonearthen materials (such as wood, concrete, steel, fiberglass, or plastic) which provides structural support and is designed to hold an accumulation of liquids or other materials used in or generated by a semiconductor manufacturing process unit. The following are not storage tanks for the purposes of this subpart:

(1) Tanks permanently attached to motor vehicles such as trucks, railcars, barges, or ships;

(2) Flow-through tanks where wastewater undergoes treatment (such as pH adjustment) before discharge, and are not used to accumulate wastewater;

(3) Bottoms receiver tanks; and

(4) Surge control tanks.

TABLES TO SUBPART BBBBB OF PART 63

TABLE 1 TO SUBPART BBBBB OF PART 63—REQUIREMENTS FOR PERFORMANCE TESTS

[As stated in § 63.7187, you must comply with the requirements for performance tests in the following table:]

For . . .	You must . . .	Using . . .	According to the following requirements . . .
1. Process or storage tank vent streams.	a. Select sampling port's location and the number of traverse ports.	Method 1 or 1A of 40 CFR part 60, appendix A.	Sampling sites must be located at the inlet (if emission reduction or destruction efficiency testing is required) and outlet of the control device and prior to any releases to the atmosphere.
	b. Determine velocity and volumetric flow rate.	Method 2, 2A, 2C, 2D, 2F, or 2G of 40 CFR part 60, appendix A.	For HAP reduction efficiency testing only; not necessary for determining compliance with a ppmv concentration limit.
	c. Conduct gas molecular weight analysis.	i. Method 3, 3A, or 3B of 40 CFR part 60, appendix A.	For flow rate determination only.
		ii. ASME PTC 19.10–1981–Part 10.	You may use ASME PTC 19.10–1981–Part 10 (available for purchase from Three Park Avenue, New York, NY 10016–5990) as an alternative to EPA Method 3B.
	d. Measure moisture content of the stack gas.	Method 4 of 40 CFR part 60, appendix A.	For flow rate determination and correction to dry basis, if necessary.
2. Process vent stream	a. Measure organic and inorganic HAP concentration (two method option).	i. Method 18, 25, or 25A of 40 CFR part 60, appendix A, AND ii. Method 26 or 26A of 40 CFR part 60, appendix A.	(1) To determine compliance with the percent by weight emission reduction limit, conduct simultaneous sampling at inlet and outlet of control device and analyze for same organic and inorganic HAP at both inlet and outlet; and (2) If you use Method 25A to determine the TOC concentration for compliance with the 20 ppmv emission limitation, the instrument must be calibrated on methane or the predominant HAP. If you calibrate on the predominant HAP, you must comply with each of the following: —The organic HAP used as the calibration gas must be the single organic HAP representing the largest percent of emissions by volume. —The results are acceptable if the response from the high level calibration gas is at least 20 times the standard deviation of the response from the zero calibration gas when the instrument is zeroed on its most sensitive scale.

[As stated in §63.7187, you must comply with the requirements for performance tests in the following table:]

For . . .	You must . . .	Using . . .	According to the following requirements . . .
			—The span value of the analyzer must be less than 100 ppmv. To determine compliance with 98 percent reduction limit, conduct simultaneous sampling at inlet and outlet of control device and analyze for same organic and inorganic HAP at both inlet and outlet.
	c. Measure organic and inorganic HAP simultaneously (one method option).	Method 320 of 40 CFR part 63, appendix A.	To determine compliance with the percent by weight emission reduction limit, conduct simultaneous sampling at inlet and outlet of control device and analyze for same organic and inorganic HAP at both inlet and outlet.
3. Storage tank vent stream.	Measure inorganic HAP concentration.	Method 26 or 26A of 40 CFR part 60, appendix A, or Method 320 of 40 CFR part 63, appendix A.	To determine compliance with percent by weight emission reduction limit, conduct simultaneous sampling at inlet and outlet of control device and analyze for same inorganic HAP at both inlet and outlet.

TABLE 2 TO SUBPART BBBBB OF PART 63—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART BBBBB

As stated in §63.7193, you must comply with the applicable General Provisions requirements according to the following table:

Citation	Subject	Applicable to Subpart BBBBB?
§63.1	Applicability	Yes.
§63.2	Definitions	Yes.
§63.3	Units and Abbreviations	Yes.
§63.4	Prohibited Activities and Circumvention	Yes.
§63.5	Construction and Reconstruction	Yes.
§63.6	Compliance with Standards and Maintenance	Yes.
§63.7	Performance Testing Requirements	Yes, with the exception of §63.7(e)(1). The requirements of §63.7(e)(1) do not apply. Performance testing requirements that apply are specified in this subpart, and in §63.982(a)(1) and (2).
§63.8	Monitoring Requirements	Monitoring requirements are specified in this subpart and in §63.982(a)(1) and (2). The closed vent system inspection requirements of §63.983(c), as referenced by §63.982(a)(1) and (2), do not apply.
§63.9	Notification Requirements	Yes.
§63.10	Recordkeeping and Reporting Requirements	Yes, with the exception of §63.10(e). The requirements of §63.10(e) do not apply. In addition, the recordkeeping and reporting requirements specified in this subpart apply.
§63.11	Flares	Yes.
§63.12	Delegation	Yes.
§63.13	Addresses	Yes.
§63.14	Incorporation by Reference	Yes.
§63.15	Availability of Information	Yes.

Subpart CCCCC—National Emission Standards for Hazardous Air Pollutants for Coke Ovens: Pushing, Quenching, and Battery Stacks

SOURCE: 68 FR 18025, Apr. 14, 2003, unless otherwise noted.

WHAT THIS SUBPART COVERS

§63.7280 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants (NESHAP) for pushing, soaking, quenching, and battery stacks at coke oven batteries. This subpart also establishes requirements to demonstrate initial and continuous compliance with all applicable emission limitations, work practice standards, and operation and maintenance requirements in this subpart.

§ 63.7281 Am I subject to this subpart?

You are subject to this subpart if you own or operate a coke oven battery at a coke plant that is (or is part of) a major source of hazardous air pollutant (HAP) emissions. A major source of HAP is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons or more per year or any combination of HAP at a rate of 25 tons or more per year.

§ 63.7282 What parts of my plant does this subpart cover?

(a) This subpart applies to each new or existing affected source at your coke plant. The affected source is each coke oven battery.

(b) This subpart covers emissions from pushing, soaking, quenching, and battery stacks from each affected source.

(c) An affected source at your coke plant is existing if you commenced construction or reconstruction of the affected source before July 3, 2001.

(d) An affected source at your coke plant is new if you commenced construction or reconstruction of the affected source on or after July 3, 2001. An affected source is reconstructed if it meets the definition of ‘‘reconstruction’’ in § 63.2.

§ 63.7283 When do I have to comply with this subpart?

(a) If you have an existing affected source, you must comply with each emission limitation, work practice standard, and operation and maintenance requirement in this subpart that applies to you no later than April 14, 2006.

(b) If you have a new affected source and its initial startup date is on or before April 14, 2003, you must comply with each emission limitation, work practice standard, and operation and maintenance requirement in this subpart that applies to you by April 14, 2003.

(c) If you have a new affected source and its initial startup date is after April 14, 2003, you must comply with each emission limitation, work practice standard, and operation and maintenance requirement in this subpart that applies to you upon initial startup.

(d) You must meet the notification and schedule requirements in § 63.7340. Several of these notifications must be submitted before the compliance date for your affected source.

[68 FR 18025, Apr. 14, 2003; 68 FR 19885, Apr. 22, 2003]

EMISSION LIMITATIONS AND WORK PRACTICE STANDARDS

§ 63.7290 What emission limitations must I meet for capture systems and control devices applied to pushing emissions?

(a) You must not discharge to the atmosphere emissions of particulate matter from a control device applied to pushing emissions from a new or existing coke oven battery that exceed the applicable limit in paragraphs (a)(1) through (4) of this section:

(1) 0.01 grain per dry standard cubic foot (gr/dscf) if a cokeside shed is used to capture emissions;

(2) 0.02 pound per ton (lb/ton) of coke if a moveable hood vented to a stationary control device is used to capture emissions;

(3) If a mobile scrubber car that does not capture emissions during travel is used:

(i) 0.03 lb/ton of coke for a control device applied to pushing emissions from a short battery, or

(ii) 0.01 lb/ton of coke for a control device applied to pushing emissions from a tall battery; and

(4) 0.04 lb/ton of coke if a mobile scrubber car that captures emissions during travel is used.

(b) You must meet each operating limit in paragraphs (b)(1) through (3) of this section that applies to you for a new or existing coke oven battery.

(1) For each venturi scrubber applied to pushing emissions, you must maintain the daily average pressure drop and scrubber water flow rate at or above the minimum levels established during the initial performance test.

(2) For each hot water scrubber applied to pushing emissions, you must maintain the daily average water pressure and water temperature at or above

the minimum levels established during the initial performance test.

(3) For each capture system applied to pushing emissions, you must:

(i) Maintain the daily average fan motor amperes at or above the minimum level established during the initial performance test; or

(ii) Maintain the daily average volumetric flow rate at the inlet of the control device at or above the minimum level established during the initial performance test.

§63.7291 What work practice standards must I meet for fugitive pushing emissions if I have a by-product coke oven battery with vertical flues?

(a) You must meet each requirement in paragraphs (a)(1) through (7) of this section for each new or existing by-product coke oven battery with vertical flues.

(1) Observe and record the opacity of fugitive pushing emissions from each oven at least once every 90 days. If an oven cannot be observed during a 90-day period due to circumstances that were not reasonably avoidable, you must observe the opacity of the first push of that oven following the close of the 90-day period that is capable of being observed in accordance with the procedures in §63.7334(a), and you must document why the oven was not observed within a 90-day period. All opacity observations of fugitive pushing emissions for batteries with vertical flues must be made using the procedures in §63.7334(a).

(2) If two or more batteries are served by the same pushing equipment and total no more than 90 ovens, the batteries as a unit can be considered a single battery.

(3) Observe and record the opacity of fugitive pushing emissions for at least four consecutive pushes per battery each day. Exclude any push during which the observer's view is obstructed or obscured by interferences and observe the next available push to complete the set of four pushes. If necessary due to circumstances that were not reasonably avoidable, you may observe fewer than four consecutive pushes in a day; however, you must observe and record as many consecutive pushes as possible and document why four consecutive pushes could not be observed. You may observe and record one or more non-consecutive pushes in addition to any consecutive pushes observed in a day.

(4) Do not alter the pushing schedule to change the sequence of consecutive pushes to be observed on any day. Keep records indicating the legitimate operational reason for any change in your pushing schedule which results in a change in the sequence of consecutive pushes observed on any day.

(5) If the average opacity for any individual push exceeds 30 percent opacity for any short battery or 35 percent opacity for any tall battery, you must take corrective action and/or increase coking time for that oven. You must complete corrective action or increase coking time within either 10 calendar days or the number of days determined using Equation 1 of this section, whichever is greater:

$$X = 0.55 * Y \qquad \text{(Eq. 1)}$$

Where:

X = Number of calendar days allowed to complete corrective action or increase coking time; and

Y = Current coking time for the oven, hours.

For the purpose of determining the number of calendar days allowed under Equation 1 of this section, day one is the first day following the day you observed an opacity in excess of 30 percent for any short battery or 35 percent for any tall battery. Any fraction produced by Equation 1 of this section must be counted as a whole day. Days during which the oven is removed from service are not included in the number of days allowed to complete corrective action.

(6)(i) You must demonstrate that the corrective action and/or increased coking time was successful. After a period of time no longer than the number of days allowed in paragraph (a)(5) of this section, observe and record the opacity of the first two pushes for the oven capable of being observed using the procedures in §63.7334(a). The corrective action and/or increased coking time was successful if the average opacity for each of the two pushes is 30 percent or less for a short battery or 35 percent or less for a tall battery. If the corrective action and/or increased coking time was successful, you may return the oven to the 90-day reading rotation described in paragraph (a)(1) of this section. If the average opacity of either push exceeds 30 percent for a short battery or 35 percent for a tall battery, the corrective action and/or increased coking time was unsuccessful, and you must complete additional corrective action and/or increase coking time for that oven within the number of days allowed in paragraph (a)(5) of this section.

(ii) After implementing any additional corrective action and/or increased coking time required under paragraph (a)(6)(i) or (a)(7)(ii) of this section, you must demonstrate that corrective action and/or increased coking time was successful. After a period of time no longer than the number of days allowed in paragraph (a)(5) of this section, you must observe and record the opacity of the first two pushes for the oven capable of being observed using the procedures in §63.7334(a). The corrective action and/or increased coking time was successful if the average opacity for each of the two pushes is 30 percent or less for a short battery or 35 percent or less for a tall battery. If the corrective action and/or increased coking time was successful, you may return the oven to the 90-day reading rotation described in paragraph (a)(1) of this section. If the average opacity of either push exceeds 30 percent for a short battery or 35 percent for a tall battery, the corrective action and/or increased coking time was unsuccessful, and you must follow the procedures in paragraph (a)(6)(iii) of this section.

(iii) If the corrective action and/or increased coking time was unsuccessful as described in paragraph (a)(6)(ii) of this section, you must repeat the procedures in paragraph (a)(6)(ii) of this section until the corrective action and/or increased coking time is successful. You must report to the permitting authority as a deviation each unsuccessful attempt at corrective action and/or increased coking time under paragraph (a)(6)(ii) of this section.

(7)(i) If at any time you place an oven on increased coking time as a result of fugitive pushing emissions that exceed 30 percent for a short battery or 35 percent for a tall battery, you must keep the oven on the increased coking time until the oven qualifies for decreased coking time using the procedures in paragraph (a)(7)(ii) or (a)(7)(iii) of this section.

(ii) To qualify for a decreased coking time for an oven placed on increased coking time in accordance with paragraph (a)(5) or (6) of this section, you must operate the oven on the decreased coking time. After no more than two coking cycles on the decreased coking time, you must observe and record the opacity of the first two pushes that are capable of being observed using the procedures in §63.7334(a). If the average opacity for each of the two pushes is 30 percent or less for a short battery or 35 percent or less for a tall battery, you may keep the oven on the decreased coking time and return the oven to the 90-day reading rotation described in paragraph (a)(1) of this section. If the average opacity of either push exceeds 30 percent for a short battery or 35 percent for a tall battery, the attempt to qualify for a decreased coking time was unsuccessful. You must then return the oven to the previously established increased coking time, or implement other corrective action(s) and/or increased coking time. If you implement other corrective action and/or a coking time that is shorter than the previously established increased coking time, you must follow the procedures in paragraph (a)(6)(ii) of this section to confirm that the corrective action(s) and/or increased coking time was successful.

(iii) If the attempt to qualify for decreased coking time was unsuccessful as described in paragraph (a)(7)(ii) of this section, you may again attempt to qualify for decreased coking time for the oven. To do this, you must operate the oven on the decreased coking time. After no more than two coking cycles on the decreased coking time, you must observe and record the opacity of the first two pushes that are capable of being observed using the procedures in §63.7334(a). If the average opacity for each of the two pushes is 30 percent or less for a short battery or 35 percent or less for a tall battery, you may keep the oven on the decreased coking time and return the oven to the 90-day reading rotation described in paragraph (a)(1) of this section. If the average opacity of either push exceeds 30 percent for a short battery or 35 percent for a tall battery, the attempt to qualify for a decreased coking time was unsuccessful. You must then return the oven to the previously established increased coking time, or implement other corrective action(s) and/or increased coking time. If you implement other corrective action and/or a coking time that is shorter than the previously established increased coking time, you must follow the procedures in paragraph (a)(6)(ii) of this section to confirm that the corrective action(s) and/or increased coking time was successful.

(iv) You must report to the permitting authority as a deviation the second and any subsequent consecutive unsuccessful attempts on the same oven to qualify for decreased coking time as described in paragraph (a)(7)(iii) of this section.

(b) As provided in §63.6(g), you may request to use an alternative to the work practice standards in paragraph (a) of this section.

§63.7292 What work practice standards must I meet for fugitive pushing emissions if I have a by-product coke oven battery with horizontal flues?

(a) You must comply with each of the requirements in paragraphs (a)(1) through (4) of this section.

(1) Prepare and operate by a written plan that will eliminate or minimize incomplete coking for each by-product coke oven battery with horizontal flues. You must submit the plan and supporting documentation to the Administrator (or delegated authority) for approval no later than 90 days after completing all observations and measurements required for the study in paragraph (a)(3) of this section or April 14, 2004, whichever is earlier. You must begin operating by the plan requirements by the compliance date that is specified in §63.7283. The written plan must identify minimum flue temperatures for different coking times and a battery-wide minimum acceptable flue temperature for any oven at any coking time.

(2) Submit the written plan and supporting documentation to the Administrator (or delegated authority) for review and approval. Include all data collected during the study described in paragraph (a)(3) of this section. If the Administrator (or delegated authority) disapproves the plan, you must revise the plan as directed by the Administrator (or delegated authority) and submit the amended plan for approval. The Administrator (or delegated authority) may require you to collect and submit additional data. You must operate according to your submitted plan (or submitted amended plan, if any) until the Administrator (or delegated authority) approves your plan.

(3) You must base your written plan on a study that you conduct that meets each of the requirements listed in paragraphs (a)(3)(i) through (x) of this section.

(i) Initiate the study by July 14, 2003. Notify the Administrator (or delegated authority) at least 7 days prior to initiating the study according to the requirements in §63.7340(f).

(ii) Conduct the study under representative operating conditions, including but not limited to the range of moisture content and volatile matter in the coal that is charged.

(iii) Include every oven in the study and observe at least two pushes from each oven.

(iv) For each push observed, measure and record the temperature of every flue within 2 hours before the scheduled pushing time. Document the oven number, date, and time the oven was charged and pushed, and calculate the net coking time.

(v) For each push observed, document the factors to be used to identify pushes that are incompletely coked. These factors must include (but are not limited to): average opacity during the push, average opacity during travel to the quench tower, average of six highest consecutive observations during both push and travel, highest single opacity reading, color of the emissions (especially noting any yellow or brown emissions), presence of excessive smoke during travel to the quench tower, percent volatile matter in the coke, percent volatile matter and percent moisture in the coal that is charged, and the date the oven was last rebuilt or completely relined. Additional documentation may be provided in the form of pictures or videotape of emissions during the push and travel. All opacity observations must be conducted in accordance with the procedures in § 63.7334(a)(3) through (7).

(vi) Inspect the inside walls of the oven after each observed push for cool spots as indicated by a flue that is darker than others (the oven walls should be red hot) and record the results.

(vii) For each push observed, note where incomplete coking occurs if possible (*e.g.*, coke side end, pusher side end, top, or center of the coke mass). For any push with incomplete coking, investigate and document the probable cause.

(viii) Use the documented factors in paragraph (a)(3)(v) of this section to identify pushes that were completely coked and those that were not completely coked. Provide a rationale for the determination based on the documentation of factors observed during the study.

(ix) Use only the flue temperature and coking time data for pushes that were completely coked to identify minimum flue temperatures for various coking times. Submit the criteria used to determine complete coking, as well as a table of coking times and corresponding temperatures for complete coking as part of your plan.

(x) Determine the battery-wide minimum acceptable flue temperature for any oven. This temperature will be equal to the lowest temperature that provided complete coking as determined in paragraph (a)(3)(ix) of this section.

(4) You must operate according to the coking times and temperatures in your approved plan and the requirements in paragraphs (a)(4)(i) through (viii) of this section.

(i) Measure and record the percent volatile matter in the coal that is charged.

(ii) Measure and record the temperature of all flues on two ovens per day within 2 hours before the scheduled pushing time for each oven. Measure and record the temperature of all flues on each oven at least once each month.

(iii) For each oven observed in accordance with paragraph (a)(4)(ii) of this section, record the time each oven is charged and pushed and calculate and record the net coking time. If any measured flue temperature for an oven is below the minimum flue temperature for an oven's scheduled coking time as established in the written plan, increase the coking time for the oven to the coking time in the written plan for the observed flue temperature before pushing the oven.

(iv) If you increased the coking time for any oven in accordance with paragraph (a)(4)(iii) of this section, you must investigate the cause of the low flue temperature and take corrective action to fix the problem. You must continue to measure and record the temperature of all flues for the oven within 2 hours before each scheduled pushing time until the measurements meet the minimum temperature requirements for the increased coking time for two consecutive pushes. If any measured flue temperature for an oven on increased coking time falls below the minimum flue temperature for the increased coking time, as established in the written plan, you must increase the coking time for the oven to the coking time specified in the written plan for the observed flue temperature before pushing the oven. The oven must continue to operate at this coking time (or at a longer coking time if the temperature falls below the minimum allowed for the increased coking time) until the problem has been corrected, and you have confirmed that the corrective action was successful as required by paragraph (a)(4)(v) of this section.

(v) Once the heating problem has been corrected, the oven may be returned to the battery's normal coking schedule. You must then measure and record the flue temperatures for the oven within 2 hours before the scheduled pushing time for the next two consecutive pushes. If any flue temperature measurement is below the minimum flue temperature for that coking time established in the written plan, repeat the procedures in paragraphs (a)(4)(iii) and (iv) of this section.

(vi) If any flue temperature measurement is below the battery-wide minimum acceptable temperature for complete coking established in the written plan for any oven at any coking time, you must remove the oven from service for repairs.

(vii) For an oven that has been repaired and returned to service after being removed from service in accordance with paragraph (a)(4)(vi) of this section, you must measure and record the temperatures of all flues for the oven within 2 hours before the first scheduled pushing time. If any flue temperature measurement is below the minimum flue temperature for the scheduled coking time, as established in the written plan, you must repeat the procedures described in paragraphs (a)(4)(iii) and (iv) of this section.

(viii) For an oven that has been repaired and returned to service after removal from service in accordance with paragraph (a)(4)(vi) of this section, you must report as a deviation to the permitting authority any flue temperature measurement made during the initial coking cycle after return to service that is below the lowest acceptable minimum flue temperature.

(b) As provided in § 63.6(g), you may request to use an alternative to the work practice standards in paragraph (a) of this section.

§ 63.7293 What work practice standards must I meet for fugitive pushing emissions if I have a non-recovery coke oven battery?

(a) You must meet the requirements in paragraphs (a)(1) and (2) of this section for each new and existing non-recovery coke oven battery.

(1) You must visually inspect each oven prior to pushing by opening the door damper and observing the bed of coke.

(2) Do not push the oven unless the visual inspection indicates that there is no smoke in the open space above the coke bed and that there is an unobstructed view of the door on the opposite side of the oven.

(b) As provided in § 63.6(g), you may request to use an alternative to the work practice standard in paragraph (a) of this section.

§ 63.7294 What work practice standard must I meet for soaking?

(a) For each new and existing by-product coke oven battery, you must prepare and operate at all times according to a written work practice plan for soaking. Each plan must include measures and procedures to:

(1) Train topside workers to identify soaking emissions that require corrective actions.

(2) Damper the oven off the collecting main prior to opening the standpipe cap.

(3) Determine the cause of soaking emissions that do not ignite automatically, including emissions that result from raw coke oven gas leaking from the collecting main through the damper, and emissions that result from incomplete coking.

(4) If soaking emissions are caused by leaks from the collecting main, take corrective actions to eliminate the soaking emissions. Corrective actions may include, but are not limited to, reseating the damper, cleaning the flushing liquor piping, using aspiration, putting the oven back on the collecting main, or igniting the emissions.

(5) If soaking emissions are not caused by leaks from the collecting main, notify a designated responsible party. The responsible party must determine whether the soaking emissions are due to incomplete coking. If incomplete coking is the cause of the soaking emissions, you must put the oven back on the collecting main until it is completely coked or you must ignite the emissions.

(b) As provided in § 63.6(g), you may request to use an alternative to the work practice standard in paragraph (a) of this section.

§ 63.7295 What requirements must I meet for quenching?

(a) You must meet the requirements in paragraphs (a)(1) and (2) of this section for each quench tower and backup quench station at a new or existing coke oven battery.

(1) For the quenching of hot coke, you must meet the requirements in paragraph (a)(1)(i) or (ii) of this section.

(i) The concentration of total dissolved solids (TDS) in the water used for quenching must not exceed 1,100 milligrams per liter (mg/L); or

(ii) The sum of the concentrations of benzene, benzo(a)pyrene, and naphthalene in the water used for quenching must not exceed the applicable site-specific limit approved by the permitting authority.

(2) You must use acceptable makeup water, as defined in § 63.7352, as makeup water for quenching.

(b) For each quench tower at a new or existing coke oven battery and each backup quench station at a new coke oven battery, you must meet each of the requirements in paragraphs (b)(1) through (4) of this section.

(1) You must equip each quench tower with baffles such that no more than 5 percent of the cross sectional area of the tower may be uncovered or open to the sky.

(2) You must wash the baffles in each quench tower once each day that the tower is used to quench coke, except as specified in paragraphs (b)(2)(i) and (ii) of this section.

(i) You are not required to wash the baffles in a quench tower if the highest measured ambient temperature remains less than 30 degrees Fahrenheit throughout that day (24-hour period). If the measured ambient temperature rises to 30 degrees Fahrenheit or more during the day, you must resume daily washing according to the schedule in your operation and maintenance plan.

(ii) You must continuously record the ambient temperature on days that the baffles were not washed.

(3) You must inspect each quench tower monthly for damaged or missing baffles and blockage.

(4) You must initiate repair or replacement of damaged or missing baffles within 30 days and complete as soon as practicable.

(c) As provided in § 63.6(g), you may request to use an alternative to the work practice standards in paragraph (b) of this section.

§ 63.7296 What emission limitations must I meet for battery stacks?

You must not discharge to the atmosphere any emissions from any battery stack at a new or existing by-product coke oven battery that exhibit an opacity greater than the applicable limit in paragraphs (a) and (b) of this section.

(a) Daily average of 15 percent opacity for a battery on a normal coking cycle.

(b) Daily average of 20 percent opacity for a battery on batterywide extended coking.

OPERATION AND MAINTENANCE REQUIREMENTS

§ 63.7300 What are my operation and maintenance requirements?

(a) As required by § 63.6(e)(1)(i), you must always operate and maintain your affected source, including air pollution control and monitoring equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by this subpart.

(b) You must prepare and operate at all times according to a written operation and maintenance plan for the general operation and maintenance of new or existing by-product coke oven batteries. Each plan must address, at a minimum, the elements listed in paragraphs (b)(1) through (6) of this section.

(1) Frequency and method of recording underfiring gas parameters.

(2) Frequency and method of recording battery operating temperature, including measurement of individual flue and cross-wall temperatures.

(3) Procedures to prevent pushing an oven before it is fully coked.

(4) Procedures to prevent overcharging and undercharging of ovens, including measurement of coal moisture, coal bulk density, and procedures for determining volume of coal charged.

(5) Frequency and procedures for inspecting flues, burners, and nozzles.

(6) Schedule and procedures for the daily washing of baffles.

(c) You must prepare and operate at all times according to a written operation and maintenance plan for each capture system and control device applied to pushing emissions from a new or existing coke oven battery. Each plan must address at a minimum the elements in paragraphs (c)(1) through (3) of this section.

(1) Monthly inspections of the equipment that are important to the performance of the total capture system

(*e.g.*, pressure sensors, dampers, and damper switches). This inspection must include observations of the physical appearance of the equipment (*e.g.*, presence of holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in ductwork, and fan erosion). The operation and maintenance plan must also include requirements to repair any defect or deficiency in the capture system before the next scheduled inspection.

(2) Preventative maintenance for each control device, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and long-term maintenance.

(3) Corrective action for all baghouses applied to pushing emissions. In the event a bag leak detection system alarm is triggered, you must initiate corrective action to determine the cause of the alarm within 1 hour of the alarm, initiate corrective action to correct the cause of the problem within 24 hours of the alarm, and complete the corrective action as soon as practicable. Actions may include, but are not limited to:

(i) Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in emissions.

(ii) Sealing off defective bags or filter media.

(iii) Replacing defective bags or filter media or otherwise repairing the control device.

(iv) Sealing off a defective baghouse compartment.

(v) Cleaning the bag leak detection system probe, or otherwise repairing the bag leak detection system.

(vi) Shutting down the process producing the particulate emissions.

GENERAL COMPLIANCE REQUIREMENTS

§63.7310 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limitations, work practice standards, and operation and maintenance requirements in this subpart at all times, except during periods of startup, shutdown, and malfunction as defined in §63.2.

(b) During the period between the compliance date specified for your affected source in §63.7283 and the date upon which continuous monitoring systems have been installed and certified and any applicable operating limits have been set, you must maintain a log detailing the operation and maintenance of the process and emissions control equipment.

(c) You must develop and implement a written startup, shutdown, and malfunction plan according to the provisions in §63.6(e)(3).

INITIAL COMPLIANCE REQUIREMENTS

§63.7320 By what date must I conduct performance tests or other initial compliance demonstrations?

(a) As required in §63.7(a)(2), you must conduct a performance test to demonstrate compliance with each limit in §63.7290(a) for emissions of particulate matter from a control device applied to pushing emissions that applies to you within 180 calendar days after the compliance date that is specified in §63.7283.

(b) You must conduct performance tests to demonstrate compliance with the TDS limit or constituent limit for quench water in §63.7295(a)(1) and each opacity limit in §63.7297(a) for a by-product coke oven battery stack by the compliance date that is specified in §63.7283.

(c) For each work practice standard and operation and maintenance requirement that applies to you, you must demonstrate initial compliance within 30 calendar days after the compliance date that is specified in §63.7283.

(d) If you commenced construction or reconstruction between July 3, 2001 and April 14, 2003, you must demonstrate initial compliance with either the proposed emission limit or the promulgated emission limit no later than October 14, 2003, or no later than 180 calendar days after startup of the source, whichever is later, according to §63.7(a)(2)(ix).

(e) If you commenced construction or reconstruction between July 3, 2001 and April 14, 2003, and you chose to comply with the proposed emission limit when demonstrating initial compliance, you must conduct a second performance test to demonstrate compliance with the promulgated emission limit by October 11, 2006, or after startup of the source, whichever is later, according to § 63.7(a)(2)(ix).

§ 63.7321 When must I conduct subsequent performance tests?

For each control device subject to an emission limit for particulate matter in § 63.7290(a), you must conduct subsequent performance tests no less frequently than twice (at mid-term and renewal) during each term of your title V operating permit.

§ 63.7322 What test methods and other procedures must I use to demonstrate initial compliance with the emission limits for particulate matter?

(a) You must conduct each performance test that applies to your affected source according to the requirements in paragraph (b) of this section.

(b) To determine compliance with the emission limit for particulate matter from a control device applied to pushing emissions where a cokeside shed is the capture system, follow the test methods and procedures in paragraphs (b)(1) and (2) of this section. To determine compliance with a process-weighted mass rate of particulate matter (lb/ton of coke) from a control device applied to pushing emissions where a cokeside shed is not used, follow the test methods and procedures in paragraphs (b)(1) through (4) of this section.

(1) Determine the concentration of particulate matter according to the following test methods in appendix A to 40 CFR part 60.

(i) Method 1 to select sampling port locations and the number of traverse points. Sampling sites must be located at the outlet of the control device and prior to any releases to the atmosphere.

(ii) Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

(iv) Method 4 to determine the moisture content of the stack gas.

(v) Method 5 or 5D, as applicable, to determine the concentration of front half particulate matter in the stack gas.

(2) During each particulate matter test run, sample only during periods of actual pushing when the capture system fan and control device are engaged. Collect a minimum sample volume of 30 cubic feet of gas during each test run. Three valid test runs are needed to comprise a performance test. Each run must start at the beginning of a push and finish at the end of a push (*i.e.*, sample for an integral number of pushes).

(3) Determine the total combined weight in tons of coke pushed during the duration of each test run according to the procedures in your source test plan for calculating coke yield from the quantity of coal charged to an individual oven.

(4) Compute the process-weighted mass emissions (E_p) for each test run using Equation 1 of this section as follows:

$$E_p = \frac{C \times Q \times T}{P \times K} \qquad \text{(Eq. 1)}$$

Where:

E_p = Process weighted mass emissions of particulate matter, lb/ton;

C = Concentration of particulate matter, gr/dscf;

Q = Volumetric flow rate of stack gas, dscf/hr;

T = Total time during a run that a sample is withdrawn from the stack during pushing, hr;

P = Total amount of coke pushed during the test run, tons; and

K = Conversion factor, 7,000 gr/lb.

§ 63.7323 What procedures must I use to establish operating limits?

(a) For a venturi scrubber applied to pushing emissions from a coke oven battery, you must establish site-specific operating limits for pressure drop and scrubber water flow rate according to the procedures in paragraphs (a)(1) and (2) of this section.

(1) Using the continuous parameter monitoring systems (CPMS) required in § 63.7330(b), measure and record the pressure drop and scrubber water flow rate for each particulate matter test

run during periods of pushing. A minimum of one pressure drop measurement and one scrubber water flow rate measurement must be obtained for each push.

(2) Compute and record the average pressure drop and scrubber water flow rate for each test run. Your operating limits are the lowest average pressure drop and scrubber water flow rate values recorded during any of the three runs that meet the applicable emission limit.

(b) For a hot water scrubber applied to pushing emissions from a coke oven battery, you must establish site-specific operating limits for water pressure and water temperature according to the procedures in paragraphs (b)(1) and (2) of this section.

(1) Using the CPMS required in § 63.7330(c), measure and record the hot water pressure and temperature for each particulate matter test run during periods of pushing. A minimum of one pressure measurement and one temperature measurement must be made just prior to each push by monitoring the hot water holding tank on the mobile scrubber car.

(2) Compute and record the average water pressure and temperature for each test run. Your operating limits are the lowest pressure and temperature values recorded during any of the three runs that meet the applicable emission limit.

(c) For a capture system applied to pushing emissions from a coke oven battery, you must establish a site-specific operating limit for the fan motor amperes or volumetric flow rate according to the procedures in paragraph (c)(1) or (2) of this section.

(1) If you elect the operating limit in § 63.7290(b)(3)(i) for fan motor amperes, measure and record the fan motor amperes during each push sampled for each particulate matter test run. Your operating limit is the lowest fan motor amperes recorded during any of the three runs that meet the emission limit.

(2) If you elect the operating limit in § 63.7290(b)(3)(ii) for volumetric flow rate, measure and record the total volumetric flow rate at the inlet of the control device during each push sampled for each particulate matter test run. Your operating limit is the lowest volumetric flow rate recorded during any of the three runs that meet the emission limit.

(d) You may change the operating limit for a scrubber or capture system if you meet the requirements in paragraphs (d)(1) through (3) of this section.

(1) Submit a written notification to the Administrator of your request to conduct a new performance test to revise the operating limit.

(2) Conduct a performance test to demonstrate that emissions of particulate matter from the control device do not exceed the applicable limit in § 63.7290(a).

(3) Establish revised operating limits according to the applicable procedures in paragraph (a) through (c) of this section.

§ 63.7324 What procedures must I use to demonstrate initial compliance with the opacity limits?

(a) You must conduct each performance test that applies to your affected source according to the requirements in paragraph (b) of this section.

(b) To determine compliance with the daily average opacity limit for stacks of 15 percent for a by-product coke oven battery on a normal coking cycle or 20 percent for a by-product coke oven battery on batterywide extended coking, follow the test methods and procedures in paragraphs (b)(1) through (3) of this section.

(1) Using the continuous opacity monitoring system (COMS) required in § 63.7330(e), measure and record the opacity of emissions from each battery stack for a 24-hour period.

(2) Reduce the monitoring data to hourly averages as specified in § 63.8(g)(2).

(3) Compute and record the 24-hour (daily) average of the COMS data.

§ 63.7325 What test methods and other procedures must I use to demonstrate initial compliance with the TDS or constituent limits for quench water?

(a) If you elect the TDS limit for quench water in § 63.7295(a)(1)(i), you must conduct each performance test that applies to your affected source according to the conditions in paragraphs (a)(1) and (2) of this section.

(1) Take the quench water sample from a location that provides a representative sample of the quench water as applied to the coke (*e.g.*, from the header that feeds water to the quench tower reservoirs). Conduct sampling under normal and representative operating conditions.

(2) Determine the TDS concentration of the sample using Method 160.1 in 40 CFR part 136.3 (see ''residue—filterable''), except that you must dry the total filterable residue at 103 to 105 °C (degrees Centigrade) instead of 180 °C.

(b) If at any time you elect to meet the alternative requirements for quench water in § 63.7295(a)(1)(ii), you must establish a site-specific constituent limit according to the procedures in paragraphs (b)(1) through (4) of this section.

(1) Take a minimum of nine quench water samples from a location that provides a representative sample of the quench water as applied to the coke (*e.g.*, from the header that feeds water to the quench tower reservoirs). Conduct sampling under normal and representative operating conditions.

(2) For each sample, determine the TDS concentration according to the requirements in paragraph (a)(2) of this section and the concentration of benzene, benzo(a)pyrene, and naphthalene using the applicable methods in 40 CFR part 136 or an approved alternative method.

(3) Determine and record the highest sum of the concentrations of benzene, benzo(a)pyrene, and naphthalene in any sample that has a TDS concentration less than or equal to the TDS limit of 1,100 mg/L. This concentration is the site-specific constituent limit.

(4) Submit the site-specific limit, sampling results, and all supporting data and calculations to your permitting authority for review and approval.

(c) If you elect the constituent limit for quench water in § 63.7295(a)(1)(ii), you must conduct each performance test that applies to your affected source according to the conditions in paragraphs (c)(1) and (2) of this section.

(1) Take a quench water sample from a location that provides a representative sample of the quench water as applied to the coke (*e.g.*, from the header that feeds water to the quench tower reservoirs). Conduct sampling under normal and representative operating conditions.

(2) Determine the sum of the concentration of benzene, benzo(a)pyrene, and naphthalene in the sample using the applicable methods in 40 CFR part 136 or an approved alternative method.

§ 63.7326 How do I demonstrate initial compliance with the emission limitations that apply to me?

(a) For each coke oven battery subject to the emission limit for particulate matter from a control device applied to pushing emissions, you have demonstrated initial compliance if you meet the requirements in paragraphs (a)(1) through (4) of this section that apply to you.

(1) The concentration of particulate matter, measured in accordance with the performance test procedures in § 63.7322(b)(1) and (2), did not exceed 0.01 gr/dscf for a control device where a cokeside shed is used to capture pushing emissions or the process-weighted mass rate of particulate matter (lb/ton of coke), measured in accordance with the performance test procedures in § 63.7322(b)(1) through (4), did not exceed:

(i) 0.02 lb/ton of coke if a moveable hood vented to a stationary control device is used to capture emissions;

(ii) If a mobile scrubber car that does not capture emissions during travel is used, 0.03 lb/ton of coke from a control device applied to pushing emissions from a short coke oven battery or 0.01 lb/ton of coke from a control device applied to pushing emissions from a tall coke oven battery; and

(iii) 0.04 lb/ton of coke if a mobile scrubber car that captures emissions during travel is used.

(2) For each venturi scrubber applied to pushing emissions, you have established appropriate site-specific operating limits and have a record of the pressure drop and scrubber water flow rate measured during the performance test in accordance with § 63.7323(a).

(3) For each hot water scrubber applied to pushing emissions, you have established appropriate site-specific operating limits and have a record of the water pressure and temperature

measured during the performance test in accordance with §63.7323(b).

(4) For each capture system applied to pushing emissions, you have established an appropriate site-specific operating limit, and:

(i) If you elect the operating limit in §63.7290(b)(3)(i) for fan motor amperes, you have a record of the fan motor amperes during the performance test in accordance with §63.7323(c)(1); or

(ii) If you elect the operating limit in §63.7290(b)(3)(ii) for volumetric flow rate, you have a record of the total volumetric flow rate at the inlet of the control device measured during the performance test in accordance with §63.7323(c)(2).

(b) For each new or existing by-product coke oven battery subject to the opacity limit for stacks in §63.7296(a), you have demonstrated initial compliance if the daily average opacity, as measured according to the performance test procedures in §63.7324(b), is no more than 15 percent for a battery on a normal coking cycle or 20 percent for a battery on batterywide extended coking.

(c) For each new or existing by-product coke oven battery subject to the TDS limit or constituent limits for quench water in §63.7295(a)(1),

(1) You have demonstrated initial compliance with the TDS limit in §63.7295(a)(1)(i) if the TDS concentration, as measured according to the performance test procedures in §63.7325(a), does not exceed 1,100 mg/L.

(2) You have demonstrated initial compliance with the constituent limit in §63.7295(a)(1)(ii) if:

(i) You have established a site-specific constituent limit according to the procedures in §63.7325(b); and

(ii) The sum of the constituent concentrations, as measured according to the performance test procedures in §63.7325(c), is less than or equal to the site-specific limit.

(d) For each by-product coke oven battery stack subject to an opacity limit in §63.7296(a) and each by-product coke oven battery subject to the requirements for quench water in §63.7295(a)(1), you must submit a notification of compliance status containing the results of the COMS performance test for battery stacks and the quench water performance test (TDS or constituent limit) according to §63.7340(e)(1). For each particulate matter emission limitation that applies to you, you must submit a notification of compliance status containing the results of the performance test according to §63.7340(e)(2).

§63.7327 How do I demonstrate initial compliance with the work practice standards that apply to me?

(a) For each by-product coke oven battery with vertical flues subject to the work practice standards for fugitive pushing emissions in §63.7291(a), you have demonstrated initial compliance if you certify in your notification of compliance status that you will meet each of the work practice requirements beginning no later than the compliance date that is specified in §63.7283.

(b) For each by-product coke oven battery with horizontal flues subject to the work practice standards for fugitive pushing emissions in §63.7292(a), you have demonstrated initial compliance if you have met the requirements of paragraphs (b)(1) and (2) of this section:

(1) You have prepared and submitted a written plan and supporting documentation establishing appropriate minimum flue temperatures for different coking times and the lowest acceptable temperature to the Administrator (or delegated authority) for review and approval; and

(2) You certify in your notification of compliance status that you will meet each of the work practice requirements beginning no later than the compliance date that is specified in §63.7283.

(c) For each non-recovery coke oven battery subject to the work practice standards for fugitive pushing emissions in §63.7293(a), you have demonstrated initial compliance if you certify in your notification of compliance status that you will meet each of the work practice requirements beginning no later than the compliance date that is specified in §63.7283.

(d) For each by-product coke oven battery subject to the work practice standards for soaking in §63.7294, you have demonstrated initial compliance if you have met the requirements of paragraphs (d)(1) and (2) of this section:

(1) You have prepared and submitted a written work practice plan in accordance with § 63.7294(a); and

(2) You certify in your notification of compliance status that you will meet each of the work practice requirements beginning no later than the compliance date that is specified in § 63.7283.

(e) For each coke oven battery, you have demonstrated initial compliance with the work practice standards for quenching in § 63.7295(b) if you certify in your notification of compliance status that you have met the requirements of paragraphs (e)(1) and (2) of this section:

(1) You have installed the required equipment in each quench tower; and

(2) You will meet each of the work practice requirements beginning no later than the compliance date that is specified in § 63.7283.

(f) For each work practice standard that applies to you, you must submit a notification of compliance status according to the requirements in § 63.7340(e)(1).

§ 63.7328 How do I demonstrate initial compliance with the operation and maintenance requirements that apply to me?

You have demonstrated initial compliance if you certify in your notification of compliance status that you have met the requirements of paragraphs (a) through (d) of this section:

(a) You have prepared the operation and maintenance plans according to the requirements in § 63.7300(b) and (c);

(b) You will operate each by-product coke oven battery and each capture system and control device applied to pushing emissions from a coke oven battery according to the procedures in the plans beginning no later than the compliance date that is specified in § 63.7283;

(c) You have prepared a site-specific monitoring plan according to the requirements in § 63.7331(b); and

(d) You submit a notification of compliance status according to the requirements in § 63.7340(e).

CONTINUOUS COMPLIANCE REQUIREMENTS

§ 63.7330 What are my monitoring requirements?

(a) For each baghouse applied to pushing emissions from a coke oven battery, you must at all times monitor the relative change in particulate matter loadings using a bag leak detection system according to the requirements in § 63.7331(a) and conduct inspections at their specified frequency according to the requirements in paragraphs (a)(1) through (8) of this section.

(1) Monitor the pressure drop across each baghouse cell each day to ensure pressure drop is within the normal operating range identified in the manual;

(2) Confirm that dust is being removed from hoppers through weekly visual inspections or equivalent means of ensuring the proper functioning of removal mechanisms;

(3) Check the compressed air supply for pulse-jet baghouses each day;

(4) Monitor cleaning cycles to ensure proper operation using an appropriate methodology;

(5) Check bag cleaning mechanisms for proper functioning through monthly visual inspection or equivalent means;

(6) Make monthly visual checks of bag tension on reverse air and shaker-type baghouses to ensure that bags are not kinked (kneed or bent) or laying on their sides. You do not have to make this check for shaker-type baghouses using self-tensioning (spring-loaded) devices;

(7) Confirm the physical integrity of the baghouse through quarterly visual inspections of the baghouse interior for air leaks; and

(8) Inspect fans for wear, material buildup, and corrosion through quarterly visual inspections, vibration detectors, or equivalent means.

(b) For each venturi scrubber applied to pushing emissions, you must at all times monitor the pressure drop and water flow rate using a CPMS according to the requirements in § 63.7331(e).

(c) For each hot water scrubber applied to pushing emissions, you must at all times monitor the water pressure and temperature using a CPMS according to the requirements in § 63.7331(f).

(d) For each capture system applied to pushing emissions, you must at all times monitor the fan motor amperes according to the requirements in §63.7331(g) or the volumetric flow rate according to the requirements in §63.7331(h).

(e) For each by-product coke oven battery, you must monitor at all times the opacity of emissions exiting each stack using a COMS according to the requirements in §63.7331(i).

§63.7331 What are the installation, operation, and maintenance requirements for my monitors?

(a) For each baghouse applied to pushing emissions, you must install, operate, and maintain each bag leak detection system according to the requirements in paragraphs (a)(1) through (7) of this section.

(1) The system must be certified by the manufacturer to be capable of detecting emissions of particulate matter at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less;

(2) The system must provide output of relative changes in particulate matter loadings;

(3) The system must be equipped with an alarm that will sound when an increase in relative particulate loadings is detected over a preset level. The alarm must be located such that it can be heard by the appropriate plant personnel;

(4) Each system that works based on the triboelectric effect must be installed, operated, and maintained in a manner consistent with the guidance document, ‘‘Fabric Filter Bag Leak Detection Guidance’’ (EPA–454/R–98–015, September 1997). You may install, operate, and maintain other types of bag leak detection systems in a manner consistent with the manufacturer's written specifications and recommendations;

(5) To make the initial adjustment of the system, establish the baseline output by adjusting the sensitivity (range) and the averaging period of the device. Then, establish the alarm set points and the alarm delay time;

(6) Following the initial adjustment, do not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time, except as detailed in your operation and maintenance plan. Do not increase the sensitivity by more than 100 percent or decrease the sensitivity by more than 50 percent over a 365-day period unless a responsible official certifies, in writing, that the baghouse has been inspected and found to be in good operating condition; and

(7) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(b) For each CPMS required in §63.7330, you must develop and make available for inspection upon request by the permitting authority a site-specific monitoring plan that addresses the requirements in paragraphs (b)(1) through (6) of this section.

(1) Installation of the CPMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (*e.g.*, on or downstream of the last control device);

(2) Performance and equipment specifications for the sample interface, the parametric signal analyzer, and the data collection and reduction system;

(3) Performance evaluation procedures and acceptance criteria (*e.g.*, calibrations);

(4) Ongoing operation and maintenance procedures in accordance with the general requirements of §§63.8(c)(1), (3), (4)(ii), (7), and (8);

(5) Ongoing data quality assurance procedures in accordance with the general requirements of §63.8(d); and

(6) Ongoing recordkeeping and reporting procedures in accordance the general requirements of §§63.10(c), (e)(1), and (e)(2)(i).

(c) You must conduct a performance evaluation of each CPMS in accordance with your site-specific monitoring plan.

(d) You must operate and maintain the CPMS in continuous operation according to the site-specific monitoring plan.

(e) For each venturi scrubber applied to pushing emissions, you must install, operate, and maintain CPMS to measure and record the pressure drop across the scrubber and scrubber water flow rate during each push according to the requirements in paragraphs (b) through (d) of this section except as specified in paragraphs (e)(1) through (3) of this section.

(1) Each CPMS must complete a measurement at least once per push;

(2) Each CPMS must produce valid data for all pushes; and

(3) Each CPMS must determine and record the daily (24-hour) average of all recorded readings.

(f) For each hot water scrubber applied to pushing emissions, you must install, operate, and maintain CPMS to measure and record the water pressure and temperature during each push according to the requirements in paragraphs (b) through (d) of this section, except as specified in paragraphs (e)(1) through (3) of this section.

(g) If you elect the operating limit in § 63.7290(b)(3)(i) for a capture system applied to pushing emissions, you must install, operate, and maintain a device to measure the fan motor amperes.

(h) If you elect the operating limit in § 63.7290(b)(3)(ii) for a capture system applied to pushing emissions, you must install, operate, and maintain a device to measure the total volumetric flow rate at the inlet of the control device.

(i) For each by-product coke oven battery, you must install, operate, and maintain a COMS to measure and record the opacity of emissions exiting each stack according to the requirements in paragraphs (i)(1) through (5) of this section.

(1) You must install, operate, and maintain each COMS according to the requirements in § 63.8(e) and Performance Specification 1 in 40 CFR part 60, appendix B. Identify periods the COMS is out-of-control, including any periods that the COMS fails to pass a daily calibration drift assessment, quarterly performance audit, or annual zero alignment audit.

(2) You must conduct a performance evaluation of each COMS according to the requirements in § 63.8 and Performance Specification 1 in appendix B to 40 CFR part 60;

(3) You must develop and implement a quality control program for operating and maintaining each COMS according to the requirements in § 63.8(d). At minimum, the quality control program must include a daily calibration drift assessment, quarterly performance audit, and an annual zero alignment audit of each COMS;

(4) Each COMS must complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period. You must reduce the COMS data as specified in § 63.8(g)(2).

(5) You must determine and record the hourly and daily (24-hour) average opacity according to the procedures in § 63.7324(b) using all the 6-minute averages collected for periods during which the COMS is not out-of-control.

§ 63.7332 How do I monitor and collect data to demonstrate continuous compliance?

(a) Except for monitor malfunctions, associated repairs, and required quality assurance or control activities (including as applicable, calibration checks and required zero and span adjustments), you must monitor continuously (or collect data at all required intervals) at all times the affected source is operating.

(b) You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels, or in fulfilling a minimum data availability requirement, if applicable. You must use all the data collected during all other periods in assessing compliance. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitor to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

§ 63.7333 How do I demonstrate continuous compliance with the emission limitations that apply to me?

(a) For each control device applied to pushing emissions and subject to the emission limit in § 63.7290(a), you must demonstrate continuous compliance by meeting the requirements in paragraphs (a)(1) and (2) of this section:

(1) Maintaining emissions of particulate matter at or below the applicable

limits in paragraphs § 63.7290(a)(1) through (4); and

(2) Conducting subsequent performance tests to demonstrate continuous compliance no less frequently than twice during each term of your title V operating permit (at mid-term and renewal).

(b) For each venturi scrubber applied to pushing emissions and subject to the operating limits in § 63.7290(b)(1), you must demonstrate continuous compliance by meeting the requirements in paragraphs (b)(1) through (3) of this section.

(1) Maintaining the daily average pressure drop and scrubber water flow rate at levels no lower than those established during the initial or subsequent performance test.

(2) Operating and maintaining each CPMS according to § 63.7331(b) and recording all information needed to document conformance with these requirements.

(3) Collecting and reducing monitoring data for pressure drop and scrubber water flow rate according to § 63.7331(e)(1) through (3).

(c) For each hot water scrubber applied to pushing emissions and subject to the operating limits in § 63.7290(b)(2), you must demonstrate continuous compliance by meeting the requirements in paragraphs (c)(1) through (3) of this section.

(1) Maintaining the daily average water pressure and temperature at levels no lower than those established during the initial or subsequent performance test.

(2) Operating and maintaining each CPMS according to § 63.7331(b) and recording all information needed to document conformance with these requirements.

(3) Collecting and reducing monitoring data for water pressure and temperature according to § 63.7331(f).

(d) For each capture system applied to pushing emissions and subject to the operating limit in § 63.7290(b)(3), you must demonstrate continuous compliance by meeting the requirements in paragraph (d)(1) or (2) of this section:

(1) If you elect the operating limit for fan motor amperes in § 63.7290(b)(3)(i):

(i) Maintaining the daily average fan motor amperes at or above the minimum level established during the initial or subsequent performance test; and

(ii) Checking the fan motor amperes at least every 8 hours to verify the daily average is at or above the minimum level established during the initial or subsequent performance test and recording the results of each check.

(2) If you elect the operating limit for volumetric flow rate in § 63.7290(b)(3)(ii):

(i) Maintaining the daily average volumetric flow rate at the inlet of the control device at or above the minimum level established during the initial or subsequent performance test; and

(ii) Checking the volumetric flow rate at least every 8 hours to verify the daily average is at or above the minimum level established during the initial or subsequent performance test and recording the results of each check.

(e) Beginning on the first day compliance is required under § 63.7283, you must demonstrate continuous compliance for each by-product coke oven battery subject to the opacity limit for stacks in § 63.7296(a) by meeting the requirements in paragraphs (e)(1) and (2) of this section:

(1) Maintaining the daily average opacity at or below 15 percent for a battery on a normal coking cycle or 20 percent for a battery on batterywide extended coking; and

(2) Operating and maintaining a COMS and collecting and reducing the COMS data according to § 63.7331(i).

(f) Beginning on the first day compliance is required under § 63.7283, you must demonstrate continuous compliance with the TDS limit for quenching in § 63.7295(a)(1)(i) by meeting the requirements in paragraphs (f)(1) and (2) of this section:

(1) Maintaining the TDS content of the water used to quench hot coke at 1,100 mg/L or less; and

(2) Determining the TDS content of the quench water at least weekly according to the requirements in § 63.7325(a) and recording the sample results.

(g) Beginning on the first day compliance is required under § 63.7283, you must demonstrate continuous compliance with the constituent limit for quenching in § 63.7295(a)(1)(ii) by meeting the requirements in paragraphs (g)(1) and (2) of this section:

(1) Maintaining the sum of the concentrations of benzene, benzo(a)pyrene, and naphthalene in the water used to quench hot coke at levels less than or equal to the site-specific limit approved by the permitting authority; and

(2) Determining the sum of the constituent concentrations at least monthly according to the requirements in § 63.7325(c) and recording the sample results.

§ 63.7334 How do I demonstrate continuous compliance with the work practice standards that apply to me?

(a) For each by-product coke oven battery with vertical flues subject to the work practice standards for fugitive pushing emissions in § 63.7291(a), you must demonstrate continuous compliance according to the requirements of paragraphs (a)(1) through (8) of this section:

(1) Observe and record the opacity of fugitive emissions for four consecutive pushes per operating day, except you may make fewer or non-consecutive observations as permitted by § 63.7291(a)(3). Maintain records of the pushing schedule for each oven and records indicating the legitimate operational reason for any change in the pushing schedule according to § 63.7291(a)(4).

(2) Observe and record the opacity of fugitive emissions from each oven in a battery at least once every 90 days. If an oven cannot be observed during a 90-day period, observe and record the opacity of the first push of that oven following the close of the 90-day period that can be read in accordance with the procedures in paragraphs (a)(1) through (8) of this section.

(3) Make all observations and calculations for opacity observations of fugitive pushing emissions in accordance with Method 9 in appendix A to 40 CFR part 60 using a Method 9 certified observer unless you have an approved alternative procedure under paragraph (a)(7) of this section.

(4) Record pushing opacity observations at 15-second intervals as required in section 2.4 of Method 9 (appendix A to 40 CFR part 60). The requirement in section 2.4 of Method 9 for a minimum of 24 observations does not apply, and the data reduction requirements in section 2.5 of Method 9 do not apply. The requirement in § 63.6(h)(5)(ii)(B) for obtaining at least 3 hours of observations (thirty 6-minute averages) to demonstrate initial compliance does not apply.

(5) If fewer than six but at least four 15-second observations can be made, use the average of the total number of observations to calculate average opacity for the push. Missing one or more observations during the push (*e.g.*, as the quench car passes behind a building) does not invalidate the observations before or after the interference for that push. However, a minimum of four 15-second readings must be made for a valid observation.

(6) Begin observations for a push at the first detectable movement of the coke mass. End observations of a push when the quench car enters the quench tower.

(i) For a battery without a cokeside shed, observe fugitive pushing emissions from a position at least 10 meters from the quench car that provides an unobstructed view and avoids interferences from the topside of the battery. This may require the observer to be positioned at an angle to the quench car rather than perpendicular to it. Typical interferences to avoid include emissions from open standpipes and charging. Observe the opacity of emissions above the battery top with the sky as the background where possible. Record the oven number of any push not observed because of obstructions or interferences.

(ii) For a battery with a cokeside shed, the observer must be in a position that provides an unobstructed view and avoids interferences from the topside of the battery. Typical interferences to avoid include emissions from open standpipes and charging. Observations must include any fugitive emissions that escape from the top of the shed, from the ends of the shed, or from the area where the shed is joined to the battery. If the observer does not have a clear view to identify when a push starts or ends, a second person can be positioned to signal the start or end of the push and notify the observer when to start or end the observations. Radio communications with other plant personnel (*e.g.*, pushing ram operator or quench car operator) may also serve to notify the observer of the start or end of a push. Record the oven number of any push not observed because of obstructions or interferences.

(iii) You may reposition after the push to observe emissions during travel if necessary.

(7) If it is infeasible to implement the procedures in paragraphs (a)(1) through (6) of this section for an oven due to physical obstructions, nighttime pushes, or other reasons, you may apply to your permitting authority for permission to use an alternative procedure. The application must provide a detailed explanation of why it is infeasible to use the procedures in paragraphs (a)(1) through (6) of this section, identify the oven and battery numbers, and describe the alternative procedure. An alternative procedure must identify whether the coke in that oven is not completely coked, either before, during, or after an oven is pushed.

(8) For each oven observed that exceeds an opacity of 30 percent for any short battery or 35 percent for any tall battery, you must take corrective action and/or increase the coking time in accordance with §63.7291(a). Maintain records documenting conformance with the requirements in §63.7291(a).

(b) For each by-product coke oven battery with horizontal flues subject to the work practice standards for fugitive pushing emissions in §63.7292(a), you must demonstrate continuous compliance by having met the requirements of paragraphs (b)(1) through (3) of this section:

(1) Measuring and recording the temperature of all flues on two ovens per day within 2 hours before the oven's scheduled pushing time and ensuring that the temperature of each oven is measured and recorded at least once every month;

(2) Recording the time each oven is charged and pushed and calculating and recording the net coking time for each oven; and

(3) Increasing the coking time for each oven that falls below the minimum flue temperature trigger established for that oven's coking time in the written plan required in §63.7292(a)(1), assigning the oven to the oven-directed program, and recording all relevant information according to the requirements in §63.7292(a)(4) including, but not limited to, daily pushing schedules, diagnostic procedures, corrective actions, and oven repairs.

(c) For each non-recovery coke oven battery subject to the work practice standards in §63.7293(a), you must demonstrate continuous compliance by maintaining records that document each visual inspection of an oven prior to pushing and that the oven was not pushed unless there was no smoke in the open space above the coke bed and there was an unobstructed view of the door on the opposite side of the oven.

(d) For each by-product coke oven battery subject to the work practice standard for soaking in §63.7294(a), you must demonstrate continuous compliance by maintaining records that document conformance with requirements in §63.7294(a)(1) through (5).

(e) For each coke oven battery subject to the work practice standard for quenching in §63.7295(b), you must demonstrate continuous compliance according to the requirements of paragraphs (e)(1) through (3) of this section:

(1) Maintaining baffles in each quench tower such that no more than 5 percent of the cross-sectional area of the tower is uncovered or open to the sky as required in §63.7295(b)(1);

(2) Maintaining records that document conformance with the washing, inspection, and repair requirements in §63.7295(b)(2), including records of the ambient temperature on any day that the baffles were not washed; and

(3) Maintaining records of the source of makeup water to document conformance with the requirement for acceptable makeup water in §63.7295(a)(2).

§63.7335 How do I demonstrate continuous compliance with the operation and maintenance requirements that apply to me?

(a) For each by-product coke oven battery, you must demonstrate continuous compliance with the operation and maintenance requirements in § 63.7300(b) by adhering at all times to the plan requirements and recording all information needed to document conformance.

(b) For each coke oven battery with a capture system or control device applied to pushing emissions, you must demonstrate continuous compliance with the operation and maintenance requirements in § 63.7300(c) by meeting the requirements of paragraphs (b)(1) through (3) of this section:

(1) Making monthly inspections of capture systems according to § 63.7300(c)(1) and recording all information needed to document conformance with these requirements;

(2) Performing preventative maintenance for each control device according to § 63.7300(c)(2) and recording all information needed to document conformance with these requirements; and

(3) Initiating and completing corrective action for a bag leak detection system alarm according to § 63.7300(c)(3) and recording all information needed to document conformance with these requirements. This includes records of the times the bag leak detection system alarm sounds, and for each valid alarm, the time you initiated corrective action, the corrective action(s) taken, and the date on which corrective action is completed.

(c) To demonstrate continuous compliance with the operation and maintenance requirements for a baghouse applied to pushing emissions from a coke oven battery in § 63.7331(a), you must inspect and maintain each baghouse according to the requirements in § 63.7331(a)(1) through (8) and record all information needed to document conformance with these requirements. If you increase or decrease the sensitivity of the bag leak detection system beyond the limits specified in § 63.7331(a)(6), you must include a copy of the required written certification by a responsible official in the next semiannual compliance report.

(d) You must maintain a current copy of the operation and maintenance plans required in § 63.7300(b) and (c) onsite and available for inspection upon request. You must keep the plans for the life of the affected source or until the affected source is no longer subject to the requirements of this subpart.

§ 63.7336 What other requirements must I meet to demonstrate continuous compliance?

(a) *Deviations.* You must report each instance in which you did not meet each emission limitation in this subpart that applies to you. This includes periods of startup, shutdown, and malfunction. You must also report each instance in which you did not meet each work practice standard or operation and maintenance requirement in this subpart that applies to you. These instances are deviations from the emission limitations (including operating limits), work practice standards, and operation and maintenance requirements in this subpart. These deviations must be reported according to the requirements in § 63.7341.

(b) *Startup, shutdowns, and malfunctions.* During periods of startup, shutdown, and malfunction, you must operate in accordance with your startup, shutdown, and malfunction plan.

(1) Consistent with §§ 63.6(e) and 63.7(e)(1), deviations that occur during a period of startup, shutdown, or malfunction are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with the startup, shutdown, and malfunction plan.

(2) The Administrator will determine whether deviations that occur during a period of startup, shutdown, or malfunction are violations, according to the provisions in § 63.6(e).

NOTIFICATION, REPORTS, AND RECORDS

§ 63.7340 What notifications must I submit and when?

(a) You must submit all of the notifications in §§ 63.6(h)(4) and (5), 63.7(b) and (c), 63.8(e) and (f)(4), and 63.9(b) through (h) that apply to you by the specified dates.

(b) As specified in § 63.9(b)(2), if you startup your affected source before April 14, 2003, you must submit your initial notification no later than August 12, 2003.

(c) As specified in § 63.9(b)(3), if you startup your new affected source on or after April 14, 2003, you must submit your initial notification no later than

120 calendar days after you become subject to this subpart.

(d) If you are required to conduct a performance test, you must submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin as required in §63.7(b)(1).

(e) If you are required to conduct a performance test, opacity observation, or other initial compliance demonstration, you must submit a notification of compliance status according to §63.9(h)(2)(ii).

(1) For each initial compliance demonstration that does not include a performance test, you must submit the notification of compliance status before the close of business on the 30th calendar day following the completion of the initial compliance demonstration.

(2) For each initial compliance demonstration that does include a performance test, you must submit the notification of compliance status, including the performance test results, before the close of business on the 60th calendar day following completion of the performance test according to §63.10(d)(2).

(f) For each by-product coke oven battery with horizontal flues, you must notify the Administrator (or delegated authority) of the date on which the study of flue temperatures required by §63.7292(a)(3) will be initiated. You must submit this notification no later than 7 days prior to the date you initiate the study.

§63.7341 What reports must I submit and when?

(a) *Compliance report due dates.* Unless the Administrator has approved a different schedule, you must submit quarterly compliance reports for battery stacks and semiannual compliance reports for all other affected sources to your permitting authority according to the requirements in paragraphs (a)(1) through (4) of this section.

(1) The first quarterly compliance report for battery stacks must cover the period beginning on the compliance date that is specified for your affected source in §63.7283 and ending on the last date of the third calendar month. Each subsequent compliance report must cover the next calendar quarter.

(2) The first semiannual compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.7283 and ending on June 30 or December 31, whichever date comes first after the compliance date that is specified for your affected source. Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(3) All quarterly compliance reports for battery stacks must be postmarked or delivered no later than one calendar month following the end of the quarterly reporting period. All semiannual compliance reports must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(4) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 40 CFR part 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (a)(1) through (3) of this section.

(b) *Quarterly compliance report contents.* Each quarterly report must provide information on compliance with the emission limitations for battery stacks in §63.7296. The reports must include the information in paragraphs (c)(1) through (3), and as applicable, paragraphs (c)(4) through (8) of this section.

(c) *Semiannual compliance report contents.* Each compliance report must provide information on compliance with the emission limitations, work practice standards, and operation and maintenance requirements for all affected sources except battery stacks. The reports must include the information in paragraphs (c)(1) through (3) of this section, and as applicable, paragraphs (c)(4) through (8) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with the official's name, title, and

signature, certifying the truth, accuracy, and completeness of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If you had a startup, shutdown, or malfunction during the reporting period and you took actions consistent with your startup, shutdown, and malfunction plan, the compliance report must include the information in § 63.10(d)(5)(i).

(5) If there were no deviations from the continuous compliance requirements in § 63.7333(e) for battery stacks, a statement that there were no deviations from the emission limitations during the reporting period. If there were no deviations from the continuous compliance requirements in §§ 63.7333 through 63.7335 that apply to you (for all affected sources other than battery stacks), a statement that there were no deviations from the emission limitations, work practice standards, or operation and maintenance requirements during the reporting period.

(6) If there were no periods during which a continuous monitoring system (including COMS, continuous emission monitoring system (CEMS), or CPMS) was out-of-control as specified in § 63.8(c)(7), a statement that there were no periods during which a continuous monitoring system was out-of-control during the reporting period.

(7) For each deviation from an emission limitation in this subpart (including quench water limits) and for each deviation from the requirements for work practice standards in this subpart that occurs at an affected source where you are not using a continuous monitoring system (including a COMS, CEMS, or CPMS) to comply with the emission limitations in this subpart, the compliance report must contain the information in paragraphs (c)(4) and (7)(i) and (ii) of this section. This includes periods of startup, shutdown, and malfunction.

(i) The total operating time of each affected source during the reporting period.

(ii) Information on the number, duration, and cause of deviations (including unknown cause, if applicable) as applicable and the corrective action taken.

(8) For each deviation from an emission limitation occurring at an affected source where you are using a continuous monitoring system (including COMS, CEMS, or CPMS) to comply with the emission limitation in this subpart, you must include the information in paragraphs (c)(4) and (8)(i) through (xii) of this section. This includes periods of startup, shutdown, and malfunction.

(i) The date and time that each malfunction started and stopped.

(ii) The date and time that each continuous monitoring system (including COMS, CEMS, or CPMS) was inoperative, except for zero (low-level) and high-level checks.

(iii) The date, time, and duration that each continuous monitoring system (including COMS, CEMS, or CPMS) was out-of-control, including the information in § 63.8(c)(8).

(iv) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(v) A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.

(vi) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(vii) A summary of the total duration of continuous monitoring system downtime during the reporting period and the total duration of continuous monitoring system downtime as a percent of the total source operating time during the reporting period.

(viii) An identification of each HAP that was monitored at the affected source.

(ix) A brief description of the process units.

(x) A brief description of the continuous monitoring system.

(xi) The date of the latest continuous monitoring system certification or audit.

(xii) A description of any changes in continuous monitoring systems, processes, or controls since the last reporting period.

(d) *Immediate startup, shutdown, and malfunction report.* If you had a startup, shutdown, or malfunction during the semiannual reporting period that was not consistent with your startup, shutdown, and malfunction plan, you must submit an immediate startup, shutdown, and malfunction report according to the requirements in §63.10(d)(5)(ii).

(e) *Part 70 monitoring report.* If you have obtained a title V operating permit for an affected source pursuant to 40 CFR part 70 or 40 CFR part 71, you must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If you submit a compliance report for an affected source along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the compliance report includes all the required information concerning deviations from any emission limitation or work practice standard in this subpart, submission of the compliance report satisfies any obligation to report the same deviations in the semiannual monitoring report. However, submission of a compliance report does not otherwise affect any obligation you may have to report deviations from permit requirements to your permitting authority.

§63.7342 What records must I keep?

(a) You must keep the records specified in paragraphs (a)(1) through (3) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any initial notification or notification of compliance status that you submitted, according to the requirements in §63.10(b)(2)(xiv).

(2) The records in §63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

(3) Records of performance tests, performance evaluations, and opacity observations as required in §63.10(b)(2)(viii).

(b) For each COMS or CEMS, you must keep the records specified in paragraphs (b)(1) through (4) of this section.

(1) Records described in §63.10(b)(2)(vi) through (xi).

(2) Monitoring data for COMS during a performance evaluation as required in §63.6(h)(7)(i) and (ii).

(3) Previous (that is, superceded) versions of the performance evaluation plan as required in §63.8(d)(3).

(4) Records of the date and time that each deviation started and stopped, and whether the deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(c) You must keep the records in §63.6(h)(6) for visual observations.

(d) You must keep the records required in §§63.7333 through 63.7335 to show continuous compliance with each emission limitation, work practice standard, and operation and maintenance requirement that applies to you.

§63.7343 In what form and how long must I keep my records?

(a) You must keep your records in a form suitable and readily available for expeditious review, according to §63.10(b)(1).

(b) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §63.10(b)(1). You can keep the records offsite for the remaining 3 years.

OTHER REQUIREMENTS AND INFORMATION

§63.7350 What parts of the General Provisions apply to me?

Table 1 to this subpart shows which parts of the General Provisions in §§63.1 through 63.15 apply to you.

§63.7351 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by us, the United States Environmental Protection Agency (U.S. EPA), or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under subpart E of this part, the authorities contained in paragraph (c) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities in paragraphs (c)(1) through (6) of this section will not be delegated to State, local, or tribal agencies.

(1) Approval of alternatives to work practice standards for fugitive pushing emissions in § 63.7291(a) for a by-product coke oven battery with vertical flues, fugitive pushing emissions in § 63.7292(a) for a by-product coke oven battery with horizontal flues, fugitive pushing emissions in § 63.7293 for a non-recovery coke oven battery, soaking for a by-product coke oven battery in § 63.7294(a), and quenching for a coke oven battery in § 63.7295(b) under § 63.6(g).

(2) Approval of alternative opacity emission limitations for a by-product coke oven battery under § 63.6(h)(9).

(3) Approval of major alternatives to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.90, except for alternative procedures in § 63.7334(a)(7).

(4) Approval of major alternatives to monitoring under § 63.8(f) and as defined in § 63.90.

(5) Approval of major alternatives to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

(6) Approval of the work practice plan for by-product coke oven batteries with horizontal flues submitted under § 63.7292(a)(1).

§ 63.7352 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act (CAA), in § 63.2, and in this section as follows:

Acceptable makeup water means surface water from a river, lake, or stream; water meeting drinking water standards; storm water runoff and production area clean up water except for water from the by-product recovery plant area; process wastewater treated to meet effluent limitations guidelines in 40 CFR part 420; water from any of these sources that has been used only for non-contact cooling or in water seals; or water from scrubbers used to control pushing emissions.

Backup quench station means a quenching device that is used for less than 5 percent of the quenches from any single coke oven battery in the 12-month period from July 1 to June 30.

Baffles means an apparatus comprised of obstructions for checking or deflecting the flow of gases. Baffles are installed in a quench tower to remove droplets of water and particles from the rising vapors by providing a point of impact. Baffles may be installed either inside or on top of quench towers and are typically constructed of treated wood, steel, or plastic.

Battery stack means the stack that is the point of discharge to the atmosphere of the combustion gases from a battery's underfiring system.

Batterywide extended coking means increasing the average coking time for all ovens in the coke oven battery by 25 percent or more over the manufacturer's specified design rate.

By-product coke oven battery means a group of ovens connected by common walls, where coal undergoes destructive distillation under positive pressure to produce coke and coke oven gas from which by-products are recovered.

By-product recovery plant area means that area of the coke plant where process units subject to subpart L in part 61 are located.

Coke oven battery means a group of ovens connected by common walls, where coal undergoes destructive distillation to produce coke. A coke oven battery includes by-product and non-recovery processes.

Coke plant means a facility that produces coke from coal in either a by-product coke oven battery or a non-recovery coke oven battery.

Cokeside shed means a structure used to capture pushing emissions that encloses the cokeside of the battery and ventilates the emissions to a control device.

Coking time means the time interval that starts when an oven is charged with coal and ends when the oven is pushed.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emission limitation (including operating limits) or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limitation or work practice standard in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Emission limitation means any emission limit, opacity limit, or operating limit.

Four consecutive pushes means four pushes observed successively.

Fugitive pushing emissions means emissions from pushing that are not collected by a capture system.

Horizontal flue means a type of coke oven heating system used on Semet-Solvay batteries where the heating flues run horizontally from one end of the oven to the other end, and the flues are not shared with adjacent ovens.

Hot water scrubber means a mobile scrubber used to control pushing emissions through the creation of an induced draft formed by the expansion of pressurized hot water through a nozzle.

Increased coking time means increasing the charge-to-push time for an individual oven.

Non-recovery coke oven battery means a group of ovens connected by common walls and operated as a unit, where coal undergoes destructive distillation under negative pressure to produce coke, and which is designed for the combustion of the coke oven gas from which by-products are not recovered.

Oven means a chamber in the coke oven battery in which coal undergoes destructive distillation to produce coke.

Pushing means the process of removing the coke from the oven. Pushing begins with the first detectable movement of the coke mass and ends when the quench car enters the quench tower.

Quenching means the wet process of cooling (wet quenching) the hot incandescent coke by direct contact with water that begins when the quench car enters the quench tower and ends when the quench car exits the quench tower.

Quench tower means the structure in which hot incandescent coke in the quench car is deluged or quenched with water.

Remove from service means that an oven is not charged with coal and is not used for coking. When removed from service, the oven may remain at the operating temperature or it may be cooled down for repairs.

Responsible official means responsible official as defined in § 63.2.

Short battery means a by-product coke oven battery with ovens less than five meters in height.

Soaking means that period in the coking cycle that starts when an oven is dampered off the collecting main and vented to the atmosphere through an open standpipe prior to pushing and ends when the coke begins to be pushed from the oven.

Soaking emissions means the discharge from an open standpipe during soaking of visible emissions due to either incomplete coking or leakage into the standpipe from the collecting main.

Standpipe means an apparatus on the oven that provides a passage for gases from an oven to the atmosphere when the oven is dampered off the collecting main and the standpipe cap is opened. This includes mini-standpipes that are not connected to the collecting main.

Tall battery means a by-product coke oven battery with ovens five meters or more in height.

Vertical flue means a type of coke oven heating system in which the heating flues run vertically from the bottom to the top of the oven, and flues are shared between adjacent ovens.

Work practice standard means any design, equipment, work practice, or operational standard, or combination thereof, that is promulgated pursuant to section 112(h) of the CAA.

As required in § 63.7350, you must comply with each applicable requirement of the NESHAP General Provisions (40 CFR part 63, subpart A) as shown in the following table:

TABLES TO SUBPART CCCCC OF PART 63

[Table 1 to Subpart CCCCC of Part 63. Applicability of General Provisions to Subpart CCCCC]

Citation	Subject	Applies to Subpart CCCCC?	Explanation
§ 63.1	Applicability	Yes.	
§ 63.2	Definitions	Yes.	
§ 63.3	Units and Abbreviations	Yes.	
§ 63.4	Prohibited Activities	Yes.	
§ 63.5	Construction/Reconstruction	Yes.	
§ 63.6(a), (b), (c), (d), (e), (f), (g), (h)(2)–(8).	Compliance with Standards and Maintenance Requirements	Yes.	
§ 63.6(h)(9)	Adjustment to an Opacity Emission Standard	Yes.	
§ 63.7(a)(3), (b), (c)–(h)	Performance Testing Requirements	Yes.	
§ 63.7(a)(1)–(2)	Applicability and Performance Test Dates	No	Subpart CCCCC specifies applicability and dates.
§ 63.8(a)(1)–(3), (b), (c)(1)–(3), (c)(4)(i)–(ii), (c)(5)–(8), (d), (e), (f)(1)–(5), (g)(1)–(4).	Monitoring Requirements	Yes	CMS requirements in § 63.8(c)(4) (i)–(ii), (c)(5), and (c)(6) apply only to COMS for battery stacks.
§ 63.8(a)(4)	Additional Monitoring Requirements for Control Devices in § 63.11.	No	Flares are not a control device for Subpart CCCCC affected sources.
§ 63.8(c)(4)	Continuous Monitoring System (CMS) Requirements	No	Subpart CCCCC specifies requirements for operation of CMS.
§ 63.8(e)(4)–(5)	Performance Evaluations	Yes	Except COMS performance evaluation must be conducted before the compliance date.
§ 63.8(f)(6)	RATA Alternative	No	Subpart CCCCC does not require CEMS.
§ 63.8(g)(5)	Data Reduction	No	Subpart CCCCC specifies data that can't be used in computing averages for COMS.
§ 63.9	Notification Requirements	Yes	Additional notifications for CMS in § 63.9(g) apply only to COMS for battery stacks.
§ 63.10(a), (b)(1)–(b)(2)(xii), (b)(2)(xiv), (b)(3), (c)(1)–(6), (c)(9)–(15), (d), (e)(1)–(2), (e)(4), (f).	Recordkeeping and Reporting Requirements	Yes.	Additional records for CMS in § 63.10(c)(1)–(6), (9)–(15), and reports in § 63.10(d)(1)–(2) apply only to COMS for battery stacks.
§ 63.10(b)(2) (xi)–(xii)	CMS Records for RATA Alternative	No	Subpart CCCCC doesn't require CEMS.
§ 63.10(c)(7)–(8)	Records of Excess Emissions and Parameter Monitoring Exceedances for CMS.	No	Subpart CCCCC specifies record requirements.
§ 63.10(e)(3)	Excess Emission Reports	No	Subpart CCCCC specifies reporting requirements.
§ 63.11	Control Device Requirements	No	Subpart CCCCC does not require flares.
§ 63.12	State Authority and Delegations.	Yes.	
§§ 63.13–63.15	Addresses, Incorporation by Reference, Availability of Information.	Yes.	

Subparts DDDDD—EEEEE [Reserved]

Subpart FFFFF—National Emission Standards for Hazardous Air Pollutants for Integrated Iron and Steel Manufacturing Facilities

SOURCE: 68 FR 27663, May 20, 2003, unless otherwise noted.

WHAT THIS SUBPART COVERS

§ 63.7780 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants (NESHAP) for integrated iron and steel manufacturing facilities. This subpart also establishes requirements to demonstrate initial and continuous compliance with all applicable emission limitations and operation and maintenance requirements in this subpart.

§ 63.7781 Am I subject to this subpart?

You are subject to this subpart if you own or operate an integrated iron and steel manufacturing facility that is (or is part of) a major source of hazardous air pollutants (HAP) emissions. Your integrated iron and steel manufacturing facility is a major source of HAP if it emits or has the potential to emit any single HAP at a rate of 10 tons or more per year or any combination of HAP at a rate of 25 tons or more per year.

§ 63.7782 What parts of my plant does this subpart cover?

(a) This subpart applies to each new and existing affected source at your integrated iron and steel manufacturing facility.

(b) The affected sources are each new or existing sinter plant, blast furnace, and basic oxygen process furnace (BOPF) shop at your integrated iron and steel manufacturing facility.

(c) This subpart covers emissions from the sinter plant windbox exhaust, discharge end, and sinter cooler; the blast furnace casthouse; and the BOPF shop including each individual BOPF and shop ancillary operations (hot metal transfer, hot metal desulfurization, slag skimming, and ladle metallurgy).

(d) A sinter plant, blast furnace, or BOPF shop at your integrated iron and steel manufacturing facility is existing if you commenced construction or reconstruction of the affected source before July 13, 2001.

(e) A sinter plant, blast furnace, or BOPF shop at your integrated iron and steel manufacturing facility is new if you commence construction or reconstruction of the affected source on or after July 13, 2001. An affected source is reconstructed if it meets the definition of reconstruction in § 63.2.

§ 63.7783 When do I have to comply with this subpart?

(a) If you have an existing affected source, you must comply with each emission limitation and operation and maintenance requirement in this subpart that applies to you no later than May 22, 2006.

(b) If you have a new affected source and its initial startup date is on or before May 20, 2003, then you must comply with each emission limitation and operation and maintenance requirement in this subpart that applies to you by May 20, 2003.

(c) If you have a new affected source and its initial startup date is after May 20, 2003, you must comply with each emission limitation and operation and maintenance requirement in this subpart that applies to you upon initial startup.

(d) If your integrated iron and steel manufacturing facility is not a major source and becomes a major source of HAP, the following compliance dates apply to you.

(1) Any portion of the existing integrated iron and steel manufacturing facility that becomes a new affected source or a new reconstructed source must be in compliance with this subpart upon startup.

(2) All other parts of the integrated iron and steel manufacturing facility must be in compliance with this subpart no later than 2 years after it becomes a major source.

(e) You must meet the notification and schedule requirements in §63.7840. Several of these notifications must be submitted before the compliance date for your affected source.

EMISSION LIMITATIONS

§63.7790 What emission limitations must I meet?

(a) You must meet each emission limit and opacity limit in Table 1 to this subpart that applies to you.

(b) You must meet each operating limit for capture systems and control devices in paragraphs (b)(1) through (3) of this section that applies to you.

(1) You must operate each capture system applied to emissions from a sinter plant discharge end or blast furnace casthouse or to secondary emissions from a BOPF at or above the lowest value or settings established for the operating limits in your operation and maintenance plan;

(2) For each venturi scrubber applied to meet any particulate emission limit in Table 1 to this subpart, you must maintain the hourly average pressure drop and scrubber water flow rate at or above the minimum levels established during the initial performance test.

(3) For each electrostatic precipitator applied to emissions from a BOPF, you must maintain the average opacity of emissions for each 6-minute period at or below the site-specific opacity value corresponding to the 99 percent upper confidence limit on the mean of a normal distribution of average opacity values established during the initial performance test.

(c) An owner or operator who uses an air pollution control device other than a baghouse, venturi scrubber, or electrostatic precipitator must submit a description of the device; test results collected in accordance with §63.7822 verifying the performance of the device for reducing emissions of particulate matter to the atmosphere to the levels required by this subpart; a copy of the operation and maintenance plan required in §63.7800(b); and appropriate operating parameters that will be monitored to maintain continuous compliance with the applicable emission limitation(s). The monitoring plan identifying the operating parameters to be monitored is subject to approval by the Administrator.

(d) For each sinter plant, you must either:

(1) Maintain the 30-day rolling average oil content of the feedstock at or below 0.02 percent; or

(2) Maintain the 30-day rolling average of volatile organic compound emissions from the windbox exhaust stream at or below 0.2 lb/ton of sinter.

OPERATION AND MAINTENANCE REQUIREMENTS

§63.7800 What are my operation and maintenance requirements?

(a) As required by §63.6(e)(1)(i), you must always operate and maintain your affected source, including air pollution control and monitoring equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by this subpart.

(b) You must prepare and operate at all times according to a written operation and maintenance plan for each capture system or control device subject to an operating limit in §63.7790(b). Each plan must address the elements in paragraphs (b)(1) through (5) of this section.

(1) Monthly inspections of the equipment that is important to the performance of the total capture system (*e.g.*, pressure sensors, dampers, and damper switches). This inspection must include observations of the physical appearance of the equipment (*e.g.*, presence of holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in the ductwork, and fan erosion). The operation and maintenance plan also must include requirements to repair any defect or deficiency in the capture system before the next scheduled inspection.

(2) Preventative maintenance for each control device, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and long-term maintenance.

(3) Operating limits for each capture system applied to emissions from a sinter plant discharge end or blast furnace casthouse, or to secondary emissions from a BOPF. You must establish the

operating limits according to the requirements in paragraphs (b)(3)(i) through (iii) of this section.

(i) Select operating limit parameters appropriate for the capture system design that are representative and reliable indicators of the performance of the capture system. At a minimum, you must use appropriate operating limit parameters that indicate the level of the ventilation draft and the damper position settings for the capture system when operating to collect emissions, including revised settings for seasonal variations. Appropriate operating limit parameters for ventilation draft include, but are not limited to, volumetric flow rate through each separately ducted hood, total volumetric flow rate at the inlet to the control device to which the capture system is vented, fan motor amperage, or static pressure.

(ii) For each operating limit parameter selected in paragraph (b)(3)(i) of this section, designate the value or setting for the parameter at which the capture system operates during the process operation. If your operation allows for more than one process to be operating simultaneously, designate the value or setting for the parameter at which the capture system operates during each possible configuration that you may operate.

(iii) Include documentation in your plan to support your selection of the operating limits established for the capture system. This documentation must include a description of the capture system design, a description of the capture system operating during production, a description of each selected operating limit parameter, a rationale for why you chose the parameter, a description of the method used to monitor the parameter according to the requirements of § 63.7830(a), and the data used to set the value or setting for the parameter for each of your process configurations.

(4) Corrective action procedures for bag leak detection systems. In the event a bag leak detection system alarm is triggered, you must initiate corrective action to determine the cause of the alarm within 1 hour of the alarm, initiate corrective action to correct the cause of the problem within 24 hours of the alarm, and complete the corrective action as soon as practicable. Corrective actions may include, but are not limited to:

(i) Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in emissions.

(ii) Sealing off defective bags or filter media.

(iii) Replacing defective bags or filter media or otherwise repairing the control device.

(iv) Sealing off a defective baghouse compartment.

(v) Cleaning the bag leak detection system probe, or otherwise repair the bag leak detection system.

(vi) Shutting down the process producing the particulate emissions; and

(5) Procedures for determining and recording the daily sinter plant production rate in tons per hour.

GENERAL COMPLIANCE REQUIREMENTS

§ 63.7810 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limitations and operation and maintenance requirements in this subpart at all times, except during periods of startup, shutdown, and malfunction as defined in § 63.2.

(b) During the period between the compliance date specified for your affected source in § 63.7783 and the date upon which continuous monitoring systems have been installed and certified and any applicable operating limits have been set, you must maintain a log detailing the operation and maintenance of the process and emissions control equipment.

(c) You must develop and implement a written startup, shutdown, and malfunction plan according to the provisions in § 63.6(e)(3).

INITIAL COMPLIANCE REQUIREMENTS

§ 63.7820 By what date must I conduct performance tests or other initial compliance demonstrations?

(a) You must conduct a performance test to demonstrate initial compliance with each emission and opacity limit in Table 1 to this subpart that applies to you. You must also conduct a performance test to demonstrate initial compliance with the 30-day rolling average operating limit for the oil content of the sinter plant feedstock in §63.7790(d)(1) or alternative limit for volatile organic compound emissions from the sinter plant windbox exhaust stream in §63.7790(d)(2). You must conduct the performance tests within 180 calendar days after the compliance date that is specified in §63.7783 for your affected source and report the results in your notification of compliance status.

(b) For each operation and maintenance requirement that applies to you where initial compliance is not demonstrated using a performance test or opacity observation, you must demonstrate initial compliance within 30 calendar days after the compliance date that is specified for your affected source in §63.7783.

(c) If you commenced construction or reconstruction between July 13, 2001 and May 20, 2003, you must demonstrate initial compliance with either the proposed emission limit or the promulgated emission limit no later than November 17, 2003 or no later than 180 days after startup of the source, whichever is later, according to §63.7(a)(2)(ix).

(d) If you commenced construction or reconstruction between July 13, 2001 and May 20, 2003, and you chose to comply with the proposed emission limit when demonstrating initial compliance, you must conduct a second performance test to demonstrate compliance with the promulgated emission limit by November 17, 2006, or no later than 180 days after startup of the source, whichever is later, according to §63.7(a)(2)(ix).

§63.7821 When must I conduct subsequent performance tests?

You must conduct subsequent performance tests to demonstrate compliance with all applicable PM and opacity limits in Table 1 to this subpart no less frequently than twice (at mid-term and renewal) during each term of your title V operating permit. For sources without a title V operating permit, you must conduct subsequent performance tests every 2.5 years.

§63.7822 What test methods and other procedures must I use to demonstrate initial compliance with the emission limits for particulate matter?

(a) You must conduct each performance test that applies to your affected source according to the requirements in §63.7(e)(1) and the conditions detailed in paragraphs (b) through (i) of this section.

(b) To determine compliance with the applicable emission limit for particulate matter in Table 1 to this subpart, follow the test methods and procedures in paragraphs (b)(1) and (2) of this section.

(1) Determine the concentration of particulate matter according to the following test methods in appendix A to part 60 of this chapter:

(i) Method 1 to select sampling port locations and the number of traverse points. Sampling ports must be located at the outlet of the control device and prior to any releases to the atmosphere.

(ii) Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

(iv) Method 4 to determine the moisture content of the stack gas.

(v) Method 5, 5D, or 17, as applicable, to determine the concentration of particulate matter (front half filterable catch only).

(2) Collect a minimum sample volume of 60 dry standard cubic feet (dscf) of gas during each particulate matter test run. Three valid test runs are needed to comprise a performance test.

(c) For each sinter plant windbox exhaust stream, you must complete the requirements of paragraphs (c)(1) and (2) of this section:

(1) Follow the procedures in your operation and maintenance plan for measuring and recording the sinter production rate for each test run in tons per hour; and

(2) Compute the process-weighted mass emissions (E_p) for each test run using Equation 1 of this section as follows:

$$E_p = \frac{C \times Q}{P \times K} \qquad \text{(Eq. 1)}$$

Where:

E_p = Process-weighted mass emissions of particulate matter, lb/ton;

C = Concentration of particulate matter, grains per dry standard cubic foot (gr/dscf);

Q = Volumetric flow rate of stack gas, dry standard cubic foot per hour (dscf/hr);

P = Production rate of sinter during the test run, tons/hr; and

K = Conversion factor, 7,000 grains per pound (gr/lb).

(d) If you apply two or more control devices in parallel to emissions from a sinter plant discharge end or a BOPF, compute the average flow-weighted concentration for each test run using Equation 2 of this section as follows:

$$C_W = \frac{\sum_{i=1}^{n} C_i\, Q_i}{\sum_{i=1}^{n} Q_i} \qquad \text{(Eq. 2)}$$

Where:

C_w = Flow-weighted concentration, gr/dscf;

C_i = Concentration of particulate matter from exhaust stream ‘‘i’’, gr/dscf; and

Q_i = Volumetric flow rate of effluent gas from exhaust stream ‘‘i’’, dry standard cubic foot per minute (dscfm).

(e) For a control device applied to emissions from a blast furnace casthouse, sample for an integral number of furnace tapping operations sufficient to obtain at least 1 hour of sampling for each test run.

(f) For a primary emission control device applied to emissions from a BOPF with a closed hood system, sample only during the primary oxygen blow and do not sample during any subsequent reblows. Continue sampling for each run for an integral number of primary oxygen blows.

(g) For a primary emission control system applied to emissions from a BOPF with an open hood system and for a control device applied solely to secondary emissions from a BOPF, you must complete the requirements of paragraphs (g)(1) and (2) of this section:

(1) Sample only during the steel production cycle. Conduct sampling under conditions that are representative of normal operation. Record the start and end time of each steel production cycle and each period of abnormal operation; and

(2) Sample for an integral number of steel production cycles. The steel production cycle begins when the scrap is charged to the furnace and ends 3 minutes after the slag is emptied from the vessel into the slag pot.

(h) For a control device applied to emissions from BOPF shop ancillary operations (hot metal transfer, skimming, desulfurization, or ladle metallurgy), sample only when the operation(s) is being conducted.

(i) Subject to approval by the permitting authority, you may conduct representative sampling of stacks when there are more than three stacks associated with a process.

§ 63.7823 What test methods and other procedures must I use to demonstrate initial compliance with the opacity limits?

(a) You must conduct each performance test that applies to your affected source according to the requirements in § 63.7(h)(5) and the conditions detailed in paragraphs (b) through (d) of this section.

(b) You must conduct each visible emissions performance test such that the opacity observations overlap with the performance test for particulate matter.

(c) To determine compliance with the applicable opacity limit in Table 1 to this subpart for a sinter plant discharge end or a blast furnace casthouse:

(1) Using a certified observer, determine the opacity of emissions according to Method 9 in appendix A to part 60 of this chapter.

(2) Obtain a minimum of 30 6-minute block averages. For a blast furnace casthouse, make observations during tapping of the furnace. Tapping begins when the furnace is opened, usually by creating a hole near the bottom of the

furnace, and ends when the hole is plugged.

(d) To determine compliance with the applicable opacity limit in Table 1 to this subpart for BOPF shops:

(1) For an existing BOPF shop:

(i) Using a certified observer, determine the opacity of emissions according to Method 9 in appendix A to part 60 of this chapter except as specified in paragraphs (d)(1)(ii) and (iii) of this section.

(ii) Instead of procedures in section 2.4 of Method 9 in appendix A to part 60 of this chapter, record observations to the nearest 5 percent at 15-second intervals for at least three steel production cycles.

(iii) Instead of procedures in section 2.5 of Method 9 in appendix A to part 60 of this chapter, determine the 3-minute block average opacity from the average of 12 consecutive observations recorded at 15-second intervals.

(2) For a new BOPF shop housing a bottom-blown BOPF:

(i) Using a certified observer, determine the opacity of emissions according to Method 9 in appendix A to part 60 of this chapter.

(ii) Determine the highest and second highest sets of 6-minute block average opacities for each steel production cycle.

(3) For a new BOPF shop housing a top-blown BOPF:

(i) Determine the opacity of emissions according to the requirements for an existing BOPF shop in paragraphs (d)(1)(i) through (iii) of this section.

(ii) Determine the highest and second highest sets of 3-minute block average opacities for each steel production cycle.

(4) Opacity observations must cover the entire steel production cycle and must be made for at least three cycles. The steel production cycle begins when the scrap is charged to the furnace and ends 3 minutes after the slag is emptied from the vessel into the slag pot.

(5) Determine and record the starting and stopping times of the steel production cycle.

§63.7824 What test methods and other procedures must I use to establish and demonstrate initial compliance with operating limits?

(a) For each capture system subject to an operating limit in §63.7790(b)(1), you must certify that the system operated during the performance test at the site-specific operating limits established in your operation and maintenance plan using the procedures in paragraphs (a)(1) through (4) of this section.

(1) Concurrent with all opacity observations, measure and record values for each of the operating limit parameters in your capture system operation and maintenance plan according to the monitoring requirements specified in §63.7830(a).

(2) For any dampers that are manually set and remain at the same position at all times the capture system is operating, the damper position must be visually checked and recorded at the beginning and end of each opacity observation period segment.

(3) Review and record the monitoring data. Identify and explain any times the capture system operated outside the applicable operating limits.

(4) Certify in your performance test report that during all observation period segments, the capture system was operating at the values or settings established in your capture system operation and maintenance plan.

(b) For a venturi scrubber subject to operating limits for pressure drop and scrubber water flow rate in §63.7790(b)(2), you must establish site-specific operating limits according to the procedures in paragraphs (b)(1) and (2) of this section.

(1) Using the continuous parameter monitoring system (CPMS) required in §63.7830(c), measure and record the pressure drop and scrubber water flow rate during each run of the particulate matter performance test.

(2) Compute and record the hourly average pressure drop and scrubber water flow rate for each individual test run. Your operating limits are the lowest average pressure drop and scrubber water flow rate value in any of the three runs that meet the applicable emission limit.

(c) For an electrostatic precipitator subject to the operating limit in § 63.7790(b)(3) for opacity, you must establish a site-specific operating limit according to the procedures in paragraphs (c)(1) through (3) of this section.

(1) Using the continuous opacity monitoring system (COMS) required in § 63.7830(d), measure and record the opacity of emissions from each control device stack during each run of the particulate matter performance test.

(2) Compute and record the 6-minute block average opacity from 36 or more data points equally spaced over each 6-minute period during the test runs.

(3) Determine, based on the 6-minute block averages, the opacity value corresponding to the 99 percent upper confidence limit on the mean of a normal distribution of average opacity values.

(d) You may change the operating limits for a capture system, venturi scrubber, or electrostatic precipitator if you meet the requirements in paragraphs (d)(1) through (3) of this section.

(1) Submit a written notification to the Administrator of your request to conduct a new performance test to revise the operating limit.

(2) Conduct a performance test to demonstrate compliance with the applicable emission limitation in Table 1 to this subpart.

(3) Establish revised operating limits according to the applicable procedures in paragraphs (a) through (c) of this section for a control device or capture system.

(e) For each sinter plant subject to the operating limit for the oil content of the sinter plant feedstock in § 63.7790(d)(1), you must demonstrate initial compliance according to the procedures in paragraphs (e)(1) through (3) of this section.

(1) Sample the feedstock at least three times a day (once every 8 hours), composite the three samples each day, and analyze the composited samples using Method 9071B, ‘‘n-Hexane Extractable Material(HEM) for Sludge, Sediment, and Solid Samples,’’ (Revision 2, April 1998). Method 9071B is incorporated by reference (see § 63.14) and is published in EPA Publication SW–846 ‘‘Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.’’ Record the sampling date and time, oil content values, and sinter produced (tons/day).

(2) Continue the sampling and analysis procedure for 30 consecutive days.

(3) Each day, compute and record the 30-day rolling average using that day’s value and the 29 previous daily values.

(f) To demonstrate initial compliance with the alternative operating limit for volatile organic compound emissions from the sinter plant windbox exhaust stream in § 63.7790(d)(2), follow the test methods and procedures in paragraphs (f)(1) through (5) of this section.

(1) Determine the volatile organic compound emissions according to the following test methods in appendix A to part 60 of this chapter:

(i) Method 1 to select sampling port locations and the number of traverse points. Sampling ports must be located at the outlet of the control device and prior to any releases to the atmosphere.

(ii) Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

(iv) Method 4 to determine the moisture content of the stack gas.

(v) Method 25 to determine the mass concentration of volatile organic compound emissions (total gaseous nonmethane organics as carbon) from the sinter plant windbox exhaust stream stack.

(2) Determine volatile organic compound (VOC) emissions every 24 hours (from at least three samples taken at 8-hour intervals) using Method 25 in 40 CFR part 60, appendix A. Record the sampling date and time, sampling results, and sinter produced (tons/day).

(3) Compute the process-weighted mass emissions (E_v) each day using Equation 1 of this section as follows:

$$E_v = \frac{M_C \times Q}{35.31 \times 454{,}000 \times K} \qquad \text{(Eq. 1)}$$

Where:

E_v = Process-weighted mass emissions of volatile organic compounds, lb/ton;

M_c = Average concentration of total gaseous nonmethane organics as carbon by Method 25 (40 CFR part

60, appendix A), milligrams per dry standard cubic meters (mg/dscm) for each day;

Q = Volumetric flow rate of stack gas, dscf/hr;

35.31 = Conversion factor (dscf/dscm);

454,000 = Conversion factor (mg/lb); and

K = Daily production rate of sinter, tons/hr.

(4) Continue the sampling and analysis procedure in paragraphs (f)(1) through (3) of this section for 30 consecutive days.

(5) Compute and record the 30-day rolling average of VOC emissions for each operating day.

(g) You may use an alternative test method to determine the oil content of the sinter plant feedstock or the volatile organic compound emissions from the sinter plant windbox exhaust stack if you have already demonstrated the equivalency of the alternative method for a specific plant and have received previous approval from the applicable permitting authority.

§ 63.7825 How do I demonstrate initial compliance with the emission limitations that apply to me?

(a) For each affected source subject to an emission or opacity limit in Table 1 to this subpart, you have demonstrated initial compliance if:

(1) You meet the conditions in Table 2 to this subpart; and

(2) For each capture system subject to the operating limit in § 63.7790(b)(1), you have established appropriate site-specific operating limit(s) and have a record of the operating parameter data measured during the performance test in accordance with § 63.7824(a)(1).

(3) For each venturi scrubber subject to the operating limits for pressure drop and scrubber water flow rate in § 63.7790(b)(2), you have established appropriate site-specific operating limits and have a record of the pressure drop and scrubber water flow rate measured during the performance test in accordance with § 63.7824(b); and

(4) For each electrostatic precipitator subject to the opacity operating limit in § 63.7790(b)(3), you have established an appropriate site-specific operating limit and have a record of the opacity measurements made during the performance test in accordance with § 63.7824(c).

(b) For each existing or new sinter plant subject to the operating limit in § 63.7790(d)(1), you have demonstrated initial compliance if the 30-day rolling average of the oil content of the feedstock, measured during the initial performance test in accordance with § 63.7824(e) is no more than 0.02 percent or the volatile organic compound emissions from the sinter plant windbox exhaust stream, measured during the initial performance test in accordance with § 63.7824(f), is no more than 0.2 lb/ton of sinter produced.

(c) For each emission limitation that applies to you, you must submit a notification of compliance status according to § 63.7840(e).

§ 63.7826 How do I demonstrate initial compliance with the operation and maintenance requirements that apply to me?

(a) For a capture system applied to emissions from a sinter plant discharge end or blast furnace casthouse or to secondary emissions from a BOPF, you have demonstrated initial compliance if you meet all of the conditions in paragraphs (a)(1) through (4) of this section.

(1) Prepared the capture system operation and maintenance plan according to the requirements of § 63.7800(b), including monthly inspection procedures and detailed descriptions of the operating parameter(s) selected to monitor the capture system;

(2) Certified in your performance test report that the system operated during the test at the operating limits established in your operation and maintenance plan;

(3) Submitted a notification of compliance status according to the requirements in § 63.7840(e), including a copy of the capture system operation and maintenance plan and your certification that you will operate the capture system at the values or settings established for the operating limits in that plan; and

(4) Prepared a site-specific monitoring plan according to the requirements in § 63.7831(a).

(b) For each control device subject to operating limits in § 63.7790(b)(2) or (3), you have demonstrated initial compliance if you meet all the conditions in paragraphs (b)(1) through (3) of this section.

(1) Prepared the control device operation and maintenance plan according to the requirements of § 63.7800(b), including a preventative maintenance schedule and, if applicable, detailed descriptions of the procedures you use for corrective action for baghouses;

(2) Submitted a notification of compliance status according to the requirements in § 63.7840(e), including a copy of the operation and maintenance plan; and

(3) Prepared a site-specific monitoring plan according to the requirements in § 63.7831(a).

CONTINUOUS COMPLIANCE REQUIREMENTS

§ 63.7830 What are my monitoring requirements?

(a) For each capture system subject to an operating limit in § 63.7790(b)(1) established in your capture system operation and maintenance plan, you must install, operate, and maintain a CPMS according to the requirements in § 63.7831(e) and the requirements in paragraphs (a)(1) through (3) of this section.

(1) Dampers that are manually set and remain in the same position are exempt from the requirement to install and operate a CPMS. If dampers are not manually set and remain in the same position, you must make a visual check at least once every 24 hours to verify that each damper for the capture system is in the same position as during the initial performance test.

(2) If you use a flow measurement device to monitor the operating limit parameter for a sinter plant discharge end or blast furnace casthouse, you must monitor the hourly average rate (*e.g.*, the hourly average actual volumetric flow rate through each separately ducted hood, the average hourly total volumetric flow rate at the inlet to the control device) according to the requirements in § 63.7832.

(3) If you use a flow measurement device to monitor the operating limit parameter for a capture system applied to secondary emissions from a BOPF, you must monitor the average rate for each steel production cycle (*e.g.*, the average actual volumetric flow rate through each separately ducted hood for each steel production cycle, the average total volumetric flow rate at the inlet to the control device for each steel production cycle) according to the requirements in § 63.7832.

(b) For each baghouse applied to meet any particulate emission limit in Table 1 of this subpart, you must install, operate, and maintain a bag leak detection system according to § 63.7831(f), monitor the relative change in particulate matter loadings according to the requirements in § 63.7832, and conduct inspections at their specified frequencies according to the requirements in paragraphs (b)(1) through (8) of this section.

(1) Monitor the pressure drop across each baghouse cell each day to ensure pressure drop is within the normal operating range identified in the manual.

(2) Confirm that dust is being removed from hoppers through weekly visual inspections or other means of ensuring the proper functioning of removal mechanisms.

(3) Check the compressed air supply for pulse-jet baghouses each day.

(4) Monitor cleaning cycles to ensure proper operation using an appropriate methodology.

(5) Check bag cleaning mechanisms for proper functioning through monthly visual inspection or equivalent means.

(6) Make monthly visual checks of bag tension on reverse air and shaker-type baghouses to ensure that bags are not kinked (kneed or bent) or laying on their sides. You do not have to make this check for shaker-type baghouses using self-tensioning (spring-loaded) devices.

(7) Confirm the physical integrity of the baghouse through quarterly visual inspections of the baghouse interior for air leaks.

(8) Inspect fans for wear, material buildup, and corrosion through quarterly visual inspections, vibration detectors, or equivalent means.

(c) For each venturi scrubber subject to the operating limits for pressure drop and scrubber water flow rate in § 63.7790(b)(2), you must install, operate, and maintain CPMS according to the requirements in § 63.7831(g) and monitor the hourly average pressure drop and water flow rate according to the requirements in § 63.7832.

(d) For each electrostatic precipitator subject to the opacity operating limit in § 63.7790(b)(3), you must install, operate, and maintain a COMS according to the requirements in § 63.7831(h) and monitor the 6-minute average opacity of emissions exiting each control device stack according to the requirements in § 63.7832.

(e) For each sinter plant subject to the operating limit in § 63.7790(d), you must either:

(1) Compute and record the 30-day rolling average of the oil content of the feedstock for each operating day using the procedures in § 63.7824(e); or

(2) Compute and record the 30-day rolling average of volatile organic compound emissions (lbs/ton of sinter) for each operating day using the procedures in § 63.7824(f).

§ 63.7831 What are the installation, operation, and maintenance requirements for my monitors?

(a) For each CPMS required in § 63.7830, you must develop and make available for inspection upon request by the permitting authority a site-specific monitoring plan that addresses the requirements in paragraphs (a)(1) through (6) of this section.

(1) Installation of the CPMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (*e.g.*, on or downstream of the last control device);

(2) Performance and equipment specifications for the sample interface, the parametric signal analyzer, and the data collection and reduction system;

(3) Performance evaluation procedures and acceptance criteria (*e.g.*, calibrations);

(4) Ongoing operation and maintenance procedures in accordance with the general requirements of §§ 63.8(c)(1), (c)(3), (c)(4)(ii), (c)(7), and (c)(8);

(5) Ongoing data quality assurance procedures in accordance with the general requirements of § 63.8(d); and

(6) Ongoing recordkeeping and reporting procedures in accordance the general requirements of §§ 63.10(c), (e)(1), and (e)(2)(i).

(b) Unless otherwise specified, each CPMS must:

(1) Complete a minimum of one cycle of operation for each successive 15-minute period and collect a minimum of three of the required four data points to constitute a valid hour of data;

(2) Provide valid hourly data for at least 95 percent of every averaging period; and

(3) Determine and record the hourly average of all recorded readings.

(c) You must conduct a performance evaluation of each CPMS in accordance with your site-specific monitoring plan.

(d) You must operate and maintain the CPMS in continuous operation according to the site-specific monitoring plan.

(e) For each capture system subject to an operating limit in § 63.7790(b)(1), you must install, operate, and maintain each CPMS according to the requirements in paragraphs (a) through (d) of this section.

(f) For each baghouse applied to meet any particulate emission limit in Table 1 of this subpart, you must install, operate, and maintain a bag leak detection system according to the requirements in paragraphs (f)(1) through (7) of this section.

(1) The system must be certified by the manufacturer to be capable of detecting emissions of particulate matter at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.

(2) The system must provide output of relative changes in particulate matter loadings.

(3) The system must be equipped with an alarm that will sound when an increase in relative particulate loadings is detected over a preset level. The alarm must be located such that it can be heard by the appropriate plant personnel.

(4) Each system that works based on the triboelectric effect must be installed, operated, and maintained in a manner consistent with the guidance

document, ‘‘Fabric Filter Bag Leak Detection Guidance,’’ EPA–454/R–98–015, September 1997. You may install, operate, and maintain other types of bag leak detection systems in a manner consistent with the manufacturer's written specifications and recommendations.

(5) To make the initial adjustment of the system, establish the baseline output by adjusting the sensitivity (range) and the averaging period of the device. Then, establish the alarm set points and the alarm delay time.

(6) Following the initial adjustment, do not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time, except as detailed in your operation and maintenance plan. Do not increase the sensitivity by more than 100 percent or decrease the sensitivity by more than 50 percent over a 365-day period unless a responsible official certifies, in writing, that the baghouse has been inspected and found to be in good operating condition.

(7) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(g) For each venturi scrubber subject to operating limits in § 63.7790(b)(2) for pressure drop and scrubber water flow rate, you must install, operate, and maintain each CPMS according to the requirements in paragraphs (a) through (d) of this section.

(h) For each electrostatic precipitator subject to the opacity operating limit in § 63.7790(b)(3), you must install, operate, and maintain each COMS according to the requirements in paragraphs (h)(1) through (4) of this section.

(1) You must install, operate, and maintain each COMS according to Performance Specification 1 in 40 CFR part 60, appendix B.

(2) You must conduct a performance evaluation of each COMS according to § 63.8 and Performance Specification 1 in appendix B to 40 CFR part 60.

(3) Each COMS must complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period.

(4) COMS data must be reduced as specified in § 63.8(g)(2).

§ 63.7832 How do I monitor and collect data to demonstrate continuous compliance?

(a) Except for monitoring malfunctions, out-of-control periods as specified in § 63.8(c)(7), associated repairs, and required quality assurance or control activities (including as applicable, calibration checks and required zero and span adjustments), you must monitor continuously (or collect data at all required intervals) at all times an affected source is operating.

(b) You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels or to fulfill a minimum data availability requirement, if applicable. You must use all the data collected during all other periods in assessing compliance.

(c) A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

§ 63.7833 How do I demonstrate continuous compliance with the emission limitations that apply to me?

(a) You must demonstrate continuous compliance for each affected source subject to an emission or opacity limit in § 63.7790(a) by meeting the requirements in Table 3 to this subpart.

(b) You must demonstrate continuous compliance for each capture system subject to an operating limit in § 63.7790(b)(1) by meeting the requirements in paragraphs (b)(1) and (2) of this section.

(1) Operate the capture system at or above the lowest values or settings established for the operating limits in your operation and maintenance plan; and

(2) Monitor the capture system according to the requirements in § 63.7830(a) and collect, reduce, and record the monitoring data for each of the operating limit parameters according to the applicable requirements of this subpart;

(c) For each baghouse applied to meet any particulate emission limit in Table 1 to this subpart, you must demonstrate continuous compliance by completing the requirements in paragraphs (c)(1) and (2) of this section:

(1) Maintaining records of the time you initiated corrective action in the event of a bag leak detection system alarm, the corrective action(s) taken, and the date on which corrective action was completed.

(2) Inspecting and maintaining each baghouse according to the requirements in §63.7831(f) and recording all information needed to document conformance with these requirements. If you increase or decrease the sensitivity of the bag leak detection system beyond the limits specified in §63.7831(f)(6), you must include a copy of the required written certification by a responsible official in the next semiannual compliance report.

(d) For each venturi scrubber subject to the operating limits for pressure drop and scrubber water flow rate in §63.7790(b)(2), you must demonstrate continuous compliance by completing the requirements of paragraphs (d)(1) through (3) of this section:

(1) Maintaining the hourly average pressure drop and scrubber water flow rate at levels no lower than those established during the initial or subsequent performance test;

(2) Operating and maintaining each venturi scrubber CPMS according to §63.7831(g) and recording all information needed to document conformance with these requirements; and

(3) Collecting and reducing monitoring data for pressure drop and scrubber water flow rate according to §63.7831(b) and recording all information needed to document conformance with these requirements.

(e) For each electrostatic precipitator subject to the site-specific opacity operating limit in §63.7790(b)(3), you must demonstrate continuous compliance by completing the requirements of paragraphs (e)(1) and (2) of this section:

(1) Maintaining the average opacity of emissions for each 6-minute period no higher than the site-specific limit established during the initial or subsequent performance test; and

(2) Operating and maintaining each COMS and reducing the COMS data according to §63.7831(h).

(f) For each new or existing sinter plant subject to the operating limit in §63.7790(d), you must demonstrate continuous compliance by either:

(1) For the sinter plant feedstock oil content operating limit in §63.7790(d)(1),

(i) Computing and recording the 30-day rolling average of the percent oil content for each operating day according to the performance test procedures in §63.7824(e);

(ii) Recording the sampling date and time, oil content values, and sinter produced (tons/day); and

(iii) Maintaining the 30-day rolling average oil content of the feedstock no higher than 0.02 percent.

(2) For the volatile organic compound operating limit in §63.7790(d)(2),

(i) Computing and recording the 30-day rolling average of volatile organic compound emissions for each operating day according to the performance test procedures in §63.7824(f);

(ii) Recording the sampling date and time, sampling values, and sinter produced (tons/day); and

(iii) Maintaining the 30-day rolling average of volatile organic compound emissions no higher than 0.2 lb/ton of sinter produced.

§63.7834 How do I demonstrate continuous compliance with the operation and maintenance requirements that apply to me?

(a) For each capture system and control device subject to an operating limit in §63.7790(b), you must demonstrate continuous compliance with the operation and maintenance requirements in §63.7800(b) by meeting the requirements of paragraphs (a)(1) through (3) of this section:

(1) Making monthly inspections of capture systems and initiating corrective action according to §63.7800(b)(1) and recording all information needed to document conformance with these requirements;

(2) Performing preventative maintenance according to §63.7800(b)(2) and recording all information needed to document conformance with these requirements; and

(3) Initiating and completing corrective action for a bag leak detection system alarm according to § 63.7800(b)(4) and recording all information needed to document conformance with these requirements.

(b) You must maintain a current copy of the operation and maintenance plan required in § 63.7800(b) onsite and available for inspection upon request. You must keep the plans for the life of the affected source or until the affected source is no longer subject to the requirements of this subpart.

§ 63.7835 What other requirements must I meet to demonstrate continuous compliance?

(a) *Deviations.* You must report each instance in which you did not meet each emission limitation in § 63.7790 that applies to you. This includes periods of startup, shutdown, and malfunction. You also must report each instance in which you did not meet each operation and maintenance requirement in § 63.7800 that applies to you. These instances are deviations from the emission limitations and operation and maintenance requirements in this subpart. These deviations must be reported according to the requirements in § 63.7841.

(b) *Startups, shutdowns, and malfunctions.* During periods of startup, shutdown, and malfunction, you must operate in accordance with your startup, shutdown, and malfunction plan.

(1) Consistent with §§ 63.6(e) and 63.7(e)(1), deviations that occur during a period of startup, shutdown, or malfunction are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with the startup, shutdown, and malfunction plan.

(2) The Administrator will determine whether deviations that occur during a period of startup, shutdown, or malfunction are violations, according to the provisions in § 63.6(e).

NOTIFICATIONS, REPORTS, AND RECORDS

§ 63.7840 What notifications must I submit and when?

(a) You must submit all of the notifications in §§ 63.6(h)(4) and (5), 63.7(b) and (c), 63.8(e) and (f)(4), and 63.9(b) through (h) that apply to you by the specified dates.

(b) As specified in § 63.9(b)(2), if you startup your affected source before May 20, 2003, you must submit your initial notification no later than September 17, 2003.

(c) As specified in § 63.9(b)(3), if you start your new affected source on or after May 20, 2003, you must submit your initial notification no later than 120 calendar days after you become subject to this subpart.

(d) If you are required to conduct a performance test, you must submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin as required in § 63.7(b)(1).

(e) If you are required to conduct a performance test, opacity observation, or other initial compliance demonstration, you must submit a notification of compliance status according to § 63.9(h)(2)(ii).

(1) For each initial compliance demonstration that does not include a performance test, you must submit the notification of compliance status before the close of business on the 30th calendar day following completion of the initial compliance demonstration.

(2) For each initial compliance demonstration that does include a performance test, you must submit the notification of compliance status, including the performance test results, before the close of business on the 60th calendar day following the completion of the performance test according to § 63.10(d)(2).

§ 63.7841 What reports must I submit and when?

(a) *Compliance report due dates.* Unless the Administrator has approved a different schedule, you must submit a semiannual compliance report to your permitting authority according to the requirements in paragraphs (a)(1) through (5) of this section.

(1) The first compliance report must cover the period beginning on the compliance date that is specified for your affected source in § 63.7783 and ending on June 30 or December 31, whichever date comes first after the compliance date that is specified for your source in § 63.7783.

(2) The first compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date comes first after your first compliance report is due.

(3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date comes first after the end of the semiannual reporting period.

(5) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (a)(1) through (4) of this section.

(b) *Compliance report contents.* Each compliance report must include the information in paragraphs (b)(1) through (3) of this section and, as applicable, paragraphs (b)(4) through (8) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If you had a startup, shutdown, or malfunction during the reporting period and you took actions consistent with your startup, shutdown, and malfunction plan, the compliance report must include the information in § 63.10(d)(5)(i).

(5) If there were no deviations from the continuous compliance requirements in §§ 63.7833 and 63.7834 that apply to you, a statement that there were no deviations from the emission limitations or operation and maintenance requirements during the reporting period.

(6) If there were no periods during which a continuous monitoring system (including a CPMS, COMS, or continuous emission monitoring system (CEMS) was out-of-control as specified in § 63.8(c)(7), a statement that there were no periods during which the CPMS was out-of-control during the reporting period.

(7) For each deviation from an emission limitation in § 63.7790 that occurs at an affected source where you are not using a continuous monitoring system (including a CPMS, COMS, or CEMS) to comply with an emission limitation in this subpart, the compliance report must contain the information in paragraphs (b)(1) through (4) of this section and the information in paragraphs (b)(7)(i) and (ii) of this section. This includes periods of startup, shutdown, and malfunction.

(i) The total operating time of each affected source during the reporting period.

(ii) Information on the number, duration, and cause of deviations (including unknown cause, if applicable) as applicable and the corrective action taken.

(8) For each deviation from an emission limitation occurring at an affected source where you are using a continuous monitoring system (including a CPMS or COMS) to comply with the emission limitation in this subpart, you must include the information in paragraphs (b)(1) through (4) of this section and the information in paragraphs (b)(8)(i) through (xi) of this section. This includes periods of startup, shutdown, and malfunction.

(i) The date and time that each malfunction started and stopped.

(ii) The date and time that each continuous monitoring was inoperative, except for zero (low-level) and high-level checks.

(iii) The date, time, and duration that each continuous monitoring system was out-of-control as specified in § 63.8(c)(7), including the information in § 63.8(c)(8).

(iv) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(v) A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.

(vi) A breakdown of the total duration of the deviations during the reporting period including those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(vii) A summary of the total duration of continuous monitoring system downtime during the reporting period and the total duration of continuous monitoring system downtime as a percent of the total source operating time during the reporting period.

(viii) A brief description of the process units.

(ix) A brief description of the continuous monitoring system.

(x) The date of the latest continuous monitoring system certification or audit.

(xi) A description of any changes in continuous monitoring systems, processes, or controls since the last reporting period.

(c) *Immediate startup, shutdown, and malfunction report.* If you had a startup, shutdown, or malfunction during the semiannual reporting period that was not consistent with your startup, shutdown, and malfunction plan, you must submit an immediate startup, shutdown, and malfunction report according to the requirements in § 63.10(d)(5)(ii).

(d) *Part 70 monitoring report.* If you have obtained a title V operating permit for an affected source pursuant to 40 CFR part 70 or 71, you must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If you submit a compliance report for an affected source along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the compliance report includes all the required information concerning deviations from any emission limitation or operation and maintenance requirement in this subpart, submission of the compliance report satisfies any obligation to report the same deviations in the semiannual monitoring report. However, submission of a compliance report does not otherwise affect any obligation you may have to report deviations from permit requirements for an affected source to your permitting authority.

§ 63.7842 What records must I keep?

(a) You must keep the following records:

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any initial notification or notification of compliance status that you submitted, according to the requirements in § 63.10(b)(2)(xiv).

(2) The records in § 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

(3) Records of performance tests, performance evaluations, and opacity observations as required in § 63.10(b)(2)(viii).

(b) For each COMS, you must keep the records specified in paragraphs (b)(1) through (4) of this section.

(1) Records described in § 63.10(b)(2)(vi) through (xi).

(2) Monitoring data for a performance evaluation as required in § 63.6(h)(7)(i) and (ii).

(3) Previous (that is, superceded) versions of the performance evaluation plan as required in § 63.8(d)(3).

(4) Records of the date and time that each deviation started and stopped, and whether the deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(c) You must keep the records required in § 63.6(h)(6) for visual observations.

(d) You must keep the records required in §§ 63.7833 and 63.7834 to show continuous compliance with each emission limitation and operation and maintenance requirement that applies to you.

§ 63.7843 In what form and how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review, according to § 63.10(b)(1).

(b) As specified in § 63.10(b)(1), you must keep each record for 5 years following the date of each occurrence,

measurement, maintenance, corrective action, report, or record.

(c) You must keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record according to §63.10(b)(1). You can keep the records offsite for the remaining 3 years.

OTHER REQUIREMENTS AND INFORMATION

§63.7850 What parts of the General Provisions apply to me?

Table 4 to this subpart shows which parts of the General Provisions in §§63.1 through 63.15 apply to you.

§63.7851 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by us, the United States Environmental Protection Agency (U.S. EPA), or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under subpart E of this part, the authorities contained in paragraph (c) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are specified in paragraphs (c)(1) through (4) of this section.

(1) Approval of alternative opacity emission limits in Table 1 to this subpart under §63.6(h)(9).

(2) Approval of major alternatives to test methods under §63.7(e)(2)(ii) and (f) and as defined in §63.90, except for approval of an alternative method for the oil content of the sinter plant feedstock or volatile organic compound measurements for the sinter plant windbox exhaust stream stack as provided in §63.7824(g).

(3) Approval of major alternatives to monitoring under §63.8(f) and as defined in §63.90.

(4) Approval of major alternatives to recordkeeping and reporting under §63.10(f) and as defined in §63.90.

§63.7852 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act, in §63.2, and in this section as follows.

Bag leak detection system means a system that is capable of continuously monitoring relative particulate matter (dust) loadings in the exhaust of a baghouse to detect bag leaks and other upset conditions. A bag leak detection system includes, but is not limited to, an instrument that operates on tribroelectric, light scattering, light transmittance, or other effect to continuously monitor relative particulate matter loadings.

Basic oxygen process furnace means any refractory-lined vessel in which high-purity oxygen is blown under pressure through a bath of molten iron, scrap metal, and fluxes to produce steel. This definition includes both top and bottom blown furnaces, but does not include argon oxygen decarburization furnaces.

Basic oxygen process furnace shop means the place where steelmaking operations that begin with the transfer of molten iron (hot metal) from the torpedo car and end prior to casting the molten steel, including hot metal transfer, desulfurization, slag skimming, refining in a basic oxygen process furnace, and ladle metallurgy occur.

Basic oxygen process furnace shop ancillary operations means the processes where hot metal transfer, hot metal desulfurization, slag skimming, and ladle metallurgy occur.

Blast furnace means a furnace used for the production of molten iron from iron ore and other iron bearing materials.

Bottom-blown furnace means any basic oxygen process furnace in which oxygen and other combustion gases are introduced into the bath of molten iron through tuyeres in the bottom of the vessel or through tuyeres in the bottom and sides of the vessel.

Casthouse means the building or structure that encloses the bottom portion of a blast furnace where the hot metal and slag are tapped from the furnace.

Certified observer means a visible emission observer certified to perform EPA Method 9 opacity observations.

Desulfurization means the process in which reagents such as magnesium, soda ash, and lime are injected into the hot metal, usually with dry air or nitrogen, to remove sulfur.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including but not limited to any emission limitation (including operating limits) or operation and maintenance requirement;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limitation in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Discharge end means the place where those operations conducted within the sinter plant starting at the discharge of the sintering machine's traveling grate including (but not limited to) hot sinter crushing, screening, and transfer operations occur.

Emission limitation means any emission limit, opacity limit, or operating limit.

Hot metal transfer station means the location in a basic oxygen process furnace shop where molten iron (hot metal) is transferred from a torpedo car or hot metal car used to transport hot metal from the blast furnace casthouse to a holding vessel or ladle in the basic oxygen process furnace shop. This location also is known as the reladling station or ladle transfer station.

Integrated iron and steel manufacturing facility means an establishment engaged in the production of steel from iron ore.

Ladle metallurgy means a secondary steelmaking process that is performed typically in a ladle after initial refining in a basic oxygen process furnace to adjust or amend the chemical and/or mechanical properties of steel.

Primary emissions means particulate matter emissions from the basic oxygen process furnace generated during the steel production cycle which are captured and treated in the furnace's primary emission control system.

Primary emission control system means the combination of equipment used for the capture and collection of primary emissions (*e.g.*, an open hood capture system used in conjunction with an electrostatic precipitator or a closed hood system used in conjunction with a scrubber).

Primary oxygen blow means the period in the steel production cycle of a basic oxygen process furnace during which oxygen is blown through the molten iron bath by means of a lance inserted from the top of the vessel (top-blown) or through tuyeres in the bottom and/or sides of the vessel (bottom-blown).

Responsible official means responsible official as defined in § 63.2.

Secondary emissions means particulate matter emissions that are not controlled by a primary emission control system, including emissions that escape from open and closed hoods, lance hole openings, and gaps or tears in ductwork to the primary emission control system.

Secondary emission control system means the combination of equipment used for the capture and collection of secondary emissions from a basic oxygen process furnace.

Sinter cooler means the apparatus used to cool the hot sinter product that is transferred from the discharge end through contact with large volumes of induced or forced draft air.

Sinter plant means the machine used to produce a fused clinker-like aggregate or sinter of fine iron-bearing materials suited for use in a blast furnace. The machine is composed of a continuous traveling grate that conveys a bed of ore fines and other finely divided iron-bearing material and fuel (typically coke breeze), a burner at the feed end of the grate for ignition, and a series of downdraft windboxes along the length of the strand to support downdraft combustion and heat sufficient to produce a fused sinter product.

Skimming station means the locations inside a basic oxygen process furnace shop where slag is removed from the top of the molten metal bath.

Steel production cycle means the operations conducted within the basic oxygen process furnace shop that are required to produce each batch of steel. The following operations are included: scrap charging, preheating (when done), hot metal charging, primary oxygen blowing, sampling, (vessel turndown and turnup), additional oxygen blowing (when done), tapping, and deslagging. The steel production cycle begins when the scrap is charged to the furnace and ends after the slag is emptied from the vessel into the slag pot.

Top-blown furnace means any basic oxygen process furnace in which oxygen is introduced into the bath of molten iron by means of an oxygen lance inserted from the top of the vessel.

Windboxes means the compartments that provide for a controlled distribution of downdraft combustion air as it is drawn through the sinter bed of a sinter plant to make the fused sinter product.

TABLES TO SUBPART FFFFF OF PART 63

TABLE 1 TO SUBPART FFFFF OF PART 63.—EMISSION AND OPACITY LIMITS

[As required in § 63.7790(a), you must comply with each applicable emission and opacity limit in the following table]

For . . .	You must comply with each of the following . . .
1. Each windbox exhaust stream at an existing sinter plant	You must not cause to be discharged to the atmosphere any gases that contain particulate matter in excess of 0.4 lb/ton of product sinter.
2. Each windbox exhaust stream at a new sinter plant	You must not cause to be discharged to the atmosphere any gases that contain particulate matter in excess of 0.3 lb/ton of product sinter.
3. Each discharge end at an existing sinter plant	a. You must not cause to be discharged to the atmosphere any gases that exit from one or more control devices that contain, on a flow-weighted basis, particulate matter in excess of 0.02 gr/dscf[1]; and b. You must not cause to be discharged to the atmosphere any secondary emissions that exit any opening in the building or structure housing the discharge end that exhibit opacity greater than 20 percent (6-minute average).
4. Each discharge end at a new sinter plant	a. You must not cause to be discharged to the atmosphere any gases that exit from one or more control devices that contain, on a flow weighted basis, particulate matter in excess of 0.01 gr/dscf; and b. You must not cause to be discharged to the atmosphere any secondary emissions that exit any opening in the building or structure housing the discharge end that exhibit opacity greater than 10 percent (6-minute average).
5. Each sinter cooler stack at an existing sinter plant	You must not cause to be discharged to the atmosphere any gases that contain particulate matter in excess of 0.03 gr/dscf.
6. Each sinter cooler stack at a new sinter plant	You must not cause to be discharged to the atmosphere any gases that contain particulate matter in excess of 0.01 gr/dscf.
7. Each casthouse at an existing blast furnace	a. You must not cause to be discharged to the atmosphere any gases that exit from a control device that contain particulate matter in excess of 0.01 gr/dscf; and b. You must not cause to be discharged to the atmosphere any secondary emissions that exit any opening in the casthouse or structure housing the blast furnace that exhibit opacity greater than 20 percent (6-minute average).
8. Each casthouse at a new blast furnace	a. You must not cause to be discharged to the atmosphere any gases that exit from a control device that contain particulate matter in excess of 0.003 gr/dscf; and b. You must not cause to be discharged to the atmosphere any secondary emissions that exit any opening in the casthouse or structure housing the blast furnace that exhibit opacity greater than 15 percent (6-minute average).

[As required in § 63.7790(a), you must comply with each applicable emission and opacity limit in the following table]

For . . .	You must comply with each of the following . . .
9. Each BOPF at a new or existing shop	a. You must not cause to be discharged to the atmosphere any gases that exit from a primary emission control system for a BOPF with a closed hood system at a new or existing BOPF shop that contain, on a flow-weighted basis, particulate matter in excess of 0.03 gr/dscf during the primary oxygen blow[2]; b. You must not cause to be discharged to the atmosphere any gases that exit from a primary emission control system for a BOPF with an open hood system that contain, on a flow-weighted basis, particulate matter in excess of 0.02 gr/dscf during the steel production cycle for an existing BOPF shop or 0.01 gr/dscf during the steel production cycle for a new BOPF shop[2]; and c. You must not cause to be discharged to the atmosphere any gases that exit from a control device used solely for the collection of secondary emissions from the BOPF that contain particulate matter in excess of 0.01 gr/dscf for an existing BOPF shop or 0.0052 gr/dscf for a new BOPF shop.
10. Each hot metal transfer, skimming, and desulfurization operation at a new or existing BOPF shop.	You must not cause to be discharged to the atmosphere any gases that exit from a control device that contain particulate matter in excess of 0.01 gr/dscf for an existing BOPF shop or 0.003 gr/dscf for a new BOPF shop.
11. Each ladle metallurgy operation at a new or existing BOPF shop.	You must not cause to be discharged to the atmosphere any gases that exit from a control device that contain particulate matter in excess of 0.01 gr/dscf for an existing BOPF shop or 0.004 gr/dscf for a new BOPF shop.
12. Each roof monitoring at an existing BOPF shop	You must not cause to be discharged to the atmosphere any secondary emissions that exit any opening in the BOPF shop or any other building housing the BOPF or BOPF shop operation that exhibit opacity greater than 20 percent (3-minute average).
13. Each roof monitor at a new BOPF shop	a. You must not cause to be discharged to the atmosphere any secondary emissions that exit any opening in the BOPF shop or other building housing a bottom-blown BOPF or BOPF shop operations that exhibit opacity (for any set of 6-minute averages) greater than 10 percent, except that one 6-minute period not to exceed 20 percent may occur once per steel production cycle; or b. You must not cause to be discharged to the atmosphere any secondary emissions that exit any opening in the BOPF shop or other building housing a top-blown BOPF or BOPF shop operations that exhibit opacity (for any set of 3-minute averages) greater than 10 percent, except that one 3-minute period greater than 10 percent but less than 20 percent may occur once per steel production cycle.

[1] This limit applies if the cooler is vented to the same control device as the discharge end.
[2] This limit applies to control devices operated in parallel for a single BOPF during the oxygen blow.

TABLE 2 TO SUBPART FFFFF OF PART 63.—INITIAL COMPLIANCE WITH EMISSION AND OPACITY LIMITS

[As required in § 63.7825(a)(1), you must demonstrate initial compliance with the emission and opacity limits according to the following table]

For . . .	You have demonstrated initial compliance if . . .
1. Each windbox exhaust stream at an existing sinter plant	The process-weighted mass rate of particulate matter from a windbox exhaust stream, measured according to the performance test procedures in § 63.7822(c), did not exceed 0.4 lb/ton of product sinter.
2. Each windbox exhaust stream at a new sinter plant	The process-weighted mass rate of particulate matter from a windbox exhaust stream, measured according to the performance test procedures in § 63.7822(c), did not exceed 0.3 lb/ton of product sinter.
3. Each discharge end at an existing sinter plant	a. The flow-weighted average concentration of particulate matter from one or more control devices applied to emissions from a discharge end, measured according to the performance test procedures in § 63.7822(d), did not exceed 0.02 gr/dscf; and

[As required in § 63.7825(a)(1), you must demonstrate initial compliance with the emission and opacity limits according to the following table]

For . . .	You have demonstrated initial compliance if . . .
	b. The opacity of secondary emissions from each discharge end, determined according to the performance test procedures in § 63.7823(c), did not exceed 20 percent (6-minute average).
4. Each discharge end at a new sinter plant	a. The flow-weighted average concentration of particulate matter from one or more control devices applied to emissions from a discharge end, measured according to the performance test procedures in § 63.7822(d), did not exceed 0.01 gr/dscf; and b. The opacity of secondary emissions from each discharge end, determined according to the performance test procedures in § 63.7823(c), did not exceed 10 percent (6-minute average).
5. Each sinter cooler stack at an existing sinter plant	The average concentration of particulate matter from a sinter cooler stack, measured according to the performance test procedures in § 63.7822(b), did not exceed 0.03 gr/dscf.
6. Each sinter cooler stack at a new sinter plant	The average concentration of particulate matter from a sinter cooler stack, measured according to the performance test procedures in § 63.7822(b), did not exceed 0.01 gr/dscf.
7. Each casthouse at an existing blast furnace	a. The average concentration of particulate matter from a control device applied to emissions from a casthouse, measured according to the performance test procedures in § 63.7822(e), did not exceed 0.01 gr/dscf; and b. The opacity of secondary emissions from each casthouse, determined according to the performance test procedures in § 63.7823(c), did not exceed 20 percent (6-minute average).
8. Each casthouse at a new blast furnace	a. The average concentration of particulate matter from a control device applied to emissions from a casthouse, measured according to the performance test procedures in § 63.7822(e), did not exceed 0.003 gr/dscf; and b. The opacity of secondary emissions from each casthouse, determined according to the performance test procedures in § 63.7823(c), did not exceed 15 percent (6-minute average).
9. Each BOPF at a new or existing BOPF shop	a. The average concentration of particulate matter from a primary emission control system applied to emissions from a BOPF with a closed hood system, measured according to the performance test procedures in § 63.7822(f), did not exceed 0.03 gr/dscf for a new or existing BOPF shop; b. The average concentration of particulate matter from a primary emission control system applied to emissions from a BOPF with an open hood system, measured according to the performance test procedures in § 63.7822(g), did not exceed 0.02 gr/dscf for an existing BOPF shop or 0.01 gr/dscf for a new BOPF shop; and c. The average concentration of particulate matter from a control device applied solely to secondary emissions from a BOPF, measured according to the performance test procedures in § 63.7822(g), did not exceed 0.01 gr/dscf for an existing BOPF shop or 0.0052 gr/dscf for a new BOPF shop.
10. Each hot metal transfer skimming, and desulfurization at a new or existing BOPF shop.	The average concentration of particulate matter from a control device applied to emissions from hot metal transfer, skimming, or desulfurization, measured according to the performance test procedures in § 63.7822(h), did not exceed 0.01 gr/dscf for an existing BOPF shop or 0.003 gr/dscf for a new BOPF shop.
11. Each ladle metallurgy operation at a new or existing BOPF shop.	The average concentration of particulate matter from a control device applied to emissions from a ladle metallurgy operation, measured according to the performance test procedures in § 63.7822(h), did not exceed 0.01 gr/dscf for an existing BOPF shop or 0.004 gr/dscf for a new BOPF shop.
12. Each roof monitor at an existing BOPF shop	The opacity of secondary emissions from each BOPF shop, determined according to the performance test procedures in § 63.7823(d), did not exceed 20 percent (3-minute average).

[As required in § 63.7825(a)(1), you must demonstrate initial compliance with the emission and opacity limits according to the following table]

For . . .	You have demonstrated initial compliance if . . .
13. Each roof monitor at a new BOPF shop	a. The opacity of the highest set of 6-minute averages from each BOPF shop housing a bottom-blown BOPF, determined according to the performance test procedures in § 63.7823(d), did not exceed 20 percent and the second highest set of 6-minute averages did not exceed 10 percent; or b. The opacity of the highest set of 3-minute averages from each BOPF shop housing a top-blown BOPF, determined according to the performance test procedures in § 63.7823(d), did not exceed 20 percent and the second highest set of 3-minute averages did not exceed 10 percent.

TABLE 3 TO SUBPART FFFFF OF PART 63.—CONTINUOUS COMPLIANCE WITH EMISSION AND OPACITY LIMITS

[As required in § 63.7833(a), you must demonstrate continuous compliance with the emission and opacity limits according to the following table]

For . . .	You must demonstrate continuous compliance by . . .
1. Each windbox exhaust stream at an existing sinter plant	a. Maintaining emissions of particulate matter at or below 0.4 lb/ton of product sinter; and b. Conducting subsequent performance tests at least twice during each term of your title V operating permit (at midterm and renewal).
2. Each windbox exhaust stream at a new sinter plant	a. Maintaining emissions of particulate matter at or below 0.3 lb/ton of product sinter; and b. Conducting subsequent performance tests at least twice during each term of your title V operating permit (at midterm and renewal).
3. Each discharge end at an existing sinter plant	a. Maintaining emissions of particulate matter from one or more control devices at or below 0.02 gr/dscf; and b. Maintaining the opacity of secondary emissions that exit any opening in the building or structure housing the discharge end at or below 20 percent (6-minute average); and c. Conducting subsequent performance tests at least twice during each term of your title V operating permit (at midterm and renewal).
4. Each discharge end at a new sinter plant	a. Maintaining emissions of particulate matter from one or more control devices at or below 0.01 gr/dscf; b. Maintaining the opacity of secondary emissions that exit any opening in the building or structure housing the discharge end at or below 10 percent (6-minute average); and c. Conducting subsequent performance tests at least twice during each term of your title V operating permit (at midterm and renewal).
5. Each sinter cooler stack at an existing sinter plant	a. Maintaining emissions of particulate matter at or below 0.03 gr/dscf; and b. Conducting subsequent performance sinter plant tests at least twice during each term of your title V operating permit (at midterm and renewal).
6. Each sinter cooler stack at a new sinter plant	a. Maintaining emissions of particulate matter at or below 0.01 gr/dscf; and b. Conducting subsequent performance tests at least twice during each term of your title V operating permit (at midterm and renewal).
7. Each casthouse at an existing blast furnace	a. Maintaining emissions of particulate matter from a control device at or below 0.01 gr/dscf; b. Maintaining the opacity of secondary emissions that exit any opening in the casthouse or structure housing the blast furnace at or below 20 percent (6-minute average); and c. Conducting subsequent performance tests at least twice during each term of your title V operating permit (at midterm and renewal).
8. Each casthouse at a new blast furnace	a. Maintaining emissions of particulate matter from a control device at or below 0.003 gr/dscf;

[As required in § 63.7833(a), you must demonstrate continuous compliance with the emission and opacity limits according to the following table]

For . . .	You must demonstrate continuous compliance by . . .
	b. Maintaining the opacity of secondary emissions that exit any opening in the casthouse or building housing the casthouse at or below 15 percent (6-minute average); and c. Conducting subsequent performance tests at least twice during each term of your title V operating permit (at mid-term and renewal).
9. Each BOPF at a new or existing BOPF shop	a. Maintaining emissions of particulate matter from the primary emission control system for a BOPF with a closed hood system at or below 0.03 gr/dscf; b. Maintaining emissions of particulate matter from the primary emission control system for a BOPF with an open hood system at or below 0.02 gr/dscf for an existing BOPF shop or 0.01 gr/dscf for a new BOPF shop; c. Maintaining emissions of particulate matter from a control device applied solely to secondary emissions from a BOPF at or below 0.01 gr/dscf for an existing BOPF shop or 0.0052 gr/dscf for a new BOPF shop; and d. Conducting subsequent performance tests at least twice during each term of your title V operating permit (at mid-term and renewal).
10. Each hot metal transfer, skimming, and desulfurization operation at a new or existing BOPF shop.	a. Maintaining emissions of particulate matter from a control device at or below 0.01 gr/dscf at an existing BOPF or 0.003 gr/dscf for a new BOPF; and b. Conducting subsequent performance tests at least twice during each term of your title V operating permit (at mid-term and renewal).
11. Each ladle metallurgy operation at a new or existing BOPF shop.	a. Maintaining emissions of particulate matter from a control device at or below 0.01 gr/dscf at an existing BOPF shop or 0.004 gr/dscf for a new BOPF shop; and b. Conducting subsequent performance tests at least twice during each term of your title V operating permit (at mid-term and renewal).
12. Each roof monitor at an existing BOPF shop	a. Maintaining the opacity of secondary emissions that exit any opening in the BOPF shop or other building housing the BOPF or shop operation at or below 20 percent (3-minute average); and b. Conducting subsequent performance tests at least twice during each term of your title V operating permit (at mid-term and renewal).
13. Each roof monitor at a new BOPF shop	a. Maintaining the opacity (for any set of 6-minute averages) of secondary emissions that exit any opening in the BOPF shop or other building housing a bottom-blown BOPF or shop operation at or below 10 percent, except that one 6-minute period greater than 10 percent but no more than 20 percent may occur once per steel production cycle; b. Maintaining the opacity (for any set of 3-minute averages) of secondary emissions that exit any opening in the BOPF shop or other building housing a top-blown BOPF or shop operation at or below 10 percent, except that one 3-minute period greater than 10 percent but less than 20 percent may occur once per steel production cycle; and c. Conducting subsequent performance tests at least twice during each term of your title V operating permit (at mid-term and renewal).

TABLE 4 TO SUBPART FFFFF OF PART 63.—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART FFFFF

[As required in § 63.7850, you must comply with the requirements of the NESHAP General Provisions (40 CFR part 63, subpart A) shown in the following table]

Citation	Subject	Applies to Subpart FFFFF	Explanation
§ 63.1	Applicability	Yes.	
§ 63.2	Definitions	Yes.	
§ 63.3	Units and Abbreviations	Yes.	
§ 63.4	Prohibited Activities	Yes.	
§ 63.5	Construction/Reconstruction	Yes.	
§ 63.6(a), (b), (c), (d), (e), (f), (g), (h)(2)(ii)–(h)(9)	Compliance with Standards and Maintenance Requirements.	Yes.	
§ 63.6(h)(2)(i)	Determining Compliance with Opacity and VE Standards.	No	Subpart FFFFF specifies Method 9 in appendix A to part 60 of this chapter to comply with roof monitor opacity limits.
§ 63.7(a)(1)–(2)	Applicability and Performance Test Dates	No	Subpart FFFFF and specifies performance test applicability and dates.
§ 63.7(a)(3), (b), (c)–(h)	Performance Testing Requirements	Yes.	
§ 63.8(a)(1)–(a)(3), (b), (c)(1)–(3), (c)(4)(i)–(e), (c)(7)–(8), (f)(1)–(5), (g)(1)–(4).	Monitoring Requirements	Yes	CMS requirements in § 63.8(c)(4) (i)–(ii), (c)(5) and (6), (d), and (e) apply only to COMS for electrostatic precipitators.
§ 63.8(a)(4)	Additional Monitoring Requirements for Control Devices in § 63.11.	No	Subpart FFFFF does not require flares.
§ 63.8(c)(4)	Continuous Monitoring System Requirements	No	Subpart FFFFF specifies requirements for operation of CMS.
§ 63.8(f)(6)	RATA Alternative	No.	
§ 63.9	Notification Requirements	Yes	Additional notifications for CMS in § 63.9(g) apply to COMS for electrostatic precipitators.
§ 63.9(g)(5)	DATA Reduction	No	Subpart FFFFF specifies data reduction requirements.
§ 63.10(a), (b)(1)–(2)(xii), (b)(2)(xiv), (b)(3), (c)(1)–(6), (c)(9)–(15), (d), (e)(1)–(2), (e)(4), (f).	Recordkeeping and Reporting Requirements	Yes	Additional records for CMS in § 63.10(c) (1)–(6), (9)–(15), and reports in § 63.10(d)(1)–(2) apply only to COMS for electrostatic precipitators.
§ 63.10(b)(2)(xiii)	CMS Records for RATA Alternative	No.	
§ 63.10(c)(7)–(8)	Records of Excess Emissions and Parameter Monitoring Exceedances for CMS.	No	Subpart FFFFF specifies record requirements.
§ 63.11	Control Device Requirements	No	Subpart FFFFF does not require flares.
§ 63.12	State Authority and Delegations	Yes.	
§ 63.13–§ 63.15	Addresses, Incorporation by Reference, Availability of Information.	Yes.	

Subparts GGGGG—IIIII [Reserved]

Subpart JJJJJ—National Emission Standards for Hazardous Air Pollutants for Brick and Structural Clay Products Manufacturing

SOURCE: 68 FR 26722, May 16, 2003, unless otherwise note.

WHAT THIS SUBPART COVERS

§63.8380 What is the purpose of this subpart?

This subpart establishes national emission limitations for hazardous air pollutants (HAP) emitted from brick and structural clay products (BSCP) manufacturing facilities. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations.

§63.8385 Am I subject to this subpart?

You are subject to this subpart if you own or operate a BSCP manufacturing facility that is, is located at, or is part of, a major source of HAP emissions according to the criteria in paragraphs (a) and (b) of this section.

(a) A BSCP manufacturing facility is a plant site that manufactures brick (including, but not limited to, face brick, structural brick, and brick pavers); clay pipe; roof tile; extruded floor and wall tile; and/or other extruded, dimensional clay products. Brick and structural clay products manufacturing facilities typically process raw clay and shale, form the processed materials into bricks or shapes, and dry and fire the bricks or shapes.

(b) A major source of HAP emissions is any stationary source or group of stationary sources within a contiguous area under common control that emits or has the potential to emit any single HAP at a rate of 9.07 megagrams (10 tons) or more per year or any combination of HAP at a rate of 22.68 megagrams (25 tons) or more per year.

§63.8390 What parts of my plant does this subpart cover?

(a) This subpart applies to each existing, new, or reconstructed affected source at a BSCP manufacturing facility.

(b) The existing affected source is an existing tunnel kiln with a design capacity equal to or greater than 9.07 megagrams per hour (Mg/hr) (10 tons per hour (tph)) of fired product according to paragraphs (b)(1) through (3) of this section. For the remainder of this subpart, a tunnel kiln with a design capacity equal to or greater than 9.07 Mg/hr (10 tph) of fired product will be called a large tunnel kiln, and a tunnel kiln with a design capacity less than 9.07 Mg/hr (10 tph) of fired product will be called a small tunnel kiln.

(1) For existing tunnel kilns that do not have sawdust dryers, the kiln exhaust process stream (*i.e.*, the only process stream) is subject to the requirements of this subpart.

(2) For existing tunnel kilns that ducted exhaust to sawdust dryers prior to July 22, 2002, only the kiln exhaust process stream (*i.e.*, the process stream that exhausts directly to the atmosphere or to an air pollution control device (APCD)) is subject to the requirements of this subpart. As such, any process stream that is ducted to a sawdust dryer is not subject to these requirements.

(3) For existing tunnel kilns that first ducted exhaust to sawdust dryers on or after July 22, 2002, all of the exhaust (*i.e.*, all process streams) is subject to the requirements of this subpart.

(c) An existing small tunnel kiln whose design capacity is increased such that it is equal to or greater than 9.07 Mg/hr (10 tph) of fired product is subject to the requirements of this subpart.

(d) An existing tunnel kiln with a federally enforceable permit condition that restricts kiln operation to less than 9.07 Mg/hr (10 tph) of fired product on a 12-month rolling average basis is not subject to the requirements of this subpart.

(e) Each new or reconstructed tunnel kiln is an affected source regardless of design capacity. All process streams from each new or reconstructed tunnel kiln are subject to the requirements of this subpart.

(f) Kilns that are used exclusively for research and development (R&D) and are not used to manufacture products for commercial sale, except in a de minimis manner, are not subject to the requirements of this subpart.

(g) Kilns that are used exclusively for setting glazes on previously fired products are not subject to the requirements of this subpart.

(h) A source is a new affected source if construction of the affected source began after July 22, 2002, and you met the applicability criteria at the time you began construction.

(i) An affected source is reconstructed if you meet the criteria as defined in § 63.2, except as provided in paragraphs (i)(1) and (i)(2) of this section.

(1) It is not technologically and economically feasible for an existing small tunnel kiln whose design capacity is increased such that it is equal to or greater than 9.07 Mg/hr (10 tph) of fired product to meet the relevant standards (*i.e.*, new source maximum achievable control technology (MACT)) by retrofitting with a dry lime injection fabric filter (DIFF), dry lime scrubber/fabric filter (DLS/FF), or wet scrubber (WS).

(2) It is not technologically and economically feasible for an existing large dry limestone adsorber (DLA)-controlled kiln to meet the relevant standards by retrofitting with a DIFF, DLS/FF, or WS.

(j) An affected source is existing if it is not new or reconstructed.

§ 63.8395 When do I have to comply with this subpart?

(a) If you have a new or reconstructed affected source, you must comply with this subpart according to paragraphs (a)(1) and (2) of this section.

(1) If the initial startup of your affected source is before May 16, 2003, then you must comply with the applicable emission limitations in Tables 1 and 2 to this subpart no later than May 16, 2003.

(2) If the initial startup of your affected source is after May 16, 2003, then you must comply with the applicable emission limitations in Tables 1 and 2 to this subpart upon initial startup of your affected source.

(b) If you have an existing affected source, you must comply with the applicable emission limitations in Tables 1 and 2 to this subpart no later than May 16, 2003.

(c) If you have an existing area source that increases its emissions or its potential to emit such that it becomes a major source of HAP, you must be in compliance with this subpart according to paragraphs (c)(1) and (2) of this section.

(1) Any portion of the existing facility that is a new affected source or a new reconstructed source must be in compliance with this subpart upon startup.

(2) All other parts of the existing facility must be in compliance with this subpart by 3 years after the date the area source becomes a major source.

(d) If you have a new area source (*i.e.*, an area source for which construction or reconstruction commenced after July 22, 2002) that increases its emissions or its potential to emit such that it becomes a major source of HAP, you must be in compliance with this subpart upon initial startup of your affected source as a major source.

(e) You must meet the notification requirements in § 63.8480 according to the schedule in § 63.8480 and in 40 CFR part 63, subpart A. Some of the notifications must be submitted before you are required to comply with the emission limitations in this subpart.

EMISSION LIMITATIONS

§ 63.8405 What emission limitations must I meet?

(a) You must meet each emission limit in Table 1 to this subpart that applies to you.

(b) You must meet each operating limit in Table 2 to this subpart that applies to you.

§ 63.8410 What are my options for meeting the emission limitations?

To meet the emission limitations in Tables 1 and 2 to this subpart, you must use one or more of the options listed in paragraphs (a) and (b) of this section.

(a) *Emissions control system.* Use an emissions capture and collection system and an APCD and demonstrate that the resulting emissions or emissions reductions meet the emission limits in Table 1 to this subpart, and that the capture and collection system and APCD meet the applicable operating limits in Table 2 to this subpart.

(b) *Process changes.* Use low-HAP raw materials or implement manufacturing process changes and demonstrate that the resulting emissions or emissions reductions meet the emission limits in Table 1 to this subpart.

GENERAL COMPLIANCE REQUIREMENTS

§63.8420 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limitations (including operating limits) in this subpart at all times, except during periods of startup, shutdown, and malfunction and during periods of routine control device maintenance as specified in paragraph (e) of this section.

(b) Except as specified in paragraph (e) of this section, you must always operate and maintain your affected source, including air pollution control and monitoring equipment, according to the provisions in §63.6(e)(1)(i). During the period between the compliance date specified for your affected source in §63.8395 and the date upon which continuous monitoring systems (CMS) (*e.g.*, continuous parameter monitoring systems) have been installed and verified and any applicable operating limits have been set, you must maintain a log detailing the operation and maintenance of the process and emissions control equipment.

(c) You must develop and implement a written startup, shutdown, and malfunction plan (SSMP) according to the provisions in §63.6(e)(3).

(d) You must prepare and implement a written operation, maintenance, and monitoring (OM&M) plan according to the requirements in §63.8425.

(e) If you own or operate an affected kiln and must perform routine maintenance on the control device for that kiln, you may bypass the kiln control device and continue operating the kiln upon approval by the Administrator provided you satisfy the conditions listed in paragraphs (e)(1) through (5) of this section.

(1) You must request a routine control device maintenance exemption from the Administrator. Your request must justify the need for the routine maintenance on the control device and the time required to accomplish the maintenance activities, describe the maintenance activities and the frequency of the maintenance activities, explain why the maintenance cannot be accomplished during kiln shutdowns, describe how you plan to minimize emissions to the greatest extent possible during the maintenance, and provide any other documentation required by the Administrator.

(2) The routine control device maintenance exemption must not exceed 4 percent of the annual operating uptime for each kiln.

(3) The request for the routine control device maintenance exemption, if approved by the Administrator, must be incorporated by reference in and attached to the affected source's title V permit.

(4) You must minimize HAP emissions during the period when the kiln is operating and the control device is offline.

(5) You must minimize the time period during which the kiln is operating and the control device is offline.

(f) You must be in compliance with the provisions of subpart A of this part, except as noted in Table 7 to this subpart.

§63.8425 What do I need to know about operation, maintenance, and monitoring plans?

(a) You must prepare, implement, and revise as necessary an OM&M plan that includes the information in paragraph (b) of this section. Your OM&M plan must be available for inspection by the permitting authority upon request.

(b) Your OM&M plan must include, as a minimum, the information in paragraphs (b)(1) through (13) of this section.

(1) Each process and APCD to be monitored, the type of monitoring device that will be used, and the operating parameters that will be monitored.

(2) A monitoring schedule that specifies the frequency that the parameter values will be determined and recorded.

(3) The limits for each parameter that represent continuous compliance with the emission limitations in § 63.8405. The limits must be based on values of the monitored parameters recorded during performance tests.

(4) Procedures for the proper operation and routine and long-term maintenance of each APCD, including a maintenance and inspection schedule that is consistent with the manufacturer's recommendations.

(5) Procedures for installing the CMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (*e.g.*, on or downstream of the last APCD).

(6) Performance and equipment specifications for the sample interface, the pollutant concentration or parametric signal analyzer, and the data collection and reduction system.

(7) Continuous monitoring system performance evaluation procedures and acceptance criteria (*e.g.*, calibrations).

(8) Procedures for the proper operation and maintenance of monitoring equipment consistent with the requirements in §§ 63.8450 and 63.8(c)(1), (3), (4)(ii), (7), and (8).

(9) Continuous monitoring system data quality assurance procedures consistent with the requirements in § 63.8(d).

(10) Continuous monitoring system recordkeeping and reporting procedures consistent with the requirements in § 63.10(c), (e)(1), and (e)(2)(i).

(11) Procedures for responding to operating parameter deviations, including the procedures in paragraphs (b)(11)(i) through (iii) of this section.

(i) Procedures for determining the cause of the operating parameter deviation.

(ii) Actions for correcting the deviation and returning the operating parameters to the allowable limits.

(iii) Procedures for recording the times that the deviation began and ended and corrective actions were initiated and completed.

(12) Procedures for keeping records to document compliance.

(13) If you operate an affected kiln and you plan to take the kiln control device out of service for routine maintenance, as specified in § 63.8420(e), the procedures specified in paragraphs (b)(13)(i) and (ii) of this section.

(i) Procedures for minimizing HAP emissions from the kiln during periods of routine maintenance of the kiln control device when the kiln is operating and the control device is offline.

(ii) Procedures for minimizing the duration of any period of routine maintenance on the kiln control device when the kiln is operating and the control device is offline.

(c) Changes to the operating limits in your OM&M plan require a new performance test. If you are revising an operating limit parameter value, you must meet the requirements in paragraphs (c)(1) and (2) of this section.

(1) Submit a notification of performance test to the Administrator as specified in § 63.7(b).

(2) After completing the performance tests to demonstrate that compliance with the emission limits can be achieved at the revised operating limit parameter value, you must submit the performance test results and the revised operating limits as part of the Notification of Compliance Status required under § 63.9(h).

(d) If you are revising the inspection and maintenance procedures in your OM&M plan, you do not need to conduct a new performance test.

TESTING AND INITIAL COMPLIANCE REQUIREMENTS

§ 63.8435 By what date must I conduct performance tests?

You must conduct performance tests within 180 calendar days after the compliance date that is specified for your source in § 63.8395 and according to the provisions in § 63.7(a)(2).

§63.8440 When must I conduct subsequent performance tests?

(a) You must conduct a performance test before renewing your 40 CFR part 70 operating permit or at least every 5 years following the initial performance test.

(b) You must conduct a performance test when you want to change the parameter value for any operating limit specified in your OM&M plan.

§63.8445 How do I conduct performance tests and establish operating limits?

(a) You must conduct each performance test in Table 3 to this subpart that applies to you.

(b) Before conducting the performance test, you must install and calibrate all monitoring equipment.

(c) Each performance test must be conducted according to the requirements in §63.7 and under the specific conditions in Table 3 to this subpart.

(d) You must test while operating at the maximum production level.

(e) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in §63.7(e)(1).

(f) You must conduct at least three separate test runs for each performance test required in this section, as specified in §63.7(e)(3). Each test run must last at least 1 hour.

(g) You must use the data gathered during the performance test and the equations in paragraphs (g)(1) and (2) of this section to determine compliance with the emission limitations.

(1) To determine compliance with the production-based hydrogen fluoride (HF), hydrogen chloride (HCl), and particulate matter (PM) emission limits in Table 1 to this subpart, you must calculate your mass emissions per unit of production for each test run using Equation 1 of this section:

$$MP = \frac{ER}{P} \qquad \text{(Eq. 1)}$$

Where:

MP=mass per unit of production, kilograms (pounds) of pollutant per megagram (ton) of fired product

ER=mass emission rate of pollutant (HF, HCl, or PM) during each performance test run, kilograms (pounds) per hour

P=production rate during each performance test run, megagrams (tons) of fired product per hour.

(2) To determine compliance with the percent reduction HF and HCl emission limits in Table 1 to this subpart, you must calculate the percent reduction for each test run using Equation 2 of this section:

$$PR = \frac{ER_i - ER_o}{ER_i}(100) \qquad \text{(Eq. 2)}$$

Where:

PR=percent reduction, percent

ER_i=mass emission rate of specific HAP (HF or HCl) entering the APCD, kilograms (pounds) per hour

ER_o=mass emission rate of specific HAP (HF or HCl) exiting the APCD, kilograms (pounds) per hour.

(h) You must establish each site-specific operating limit in Table 2 to this subpart that applies to you as specified in Table 3 to this subpart.

(i) For each affected kiln that is equipped with an APCD that is not addressed in Table 2 to this subpart or that is using process changes as a means of meeting the emission limits in Table 1 to this subpart, you must meet the requirements in §63.8(f) and paragraphs (i)(1) and (2) of this section.

(1) Submit a request for approval of alternative monitoring procedures to the Administrator no later than the notification of intent to conduct a performance test. The request must contain the information specified in paragraphs (i)(1)(i) through (iv) of this section.

(i) A description of the alternative APCD or process changes.

(ii) The type of monitoring device or procedure that will be used.

(iii) The operating parameters that will be monitored.

(iv) The frequency that the operating parameter values will be determined and recorded to establish continuous compliance with the operating limits.

(2) Establish site-specific operating limits during the performance test based on the information included in the approved alternative monitoring

procedures request and, as applicable, as specified in Table 3 to this subpart.

§ 63.8450 What are my monitoring installation, operation, and maintenance requirements?

(a) You must install, operate, and maintain each CMS according to your OM&M plan and the requirements in paragraphs (a)(1) through (5) of this section.

(1) Conduct a performance evaluation of each CMS according to your OM&M plan.

(2) The CMS must complete a minimum of one cycle of operation for each successive 15-minute period. To have a valid hour of data, you must have at least three of four equally spaced data values (or at least 75 percent if you collect more than four data values per hour) for that hour (not including startup, shutdown, malfunction, out-of-control periods, or periods of routine control device maintenance covered by a routine control device maintenance exemption as specified in § 63.8420(e)).

(3) Determine and record the 3-hour block averages of all recorded readings, calculated after every 3 hours of operation as the average of the previous 3 operating hours. To calculate the average for each 3-hour average period, you must have at least 75 percent of the recorded readings for that period (not including startup, shutdown, malfunction, out-of-control periods, or periods of routine control device maintenance covered by a routine control device maintenance exemption as specified in § 63.8420(e)).

(4) Record the results of each inspection, calibration, and validation check.

(5) At all times, maintain the monitoring equipment including, but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment.

(b) For each liquid flow measurement device, you must meet the requirements in paragraphs (a)(1) through (5) and paragraphs (b)(1) through (3) of this section.

(1) Locate the flow sensor in a position that provides a representative flowrate.

(2) Use a flow sensor with a minimum measurement sensitivity of 2 percent of the liquid flowrate.

(3) At least semiannually, conduct a flow sensor calibration check.

(c) For each pressure measurement device, you must meet the requirements in paragraphs (a)(1) through (5) and paragraphs (c)(1) through (7) of this section.

(1) Locate the pressure sensor(s) in or as close to a position that provides a representative measurement of the pressure.

(2) Minimize or eliminate pulsating pressure, vibration, and internal and external corrosion.

(3) Use a gauge with a minimum measurement sensitivity of 0.5 inch of water or a transducer with a minimum measurement sensitivity of 1 percent of the pressure range.

(4) Check the pressure tap daily to ensure that it is not plugged.

(5) Using a manometer, check gauge calibration quarterly and transducer calibration monthly.

(6) Any time the sensor exceeds the manufacturer's specified maximum operating pressure range, conduct calibration checks or install a new pressure sensor.

(7) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(d) For each pH measurement device, you must meet the requirements in paragraphs (a)(1) through (5) and paragraphs (d)(1) through (4) of this section.

(1) Locate the pH sensor in a position that provides a representative measurement of pH.

(2) Ensure the sample is properly mixed and representative of the fluid to be measured.

(3) Check the pH meter's calibration on at least two points every 8 hours of process operation.

(4) At least monthly, inspect all components for integrity and all electrical connections for continuity.

(e) For each bag leak detection system, you must meet the requirements in paragraphs (e)(1) through (11) of this section.

(1) Each triboelectric bag leak detection system must be installed, calibrated, operated, and maintained according to the ''Fabric Filter Bag Leak Detection Guidance,'' (EPA–454/R–98–015, September 1997). This document is available from the U.S. Environmental Protection Agency (U.S. EPA); Office of Air Quality Planning and Standards; Emissions, Monitoring and Analysis Division; Emission Measurement Center (MD–19), Research Triangle Park, NC 27711. This document is also available on the Technology Transfer Network (TTN) under Emission Measurement Center Continuous Emission Monitoring. Other types of bag leak detection systems must be installed, operated, calibrated, and maintained in a manner consistent with the manufacturer's written specifications and recommendations.

(2) The bag leak detection system must be certified by the manufacturer to be capable of detecting PM emissions at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.

(3) The bag leak detection system sensor must provide an output of relative PM loadings.

(4) The bag leak detection system must be equipped with a device to continuously record the output signal from the sensor.

(5) The bag leak detection system must be equipped with an audible alarm system that will sound automatically when an increase in relative PM emissions over a preset level is detected. The alarm must be located where it is easily heard by plant operating personnel.

(6) For positive pressure fabric filter systems, a bag leak detector must be installed in each baghouse compartment or cell.

(7) For negative pressure or induced air fabric filters, the bag leak detector must be installed downstream of the fabric filter.

(8) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(9) The baseline output must be established by adjusting the range and the averaging period of the device and establishing the alarm set points and the alarm delay time according to section 5.0 of the ''Fabric Filter Bag Leak Detection Guidance.''

(10) Following initial adjustment of the system, the sensitivity or range, averaging period, alarm set points, or alarm delay time may not be adjusted except as detailed in your OM&M plan. In no case may the sensitivity be increased by more than 100 percent or decreased more than 50 percent over a 365-day period unless such adjustment follows a complete fabric filter inspection that demonstrates that the fabric filter is in good operating condition. Record each adjustment.

(11) Record the results of each inspection, calibration, and validation check.

(f) For each lime or chemical feed rate measurement device, you must meet the requirements in paragraphs (a)(1) through (5) and paragraphs (f)(1) and (2) of this section.

(1) Locate the measurement device in a position that provides a representative feed rate measurement.

(2) At least semiannually, conduct a calibration check.

(g) For each limestone feed system on a DLA, you must meet the requirements in paragraphs (a)(1),(4), and (5) of this section and must ensure on a monthly basis that the feed system replaces limestone at least as frequently as the schedule set during the performance test.

(h) Requests for approval of alternate monitoring procedures must meet the requirements in §§63.8445(i) and 63.8(f).

§63.8455 How do I demonstrate initial compliance with the emission limitations?

(a) You must demonstrate initial compliance with each emission limitation that applies to you according to Table 4 to this subpart.

(b) You must establish each site-specific operating limit in Table 2 to this subpart that applies to you according to the requirements in §63.8445 and Table 3 to this subpart.

(c) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in §63.8480(e).

CONTINUOUS COMPLIANCE REQUIREMENTS

§ 63.8465 How do I monitor and collect data to demonstrate continuous compliance?

(a) You must monitor and collect data according to this section.

(b) Except for periods of monitor malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), you must monitor continuously (or collect data at all required intervals) at all times that the affected source is operating. This includes periods of startup, shutdown, malfunction, and routine control device maintenance as specified in § 63.8420(e) when the affected source is operating.

(c) You may not use data recorded during monitoring malfunctions, associated repairs, out-of-control periods, or required quality assurance or control activities for purposes of calculating data averages. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. You must use all the valid data collected during all other periods in assessing compliance. Any averaging period for which you do not have valid monitoring data and such data are required constitutes a deviation from the monitoring requirements.

§ 63.8470 How do I demonstrate continuous compliance with the emission limitations?

(a) You must demonstrate continuous compliance with each emission limit and operating limit in Tables 1 and 2 to this subpart that applies to you according to the methods specified in Table 5 to this subpart.

(b) For each affected kiln that is equipped with an APCD that is not addressed in Table 2 to this subpart, or that is using process changes as a means of meeting the emission limits in Table 1 to this subpart, you must demonstrate continuous compliance with each emission limit in Table 1 to this subpart, and each operating limit established as required in § 63.8445(i)(2) according to the methods specified in your approved alternative monitoring procedures request, as described in §§ 63.8445(i)(1) and 63.8(f).

(c) You must report each instance in which you did not meet each emission limit and each operating limit in this subpart that applies to you. This includes periods of startup, shutdown, malfunction, and routine control device maintenance. These instances are deviations from the emission limitations in this subpart. These deviations must be reported according to the requirements in § 63.8485.

(d) During periods of startup, shutdown, and malfunction, you must operate according to your SSMP.

(e) Consistent with §§ 63.6(e)and 63.7(e)(1), deviations that occur during a period of startup, shutdown, or malfunction are not violations if you demonstrate to the Administrator's satisfaction that you were operating according to an SSMP that satisfies the requirements of § 63.6(e) and your OM&M plan. The Administrator will determine whether deviations that occur during a period of startup, shutdown, or malfunction are violations, according to the provisions in § 63.6(e).

(f) Deviations that occur during periods of control device maintenance covered by an approved routine control device maintenance exemption according to § 63.8420(e) are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with the approved routine control device maintenance exemption.

(g) You must demonstrate continuous compliance with the operating limits in Table 2 to this subpart for visible emissions (VE) from tunnel kilns equipped with DLA, DIFF, or DLS/FF by monitoring VE at each kiln stack according to the requirements in paragraphs (g)(1) through (3) of this section.

(1) Perform daily VE observations of each kiln stack according to the procedures of Method 22 of 40 CFR part 60, appendix A. You must conduct the Method 22 test while the affected source is operating under normal conditions. The duration of each Method 22 test must be at least 15 minutes.

(2) If VE are observed during any daily test conducted using Method 22 of 40 CFR part 60, appendix A, you must promptly initiate and complete corrective actions according to your OM&M plan. If no VE are observed in 30 consecutive daily Method 22 tests for any kiln stack, you may decrease the frequency of Method 22 testing from daily to weekly for that kiln stack. If VE are observed during any weekly test, you must promptly initiate and complete corrective actions according to your OM&M plan, resume Method 22 testing of that kiln stack on a daily basis, and maintain that schedule until no VE are observed in 30 consecutive daily tests, at which time you may again decrease the frequency of Method 22 testing to a weekly basis.

(3) If VE are observed during any test conducted using Method 22 of 40 CFR part 60, appendix A, you must report these deviations by following the requirements in § 63.8485.

NOTIFICATIONS, REPORTS, AND RECORDS

§ 63.8480 What notifications must I submit and when?

(a) You must submit all of the notifications in §§ 63.7(b) and (c), 63.8(f)(4), and 63.9 (b) through (e), (g)(1), and (h) that apply to you, by the dates specified.

(b) As specified in § 63.9(b)(2) and (3), if you start up your affected source before May 16, 2003, you must submit an Initial Notification not later than 120 calendar days after May 16, 2003.

(c) As specified in § 63.9(b)(3), if you start up your new or reconstructed affected source on or after May 16, 2003, you must submit an Initial Notification not later than 120 calendar days after you become subject to this subpart.

(d) If you are required to conduct a performance test, you must submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin, as required in § 63.7(b)(1).

(e) If you are required to conduct a performance test as specified in Table 3 to this subpart, you must submit a Notification of Compliance Status as specified in § 63.9(h) and paragraphs (e)(1) and (2) of this section.

(1) For each compliance demonstration that includes a performance test conducted according to the requirements in Table 3 to this subpart, you must submit the Notification of Compliance Status, including the performance test results, before the close of business on the 60th calendar day following the completion of the performance test, according to § 63.10(d)(2).

(2) In addition to the requirements in § 63.9(h)(2)(i), you must include the information in paragraphs (e)(2)(i) and (ii) of this section in your Notification of Compliance Status.

(i) The operating limit parameter values established for each affected source with supporting documentation and a description of the procedure used to establish the values.

(ii) For each APCD that includes a fabric filter, if a bag leak detection system is used, analysis and supporting documentation demonstrating conformance with EPA guidance and specifications for bag leak detection systems in § 63.8450(e).

(f) If you request a routine control device maintenance exemption according to § 63.8420(e), you must submit your request for the exemption no later than 30 days before the compliance date.

§ 63.8485 What reports must I submit and when?

(a) You must submit each report in Table 6 to this subpart that applies to you.

(b) Unless the Administrator has approved a different schedule for submission of reports under § 63.10(a), you must submit each report by the date in Table 6 to this subpart and as specified in paragraphs (b)(1) through (5) of this section.

(1) The first compliance report must cover the period beginning on the compliance date that is specified for your affected source in § 63.8395 and ending on June 30 or December 31, and lasting at least 6 months, but less than 12 months. For example, if your compliance date is March 1, then the first semiannual reporting period would begin on March 1 and end on December 31.

(2) The first compliance report must be postmarked or delivered no later

than July 31 or January 31 for compliance periods ending on June 30 and December 31, respectively.

(3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31 for compliance periods ending on June 30 and December 31, respectively.

(5) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 40 CFR part 71, if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (4) of this section.

(c) The compliance report must contain the information in paragraphs (c)(1) through (7) of this section.

(1) Company name and address.

(2) Statement by a responsible official with that official's name, title, and signature, certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If you had a startup, shutdown or malfunction during the reporting period and you took actions consistent with your SSMP and OM&M plan, the compliance report must include the information specified in § 63.10(d)(5)(i).

(5) A description of control device maintenance performed while the control device was offline and the kiln controlled by the control device was operating, including the information specified in paragraphs (c)(5)(i) through (iii) of this section.

(i) The date and time when the control device was shutdown and restarted.

(ii) Identification of the kiln that was operating and the number of hours that the kiln operated while the control device was offline.

(iii) A statement of whether or not the control device maintenance was included in your approved routine control device maintenance exemption developed as specified in § 63.8420(e). If the control device maintenance was included in your approved routine control device maintenance exemption, then you must report the information in paragraphs (c)(5)(iii)(A) through (C) of this section.

(A) The total amount of time that the kiln controlled by the control device operated during the current semiannual compliance period and during the previous semiannual compliance period.

(B) The amount of time that each kiln controlled by the control device operated while the control device was offline for maintenance covered under the routine control device maintenance exemption during the current semiannual compliance period and during the previous semiannual compliance period.

(C) Based on the information recorded under paragraphs (c)(5)(iii)(A) and (B) of this section, compute the annual percent of kiln operating uptime during which the control device was offline for routine maintenance using Equation 1 of this section.

$$\mathrm{RM} = \frac{\mathrm{DT_p} + \mathrm{DT_c}}{\mathrm{KU_p} + \mathrm{KU_c}}(100) \qquad \text{(Eq. 1)}$$

Where:

RM=Annual percentage of kiln uptime during which control device was offline for routine control device maintenance

DT_p=Control device downtime claimed under the routine control device maintenance exemption for the previous semiannual compliance period

DT_c=Control device downtime claimed under the routine control device maintenance exemption for the current semiannual compliance period

KU_p=Kiln uptime for the previous semiannual compliance period

KU_c=Kiln uptime for the current semiannual compliance period

(6) If there are no deviations from any emission limitations (emission limits or operating limits) that apply to you, the compliance report must contain a statement that there were no deviations from the emission limitations during the reporting period.

(7) If there were no periods during which the CMS was out-of-control as specified in your OM&M plan, the compliance report must contain a statement that there were no periods during which the CMS was out-of-control during the reporting period.

(d) For each deviation from an emission limitation (emission limit or operating limit) that occurs at an affected source where you are not using a CMS to comply with the emission limitations in this subpart, the compliance report must contain the information in paragraphs (c)(1) through (5) and paragraphs (d)(1) and (2) of this section. This includes periods of startup, shutdown, malfunction, and routine control device maintenance.

(1) The total operating time of each affected source during the reporting period.

(2) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

(e) For each deviation from an emission limitation (emission limit or operating limit) occurring at an affected source where you are using a CMS to comply with the emission limitations in this subpart, you must include the information in paragraphs (c)(1) through (5) and paragraphs (e)(1) through (13) of this section. This includes periods of startup, shutdown, malfunction, and routine control device maintenance.

(1) The total operating time of each affected source during the reporting period.

(2) The date and time that each malfunction started and stopped.

(3) The date and time that each CMS was inoperative, except for zero (low-level) and high-level checks.

(4) The date, time, and duration that each CMS was out-of-control, including the pertinent information in your OM&M plan.

(5) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction; during routine control device maintenance covered in your approved routine control device maintenance exemption; or during another period.

(6) A description of corrective action taken in response to a deviation.

(7) A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.

(8) A breakdown of the total duration of the deviations during the reporting period into those that were due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(9) A summary of the total duration of CMS downtime during the reporting period and the total duration of CMS downtime as a percent of the total source operating time during that reporting period.

(10) A brief description of the process units.

(11) A brief description of the CMS.

(12) The date of the latest CMS certification or audit.

(13) A description of any changes in CMS, processes, or control equipment since the last reporting period.

(f) If you have obtained a title V operating permit according to 40 CFR part 70 or 40 CFR part 71, you must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If you submit a compliance report according to Table 6 to this subpart along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the compliance report includes all required information concerning deviations from any emission limitation (including any operating limit), then submitting the compliance report will satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submitting a compliance report will not otherwise affect any obligation you may have to report deviations from permit requirements to the permitting authority.

§ 63.8490 What records must I keep?

(a) You must keep the records listed in paragraphs (a)(1) through (4) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirements in § 63.10(b)(2)(xiv).

(2) The records in § 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

(3) Records of performance tests as required in § 63.10(b)(2)(viii).

(4) Records relating to control device maintenance and documentation of your approved routine control device maintenance exemption, if you request such an exemption under § 63.8420(e).

(b) You must keep the records required in Table 5 to this subpart to show continuous compliance with each emission limitation that applies to you.

(c) You must also maintain the records listed in paragraphs (c)(1) through (6) of this section.

(1) For each bag leak detection system, records of each alarm, the time of the alarm, the time corrective action was initiated and completed, and a brief description of the cause of the alarm and the corrective action taken.

(2) For each deviation of an operating limit parameter value, the date, time, and duration of the deviation, a brief explanation of the cause of the deviation and the corrective action taken, and whether the deviation occurred during a period of startup, shutdown, or malfunction.

(3) For each affected source, records of production rates on a fired-product basis.

(4) Records for any approved alternative monitoring or test procedures.

(5) Records of maintenance and inspections performed on the APCD.

(6) Current copies of your SSMP and OM&M plan, including any revisions, with records documenting conformance.

§ 63.8495 In what form and for how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review, according to § 63.10(b)(1).

(b) As specified in § 63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record onsite for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to § 63.10(b)(1). You may keep the records offsite for the remaining 3 years.

OTHER REQUIREMENTS AND INFORMATION

§ 63.8505 What parts of the General Provisions apply to me?

Table 7 to this subpart shows which parts of the General Provisions in §§ 63.1 through 63.15 apply to you.

§ 63.8510 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by us, the U.S. EPA, or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency, in addition to the U.S. EPA, has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if implementation and enforcement of this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under section 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that cannot be delegated to State, local, or tribal agencies are as specified in paragraphs (c)(1) through (4) of this section.

(1) Approval of alternatives to the applicability requirements in §§ 63.8385 and 63.8390, the compliance date requirements in § 63.8395, and the non-opacity emission limitations in § 63.8405.

(2) Approval of major changes to test methods under §63.7(e)(2)(ii) and (f) and as defined in §63.90.

(3) Approval of major changes to monitoring under §63.8(f) and as defined in §63.90.

(4) Approval of major changes to recordkeeping and reporting under §63.10(f) and as defined in §63.90.

§63.8515 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act, in §63.2, and in this section as follows:

Air pollution control device (APCD) means any equipment that reduces the quantity of a pollutant that is emitted to the air.

Bag leak detection system means an instrument that is capable of monitoring PM loadings in the exhaust of a fabric filter in order to detect bag failures. A bag leak detection system includes, but is not limited to, an instrument that operates on triboelectric, light-scattering, light-transmittance, or other effects to monitor relative PM loadings.

Brick and structural clay products (BSCP) manufacturing facility means a plant site that manufactures brick (including, but not limited to, face brick, structural brick, and brick pavers); clay pipe; roof tile; extruded floor and wall tile; and/or other extruded, dimensional clay products. Brick and structural clay products manufacturing facilities typically process raw clay and shale, form the processed materials into bricks or shapes, and dry and fire the bricks or shapes.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emission limitation (including any operating limit) or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limitation (including any operating limit) or work practice standard in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Dry lime injection fabric filter (DIFF) means an APCD that includes continuous injection of hydrated lime or other sorbent into a duct or reaction chamber followed by a fabric filter.

Dry lime scrubber/fabric filter (DLS/FF) means an APCD that includes continuous injection of humidified hydrated lime or other sorbent into a reaction chamber followed by a fabric filter. These systems typically include recirculation of some of the sorbent.

Dry limestone adsorber (DLA) means an APCD that includes a limestone storage bin, a reaction chamber that is essentially a packed tower filled with limestone, and may or may not include a peeling drum that mechanically scrapes reacted limestone to regenerate the stone for reuse.

Emission limitation means any emission limit or operating limit.

Fabric filter means an APCD used to capture PM by filtering a gas stream through filter media; also known as a baghouse.

Initial startup means:

(1) For a new or reconstructed tunnel kiln controlled with a DLA, and for a tunnel kiln that would be considered reconstructed but for §63.8390(i)(1) or §63.8390(i)(2), the time at which the temperature in the kiln first reaches 260 °C (500 °F) and the kiln contains product; or

(2) For a new or reconstructed tunnel kiln controlled with a DIFF, DLS/FF, or WS, the time at which the kiln first reaches a level of production that is equal to 75 percent of the kiln design capacity or 12 months after the affected source begins firing BSCP, whichever is earlier.

Kiln exhaust process stream means the portion of the exhaust from a tunnel kiln that exhausts directly to the atmosphere (or to an APCD), rather than to a sawdust dryer.

Large tunnel kiln means a tunnel kiln (existing, new, or reconstructed) with a design capacity equal to or greater than 9.07 Mg/hr (10 tph) of fired product.

Particulate matter (PM) means, for purposes of this subpart, emissions of

PM that serve as a measure of total particulate emissions, as measured by Method 5 (40 CFR part 60, appendix A), and as a surrogate for metal HAP contained in the particulates including, but not limited to, antimony, arsenic, beryllium, cadmium, chromium, cobalt, lead, manganese, mercury, nickel, and selenium.

Plant site means all contiguous or adjoining property that is under common control, including properties that are separated only by a road or other public right-of-way. Common control includes properties that are owned, leased, or operated by the same entity, parent entity, subsidiary, or any combination thereof.

Research and development kiln means any kiln whose purpose is to conduct research and development for new processes and products and is not engaged in the manufacture of products for commercial sale, except in a de minimis manner.

Responsible official means responsible official as defined in 40 CFR 70.2.

Small tunnel kiln means a tunnel kiln (existing, new, or reconstructed) with a design capacity less than 9.07 Mg/hr (10 tph) of fired product.

Startup means the setting in operation of an affected source and starting the production process.

Tunnel kiln means any continuous kiln that is used to fire BSCP. Some tunnel kilns have two process streams, including a process stream that exhausts directly to the atmosphere or to an APCD, and a process stream in which the kiln exhaust is ducted to a sawdust dryer where it is used to dry sawdust before being emitted to the atmosphere.

Tunnel kiln design capacity means the maximum amount of brick, in Mg (tons), that a kiln is designed to produce in one year divided by the number of hours in a year (8,760 hours). If a kiln is modified to increase the capacity, the design capacity is considered to be the capacity following modifications.

Wet scrubber (WS) means an APCD that uses water, which may include caustic additives or other chemicals, as the sorbent. Wet scrubbers may use any of various design mechanisms to increase the contact between exhaust gases and the sorbent.

Tables to Subpart JJJJJ of Part 63

Table 1 to Subpart JJJJJ of Part 63.—Emission Limits

[As stated in § 63.8405, you must meet each emission limit in the following table that applies to you:]

For each . . .	You must meet the following emission limits . . .	Or you must comply with the following . . .
1. Existing large tunnel kiln (design capacity ≥10 tph of fired product), excluding any process stream that is ducted to a sawdust dryer prior to July 22, 2002; or including any process stream that exhausts directly to the atmosphere or to an APCD and any process stream that is first ducted to a sawdust on or after July 22, 2002; each new or reconstructed small tunnel kiln (design capacity <10 tph of fired product), including all process streams; each tunnel kiln that would be considered reconstructed but for § 63.8390(i)(1), including all process streams; and each large tunnel kiln previously equipped with a DLA that would be considered reconstructed but for § 63.8390(i)(2), including all process streams.	a. HF emissions must not exceed 0.029 kilograms per megagram (kg/Mg) (0.057 pounds per ton (lb/ton)) of fired product.	Reduce uncontrolled HF emissions by at least 90 percent.
	b. HCl emissions must not exceed 0.13 kg/Mg (0.26 lb/ton) of fired product.	Reduce uncontrolled HCl emissions by at least 30 percent.
	c. PM emissions must not exceed 0.21 kg/Mg (0.42 lb/ton) of fired product.	Not applicable.
2. New or reconstructed large tunnel kiln, including all process streams.	a. HF emissions must not exceed 0.029 kg/Mg (0.057 lb/ton) of fired product.	Reduce uncontrolled HF emissions by at least 90 percent.
	b. HCl emissions must not exceed 0.028 kg/Mg (0.056 lb/ton) of fired product.	Reduce uncontrolled HCl emissions by at least 85 percent.

[As stated in § 63.8405, you must meet each emission limit in the following table that applies to you:]

For each . . .	You must meet the following emission limits . . .	Or you must comply with the following . . .
	c. PM emissions must not exceed 0.060 kg/Mg (0.12 lb/ton) of fired product.	Not applicable.

TABLE 2 TO SUBPART JJJJJ OF PART 63.—OPERATING LIMITS

[As stated in § 63.8405, you must meet each operating limit in the following table that applies to you:]

For each . . .	You must . . .
1. Kiln equipped with a DLA	a. Maintain the average pressure drop across the DLA for each 3-hour block period at or above the average pressure drop established during the performance test; and b. Maintain an adequate amount of limestone in the limestone hopper, storage bin (located at the top of the DLA), and DLA at all times; maintain the limestone feeder setting at or above the level established during the performance test; and c. Use the same grade of limestone from the same source as was used during the performance test; maintain records of the source and grade of limestone; and d. Maintain no VE from the DLA stack.
2. Kiln equipped with a DIFF or DLS/FF	a. If you use a bag leak detection system, initiate corrective action within 1 hour of a bag leak detection system alarm and complete corrective actions in accordance with your OM&M plan; operate and maintain the fabric filter such that the alarm is not engaged for more than 5 percent of the total operating time in a 6-month block reporting period; or maintain no VE from the DIFF or DLS/FF stack; and b. Maintain free-flowing lime in the feed hopper or silo and to the APCD at all times for continuous injection systems; maintain the feeder setting at or above the level established during the performance test for continuous injection systems.
3. Kiln equipped with a WS	a. Maintain the average scrubber pressure drop for each 3-hour block period at or above the average pressure drop established during the performance test; and b. Maintain the average scrubber liquid pH for each 3-hour block period at or above the average scrubber liquid pH established during the performance test; and c. Maintain the average scrubber liquid flow rate for each 3-hour block period at or above the average scrubber liquid flow rate established during the performance test; and d. If chemicals are added to the scrubber water, maintain the average scrubber chemical feed rate for each 3-hour block period at or above the average scrubber chemical feed rate established during the performance test.

TABLE 3 TO SUBPART JJJJJ OF PART 63.—REQUIREMENTS FOR PERFORMANCE TESTS

[As stated in § 63.8445, you must conduct each performance test in the following table that applies to you:]

For each . . .	You must . . .	Using . . .	According to the following requirements . . .
1. Kiln	a. Select locations of sampling ports and the number of traverse points.	Method 1 or 1A of 40 CFR part 60, appendix A.	Sampling sites must be located at the outlet of the APCD and prior to any releases to the atmosphere for all affected sources. If you choose to meet the percent emission reduction requirements for HF or HCl, a sampling site must also be located at the APCD inlet.
	b. Determine velocities and volumetric flow rate.	Method 2 of 40 CFR part 60, appendix A.	You may use Method 2A, 2C, 2D, 2F, or 2G of 40 CFR part 60, appendix A, as appropriate, as an alternative to using Method 2 of 40 CFR part 60, appendix A.

[As stated in § 63.8445, you must conduct each performance test in the following table that applies to you:]

For each . . .	You must . . .	Using . . .	According to the following requirements . . .
	c. Conduct gas molecular weight analysis.	Method 3 of 40 CFR part 60, appendix A.	You may use Method 3A or 3B of 40 CFR part 60, appendix A, as appropriate, as an alternative to using Method 3 of 40 CFR part 60, appendix A.
	d. Measure moisture content of the stack gas.	Method 4 of 40 CFR part 60, appendix A.	
	e. Measure HF and HCl emissions.	Method 26A of 40 CFR part 60, appendix A; or	Conduct the test while operating at the maximum production level. You may use Method 26 of 40 CFR part 60, appendix A, as an alternative to using Method 26A of 40 CFR part 60, appendix A, when no acid PM (*e.g.,* HF or HCl dissolved in water droplets emitted by sources controlled by a WS) is present.
		Method 320 of 40 CFR part 63, appendix A.	Conduct the test while operating at the maximum production level. When using Method 320 of 40 CFR part 63, appendix A, you must follow the analyte spiking procedures of section 13 of Method 320 of 40 CFR part 63, appendix A, unless you can demonstrate that the complete spiking procedure has been conducted at a similar source.
	f. Measure PM emissions.	Method 5 of 40 CFR part 60, appendix A.	Conduct the test while operating at the maximum production level.
2. Kiln that is complying with production-based emission limits.	Determine the production rate during each test run in order to determine compliance with production-based emission limits.	Production data collected during the performance tests (*e.g.*, no. of pushes per hour, no. of bricks per kiln car, weight of a typical fired brick).	You must measure and record the production rate, on a fired-product basis, of the affected source for each of the three test runs.
3. Kiln equipped with a DLA	a. Establish the operating limit for the average pressure drop across the DLA.	Data from the pressure drop measurement device during the performance test.	You must continuously measure the pressure drop across the DLA, determine and record the block average pressure drop values for the three test runs, and determine and record the 3-hour block average of the recorded pressure drop measurements for the three test runs.
	b. Establish the operating limit for the limestone feeder setting.	Data from the limestone feeder during the performance test.	You must ensure that you maintain an adequate amount of limestone in the limestone hopper, storage bin (located at the top of the DLA), and DLA at all times during the performance test. You must establish your limestone feeder setting one week prior to the performance test and maintain the feeder setting for the one-week period that precedes the performance test and during the performance test.
	c. Document the source and grade of limestone used.	Records of limestone purchase.	

[As stated in § 63.8445, you must conduct each performance test in the following table that applies to you:]

For each . . .	You must . . .	Using . . .	According to the following requirements . . .
4. Kiln equipped with a DIFF or DLS/FF.	Establish the operating limit for the lime feeder setting.	Data from the lime feeder during the performance test.	For continuous lime injection systems, you must ensure that lime in the feed hopper or silo and to the APCD is free-flowing at all times during the performance test and record the feeder setting for the three test runs. If the feed rate setting varies during the three test runs, determine and record the average feed rate from the three test runs.
5. Kiln equipped with a WS	a. Establish the operating limit for the average scrubber pressure drop.	Data from the pressure drop measurement device during the performance test.	You must continuously measure the scrubber pressure drop, determine and record the block average pressure drop values for the three test runs, and determine and record the 3-hour block average of the recorded pressure drop measurements for the three test runs.
	b. Establish the operating limit for the average scrubber liquid pH.	Data from the pH measurement device during the performace test.	You must continuously measure the scrubber liquid pH, determine and record the block average pH values for the three test runs, and determine and record the 3-hour block average of the recorded pH measurements for the three test runs.
	c. Establish the operating limit for the average scrubber liquid flow rate.	Data from the flow rate measurement device during the performance test.	You must continuously measure the scrubber liquid flow rate, determine and record the block average flow rate values for the three test runs, and determine and record the 3-hour block average of the recorded flow rate measurements for the three test runs.
6. Kiln equipped with a WS that includes chemical addition to the water.	Establish the operating limit for the average scrubber chemical feed rate.	Data from the chemical feed rate measurement device during the performance test.	You must continuously measure the scrubber chemical feed rate, determine and record the block average chemical feed rate values for the three test runs, and determine and record the 3-hour block average of the recorded chemical feed rate measurements for the three test runs.

TABLE 4 TO SUBPART JJJJJ OF PART 63.—INITIAL COMPLIANCE WITH EMISSION LIMITATIONS

[As stated in § 63.8455, you must demonstrate initial compliance with each emission limitation that applies to you according to the following table:]

For each . . .	For the following emission limitation . . .	You have demonstrated initial compliance if . . .
1. Existing large tunnel kiln (design capacity ≥10 tph of fired product), excluding any process stream that is ducted to a sawdust dryer prior to July 22, 2002; or including any process stream that exhausts directly to the atmosphere or to an APCD and any process stream that is first ducted to a sawdust dryer on or after July 22, 2002; each new or reconstructed small tunnel kiln (design capacity <10 tph of fired product), including all process streams; each tunnel kiln that would be considered reconstructed but for § 63.8390(i)(1), including all process streams; and each large tunnel kiln previously equipped with a DLA that would be considered reconstructed but for § 63.8390(i)(2), including all process streams.	a. HF emissions must not exceed 0.029 kg/Mg (0.057 lb/ton) of fired product; or uncontrolled HF emissions must be reduced by at least 90 percent; and	i. The HF emissions measured using Method 26A of 40 CFR part 60, appendix A or Method 320 of 40 CFR part 63, appendix A over the period of the initial performance test, according to the calculations in § 63.8445(g)(1), do not exceed 0.029 kg/Mg (0.057 lb/ton); or uncontrolled HF emissions measured using Method 26A of 40 CFR part 60, appendix A or Method 320 of 40 CFR part 63, appendix A over the period of the initial performance test are reduced by at least 90 percent, according to the calculations in § 63.8445(g)(2); and ii. You establish and have a record of the operating limits listed in Table 2 to this subpart over the 3-hour performance test during which HF emissions did not exceed 0.029 kg/Mg (0.057 lb/ton) or uncontrolled HF emissions were reduced by at least 90 percent.
	b. HCl emissions must not exceed 0.13 kg/Mg (0.26 lb/ton) of fired product; or uncontrolled HCl emissions must be reduced by at least 30 percent; and	i. The HCl emissions measured using Method 26A of 40 CFR part 60, appendix A or Method 320 of 40 CFR part 63, appendix A over the period of the initial performance test, according to the calculations in § 63.8445(g)(1), do not exceed 0.13 kg/Mg (0.26 lb/ton); or uncontrolled HCl emissions measured using Method 26A of 40 CFR part 60, appendix A or Method 320 of 40 CFR part 63, appendix A over the period of the initial performance test are reduced by at least 30 percent, according to the calculations in § 63.8445(g)(2); and ii. You establish and have a record of the operating limits listed in Table 2 to this subpart over the 3-hour performance test during which HCl emissions did not exceed 0.13 kg/Mg (0.26 lb/ton) or uncontrolled HCl emissions were reduced by at least 30 percent.
	c. PM emissions must not exceed 0.21 kg/Mg (0.42 lb/ton) of fired product.	i. The PM emissions measured using Method 5 of 40 CFR part 60, appendix A, over the period of the initial performance test, according to the calculations in § 63.8445(g)(1), do not exceed 0.21 kg/Mg (0.42 lb/ton); and ii. You establish and have a record of the operating limits listed in Table 2 to this subpart over the 3-hour performance test during which PM emissions did not exceed 0.21 kg/Mg (0.42 lb/ton).

[As stated in § 63.8455, you must demonstrate initial compliance with each emission limitation that applies to you according to the following table:]

For each . . .	For the following emission limitation . . .	You have demonstrated initial compliance if . . .
2. New or reconstructed large tunnel kiln, including all process streams.	a. HF emissions must not exceed 0.029 kg/Mg (0.057 lb/ton) of fired product; or uncontrolled HF emissions must be reduced by at least 90 percent; and	i. The HF emissions measured using Method 26A of 40 CFR part 60, appendix A or Method 320 of 40 CFR part 63, appendix A over the period of the initial performance test, according to the calculations in § 63.8445(g)(1), do not exceed 0.029 kg/Mg (0.057 lb/ton); or uncontrolled HF emissions measured using Method 26A of 40 CFR part 60, appendix A or Method 320 of 40 CFR part 63, appendix A over the period of the initial performance test are reduced by at least 90 percent, according to the calculations in § 63.8445(g)(2); and ii. You establish and have a record of the operating limits listed in Table 2 to this subpart over the 3-hour performance test during which HF emissions did not exceed 0.029 kg/Mg (0.057 lb/ton) or uncontrolled HF emissions were reduced by at least 90 percent.
	b. HCl emissions must not exceed 0.028 kg/Mg (0.056 lb/ton) of fired product; or uncontrolled HCl emissions must be reduced by at least 85 percent; and	i. The HCl emissions measured using Method 26A of 40 CFR part 60, appendix A or Method 320 of 40 CFR part 63, appendix A over the period of the initial performance test, according to the calculations in § 63.8445(g)(1), do not exceed 0.028 kg/Mg (0.056 lb/ton); or uncontrolled HCl emissions measured using Method 26A of 40 CFR part 60, appendix A or Method 320 of 40 CFR part 63, appendix A over the period of the initial performance test are reduced by at least 85 percent, according to the calculations in § 63.8445(g)(2); and ii. You establish and have a record of the operating limits listed in Table 2 to this subpart over the 3-hour performance test during which HCl emissions did not exceed 0.028 kg/Mg (0.056 lb/ton) or uncontrolled HCl emissions were reduced by at least 85 percent.
	c. PM emissions must not exceed 0.060 kg/Mg (0.12 lb/ton) of fired product.	i. The PM emissions measured using Method 5 of 40 CFR part 60, appendix A, over the period of the initial performance test, according to the calculations in § 63.8445(g)(1), do not exceed 0.060 kg/Mg (0.12 lb/ton); and ii. You establish and have a record of the operating limits listed in Table 2 to this subpart over the 3-hour performance test during which PM emissions did not exceed 0.060 kg/Mg (0.12 lb/ton).

TABLE 5 TO SUBPART JJJJJ OF PART 63.—CONTINUOUS COMPLIANCE WITH EMISSION LIMITS AND OPERATING LIMITS

[As stated in § 63.8470, you must demonstrate continuous compliance with each emission limit and operating limit that applies to you according to the following table:]

For each . . .	For the following emission limits and operating limits . . .	You must demonstrate continuous compliance by . . .
1. Kiln equipped with a DLA.	Each emission limit in Table 1 to this subpart and each operating limit in Item 1 of Table 2 to this subpart for kilns equipped with a DLA.	i. Collecting the DLA pressure drop data according to § 63.8450(a); reducing the DLA pressure drop data to 3-hour block averages according to § 63.8450(a); maintaining the average pressure drop across the DLA for each 3-hour block period at or above the average pressure drop established during the performance test; and ii. Verifying that the limestone hopper and storage bin (located at the top of the DLA) contain adequate limestone by performing a daily visual check; and iii. Recording the limestone feeder setting daily to verify that the feeder setting is being maintained at or above the level established during the performance test; and iv. Using the same grade of limestone from the same source as was used during the performance test; maintaining records of the source and type of limestone; and v. Performing VE observations of the DLA stack at the frequency specified in § 63.8470(g) using Method 22 of 40 CFR part 60, appendix A; maintaining no VE from the DLA stack.
2. Kiln equipped with a DIFF or DLS/FF.	Each emission limit in Table 1 to this subpart and each operating limit in Item 2 of Table 2 to this subpart for kilns equipped with DIFF or DLS/FF.	i. If you use a bag leak detection system, initiating corrective action within 1 hour of a bag leak detection system alarm and completing corrective actions in accordance with your OM&M plan; operating and maintaining the fabric filter such that the alarm is not engaged for more than 5 percent of the total operating time in a 6-month block reporting period; in calculating this operating time fraction, if inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted; if corrective action is required, each alarm is counted as a minimum of 1 hour; if you take longer than 1 hour to initiate corrective action, the alarm time is counted as the actual amount of time taken by you to initiate corrective action; or performing VE observations of the DIFF or DLS/FF stack at the frequency specified in § 63.8470(g) using Method 22 of 40 CFR part 60, appendix A; maintaining no VE from the DIFF or DLS/FF stack; and ii. Verifying that lime is free-flowing via a load cell, carrier gas/lime flow indicator, carrier gas pressure drop measurement system, or other system; recording all monitor or sensor output, and if lime is found not to be free flowing, promptly initiating and completing corrective actions in accordance with your OM&M plan; recording the feeder setting once during each shift of operation to verify that the feeder setting is being maintained at or above the level established during the performance test.

[As stated in § 63.8470, you must demonstrate continuous compliance with each emission limit and operating limit that applies to you according to the following table:]

For each . . .	For the following emission limits and operating limits . . .	You must demonstrate continuous compliance by . . .
3. Kiln equipped with a WS	Each emission limit in Table 1 to this subpart and each operating limit in Item 3 of Table 2 to this subpart for kilns equipped with WS.	i. Collecting the scrubber pressure drop data according to § 63.8450(a); reducing the scrubber pressure drop data to 3-hour block averages according to § 63.8450(a); maintaining the average scrubber pressure drop for each 3-hour block period at or above the average pressure drop established during the performance test; and ii. Collecting the scrubber liquid pH data according to § 63.8450(a); reducing the scrubber liquid pH data to 3-hour block averages according to § 63.8450(a); maintaining the average scrubber liquid pH for each 3-hour block period at or above the average scrubber liquid pH established during the performance test; and iii. Collecting the scrubber liquid flow rate data according to § 63.8450(a); reducing the scrubber liquid flow rate data to 3-hour block averages according to § 63.8450(a); maintaining the average scrubber liquid flow rate for each 3-hour block period at or above the average scrubber liquid flow rate established during the performance test; and iv. If chemicals are added to the scrubber water, collecting the scrubber chemical feed rate data according to § 63.8450(a); reducing the scrubber chemical feed rate data to 3-hour block averages according to § 63.8450(a); maintaining the average scrubber chemical feed rate for each 3-hour block period at or above the average scrubber chemical feed rate established during the performance test.

TABLE 6 TO SUBPART JJJJJ OF PART 63.—REQUIREMENTS FOR REPORTS

[As stated in § 63.8485, you must submit each report that applies to you according to the following table:]

You must submit . . .	The report must contain . . .	You must submit the report . . .
1. A compliance report	a. If there are no deviations from any emission limitations (emission limits, operating limits) that apply to you, a statement that there were no deviations from the emission limitations during the reporting period. If there were no periods during which the CMS was out-of-control as specified in your OM&M plan, a statement that there were no periods during which the CMS was out- of-control during the reporting period.	Semiannually according to the requirements in § 63.8485(b).
	b. If you have a deviation from any emission limitation (emission limit, operating limit) during the reporting period, the report must contain the information in § 63.8485(d) or (e). If there were periods during which the CMS was out-of-control, as specified in your OM&M plan, the report must contain the information in § 63.8485(e).	Semiannually according to the requirements in § 63.8485(b).
	c. If you had a startup, shutdown or malfunction during the reporting period and you took actions consistent with your SSMP, the compliance report must include the information in § 63.10(d)(5)(i).	Semiannually according to the requirements in § 63.8485(b).
2. An immediate startup, shutdown, and malfunction report if you took actions during a startup, shutdown, or malfunction during the reporting period that are not consistent with your SSMP.	a. Actions taken for the event according to the requirements in § 63.10(d)(5)(ii).	By fax or telephone within 2 working days after starting actions inconsistent with the plan.
	b. The information in § 63.10(d)(5)(ii)	By letter within 7 working days after the end of the event unless you have made alternative arrangements with the permitting authority.

TABLE 7 TO SUBPART JJJJJ OF PART 63.—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART JJJJJ

[As stated in § 63.8505, you must comply with the General Provisions in §§ 63.1 through 63.15 that apply to you according to the following table:]

Citation	Subject	Brief description	Applies to subpart JJJJJ
§ 63.1	Applicability	Initial applicability determination;applicability afterstandard established;permit requirements;extensions,notifications.	Yes.
§ 63.2	Definitions	Definitions for part 63 standards	Yes.
§ 63.3	Units and Abbreviations	Units and abbreviations for part63 standards	Yes.
§ 63.4	Prohibited Activities	Compliance date; circumvention;severability	Yes.
§ 63.5	Construction/Reconstruction	Applicability; applications;approvals	Yes.
§ 63.6(a)	Applicability	General Provisions (GP) apply unlesscompliance extension;GP apply to areasources that becomemajor.	Yes.
§ 63.6(b)(1)–(4)	Compliance Dates for New and Reconstructed sources.	Standards apply at effective date; 3 years after effective date; upon startup; 10 years afterconstruction orreconstructioncommences for section112(f).	Yes.
§ 63.6(b)(5)	Notification	Must notify if commenced constructionor reconstructionafter proposal	Yes.
§ 63.6(b)(6)	[Reserved].		
§ 63.6(b)(7)	Compliance Dates for New and Reconstructed area Sources That Become Major.	Area sources that become major must comply with major source standards immediately upon becoming major, regardless of whetherrequired to complywhen they were areasources.	Yes.
§ 63.6(c)(1)–(2)	Compliance Dates for Existing Sources	Comply according to date in subpart, which must be no later than 3 years aftereffective date; for section 112(f)standards, complywithin 90 days of effective date unlesscompliance extension.	Yes.
§ 63.6(c)(3)–(4)	[Reserved]..		
§ 63.6(c)(5)	Compliance Dates for Existing area Sources That Become Major.	Area sources that become major must comply with major source standards by date indicated in subpart or by equivalent time period(for example, 3years).	Yes.
§ 63.6(d)	[Reserved].		
§ 63.6(e)(1)–(2)	Operation & Maintenance	Operate to minimize emissions at alltimes; correctmalfunctions as soonas practicable;requirementsindependentlyenforceable;informationAdministrator will useto determine if operation andmaintenancerequirements were met.	Yes.
§ 63.6(e)(3)	Startup, Shutdown, and Malfunction Plan (SSMP)	Requirement for startup, shutdown, and malfunction (SSM) and SSMP; content of SSMP.	Yes.
§ 63.6(f)(1)	Compliance Except During SSM	You must comply with emission standards at all times exceptduring SSM	Yes.
§ 63.6(f)(2)–(3)	Methods for Determining Compliance	Compliance based on performance test, operation andmaintenance plans, records, inspection.	Yes.
§ 63.6(g)	Alternative Standard	Procedures for getting an alternative standard	Yes.
§ 63.6(h)	Opacity/VE Standards	Requirements for opacity and VE standards	No, not applicable.
§ 63.6(i)	Compliance Extension	Procedures and criteria for Administrator to grant compliance extension	Yes.
§ 63.6(j)	Presidential Compliance Exemption	President may exempt source category	Yes.
§ 63.7(a)(1)–(2)	Performance Test Dates	Dates for conducting initial performance testing and other compliance demonstrations; must conduct 180 days after first subject to rule.	Yes.
§ 63.7(a)(3)	Section 114 Authority	Administrator may require a performance test under CAA section 114 at any time.	Yes.
§ 63.7(b)(1)	Notification of Performance Test	Must notify Administrator 60 days before the test	Yes.
§ 63.7(b)(2)	Notification of Rescheduling	Must notify Administrator 5 days before scheduled date of rescheduled date	Yes.
§ 63.7(c)	Quality Assurance(QA)/Test Plan	Requirements; test plan approval procedures; performance audit requirements; internal and external QA procedures for testing.	Yes.
§ 63.7(d)	Testing Facilities	Requirements for testing facilities	Yes.

§ 63.7(e)(1)	Conditions for Conducting Performance Tests	Performance tests must be conducted under representative conditions	No, § 63.8445 specifies requirements.
		Cannot conduct performance tests during SSM; not a violation to exceed standard during SSM.	Yes.
§ 63.7(e)(2)–(3)	Conditions for Conducting Performance Tests	Must conduct according to subpart and EPA test methods unless Administrator approves alternative; must have at least three test runs of at least 1 hour each; compliance is based on arithmetic mean of three runs; conditions when data from an additional test run can be used.	Yes.
§ 63.7(f)	Alternative Test Method	Procedures by which Administrator can grant approval to use an alternative test method.	Yes.
§ 63.7(g)	Performance Test Data Analysis	Must include raw data in performance test report; must submit performance test data 60 days after end of test with the notification of compliance status.	Yes.
§ 63.7(h)	Waiver of Tests	Procedures for Administrator to waive performance test	Yes.
§ 63.8(a)(1)	Applicability of Monitoring Requirements	Subject to all monitoring requirements in subpart	Yes.
§ 63.8(a)(2)	Performance Specifications	Performance Specifications in appendix B of 40 CFR part 60 apply	Yes.
§ 63.8(a)(3)	[Reserved].		
§ 63.8(a)(4)	Monitoring with Flares	Requirements for flares in § 63.11 apply	No, not applicable.
§ 63.8(b)(1)	Monitoring	Must conduct monitoring according to standard unless Administrator approves alternative.	Yes.
§ 63.8(b)(2)–(3)	Multiple Effluents and Multiple Monitoring Systems	Specific requirements for installing and reporting on monitoring systems	Yes.
§ 63.8(c)(1)	Monitoring System Operation and Maintenance	Maintenance consistent with good air pollution control practices	Yes.
§ 63.8(c)(1)(i)	Routine and Predictable SSM	Reporting requirements for SSM when action is described in SSMP	Yes.
§ 63.8(c)(1)(ii)	SSM not in SSMP	Reporting requirements for SSM when action is not described in SSMP	Yes.
§ 63.8(c)(1)(iii)	Compliance with Operation and Maintenance Requirements.	How Administrator determines if source complying with operation and maintenance requirements.	Yes.
§ 63.8(c)(2)–(3)	Monitoring System Installation	Must install to get representative emission and parameter measurements	Yes.
§ 63.8(c)(4)	CMS Requirements	Requirements for CMS	No, §§ 63.8425 and 63.8465 specify requirements.
§ 63.8(c)(5)	Continuous Opacity Monitoring System (COMS) Minimum Procedures.	COMS minimum procedures	No, not applicable.
§ 63.8(c)(6)	CMS Requirements	Zero and high level calibration check requirements	No, § 63.8425 specifies requirements.
§ 63.8(c)(7)–(8)	CMS Requirements	Out-of-control periods	No, § 63.8425 specifies requirements.
§ 63.8(d)	CMS Quality Control	Requirements for CMS quality control	No, § 63.8425 specifies requirements.
§ 63.8(e)	CMS Performance Evaluation	Requirements for CMS performance evaluation	No, § 63.8425 specifies requirements.
§ 63.8(f)(1)–(5)	Alternative Monitoring Method	Procedures for Administrator to approve alternative monitoring	Yes.
§ 63.8(f)(6)	Alternative to Relative Accuracy Test	Procedures for Administrator to approve alternative relative accuracy test for continuous emissions monitoring systems (CEMS).	No, not applicable.
§ 63.8(g)	Data Reduction	COMS and CEMS data reduction requirements	No, not applicable.
§ 63.9(a)	Notification Requirements	Applicability; State delegation	Yes.
§ 63.9(b)	Initial Notifications	Requirements for initial notifications	Yes.
§ 63.9(c)	Request for Compliance Extension	Can request if cannot comply by date or if installed BACT/LAER	Yes.
§ 63.9(d)	Notification of Special Compliance Requirements for New Source.	For sources that commence construction between proposal and promulgation and want to comply 3 years after effective date.	Yes.
§ 63.9(e)	Notification of Performance Test	Notify Administrator 60 days prior	Yes.

[As stated in § 63.8505, you must comply with the General Provisions in §§ 63.1 through 63.15 that apply to you according to the following table:]

Citation	Subject	Brief description	Applies to subpart JJJJJ
§ 63.9(f)	Notification of VE/Opacity Test	Notify Administrator 30 days prior	No, not applicable.
§ 63.9(g)(1)	Additional Notifications When Using CMS	Notification of performance evaluation	Yes.
§ 63.9(g)(2)–(3)	Additional Notifications When Using CMS	Notification of COMS data use; notification that relative accuracy alternative criterion were exceeded.	No, not applicable.
§ 63.9(h)	Notification of Compliance Status	Contents; submittal requirements	Yes.
§ 63.9(i)	Adjustment of Submittal Deadlines	Procedures for Administrator to approve change in when notifications must be submitted.	Yes.
§ 63.9(j)	Change in Previous Information	Must submit within 15 days after the change	Yes.
§ 63.10(a)	Recordkeeping/Reporting	Applicability; general information	Yes.
§ 63.10(b)(1)	General Recordkeeping Requirements	General requirements	Yes.
§ 63.10(b)(2)(i)–(v)	Records Related to SSM	Requirements for SSM records	Yes.
§ 63.10(b)(2)(vi)–(xii) and (xiv).	CMS Records	Records when CMS is malfunctioning, inoperative or out-of-control	Yes.
§ 63.10(b)(2)(xiii)	Records	Records when using alternative to relative accuracy test	No, not applicable.
§ 63.10(b)(3)	Records	Applicability Determinations	Yes.
§ 63.10(c)(1)–(15)	Records	Additional records for CMS	No, §§ 63.8425 and 63.8490 specify requirements.
§ 63.10(d)(1) and (2)	General Reporting Requirements	Requirements for and reporting; performance test results reporting	Yes.
§ 63.10(d)(3)	Reporting Opacity or VE Observations	Requirements for reporting opacity and VE	No, not applicable.
§ 63.10(d)(4)	Progress Reports	Must submit progress reports on schedule if under compliance extension	Yes.
§ 63.10(d)(5)	SSM Reports	Contents and submission	Yes.
§ 63.10(e)(1)–(3)	Additional CMS Reports	Requirements for CMS reporting	No, §§ 63.8425 and 63.8485 specify requirements.
§ 63.10(e)(4)	Reporting COMS data	Requirements for reporting COMS data with performance test data	No, not applicable.
§ 63.10(f)	Waiver for Recordkeeping/Reporting	Procedures for Administrator to waive	Yes.
§ 63.11	Flares	Requirement for flares	No, not applicable.
§ 63.12	Delegation	State authority to enforce standards	Yes.
§ 63.13	Addresses	Addresses for reports, notifications, requests	Yes.
§ 63.14	Incorporation by Reference	Materials incorporated by reference	Yes.
§ 63.15	Availability of Information	Information availability; confidential information	Yes.

Subpart KKKKK—National Emission Standards for Hazardous Air Pollutants for Clay Ceramics Manufacturing

SOURCE: 68 FR 26738, May 16, 2003, unless otherwise noted.

WHAT THIS SUBPART COVERS

§63.8530 What is the purpose of this subpart?

This subpart establishes national emission limitations and work practice standards for hazardous air pollutants (HAP) emitted from clay ceramics manufacturing facilities. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and work practice standards.

§63.8535 Am I subject to this subpart?

You are subject to this subpart if you own or operate a clay ceramics manufacturing facility that is, is located at, or is part of a major source of HAP emissions according to the criteria in paragraphs (a) and (b) of this section.

(a) A clay ceramics manufacturing facility is a plant site that manufactures pressed floor tile, pressed wall tile, other pressed tile, or sanitaryware (*e.g.*, sinks and toilets). Clay ceramics manufacturing facilities typically process clay, shale, and various additives; form the processed materials into tile or sanitaryware shapes; and dry and fire the ceramic products. Glazes are applied to many tile and sanitaryware products.

(b) A major source of HAP emissions is any stationary source or group of stationary sources within a contiguous area under common control that emits or has the potential to emit any single HAP at a rate of 9.07 megagrams (10 tons) or more per year or any combination of HAP at a rate of 22.68 megagrams (25 tons) or more per year.

§63.8540 What parts of my plant does this subpart cover?

(a) This subpart applies to each existing, new, or reconstructed affected source at a clay ceramics manufacturing facility and to each affected source described in paragraphs (f)(1) or (f)(2) of this section.

(b) Each existing, new, or reconstructed periodic kiln, tunnel kiln, and roller kiln is an affected source regardless of design capacity. Each source that meets the description in paragraphs (f)(1) or (f)(2) also is an affected source.

(c) Kilns that are used exclusively for research and development (R&D) and are not used to manufacture products for commercial sale, except in a *de minimis* manner, are not subject to the requirements of this subpart.

(d) Kilns that are used exclusively for setting glazes on previously fired products or for refiring are not subject to the requirements of this subpart.

(e) A source is a new affected source if construction of the affected source began after July 22, 2002, and you met the applicability criteria at the time you began construction.

(f) An affected source is reconstructed if you meet the criteria as defined in §63.2, except as provided in paragraphs (f)(1) and (f)(2) of this section.

(1) It is not technologically and economically feasible for an existing tunnel kiln whose design capacity is less than 9.07 megagrams per hour (Mg/hr) (10 tons per hour (tph)) of fired product but is increased such that it is equal to or greater than 9.07 Mg/hr (10 tph) of fired product to meet the relevant standards (*i.e.*, new source maximum achievable control technology (MACT)) by retrofitting with a dry lime injection fabric filter (DIFF), dry lime scrubber/fabric filter (DLS/FF), or wet scrubber (WS).

(2) It is not technologically and economically feasible for an existing dry limestone adsorber (DLA)-controlled kiln whose design capacity is equal to or greater than 9.07 Mg/hr (10 tph) of fired product to meet the relevant standards by retrofitting with a DIFF, DLS/FF, or WS.

(g) An affected source is existing if it is not new or reconstructed and does not meet the descriptions provided in paragraphs (f)(1) and (f)(2) of this section.

§63.8545 When do I have to comply with this subpart?

(a) If you have a new or reconstructed affected source or an affected source described in § 63.8540(f)(1) or § 63.8540(f)(2), you must comply with this subpart according to paragraphs (a)(1) and (2) of this section.

(1) If the initial startup of your affected source is before May 16, 2003, then you must comply with the applicable emission limitations and work practice standards in Tables 1, 2, and 3 to this subpart no later than May 16, 2003.

(2) If the initial startup of your affected source is after May 16, 2003, then you must comply with the applicable emission limitations and work practice standards in Tables 1, 2, and 3 to this subpart upon initial startup of your affected source.

(b) If you have an existing affected source, you must comply with the work practice standards for existing sources in Table 3 to this subpart no later than May 16, 2003.

(c) If you have an existing area source that increases its emissions or its potential to emit such that it becomes a major source of HAP by adding a new affected source or by reconstructing, you must be in compliance with this subpart upon initial startup of your affected source as a major source.

(d) If you have a new area source (*i.e.*, an area source for which construction or reconstruction was commenced after July 22, 2002) that increases its emissions or its potential to emit such that it becomes a major source of HAP, you must be in compliance with this subpart upon initial startup of your affected source as a major source.

(e) You must meet the notification requirements in § 63.8630 according to the schedule in § 63.8630 and in 40 CFR part 63, subpart A. Some of the notifications must be submitted before you are required to comply with the emission limitations in this subpart.

EMISSION LIMITATIONS AND WORK PRACTICE STANDARDS

§ 63.8555 What emission limitations and work practice standards must I meet?

(a) You must meet each emission limit in Table 1 to this subpart that applies to you.

(b) You must meet each operating limit in Table 2 to this subpart that applies to you.

(c) You must meet each work practice standard in Table 3 to this subpart that applies to you.

§ 63.8560 What are my options for meeting the emission limitations and work practice standards?

(a) To meet the emission limitations in Tables 1 and 2 to this subpart, you must use one or more of the options listed in paragraphs (a)(1) and (2) of this section.

(1) *Emissions control system.* Use an emissions capture and collection system and an air pollution control device (APCD) and demonstrate that the resulting emissions or emissions reductions meet the emission limits in Table 1 to this subpart, and that the capture and collection system and APCD meet the applicable operating limits in Table 2 to this subpart.

(2) *Process changes.* Use low-HAP raw materials or implement manufacturing process changes and demonstrate that the resulting emissions or emissions reductions meet the emission limits in Table 1 to this subpart.

(b) To meet the work practice standards in Table 3 to this subpart, for each affected kiln, you must use natural gas, or an equivalent fuel (such as propane or other clean burning fuel), as the kiln fuel at all times except during periods of natural gas curtailment or other periods when natural gas is not available.

GENERAL COMPLIANCE REQUIREMENTS

§ 63.8570 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limitations (including operating limits) in this subpart at all times, except during periods of startup, shutdown, and malfunction and during periods of routine control device maintenance as specified in paragraph (e) of this section.

(b) Except as specified in paragraph (e) of this section, you must always operate and maintain your affected source, including air pollution control and monitoring equipment, according to the provisions in §63.6(e)(1)(i). During the period between the compliance date specified for your affected source in §63.8545 and the date upon which continuous monitoring systems (CMS) (*e.g.*, continuous parameter monitoring systems) have been installed and verified and any applicable operating limits have been set, you must maintain a log detailing the operation and maintenance of the process and emissions control equipment.

(c) For each kiln that is subject to the emission limits specified in Table 1 to this subpart, you must develop and implement a written startup, shutdown, and malfunction plan (SSMP) according to the provisions in §63.6(e)(3).

(d) For each kiln that is subject to the emission limits specified in Table 1 to this subpart, you must prepare and implement a written operation, maintenance, and monitoring (OM&M) plan according to the requirements in §63.8575.

(e) If you own or operate a kiln that is subject to the emission limits specified in Table 1 to this subpart and must perform routine maintenance on the control device for that kiln, you may bypass the kiln control device and continue operating the kiln upon approval by the Administrator provided you satisfy the conditions listed in paragraphs (e)(1) through (5) of this section.

(1) You must request a routine control device maintenance exemption from the Administrator. Your request must justify the need for the routine maintenance on the control device and the time required to accomplish the maintenance activities, describe the maintenance activities and the frequency of the maintenance activities, explain why the maintenance cannot be accomplished during kiln shutdowns, describe how you plan to minimize emissions to the greatest extent possible during the maintenance, and provide any other documentation required by the Administrator.

(2) The routine control device maintenance exemption must not exceed 4 percent of the annual operating uptime for each kiln.

(3) The request for the routine control device maintenance exemption, if approved by the Administrator, must be incorporated by reference in and attached to the affected source's title V permit.

(4) You must minimize HAP emissions during the period when the kiln is operating and the control device is offline.

(5) You must minimize the time period during which the kiln is operating and the control device is offline.

(f) You must be in compliance with the work practice standards in this subpart at all times, except during periods of natural gas curtailment or other periods when natural gas is not available.

(g) You must be in compliance with the provisions of subpart A of this part, except as noted in Table 8 to this subpart.

§63.8575 What do I need to know about operation, maintenance, and monitoring plans?

(a) For each kiln that is subject to the emission limits specified in Table 1 to this subpart, you must prepare, implement, and revise as necessary an OM&M plan that includes the information in paragraph (b) of this section. Your OM&M plan must be available for inspection by the permitting authority upon request.

(b) Your OM&M plan must include, as a minimum, the information in paragraphs (b)(1) through (13) of this section.

(1) Each process and APCD to be monitored, the type of monitoring device that will be used, and the operating parameters that will be monitored.

(2) A monitoring schedule that specifies the frequency that the parameter values will be determined and recorded.

(3) The limits for each parameter that represent continuous compliance with the emission limitations in §63.8555. The limits must be based on values of the monitored parameters recorded during performance tests.

(4) Procedures for the proper operation and routine and long-term maintenance of each APCD, including a maintenance and inspection schedule that is consistent with the manufacturer's recommendations.

(5) Procedures for installing the CMS sampling probe or other interface at a

measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (*e.g.*, on or downstream of the last APCD).

(6) Performance and equipment specifications for the sample interface, the pollutant concentration or parametric signal analyzer, and the data collection and reduction system.

(7) Continuous monitoring system performance evaluation procedures and acceptance criteria (*e.g.*, calibrations).

(8) Procedures for the proper operation and maintenance of monitoring equipment consistent with the requirements in §§ 63.8600 and 63.8(c)(1), (3), (4)(ii), (7), and (8).

(9) Continuous monitoring system data quality assurance procedures consistent with the requirements in § 63.8(d).

(10) Continuous monitoring system recordkeeping and reporting procedures consistent with the requirements in § 63.10(c), (e)(1), and (e)(2)(i).

(11) Procedures for responding to operating parameter deviations, including the procedures in paragraphs (b)(11)(i) through (iii) of this section.

(i) Procedures for determining the cause of the operating parameter deviation.

(ii) Actions for correcting the deviation and returning the operating parameters to the allowable limits.

(iii) Procedures for recording the times that the deviation began and ended, and corrective actions were initiated and completed.

(12) Procedures for keeping records to document compliance.

(13) If you operate an affected kiln and you plan to take the kiln control device out of service for routine maintenance, as specified in § 63.8570(e), the procedures specified in paragraphs (b)(13)(i) and (ii) of this section.

(i) Procedures for minimizing HAP emissions from the kiln during periods of routine maintenance of the kiln control device when the kiln is operating and the control device is offline.

(ii) Procedures for minimizing the duration of any period of routine maintenance on the kiln control device when the kiln is operating and the control device is offline.

(c) Changes to the operating limits in your OM&M plan require a new performance test. If you are revising an operating limit parameter value, you must meet the requirements in paragraphs (c)(1) and (2) of this section.

(1) Submit a notification of performance test to the Administrator as specified in § 63.7(b).

(2) After completing the performance test to demonstrate that compliance with the emission limits can be achieved at the revised operating limit parameter value, you must submit the performance test results and the revised operating limits as part of the Notification of Compliance Status required under § 63.9(h).

(d) If you are revising the inspection and maintenance procedures in your OM&M plan, you do not need to conduct a new performance test.

TESTING AND INITIAL COMPLIANCE REQUIREMENTS

§ 63.8585 By what date must I conduct performance tests?

For each kiln that is subject to the emission limits specified in Table 1 to this subpart, you must conduct performance tests within 180 calendar days after the compliance date that is specified for your source in § 63.8545 and according to the provisions in § 63.7(a)(2).

§ 63.8590 When must I conduct subsequent performance tests?

(a) For each kiln that is subject to the emission limits specified in Table 1 to this subpart, you must conduct a performance test before renewing your 40 CFR part 70 operating permit or at least every 5 years following the initial performance test.

(b) You must conduct a performance test when you want to change the parameter value for any operating limit specified in your OM&M plan.

§ 63.8595 How do I conduct performance tests and establish operating limits?

(a) You must conduct each performance test in Table 4 to this subpart that applies to you.

(b) Before conducting the performance test, you must install and calibrate all monitoring equipment.

(c) Each performance test must be conducted according to the requirements in § 63.7 and under the specific conditions in Table 4 to this subpart.

(d) You must test while operating at the maximum production level.

(e) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in § 63.7(e)(1).

(f) You must conduct at least three separate test runs for each performance test required in this section, as specified in § 63.7(e)(3). Each test run must last at least 1 hour.

(g) You must use the data gathered during the performance test and the equations in paragraphs (g)(1) and (2) of this section to determine compliance with the emission limitations.

(1) To determine compliance with the production-based hydrogen fluoride (HF), hydrogen chloride (HCl), and particulate matter (PM) emission limits in Table 1 to this subpart, you must calculate your mass emissions per unit of production for each test run using Equation 1 of this section:

$$MP = \frac{ER}{P} \qquad \text{(Eq. 1)}$$

Where:

MP=mass per unit production, kilograms (pounds) of pollutant per megagram (ton) of fired product

ER=mass emission rate of pollutant (HF, HCl, or PM) during each performance test run, kilograms (pounds) per hour

P=production rate during each performance test run, megagrams (tons) of fired product per hour.

(2) To determine compliance with the percent reduction HF and HCl emission limits in Table 1 to this subpart, you must calculate the percent reduction for each test run using Equation 2 of this section:

$$PR = \frac{ER_i - ER_o}{ER_i}(100) \qquad \text{(Eq. 2)}$$

Where:

PR=percent reduction, percent

ER_i=mass emission rate of specific HAP (HF or HCl) entering the APCD, kilograms (pounds) per hour

ER_o=mass emission rate of specific HAP (HF or HCl) exiting the APCD, kilograms (pounds) per hour.

(h) You must establish each site-specific operating limit in Table 2 to this subpart that applies to you as specified in Table 4 to this subpart.

(i) For each kiln that is subject to the emission limits specified in Table 1 to this subpart and is equipped with an APCD that is not addressed in Table 2 to this subpart or that is using process changes as a means of meeting the emission limits in Table 1 to this subpart, you must meet the requirements in § 63.8(f) and paragraphs (i)(1) and (2) of this section.

(1) Submit a request for approval of alternative monitoring procedures to the Administrator no later than the notification of intent to conduct a performance test. The request must contain the information specified in paragraphs (i)(1)(i) through (iv) of this section.

(i) A description of the alternative APCD or process changes.

(ii) The type of monitoring device or procedure that will be used.

(iii) The operating parameters that will be monitored.

(iv) The frequency that the operating parameter values will be determined and recorded to establish continuous compliance with the operating limits.

(2) Establish site-specific operating limits during the performance test based on the information included in the approved alternative monitoring procedures request and, as applicable, as specified in Table 4 to this subpart.

§ 63.8600 What are my monitoring installation, operation, and maintenance requirements?

(a) You must install, operate, and maintain each CMS according to your OM&M plan and the requirements in paragraphs (a)(1) through (5) of this section.

(1) Conduct a performance evaluation of each CMS according to your OM&M plan.

(2) The CMS must complete a minimum of one cycle of operation for each successive 15-minute period. To have a valid hour of data, you must have at least three of four equally

spaced data values (or at least 75 percent if you collect more than four data values per hour) for that hour (not including startup, shutdown, malfunction, out-of-control periods, or periods of routine control device maintenance covered by a routine control device maintenance exemption as specified in § 63.8570(e)).

(3) Determine and record the 3-hour block averages of all recorded readings, calculated after every 3 hours of operation as the average of the previous 3 operating hours. To calculate the average for each 3-hour average period, you must have at least 75 percent of the recorded readings for that period (not including startup, shutdown, malfunction, out-of-control periods, or periods of routine control device maintenance covered by a routine control device maintenance exemption as specified in § 63.8570(e)).

(4) Record the results of each inspection, calibration, and validation check.

(5) At all times, maintain the monitoring equipment including, but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment.

(b) For each liquid flow measurement device, you must meet the requirements in paragraphs (a)(1) through (5) and paragraphs (b)(1) through (3) of this section.

(1) Locate the flow sensor in a position that provides a representative flowrate.

(2) Use a flow sensor with a minimum measurement sensitivity of 2 percent of the liquid flowrate.

(3) At least semiannually, conduct a flow sensor calibration check.

(c) For each pressure measurement device, you must meet the requirements in paragraphs (a)(1) through (5) and paragraphs (c)(1) through (7) of this section.

(1) Locate the pressure sensor(s) in or as close to a position that provides a representative measurement of the pressure.

(2) Minimize or eliminate pulsating pressure, vibration, and internal and external corrosion.

(3) Use a gauge with a minimum measurement sensitivity of 0.5 inch of water or a transducer with a minimum measurement sensitivity of 1 percent of the pressure range.

(4) Check the pressure tap daily to ensure that it is not plugged.

(5) Using a manometer, check gauge calibration quarterly and transducer calibration monthly.

(6) Any time the sensor exceeds the manufacturer's specified maximum operating pressure range, conduct calibration checks or install a new pressure sensor.

(7) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(d) For each pH measurement device, you must meet the requirements in paragraphs (a)(1) through (5) and paragraphs (d)(1) through (4) of this section.

(1) Locate the pH sensor in a position that provides a representative measurement of pH.

(2) Ensure the sample is properly mixed and representative of the fluid to be measured.

(3) Check the pH meter's calibration on at least two points every 8 hours of process operation.

(4) At least monthly, inspect all components for integrity and all electrical connections for continuity.

(e) For each bag leak detection system, you must meet the requirements in paragraphs (e)(1) through (11) of this section.

(1) Each triboelectric bag leak detection system must be installed, calibrated, operated, and maintained according to the ''Fabric Filter Bag Leak Detection Guidance,'' (EPA–454/R–98–015, September 1997). This document is available from the U.S. Environmental Protection Agency (U.S. EPA); Office of Air Quality Planning and Standards; Emissions, Monitoring and Analysis Division; Emission Measurement Center (MD–19), Research Triangle Park, NC 27711. This document is also available on the Technology Transfer Network (TTN) under Emission Measurement Center, Continuous Emission Monitoring. Other types of bag leak detection systems must be installed, operated, calibrated, and maintained in a manner consistent with the manufacturer's written specifications and recommendations.

(2) The bag leak detection system must be certified by the manufacturer to be capable of detecting PM emissions at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.

(3) The bag leak detection system sensor must provide an output of relative PM loadings.

(4) The bag leak detection system must be equipped with a device to continuously record the output signal from the sensor.

(5) The bag leak detection system must be equipped with an audible alarm system that will sound automatically when an increase in relative PM emissions over a preset level is detected. The alarm must be located where it is easily heard by plant operating personnel.

(6) For positive pressure fabric filter systems, a bag leak detector must be installed in each baghouse compartment or cell.

(7) For negative pressure or induced air fabric filters, the bag leak detector must be installed downstream of the fabric filter.

(8) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(9) The baseline output must be established by adjusting the range and the averaging period of the device and establishing the alarm set points and the alarm delay time according to section 5.0 of the ''Fabric Filter Bag Leak Detection Guidance.''

(10) Following initial adjustment of the system, the sensitivity or range, averaging period, alarm set points, or alarm delay time may not be adjusted except as detailed in your OM&M plan. In no case may the sensitivity be increased by more than 100 percent or decreased more than 50 percent over a 365-day period unless such adjustment follows a complete fabric filter inspection which demonstrates that the fabric filter is in good operating condition. Record each adjustment.

(11) Record the results of each inspection, calibration, and validation check.

(f) For each lime or chemical feed rate measurement device, you must meet the requirements in paragraphs (a)(1) through (5) and paragraphs (f)(1) and (2) of this section.

(1) Locate the measurement device in a position that provides a representative feed rate measurement.

(2) At least semiannually, conduct a calibration check.

(g) For each limestone feed system on a DLA, you must meet the requirements in paragraphs (a)(1), (4), and (5) of this section and must ensure on a monthly basis that the feed system replaces limestone at least as frequently as the schedule set during the performance test.

(h) Requests for approval of alternate monitoring procedures must meet the requirements in §§63.8595(i) and 63.8(f).

§63.8605 How do I demonstrate initial compliance with the emission limitations and work practice standards?

(a) You must demonstrate initial compliance with each emission limitation and work practice standard that applies to you according to Table 5 to this subpart.

(b) You must establish each site-specific operating limit in Table 2 to this subpart that applies to you according to the requirements in §63.8595 and Table 4 to this subpart.

(c) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in §63.8630(e).

CONTINUOUS COMPLIANCE REQUIREMENTS

§63.8615 How do I monitor and collect data to demonstrate continuous compliance?

(a) You must monitor and collect data according to this section.

(b) Except for periods of monitor malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), you must monitor continuously (or collect data at all required intervals) at all times that the affected source is operating. This includes periods of startup, shutdown, malfunction, and routine control device maintenance as specified in §63.8570(e) when the affected source is operating.

(c) You may not use data recorded during monitoring malfunctions, associated repairs, out-of-control periods, or required quality assurance or control activities for purposes of calculating data averages. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. You must use all the valid data collected during all other periods in assessing compliance. Any averaging period for which you do not have valid monitoring data and such data are required constitutes a deviation from the monitoring requirements.

§ 63.8620 How do I demonstrate continuous compliance with the emission limitations and work practice standards?

(a) You must demonstrate continuous compliance with each emission limit, operating limit, and work practice standard in Tables 1, 2, and 3 to this subpart that applies to you according to the methods specified in Table 6 to this subpart.

(b) For each kiln that is subject to the emission limits specified in Table 1 to this subpart and is equipped with an APCD that is not addressed in Table 2 to this subpart, or that is using process changes as a means of meeting the emission limits in Table 1 to this subpart, you must demonstrate continuous compliance with each emission limit in Table 1 to this subpart, and each operating limit established as required in § 63.8595(i)(2) according to the methods specified in your approved alternative monitoring procedures request, as described in §§ 63.8595(i)(1) and 63.8(f).

(c) You must report each instance in which you did not meet each emission limit and operating limit in this subpart that applies to you. This includes periods of startup, shutdown, malfunction, and routine control device maintenance. These instances are deviations from the emission limitations in this subpart. These deviations must be reported according to the requirements in § 63.8635.

(d) During periods of startup, shutdown, and malfunction, you must operate according to your SSMP.

(e) Consistent with §§ 63.6(e) and 63.7(e)(1), deviations that occur during a period of startup, shutdown, or malfunction are not violations if you demonstrate to the Administrator's satisfaction that you were operating according to an SSMP that satisfies the requirements of § 63.6(e) and your OM&M plan. The Administrator will determine whether deviations that occur during a period of startup, shutdown, or malfunction are violations, according to the provisions in § 63.6(e).

(f) Deviations that occur during periods of control device maintenance covered by an approved routine control device maintenance exemption according to § 63.8570(e) are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with the approved routine control device maintenance exemption.

(g) You must demonstrate continuous compliance with the operating limits in Table 2 to this subpart for visible emissions (VE) from tunnel kilns equipped with DLA, DIFF, or DLS/FF by monitoring VE at each kiln stack according to the requirements in paragraphs (g)(1) through (3) of this section.

(1) Perform daily VE observations of each kiln stack according to the procedures of Method 22 of 40 CFR part 60, appendix A. You must conduct the Method 22 test while the affected source is operating under normal conditions. The duration of each Method 22 test must be at least 15 minutes.

(2) If VE are observed during any daily test conducted using Method 22 of 40 CFR part 60, appendix A, you must promptly initiate and complete corrective actions according to your OM&M plan. If no VE are observed in 30 consecutive daily Method 22 tests for any kiln stack, you may decrease the frequency of Method 22 testing from daily to weekly for that kiln stack. If VE are observed during any weekly test, you must promptly initiate and complete corrective actions according to your OM&M plan, resume Method 22 testing of that kiln stack on a daily basis, and maintain that schedule until no VE are observed in 30 consecutive daily tests,

at which time you may again decrease the frequency of Method 22 testing to a weekly basis.

(3) If VE are observed during any test conducted using Method 22 of 40 CFR part 60, appendix A, you must report these deviations by following the requirements in § 63.8635.

NOTIFICATIONS, REPORTS, AND RECORDS

§ 63.8630 What notifications must I submit and when?

(a) You must submit all of the notifications in §§ 63.7(b) and (c), 63.8(f)(4), and 63.9 (b) through (e), (g)(1), and (h) that apply to you, by the dates specified.

(b) As specified in § 63.9(b)(2) and (3), if you start up your affected source before May 16, 2003, you must submit an Initial Notification not later than 120 calendar days after May 16, 2003.

(c) As specified in § 63.9(b)(3), if you start up your new or reconstructed affected source or affected source described in § 63.8540(f)(1) or § 63.8540(f)(2) on or after May 16, 2003, you must submit an Initial Notification not later than 120 calendar days after you become subject to this subpart.

(d) If you are required to conduct a performance test, you must submit a written notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin, as required in § 63.7(b)(1).

(e) If you are required to conduct a performance test or other initial compliance demonstration as specified in Tables 4 and 5 to this subpart, you must submit a Notification of Compliance Status as specified in § 63.9(h) and paragraphs (e)(1) through (3) of this section.

(1) For each compliance demonstration that includes a performance test conducted according to the requirements in Table 4 to this subpart, you must submit the Notification of Compliance Status, including the performance test results, before the close of business on the 60th calendar day following the completion of the performance test, according to § 63.10(d)(2).

(2) In addition to the requirements in § 63.9(h)(2)(i), you must include the information in paragraphs (e)(2)(i) and (ii) of this section in your Notification of Compliance Status:

(i) The operating limit parameter values established for each affected source with supporting documentation and a description of the procedure used to establish the values.

(ii) For each APCD that includes a fabric filter, if a bag leak detection system is used, analysis and supporting documentation demonstrating conformance with EPA guidance and specifications for bag leak detection systems in § 63.8600(e).

(3) For each compliance demonstration required in Table 5 to this subpart that does not include a performance test (*i.e.*, compliance demonstration for the work practice standard), you must submit the Notification of Compliance Status before the close of business on the 30th calendar day following the completion of the compliance demonstration.

(f) If you request a routine control device maintenance exemption according to § 63.8570(e), you must submit your request for the exemption no later than 30 days before the compliance date.

(g) If you own or operate an affected kiln that is subject to the work practice standards specified in Table 3 to this subpart, and you intend to use a fuel other than natural gas or equivalent to fire the affected kiln, you must submit a notification of alternative fuel use within 48 hours of the declaration of a period of natural gas curtailment or supply interruption, as defined in § 63.8665. The notification must include the information specified in paragraphs (g)(1) through (5) of this section.

(1) Company name and address.

(2) Identification of the affected kiln.

(3) Reason you are unable to use natural gas or equivalent fuel, including the date when the natural gas curtailment was declared or the natural gas supply interruption began.

(4) Type of alternative fuel that you intend to use.

(5) Dates when the alternative fuel use is expected to begin and end.

§ 63.8635 What reports must I submit and when?

(a) You must submit each report in Table 7 to this subpart that applies to you.

(b) Unless the Administrator has approved a different schedule for submission of reports under § 63.10(a), you must submit each report by the date in Table 7 to this subpart and as specified in paragraphs (b)(1) through (5) of this section.

(1) The first compliance report must cover the period beginning on the compliance date that is specified for your affected source in § 63.8545 and ending on June 30 or December 31, and lasting at least 6 months, but less than 12 months. For example, if your compliance date is March 1, then the first semiannual reporting period would begin on March 1 and end on December 31.

(2) The first compliance report must be postmarked or delivered no later than July 31 or January 31 for compliance periods ending on June 30 and December 31, respectively.

(3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31 for compliance periods ending on June 30 and December 31, respectively.

(5) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 40 CFR part 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (4) of this section.

(c) The compliance report must contain the information in paragraphs (c)(1) through (7) of this section.

(1) Company name and address.

(2) Statement by a responsible official with that official's name, title, and signature, certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If you had a startup, shutdown or malfunction during the reporting period and you took actions consistent with your SSMP and OM&M plan, the compliance report must include the information specified in § 63.10(d)(5)(i).

(5) A description of control device maintenance performed while the control device was offline and the kiln controlled by the control device was operating, including the information specified in paragraphs (c)(5)(i) through (iii) of this section.

(i) The date and time when the control device was shutdown and restarted.

(ii) Identification of the kiln that was operating and the number of hours that the kiln operated while the control device was offline.

(iii) A statement of whether or not the control device maintenance was included in your approved routine control device maintenance exemption developed as specified in § 63.8570(e). If the control device maintenance was included in your approved routine control device maintenance exemption, then you must report the information in paragraphs (c)(5)(iii)(A) through (C) of this section.

(A) The total amount of time that the kiln controlled by the control device operated during the current semiannual compliance period and during the previous semiannual compliance period.

(B) The amount of time that each kiln controlled by the control device operated while the control device was offline for maintenance covered under the routine control device maintenance exemption during the current semiannual compliance period and during the previous semiannual compliance period.

(C) Based on the information recorded under paragraphs (c)(5)(iii)(A) and (B) of this section, compute the annual percent of kiln operating uptime during which the control device was offline for routine maintenance using Equation 1 of this section.

$$RM = \frac{DT_p + DT_c}{KU_p + KU_c}(100) \qquad \text{(Eq. 1)}$$

Where:

RM=Annual percentage of kiln uptime during which control device is down for routine control device maintenance

DT_p=Control device downtime claimed under the routine control device maintenance exemption for the previous semiannual compliance period

DT_c=Control device downtime claimed under the routine control device maintenance exemption for the current semiannual compliance period

KU_p=Kiln uptime for the previous semiannual compliance period

KU_c=Kiln uptime for the current semiannual compliance period

(6) If there are no deviations from any emission limitations (emission limits or operating limits) or work practice standards that apply to you, the compliance report must contain a statement that there were no deviations from the emission limitations or work practice standards during the reporting period.

(7) If there were no periods during which the CMS was out-of-control as specified in your OM&M plan, the compliance report must contain a statement that there were no periods during which the CMS was out-of-control during the reporting period.

(d) For each deviation from an emission limitation (emission limit or operating limit) that occurs at an affected source where you are not using a CMS to comply with the emission limitations in this subpart, the compliance report must contain the information in paragraphs (c)(1) through (5) and paragraphs (d)(1) and (2) of this section. This includes periods of startup, shutdown, malfunction, and routine control device maintenance.

(1) The total operating time of each affected source during the reporting period.

(2) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

(e) For each deviation from an emission limitation (emission limit or operating limit) occurring at an affected source where you are using a CMS to comply with the emission limitations in this subpart, you must include the information in paragraphs (c)(1) through (5) and paragraphs (e)(1) through (13) of this section. This includes periods of startup, shutdown, malfunction, and routine control device maintenance.

(1) The total operating time of each affected source during the reporting period.

(2) The date and time that each malfunction started and stopped.

(3) The date and time that each CMS was inoperative, except for zero (low-level) and high-level checks.

(4) The date, time, and duration that each CMS was out-of-control, including the pertinent information in your OM&M plan.

(5) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction; during routine control device maintenance covered in your approved routine control device maintenance exemption; or during another period.

(6) A description of corrective action taken in response to a deviation.

(7) A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.

(8) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(9) A summary of the total duration of CMS downtime during the reporting period and the total duration of CMS downtime as a percent of the total source operating time during that reporting period.

(10) A brief description of the process units.

(11) A brief description of the CMS.

(12) The date of the latest CMS certification or audit.

(13) A description of any changes in CMS, processes, or control equipment since the last reporting period.

(f) If you have obtained a title V operating permit according to 40 CFR part 70 or 40 CFR part 71, you must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If you submit a compliance report according to Table 7 to this subpart along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the compliance report includes all required information concerning deviations from any emission limitation (including any operating limit), then submitting the compliance report will satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submitting a compliance report will not otherwise affect any obligation you may have to report deviations from permit requirements to the permitting authority.

(g) If you own or operate an affected kiln that is subject to the work practice standard specified in Table 3 to this subpart, and you use a fuel other than natural gas or equivalent to fire the affected kiln, you must submit a report of alternative fuel use within 10 working days after terminating the use of the alternative fuel. The report must include the information in paragraphs (g)(1) through (6) of this section.

(1) Company name and address.

(2) Identification of the affected kiln.

(3) Reason for using the alternative fuel.

(4) Type of alternative fuel used to fire the affected kiln.

(5) Dates that the use of the alternative fuel started and ended.

(6) Amount of alternative fuel used.

§ 63.8640 What records must I keep?

(a) You must keep the records listed in paragraphs (a)(1) through (4) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirements in § 63.10(b)(2)(xiv).

(2) The records in § 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

(3) Records of performance tests as required in § 63.10(b)(2)(viii).

(4) Records relating to control device maintenance and documentation of your approved routine control device maintenance exemption, if you request such an exemption under § 63.8570(e).

(b) You must keep the records required in Table 6 to this subpart to show continuous compliance with each emission limitation that applies to you.

(c) You must also maintain the records listed in paragraphs (c)(1) through (7) of this section.

(1) For each bag leak detection system, records of each alarm, the time of the alarm, the time corrective action was initiated and completed, and a brief description of the cause of the alarm and the corrective action taken.

(2) For each deviation of an operating limit parameter value, the date, time, and duration of the deviation, a brief explanation of the cause of the deviation and the corrective action taken, and whether the deviation occurred during a period of startup, shutdown, or malfunction.

(3) For each kiln that is subject to the emission limits in Table 1, records of production rates on a fired-product weight basis.

(4) For each kiln that is subject to the emission limits in Table 1, records for any approved alternative monitoring or test procedures.

(5) For each kiln that is subject to the emission limits in Table 1, records of maintenance and inspections performed on the APCD.

(6) For each kiln that is subject to the emission limits in Table 1, current copies of your SSMP and OM&M plan, including any revisions, with records documenting conformance.

(7) Records that document compliance with any work practice standard that applies to you.

§ 63.8645 In what form and for how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review, according to § 63.10(b)(1).

(b) As specified in § 63.10(b)(1), you must keep each record for 5 years following the date of each occurrence,

measurement, maintenance, corrective action, report, or record.

(c) You must keep each record onsite for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to § 63.10(b)(1). You may keep the records offsite for the remaining 3 years.

OTHER REQUIREMENTS AND INFORMATION

§ 63.8655 What parts of the General Provisions apply to me?

Table 8 to this subpart shows which parts of the General Provisions in §§ 63.1 through 63.15 apply to you.

§ 63.8660 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by us, the U.S. EPA, or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency, in addition to the U.S. EPA, has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if implementation and enforcement of this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under section 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that cannot be delegated to State, local, or tribal agencies are as specified in paragraphs (c)(1) through (4) of this section.

(1) Approval of alternatives to the applicability requirements in §§ 63.8535 and 63.8540, the compliance date requirements in § 63.8545, and the non-opacity emission limitations in § 63.8555.

(2) Approval of major changes to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.90.

(3) Approval of major changes to monitoring under § 63.8(f) and as defined in § 63.90.

(4) Approval of major changes to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

§ 63.8665 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act, in § 63.2, and in this section as follows:

Air pollution control device (APCD) means any equipment that reduces the quantity of a pollutant that is emitted to the air.

Bag leak detection system means an instrument that is capable of monitoring PM loadings in the exhaust of a fabric filter in order to detect bag failures. A bag leak detection system includes, but is not limited to, an instrument that operates on triboelectric, light-scattering, light-transmittance, or other effects to monitor relative PM loadings.

Clay ceramics manufacturing facility means a plant site that manufactures pressed floor tile, pressed wall tile, other pressed tile, or sanitaryware (*e.g.*, sinks and toilets). Clay ceramics manufacturing facilities typically process clay, shale, and various additives, form the processed materials into tile or sanitaryware shapes, and dry and fire the ceramic products. Glazes are applied to many tile and sanitaryware products.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emission limitation (including any operating limit) or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limitation (including any operating limit) or work practice standard in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Dry lime injection fabric filter (DIFF) means an APCD that includes continuous injection of hydrated lime or other sorbent into a duct or reaction chamber followed by a fabric filter.

Dry lime scrubber/fabric filter (DLS/FF) means an APCD that includes continuous injection of humidified hydrated lime or other sorbent into a reaction chamber followed by a fabric filter. These systems typically include recirculation of some of the sorbent.

Dry limestone adsorber (DLA) means an APCD that includes a limestone storage bin, a reaction chamber that is essentially a packed tower filled with limestone, and may or may not include a peeling drum that mechanically scrapes reacted limestone to regenerate the stone for reuse.

Emission limitation means any emission limit or operating limit.

Fabric filter means an APCD used to capture PM by filtering a gas stream through filter media; also known as a baghouse.

Initial startup means:

(1) For a new or reconstructed tunnel kiln controlled with a DLA, and for a tunnel kiln that would be considered reconstructed but for §63.8540(f)(1) or §63.8540(f)(2), the time at which the temperature in the kiln first reaches 260 °C (500 °F) and the kiln contains product; or

(2) For a new or reconstructed tunnel kiln controlled with a DIFF, DLS/FF, or WS, the time at which the kiln first reaches a level of production that is equal to 75 percent of the kiln design capacity or 12 months after the affected source begins firing clay ceramics, whichever is earlier.

Particulate matter (PM) means, for purposes of this subpart, emissions of PM that serve as a measure of total particulate emissions, as measured by Method 5 (40 CFR part 60, appendix A), and as a surrogate for metal HAP contained in the particulates including, but not limited to, antimony, arsenic, beryllium, cadmium, chromium, cobalt, lead, manganese, mercury, nickel, and selenium.

Period of natural gas curtailment or supply interruption means a period of time during which the supply of natural gas to an affected facility is halted for reasons beyond the control of the facility. An increase in the cost or unit price of natural gas does not constitute a period of natural gas curtailment or supply interruption.

Plant site means all contiguous or adjoining property that is under common control, including properties that are separated only by a road or other public right-of-way. Common control includes properties that are owned, leased, or operated by the same entity, parent entity, subsidiary, or any combination thereof.

Research and development kiln means any kiln whose purpose is to conduct research and development for new processes and products and is not engaged in the manufacture of products for commercial sale, except in a *de minimis* manner.

Responsible official means responsible official as defined in 40 CFR 70.2.

Startup means the setting in operation of an affected source and starting the production process.

Tunnel kiln means any continuous kiln that is not a roller kiln that is used to fire clay ceramics.

Tunnel kiln design capacity means the maximum amount of clay ceramics, in Mg (tons), that a kiln is designed to produce in one year divided by the number of hours in a year (8,760 hours). If a kiln is modified to increase the capacity, the design capacity is considered to be the capacity following modifications.

Wet scrubber (WS) means an APCD that uses water, which may include caustic additives or other chemicals, as the sorbent. Wet scrubbers may use any of various design mechanisms to increase the contact between exhaust gases and the sorbent.

Work practice standard means any design, equipment, work practice, operational standard, or combination thereof, that is promulgated pursuant to section 112(h) of the Clean Air Act.

TABLES TO SUBPART KKKKK OF PART 63

TABLE 1 TO SUBPART KKKKK OF PART 63.—EMISSION LIMITS

[As stated in § 63.8555, you must meet each emission limit in the following table that applies to you:]

For each . . .	You must meet the following emission limits . . .	Or you must comply with the following . . .
1. New or reconstructed tunnel kiln with a design capacity less than 9.07 Mg/hr (10 tph) of fired product; each tunnel kiln that would be considered reconstructed but for § 63.8540(f)(1); and each tunnel kiln that would be considered reconstructed but for § 63.8540(f)(2).	a. HF emissions must not exceed 0.029 kilograms per megagram (kg/Mg) (0.057 pounds per ton (lb/ton)) of fired product.	Reduce uncontrolled HF emissions by at least 90 percent.
	b. HCl emissions must not exceed 0.13 kg/Mg (0.26 lb/ton) of fired product.	Reduce uncontrolled HCl emissions by at least 30 percent.
	c. PM emissions must not exceed 0.21 kg/Mg (0.42 lb/ton) of fired product.	Not applicable.
2. New or reconstructed tunnel kiln with a design capacity equal to or greater than 10 tph of fired product.	a. HF emissions must not exceed 0.029 kg/Mg (0.057 lb/ton) of fired product.	Reduce uncontrolled HF emissions by at least 90 percent.
	b. HCl emissions must not exceed 0.028 kg/Mg (0.056 lb/ton) of fired product.	Reduce uncontrolled HCl emissions by at least 85 percent.
	c. PM emissions must not exceed 0.060 kg/Mg (0.12 lb/ton) of fired product.	Not applicable.

TABLE 2 TO SUBPART KKKKK OF PART 63.—OPERATING LIMITS

[As stated in § 63.8555, you must meet each operating limit in the following table that applies to you:]

For each . . .	You must . . .
1. Kiln equipped with a DLA	a. Maintain the average pressure drop across the DLA for each 3-hour block period at or above the average pressure drop established during the performance test; and
	b. Maintain a sufficient amount of limestone in the limestone hopper, storage bin (located at the top of the DLA), and DLA at all times; maintain the limestone feeder setting at or above the level established during the performance test; and
	c. Use the same grade of limestone from the same source as was used during the performance test; maintain records of the source and grade of limestone; and
	d. Maintain no VE from the DLA stack.
2. Kiln equipped with a DIFF or DLS/FF	a. If you use a bag leak detection system, initiate corrective action within 1 hour of a bag leak detection system alarm and complete corrective actions in accordance with your OM&M plan; operate and maintain the fabric filter such that the alarm is not engaged for more than 5 percent of the total operating time in a 6-month block reporting period; or maintain no VE from the DIFF or DLS/FF stack; and
	b. Maintain free-flowing lime in the feed hopper or silo and to the APCD at all times for continuous injection systems; maintain the feeder setting at or above the level established during the performance test for continuous injection systems.
3. Kiln equipped with a WS	a. Maintain the average scrubber pressure drop for each 3-hour block period at or above the average pressure drop established during the performance test; and
	b. Maintain the average scrubber liquid pH for each 3-hour block period at or above the average scrubber liquid pH established during the performance test; and
	c. Maintain the average scrubber liquid flow rate for each 3-hour block period at or above the average scrubber liquid flow rate established during the performance test; and
	d. If chemicals are added to the scrubber water, maintain the average scrubber chemical feed rate for each 3-hour block period at or above the average scrubber chemical feed rate established during the performance test.

TABLE 3 TO SUBPART KKKKK OF PART 63.—WORK PRACTICE STANDARDS

[As stated in § 63.8555, you must comply with each work practice standard in the following table that applies to you:]

For . . .	You must . . .	According to one of the following requirements . . .
Each existing, new, or reconstructed periodic kiln, tunnel kiln, or roller kiln; each tunnel kiln that would be considered reconstructed but for § 63.8540(f)(1); and each tunnel kiln that would be considered reconstructed but for § 63.8540(f)(2).	Minimize fuel-based HAP emissions	Use natural gas, or equivalent, as the kiln fuel, except during periods of natural gas curtailment or supply interruption, as defined in § 63.8665.

TABLE 4 TO SUBPART KKKKK OF PART 63.—REQUIREMENTS FOR PERFORMANCE TESTS

[As stated in § 63.8595, you must conduct each performance test in the following table that applies to you:]

For each . . .	You must . . .	Using . . .	According to the following requirements . . .
1. New or reconstructed tunnel kiln; each tunnel kiln that would be considered reconstructed but for § 63.8540(f)(1); and each tunnel kiln that would be considered reconstructed but for § 63.8540(f)(2).	a. Select locations of sampling ports and the number of traverse points.	Method 1 or 1A of 40 CFR part 60, appendix A.	Sampling sites must be located at the outlet of the APCD and prior to any releases to the atmosphere for all affected sources. If you choose to meet the percent emission reduction requirements for HF or HCl, a sampling site must also be located at the APCD inlet.
	b. Determine velocities and volumetric flow rate.	Method 2 of 40 CFR part 60, appendix A.	You may use Method 2A, 2C, 2D, 2F, or 2G of 40 CFR part 60, appendix A, as appropriate, as an alternative to using Method 2 of 40 CFR part 60, appendix A.
	c. Conduct gas molecular weight analysis.	Method 3 of 40 CFR part 60, appendix A.	You may use Method 3A or 3B of 40 CFR part 60, appendix A, as appropriate, as an alternative to using Method 3 of 40 CFR part 60, appendix A.
	d. Measure moisture content of the stack gas.	Method 4 of 40 CFR part 60, appendix A.	
	e. Measure HF and HCl emissions.	Method 26A of 40 CFR part 60, appendix A; or	Conduct the test while operating at the maximum production level. You may use Method 26 of 40 CFR part 60, appendix A, as an alternative to using Method 26A of 40 CFR part 60, appendix A, when no acid PM (*e.g.*, HF or HCl dissolved in water droplets emitted by sources controlled by a WS) is present.
		Method 320 of 40 CFR part 63, appendix A.	Conduct the test while operating at the maximum production level. When using Method 320 of 40 CFR part 63, appendix A, you must follow the analyte spiking procedures of section 13 of Method 320 of 40 CFR part 63, appendix A, unless you can demonstrate that the complete spiking procedure has been conducted at a similar source.
	f. Measure PM emissions	Method 5 of 40 CFR part 60, appendix A.	Conduct the test while operating at the maximum production level.

[As stated in § 63.8595, you must conduct each performance test in the following table that applies to you:]

For each . . .	You must . . .	Using . . .	According to the following requirements . . .
2. Kiln that is complying with production-based emission limits.	Determine the production rate during each test run in order to determine compliance with production-based emission limits.	Production data collected during the performance tests (*e.g.,* the number of ceramic pieces and weight per piece in the kiln during a test run divided by the amount of time to fire a piece).	You must measure and record the production rate, on a fired-product weight basis, of the affected kiln for each of the three test runs.
3. Kiln equipped with a DLA..	a. Establish the operating limit for the average pressure drop across the DLA.	Data from the pressure drop measurement device during the performance test.	You must continuously measure the pressure drop across the DLA, determine and record the block average pressure drop values for the three test runs, and determine and record the 3-hour block average of the recorded pressure drop measurements for the three test runs.
	b. Establish the operating limit for the limestone feeder setting.	Data from the limestone feeder during the performance test.	You must ensure that you maintain an adequate amount of limestone in the limestone hopper, storage bin (located at the top of the DLA), and DLA at all times during the performance test. You must establish your limestone feeder setting one week prior to the performance test and maintain the feeder setting for the one-week period that precedes the performance test and during the performance test.
	c. Document the source and grade of limestone used.	Records of limestone purchase.	
4. Kiln equipped with a DIFF or DLS/FF.	Establish the operating limit for the lime feeder setting.	Data from the lime feeder during the performance test.	For continuous lime injection systems, you must ensure that lime in the feed hopper or silo and to the APCD is free-flowing at all times during the performance test and record the feeder setting for the three test runs. If the feed rate setting varies during the three test runs, determine and record the average feed rate from the three test runs.
5. Kiln equipped with a WS.	a. Establish the operating limit for the average scrubber pressure drop.	Data from the pressure drop measurement device during the performance test.	You must continuously measure the scrubber pressure drop, determine and record the block average pressure drop values for the three test runs, and determine and record the 3-hour block average of the recorded pressure drop measurements for the three test runs.
	b. Establish the operating limit for the average scrubber liquid pH.	Data from the pH measurement device during the performance test.	You must continuously measure the scrubber liquid pH, determine and record the block average pH values for the three test runs, and determine and record the 3-hour block average of the recorded pH measurements for the three test runs.
	c. Establish the operating limit for the average scrubber liquid flow rate.	Data from the flow rate measurement device during the performance test.	You must continuously measure the scrubber liquid flow rate, determine and record the block average flow rate values for the three test runs, and determine and record the 3-hour block average of the recorded flow rate measurements for the three test runs.

[As stated in § 63.8595, you must conduct each performance test in the following table that applies to you:]

For each . . .	You must . . .	Using . . .	According to the following requirements . . .
6. Kiln equipped with a WS that includes chemical addition to the water.	Establish the operating limit for the average scrubber chemical feed rate.	Data from the chemical feed rate measurement device during the performance test.	You must continuously measure the scrubber chemical feed rate, determine and record the block average chemical feed rate values for the three test runs, and determine and record the 3-hour block average of the recorded chemical feed rate measurements for the three test runs.

TABLE 5 TO SUBPART KKKKK OF PART 63.—INITIAL COMPLIANCE WITH EMISSION LIMITATIONS AND WORK PRACTICE STANDARDS

[As stated in § 63.8605, you must demonstrate initial compliance with each emission limitation that applies to you according to the following table:]

For each . . .	For the following . . .	You have demonstrated initial compliance if . . .
1. New or reconstructed tunnel kiln with a design capacity less than 9.07 Mg/hr (10 tph) of fired product; each tunnel kiln that would be considered reconstructed but for § 63.8540(f)(1); and each tunnel kiln that would be considered reconstructed but for § 63.8540(f)(2).	a. HF emissions must not exceed 0.029 kg/Mg (0.057 lb/ton) of fired product; or uncontrolled HF emissions must be reduced by at least 90 percent; and.	i. The HF emissions measured using Method 26A of 40 CFR part 60, appendix A or Method 320 of 40 CFR part 63, appendix A over the period of the initial performance test, according to the calculations in § 63.8595(g)(1), do not exceed 0.029 kg/Mg (0.057 lb/ton); or uncontrolled HF emissions measured using Method 26A of 40 CFR part 60, appendix A or Method 320 of 40 CFR part 63, appendix A over the period of the initial performance test are reduced by at least 90 percent, according to the calculations in § 63.8595(g)(2); and ii. You establish and have a record of the operating limits listed in Table 2 to this subpart over the 3-hour performance test during which HF emissions did not exceed 0.029 kg/Mg (0.057 lb/ton) or uncontrolled HF emissions were reduced by at least 90 percent.
	b. HCl emissions must not exceed 0.13 kg/Mg (0.26 lb/ton) of fired product; or uncontrolled HCl emissions must be reduced by at least 30 percent; and	i. The HCl emissions measured using Method 26A of 40 CFR part 60, appendix A or Method 320 of 40 CFR part 63, appendix A over the period of the initial performance test, according to the calculations in § 63.8595(g)(1), do not exceed 0.13 kg/Mg (0.26 lb/ton); or uncontrolled HCl emissions measured using Method 26A of 40 CFR part 60, appendix A or Method 320 of 40 CFR part 63, appendix A over the period of the initial performance test are reduced by at least 30 percent, according to the calculations in § 63.8595(g)(2); and ii. You establish and have a record of the operating limits listed in Table 2 to this subpart over the 3-hour performance test during which HCl emissions did not exceed 0.13 kg/Mg (0.26 lb/ton) or uncontrolled HCl emissions were reduced by at least 30 percent.
	c. PM emissions must not exceed 0.21 kg/Mg (0.42 lb/ton) of fired product.	i. The PM emissions measured using Method 5 of 40 CFR part 60, appendix A, over the period of the initial performance test, according to the calculations in § 63.8595(g)(1), do not exceed 0.21 kg/Mg (0.42 lb/ton); and ii. You establish and have a record of the operating limits listed in Table 2 to this supbart over the 3-hour performance test during which PM emissions did not exceed 0.21 kg/Mg (0.42 lb/ton).
2. New or reconstructed tunnel kiln with a design capacity equal to or greater than 10 tph of fired product.	a. HF emissions must not exceed 0.029 kg/Mg (0.057 lb/ton) of fired product; or uncontrolled HF emissions must be reduced by at least 90 percent; and	i. The HF emissions measured using Method 26A of 40 CFR part 60, appendix A or Method 320 of 40 CFR part 63, appendix A over the period of the initial performance test, according to the calculations in § 63.8595(g)(1), do not exceed 0.029 kg/Mg (0.057 lb/ton); or uncontrolled HF emissions measured using Method 26A of 40 CFR part 60, appendix A or Method 320 of 40 CFR part 63, appendix A over the period of the initial performance test are reduced by at least 90 percent, according to the calculations in § 63.8595(g)(2); and

[As stated in § 63.8605, you must demonstrate initial compliance with each emission limitation that applies to you according to the following table:]

For each . . .	For the following . . .	You have demonstrated initial compliance if . . .
		ii. You establish and have a record of the operating limits listed in Table 2 to this subpart over the 3-hour performance test during which HF emissions did not exceed 0.029 kg/Mg (0.057 lb/ton) or uncontrolled HF emissions were reduced by at least 90 percent.
	b. HCl emissions must not exceed 0.028 kg/Mg (0.056 lb.ton) of fired product; or uncontrolled HCl emissions must be reduced by at least 85 percent; and	i. The HCl emissions measured using Method 26A of 40 CFR part 60, appendix A or Method 320 of 40 CFR part 63, appendix A over the period of the initial performance test, according to the calculations in § 63.8595(g)(1), do not exceed 0.028 kg/Mg (0.056 lb/ton); or uncontrolled HCl emissions measured using Method 26A of 40 CFR part 60, appendix A or Method 320 of 40 CFR part 63, appendix A over the period of the initial performance test are reduced by at least 85 percent, according to the calculations in § 63.8595(g)(2); and ii. You establish and have a record of the operating limits listed in Table 2 to this subpart over the 3-hour performance test during which HCl emissions did not exceed 0.028 kg/Mg (0.056 lb/ton) or uncontrolled HCl emissions were reduced by at least 85 percent.
	c. PM emissions must not exceed 0.060 kg/Mg (0.12 lb/ton) of fired product.	i. The PM emissions measured using Method 5 of 40 CFR part 60, appendix A, over the period of the initial performance test, according to the calculations on § 63.8595(g)(1), do not exceed 0.060 kg/Mg (0.12 lb/ton); and ii. You establish and have a record of the operating limits listed in Table 2 to this subpart over the 3-hour performance test during which PM emissions did not exceed 0.060 kg/Mg (0.12 lb/ton).
3. Existing, new, or reconstructed periodic kiln, tunel kiln, or roller kiln; each tunnel kiln that would be considered reconstructed but for § 63.8540(f)(1); and each tunnel kiln that would be considered reconstructed but for § 63.8540(f)(2).	Minimize fuel-based HAP emissions.	You use natural gas, or equivalent, as the kiln fuel.

TABLE 6 TO SUBPART KKKKK OF PART 63.—CONTINUOUS COMPLIANCE WITH EMISSION LIMITATIONS AND WORK PRACTICE STANDARDS

[As stated in § 63.8620, you must demonstrate continuous compliance with each emission limit and operating limit that applies to you according to the following table:]

For each . . .	For the following . . .	You must demonstrate continuous compliance by . . .
1. Kiln equipped with a DLA	a. Each emission limit in Table 1 to this subpart and each operating limit in Item 1 of Table 2 to this subpart for kilns equipped with a DLA.	i. Collecting the DLA pressure drop data according to § 63.8600(a); reducing the DLA pressure drop data to 3-hour block averages according to § 63.8600(a); maintaining the average pressure drop across the DLA for each 3-hour block period at or above the average pressure drop established during the performance test; and ii. Verifying that the limestone hopper and storage bin (located at the top of the DLA) contain adequate limestone by performing a daily visual check; and iii. Recording the limestone feeder setting daily to verify that the feeder setting is being maintained at or above the level established during the performance test; and iv. Using the same grade of limestone from the same source as was used during the performance test; maintaining records of the source and type of limestone; and v. Performing VE observations of the DLA stack at the frequency specified in § 63.8620(g) using Method 22 of 40 CFR part 60, appendix A; maintaining no VE from the DLA stack.

[As stated in § 63.8620, you must demonstrate continuous compliance with each emission limit and operating limit that applies to you according to the following table:]

For each . . .	For the following . . .	You must demonstrate continuous compliance by . . .
2. Kiln equipped with a DIFF or DLS/FF.	a. Each emission limit in Table 1 to this subpart and each operating limit in Item 2 of Table 2 to this subpart for kilns equipped with DIFF or DLS/FF.	i. If you use a bag leak detection system, initiating corrective action within 1 hour of a bag leak detection system alarm and completing corrective actions in accordance with your OM&M plan; operating and maintaining the fabric filter such that the alarm is not engaged for more than 5 percent of the total operating time in a 6-month block reporting period; in calculating this operating time fraction, if inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted; if corrective action is required, each alarm is counted as a minimum of 1 hour; if you take longer than 1 hour to initiate corrective action, the alarm time is counted as the actual amount of time taken by you to initiate corrective action; or performing VE observations of the DIFF or DLS/FF stack at the frequency specified in § 63.8620(g) using Method 22 of 40 CFR part 60, appendix A; maintaining no VE from the DIFF or DLS/FF stack; and ii. Verifying that lime is free-flowing via a load cell, carrier gas/lime flow indicator, carrier gas pressure drop measurement system, or other system; recording all monitor or sensor output, and if lime is found not to be free flowing, promptly initiating and completing corrective actions in accordance with your OM&M plan; recording the feeder setting once each shift of operation to verify that the feeder setting is being maintained at or above the level established during the performance test.
3. Kiln equipped with a WS	a. Each emission limit in Table 1 to this subpart and each operating limit in Item 3 of Table 2 to this subpart for kilns equipped with WS.	i. Collecting the scrubber pressure drop data according to § 63.8600(a); reducing the scrubber pressure drop data to 3-hour block averages according to § 63.8600(a); maintaining the average scrubber pressure drop for each 3-hour block period at or above the average pressure drop established during the performance test; and ii. Collecting the scrubber liquid pH data according to § 63.8600(a); reducing the scrubber liquid pH data to 3-hour block averages according to § 63.8600(a); maintaining the average scrubber liquid pH for each 3-hour block period at or above the average scrubber liquid pH established during the performance test; and iii. Collecting the scrubber liquid flow rate data according to § 63.8600(a); reducing the scrubber liquid flow rate data to 3-hour block averages according to § 63.8600(a); maintaining the average scrubber liquid flow rate for each 3-hour block period at or above the average scrubber liquid flow rate established during the performance test; and iv. If chemicals are added to the scrubber water, collecting the scrubber chemical feed rate data according to § 63.8600(a); reducing the scrubber chemical feed rate data to 3-hour block averages according to § 63.8600(a); maintaining the average scrubber chemical feed rate for each 3-hour block period at or above the average scrubber chemical feed rate established during the performance test.
4. Existing, new, or reconstructed periodic kiln, tunnel kiln, or roller kiln; each tunnel kiln that would be considered reconstructed but for § 63.8540 (f)(1); and each tunnel kiln that would be considered reconstructed but for § 63.8540(f)(2).	Minimize fuel-based HAP emissions.	i. Maintaining records documenting your use of natural gas, or an equivalent fuel, as the kiln fuel at all times except during periods of natural gas curtailment or supply interruption; and ii. If you intend to use an alternative fuel, submitting a notification of alternative fuel use within 48 hours of the declaration of a period of natural gas curtailment or supply interruption, as defined in § 63.8665; and iii. Submitting a report of alternative fuel use within 10 working days after terminating the use of the alternative fuel, as specified in § 63.8635(g).

TABLE 7 TO SUBPART KKKKK OF PART 63.—REQUIREMENTS FOR REPORTS

[As stated in § 63.8635, you must submit each report that applies to you according to the following table:]

You must submit . . .	The report must contain . . .	You must submit the report . . .
1. A compliance report	a. If there are no deviations from any emission limitations or work practice standards that apply to you, a statement that there were no deviations from the emission limitations or work practice standards during the reporting period. If there were no periods during which the CMS was out-of-control as specified in your OM&M plan, a statement that there were no periods during which the CMS was out-of-control during the reporting period.	Semiannually according to the requirements in § 63.8635(b).
	b. If you have a deviation from any emission limitation (emission limit, operating limit) during the reporting period, the report must contain the information in § 63.8635(d) or (e). If there were periods during which the CMS was out-of-control, as specified in your OM&M plan, the report must contain the information in § 63.8635(e).	Semiannually according to the requirements in § 63.8635(b).
	c. If you had a startup, shutdown, or malfunction during the reporting period and you took actions consistent with your SSMP, cathe compliance report must include the information in § 63.10(d)(5)(i).	Semiannually according to the requirements in § 63.8635(b).
2. An immediate startup, shutdown, and malfunction report if you took actions during a startup, shutdown, or malfunction during the reporting period that are not consistent with your SSMP.	a. Actions taken for the event according to the requirements in § 63.10(d)(5)(ii).	By fax or telephone within 2 working days after starting actions inconsistent with the plan.
	b. The information in § 63.10(d)(5)(ii)	By letter within 7 working days after the end of the event unless you have made alternative arrangements with the permitting authority.
3. A report of alternative fuel use	The information in § 63.8635(g)	If you are subject to the work practice standards specified in Table 3 to this subpart, and you use an alternative fuel to fire an affected kiln, by letter within 10 working days after terminating the use of the alternative fuel.

TABLE 8 TO SUBPART KKKKK OF PART 63.—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART KKKKK

[As stated in § 63.8655, you must comply with the General Provisions in §§ 63.1 through 63.15 that apply to you according to the following table:]

Citation	Subject	Brief description	Applies to subpart KKKKK
§ 63.1	Applicability	Initial applicability determination; applicability after standard established; permit requirements; extensions, notifications..	Yes.
§ 63.2	Definitions	Definitions for part 63 standards	Yes.
§ 63.3	Units and Abbreviations	Units and abbreviations for part 63 standards	Yes.
§ 63.4	Prohibited Activities	Compliance date; circumvention; severability	Yes.
§ 63.5	Construction/Reconstruction	Applicability; applications; approvals	Yes.
§ 63.6(a)	Applicability	General Provisions (GP) apply unless compliance extension; GP apply to area sources that become major.	Yes.
§ 63.6(b)(1)–(4)	Compliance Dates for New and Reconstructed Sources	Standards apply at effective date; 3 years after effective date; upon startup; 10 years after construction or reconstruction commences for section 112(f).	Yes.
§ 63.6(b)(5)	Notification	Must notify if commenced construction or reconstruction after proposal.	Yes.
§ 63.6(b)(6)	[Reserved].		
§ 63.6(b)(7)	Compliance Dates for New and Reconstructed area Sources That Become Major.	Area sources that become major must comply with major source standards immediately upon becoming major, regardless of whether required to comply when they were area sources.	Yes.
§ 63.6(c)(1)–(2)	Compliance Dates for Existing Sources	Comply according to date in subpart, which must be no later than 3 years after effective date; for section 112(f) standards, comply within 90 days of effective date unless compliance extension.	Yes.
§ 63.6(c)(3)–(4)	[Reserved].		
§ 63.6(c)(5)	Compliance Dates for Existing Area Sources That Become Major.	Area sources that become major must comply with major source standards by date indicated in subpart or by equivalent time period (for example, 3 years).	Yes.
§ 63.6(d)	[Reserved].		
§ 63.6(e)(1)–(2)	Operation & Maintenance	Operate to minimize emissions at all times; correct malfunctions as soon as practicable; requirements independently enforceable; information Administrator will use to determine if operation and maintenance requirements were met.	Yes.
§ 63.6(e)(3)	Startup, Shutdown, and Malfunction Plan (SSMP)	Requirement for startup, shutdown, and malfunction (SSM) and SSMP; content of SSMP.	Yes.
§ 63.6(f)(1)	Compliance Except During SSM	You must comply with emission standards at all times except during SSM.	Yes.
§ 63.6(f)(2)–(3)	Methods for Determining Compliance	Compliance based on performance test, operation and maintenance plans, records, inspection.	Yes.
§ 63.6(g)	Alternative Standard	Procedures for getting an alternative standard	Yes.
§ 63.6(h)	Opacity/VE Standards	Requirements for opacity and VE standards	No, not applicable.
§ 63.6(i)	Compliance Extension	Procedures and criteria for Administrator to grant compliance extension.	Yes.
§ 63.6(j)	Presidential Compliance Exemption	President may exempt source category	Yes.
§ 63.7(a)(1)–(2)	Performance Test Dates	Dates for conducting initial performance testing and other compliance demonstrations; must conduct 180 days after first subject to rule.	Yes.

§ 63.7(a)(3)	Section 114 Authority	Administrator may require a performance test under CAA section 114 at any time.	Yes.
§ 63.7(b)(1)	Notification of Performance Test	Must notify Administrator 60 days before the test	Yes.
§ 63.7(b)(2)	Notification of Rescheduling	Must notify Administrator 5 days before scheduled date of rescheduled date.	Yes.
§ 63.7(c)	Quality Assurance (QA)/Test Plan	Requirements; test plan approval procedures; performance audit requirements; internal and external QA procedures for testing.	Yes.
§ 63.7(d)	Testing Facilities	Requirements for testing facilities	Yes.
§ 63.7(e)(1)	Conditions for Conducting Performance Tests	Performance tests must be conducted under representative conditions.	No, § 63.8595 specifies requirements.
		Cannot conduct performance tests during SSM; not a violation to exceed standard during SSM.	Yes.
§ 63.7(e)(2)–(3)	Conditions for Conducting Performance Tests	Must conduct according to subpart and EPA test methods unless Administrator approves alternative; must have at least three test runs of at least 1 hour each; compliance is based on arithmetic mean of three runs; conditions when data from an additional test run can be used.	Yes.
§ 63.7(f)	Alternative Test Method	Procedures by which Administrator can grant approval to use an alternative test method.	Yes.
§ 63.7(g)	Performance Test Data Analysis	Must include raw data in performance test report; must submit performance test data 60 days after end of test with the notification of compliance status.	Yes.
§ 63.7(h)	Waiver of Tests	Procedures for Administrator to waive performance test	Yes.
§ 63.8(a)(1)	Applicability of Monitoring Requirements	Subject to all monitoring requirements in subpart	Yes.
§ 63.8(a)(2)	Performance Specifications	Performance Specifications in appendix B of 40 CFR part 60 apply.	Yes.
§ 63.8(a)(3)	[Reserved].		
§ 63.8(a)(4)	Monitoring with Flares	Requirements for flares in § 63.11 apply	No, not applicable.
§ 63.8(b)(1)	Monitoring	Must conduct monitoring according to standard unless Administrator approves alternative.	Yes.
§ 63.8(b)(2)–(3)	Multiple Effluents and Multiple Monitoring Systems	Specific requirements for installing and reporting on monitoring systems.	Yes.
§ 63.8(c)(1)	Monitoring System Operation and Maintenance	Maintenance consistent with good air pollution control practices	Yes.
§ 63.8(c)(1)(i)	Routine and Predictable SSM	Reporting requirements for SSM when action is described in SSMP.	Yes.
§ 63.8(c)(1)(ii)	SSM not in SSMP	Reporting requirements for SSM when action is not described in SSMP.	Yes.
§ 63.8(c)(1)(iii)	Compliance with Operation and Maintenance Requirements	How Administrator determines if source complying with operation and maintenance requirements.	Yes.
§ 63.8(c)(2)–(3)	Monitoring System Installation	Must install to get representative emission and parameter measurements.	Yes.
§ 63.8(c)(4)	CMS Requirements	Requirements for CMS	No, §§ 63.8575 and 63.8615 specify requirements.
§ 63.8(c)(5)	Continuous Opacity Monitoring System (COMS) Minimum Procedures.	COMS minimum procedures	No, not applicable.
§ 63.8(c)(6)	CMS Requirements	Zero and high level calibration check requirements	No, § 63.8575 specifies requirements.

[As stated in § 63.8655, you must comply with the General Provisions in §§ 63.1 through 63.15 that apply to you according to the following table:]

Citation	Subject	Brief description	Applies to subpart KKKKK
§ 63.8(c)(7)–(8)	CMS Requirements	Out-of-control periods	No, § 63.8575 specifies requirements.
§ 63.8(d)	CMS Quality Control	Requirements for CMS quality control	No, § 63.8575 specifies requirements.
§ 63.8(e)	CMS Performance Evaluation	Requirements for CMS performance evaluation	No, § 63.8575 specifies requirements.
§ 63.8(f)(1)–(5)	Alternative Monitoring Method	Procedures for Administrator to approve alternative monitoring	Yes.
§ 63.8(f)(6)	Alternative to Relative Accuracy Test	Procedures for Administrator to approve alternative relative accuracy test for continuous emission monitoring systems (CEMS).	No, not applicable.
§ 63.8(g)	Data Reduction	COMS and CEMS data reduction requirements	No, not applicable.
§ 63.9(a)	Notification Requirements	Applicability; State delegation	Yes.
§ 63.9(b)	Initial Notifications	Requirements for initial notifications	Yes.
§ 63.9(c)	Request for Compliance Extension	Can request if cannot comply by date or if installed BACT/LAER.	Yes.
§ 63.9(d)	Notification of Special Compliance Requirements for New Source.	For sources that commence construction between proposal and promulgation and want to comply 3 years after effective date.	Yes.
§ 63.9(e)	Notification of Performance Test	Notify Administrator 60 days prior	Yes.
§ 63.9(f)	Notification of VE/Opacity Test	Notify Administrator 30 days prior	No, not applicable.
§ 63.9(g)(1)	Additional Notifications When Using CMS	Notification of performance evaluation	Yes.
§ 63.9(g)(2)–(3)	Additional Notifications When Using CMS	Notification of COMS data use; notification that relative accuracy alternative criterion were exceeded..	No, not applicable.
§ 63.9(h)	Notification of Compliance Status	Contents; submittal requirements	Yes.
§ 63.9(i)	Adjustment of Submittal Deadlines	Procedures for Administrator to approve change in when notifications must be submitted.	Yes.
§ 63.9(j)	Change in Previous Information	Must submit within 15 days after the change	Yes.
§ 63.10(a)	Recordkeeping/Reporting	Applicability; general information	Yes.
§ 63.10(b)(1)	General Recordkeeping Requirements	General requirements	Yes.
§ 63.10(b)(2)(i)–(v)	Records Related to SSM	Requirements for SSM records	Yes.
§ 63.10(b)(2)(vi)–(xii) and (xiv).	CMS Records	Records when CMS is malfunctioning, inoperative or out-of-control.	Yes.
§ 63.10(b)(2)(xiii)	Records	Records when using alternative to relative accuracy test	No, not applicable.
§ 63.10(b)(3)	Records	Applicability Determinations	Yes.
§ 63.10(c)(1)–(15)	Records	Additional records for CMS	No, §§ 63.8575 and 63.8640 specify requirements.
§ 63.10(d)(1) and (2)	General Reporting Requirements	Requirements for reporting; performance test results reporting ..	Yes.
§ 63.10(d)(3)	Reporting Opacity or VE Observations	Requirements for reporting opacity and VE	No, not applicable.
§ 63.10(d)(4)	Progress Reports	Must submit progress reports on schedule if under compliance extension.	Yes.
§ 63.10(d)(5)	SSM Reports	Contents and submission	Yes.
§ 63.10(e)(1)–(3)	Additional CMS Reports	Requirements for CMS reporting	No, §§ 63.8575 and 63.8635 specify requirements.
§ 63.10(e)(4)	Reporting COMS data	Requirements for reporting COMS data with performance test data.	No, not applicable.

§ 63.10(f)	Waiver for Recordkeeping/Reporting	Procedures for Administrator to waive	Yes.
§ 63.11	Flares	Requirement for flares	No, not applicable.
§ 63.12	Delegation	State authority to enforce standards	Yes.
§ 63.13	Addresses	Addresses for reports, notifications, requests	Yes.
§ 63.14	Incorporation by Reference	Materials incorporated by reference	Yes.
§ 63.15	Availability of Information	Information availability; confidential information	Yes.

Subpart LLLLL—National Emission Standards for Hazardous Air Pollutants: Asphalt Processing and Asphalt Roofing Manufacturing

SOURCE: 68 FR 24577, May 7, 2003, unless otherwise noted.

WHAT THIS SUBPART COVERS

§ 63.8680 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants (NESHAP) for existing and new asphalt processing and asphalt roofing manufacturing facilities. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations.

§ 63.8681 Am I subject to this subpart?

(a) You are subject to this subpart if you own or operate an asphalt processing facility or an asphalt roofing manufacturing facility, as defined in § 63.8698, that is a major source of hazardous air pollutants (HAP) emissions, or is located at, or is part of a major source of HAP emissions.

(b) After the applicable compliance date specified in § 63.8683, blowing stills, asphalt storage tanks, saturators, wet loopers, and coaters subject to the provisions of this subpart that are also subject to 40 CFR part 60, subpart UU, are required to comply only with provisions of this subpart.

(c) This subpart does not apply to any equipment that is subject to subpart CC of this part or to subpart K, Ka, or Kb of 40 CFR part 60.

(d) This subpart does not apply to asphalt processing and asphalt roofing manufacturing equipment used for research and development, as defined in § 63.8698.

(e) A major source of HAP emissions is any stationary source or group of stationary sources within a contiguous area under common control that emits or has the potential to emit any single HAP at a rate of 9.07 megagrams (10 tons) or more per year or any combination of HAP at a rate of 22.68 megagrams (25 tons) or more per year.

§ 63.8682 What parts of my plant does this subpart cover?

(a) This subpart applies to each new, reconstructed, or existing affected source at asphalt processing and asphalt roofing manufacturing facilities.

(b) The affected source is:

(1) Each asphalt processing facility as defined in § 63.8698; or

(2) Each asphalt roofing manufacturing line as defined in § 63.8698.

(i) If the asphalt roofing manufacturing line is collocated with an asphalt processing facility, the storage tanks that store asphalt flux intended for oxidation in the blowing stills and those tanks that receive asphalt directly from the on-site blowing stills are part of the asphalt processing facility. The remaining asphalt storage tanks are considered to be part of the asphalt roofing facility.

(ii) If an asphalt storage tank is shared by two or more lines at an asphalt roofing manufacturing facility, the shared storage tank is considered part of the line to which the tank supplies the greatest amount of asphalt, on an annual basis.

(iii) If a sealant or adhesive applicator is shared by two or more asphalt roofing manufacturing lines, the shared applicator is considered part of the line that provides the greatest throughput to the applicator, on an annual basis.

(c) An affected source is a new affected source if you commenced construction of the affected source after November 21, 2001, and you met the applicability criteria at the time you commenced construction.

(d) An affected source is reconstructed if you meet the criteria in the reconstruction definition in § 63.2.

(e) An affected source is existing if it is not new or reconstructed.

§ 63.8683 When must I comply with this subpart?

(a) If you have a new or reconstructed affected source and start up:

(1) On or before April 29, 2003, then you must comply with the requirements for new and reconstructed sources in this subpart no later than April 29, 2003.

(2) After April 29, 2003, then you must comply with the requirements for new

and reconstructed sources in this subpart upon startup.

(b) If you have an existing affected source, you must comply with the requirements for existing sources no later than May 1, 2006.

(c) If you have an area source that increases its emissions or its potential to emit such that it becomes a (or part of a) major source of HAP, then the following requirements apply:

(1) Any portion of the existing facility that becomes a new or reconstructed affected source must be in compliance with this subpart upon startup or by April 29, 2003, whichever is later.

(2) All other parts of the source to which this subpart applies must be in compliance with this subpart by 3 years after the date the source becomes a major source.

(d) You must meet the notification requirements in §63.8692 according to the schedules in §§63.8692 and 63.9. Some of the notifications must be submitted before you are required to comply with the emission limitations in this subpart.

EMISSION LIMITATIONS

§63.8684 What emission limitations must I meet?

(a) You must meet each emission limitation in Table 1 to this subpart that applies to you.

(b) You must meet each operating limit in Table 2 to this subpart that applies to you.

GENERAL COMPLIANCE REQUIREMENTS

§63.8685 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limitations (including operating limits) in this subpart at all times, except during periods of startup, shutdown, and malfunction.

(b) You must always operate and maintain your affected source, including air pollution control and monitoring equipment, according to the provisions in §63.6(e)(1)(i).

(c) You must develop and implement a written startup, shutdown, and malfunction plan (SSMP) according to the provisions in §63.6(e)(3).

(d) You must develop and implement a written site-specific monitoring plan according to the provisions in §63.8688(g) and (h).

TESTING AND INITIAL COMPLIANCE REQUIREMENTS

§63.8686 By what date must I conduct performance tests or other initial compliance demonstrations?

(a) For existing affected sources, you must conduct performance tests no later than 180 days after the compliance date that is specified for your source in §63.8683 and according to the provisions in §63.7(a)(2).

(b) As an alternative to the requirement specified in paragraph (a) of this section, you may use the results of a previously-conducted emission test to demonstrate compliance with the emission limitations in this subpart if you demonstrate to the Administrator's satisfaction that:

(1) No changes have been made to the process since the time of the emission test; and

(2) The operating conditions and test methods used during testing conform to the requirements of this subpart; and

(3) The control device and process parameter values established during the previously-conducted emission test are used to demonstrate continuous compliance with this subpart.

(c) For new sources, you must demonstrate initial compliance no later than 180 calendar days after April 29, 2003 or within 180 calendar days after startup of the source, whichever is later.

§63.8687 What performance tests, design evaluations, and other procedures must I use?

(a) You must conduct each performance test in Table 3 to this subpart that applies to you.

(b) Each performance test must be conducted under normal operating conditions and under the conditions specified in Table 3 to this subpart.

(c) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in §63.7(e)(1).

(d) Except for opacity and visible emission observations, you must conduct three separate test runs for each performance test required in this section, as specified in § 63.7(e)(3). Each test run must last at least 1 hour.

(e) You must use the following equations to determine compliance with the emission limitations.

(1) To determine compliance with the particulate matter mass emission rate, you must use Equations 1 and 2 of this section as follows:

$$E = M_{PM}/P \qquad \text{(Eq. 1)}$$

Where:

E = Particulate matter emission rate, kilograms (pounds) of particulate matter per megagram (ton) of roofing product manufactured.

M_{PM} = Particulate matter mass emission rate, kilograms (pounds) per hour, determined using Equation 2.

P = The asphalt roofing product manufacturing rate during the emissions sampling period, including any material trimmed from the final product, megagram (tons) per hour.

$$M_{PM} = C * Q * K \qquad \text{(Eq. 2)}$$

Where:

M_{PM} = Particulate matter mass emission rate, kilograms (pounds) per hour.

C = Concentration of particulate matter on a dry basis, grams per dry standard cubic meter (g/dscm), as measured by the test method specified in Table 3 to this subpart.

Q = Vent gas stream flow rate (dry standard cubic meters per minute) at a temperature of 20 °C as measured by the test method specified in Table 3 to this subpart.

K = Unit conversion constant (0.06 minute-kilogram/hour-gram.

(2) To determine compliance with the total hydrocarbon percent reduction standard, you must use Equations 3 and 4 of this section as follows:

$$RE = \left[\left(M_{THCi} - M_{THCo}\right)/\left(M_{THCi}\right)\right] * (100) \qquad \text{(Eq. 3)}$$

Where:

RE = Emission reduction efficiency, percent.

M_{THCi} = Mass flow rate of total hydrocarbons entering the control device, kilograms (pounds) per hour, determined using Equation 4.

M_{THCo} = Mass flow rate of total hydrocarbons exiting the control device, kilograms (pounds) per hour, determined using Equation 4.

$$M_{THC} = C * Q * K \qquad \text{(Eq. 4)}$$

Where:

M_{THC} = Total hydrocarbon emission rate, kilograms (pounds) per hour.

C = Concentration of total hydrocarbons on a dry basis, parts per million by volume (ppmv), as measured by the test method specified in Table 3 to this subpart.

Q = Vent gas stream flow rate (dscmm) at a temperature of 20 °C as measured by the test method specified in Table 3 to this subpart.

K = Unit conversion constant (3.00E–05) $(ppmv)^{-1}$ (gram-mole/standard cubic meter) (kilogram/gram) (minutes/hour)), where standard temperature for gram-mole/standard cubic meter is 20 °C.

(3) To determine compliance with the combustion efficiency standard, you must use Equation 5 of this section as follows:

$$CE = \left[1 - \left(CO/CO_2\right) - \left(THC/CO_2\right)\right] \qquad \text{(Eq. 5)}$$

Where:

CE = Combustion efficiency, percent.

CO = Carbon monoxide concentration at the combustion device outlet, parts per million by volume (dry), as measured by the test method specified in Table 3 to this subpart.

CO_2 = Carbon dioxide concentration at the combustion device outlet, parts per million by volume (dry), as measured by the test method specified in Table 3 to this subpart.

THC = Total hydrocarbon concentration at the combustion device outlet, parts per million by volume (dry), as measured by the test method specified in Table 3 to this subpart.

(4) To determine compliance with the total hydrocarbon destruction efficiency standard for a combustion device that does not use auxiliary fuel, you must use Equation 6 of this section as follows:

$$\text{THC DE} = \left[\left(\text{CO} + \text{CO}_2\right) / \left(\text{CO} + \text{CO}_2 + \text{THC}\right)\right] \qquad \text{(Eq. 6)}$$

Where:

THC DE = THC destruction efficiency, percent.

CO = Carbon monoxide concentration at the combustion device outlet, parts per million by volume (dry), as measured by the test method specified in Table 3 to this subpart.

CO_2 = Carbon dioxide concentration at the combustion device outlet, parts per million by volume (dry), as measured by the test method specified in Table 3 to this subpart.

THC = Total hydrocarbon concentration at the combustion device outlet, parts per million by volume (dry), as measured by the test method specified in Table 3 to this subpart.

§63.8688 What are my monitoring installation, operation, and maintenance requirements?

(a) You must install, operate, and maintain each continuous parameter monitoring system (CPMS) according to the following:

(1) The CPMS must complete a minimum of one cycle of operation for each successive 15-minute period.

(2) To determine the 3-hour average, you must:

(i) Have a minimum of four successive cycles of operation to have a valid hour of data.

(ii) Have valid data from at least three of four equally spaced data values for that hour from a CPMS that is not out-of-control according to your site-specific monitoring plan.

(iii) Determine the 3-hour average of all recorded readings for each operating day, except as stated in §63.8690(c). You must have at least two of the three hourly averages for that period using only hourly average values that are based on valid data (*i.e.*, not from out-of-control periods).

(3) You must record the results of each inspection, calibration, and validation check.

(b) For each temperature monitoring device, you must meet the requirements in paragraph (a) of this section and the following:

(1) Locate the temperature sensor in a position that provides a representative temperature.

(2) For a noncryogenic temperature range, use a temperature sensor with a minimum measurement sensitivity of 2.8 °C or 1.0 percent of the temperature value, whichever is larger.

(3) If a chart recorder is used, it must have a sensitivity in the minor division of at least 20 °F.

(4) Perform an accuracy check at least semiannually or following an operating parameter deviation:

(i) According to the procedures in the manufacturer's documentation; or

(ii) By comparing the sensor output to redundant sensor output; or

(iii) By comparing the sensor output to the output from a calibrated temperature measurement device; or

(iv) By comparing the sensor output to the output from a temperature simulator.

(5) Conduct accuracy checks any time the sensor exceeds the manufacturer's specified maximum operating

temperature range or install a new temperature sensor.

(6) At least quarterly or following an operating parameter deviation, perform visual inspections of components if redundant sensors are not used.

(c) For each pressure measurement device, you must meet the requirements of paragraph (a) of this section and the following:

(1) Locate the pressure sensor(s) in, or as close as possible, to a position that provides a representative measurement of the pressure.

(2) Use a gauge with a minimum measurement sensitivity of 0.12 kiloPascals or a transducer with a minimum measurement sensitivity of 5 percent of the pressure range.

(3) Check pressure tap pluggage daily. Perform an accuracy check at least quarterly or following an operating parameter deviation:

(i) According to the procedures in the manufacturer's documentation; or

(ii) By comparing the sensor output to redundant sensor output.

(4) Conduct calibration checks any time the sensor exceeds the manufacturer's specified maximum operating pressure range or install a new pressure sensor.

(5) At least monthly or following an operating parameter deviation, perform a leak check of all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(6) At least quarterly or following an operating parameter deviation, perform visible inspections on all components if redundant sensors are not used.

(d) For monitoring parameters other than temperature and pressure drop, you must install and operate a CPMS to provide representative measurements of the monitored parameters.

(e) For each flare, you must install a device (including but not limited to a thermocouple, an ultraviolet beam sensor, or an infrared sensor) capable of continuously detecting the presence of a pilot flame.

(f) As an option to installing the CPMS specified in paragraph (a) of this section, you may install a continuous emissions monitoring system (CEMS) or a continuous opacity monitoring system (COMS) that meets the requirements specified in § 63.8 and the applicable performance specifications of 40 CFR part 60, appendix B.

(g) For each monitoring system required in this section, you must develop and make available for inspection by the permitting authority, upon request, a site-specific monitoring plan that addresses the following:

(1) Installation of the CPMS, CEMS, or COMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (*e.g.*, on or downstream of the last control device);

(2) Performance and equipment specifications for the sample interface, the pollutant concentration or parametric signal analyzer, and the data collection and reduction system; and

(3) Performance evaluation procedures and acceptance criteria (*e.g.*, calibrations).

(h) In your site-specific monitoring plan, you must also address the following:

(1) Ongoing operation and maintenance procedures in accordance with the general requirements of § 63.8(c)(1), (c)(3), (c)(4)(ii), (c)(7), and (c)(8);

(2) Ongoing data quality assurance procedures in accordance with the general requirements of § 63.8(d); and

(3) Ongoing recordkeeping and reporting procedures in accordance with the general requirements of § 63.10(c), (e)(1), and (e)(2)(i).

(i) You must conduct a performance evaluation of each CPMS, CEMS, or COMS in accordance with your site-specific monitoring plan.

(j) You must operate and maintain the CPMS, CEMS, or COMS in continuous operation according to the site-specific monitoring plan.

§ 63.8689 How do I demonstrate initial compliance with the emission limitations?

(a) You must demonstrate initial compliance with each emission limitation that applies to you according to Table 4 to this subpart.

(b) You must establish each site-specific operating limit in Table 2 to this subpart that applies to you according to the requirements in §63.8687 and Table 3 to this subpart.

(c) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in §63.8692(e).

CONTINUOUS COMPLIANCE REQUIREMENTS

§63.8690 How do I monitor and collect data to demonstrate continuous compliance?

(a) You must monitor and collect data according to this section.

(b) Except for monitor malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), you must monitor continuously (or collect data at all required intervals) at all times that the affected source is operating. This includes periods of startup, shutdown, and malfunction when the affected source is operating.

(c) You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels, nor may such data be used in fulfilling a minimum data availability requirement, if applicable. You must use all the data collected during all other periods in assessing the operation of the control device and associated control system.

§63.8691 How do I demonstrate continuous compliance with the operating limits?

(a) You must demonstrate continuous compliance with each operating limit in Table 2 to this subpart that applies to you according to test methods specified in Table 5 to this subpart.

(b) You must report each instance in which you did not meet each operating limit in Table 5 to this subpart that applies to you. This includes periods of startup, shutdown, and malfunction. These instances are deviations from the emission limitations in this subpart. These deviations must be reported according to the requirements in §63.8693.

(c) During periods of startup, shutdown, and malfunction, you must operate in accordance with the SSMP.

(d) Consistent with §§63.6(e) and 63.7(e)(1), deviations that occur during a period of startup, shutdown, or malfunction are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with the SSMP. The Administrator will determine whether deviations that occur during a period of startup, shutdown, or malfunction are violations, according to the provisions in §63.6(e).

NOTIFICATIONS, REPORTS, AND RECORDS

§63.8692 What notifications must I submit and when?

(a) You must submit all of the notifications in §§63.6(h)(4) and (5), 63.7(b) and (c), 63.8(f), and 63.9(b) through (f) and (h) that apply to you by the dates specified.

(b) As specified in §63.9(b)(2), if you start up your affected source before April 29, 2003, you must submit an Initial Notification not later than 120 calendar days after April 29, 2003.

(c) As specified in §63.9(b)(3), if you start up your new or reconstructed affected source on or after April 29, 2003, you must submit an Initial Notification not later than 120 calendar days after you become subject to this subpart.

(d) If you are required to conduct a performance test, you must submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin, as required in §63.7(b)(1).

(e) If you are required to conduct a performance test, design evaluation, opacity observation, visible emission observation, or other initial compliance demonstration as specified in Table 3 or 4 to this subpart, you must submit a Notification of Compliance Status according to §63.9(h)(2)(ii). You must submit the Notification of Compliance Status, including the performance test results, before the close of business on the 60th calendar day following the completion of the performance test according to §63.10(d)(2).

(f) If you are using data from a previously-conducted emission test to serve as documentation of conformance with the emission standards and operating limits of this subpart, you must submit the test data in lieu of the initial performance test results with the Notification of Compliance Status required under paragraph (e) of this section.

§ 63.8693 What reports must I submit and when?

(a) You must submit each report in Table 6 to this subpart that applies to you.

(b) Unless the Administrator has approved a different schedule for submission of reports under § 63.10(a), you must submit each report by the date in Table 6 to this subpart and according to the following dates:

(1) The first compliance report must cover the period beginning on the compliance date that is specified for your affected source in § 63.8683 and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for your source in § 63.8683.

(2) The first compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date follows the end of the first calendar half after the compliance date that is specified for your affected source in § 63.8683.

(3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(5) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 40 CFR part 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of the dates in paragraphs (b)(1) through (4) of this section.

(c) The compliance report must contain the following information:

(1) Company name and address.

(2) Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If you had a startup, shutdown or malfunction during the reporting period and you took actions consistent with your SSMP, the compliance report must include the information in § 63.10(d)(5)(i).

(5) If there are no deviations from any emission limitations (emission limit, operating limit, opacity limit, and visible emission limit) that apply to you, a statement that there were no deviations from the emission limitations during the reporting period.

(6) If there were no periods during which the CPMS, CEMS, or COMS was out-of-control as specified in § 63.8(c)(7), a statement that there were no periods during which the CPMS, CEMS, or COMS was out-of-control during the reporting period.

(d) For each deviation from an emission limitation (emission limit, operating limit, opacity limit, and visible emission limit), you must include the information in paragraphs (c)(1) through (6) of this section, and the information in paragraphs (d)(1) through (12) of this section. This includes periods of startup, shutdown, and malfunction.

(1) The date and time that each malfunction started and stopped.

(2) The date and time that each CPMS, CEMS, or COMS was inoperative, except for zero (low-level) and high-level checks.

(3) The date, time and duration that each CPMS, CEMS, or COMS was out-of-control, including the information in § 63.8(c)(8).

(4) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(5) A summary of the total duration of the deviation during the reporting

period and the total duration as a percent of the total source operating time during that reporting period.

(6) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(7) A summary of the total duration of CPMS, CEMS, or COMS downtime during the reporting period and the total duration of CPMS, CEMS, or COMS downtime as a percent of the total source operating time during that reporting period.

(8) An identification of each air pollutant that was monitored at the affected source.

(9) A brief description of the process units.

(10) A brief description of the CPMS, CEMS, or COMS.

(11) The date of the latest CPMS, CEMS, or COMS certification or audit.

(12) A description of any changes in CPMS, CEMS, or COMS, processes, or controls since the last reporting period.

(e) Each affected source that has obtained a title V operating permit pursuant to 40 CFR part 70 or 40 CFR part 71 must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If an affected source submits a compliance report pursuant to Table 6 to this subpart along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the compliance report includes all required information concerning deviations from any emission limitation (including any operating limit), submission of the compliance report shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a compliance report shall not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the permit authority.

(f) If acceptable to both the Administrator and you, you may submit reports and notifications electronically.

§63.8694 What records must I keep?

(a) You must keep the following records:

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirements in §63.10(b)(2)(xiv).

(2) The records in §63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

(3) Records of performance tests, performance evaluations, and opacity and visible emission observations as required in §63.10(b)(2)(viii).

(b) You must keep the records in §63.6(h)(6) for visible emission observations.

(c) You must keep the records required in Table 5 to this subpart to show continuous compliance with each operating limit that applies to you.

(d) Records of any shared equipment determinations as specified in §63.8682(b).

§63.8695 In what form and how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review, according to §63.10(b)(1).

(b) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §63.10(b)(1). You can keep the records offsite for the remaining 3 years.

OTHER REQUIREMENTS AND INFORMATION

§63.8696 What parts of the General Provisions apply to me?

Table 7 to this subpart shows which parts of the General Provisions in §§63.1 through 63.15 apply to you.

§ 63.8697 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by us, the U.S. Environmental Protection Agency (U.S. EPA), or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency, in addition to the U.S. EPA, has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if implementation and enforcement of this subpart is delegated.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the following authorities are retained by the Administrator of U.S. EPA:

(1) Approval of alternatives to the requirements in §§ 63.8681, 63.8682, 63.8683, 63.8684(a) through (c), 63.8686, 63.8687, 63.8688, 63.8689, 63.8690, and 63.8691.

(2) Approval of major changes to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.90.

(3) Approval of major changes to monitoring under § 63.8(f) and as defined in § 63.90.

(4) Approval of major changes to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

§ 63.8698 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act, in 40 CFR 63.2, the General Provisions of this part, and in this section as follows:

Adhesive applicator means the equipment used to apply adhesive to roofing shingles for producing laminated or dimensional roofing shingles.

Asphalt flux means the organic residual material from distillation of crude oil that is generally used in asphalt roofing manufacturing and paving and non-paving asphalt products.

Asphalt loading rack means the equipment at an asphalt processing facility used to transfer oxidized asphalt from a storage tank into a tank truck, rail car, or barge.

Asphalt processing facility means any facility engaged in the preparation of asphalt flux at stand-alone asphalt processing facilities, petroleum refineries, and asphalt roofing facilities. Asphalt preparation, called ‘‘blowing,’’ is the oxidation of asphalt flux, achieved by bubbling air through the heated asphalt, to raise the softening point and to reduce penetration of the oxidized asphalt. An asphalt processing facility includes one or more asphalt flux blowing stills, asphalt flux storage tanks storing asphalt flux intended for processing in the blowing stills, oxidized asphalt storage tanks, and oxidized asphalt loading racks.

Asphalt roofing manufacturing facility means a facility consisting of one or more asphalt roofing manufacturing lines.

Asphalt roofing manufacturing line means the collection of equipment used to manufacture asphalt roofing products through a series of sequential process steps. The equipment that comprises an asphalt roofing manufacturing line varies depending on the type of substrate used (*i.e.*, organic or inorganic) and the final product manufactured (*e.g.*, roll roofing, laminated shingles). For example, an asphalt roofing manufacturing line that uses fiberglass mat as a substrate typically would not include a saturator/wet looper (or the saturator/wet looper could be bypassed if the line manufacturers multiple types of products). An asphalt roofing manufacturing line can include a saturator (including wet looper), coater, coating mixers, sealant applicators, adhesive applicators, and asphalt storage and process tanks. The number of asphalt roofing manufacturing lines at a particular facility is determined by the number of saturators (or coaters) operated in parallel. For example, an asphalt roofing manufacturing facility with two saturators (or coaters) operating in parallel would be considered to have two separate roofing manufacturing lines.

Asphalt storage tank means any tank used to store asphalt flux, oxidized asphalt, and modified asphalt, at asphalt roofing manufacturing facilities, petroleum refineries, and asphalt processing facilities. Storage tanks containing cutback asphalts (asphalts diluted with solvents to reduce viscosity for low temperature applications) and emulsified asphalts (asphalts dispersed in water with an emulsifying agent) are not subject to this subpart.

Blowing still means the equipment in which air is blown through asphalt flux to change the softening point and penetration rate of the asphalt flux, creating oxidized asphalt.

Boiler means any enclosed combustion device that extracts useful energy in the form of steam and is not an incinerator.

Coater means the equipment used to apply amended (filled or modified) asphalt to the top and bottom of the substrate (typically fiberglass mat) used to manufacture shingles and rolled roofing products.

Coating mixer means the equipment used to mix coating asphalt and a mineral stabilizer, prior to applying the stabilized coating asphalt to the substrate.

Combustion device means an individual unit of equipment such as a flare, incinerator, process heater, or boiler used for the combustion of organic hazardous air pollutant vapors.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emission limitation (including any operating limit), or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart, and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limitation (including any operating limit) or work practice standard in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Emission limitation means any emission limit, opacity limit, operating limit, or visible emission limit.

Group 1 asphalt loading rack means an asphalt loading rack loading asphalt with a maximum temperature of 260 °C (500 °F) or greater or with a maximum true vapor pressure of 10.4 kiloPascals (kPa) (1.5 pounds per square inch absolute (psia)) or greater.

Group 2 asphalt loading rack means an asphalt loading rack loading asphalt with a maximum temperature less than 260 °C (500 °F) or with a maximum true vapor pressure less than 10.4 kPa, 1.5 psia.

Group 1 asphalt storage tank means an asphalt storage tank that meets both of the following two criteria:

(1) Has a capacity of 177 cubic meters (47,000 gallons) of asphalt or greater; and

(2) Stores asphalt at a maximum temperature of 260 °C (500 °F) or greater, or has a maximum true vapor pressure of 10.4 kPa, (1.5, psia) or greater.

Group 2 asphalt storage tank means any asphalt storage tank with a capacity of 1.93 megagrams (Mg) of asphalt or greater that is not a Group 1 asphalt storage tank.

Incinerator means an enclosed combustion device that is used for destroying organic compounds. Auxiliary fuel may be used to heat waste gas to combustion temperatures. Any energy recovery section present is not physically formed into one manufactured or assembled unit with the combustion section; rather, the energy recovery section is a separate section following the combustion section and the two are joined by ducts or connections carrying flue gas.

Maximum true vapor pressure means the equilibrium partial pressure exerted by the stored asphalt at its maximum storage temperature.

Modified asphalt means asphalt that has been mixed with polymer modifiers.

Oxidized asphalt means asphalt that has been prepared by passing air through liquid asphalt flux in a blowing still.

Process heater means an enclosed combustion device that primarily transfers heat liberated by burning fuel directly to process streams or to heat transfer liquids other than water.

Research and development equipment means any equipment whose primary purpose is to conduct research and development to develop new processes and products, where such equipment is operated under the close supervision of technically trained personnel and is not engaged in the manufacture of products for commercial sale in commerce, except in a *de minimis* manner.

Responsible official means responsible official as defined in 40 CFR 70.2.

Saturator means the equipment in which substrate (predominantly organic felt) is filled with asphalt. Saturators are predominantly used for the manufacture of saturated felt products. The term saturator includes the saturator and wet looper.

Sealant applicator means the equipment used to apply a sealant strip to a roofing product. The sealant strip is used to seal overlapping pieces of roofing product after they have been applied.

Work practice standard means any design, equipment, work practice, or operational standard, or combination thereof, that is promulgated pursuant to section 112(h) of the Clean Air Act.

TABLES TO SUBPART LLLLL OF PART 63

TABLE 1 TO SUBPART LLLLL OF PART 63.—EMISSION LIMITATIONS

For—	You must meet the following emission limitation—
1. Each blowing still, Group 1 asphalt loading rack, and Group 1 asphalt storage tank at existing, new, and reconstructed asphalt processing facilities; and each Group 1 asphalt storage tank at existing, new, and reconstructed roofing manufacturing lines; and each coating mixer, saturator (including wet looper), coater, sealant applicator, adhesive applicator, and Group 1 asphalt storage tank at new and reconstructed asphalt roofing manufacturing lines.	a. Reduce total hydrocarbon mass emissions by 95 percent, or to a concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen; b. Route the emissions to a combustion device achieving a combustion efficiency of 99.5 percent; c. Route the emissions to a combustion device that does not use auxiliary fuel achieving a total hydrocarbon (THC) destruction efficiency of 95.8 percent; d. Route the emissions to a boiler or process heater with a design heat input capacity of 44 megawatts (MW) or greater; e. Introduce the emissions into the flame zone of a boiler or process heater; or f. Route emissions to a flare meeting the requirements of § 63.11(b).
2. The total emissions from the coating mixer, saturator (including wet looper), coater, sealant applicator, and adhesive applicator at each existing asphalt roofing manufacturing line.[a]	a. Limit particulate matter emissions to 0.04 kilograms emissions per megagram (kg/Mg) (0.08 pounds per ton, lb/ton) of asphalt shingle or mineral-surfaced roll roofing produced; or b. Limit particulate matter emissions to 0.4 kg/Mg (0.8 lb/ton) of saturated felt or smooth-surfaced roll roofing produced.
3. Each saturator (including wet looper) and coater at existing, new, and reconstructed asphalt roofing manufacturing lines.[a]	a. Limit exhaust gases to 20 percent opacity; and b. Limit visible emissions from the emission capture system to 20 percent of any period of consecutive valid observations totaling 60 minutes.
4. Each Group 2 asphalt storage tank at existing, new, and reconstructed asphalt processing facility and asphalt roofing manufacturing lines.[a]	Limit exhaust gases to 0 percent opacity.[b]

[a] As an alternative to meeting the particulate matter and opacity limits, these emission sources may comply with the THC percent reduction or combustion efficiency standards.

[b] The opacity limit can be exceeded for on consecutive 15-minute period in any 24-hour period when the storage tank transfer lines are being cleared. During this 15-minute period, the control device must not be bypassed. If the emissions from the asphalt storage tank are ducted to the saturator control device, the combined emissions from the saturator and storage tank must meet the 20 percent opacity limit (specified in 4.a of table 1) during this 15-minute period. At any other time, the opacity limit applies to Group 2 asphalt storage tanks.

TABLE 2 TO SUBPART LLLLL OF PART 63.—OPERATING LIMITS

For—	You must[a]
1. Non-flare combustion devices with a design heat input capacity less than 44 MW or where the emissions are not introduced into the flame zone.	Maintain the 3-hour average[b] combustion zone temperature at or above the operating limit established during the performance test.
2. Flares	Meet the operating requirements specified in § 63.11(b).
3. Control devices used to comply with the particulate matter standards.	a. Maintain the 3-hour average[b] inlet gas temperature at or below the operating limit established during the performance test; and b. Maintain the 3-hour average[b] pressure drop across the device[c] at or below the operating limit established during the performance test.

For—	You must[a]
4. Control devices other than combustion devices or devices used to comply with the particulate matter emission standards.	Maintain the approved monitoring parameters within the operating limits established during the performance test.

[a] The operating limits specified in Table 2 are applicable if you are monitoring control device operating parameters to demonstrate continuous compliance. If you are using a CEMS or COMS, you must maintain emissions below the value established during the initial performance test.

[b] A 15-minute averaging period can be used as an alternative to the 3-hour averaging period for this parameter.

[c] As an alternative to monitoring the pressure drop across the control device, owners or operators using an ESP to achieve compliance with the emission limits specified in Table 1 of this subpart can monitor the voltage to the ESP. If this option is selected, the ESP voltage must be maintained at or above the operating limit established during the performance test.

TABLE 3 TO SUBPART LLLLL OF PART 63.—REQUIREMENTS FOR PERFORMANCE TESTS[a] [b]

For—	You must—	Using—	According to the following requirements—
1. All particulate matter, total hydrocarbon, carbon monoxide, and carbon dioxide emission tests.	a. Select sampling port's location and the number of traverse points.	i. EPA test method 1 or 1A in appendix A to part 60 of this chapter.	A. For demonstrating compliance with the total hydrocarbon percent reduction standard, the sampling sites must be located at the inlet and outlet of the control device and prior to any releases to the atmosphere. B. For demonstrating compliance with the particulate matter mass emission rate, THC destruction efficiency, THC outlet concentration, or combustion efficiency standards, the sampling sites must be located at the outlet of the control device and prior to any releases to the atmosphere.
2. All particulate matter and total hydrocarbon tests.	Determine velocity and volumetric flow rate.	EPA test method 2, 2A, 2C, 2D, 2F, or 2G, as appropriate, in appendix A to part 60 of this chapter.	
3. All particulate matter and total hydrocarbon tests.	Determine the gas molecular weight used for flow rate determination.	EPA test method 3, 3A, 3B, as appropriate, in appendix A to part 60 of this chapter.	
4. All particulate matter, total hydrocarbon, carbon monoxide, and carbon dioxide emission tests.	Measure moisture content of the stack gas.	EPA test method 4 in appendix A to part 60 of this chapter.	
5. All particulate matter emission tests.	Measure the asphalt processing rate or the asphalt roofing manufacturing rate and the asphalt content of the product manufactured, as appropriate.		
6. Each control device used to comply with the particulate matter emission standards.	Measure the concentration of particulate matter.	EPA test method 5A in appendix A to part 60 of this chapter.	For demonstrating compliance with the particulate matter standard, the performance tests must be conducted under normal operating conditions and while manufacturing the roofing product that is expected to result in the greatest amount of hazardous air pollutant emissions.
7. All opacity tests	Conduct opacity observations.	EPA test method 9 in appendix A to part 60 of this chapter.	Conduct opacity observations for at least 3 hours and obtain 30, 6-minute averages.
8. All visible emission tests	Conduct visible emission observations.	EPA test method 22 in appendix A to part 60 of this chapter.	Modify EPA test method 22 such that readings are recorded every 15 seconds for a period of consecutive observations totaling 60 minutes.
9. Each combustion device used to comply with the combustion efficiency or THC standards.	a. Measure the concentration of carbon dioxide. b. Measure the concentration of carbon monoxide.	EPA test method 3A in appendix A to part 60 of this chapter. EPA test method 10 in appendix A to part 60 of this chapter.	

For—	You must—	Using—	According to the following requirements—
	c. Measure the concentration of total hydrocarbons.	EPA test method 25A in appendix A to part 60 of this chapter.	
10. Each control device used to comply with the THC reduction efficiency or outlet concentration standards.	Measure the concentration of total hydrocarbons.	EPA test method 25A in appendix A to part 60 of this chapter.	
11. Each combustion device	Establish a site-specific combustion zone temperature limit.	Data from the CPMS and the applicable performance test method(s).	You must collect combustion zone temperature data every 15 minutes during the entire period of the initial 3-hour performance test, and determine the average combustion zone temperature over the 3-hour performance test by computing the average of all of the 15-minute readings.
12. Each control device used to comply with the particulate matter emission standards.	Establish a site-specific inlet gas temperature limit; and establish a site-specific limit for the pressure drop across the device.	Data from the CPMS and the applicable performance test method(s).	You must collect the inlet gas temperature and pressure drop[b] data every 15 minutes during the entire period of the initial 3-hour performance test, and determine the average inlet gas temperature and pressure drop[c] over the 3-hour performance test by computing the average of all of the 15-minute readings.
13. Each control device other than a combustion device or device used to comply with the particulate matter emission standards.	Establish site-specific monitoring parameters.	Process data and data from the CPMS and the applicable performance test method(s).	You must collect monitoring parameter data every 15 minutes during the entire period of the initial 3-hour performance test, and determine the average monitoring parameter values over the 3-hour performance test by computing the average of all of the 15-minute readings.
14. Each flare used to comply with the THC percent reduction or PM emission limits.	Assure that the flare is operated and maintained in conformance with its design.	The requirements of § 63.11(b).	

[a] As specified in § 63.8687(e), you may request that data from a previously-conducted emission test serve as documentation of conformance with the emission standards and operating limits of this subpart.

[b] Performance tests are not required if: (1) The emissions are routed to a boiler or process heater with a design heat input capacity of 44 MW or greater; or (2) the emissions are introduced into the flame zone of a boiler or process heater.

[c] As an alternative to monitoring the pressure drop across the control device, owners or operators using an ESP to achieve compliance with the emission limits specified in Table 1 of this subpart can monitor the voltage to the ESP.

TABLE 4 TO SUBPART LLLLL TO PART 63.—INITIAL COMPLIANCE WITH EMISSION LIMITATIONS

For—	For the following emission limitation—	You have demonstrated initial compliance if—
1. Each blowing still, Group 1 asphalt loading rack, and Group 1 asphalt storage tank, at existing, new, and reconstructed asphalt processing facilities.	a. Reduce total hydrocarbon mass emissions by 95 percent or to a concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen.	i. The total hydrocarbon emissions, determined using the equations in § 63.8687 and the test methods and procedures in Table 3 to this subpart, over the period of the performance test are reduced by at least 95 percent by weight or to a concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen; and ii. You have a record of the average control device operating parameters[a] over the performance test during which emissions were reduced according to 1.a.i. of this table.
	b. Route the emissions to a combustion device achieving a combustion efficiency of 99.5 percent.	i. The combustion efficiency of the combustion device, determined using the equations in § 63.8687 and the test methods and procedures in Table 3 to this subpart, over the period of the performance test is at least 99.5 percent; and ii. You have a record of the average combustion zone temperature[a] and carbon monoxide, carbon dioxide, and total hydrocarbon outlet concentrations over the performance test during which the combustion efficiency was at least 99.5 percent.

For—	For the following emission limitation—	You have demonstrated initial compliance if—
	c. Route the emissions to a combustion device that does not use auxiliary fuel achieving a THC destruction efficiency of 95.8 percent.	i. The THC destruction efficiency of the combustion device, determined using the equations in § 63.8687 and the test methods and procedures in Table 3 to this subpart, over the period of the performance test is at least 95.8 percent; and ii. You have a record of the average combustion zone temperature[a] and carbon monoxide, carbon dioxide, and total hydrocarbon outlet concentrations over the performance test during which the THC destruction efficiency was at least 95.8 percent.
	d. Route emissions to a boiler or process heater with a design heat input capacity of 44 MW or greater.	You have a record of the boiler or process heater design heat capacity.
	e. Introduce the emissions into the flame zone of a boiler or process heater.	You have a record that shows the emissions are being introduced into the boiler or process heater flame zone.
	f. Route emissions to a flare meeting the requirements of § 63.11(b).	You have a record of the flare design and operating requirements.
2. Each coating mixer, saturator (including wet looper), coater, sealant applicator, adhesive applicator, and Group 1 asphalt storage tank at new and reconstructed asphalt roofing manufacturing lines.	a. Reduce total hydrocarbon mass emissions by 95 percent or to a concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen.	See 1.a.i. and ii. of this table.
	b. Route the emissions to a combustion device achieving a combustion efficiency of 99.5 percent.	See 1.b.i. and ii. of this table.
	c. Route the emissions to a combustion device that does not use auxiliary fuel achieving a THC destruction efficiency of 95.8 percent.	See 1.c.i. and ii. of this table.
	d. Route emissions to a boiler or process heater with a design heat input capacity of 44 MW or greater.	See 1.d. of this table.
	e. Introduce the emissions into the flame zone of a boiler or process heater.	See 1.e. of this table.
	f. Route emissions to a flare meeting the requirements of § 63.11(b).	See 1.f. of this table.
3. The total emissions from the coating mixer, saturator (including wet looper), coater, sealant applicator, and adhesive applicator at each existing asphalt roofing manufacturing line.	a. Limit PM emissions to 0.04 kg/Mg (0.08 lb/ton) of asphalt shingle or mineral-surfaced roll roofing produced.	i. The PM emissions, determined using the equations in § 63.8687 and the test methods and procedures in Table 3 to this subpart, over the period of the performance test are no greater than the applicable emission limitation; and ii. You have a record of the average control device[a] or process parameters over the performance test during which the particulate matter emissions were no greater than the applicable emission limitation.
	b. Limit PM emissions to 0.4 kg/Mg (0.8 lb/ton) of saturated felt or smooth-surfaced roll roofing produced.	See 3.a.i. and ii. of this table.
4. Each saturator (including wet looper) and coater at an existing, new, or reconstructed asphalt roofing manufacturing line.	a. Limit visible emissions from the emissions capture system to 20 percent of any period of consecutive valid observations totaling 60 minutes.	The visible emissions, measured using EPA test method 22, for any period of consecutive valid observations totaling 60 minutes during the initial compliance period described in § 63.8686(b) do not exceed 20 percent.
	b. Limit opacity emissions to 20 percent.	The opacity, measured using EPA test method 9, for each of the first 30 6-minute averages during the initial compliance period described in § 63.8686(b) does not exceed 20 percent.

For—	For the following emission limitation—	You have demonstrated initial compliance if—
5. Each Group 2 asphalt storage tank at existing, new, and reconstructed asphalt processing facilities and asphalt roofing manufacturing lines.	Limit exhaust gases to 0 percent opacity.	The opacity, measured using EPA test method 9, for each of the first 30 6-minute averages during the initial compliance period described in § 63.8686(b) does not exceed 0 percent.

[a] If you use a CEMS or COMS to demonstrate compliance with the emission limits, you are not required to record control device operating parameters.

TABLE 5 TO SUBPART LLLLL OF PART 63.—CONTINUOUS COMPLIANCE WITH OPERATING LIMITS [a]

For—	For the following operating limit—	You must demonstrate continuous compliance by—
1. Each non-flare combustion device.[b]	a. Maintain the 3-hour[c] average combustion zone temperature at or above the operating limit establishing during the performance test.	i. Passing the emissions through the control device; and ii. Collecting the combustion zone temperature data according to § 63.8688(b); and iii. Reducing combustion zone temperature data to 3-hour[c] averages according to calculations in Table 3 to this subpart; and iv. Maintaining the 3-hour[c] average combustion zone temperature within the level established during the performance test.
2. Each flare	Meet the operating requirements specified in § 63.11(b).	The flare pilot light must be present at all times and the flare must be operating at all times that emissions may be vented to it.
3. Control devices used to comply with the particulate matter emission standards.	a. Maintain the 3-hour[c] average inlet gas temperature and pressure drop across device[d] at or below the operating limits established during the performance test.	i. Passing the emissions through the control device; and ii. Collecting the inlet gas temperature and pressure drop[d] data according to § 63.8688 (b) and (c); and iii. Reducing inlet gas temperature and pressure drop[d] data to 3-hour[c] averages according to calculations in Table 3 to this subpart; and iv. Maintaining the 3-hour[c] average inlet gas temperature and pressure drop[d] within the level established during the performance test.
4. Control devices other than combustion devices or devices used to comply with the particulate matter emission.	a. Maintain the monitoring parameters within the operating limits established during the performance test.	i. Passing the emissions through the devices; ii. Collecting the monitoring parameter data according to § 63.8688(d); and iii. Reducing the monitoring parameter data to 3-hour[c] averages according to calculations in Table 3 to this subpart; and iv. Maintaining the monitoring parameters within the level established during the performance test.

[a] The operating limits specified in Table 2 and the requirements specified in Table 5 are applicable if you are monitoring control device operating parameters to demonstrate continuous compliance. If you use a CEMS or COMS to demonstrate compliance with the emission limits, you are not required to record control device operating parameters. However, you must maintain emissions below the value established during the initial performance test. Data from the CEMS and COMS must be reduced as specified in § 63.9(g).

[b] Continuous parameter monitoring is not required if (1) the emissions are routed to a boiler or process heater with a with a design heat input capacity of 44 MW or greater; or (2) the emissions are introduced into the flame zone of a boiler or process heater.

[c] A 15-minute averaging period can be used as an alternative to the 3-hour averaging period for this parameter.

[d] As an alternative to monitoring the pressure drop across the control device, owners or operators using an ESP to achieve compliance with the emission limits specified in Table 1 of this subpart can monitor the voltage to the ESP. If this option is selected, the ESP voltage must be maintained at or above the operating limit established during the performance test.

TABLE 6 TO SUBPART LLLLL OF PART 63—REQUIREMENTS FOR REPORTS

You must submit—	The report must contain—	You must submit the report—
1. An initial notification	The information in § 63.9(b)	According to the requirements in § 63.9(b).
2. A notification of performance test	A written notification of the intent to conduct a performance test	At least 60 calendar days before the performance test is scheduled to begin, as required in § 63.9(e).
3. A notification of opacity and visible emission observations.	A written notification of the intent to conduct opacity and visible emission observations.	According to the requirements in § 63.9(f).
4. Notification of compliance status	The information in § 63.9(h)(2) through (5), as applicable	According to the requirements in § 63.9(h)(2) through (5), as applicable.
5. A compliance report	a. A statement that there were no deviations from the emission limitations during the reporting period, if there are no deviations from any emmission limitations (emission limit, operating limit, opacity limit, and visible emission limit) that apply to you.	Semiannually according to the requirements in § 63.8693(b).
	b. If there were no periods during which the CPMS, CEMS, or COMS was out-of-control as specified in § 63.8(c)(7), a statement that there were no periods during which the CPMS, CEMS, or COMS was out-of-control during the reporting period.	Semiannually according to the requirements in § 63.8693(b).
	c. If you have a deviation from any emission limitation (emission limit, operating limit, opacity limit, and visible emission limit), the report must contain the information in § 63.8693(c). If there were periods during which the CPMS, CEMS, or COMS was out-of-control, as specified in § 63.8(c)(7), the report must contain the information in § 63.8693(d).	Semiannually according to the requirements in § 63.8693(b).
	d. If you had a startup, shutdown or malfunction during the reporting period and you took actions consistent with your startup, shutdown, and malfunction plan, the compliance report must include the information in § 63.10(d)(5)(i).	Semiannually according to the requirements in § 63.8693(b).
6. An immediate startup, shutdown, and malfunction report if you have a startup, shutdown, or malfunction during the reporting period and actions taken were not consistent with your startup, shutdown, and malfunction plan.	The information in § 63.10(d)(5)(ii)	By fax or telephone within 2 working days after starting actions inconsistent with the plan followed by a letter within 7 working days after the end of the event unless you have made alternative arrangements with the permitting authority.

TABLE 7 TO SUBPART LLLLL OF PART 63.—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART LLLLL

Citation	Subject	Brief description	Applies to subpart LLLLL
§ 63.1	Applicability	Initial Applicability Determination; Applicability After Standard Established; Permit Requirements; Extensions, Notifications.	Yes.
§ 63.2	Definitions	Definitions for part 63 standards	Yes.
§ 63.3	Units and Abbreviations	Units and abbreviations for part 63 standards.	Yes.
§ 63.4	Prohibited Activities	Prohibited Activities; Compliance date; Circumvention, Severability.	Yes.
§ 63.5	Construction/Reconstruction	Applicability; applications; approvals	Yes.
§ 63.6(a)	Applicability	GP apply unless compliance extension GP apply to area sources that become major.	Yes.
§ 63.6(b)(1)–(4)	Compliance Dates for New and Reconstructed sources.	Standards apply at effective date; 3 years after effective date; upon startup; 10 years after construction or reconstruction commences for section 112(f).	Yes.
§ 63.6(b)(5)	Notification	Must notify if commenced construction or reconstruction after proposal.	Yes.
§ 63.6(b)(6)	[Reserved].		
§ 63.6(b)(7)	Compliance Dates for New and Reconstructed Area Sources That Become Major.	Area sources that become major must comply with major source standards immediately upon becoming major, regardless of whether required to comply when they were an area source.	Yes.
§ 63.6(c)(1)–(2)	Compliance Dates for Existing Sources	1. Comply according to date in subpart, which must be no later than 3 years after effective date. 2. For section 112(f) standards, comply within 90 days of effective date unless compliance extension has been granted.	Yes.
§ 63.6(c)(3)–(4)	[Reserved].		
§ 63.6(c)(5)	Compliance Dates for Existing Area Sources That Become Major.	Area sources that become major must comply with major source standards by date indicated in subpart or by equivalent time period (for example, 3 years).	Yes.
§ 63.6(d)	[Reserved].		
§ 63.6(e)(1)	Operation & Maintenance	1. Operate to minimize emissions at all times. 2. Correct malfunctions as soon as practicable. 3. Operation and maintenance requirements independently enforceable; information Administrator will use to determine if operation and maintenance requirements were met.	Yes.
§ 63.6(e)(2)	[Reserved].		
§ 63.6(e)(3)	Startup, Shutdown, and Malfunction (SSM) Plan (SSMP).	1. Requirement for SSM and startup, shutdown, malfunction plan. 2. Content of SSMP	Yes.
§ 63.6(f)(1)	Compliance Except During SSM	You must comply with emission standards at all times except during SSM.	Yes.
§ 63.6(f)(2)–(3)	Methods for Determining Compliance	Compliance based on performance test, operation and maintenance plans, records, inspection.	Yes.
§ 63.6(g)(1)–(3)	Alternative Nonopacity Standard	Procedures for getting an alternative nonopacity standard.	Yes.
§ 63.6(h)	Opacity/Visible Emission (VE) Standards.	Requirements for opacity and VE limits	Yes.
§ 63.6(h)(1)	Compliance with Opacity/VE Standards	You must comply with opacity/VE emission limitations at all times except during SSM.	Yes.

Citation	Subject	Brief description	Applies to subpart LLLLL
§ 63.6(h)(2)(i)	Determining Compliance with Opacity/VE Standards.	If standard does not state test method, use EPA test method 9, 40 CFR 60, appendix A for opacity and EPA test method 22, 40 CFR 60, appendix A for VE.	No. The test methods for opacity and visible emissions are specified in § 63.8687.
§ 63.6(h)(2)(ii)	[Reserved].		
§ 63.6(h)(2)(iii)	Using Previous Tests to Demonstrate Compliance with Opacity/VE Standards.	Criteria for when previous opacity/VE testing can be used to show compliance with this rule.	Yes.
§ 63.6(h)(3)	[Reserved].		
§ 63.6(h)(4)	Notification of Opacity/VE Observation Date.	Must notify Administrator of anticipated date of observation.	Yes.
§ 63.6(h)(5)(i), (iii)–(v)	Conducting Opacity/VE Observations	Dates and Schedule for conducting opacity/VE observations.	Yes.
§ 63.6(h)(5)(ii)	Opacity Test Duration and Averaging Times.	Must have at least 3 hours of observation with thirty 6-minute averages.	Yes.
§ 63.6(h)(6)	Records of Conditions During Opacity/VE Observations.	Must keep records available and allow Administrator to inspect.	Yes.
§ 63.6(h)(7)(i)	Report COMS Monitoring Data from Performance Test.	Must submit COMS data with other performance test data.	Yes, if COMS used.
§ 63.6(h)(7)(ii)	Using COMS instead of EPA test method 9, 40 CFR 60, appendix A.	Can submit COMS data instead of EPA test method 9, 40 CFR 60, appendix A results even if rule requires EPA test method 9, 40 CFR 60, appendix A, but must notify Administrator before performance test.	Yes, if COMS used.
§ 63.6(h)(7)(iii)	Averaging time for COMS during performance test.	To determine compliance, must reduce COMS data to 6-minute averages.	Yes, if COMS used.
§ 63.6(h)(7)(iv)	COMS requirements	Owner/operator must demonstrate that COMS performance evaluations are conducted according to § 63.8(e), COMS are properly maintained and operated according to § 63.8(c) and data quality as § 63.8(d).	Yes, if COMS used.
§ 63.6(h)(7)(v)	Determining Compliance with Opacity/VE Standards.	COMS is probative but not conclusive evidence of compliance with opacity standard, even if EPA test method 9, 40 CFR 60, appendix A observation shows otherwise. Requirements for COMS to be probative evidence, proper maintenance, meeting PS 1, and data have not been altered.	Yes, if COMS used.
§ 63.6(h)(8)	Determining Compliance with Opacity/VE Standards.	Administrator will use all COMS, EPA test method 9, 40 CFR 60, appendix A, and EPA test method 22, 40 CFR 60, appendix A results, as well as information about operation and maintenance to determine compliance.	Yes.
§ 63.6(h)(9)	Adjusted Opacity Standard	Procedures for Administrator to adjust an opacity standard.	Yes.
§ 63.6(i)	Compliance Extension	Procedures and criteria for Administrator to grant compliance extension.	Yes.
§ 63.6(j)	Presidential Compliance Exemption	President may exempt source category from requirement to comply with rule.	Yes.
§ 63.7(a)(1)–(2)	Performance Test Dates	Dates for conducting initial performance testing and other compliance demonstrations. Must conduct 180 days after first subject to rule.	Yes.
§ 63.7(a)(3)	Section 114 Authority	Administrator may require a performance test under CAA section 114 at any time.	Yes.
§ 63.7(b)(1)	Notification of Performance Test	Must notify Administrator 60 days before the test.	Yes.
§ 63.7(b)(2)	Notification of Rescheduling	If rescheduling a performance test is necessary, must notify Administrator 5 days before scheduled date of rescheduled date.	Yes.

Citation	Subject	Brief description	Applies to subpart LLLLL
§ 63.7(c)	Quality Assurance/Test Plan	1. Requirement to submit site-specific test plan 60 days before the test or on date Administrator agrees with: 2. Test plan approval procedures 3. Performance audit requirements 4. Internal and external QA procedures for testing.	Yes.
§ 63.7(d)	Testing Facilities	Requirements for testing facilities	Yes.
§ 63.7(e)(1)	Conditions for Conducting Performance Tests.	1. Performance tests must be conducted under representative conditions. Cannot conduct performance tests during SSM. 2. Not a violation to exceed standard during SSM.	Yes.
§ 63.7(e)(2)	Conditions for Conducting Performance Tests.	Must conduct according to rule and EPA test methods unless Administrator approves alternative.	Yes.
§ 63.7(e)(3)	Test Run Duration	1. Must have three test runs of at least 1 hour each. 2. Compliance is based on arithmetic mean of three runs. 3. Conditions when data from an additional test run can be used.	Yes.
§ 63.7(f)	Alternative Test Method	Procedures by which Administrator can grant approval to use an alternative test method.	Yes.
§ 63.7(g)	Performance Test Data Analysis	1. Must include raw data in performance test report. 2. Must submit performance test data 60 days after end of test with the Notification of Compliance Status. 3. Keep data for 5 years	Yes.
§ 63.7(h)	Waiver of Tests	Procedures for Administrator to waive performance test.	Yes.
§ 63.8(a)(1)	Applicability of Monitoring Requirements.	Subject to all monitoring requirements in standard.	Yes.
§ 63.8(a)(2)	Performance Specifications	Performance Specifications in appendix B of part 60 apply.	Yes, if CEMS used.
§ 63.8(a)(3)	[Reserved]		
§ 63.8(a)(4)	Monitoring with Flares	Unless your rule says otherwise, the requirements for flares in § 63.11 apply.	Yes.
§ 63.8(b)(1)	Monitoring	Must conduct monitoring according to standard unless Administrator approves alternative.	Yes.
§ 63.8(b) (2)–(3)	Multiple Effluents and Multiple Monitoring Systems.	1. Specific requirements for installing monitoring systems. 2. Must install on each effluent before it is combined and before it is released to the atmosphere unless Administrator approves otherwise. 3. If more than one monitoring system on an emission point, must report all monitoring system results, unless one monitoring system is a backup.	Yes.
§ 63.8(c)(1)	Monitoring System Operation and Maintenance.	Maintain monitoring system in a manner consistent with good air pollution control practices.	Yes.
§ 63.8(c)(1)(i)	Routine and Predictable CMS malfunction.	1. Follow the SSM plan for routine repairs. 2. Keep parts for routine repairs readily available. 3. Reporting requirements for CMS malfunction when action is described in SSM plan.	Yes.
§ 63.8(c)(1)(ii)	CMS malfunction not in SSP plan	Reporting requirements for CMS malfunction when action is not described in SSM plan.	Yes.

Citation	Subject	Brief description	Applies to subpart LLLLL
§ 63.8(c)(1)(iii)	Compliance with Operation and Maintenance Requirements.	1. How Administrator determines if source complying with operation and maintenance requirements. 2. Review of source O&M procedures, records, manufacturer's instructions, recommendations, and inspection of monitoring system.	Yes.
§ 63.8(c)(2)–(3)	Monitoring System Installation	1. Must install to get representative emission and parameter measurements. 2. Must verify operational status before or at performance test.	Yes.
§ 63.8(c)(4)	CMS Requirements	CMS must be operating except during breakdown, out-of-control, repair, maintenance, and high-level calibration drifts.	No; § 63.8690 specifies the CMS requirements.
§ 63.8(c)(4)(i)–(ii)	CMS Requirements	1. COMS must have a minimum of one cycle of sampling and analysis for each successive 10-second period and one cycle of data recording for each successive 6-minute period. 2. CEMS must have a minimum of one cycle of operation for each successive 15-minute period.	Yes, if COMS used.
§ 63.8(c)(5)	COMS Minimum Procedures	COMS minimum procedures	Yes.
§ 63.8(c)(6)	CMS Requirements	Zero and High level calibration check requirements.	No; § 63.8688 specifies the CMS requirements.
§ 63.8(c)(7)–(8)	CMS Requirements	Out-of-control periods, including reporting.	Yes.
§ 63.8(d)	CMS Quality Control	1. Requirements for CMS quality control, including calibration, etc. 2. Must keep quality control plan on record for the life of the affected source. 3. Keep old versions for 5 years after revisions.	No; § 63.8688 specifies the CMS requirements.
§ 63.8(e)	CMS Performance Evaluation	Notification, performance evaluation test plan, reports.	No; § 63.8688 specifies the CMS requirements.
§ 63.8(f)(1)–(5)	Alternative Monitoring Method	Procedures for Administrator to approve alternative monitoring.	Yes.
§ 63.8(f)(6)	Alternative to Relative Accuracy Test	Procedures for Administrator to approve alternative relative accuracy tests for CEMS.	Yes, if CEMS used.
§ 63.8(g)(1)–(4)	Data Reduction	1. COMS 6-minute averages calculated over at least 36 evenly spaced data points. 2. CEMS 1-hour averages computed over at least 4 equally spaced data points.	Yes, if CEMS or COMS used.
§ 63.8(g)(5)	Data Reduction	Data that cannot be used in computing averages for CMS.	No; § 63.8690 specifies the CMS requirements.
§ 63.9(a)	Notification Requirements	Applicability and State Delegation	Yes.
§ 63.9(b)(1)–(5)	Initial Notifications	1. Submit notification 120 days after effective date. 2. Notification of intent to construct/reconstruct; notification of commencement of construct/reconstruct; notification of startup. 3. Contents of each	Yes.
§ 63.9(c)	Request for Compliance Extension	Can request if cannot comply by date or if installed Best Achievable Control Technology (BACT)/Lowest Achievable Emission Rate (LAER).	Yes.
§ 63.9(d)	Notification of Special Compliance Requirements for New Source.	For sources that commence construction between proposal and promulgation and want to comply 3 years after effective date.	Yes.

Citation	Subject	Brief description	Applies to subpart LLLLL
§ 63.9(e)	Notification of Performance Test	Notify Administrator 60 days prior	Yes.
§ 63.9(f)	Notification of VE/Opacity Test	Notify Administrator 30 days prior	Yes.
§ 63.9(g)	Additional Notifications When Using CMS.	1. Notification of performance evaluation. 2. Notification using COMS data 3. Notification that the criterion for use of alternative to relative accuracy testing was exceeded.	No; § 63.8692 specifies the CMS notification requirements.
§ 63.9(h)(1)–(6)	Notification of Compliance Status	1. Contents. 2. Due 60 days after end of performance test or other compliance demonstration, except for opacity/VE, which are due 30 days after. 3. When to submit to Federal vs. State authority.	Yes.
§ 63.9(i)	Adjustment of Submittal Deadlines	Procedures for Administrator to approve change in dates when notifications must be submitted.	Yes.
§ 63.9(j)	Change in Previous Information	Must submit within 15 days after the change.	Yes.
§ 63.10(a)	Recordkeeping/Reporting	1. Applies to all, unless compliance extension. 2. When to submit to Federal vs. State authority. 3. Procedures for owners of more than 1 source.	Yes.
§ 63.10(b)(1)	Recordkeeping/Reporting	1. General Requirements 2. Keep all records readily available. 3. Keep for 5 years	Yes.
§ 63.10(b)(2)(i)–(v)	Records related to Startup, Shutdown, and Malfunction.	1. Occurrence of each of operation (process equipment). 2. Occurrence of each malfunction of air pollution equipment. 3. Maintenance on air pollution control equipment. 4. Actions during startup, shutdown, and malfunction.	Yes.
§ 63.10(b)(2)(vi) and (x–xi).	CMS Records	1. Malfunctions, inoperative, out-of-control. 2. Calibration checks 3. Adjustments, maintenance	Yes.
§ 63.10(b)(2)(vii)–(ix)	Records	1. Measurements to demonstrate compliance with emission limitations. 2. Performance test, performance evaluation, and visible emission observation results. 3. Measurements to determine conditions of performance tests and performance evaluations.	Yes.
§ 63.10(b)(2)(xii)	Records	Records when under waiver	Yes
§ 63.10(b)(2)(xiii)	Records	Records when using alternative to relative accuracy test.	Yes.
§ 63.10(b)(2)(xiv)	Records	All documentation supporting Initial Notification and Notification of Compliance Status.	Yes.
§ 63.10(b)(3)	Records	Applicability determinations	Yes.
§ 63.10(c)(1)–(6), (9)–(15).	Records	Additional records for CMS	No; § 63.8694 specifies the CMS recordkeeping requirements.
§ 63.10(c)(7)–(8)	Records	Records of excess emissions and parameter monitoring exceeedances for CMS.	No; § 63.8694 specifies the CMS recordkeeping requirements.
§ 63.10(d)(1)	General Reporting Requirements	Requirement to report	Yes.
§ 63.10(d)(2)	Report of Performance Test Results	When to submit to Federal or State authority.	Yes.
§ 63.10(d)(3)	Reporting Opacity or VE Observations	What to report and when	Yes.
§ 63.10(d)(4)	Progress Reports	Must submit progress reports on schedule if under compliance extension.	Yes.

Citation	Subject	Brief description	Applies to subpart LLLLL
§ 63.10(d)(5)	Startup, Shutdown, and Malfunction Reports.	Contents and submission	Yes.
§ 63.10(e)(1), (2)	Additional CMS Reports	1. Must report results for each CEM on a unit. 2. Written copy of performance evaluation. 3. Three copies of COMS performance evaluation.	Yes.
§ 63.10(e)(3)	Reports	Excess emission reports	No; § 63.8693 specifies the reporting requirements.
§ 63.10(e)(3)(i)–(iii)	Reports	Schedule for reporting excess emissions and parameter monitor exceedances (now defined as deviations).	No; § 63.8693 specifies the reporting requirements.
§ 63.10(e)(3)(iv)–(v)	Excess Emissions Reports	1. Requirement to revert to the frequency specified in the relevant standard if there is an excess emissions and parameter monitor exceedances (now defined as deviations). 2. Provision to request semiannual reporting after compliance for one year. 3. Submit report by 30th day following end of quarter or calendar half. 4. If there has not been an exceedance or excess emission (now defined as deviations), report content is a statement that there have been no deviations.	No; § 63.8693 specifies the reporting requirements.
§ 63.10(e)(3)(iv)–(v)	Excess Emissions Reports	Must submit report containing all of the information in § 63.10(c)(5)(13), § 63.8(c)(7)–(8).	No; § 63.8693 specifies the reporting requirements.
§ 63.10(e)(3)(vi)–(viii)	Excess Emissions Report and Summary Report.	1. Requirements for reporting excess emissions for CMS (now called deviations). 2. Requires all of the information in § 63.10(c)(5)(13), § 63.8(c)(7)–(8).	No; § 63.8693 specifies the reporting requirements.
§ 63.10(e)(4)	Reporting COMS data	Must submit COMS data with performance test data.	Yes, if COMS used.
§ 63.10(f)	Waiver for Recordkeeping/Reporting	Procedures for Administrator to waive	Yes.
§ 63.11	Flares	Requirements for flares	Yes.
§ 63.12	Delegation	State authority to enforce standards	Yes.
§ 63.13	Addresses	Addresses where reports, notifications, and requests are sent.	Yes.
§ 63.14	Incorporation by Reference	Test methods incorporated by reference.	Yes.
§ 63.15	Availability of Information	Public and confidential information	Yes.

Subpart MMMMM—National Emission Standards for Hazardous Air Pollutants: Flexible Polyurethane Foam Fabrication Operations

SOURCE: 68 FR 18070, Apr. 14, 2003, unless otherwise noted.

WHAT THIS SUBPART COVERS

§ 63.8780 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants (NESHAP) emitted from flexible polyurethane foam fabrication operations. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission standards.

§ 63.8782 Am I subject to this subpart?

(a) You are subject to this subpart if you own or operate a flexible polyurethane foam fabrication plant site that operates a flame lamination affected source, as defined at § 63.8784(b)(2), and that is located at, or is part of a major emission source of hazardous air pollutants (HAP) or that operates a loop slitter affected source, as defined at § 63.8784(b)(1), that meets the criteria in paragraphs (a)(1) and (2) of this section.

(1) The loop slitter affected source uses one or more HAP-based adhesives at any time on or after April 14, 2003.

(2) The loop slitter affected source is located at or is part of a major source of HAP.

(b) A flexible polyurethane foam fabrication plant site is a plant site where pieces of flexible polyurethane foam are bonded together or to other substrates using HAP-based adhesives or flame lamination.

(c) A major source of HAP is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons or more per year or any combination of HAP at a rate of 25 tons or more per year.

(d) This subpart does not apply to the following processes in paragraphs (d)(1) and (2) of this section:

(1) Processes that produce flexible polyurethane or rebond foam as defined in subpart III of this part.

(2) A research and development facility, as defined in section 112(c)(7) of the Clean Air Act (CAA).

§ 63.8784 What parts of my plant does this subpart cover?

(a) This subpart applies to each existing, new, or reconstructed affected source at facilities engaged in flexible polyurethane foam fabrication.

(b) The affected sources are defined in this section in paragraphs (b)(1) and (2) of this section.

(1) The loop slitter adhesive use affected source is the collection of all loop slitters and associated adhesive application equipment used to apply HAP-based adhesives to bond foam to foam at a flexible polyurethane foam fabrication plant site.

(2) The flame lamination affected source is the collection of all flame lamination lines associated with the flame lamination of foam to any substrate at a flexible polyurethane foam fabrication plant site.

(c)(1) A new affected source is one that commences construction after August 8, 2001 and meets the applicability criteria of § 63.8782 at the time construction commences.

(2) If you add one or more flame lamination lines at a plant site where flame lamination lines already exist, the added line(s) shall be a new affected source and meet new source requirements if the added line(s) has the potential to emit 10 tons per year or more of any HAP or 25 tons or more per year of any combination of HAP.

(d) A reconstructed affected source is one that commences reconstruction after August 8, 2001 and meets the criteria for reconstruction as defined in § 63.2.

(e) An affected source is existing if it is not new or reconstructed.

§ 63.8786 When do I have to comply with this subpart?

(a) If you have a new or reconstructed affected source, you must comply with this subpart according to paragraphs (a)(1) and (2) of this section.

(1) If you start up your new or reconstructed affected source before April 14, 2003, then you must comply with the emission standards for new or reconstructed sources in this subpart no later than April 14, 2003.

(2) If you start up your new or reconstructed affected source on or after April 14, 2003, then you must comply with the emission standards for new or reconstructed sources in this subpart upon startup of your affected source.

(b) If you have an existing loop slitter affected source, you must comply with the emission standards for existing sources no later than 1 year after April 14, 2003.

(c) If you have an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP and an affected source subject to this subpart, the provisions in paragraphs (c)(1) and (2) of this section apply.

(1) A new affected source as specified at § 63.8784(c) or a reconstructed affected source as specified at § 63.8784(d)

must be in compliance with this subpart upon startup.

(2) An existing affected source as specified at §63.8784(e) must be in compliance with this subpart no later than 1 year after the date on which the area source became a major source.

(d) You must meet the notification requirements in §63.8816 according to the schedule in §63.8816 and in subpart A of this part. Some of the notifications must be submitted before you are required to comply with the emission standards in this subpart.

(e) If you have a loop slitter affected source, you must have data on hand beginning on the compliance date specified in paragraph (b) of this section as necessary to demonstrate that your adhesives are not HAP-based. The types of data necessary are described in §§63.8802 and 63.8810.

EMISSION LIMITATIONS

§63.8790 What emission limitations must I meet?

(a) You must meet each emission limit in Table 1 to this subpart that applies to you.

(b) You must meet each operating limit in Table 2 to this subpart that applies to you.

GENERAL COMPLIANCE REQUIREMENTS

§63.8794 What are my general requirements for complying with this subpart?

(a) For each loop slitter adhesive use affected source, you must be in compliance with the requirements in this subpart at all times.

(b) For each new or reconstructed flame lamination affected source, you must be in compliance with the requirements in this subpart at all times, except during periods of startup, shutdown, and malfunction.

(c) You must always operate and maintain your affected source, including air pollution control and monitoring equipment, according to the provisions in §63.6(e)(1)(i).

(d) During the period between the compliance date specified for your new or reconstructed flame lamination affected source in §63.8786, and the date upon which continuous compliance monitoring systems have been installed and verified and any applicable operating limits have been set, you must maintain a log detailing the operation and maintenance of the process and emissions control equipment.

(e) For each new or reconstructed flame lamination affected source, you must develop and implement a written startup, shutdown, and malfunction plan according to the provisions in §63.6(e)(3).

(f) For each monitoring system required in this section for new or reconstructed flame lamination sources, you must develop and submit for approval a site-specific monitoring plan that addresses the requirements in paragraphs (f)(1) through (3) of this section.

(1) Installation of the continuous monitoring system (CMS) sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (*e.g.*, on or downstream of the last control device);

(2) Performance and equipment specifications for the sample interface, the pollutant concentration or parametric signal analyzer, and the data collection and reduction system; and

(3) Performance evaluation procedures and acceptance criteria (*e.g.*, calibrations).

(g) In your site-specific monitoring plan, you must also address the ongoing procedures specified in paragraphs (g)(1) through (3) of this section.

(1) Ongoing operation and maintenance procedures in accordance with the general requirements of §§63.8(c)(1), (3), (4)(ii), (7), and (8), and 63.8804;

(2) Ongoing data quality assurance procedures in accordance with the general requirements of §63.8(d); and

(3) Ongoing recordkeeping and reporting procedures in accordance with the general requirements of §63.10(c), (e)(1), and (e)(2)(i).

TESTING AND INITIAL COMPLIANCE REQUIREMENTS

§63.8798 By what date must I conduct performance tests or other initial compliance demonstrations?

(a) For each loop slitter affected source, you must conduct the initial compliance demonstration by the compliance date that is specified for your source in § 63.8786.

(b) For each new or reconstructed flame lamination affected source, you must conduct performance tests within 180 calendar days after the compliance date that is specified for your source in § 63.8786 and according to the provisions in § 63.7(a)(2).

§ 63.8800 What performance tests and other procedures must I use to demonstrate compliance with the emission limit for flame lamination?

(a) You must conduct each performance test in Table 3 to this subpart that applies to you.

(b) Each performance test must be conducted according to the requirements in § 63.7(e)(1) and under the specific conditions in Table 3 to this subpart.

(c) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in § 63.7(e)(1).

(d) You must conduct at least three separate test runs for each performance test required in this section, as specified in § 63.7(e)(3). Each test run must last at least 1 hour.

(e) You must determine the percent reduction of HAP emissions during the performance test according to paragraphs (e)(1) through (3) of this section.

(1) If you use chlorinated fire retardant foams, determine the percent reduction of HCl to represent HAP emissions from the source. If you do not use chlorinated fire retardant foams, determine the percent reduction of HCN to represent HAP emissions from the source.

(2) Calculate the concentration of HAP at the control device inlet and at the control device outlet using the procedures in the specified test method.

(3) Compare the calculated HAP concentration at the control device inlet to the calculated HAP concentration at the control device outlet to determine the percent reduction over the period of the performance test, using Equation 1 of this section:

$$R=\frac{\sum_{i=1}^{n} E_{inlet,\,i}-\sum_{i=1}^{n} E_{outlet,\,i}}{\sum_{i=1}^{n} E_{inlet,\,i}}(100) \quad [Eq.\ 1]$$

Where:

R=Efficiency of control device, percent.

$E_{inlet,i}$=HAP concentration of control device inlet stream for test run i, mg/dscm.

$E_{outlet,i}$=HAP concentration of control device outlet stream for test run i, mg/dscm.

n=Number of runs conducted for the performance test.

(f) You must also meet the requirements in paragraphs (f)(1) and (2) of this section.

(1) Conduct the performance tests using foams that are representative of foams typically used at your flame lamination affected source. If you use foams containing chlorinated fire retardants, you must conduct the performance tests using these foams.

(2) Establish all applicable operating limits that correspond to the control system efficiency as described in Table 3 to this subpart.

§ 63.8802 What methods must I use to demonstrate compliance with the emission limitation for loop slitter adhesive use?

(a) *Determine the HAP content for each material used.* To determine the HAP content for each material used in your foam fabrication operations, you must use one of the options in paragraphs (a)(1) through (3) of this section. If you use the option in paragraph (a)(3) of this section, you are subject to the provisions of paragraph (a)(4) of this section.

(1) *Method 311 (appendix A to 40 CFR part 63).* You may use Method 311 for determining the mass fraction of HAP. Use the procedures specified in paragraphs (a)(1)(i) and (ii) of this section when determining HAP content by Method 311.

(i) Include in the HAP total each HAP that is measured to be present at

0.1 percent by mass or more for Occupational Safety and Health Administration (OSHA)-defined carcinogens as specified in 29 CFR 1910.1200(d)(4) and at 1.0 percent by mass or more for other compounds. For example, if toluene (not an OSHA carcinogen) is measured to be 0.5 percent of the material by mass, you do not need to include it in the HAP total. Express the mass fraction of each HAP you measure as a value truncated to four places after the decimal point (for example, 0.1234).

(ii) Calculate the total HAP content in the test material by adding up the individual HAP contents and truncating the result to three places after the decimal point (for example, 0.123).

(2) *Alternative method.* You may use an alternative test method for determining mass fraction of HAP if you obtain prior approval by the Administrator. You must follow the procedure in §63.7(f) to submit an alternative test method for approval.

(3) *Information from the supplier or manufacturer of the material.* You may rely on information other than that generated by the test methods specified in paragraphs (a)(1) and (2) of this section to determine the mass fraction of HAP according to paragraphs (a)(3)(i) and (ii) of this section. This information may include, but is not limited to, a material safety data sheet (MSDS), a certified product data sheet (CPDS), or a manufacturer's hazardous air pollutant data sheet.

(i) Include in the HAP total each HAP that is present at 0.1 percent by mass or more for OSHA-defined carcinogens as specified in 29 CFR 1910.1200(d)(4) and at 1.0 percent by mass or more for other compounds. For example, if toluene (not an OSHA carcinogen) is 0.5 percent of the material by mass, you do not have to include it in the HAP total.

(ii) If the HAP content is provided by the material supplier or manufacturer as a range, then you must use the upper limit of the range for determining compliance.

(4) *Verification of supplier or manufacturer information.* Although you are not required to perform testing to verify the information obtained according to paragraph (a)(3) of this section, the Administrator may require a separate measurement of the total HAP content using the methods specified in paragraph (a)(1) or (2) of this section. If this measurement exceeds the total HAP content provided by the material supplier or manufacturer, then you must use the measured HAP content to determine compliance.

(b) [Reserved]

§63.8806 How do I demonstrate initial compliance with the emission limitations?

(a) You must demonstrate initial compliance with each emission limit that applies to you according to Table 4 to this subpart.

(b) You must establish each site-specific operating limit in Table 2 to this subpart that applies to you according to the requirements in §63.8800 and Table 3 to this subpart.

(c) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in §63.8816(e) through (h).

CONTINUOUS COMPLIANCE REQUIREMENTS

§63.8810 How do I monitor and collect data to demonstrate continuous compliance?

(a) If you own or operate a loop slitter adhesive use affected source, you must meet the requirements in paragraphs (a)(1) and (2) of this section.

(1) Maintain a list of each adhesive and the manufacturer or supplier of each.

(2) Maintain a record of EPA Method 311 (appendix A to 40 CFR part 63), approved alternative method, or other reasonable means of HAP content determinations indicating the mass percent of each HAP for each adhesive.

(b) If you own or operate a new or reconstructed flame lamination affected source, you must meet the requirements in paragraphs (b)(1) through (3) of this section if you use a scrubber, or paragraph (b)(4) of this section if you use any other control device.

(1) Keep records of the daily average scrubber inlet liquid flow rate.

(2) Keep records of the daily average scrubber effluent pH.

(3) If you use a venturi scrubber, keep records of daily average pressure drop across the venturi.

(4) Keep records of operating parameter values for each operating parameter that applies to you.

(c) If you own or operate a new or reconstructed flame lamination affected source, you must meet the requirements in paragraphs (c)(1) through (4) of this section.

(1) Except for periods of monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), you must monitor continuously (or collect data at all required intervals) at all times that the affected source is operating. This includes periods of startup, shutdown, and malfunction when the affected source is operating. A monitoring malfunction includes, but is not limited to, any sudden, infrequent, not reasonably preventable failure of the monitoring device to provide valid data. Monitoring failures that are caused by poor maintenance or careless operation are not malfunctions.

(2) In data average calculations and calculations used to report emission or operating levels, you may not use data recorded during monitoring malfunctions, associated repairs, or recorded during required quality assurance or control activities. Nor may such data be used in fulfilling any applicable minimum data availability requirement. You must use all the data collected during all other periods in assessing the operation of the control device and associated control system.

(3) You must conduct a performance evaluation of each CMS in accordance with your site-specific monitoring plan.

(4) You must operate and maintain the CMS in continuous operation according to the site-specific monitoring plan.

§ 63.8812 How do I demonstrate continuous compliance with the emission limitations?

(a) You must demonstrate continuous compliance with each emission limit and operating limit in Tables 1 and 2 to this subpart that applies to you according to the methods specified in Table 5 to this subpart.

(b) You must report each instance in which you did not meet each emission limit and each operating limit in Tables 1 and 2 to this subpart that apply to you. For new or reconstructed flame lamination affected sources, this includes periods of startup, shutdown, and malfunction. These instances are deviations from the operating limits in this subpart. These deviations must be reported according to the requirements in § 63.8818.

(c) For each new or reconstructed flame lamination affected source, you must operate in accordance with the startup, shutdown, and malfunction plan during periods of startup, shutdown, and malfunction.

(d) Consistent with §§ 63.6(e) and 63.7(e)(1), deviations that occur at a new or reconstructed flame lamination affected source during a period of startup, shutdown, or malfunction are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with the startup, shutdown, and malfunction plan. The Administrator will determine whether deviations that occur at a new or reconstructed flame lamination affected source during a period of startup, shutdown, or malfunction are violations, according to the provisions in § 63.6(e).

(e) You also must meet the following requirements if you are complying with the adhesive use ban for loop slitter adhesive use described in § 63.8790(a).

(1) If, after you submit the Notification of Compliance Status, you use an adhesive for which you have not previously verified percent HAP mass using the methods in § 63.8802, you must verify that each adhesive used in the affected source meets the emission limit, using any of the methods in § 63.8802.

(2) You must update the list of all the adhesives used at the affected source.

(3) With the compliance report for the reporting period during which you used the new adhesive, you must submit the updated list of all adhesives and a statement certifying that, as purchased, each adhesive used at the

affected source during the reporting period met the emission limit in Table 1 to this subpart.

NOTIFICATION, REPORTS, AND RECORDS

§63.8816 What notifications must I submit and when?

(a) You must submit all of the notifications in §§63.7(b) and (c), 63.8(f), and 63.9(b) through (h) that apply to you.

(b) If you own or operate an existing loop slitter or flame lamination affected source, submit an initial notification no later than 120 days after April 14, 2003.

(c) If you own or operate a new or reconstructed loop slitter or flame lamination affected source, submit the application for construction or reconstruction required by §63.9(b)(1)(iii) in lieu of the initial notification.

(d) If you own or operate a new or reconstructed flame lamination affected source, submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin, as required in §63.7(b)(1).

(e) If you own or operate a loop slitter affected source, submit a Notification of Compliance Status according to §63.9(h)(2)(ii) within 60 days of the compliance date specified in §63.8786.

(f) If you own or operate a new or reconstructed flame lamination affected source, submit a Notification of Compliance Status according to §63.9(h)(2)(ii) that includes the results of the performance test conducted according to the requirements in Table 3 to this subpart. You must submit the notification before the close of business on the 60th calendar day following the completion of the performance test according to §63.10(d)(2).

(g) For each new or reconstructed flame lamination affected source, the Notification of Compliance Status must also include the information in paragraphs (g)(1) and (2) that applies to you.

(1) The operating parameter value averaged over the full period of the performance test (for example, average pH).

(2) The operating parameter range within which HAP emissions are reduced to the level corresponding to meeting the applicable emission limits in Table 1 to this subpart.

(h) For each loop slitter adhesive use affected source, the Notification of Compliance Status must also include the information listed in paragraphs (h)(1) and (2) of this section.

(1) A list of each adhesive used at the affected source, its HAP content (percent by mass), and the manufacturer or supplier of each.

(2) A statement certifying that each adhesive that was used at the affected source during the reporting period met the emission limit in Table 1 to this subpart.

§63.8818 What reports must I submit and when?

(a) You must submit each report in Table 6 to this subpart that applies to you.

(b) Unless the Administrator has approved a different schedule for submission of reports under §63.10(a), you must submit each compliance report for new or reconstructed flame lamination affected sources semiannually according to paragraphs (b)(1) through (4) of this section.

(1) The first compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.8786 and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for your source in §63.8786.

(2) The first compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date follows the end of the first calendar half after the compliance date that is specified for your affected source in §63.8786.

(3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(c) For each loop slitter adhesive use affected source, you may submit annual compliance reports in place of semiannual reports.

(d) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 40 CFR part 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (4) of this section.

(e) The compliance report must contain the information in paragraphs (e)(1) through (5) of this section.

(1) Company name and address.

(2) Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy and completeness of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If there are no deviations from any emission limitations (emission limit or operating limit) that applies to you, a statement that there were no deviations from the emission limitations during the reporting period.

(5) For each deviation from an emission limitation that occurs, the compliance report must contain the information specified in paragraphs (e)(5)(i) through (iii) of this section.

(i) The total operating time of each affected source during the reporting period.

(ii) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

(iii) Information on the number, duration, and cause for continuous parameter monitoring system (CPMS) downtime incidents, if applicable, other than downtime associated with zero and span and other daily calibration checks.

(f) The compliance report for a new or reconstructed flame lamination affected source must also contain the following information in paragraphs (f)(1) through (3) of this section.

(1) If you had a startup, shutdown or malfunction at your new or reconstructed flame lamination affected source during the reporting period and you took actions consistent with your startup, shutdown, and malfunction plan, the compliance report must include the information in § 63.10(d)(5)(i).

(2) If there were no periods during which the CPMS was out-of-control in accordance with the monitoring plan, a statement that there were no periods during which the CPMS was out-of-control during the reporting period.

(3) If there were periods during which the CPMS was out-of-control in accordance with the monitoring plan, the date, time, and duration of each out-of-control period.

(g) The compliance report for a loop slitter adhesive use affected source must also contain the following information in paragraphs (g)(1) and (2) of this section.

(1) For each annual reporting period during which you use an adhesive that was not included in the list submitted with the Notification of Compliance Status in § 63.8816(h) (1), an updated list of all adhesives used at the affected source.

(2) A statement certifying that each adhesive that was used at the affected source during the reporting period met the emission limit in Table 1 to this subpart.

(h) Each affected source that has obtained a title V operating permit pursuant to 40 CFR part 70 or 40 CFR part 71 must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If an affected source submits a compliance report pursuant to Table 6 to this subpart along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the compliance report includes all required information concerning deviations from any emission limitation (including any operating limit) in this subpart, submission of the compliance report shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a compliance report shall not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the permit authority.

(i) For each startup, shutdown, or malfunction during the reporting period where the source does not meet the emission limitations set out in §63.8790 that occurs at a new or reconstructed flame lamination affected source and that is not consistent with your startup, shutdown, and malfunction plan, you must submit an immediate startup, shutdown and malfunction report.

(1) An initial report containing a description of the actions taken for the event must be submitted by fax or telephone within 2 working days after starting actions inconsistent with the plan.

(2) A followup report containing the information listed in §63.10(d)(5)(ii) must be submitted within 7 working days after the end of the event unless you have made alternative reporting arrangements with the permitting authority.

§63.8820 What records must I keep?

(a) You must keep a copy of each notification and report that you submit to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirements in §63.10(b)(2)(xiv).

(b) For each new or reconstructed flame lamination affected source, you must also keep the following records specified in paragraphs (b)(1) through (4) of this section.

(1) The records in §63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

(2) Records of performance tests, as required in §63.10(b)(2)(viii).

(3) Records of operating parameter values.

(4) Records of the date and time that each deviation started and stopped and whether the deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(c) For each loop slitter adhesive use affected source, you must keep the following records specified in paragraphs (c)(1) and (2) of this section.

(1) A list of each adhesive and the manufacturer or supplier of each.

(2) A record of EPA Method 311 (appendix A to 40 CFR part 63), approved alternative method, or other reasonable means of determining the mass percent of total HAP for each adhesive used at the affected source.

§63.8822 In what form and how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review, according to §63.10(b)(1).

(b) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §63.10(b)(1). You can keep the records offsite for the remaining 3 years.

OTHER REQUIREMENTS AND INFORMATION

§63.8826 What parts of the General Provisions apply to me?

Table 7 to this subpart shows which sections of the General Provisions in §§63.1 through 63.15 apply to you.

§63.8828 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by us, the U.S. Environmental Protection Agency (U.S. EPA), or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency, in addition to the U.S. EPA, has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if implementation and enforcement of this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities in paragraphs (c)(1) through (4) that cannot be delegated to State, local, or tribal agencies are as follows:

(1) Approval of alternatives to requirements in §§ 63.8780, 63.8782, 63.8784, 63.8786, and 63.8790.

(2) Approval of major alternatives to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.90.

(3) Approval of major alternatives to monitoring under § 63.8(f) and as defined in § 63.90.

(4) Approval of major alternatives to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

§ 63.8830 What definitions apply to this subpart?

Terms used in this subpart are defined in the CAA, in 40 CFR 63.2, and in this section as follows:

Adhesive means any chemical substance that is applied for the purpose of bonding foam to foam, foam to fabric, or foam to any other substrate, other than by mechanical means. Products used on humans and animals, adhesive tape, contact paper, or any other product with an adhesive incorporated onto it in an inert substrate shall not be considered adhesives under this subpart.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including but not limited to any emission limitation (including any operating limit); or

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limitation (including any operating limit) in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Emission limitation means any emission limit or operating limit.

Flame lamination means the process of bonding flexible foam to one or more layers of material by heating the foam surface with an open flame.

Flame lamination line means the flame laminator and associated rollers.

HAP-based adhesive means an adhesive containing 5 percent (by weight) or more of HAP, according to EPA Method 311 (appendix A to 40 CFR part 63) or another approved alternative.

Loop slitter means a machine used to create thin sheets of foam from the large blocks of foam or ‘‘buns’’ created at a slabstock flexible polyurethane foam production plant.

Research and development process means a laboratory or pilot plant operation whose primary purpose is to conduct research and development into new processes and products where the operations are under the close supervision of technically trained personnel, and which is not engaged in the manufacture of products for commercial sale, except in a *de minimis* manner.

Responsible official means responsible official as defined in 40 CFR 70.2.

TABLES TO SUBPART MMMMM OF PART 63

TABLE 1 TO SUBPART MMMMM OF PART 63.—EMISSION LIMITS

[As stated in § 63.8790(a), you must comply with the emission limits in the following table:]

For . . .	You must . . .
1. Each existing, new, or reconstructed loop slitter adhesive use affected source.	Not use any HAP-based adhesives.
2. Each new or reconstructed flame lamination affected source	Reduce HAP emissions by 90 percent.
3. Each existing flame lamination affected sources	There are no emission limits for existing flame lamination sources. However, you must submit an initial notification per § 63.8816(b).

TABLE 2 TO SUBPART MMMMM OF PART 63.—OPERATING LIMITS FOR NEW OR RECONSTRUCTED FLAME LAMINATION AFFECTED SOURCES

[As stated in § 63.8790(b), you must comply with the operating limits in the following table:]

For each . . .	You must . . .
1. Scrubber	a. Maintain the daily average scrubber inlet liquid flow rate above the minimum value established during the performance test. b. Maintain the daily average scrubber effluent pH within the operating range value established during the performance test. c. If you use a venturi scrubber, maintain the daily average pressure drop across the venturi within the operating range value established during the performance test.
2. Other type of control device to which flame lamination emissions are ducted.	Maintain your operating parameter(s) within the ranges established during the performance test and according to your monitoring plan.

TABLE 3 TO SUBPART MMMMM OF PART 63.—PERFORMANCE TEST REQUIREMENTS FOR NEW OR RECONSTRUCTED FLAME LAMINATION AFFECTED SOURCES

[As stated in § 63.8800, you must comply with the requirements for performance tests for new or reconstructed flame lamination affected sources in the following table using the requirements in rows 1 through 5 of the table if you are measuring HCl and using a scrubber, row 6 if you are measuring HCN and using a scrubber, and row 7 if you are using any other control device:]

For each new or reconstructed flame lamination affected source, you must . . .	Using . . .	According to the following requirements . . .
1. Select sampling port's location and the number of traverse ports.	Method 1 or 1A in appendix A to part 60 of this chapter.	Sampling sites must be located at the inlet and outlet of the scrubber and prior to any releases to the atmosphere.
2. Determine velocity	Method 2, 2A, 2C, 2D, 2F, or 2G in appendix A to part 60 of this chapter.	
3. Determine gas molecular weight.	Not applicable	Assume a molecular weight of 29 (after moisture correction) for calculation purposes.
4. Measure moisture content of the stack gas.	Method 4 in appendix A to part 60 of this chapter.	
5. Measure HCl concentration if you use chlorinated fire retardants in the laminated foam.	a. Method 26A in appendix A to part 60 of this chapter.	i. Measure total HCl emissions and determine the reduction efficiency of the control device using Method 26A. ii. Collect scrubber liquid flow rate, scrubber effluent pH, and pressure drop (pressure drop data only required for venturi scrubbers) every 15 minutes during the entire duration of each 1-hour test run, and determine the average scrubber liquid flow rate, scrubber effluent pH, and pressure drop (pressure drop data only required for Venturi scrubbers) over the period of the performance test by computing the average of all of the 15-minute readings.
6. Measure HCN concentration if you do not use chlorinated fire retardants in the laminated foam.	a. A method approved by the Administrator.	i. Conduct the performance test according to the site-specific test plan submitted according to § 63.7(c)(2)(i). Measure total HCN emissions and determine the reduction efficiency of the control device. Any performance test which measures HCN concentrations must be submitted for the administrator's approval prior to testing. You must use EPA Method 301 (40 CFR part 63, Appendix A) to validate your method. ii. Collect scrubber liquid flow rate, scrubber effluent pH, and pressure drop (pressure drop data only required for venturi scrubbers) every 15 minutes during the entire duration of each 1-hour test run, and determine the average scrubber liquid flow rate, scrubber effluent pH, and pressure drop (pressure drop data only required for venturi scrubbers) over the period of the performance test by computing the average of all of the 15-minute readings.

[As stated in § 63.8800, you must comply with the requirements for performance tests for new or reconstructed flame lamination affected sources in the following table using the requirements in rows 1 through 5 of the table if you are measuring HCl and using a scrubber, row 6 if you are measuring HCN and using a scrubber, and row 7 if you are using any other control device:]

For each new or reconstructed flame lamination affected source, you must . . .	Using . . .	According to the following requirements . . .
7. Determine control device efficiency and establish operating parameter limits with which you will demonstrate continuous compliance with the emission limit that applies to the source if you use any control device other than a scrubber.	a. EPA-approved methods and data from the continuous parameter monitoring system.	i. Conduct the performance test according to the site-specific test plan submitted according to § 63.7(c)(2)(i). ii. Collect operating parameter data as specified in the site-specific test plan.

TABLE 4 TO SUBPART MMMMM OF PART 63.—INITIAL COMPLIANCE WITH EMISSION LIMITS

[As stated in § 63.8806, you must comply with the requirements to demonstrate initial compliance with the applicable emission limits in the following table:]

For . . .	For the following emission limit . . .	You have demonstrated initial compliance if . . .
1. Each new, reconstructed, or existing loop slitter adhesive use affected source.	Eliminate use of HAP-based adhesives ..	You do not use HAP-based adhesives.
2. Each new or reconstructed flame lamination affected source using a scrubber.	Reduce HAP emissions by 90 percent ...	The average HAP emissions, measured over the period of the performance test(s), are reduced by 90 percent.
3. Each new or reconstructed flame lamination affected source using any other control device emissions by.	Reduce HAP emissions by 90 percent ...	The average HAP emissions, measured over the period of the performance test(s), are reduced by 90 percent.

TABLE 5 TO SUBPART MMMMM OF PART 63.—CONTINUOUS COMPLIANCE WITH EMISSION LIMITS AND OPERATING LIMITS

[As stated in § 63.8812(a), you must comply with the requirements to demonstrate continuous compliance with the applicable emission limits or operating limits in the following table:]

For . . .	For the following emission limits or operating limits . . .	You must demonstrate continuous compliance by . . .
1. Each new, reconstructed, or existing loop slitter affected source.	Eliminate use of HAP-based adhesives ..	Not using HAP-based adhesives.
2. Each new or reconstructed flame lamination affected source using a scrubber.	a. Maintain the daily average scrubber inlet liquid flow rate above the minimum value established during the performance. b. Maintain the daily average scrubber effluent pH within the operating range established during the performance test. c. Maintain the daily average pressure drop across the venturi within the operating range established during the performance test. If you use another type of scrubber (*e.g.*, packed bed or spray tower scrubber), monitoring pressure drop is not required.	i. Collecting the scrubber inlet liquid flow rate and effluent pH monitoring data according to § 63.8804(a) through (c). ii. Reducing the data to 1-hour and daily block averages according to the requirements in § 63.8804(a). iii. Maintaining each daily average scrubber inlet liquid flow rate above the minimum value established during the performance test. iv. Maintaining the daily average scrubber effluent pH within the operating range established during the performance test. v. If you use a venturi scrubber, maintaining the daily average pressure drop across the venturi within the operating range established during the performance test.

[As stated in § 63.8812(a), you must comply with the requirements to demonstrate continuous compliance with the applicable emission limits or operating limits in the following table:]

For . . .	For the following emission limits or operating limits . . .	You must demonstrate continuous compliance by . . .
3. Each new or reconstructed flame lamination affected source using any other control device.	a. Maintain the daily average operating parameters above the minimum value established during the performance test, or within the range established during the performance test, as applicable.	i. Collected the operating parameter data according to the site-specific test plan. ii. Reducing the data to one-hour averages according to the requirements in § 63.8804(a). iii. Maintaining the daily average during the rate above the minimum value established during the performance test, or within the range established during the performance test, as applicable.

TABLE 6 TO SUBPART MMMMM OF PART 63.—REQUIREMENTS FOR REPORTS

[As stated in § 63.8818(a), you must submit a compliance report that includes the information in § 63.8818(e) through (g) as well as the information in the following table. Rows 1 and 3 of the following table apply to loop slitter affected sources. Rows 1 through 5 apply to flame lamination affected sources. You must also submit startup, shutdown, and malfunction reports according to the requirements in the following table if you own or operate a new or reconstructed flame lamination affected source:]

If . . .	Then you must submit a report or statement that . .
1. There are no deviations from any emission limitations that apply to you.	There were no deviations from the emission limitations during the reporting period.
2. There were no periods during which the operating parameter monitoring systems were out-of-control in accordance with the monitoring plan.	There were no periods during which the CPMS were out-of-control during the reporting period.
3. There was a deviation from any emission limitation during the reporting period.	Contains the information in § 63.8818(e)(5).
4. There were periods during which the operating parameter monitoring systems were out-of-control in information in accordance with the monitoring plan.	Contains the information in § 63.8818(f)(3).
5. There was a startup, shutdown, or malfunction where the source did not meet the emission limitations set out in § 63.8790 at a new or reconstructed flame lamination affected source during the reporting period that is not consistent with your startup, shutdown, and malfunction plan..	Contains the information in § 63.8818(i).

TABLE 7 TO SUBPART MMMMM OF PART 63.—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART MMMMM

[As stated in § 63.8826, you must comply with the applicable General Provisions requirements according to the following table:]

Citation	Requirement	Applies to subpart MMMMM	Explanation
§ 63.1	Initial applicability determination; applicability after standard established; permit requirements; extensions; notifications.	Yes.	
§ 63.2	Definitions	Yes	Additional definitions are found in § 63.8830.
§ 63.3	Units and abbreviations	Yes.	
§ 63.4	Prohibited activities; compliance date; circumvention, severability.	Yes.	
§ 63.5	Construction/reconstruction applicability; applications; approvals.	Yes.	
§ 63.6(a)	Compliance with standards and maintenance requirements-applicability.	Yes.	
§ 63.6(b)(1)–(4)	Compliance dates for new or reconstructed sources.	Yes	§ 63.8786 specifies compliance dates.
§ 63.6(b)(5)	Notification if commenced construction or reconstruction after proposal.	Yes.	
§ 63.6(b)(6)	[Reserved]	Yes.	
§ 63.6(b)(7)	Compliance dates for new or reconstructed area sources that become major.	Yes	§ 63.8786 specifies compliance dates.

[As stated in § 63.8826, you must comply with the applicable General Provisions requirements according to the following table:]

Citation	Requirement	Applies to subpart MMMMM	Explanation
§ 63.6(c)(1)–(2)	Compliance dates for existing sources.	Yes	§ 63.8786 specifies compliance dates.
§ 63.6(c)(3)–(4)	[Reserved]	Yes.	
§ 63.6(c)(5)	Compliance dates for existing area sources that become major.	Yes	§ 63.8786 specifies compliance dates.
§ 63.6(d)	[Reserved]	Yes.	
§ 63.6(e)(1)	Operation and maintenance requirements.	Yes.	
§ 63.6(e)(2)	[Reserved]	Yes.	
§ 63.6(e)(3)	Startup, shutdown, and malfunction plans.	Yes	Only applies to new or reconstructed flame lamination affected sources.
§ 63.6(f)(1)	Compliance except during SSM	Yes	Only applies to new or reconstructed flame lamination affected sources.
§ 63.6(f)(2)–(3)	Methods for determining compliance.	Yes.	
§ 63.6(g)	Use of an alternative nonopacity emission standard.	Yes.	
§ 63.6(h)	Compliance with opacity/visible emission standards.	No	Subpart MMMMM does not specify opacity or visible emission standards.
§ 63.6(i)	Extension of compliance with emission standards.	Yes.	
§ 63.6(j)	Presidential compliance exemption.	Yes.	
§ 63.7(a)(1)–(2)	Performance test dates	Yes	Except for loop slitter affected sources as specified in in § 63.8798(a).
§ 63.7(a)(3)	Administrator's section 114 authority to require a performance test.	Yes.	
§ 63.7(b)	Notification of performance test and rescheduling.	Yes.	
§ 63.7(c)	Quality assurance program and site-specific test plans.	Yes.	
§ 63.7(d)	Performance testing facilities	Yes.	
§ 63.7(e)(1)	Conditions for conducting performance tests.	Yes.	
§ 63.7(f)	Use of an alternative test method.	Yes.	
§ 63.7(g)	Performance test data analysis, recordkeeping, and reporting.	Yes.	
§ 63.7(h)	Waiver of performance tests	Yes.	
§ 63.8(a)(1)–(2)	Applicability of monitoring requirements.	Yes	Unless otherwise specified, all of § 63.8 applies only to new or reconstructed flame lamination sources. Additional monitoring requirements for these sources are found in §§ 63.8794(f) and (g) and 63.8804.
§ 63.8(a)(3)	[Reserved]	Yes.	
§ 63.8(a)(4)	Monitoring with flares	No	Subpart MMMMM does not refer directly or indirectly to § 63.11.
§ 63.8(b)	Conduct of monitoring and procedures when there are multiple effluents and multiple monitoring systems.	Yes.	
§ 63.8(c)(1)–(3)	Continuous monitoring system (CMS) operation and maintenance.	Yes	Applies as modified by § 63.8794(f) and (g).
§ 63.8(c)(4)	Continuous monitoring system requirements during breakdown, out-of-control, repair, maintenance, and high-level calibration drifts.	Yes	Applies as modified by § 63.8794(g).

[As stated in § 63.8826, you must comply with the applicable General Provisions requirements according to the following table:]

Citation	Requirement	Applies to subpart MMMMM	Explanation
§ 63.8(c)(5)	Continuous opacity monitoring system (COMS) minimum procedures.	No	Subpart MMMMM does not have opacity or visible emission standards.
§ 63.8(c)(6)	Zero and high level calibration checks.	Yes	Applies as modified by § 63.8794(f).
§ 63.8(c)(7)–(8)	Out-of-control periods, including reporting.	Yes.	
§ 63.8(d)–(e)	Quality control program and CMS performance evaluation.	No	Applies as modified by § 63.8794(f) and (g).
§ 63.8(f)(1)–(5)	Use of an alternative monitoring method.	Yes.	
§ 63.8(f)(6)	Alternative to relative accuracy test.	No	Only applies to sources that use continuous emissions monitoring systems (CEMS).
§ 63.8(g)	Data reduction	Yes	Applies as modified by § 63.8794(g).
§ 63.9(a)	Notification requirements—applicability.	Yes.	
§ 63.9(b)	Initial notifications	Yes	Except § 63.8816(c) requires new or reconstructed affected sources to submit the application for construction or reconstruction required by § 63.9(b)(1)(iii) in lieu of the initial notification.
§ 63.9(c)	Request for compliance extension.	Yes.	
§ 63.9(d)	Notification that a new source is subject to special compliance requirements.	Yes.	
§ 63.9(e)	Notification of performance test	Yes.	
§ 63.9(f)	Notification of visible emissions/opacity test.	No	Subpart MMMMM does not have opacity or visible emission standards.
§ 63.9(g)(1)	Additional CMS notifications—date of CMS performance evaluation.	Yes.	
§ 63.9(g)(2)	Use of COMS data	No	Subpart MMMMM does not require the use of COMS.
§ 63.9(g)(3)	Alternative to relative accuracy testing.	No	Applies only to sources with CEMS.
§ 63.9(h)	Notification of compliance status	Yes.	
§ 63.9(i)	Adjustment of submittal deadlines.	Yes.	
§ 63.9(j)	Change in previous information	Yes.	
§ 63.10(a)	Recordkeeping/reporting applicability.	Yes.	
§ 63.10(b)(1)	General recordkeeping requirements.	Yes	§§ 63.8820 and 63.8822 specify additional recordkeeping requirements.
§ 63.10(b)(2)(i)–(xi)	Records related to startup, shutdown, and malfunction periods and CMS.	Yes	Only applies to new or reconstructed flame lamination affected sources.
§ 63.10(b)(2)(xii)	Records when under waiver	Yes.	
§ 63.10(b)(2)(xiii)	Records when using alternative to relative accuracy test.	No	Applies only to sources with CEMS.
§ 63.10(b)(2)(xiv)	All documentation supporting initial notification and notification of compliance status.	Yes	
§ 63.10(b)(3)	Recordkeeping requirements for applicability determinations.	Yes.	
§ 63.10(c)	Additional recordkeeping requirements for sources with CMS.	Yes	Applies as modified by § 63.8794(g).
§ 63.10(d)(1)	General reporting requirements	Yes	§ 63.8818 specifies additional reporting requirements.
§ 63.10(d)(2)	Performance test results	Yes	
§ 63.10(d)(3)	Opacity or visible emissions observations.	No	Subpart MMMMM does not specify opacity or visible emission standards.

[As stated in § 63.8826, you must comply with the applicable General Provisions requirements according to the following table:]

Citation	Requirement	Applies to subpart MMMMM	Explanation
§ 63.10(d)(4)	Progress reports for sources with compliance extensions.	Yes.	
§ 63.10(d)(5)	Startup, shutdown, and malfunction reports.	Yes	Only applies to new or reconstructed flame lamination affected sources.
§ 63.10(e)(1)	Additional CMS reports—general.	Yes	Applies as modified by § 63.8794(g).
§ 63.10(e)(2)(i)	Results of CMS performance evaluations.	Yes	Applies as modified by § 63.8794(g).
§ 63.10(e)(2)	Results of continuous opacity monitoring systems performance evaluations.	No	Subpart MMMMM does require the use of COMS.
§ 63.10(e)(3)	Excess emissions/CMS performance reports.	Yes	Only applies to new or reconstructed flame lamination affected sources.
§ 63.10(e)(4)	Continuous opacity monitoring system data reports.	No	Subpart MMMMM does not require the use of COMS.
§ 63.10(f)	Recordkeeping/reporting waiver	Yes	
§ 63.11.	Control device requirements—applicability.	No	Facilities subject to subpart MMMMM do not use flares as control devices.
§ 63.12	State authority and delegations	Yes	§ 63.8828 lists those sections of subparts MMMMM and A that are not delegated.
§ 63.13	Addresses	Yes.	
§ 63.14	Incorporation by reference	Yes	Subpart MMMMM does not incorporate any material by reference.
§ 63.15	Availability of information/confidentiality..	Yes.	

Subpart NNNNN—National Emission Standards for Hazardous Air Pollutants: Hydrochloric Acid Production

SOURCE: 68 FR 19090, Apr. 17, 2003, unless otherwise noted.

WHAT THIS SUBPART COVERS

63.8980 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants (NESHAP) and work practice standards for hazardous air pollutants (HAP) emitted from hydrochloric acid (HCl) production. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and work practice standards.

§ 63.8985 Am I subject to this subpart?

(a) You are subject to this subpart if you own or operate an HCl production facility that produces a liquid HCl product at a concentration of 30 weight percent or greater during its normal operations and is located at, or is part of, a major source of HAP. This does not include HCl production facilities that only produce occasionally liquid HCl product at a concentration of 30 weight percent or greater.

(1) An HCl production facility is the collection of unit operations and equipment associated with the production of liquid HCl product. The HCl production facility begins at the point where a gaseous stream containing HCl enters the HCl production unit. The HCl production facility includes all HCl storage tanks that contain liquid HCl product that is produced in the HCl production unit, with the exceptions noted in paragraph (a)(2) of this section. The HCl production facility also includes all HCl transfer operations that load HCl product produced in the HCl production unit into a tank truck, rail car, ship, or barge, along with the piping and other equipment in HCl service used to transfer liquid HCl product from the HCl production unit to the HCl storage tanks and/or HCl transfer operations. The HCl production facility ends at the point that the liquid HCl

product produced in the HCl production unit is loaded into a tank truck, rail car, ship, or barge, at the point the HCl product enters another process on the plant site, or at the point the HCl product leaves the plant site via pipeline.

(2) Storage tanks that are dedicated feedstock tanks for another process and storage tanks that store HCl dedicated for use in wastewater treatment are not considered part of an HCl production facility.

(3) A major source of HAP emissions is any stationary source or group of stationary sources within a contiguous area under common control that emits or has the potential to emit any single HAP at a rate of 9.07 megagrams (10 tons) or more per year or any combination of HAP at a rate of 22.68 megagrams (25 tons) or more per year.

(b) An HCl production facility is not subject to this subpart if it is also subject to NESHAP under one of the subparts listed in paragraphs (b)(1) through (5) of this section.

(1) 40 CFR part 63, subpart S, National Emission Standards for Hazardous Air Pollutants from the Pulp and Paper Industry.

(2) 40 CFR part 63, subpart CCC, National Emission Standards for Hazardous Air Pollutants for Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants.

(3) 40 CFR part 63, subpart MMM, National Emission Standards for Hazardous Air Pollutants for Pesticide Active Ingredient Production.

(4) 40 CFR part 63, subpart EEE, National Emission Standards for Hazardous Air Pollutants for Hazardous Waste Combustors.

(5) 40 CFR part 63, subpart GGG, National Emission Standards for Pharmaceuticals Production.

(c) An HCl production facility is not subject to this subpart if it is located following the incineration of chlorinated waste gas streams, waste liquids, or solid wastes, and the emissions from the HCl production facility are subject to one of the requirements listed in paragraphs (c)(1) through (3) of this section.

(1) Section 63.113(c), subpart G, National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater.

(2) Section 264.343(b), Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities (subpart O, Incinerators).

(3) Section 266.107, subpart H, Burning of Hazardous Waste in Boilers and Industrial Furnaces.

(d) An HCl production facility is not subject to this subpart if it produces HCl through the direct synthesis of hydrogen and chlorine and is part of a chlor-alkali facility.

(e) An HCl production facility is not subject to this subpart if it is a research and development facility.

(f) An HCl production facility is not subject to this subpart if all of the gaseous streams containing HCl and chlorine (Cl_2) from HCl process vents, HCl storage tanks, and HCl transfer operations are recycled or routed to another process prior to being discharged to the atmosphere.

§ 63.8990 What parts of my plant does this subpart cover?

(a) This subpart applies to each new, reconstructed, or existing affected source at an HCl production facility.

(b) The affected source is the group of one or more HCl production facilities at a plant site that are subject to this subpart, and all associated wastewater operations, which contain the collection of emission streams listed in paragraphs (b)(1) through (5) of this section.

(1) Each emission stream from an HCl process vent.

(2) Each emission stream from an HCl storage tank.

(3) Each emission stream from an HCl transfer operation.

(4) Each emission stream resulting from leaks from equipment in HCl/Cl_2 service.

(5) Each emission stream from HCl wastewater operations. There are no emission limitations or other requirements in this subpart that apply to HCl wastewater operations.

(c) An affected source is a new affected source if you commenced construction of the affected source after

September 18, 2001 and you met the applicability criteria of § 63.8985 at the time you commenced construction.

(d) An affected source is reconstructed if you meet the criteria as defined in § 63.2.

(e) An affected source is existing if it is not new or reconstructed.

§ 63.8995 When do I have to comply with this subpart?

(a) If you have a new or reconstructed affected source, you must comply with this subpart according to paragraphs (a)(1) or (2) of this section.

(1) If you start up your affected source before April 17, 2003, you must comply with the emission limitations and work practice standards in this subpart no later than April 17, 2003.

(2) If you start up your affected source after April 17, 2003, you must comply with the emission limitations and work practice standards in this subpart upon startup of your affected source.

(b) If you have an existing affected source, you must comply with the emission limitations and work practice standards no later than 3 years after April 17, 2003.

(c) If you have an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP, the provisions in paragraphs (c)(1) and (2) of this section apply.

(1) Any portion of the existing facility that is a new affected source or a new reconstructed source must be in compliance with this subpart upon startup.

(2) All other parts of the source must be in compliance with this subpart no later than the date 3 years after the area source becomes a major source.

(d) You must meet the notification requirements in § 63.9045 according to the schedule in § 63.9045 and in subpart A of this part. Some of the notifications must be submitted before you are required to comply with the emission limitations in this subpart.

EMISSION LIMITATIONS AND WORK PRACTICE STANDARDS

§ 63.9000 What emission limitations and work practice standards must I meet?

(a) With the exceptions noted in paragraph (c) of this section, you must meet the applicable emission limit and work practice standard in Table 1 to this subpart for each emission stream listed under § 63.8990(b)(1) through (4) that is part of your affected source.

(b) With the exceptions noted in paragraph (c) of this section, you must meet the applicable operating limit in Table 2 to this subpart for each emission stream listed under § 63.8990(b)(1) through (3) that is part of your affected source.

(c) The emission streams listed in paragraphs (c)(1) through (3) of this section are exempt from the emission limitations, work practice standards, and all other requirements of this subpart.

(1) Emission streams from HCl storage tanks that never store liquid HCl product with a concentration of 30 weight percent or greater.

(2) Emission streams from HCl transfer operations that never load liquid HCl product with a concentration of 30 weight percent or greater.

(3) Emission streams from HCl wastewater operations.

GENERAL COMPLIANCE REQUIREMENTS

§ 63.9005 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limitations and work practice standards in this subpart at all times, except during periods of startup, shutdown, and malfunction.

(b) You must always operate and maintain your affected source, including air pollution control and monitoring equipment, according to the provisions in § 63.6(e)(1)(i).

(c) You must develop and implement a written startup, shutdown, and malfunction plan according to the provisions in § 63.6(e)(3).

(d) All monitoring equipment shall be installed, calibrated, maintained, and operated according to manufacturer's specifications or other written procedures that provide adequate assurance that the equipment would reasonably be expected to monitor accurately. For each monitoring system required in this section, you must develop, implement, and submit to the Administrator a site-specific monitoring plan that addresses the installation requirements in paragraphs (d)(1) through (3) of this section, the ongoing procedures in paragraphs (d)(4) through (6) of this section, and the requirements in §63.9025, as applicable. You must submit the plan with your Notification of Compliance Status. Upon request of the Administrator, you must promptly correct any deficiencies in a site-specific monitoring plan and submit the revised plan.

(1) Installation of the continuous monitoring system (CMS) sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (*e.g.*, on or downstream of the last control device).

(2) Performance and equipment specifications for the sample interface, the pollutant concentration or parametric signal analyzer, and the data collection and reduction system.

(3) Performance evaluation procedures and acceptance criteria (*e.g.*, calibrations).

(4) Ongoing operation and maintenance (O&M) procedures in accordance with the general requirements of §§63.8(c)(1), (3), (4)(ii), (7), and (8), and 63.9025.

(5) Ongoing data quality assurance procedures in accordance with the general requirements of §63.8(d).

(6) Ongoing recordkeeping and reporting procedures in accordance with the general requirements of §63.10(c) and (e)(1) and (2)(i).

TESTING AND INITIAL COMPLIANCE REQUIREMENTS

§63.9010 By what date must I conduct performance tests?

(a) If you have a new or reconstructed affected source, you must conduct performance tests within 180 calendar days after the compliance date that is specified for your source in §63.8995(a) and according to the provisions in §63.7(a)(2).

(b) If you have an existing affected source, you must conduct performance tests within 180 calendar days after the compliance date that is specified for your existing affected source in §63.8995(b) and according to the provisions in §63.7(a)(2).

(c) If you commenced construction or reconstruction between September 18, 2001 and April 17, 2003, you must demonstrate initial compliance with either the proposed emission limitation or the promulgated emission limitation no later than 180 calendar days after April 17, 2003 or within 180 calendar days after startup of the source, whichever is later, according to §63.7(a)(2)(ix).

§63.9015 When must I conduct subsequent performance tests?

(a) You must conduct all applicable performance tests according to the procedures in §63.9020 on the earlier of your title V operating permit renewal or within 5 years of issuance of your title V permit.

(b) You must report the results of subsequent performance tests within 60 days after the completion of the test. This report should also verify that the operating limits for your affected source have not changed or provide documentation of revised operating limits established as specified in Table 2 to this subpart. The reports for all subsequent performance tests should include all applicable information required in §63.9050.

§63.9020 What performance tests and other procedures must I use?

(a) You must conduct each performance test in Table 3 to this subpart that applies to you as directed in paragraphs (a)(1) through (4) of this section, except as noted in paragraphs (b) and (c) of this section.

(1) You must develop a site-specific test plan according to §63.7(c)(2) and conduct each performance test according to the site-specific test plan.

(2) You must conduct each performance test under representative conditions according to the requirements in

§ 63.7(e)(1) and under the specific conditions that this subpart specifies in Table 3.

(3) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in § 63.7(e)(1).

(4) You must conduct at least three separate test runs for each performance test required in this section, as specified in § 63.7(e)(3). Each test run must last at least 1 hour.

(b) If you are complying with a percent reduction emission limitation, you must determine the percent reduction in accordance with paragraphs (b)(1) and (2) of this section.

$$E_i = K_2 \left(C_i M_i\right) Q_i \qquad \text{Equation 1}$$

$$E_o = K_2 \left(C_o M_o\right) Q_o \qquad \text{Equation 2}$$

(1) Calculate the mass rate of either HCl or chlorine using Equations 1 and 2 of this section:

where:

C_i, C_o = Concentration of HCl or Cl_2 in the gas stream at the inlet and outlet of the control device(s), respectively, dry basis, parts per million by volume.

E_i, E_o = Mass rate of HCl or Cl_2 at the inlet and outlet of the control device(s), respectively, dry basis, kilogram per hour.

M_i, M_o = Molecular weight of HCl or Cl_2 at the inlet and outlet of the control device(s), respectively, gram/gram-mole.

Q_i, Q_o = Flow rate of gas stream at the inlet and outlet of the control device(s), respectively, dry standard cubic meter per minute.

K_2 = Constant, 2.494×10^{-6} (parts per million)^{M1} (gram-mole per standard cubic meter) (kilogram/gram) (minute/hour), where standard temperature (gram-mole per standard cubic meter) is 20 °C.

(2) Calculate the percent reduction of HCl or Cl_2 using Equation 3 of this section:

$$R = \frac{E_i - E_o}{E_i}(100) \qquad \text{Equation 3}$$

where:

R = Control efficiency of control device(s).

E_i = Mass rate of HCl or Cl_2 to the inlet to the control device(s), kilograms per hour.

E_o = Mass rate of HCl or Cl_2 at the outlet of the control device(s), kilograms per hour.

(c) You may prepare a design evaluation in lieu of conducting a performance test for HCl storage tanks and HCl transfer operations that are not routed to a control device that also controls HCl process vent emissions or any other continuous vent stream. The design evaluation shall include documentation demonstrating that the control technique being used achieves the required control efficiency when a liquid HCl product with a concentration of 30 weight percent or greater is being loaded into the storage tank, or a tank truck, rail car, ship, or barge.

(1) If you use a caustic scrubber control device or a water scrubber control device, the design evaluation shall address the vent stream composition, constituent concentrations, liquid-to-vapor ratio, scrubbing liquid flow rate and concentration, temperature, and the reaction kinetics of the constituents with the scrubbing liquid. The design evaluation shall establish the design exhaust vent concentration level and shall include the additional information in paragraphs (c)(1)(i) and (ii) of this section for trays and a packed column scrubber.

(i) Type and total number of theoretical and actual trays.

(ii) Type and total surface area of packing for entire column and for individual packed sections, if the column contains more than one packed section.

(2) If you use any other control device, the design evaluation shall address the composition and HAP concentration of the vent stream immediately preceding the control device, as well as other parameters necessary to demonstrate that the control technique being used achieves the required control efficiency when a liquid HCl product with a concentration of 30 weight percent or greater is being loaded into the storage tank, or a tank truck, rail car, ship, or barge.

(d) You are not required to conduct a performance test for an emission point for which a performance test was conducted within the previous 5-year period, using the same test methods specified in this section and for which either no deliberate process changes have been made since the test, or the owner or operator can demonstrate that the results of the performance test, with or without adjustments, reliably demonstrate compliance despite process changes. The operating limits reported under the previous performance test shall be sufficient to meet the monitoring requirements in this subpart.

(e) You must establish all operating limits with which you will demonstrate continuous compliance with the applicable emission limits in Table 1 to this subpart as described in paragraphs (e)(1) through (3) of this section.

(1) If you use a caustic scrubber control device or water scrubber control device and you conduct a performance test, you must establish operating limits according to paragraphs (e)(1)(i) and (ii) of this section. If a series of control devices are used, you must establish separate operating limits for each device.

(i) You must establish the minimum value as the operating limit for scrubber inlet liquid or recirculating liquid flow rate, as appropriate. The minimum value shall be based on the scrubber inlet liquid or recirculating liquid flow rate, as appropriate, values measured during the performance test.

(ii) You must establish the minimum and maximum values as the operating limits for scrubber effluent pH. The minimum and maximum values shall be based on the scrubber effluent pH values measured during the performance test.

(2) If you use any other control device and you conduct a performance test, you must establish operating limits according to your site-specific test plan submitted in accordance with §63.7(c)(2)(i). The operating limits shall be based on the operating parameter values measured during the performance test. If a series of control devices are used, you must establish separate operating limits for each device.

(3) If you do not conduct a performance test for a HCl storage tank or HCl transfer operation, you must use engineering assessments and/or manufacturer's recommendations to establish the operating limits specified in paragraphs (e)(1)(i) and (ii), or (e)(2), of this section.

(4) As needed in applicability determinations, you must use ASTM E224 to determine the HCl concentration in liquid products.

§63.9025 What are my monitoring installation, operation, and maintenance requirements?

(a) For each operating parameter that you are required by §63.9020(d) to monitor, you must install, operate, and maintain each CMS according to the requirements in paragraphs (a)(1) through (6) of this section.

(1) You must operate your CMS and collect data at all times the process is operating.

(2) You must collect data from at least four equally spaced periods each hour.

(3) For at least 75 percent of the operating hours in a 24-hour period, you must have valid data (as defined in your site-specific monitoring plan) for at least 4 equally spaced periods each hour.

(4) For each hour that you have valid data from at least four equally spaced periods, you must calculate the hourly average value using all valid data or, where data are collected from an automated CMS, using at least one measured value per minute if measured more frequently than once per minute.

(5) You must calculate the daily average using all of the hourly averages calculated according to paragraph (a)(4) of this section for the 24-hour period.

(6) You must record the results for each inspection, calibration, and validation check as specified in your site-specific monitoring plan.

(b) For scrubber control devices, you may request approval, in accordance with §63.8(f), to monitor parameters other than those specified in §63.9020(e). In accordance with §63.8(f), you must submit a monitoring plan to the Administrator and the plan must meet the requirements in paragraphs (a) and (b)(1) through (3) of this section. You must conduct monitoring in accordance with the plan submitted to the Administrator unless comments received from the Administrator require an alternate monitoring scheme.

(1) Identify the operating parameter to be monitored to ensure that the control or capture efficiency measured during the initial compliance test is maintained.

(2) Discuss why this parameter is appropriate for demonstrating ongoing compliance.

(3) Identify the specific monitoring procedures.

(c) For any other control device, you must ensure that the CMS is operated according to a monitoring plan submitted to the Administrator as required by § 63.8(f). The monitoring plan must meet the requirements in paragraphs (a) and (c)(1) through (3) of this section. You must conduct monitoring in accordance with the plan submitted to the Administrator, as amended, unless comments received from the Administrator require an alternate monitoring scheme.

(1) Identify the operating parameter to be monitored to ensure that the control or capture efficiency measured during the initial compliance test is maintained.

(2) Discuss why this parameter is appropriate for demonstrating ongoing compliance.

(3) Identify the specific monitoring procedures.

§ 63.9030 How do I demonstrate initial compliance with the emission limitations and work practice standards?

(a) You must demonstrate initial compliance with each emission limit and work practice standard that applies to you according to Table 4 to this subpart.

(b) You must establish each site-specific operating limit in Table 2 to this subpart that applies to you according to the requirements in § 63.9020 and Table 3 to this subpart.

(c) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in § 63.9045(e).

CONTINUOUS COMPLIANCE REQUIREMENTS

§ 63.9035 How do I monitor and collect data to demonstrate continuous compliance?

(a) You must monitor and collect data according to this section.

(b) If you use a caustic scrubber or a water scrubber/absorber to meet the emission limits in Table 1 to this subpart, you must keep the records specified in paragraphs (b)(1) and (2) of this section to support your compliance demonstration.

(1) Records of daily average scrubber inlet liquid or recirculating liquid flow rate, as appropriate.

(2) Records of the daily average scrubber effluent pH.

(c) If you use any other control device to meet the emission limits in Table 1 to this subpart, you must keep records of the operating parameter values identified in your monitoring plan in § 63.9025(c) to support your compliance demonstration.

(d) Except for monitor malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), you must monitor continuously (or collect data at all required intervals) at all times that the affected source is operating. This includes periods of startup, shutdown, or malfunction when the affected source is operating. A monitoring malfunction includes, but is not limited to, any sudden, infrequent, not reasonably preventable failure of the monitoring equipment to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

(e) You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels, nor may such data be used in fulfilling a minimum data availability requirement, if applicable. You must use all the data collected during all other periods in assessing the operation of the control device and associated control system.

§63.9040 How do I demonstrate continuous compliance with the emission limitations and work practice standards?

(a) You must demonstrate continuous compliance with each emission limit and work practice standard in Table 1 to this subpart that applies to you according to Table 4 to this subpart.

(b) You must demonstrate continuous compliance with each operating limit in Table 2 of this subpart that applies to you according to Tables 4 and 5 to this subpart.

(c) You must report each instance in which you did not meet an emission limit, work practice standard or operating limit in Table 1 or 2 to this subpart, respectively, that applies to you. This includes periods of startup, shutdown, and malfunction. These instances are deviations from the emission limitations in this subpart. These deviations must be reported according to the requirements in §63.9050.

(d) During periods of startup, shutdown, or malfunction, you must operate in accordance with the startup, shutdown, and malfunction plan.

(e) Consistent with §§63.6(e) and 63.7(e)(1), deviations that occur during a period of startup, shutdown, or malfunction are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with the startup, shutdown, and malfunction plan. The Administrator will determine whether deviations that occur during a period of startup, shutdown, or malfunction are violations, according to the provisions in §63.6(e).

NOTIFICATIONS, REPORTS, AND RECORDS

§63.9045 What notifications must I submit and when?

(a) You must submit all of the notifications in §§63.7(b) and (c), 63.8(f)(4) and (6), and 63.9 (b) through (h) that apply to you by the dates specified.

(b) As specified in §63.9(b)(2), if you start up your affected source before April 17, 2003, you must submit an Initial Notification not later than 120 calendar days after April 17, 2003.

(c) As specified in §63.9(b)(4), if you start up your new or reconstructed affected source on or after April 17, 2003, you must submit the application for construction or reconstruction required by §63.9(b)(1)(iii) in lieu of the initial notification.

(d) You must submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin, as required in §63.7(b)(1).

(e) When you conduct a performance test as specified in Table 3 to this subpart, you must submit a Notification of Compliance Status according to §63.9(h)(2)(ii).

(f) You must submit the Notification of Compliance Status, including the performance test results, before the close of business on the 60th calendar day following the completion of the performance test according to §63.10(d)(2).

(g) The Notification of Compliance Status must also include the information in paragraphs (g)(1) through (2) of this section that applies to you.

(1) Each operating parameter value averaged over the full period of the performance test (for example, average pH).

(2) Each operating parameter range within which HAP emissions are reduced to the level corresponding to meeting the applicable emission limits in Table 1 to this subpart.

§63.9050 What reports must I submit and when?

(a) You must submit each report in Table 6 to this subpart that applies to you.

(b) Unless the Administrator has approved a different schedule for submission of reports under §63.10(a), you must submit each report according to paragraphs (b)(1) through (5) of this section.

(1) The first compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.8995 and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for your source in §63.8995.

(2) The first compliance report must be postmarked or delivered no later than July 31 or January 31, whichever

date follows the end of the first calendar half after the compliance date that is specified for your affected source in § 63.8995.

(3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(5) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6 (a)(3)(iii)(A) or 71.6 (a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (4) of this section.

(c) The compliance report must contain the following information in paragraphs (c)(1) through (7) of this section.

(1) Company name and address.

(2) Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If you had a startup, shutdown, or malfunction during the reporting period and you took actions consistent with your startup, shutdown, and malfunction plan, the compliance report must include the information in § 63.10(d)(5)(i).

(5) If there are no deviations from any emission limitations that apply to you, a statement that there were no deviations from the emission limitations during the reporting period.

(6) If there were no periods during which the CMS was out-of-control in accordance with the monitoring plan, a statement that there were no periods during which the CMS was out-of-control during the reporting period.

(7) Verification that you continue to use the equipment LDAR plan and information that explains any periods when the procedures in the plan were not followed and the corrective actions were not taken.

(d) For each deviation from an emission limitation occurring at an affected source where you are using a CMS to comply with the emission limitation in this subpart, you must include the information in paragraphs (c)(1) through (6) of this section and the following information in paragraphs (d)(1) through (9) of this section. This includes periods of startup, shutdown, and malfunction.

(1) The date and time that each malfunction started and stopped.

(2) The date and time that each CMS was inoperative, except for zero (low-level) and high-level checks.

(3) The date, time, and duration that each CMS was out-of-control, including the information in § 63.8(c)(8).

(4) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(5) A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.

(6) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(7) A summary of the total duration of CMS downtime during the reporting period, and the total duration of CMS downtime as a percent of the total source operating time during that reporting period.

(8) A brief description of the process units.

(9) A description of any changes in CMS, processes, or controls since the last reporting period.

(e) Each affected source that has obtained a title V operating permit pursuant to 40 CFR part 70 or 71 must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 71.6(a)(3)(iii)(A). If an affected source submits a compliance report pursuant to Table 6 to this subpart along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 71.6(a)(3)(iii)(A), and the compliance report includes all required information concerning deviations from any emission limitation in this subpart, submission of the compliance report shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a compliance report shall not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the permit authority.

(f) For each startup, shutdown, or malfunction during the reporting period that is not consistent with your startup, shutdown, and malfunction plan you must submit an immediate startup, shutdown and malfunction report. Unless the Administrator has approved a different schedule for submission of reports under § 63.10(a), you must submit each report according to paragraphs (f)(1) and (2) of this section.

(1) An initial report containing a description of the actions taken for the event must be submitted by fax or telephone within 2 working days after starting actions inconsistent with the plan.

(2) A follow-up report containing the information listed in § 63.10(d)(5)(ii) must be submitted within 7 working days after the end of the event unless you have made alternative reporting arrangements with the permitting authority.

§ 63.9055 What records must I keep?

(a) You must keep a copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, as required in § 63.10(b)(2)(xiv).

(b) You must also keep the following records specified in paragraphs (b)(1) through (5) of this section.

(1) The records in § 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

(2) Records of performance tests as required in § 63.10(b)(2)(viii).

(3) Records of operating parameter values that are consistent with your monitoring plan.

(4) Records of the date and time that each deviation started and stopped and whether the deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(5) Copies of the current versions of the site-specific monitoring plan and the equipment LDAR plan. You also must submit copies of these plans and any revisions or updates to the Administrator for comment only (not for approval).

§ 63.9060 In what form and how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious inspection and review, according to § 63.10(b)(1).

(b) As specified in § 63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record on site, or readily accessible from on site through a computer or other means, for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to § 63.10(b)(1). You can keep the records off site for the remaining 3 years. Records may be maintained in hard copy or computer-readable format including, but not limited to, on paper, microfilm, hard disk drive, floppy disk, compact disk, magnetic tape, or microfiche.

(d) You must keep each previous (*i.e.*, superseded) version of the site-specific monitoring plan and the LDAR plan for a period of 5 years after revision of the plan. If, at any time after adoption of a site-specific monitoring plan or an LDAR plan, your affected source ceases operation or is otherwise no longer subject to the provisions of this subpart, you must retain a copy of the most recent plan for 5 years from the date your source ceases operation or is no longer subject to this subpart.

OTHER REQUIREMENTS AND INFORMATION

§ 63.9065 What parts of the General Provisions apply to me?

(a) Table 7 to this subpart shows which parts of the General Provisions in §§ 63.1 through 63.15 apply to you.

§ 63.9070 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by us, the U.S. EPA, or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency, as well as U.S. EPA, has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under section 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities in paragraphs (c)(1) through (4) of this section that cannot be delegated to State, local, or tribal agencies are as follows.

(1) Approval of alternatives to requirements in §§ 63.8980, 63.8985, 63.8990, 63.8995, and 63.9000.

(2) Approval of major changes to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.90.

(3) Approval of major changes to monitoring under § 63.8(f) and as defined in § 63.90.

(4) Approval of major changes to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

§ 63.9075 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act in 40 CFR 63.2 and in this section as follows:

Caustic scrubber control device means any add-on device that mixes an aqueous stream or slurry containing a caustic substance with the exhaust gases from an HCl process vent, HCl storage tank, or HCl transfer operation to control emissions of HCl and/or Cl_2.

Chlor-alkali facility means a facility where chlorine and sodium or potassium hydroxide are produced as coproducts and hydrogen is produced as a by-product in an electrolytic process using either mercury cells, diaphragm cells, or membrane cells.

Continuous monitoring system, for purposes of the final rule, means liquid flow monitoring devices that meet the performance specifications given in § 63.9025(a); or pH monitoring devices that meet the performance specifications given in § 63.9025(a); or other control devices as mentioned in 63.9025(a) and (b) or § 63.9025(a) and (c).

Control device means an add-on device used to reduce HCl and/or Cl_2 emissions from an HCl process vent, HCl storage tank, or HCl transfer operation at an HCl production facility. An HCl production unit is not a control device.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including but not limited to any emission limitation or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limitation or work practice standard in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Emission limitation means any emission limit or operating limit.

Emission stream means a gaseous stream from an HCl process vent, an HCl storage tank, an HCl transfer operation, leaking equipment in HCl service, or HCl wastewater operations that is discharged to the atmosphere. Gaseous streams from HCl process vents, HCl storage tanks, and HCl transfer operations that are routed to another process or recycled for reaction or other use (*i.e.*, for pH control) of the HCl and/or Cl_2 are not emission streams. Gaseous streams from HCl transfer operations that are vapor balanced to an HCl storage tank subject to this subpart are not emission streams.

Equipment in HCl service means each pump, compressor, agitator, pressure relief device, sampling connection system, open-ended valve or line, valve, connector, and instrumentation system that contains 30 weight percent or greater of liquid HCl or 5 weight percent or greater of gaseous HCl at any time.

HCl process vent means the point of discharge to the atmosphere, or point of entry into a control device, of a gaseous stream that originates from an HCl production unit. The following points of discharge are not HCl process vents:

(1) A leak from equipment in HCl service subject to this subpart.

(2) An exit from a control device used to comply with this subpart.

(3) An HCl storage tank vent or HCl transfer operation vent subject to this subpart.

(4) A HCl wastewater operation vent subject to this subpart.

(5) A point of discharge from a relief valve.

(6) A point of discharge from an analyzer.

HCl production facility is defined in §63.8985(a)(i).

HCl production unit means an absorber or other vessel in which a liquid HCl product is manufactured by absorbing gaseous HCl into either water or an aqueous HCl solution.

HCl storage tank means a tank or other vessel that is used to store liquid HCl product. Tanks or vessels permanently attached to motor vehicles (such as trucks, railcars, barges, or ships) are not HCl storage tanks.

HCl transfer operation means the loading, into a tank truck, railcar, ship, or barge, of liquid HCl from a transfer (or loading) rack (as defined in this section) for which the predominant use is liquid HCl. The predominant use of a transfer (or loading) rack is the material that is loaded by the transfer (or loading) rack in the greatest amount.

HCl wastewater operation means an operation that handles and processes water containing HCl that is discarded from an HCl production facility.

Plant site means all contiguous or adjoining property that is under common control, including properties that are separated only by a road or other public right-of-way. Common control includes properties that are owned, leased, or operated by the same entity, parent entity, subsidiary, or any combination thereof.

Research and development facility means laboratory and pilot plant operations whose primary purpose is to conduct research and development into new processes and products, where the operations are under close supervision of technically trained personnel, and the operations are not engaged in the manufacture of products for commercial sale, except in a *de minimis* manner.

Responsible official means responsible official as defined in 40 CFR 70.2 of this chapter.

Transfer (or loading) rack means the collection of loading arms and loading hoses, at a single loading rack, that are used to fill tank trucks, railcars, ships, and/or barges. Transfer rack includes the associated pumps, meters, shutoff valves, relief valves, and other piping and valves.

Vapor balanced means connected to a piping system that is designed to collect vapors displaced from tank trucks, rail cars, ships, or barges during loading, and to route the collected vapors to the storage vessel from which the liquid being loaded originated, or to another storage vessel connected by a common header.

Vent means the point of discharge to the atmosphere or to a control device from either an HCl process vent, an HCl storage tank, or an HCl transfer operation.

Water scrubber control device means any add-on device that mixes an aqueous stream not containing a caustic substance with the exhaust gases from an HCl process vent, HCl storage tank, or HCl transfer operation to control emissions of HCl and/or Cl_2.

TABLES TO SUBPART NNNNN OF PART 63

As stated in §63.9000(a), you must comply with the following emission limits and work practice standards for each emission stream that is part of an affected source:

TABLE 1 TO SUBPART NNNNN OF PART 63.—EMISSION LIMITS AND WORK PRACTICE STANDARDS

For each. . .	You must meet the following emission limit and work practice standard.
1. Emission stream from an HCl process vent at an existing source.	a. Reduce HCl emissions by 99 percent or greater or to an outlet concentration of 20 ppm by volume or less; and b. Reduce Cl_2 emissions by 99 percent or greater or to an outlet concentration of 100 ppm by volume or less.
2. Emission stream from an HCl storage tank at an existing source.	Reduce HCl emissions by 99 percent or greater or to an outlet concentration of 120 ppm by volume or less.
3. Emission stream from an HCl transfer operation at an existing source.	Reduce HCl emissions by 99 percent or greater or to an outlet concentration of 120 ppm by volume or less.
4. Emission stream from leaking equipment in HCl/Cl_2 service at existing sources.	a. Prepare and operate at all times according to an equipment LDAR plan that describes in detail the measures that will be put in place to detect leaks and repair them in a timely fashion; and b. Submit the plan to the Administrator *for comment only* with your notification of Compliance Status; and c. You may incorporate by reference in such plan existing manuals that describe the measures in place to control leaking equipment emissions required as part of other federally enforceable requirements, provided that all manuals that are incorporated by reference are submitted to the Administrator.
5. Emission stream from an HCl process vent at a new source.	a. Reduce HCl emissions by 99.4 percent or greater or to an outlet concentration of 12 ppm by volume or less; and b. Reduce Cl_2 emissions by 99.8 percent or greater or to an outlet concentration of 20 ppm by volume or less.
6. Emission stream from an HCl storage tank at a new source.	Reduce HCl emissions by 99.9 percent or greater or to an outlet concentration of 12 ppm by volume or less.
7. Emission stream from an HCl transfer operation at a new source.	Reduce HCl emissions by 99 percent or greater or to an outlet concentration of 120 ppm by volume or less.

As stated in §63.9000(b), you must comply with the following operating limits for each emission stream that is part of an affected source that is vented to a control device:

TABLE 2 TO SUBPART NNNNN OF PART 63.—OPERATING LIMITS

For each . . .	You must . . .
1. Caustic scrubber or water scrubber/absorber	a. Maintain the daily average scrubber inlet liquid or recirculating liquid flow rate, as appropriate, above the operating limit; and b. Maintain the daily average scrubber effluent pH within the operating limits; or c. Instead of a. and b., maintain your operating parameter(s) within the operating limits established according to your monitoring plan established under §63.8(f).
2. Other type of control device to which HCl emissions are ducted.	Maintain your operating parameter(s) within the limits established during the performance test and according to your monitoring plan.

As stated in §63.9020, you must comply with the following requirements for performance tests for HCl production for each affected source:

TABLE 3 TO SUBPART NNNNN OF PART 63.—PERFORMANCE TEST REQUIREMENTS FOR HCL PRODUCTION AFFECTED SOURCES

For each HCl process vent and each HCl storage tank and HCl transfer operation for which you are conducting a performance test, you must . . .	Using . . .	Additional Information . . .
1. Select sampling port location(s) and the number of traverse points.	a. Method 1 or 1A in appendix A to 40 CFR part 60 of this chapter.	i. If complying with a percent reduction emission limitation, sampling sites must be located at the inlet and outlet of the control device prior to any releases to the atmosphere (or, if a series of control devices are used, at the inlet of the first control device and at the outlet of the final control device prior to any releases to the atmosphere); or ii. If complying with an outlet concentration emission limitation, the sampling site must be located at the outlet of the final control device and prior to any releases to the atmosphere.
2. Determine velocity and volumetric flow rate.	Method 2, 2A, 2C, 2D, 2F, or 2G in appendix A to 40 CFR part 60 of this chapter.	
3. Determine gas molecular weight	a. Not applicable	i. Assume a molecular weight of 29 (after moisture correction) for calculation purposes.
4. Measure moisture content of the stack gas.	Method 4 in appendix A to 40 CFR part 60 of this chapter.	
5. Measure HCl concentration and Cl_2 concentration from HCl process vents.	a. Method 26A in Appendix A to 40 CFR part 60 of this chapter.	i. An owner or operator may be exempted from measuring the Cl_2 concentration from an HCl process vent provided that a demonstration that Cl_2 is not likely to be present in the stream is submitted as part of the site-specific test plan required by § 63.9020(a)(2). This demonstration may be based on process knowledge, engineering judgement, or previous test results.
6. Establish operating limits with which you will demonstrate continuous compliance with the emission limits in Table 1 to this subpart, in accordance with § 63.9020(e)(1) or (2).		

As stated in § 63.9030, you must comply with the following requirements to demonstrate initial compliance with the applicable emission limits for each affected source vented to a control device and each work practice standard:

TABLE 4 TO SUBPART NNNNN OF PART 63.—INITIAL COMPLIANCE WITH EMISSION LIMITATIONS AND WORK PRACTICE STANDARDS

For each . . .	For the following emission limit or work practice standard . . .	You have demonstrated initial compliance if . . .
1. HCl process vent and each HCl storage tank and HCl transfer operation for which you are conducting a performance test.	a. In Table 1 to this subpart	i. The average percent reduction of HCl and Cl_2 (if applicable), measured over the period of the performance test conducted according to Table 3 of this subpart and determined in accordance with § 63.9020(b), is greater than or equal to the applicable percent reduction emission limitation specified in Table 1 of this subpart; or

For each . . .	For the following emission limit or work practice standard . . .	You have demonstrated initial compliance if . . .
		ii. The average HCl and Cl_2 (if applicable) concentration, measured over the period of the performance test conducted according to Table 3 of this subpart, is less than or equal to the applicable concentration emission limitation specified in Table 1 of this subpart.
2. HCl storage tank and HCl transfer operation for which you are preparing a design evaluation in lieu of conducting a performance test.	a. In Table 1 to this subpart	i. The percent reduction of HCl, demonstrated by a design evaluation prepared in accordance with § 63.9020(c), is greater than or equal to the applicable percent reduction emission limitation specified in Table 1 of this subpart; or ii. The HCl concentration, demonstrated by a design evaluation prepared in accordance with § 63.9020(c), is less than or equal to the applicable concentration emission limitation specified in Table 1 of this subpart.
3. Leaking equipment	a. In Table 1 to this subpart	i. You certify in your Notification of Compliance Status that you have developed and implemented your LDAR plan and submitted it to the Administrator **for comment only.**

As stated in § 63.9040, you must comply with the following requirements to demonstrate continuous compliance with the applicable emission limitations for each affected source vented to a control device and each work practice standard:

TABLE 5 TO SUBPART NNNNN OF PART 63.—CONTINUOUS COMPLIANCE WITH EMISSION LIMITATIONS AND WORK PRACTICE STANDARDS

For each . . .	For the following emission limitation and work practice standard . . .	You must demonstrate continuous compliance by . . .
1. Affected source using a caustic scrubber or water scrubber/absorber.	a. In Tables 1 and 2 to this subpart	i. Collecting the scrubber inlet liquid or recirculating liquid flow rate, as appropriate, and effluent pH monitoring data according to § 63.9025, consistent with your monitoring plan; and ii. Reducing the data to 1-hour and daily block averages according to the requirements in § 63.9025; and iii. Maintaining the daily average scrubber inlet liquid or recirculating liquid flow rate, as appropriate, above the operating limit; and iv. Maintaining the daily average scrubber effluent pH within the operating limits.
2. Affected source using any other control device.	a. In Tables 1 and 2 to this subpart	i. Conducting monitoring according to your monitoring plan established under § 63.8(f) in accordance with § 63.9025(c); and ii. Collecting the parameter data according to your monitoring plan established under § 63.8(f); and iii. Reducing the data to 1-hour and daily block averages according to the requirements in § 63.9025; and

For each . . .	For the following emission limitation and work practice standard . . .	You must demonstrate continuous compliance by . . .
		iv. Maintaining the daily average parameter values within the operating limits established according to your monitoring plan established under § 63.8(f).
3. Leaking equipment affected source	a. In Table 1 to this subpart	i. Verifying that you continue to use a LDAR plan; and ii. Reporting any instances where you deviated from the plan and the corrective actions taken.

As stated in § 63.9050(a), you must submit a compliance report that includes the information in § 63.9050(c) through (e) as well as the information in the following table. You must also submit startup, shutdown, and malfunction (SSM) reports according to the requirements in § 63.9050(f) and the following:

TABLE 6 TO SUBPART NNNNN OF PART 63.—REQUIREMENTS FOR REPORTS

If...	Then you must submit a report or statement that:
1. There are no deviations from any emission limitations that apply to you.	There were no deviations from any emission limitations that apply to you during the reporting period.
2. There were no periods during which the operating parameter monitoring systems were out-of-control in accordance with the monitoring plan.	There were no periods during which the CMS were out-of-control during the reporting period.
3. There was a deviation from any emission limitation during the reporting period.	Contains the information in § 63.9050(d).
4. There were periods during which the operating parameter monitoring systems were out-of-control in accordance with the monitoring plan.	Contains the information in § 63.9050(d).
5. There was a SSM during the reporting period that is not consistent with your SSM plan.	Contains the information in § 63.9050(f).
6. There were periods when the procedures in the LDAR plan were not followed.	Contains the information in § 63.9050(c)(7).

As stated in § 63.9065, you must comply with the applicable General Provisions requirements according to the following:

TABLE 7 TO SUBPART NNNNN OF PART 63.—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART NNNNN

Citation	Requirement	Applies to Subpart NNNNN	Explanation
§ 63.1	Initial applicability determination; applicability after standard established; permit requirements; extensions; notifications.	Yes.	
§ 63.2	Definitions	Yes	Additional definitions are found in § 63.9075.
§ 63.3	Units and abbreviations	Yes.	
§ 63.4	Prohibited activities; compliance date; circumvention, severability.	Yes.	

Citation	Requirement	Applies to Subpart NNNNN	Explanation
§ 63.5	Construction/reconstruction applicability; applications; approvals.	Yes.	
§ 63.6(a)	Compliance with standards and maintenance requirements—applicability.	Yes.	
§ 63.6(b)(1)–(4)	Compliance dates for new or reconstructed sources.	Yes	§ 63.8995 specifies compliance dates.
§ 63.6(b)(5)	Notification if commenced construction or reconstruction after proposal.	Yes.	
§ 63.6(b)(6)	[Reserved]	Yes.	
§ 63.6(b)(7)	Compliance dates for new or reconstructed area sources that become major.	Yes.	§ 63.8995 specifies compliance dates.
§ 63.6(c)(1)–(2)	Compliance dates for existing sources.	Yes	§ 63.8995 specifies compliance dates.
§ 63.6(c)(3)–(4)	[Reserved]	Yes.	
§ 63.6(c)(5)	Compliance dates for existing area sources that become major.	Yes	§ 63.8995 specifies compliance dates.
§ 63.6(d)	[Reserved]	Yes.	
§ 63.6(e)(1)–(2)	Operation and maintenance requirements.	Yes.	
§ 63.6(e)(3)	SSM plans	Yes.	
§ 63.6(f)(1)	Compliance except during SSM.	Yes.	
§ 63.6(f)(2)–(3)	Methods for determining compliance.	Yes.	
§ 63.6(g)	Use of an alternative nonopacity emission standard.	Yes.	
§ 63.6(h)	Compliance with opacity/visible emission standards.	No	Subpart NNNNN does not specify opacity or visible emission standards.
§ 63.6(i)	Extension of compliance with emission standards.	Yes.	
§ 63.6(j)	Presidential compliance exemption.	Yes.	
§ 63.7(a)(1)–(2)	Performance test dates	Yes	Except for existing affected sources as specified in § 63.9010(b).
§ 63.7(a)(3)	Administrator's Clean Air Act section 114 authority to require a performance test.	Yes.	
§ 63.7(b)	Notification of performance test and rescheduling.	Yes.	
§ 63.7(c)	Quality assurance program and site-specific test plans.	Yes.	
§ 63.7(d)	Performance testing facilities	Yes.	
§ 63.7(e)(1)	Conditions for conducting performance tests.	Yes.	

Citation	Requirement	Applies to Subpart NNNNN	Explanation
§ 63.7(f)	Use of an alternative test method.	Yes.	
§ 63.7(g)	Performance test data analysis, recordkeeping, and reporting.	Yes.	
§ 63.7(h)	Waiver ofperformance tests	Yes.	
§ 63.8(a)(1)–(3)	Applicability of monitoring requirements.	Yes	Additional monitoring requirements are found in § 63.9005(d) and 63.9035.
§ 63.8(a)(4)	Monitoring with flares	No	Subpart NNNNN does not refer directly or indirectly to § 63.11.
§ 63.8(b)	Conduct of monitoring and procedures when there are multiple effluents and multiple monitoring systems.	Yes.	
§ 63.8(c)(1)–(3)	Continuous monitoring system O&M.	Yes	Applies as modified by § 63.9005(d).
§ 63.8(c)(4)	Continuous monitoring system requirements during breakdown, out-of-control, repair, maintenance, and high-level calibration drifts.	Yes	Applies as modified by § 63.9005(d).
§ 63.8(c)(5)	Continuous opacity monitoring system (COMS) minimum procedures.	No	Subpart NNNNN does not have opacity or visible emmission standards.
§ 63.8(c)(6)	Zero and high level calibration checks.	Yes	Applies as modified by § 63.9005(d).
§ 63.8(c)(7)(8)	Out-of-control periods, including reporting.	Yes.	
§ 63.8(d)–(e)	Quality control program and CMS performance evaluation.	No	Applies as modified by § 63.9005(d).
§ 63.8(f)(1)–(5)	Use of an alternative monitoring method.	Yes.	
§ 63.8(f)(6)	Alternative to relative accuracy test.	No	Only applies to sources that use continuous emissions monitoring systems (CEMS).
§ 63.8(g)	Data reduction	Yes	Applies as modified by § 63.9005(d).
§ 63.9(a)	Notification requirements—applicability.	Yes.	
§ 63.9(b)	Initial notifications	Yes	Except § 63.9045(c) requires new or reconstructed affected sources to submit the application for construction or reconstruction required by § 63.9(b)(1) (iii) in lieu of the initial notification.
§ 63.9(c)	Request for compliance extension.	Yes.	
§ 63.9(d)	Notification that a new source is subject to special compliance requirements.	Yes.	

Citation	Requirement	Applies to Subpart NNNNN	Explanation
§ 63.9(e)	Notification of performance test.	Yes.	
§ 63.9(f)	Notification of visible emissions/opacity test.	No	Subpart NNNNN does not have opacity or visible emission standards.
§ 63.9(g)(1)	Additional CMS notifications—date of CMS performance evaluation.	Yes.	
§ 63.9(g)(2)	Use of COMS data	No	Subpart NNNNN does not require the use of COMS.
§ 63.9(g)(3)	Alternative to relative accuracy testing.	No	Applies only to sources with CEMS.
§ 63.9(h)	Notification of compliance status.	Yes.	
§ 63.9(i)	Adjustment of submittal deadlines.	Yes.	
§ 63.9(j)	Change in previous information.	Yes.	
§ 63.10(a)	Recordkeeping/reporting applicability.	Yes.	
§ 63.10(b)(1)	General recordkeeping requirements.	Yes	§§ 63.9055 and 63.9060 specify additional recordkeeping requirements.
§ 63.10(b)(2)(i)–(xi)	Records related to SSM periods and CMS.	Yes.	
§ 63.10(b)(2)(xii)	Records when under waiver	Yes.	
§ 63.10(b)(2)(xiii)	Records when using alternative to relative accuracy test.	No	Applies only to sources with CEMS.
§ 63.10(b)(2)(xiv)	All documentation supporting initial notification and notification of compliance status.	Yes.	
§ 63.10(b)(3)	Recordkeeping requirements for applicability determinations.	Yes.	
§ 63.10(c)	Additional recordkeeping requirements for sources with CMS.	Yes	Applies as modified by § 63.9005(d).
§ 63.10(d)(1)	General reporting requirements.	Yes	§ 63.9050 specifies additional reporting requirements.
§ 63.10(d)(2)	Performance test results	Yes.	
§ 63.10(d)(3)	Opacity or visible emissions observations.	No	Subpart NNNNN does not specify opacity or visible emission standards.
§ 63.10(d)(4)	Progress reports for sources with compliance extensions.	Yes.	
§ 63.10(d)(5)	SSM reports	Yes.	
§ 63.10(e)(1)	Additional CMS reports—general.	Yes	Applies as modified by § 63.9005(d).
§ 63.10(e)(2)(i)	Results of CMS performance evaluations.	Yes	Applies as modified by § 63.9005(d).

Citation	Requirement	Applies to Subpart NNNNN	Explanation
§63.10(e)(2)(ii)	Results of COMS performance evaluations.	No	Subpart NNNNN does not require the use of COMS.
§63.10(e)(3)	Excess emissions/CMS performance reports.	Yes.	
§63.10(e)(4)	Continuous opacity monitoring system data reports.	No	Subpart NNNNN does not require the use of COMS.
§63.10(f)	Recordkeeping/reporting waiver.	Yes.	
§63.11	Control device requirements—applicability.	No	Facilities subject to subpart NNNNN do not use flares as control devices.
§63.12	State authority and delegations.	Yes	§63.9070 lists those sections of subparts NNNNN and A that are not delegated.
§63.13	Addresses	Yes.	
§63.14	Incorporation by reference	Yes	Subpart NNNNN does not incorporate any material by reference.
§63.15	Availability of information/confidentiality.	Yes.	

Subparts OOOOO [Reserved]

Subpart PPPPP—National Emission Standards for Hazardous Air Pollutants for Engine Test Cells/Standards

SOURCE: 68 FR 28785, May 27, 2003, unless otherwise noted.

WHAT THIS SUBPART COVERS

§63.9280 What is the purpose of subpart PPPPP?

This subpart PPPPP establishes national emission standards for hazardous air pollutants (NESHAP) for engine test cells/stands located at major sources of hazardous air pollutants (HAP) emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations contained in this NESHAP.

§63.9285 Am I subject to this subpart?

You are subject to this subpart if you own or operate an engine test cell/stand that is located at a major source of HAP emissions.

(a) An engine test cell/stand is any apparatus used for testing uninstalled stationary or uninstalled mobile (motive) engines.

(b) An uninstalled engine is an engine that is not installed in, or an integrated part of, the final product.

(c) A major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year.

§63.9290 What parts of my plant does this subpart cover?

This subpart applies to each new, reconstructed, or existing affected source.

(a) *Affected source.* An affected source is the collection of all equipment and activities associated with engine test cells/stands used for testing uninstalled stationary or uninstalled mobile (motive) engines located at a major source of HAP emissions.

(1) *Existing affected source.* An affected source is existing if you commenced construction or reconstruction of the affected source on or before May 14, 2002. A change in ownership of an existing affected source does not make

that affected source a new or reconstructed affected source.

(2) *New affected source.* An affected source is new if you commenced construction of the affected source after May 14, 2002.

(3) *Reconstructed affected source.* An affected source is reconstructed if you meet the definition of reconstruction in § 63.2 of subpart A of this part and reconstruction is commenced after May 14, 2002. Changes made to an existing affected source primarily for the purpose of complying with revisions to engine testing requirements under 40 CFR parts 80, 86, 89, 90, 91, or 92 are not considered a modification or reconstruction. In addition, passive measurement and control instrumentation and electronics are not included as part of any affected source reconstruction evaluation.

(b) Existing affected sources do not have to meet the requirements of this subpart and of subpart A of this part.

(c) Any portion of a new or reconstructed affected source located at a major source that is used exclusively for testing internal combustion engines with rated power of less than 25 horsepower (hp) (19 kilowatts(kW)) does not have to meet the requirements of this subpart and of subpart A of this part except for the initial notification requirements of § 63.9345(b).

(d) Any portion of a new or reconstructed affected source located at a major source that meets any of the criteria specified in paragraphs (d)(1) through (4) of this section does not have to meet the requirements of this subpart and of subpart A of this part.

(1) Any portion of the affected source used exclusively for testing combustion turbine engines.

(2) Any portion of the affected source used exclusively for testing rocket engines.

(3) Any portion of the affected source used in research and teaching activities at facilities that are not engaged in the development of engines or engine test services for commercial purposes.

(4) Any portion of the affected source operated to test or evaluate fuels (such as knock engines), transmissions, or electronics.

§ 63.9295 When do I have to comply with this subpart?

(a) *Affected sources.*

(1) If you start up your new or reconstructed affected source before May 27, 2003, you must comply with the emission limitations in this subpart no later than May 27, 2003.

(2) If you start up your new or reconstructed affected source on or after May 27, 2003, you must comply with the emission limitations in this subpart upon startup.

(b) *Area sources that become major sources.* If your new or reconstructed affected source is located at an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP, your new or reconstructed affected source must be in compliance with this subpart when the area source becomes a major source.

(c) You must meet the notification requirements in § 63.9345 and in 40 CFR part 63, subpart A.

EMISSION LIMITATIONS

§ 63.9300 What emission limitations must I meet?

For each new or reconstructed affected source that is used in whole or in part for testing internal combustion engines with rated power of 25 hp (19 kW) or more and that is located at a major source, you must comply with the emission limitations in Table 1 to this subpart. (Tables are found at the end of this subpart.)

§ 63.9301 What are my options for meeting the emission limits?

You may use either a continuous parameter monitoring system (CPMS) or a continuous emission monitoring system (CEMS) to demonstrate compliance with the emission limitations. Continuous monitoring systems must meet the requirements in § 63.9306 (CPMS) and § 63.9307 (CEMS).

§ 63.9302 What operating limits must I meet?

(a) For any new or reconstructed affected source on which you use add-on controls, you must meet the operating limits specified in Table 2 to this subpart. These operating limits must be established during the performance test according to the requirements in §63.9324. You must meet the operating limits at all times after you establish them.

(b) If you use an add-on control device other than those listed in Table 2 to this subpart, or wish to monitor an alternative parameter and comply with a different operating limit, you must apply to the Administrator for approval of alternative monitoring under §63.8(f).

GENERAL COMPLIANE REQUIREMENTS

§63.9305 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limitation that applies to you at all times, except during periods of startup, shutdown, or malfunction (SSM) of your control device or associated monitoring equipment.

(b) If you must comply with the emission limitation, you must operate and maintain your engine test cell/stand, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times.

(c) You must develop and implement a written SSM plan (SSMP) for emission control devices and associated monitoring equipment according to the provisions in §63.6(e)(3). The plan will apply only to emission control devices, and not to engine test cells/stands.

§63.9306 What are my continuous parameter monitoring system (CPMS) installation, operation, and maintenance requirements?

(a) *General.* You must install, operate, and maintain each CPMS specified in paragraphs (c) and (d) of this section according to paragraphs (a)(1) through (7) of this section. You must install, operate, and maintain each CPMS specified in paragraph (b) of this section according to paragraphs (a)(3) through (5) of this section.

(1) The CPMS must complete a minimum of one cycle of operation for each successive 15-minute period. You must have a minimum of four equally spaced successive cycles of CPMS operation in 1 hour.

(2) You must determine the average of all recorded readings for each successive 3-hour period of the emission capture system and add-on control device operation.

(3) You must record the results of each inspection, calibration, and validation check of the CPMS.

(4) You must maintain the CPMS at all times and have available necessary parts for routine repairs of the monitoring equipment.

(5) You must operate the CPMS and collect emission capture system and add-on control device parameter data at all times that an engine test cell/stand is operating, except during monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, if applicable, calibration checks and required zero and span adjustments).

(6) You must not use emission capture system or add-on control device parameter data recorded during monitoring malfunctions, associated repairs, out-of-control periods, or required quality assurance or control activities when calculating data averages. You must use all the data collected during all other periods in calculating the data averages for determining compliance with the emission capture system and add-on control device operating limits.

(7) A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the CPMS to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. Any period for which the monitoring system is out-of-control and data are not available for required calculations is a deviation from the monitoring requirements.

(b) *Capture system bypass line.* You must meet the requirements of paragraphs (b)(1) and (2) of this section for each emission capture system that contains bypass lines that could divert emissions away from the add-on control device to the atmosphere.

(1) You must monitor or secure the valve or closure mechanism controlling the bypass line in a nondiverting position in such a way that the valve or closure mechanism cannot be opened without creating a record that the

valve was opened. The method used to monitor or secure the valve or closure mechanism must meet one of the requirements specified in paragraphs (b)(1)(i) through (iv) of this section.

(i) *Flow control position indicator.* Install, calibrate, maintain, and operate according to the manufacturer's specifications a flow control position indicator that takes a reading at least once every 15 minutes and provides a record indicating whether the emissions are directed to the add-on control device or diverted from the add-on control device. The time of occurrence and flow control position must be recorded, as well as every time the flow direction is changed. The flow control position indicator must be installed at the entrance to any bypass line that could divert the emissions away from the add-on control device to the atmosphere.

(ii) *Car-seal or lock-and-key valve closures.* Secure any bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. You must visually inspect the seal or closure mechanism at least once every month to ensure that the valve is maintained in the closed position, and the emissions are not diverted away from the add-on control device to the atmosphere.

(iii) *Valve closure monitoring.* Ensure that any bypass line valve is in the closed (nondiverting) position through monitoring of valve position at least once every 15 minutes. You must inspect the monitoring system at least once every month to verify that the monitor will indicate valve position.

(iv) *Automatic shutdown system.* Use an automatic shutdown system in which the engine testing operation is stopped when flow is diverted by the bypass line away from the add-on control device to the atmosphere when an engine test cell/stand is operating. You must inspect the automatic shutdown system at least once every month to verify that it will detect diversions of flow and shut down the engine test cell/stand in operation.

(2) If any bypass line is opened, you must include a description of why the bypass line was opened and the length of time it remained open in the semiannual compliance reports required in § 63.9350.

(c) *Thermal oxidizers and catalytic oxidizers.* If you are using a thermal oxidizer or catalytic oxidizer as an add-on control device, you must comply with the requirements in paragraphs (c)(1) through (3) of this section.

(1) For a thermal oxidizer, install a gas temperature monitor in the firebox of the thermal oxidizer or in the duct immediately downstream of the firebox before any substantial heat exchange occurs.

(2) For a catalytic oxidizer, you must install a gas temperature monitor in the gas stream immediately before the catalyst bed, and if you established operating limits according to § 63.9324(b)(1) and (2), also install a gas temperature monitor in the gas stream immediately after the catalyst bed.

(i) If you establish operating limits according to § 63.9324(b)(1) and (2), then you must install the gas temperature monitors both upstream and downstream of the catalyst bed. The temperature monitors must be in the gas stream immediately before and after the catalyst bed to measure the temperature difference across the bed.

(ii) If you establish operating limits according to § 63.9324(b)(3) and (4), then you must install a gas temperature monitor upstream of the catalyst bed. The temperature monitor must be in the gas stream immediately before the catalyst bed to measure the temperature.

(3) For all thermal oxidizers and catalytic oxidizers, you must meet the requirements in paragraphs (a) and (c)(3)(i) through (vii) of this section for each gas temperature monitoring device.

(i) Locate the temperature sensor in a position that provides a representative temperature.

(ii) Use a temperature sensor with a measurement sensitivity of 4 degrees Fahrenheit or 0.75 percent of the temperature value, whichever is larger.

(iii) Shield the temperature sensor system from electromagnetic interference and chemical contaminants.

(iv) If a gas temperature chart recorder is used, it must have a measurement sensitivity in the minor division of at least 20 degrees Fahrenheit.

(v) Perform an electronic calibration at least semiannually according to the procedures in the manufacturer's owner's manual. Following the electronic calibration, you must conduct a temperature sensor validation check in which a second or redundant temperature sensor placed near the process temperature sensor must yield a reading within 30 degrees Fahrenheit of the process temperature sensor reading.

(vi) Conduct calibration and validation checks anytime the sensor exceeds the manufacturer's specified maximum operating temperature range or install a new temperature sensor.

(vii) At least monthly, inspect components for integrity and electrical connections for continuity, oxidation, and galvanic corrosion.

(d) *Emission capture systems.* The capture system monitoring system must comply with the applicable requirements in paragraphs (d)(1) and (2) of this section.

(1) For each flow measurement device, you must meet the requirements in paragraphs (a) and (d)(1)(i) through (iv) of this section.

(i) Locate a flow sensor in a position that provides a representative flow measurement in the duct from each capture device in the emission capture system to the add-on control device.

(ii) Reduce swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.

(iii) Conduct a flow sensor calibration check at least semiannually.

(iv) At least monthly, inspect components for integrity, electrical connections for continuity, and mechanical connections for leakage.

(2) For each pressure drop measurement device, you must comply with the requirements in paragraphs (a) and (d)(2)(i) through (vi) of this section.

(i) Locate the pressure sensor(s) in or as close to a position that provides a representative measurement of the pressure drop across each opening you are monitoring.

(ii) Minimize or eliminate pulsating pressure, vibration, and internal and external corrosion.

(iii) Check pressure tap pluggage daily.

(iv) Using an inclined manometer with a measurement sensitivity of 0.0002 inch water, check gauge calibration quarterly and transducer calibration monthly.

(v) Conduct calibration checks any time the sensor exceeds the manufacturer's specified maximum operating pressure range or install a new pressure sensor.

(vi) At least monthly, inspect components for integrity, electrical connections for continuity, and mechanical connections for leakage.

§ 63.9307 What are my continuous emissions monitoring system installation, operation, and maintenance requirements?

(a) You must install, operate, and maintain each CEMS to monitor carbon monoxide (CO) or total hydrocarbons (THC) and oxygen (O_2) at the outlet of the exhaust system of the engine test cell/stand or at the outlet of the emission control device.

(b) To comply with the CO or THC percent reduction emission limitation, you may install, operate, and maintain a CEMS to monitor CO or THC and O_2 at both the inlet and the outlet of the emission control device.

(c) To comply with either emission limitations, the CEMS must be installed and operated according to the requirements described in paragraphs (c)(1) through (4) of this section.

(1) You must install, operate, and maintain each CEMS according to the applicable Performance Specification (PS) of 40 CFR part 60, appendix B (PS–3 or PS–4A).

(2) You must conduct a performance evaluation of each CEMS according to the requirements in 40 CFR 63.8 and according to PS–3 of 40 CFR part 60, appendix B, using Reference Method 3A or 3B for the O_2 CEMS, and according to PS–4A of 40 CFR part 60, appendix B, using Reference Method 10 or 10B for the CO CEMS. If the fuel used in the engines being tested is natural gas, you may use ASTM D 6522–00, Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide and Oxygen Concentrations in Emissions from Natural Gas Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers (incorporated by reference, see § 63.14). As an alternative to Method 3B, you may use ANSI/ASME PTC

19.10–1981, ''Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus],'' (incorporated by reference, see § 63.14).

(3) As specified in § 63.8(c)(4)(ii), each CEMS must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. You must have at least two data points, each representing a different 15-minute period within the same hour, to have a valid hour of data.

(4) All CEMS data must be reduced as specified in § 63.8(g)(2) and recorded as CO concentration in parts per million by volume, dry basis (ppmvd), corrected to 15 percent O_2 content.

(d) If you have CEMS that are subject to paragraph (a) or (b) of this section, you must properly maintain and operate the monitors continuously according to the requirements described in paragraphs (d)(1) and (2) of this section.

(1) *Proper Maintenance.* You must maintain the monitoring equipment at all times that the engine test cell/stand is operating, including but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment.

(2) *Continued Operation.* You must operate your CEMS according to paragraphs (d)(2)(i) and (ii) of this section.

(i) You must conduct all monitoring in continuous operation at all times that the engine test cell/stand is operating, except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration drift checks and required zero and high-level adjustments). Quality assurance or control activities must be performed according to procedure 1 of 40 CFR part 60, appendix F.

(ii) Data recorded during monitoring malfunctions, associated repairs, out-of-control periods, and required quality assurance or control activities must not be used for purposes of calculating data averages. You must use all of the data collected from all other periods in assessing compliance. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring equipment to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. Any period for which the monitoring system is out-of-control and data are not available for required calculations constitutes a deviation from the monitoring requirements.

TESTING AND INITIAL COMPLIANCE REQUIREMENTS

§ 63.9310 By what date must I conduct the initial compliance demonstrations?

You must conduct the initial compliance demonstrations that apply to you in Table 3 to this subpart within 180 calendar days after the compliance date that is specified for your new or reconstructed affected source in § 63.9295 and according to the provisions in § 63.7(a)(2).

§ 63.9320 What procedures must I use?

(a) You must conduct each initial compliance demonstration that applies to you in Table 3 to this subpart.

(b) You must conduct an initial performance evaluation of each capture and control system according to §§ 63.9321, 63.9322, 63.9323 and 63.9324, and each CEMS according to the requirements in 40 CFR 63.8 and according to the applicable Performance Specification of 40 CFR part 60, appendix B (PS–3 or PS–4A).

(c) The initial demonstration of compliance with the carbon monoxide (CO) or total hydrocarbon (THC) concentration limitation consists of the first 4-hour rolling average CO or THC concentration recorded after completion of the CEMS performance evaluation. You must correct the CO or THC concentration at the outlet of the engine test cell/stand or the emission control device to a dry basis and to 15 percent O_2 content according to Equation 1 of this section:

$$C_c = C_{unc}\left(\frac{5.9}{\left(20.9 - \%O_{2d}\right)}\right) \qquad \text{(Eq. 1)}$$

Where:

C_c = concentration of CO or THC, corrected to 15 percent oxygen, ppmvd

C_{unc} = total uncorrected concentration of CO or THC, ppmvd

$\%O_{2d}$ = concentration of oxygen measured in gas stream, dry basis, percent by volume.

(d) The initial demonstration of compliance with the CO or THC percent reduction emission limitation consists of the first 4-hour rolling average percent reduction in CO or THC recorded after completion of the performance evaluation of the capture/control system and/or CEMS. You must complete the actions described in paragraphs (d)(1) through (2) of this section.

(1) Correct the CO or THC concentrations at the inlet and outlet of the emission control device to a dry basis and to 15 percent O_2 content using Equation 1 of this section.

(2) Calculate the percent reduction in CO or THC using Equation 2 of this section:

$$R = \frac{C_i - C_o}{C_i} \times 100 \qquad \text{(Eq. 2)}$$

Where:

R = percent reduction in CO or THC

C_i = corrected CO or THC concentration at inlet of the emission control device

C_o = corrected CO or THC concentration at the outlet of the emission control device.

§ 63.9321 What are the general requirements for performance tests?

(a) You must conduct each performance test required by § 63.9310 according to the requirements in § 63.7(e)(1) and under the conditions in this section unless you obtain a waiver of the performance test according to the provisions in § 63.7(h).

(1) *Representative engine testing conditions.* You must conduct the performance test under representative operating conditions for the test cell/stand. Operations during periods of SSM, and during periods of nonoperation do not constitute representative conditions. You must record the process information that is necessary to document operating conditions during the test and explain why the conditions represent normal operation.

(2) *Representative emission capture system and add-on control device operating conditions.* You must conduct the performance test when the emission capture system and add-on control device are operating at a representative flow rate, and the add-on control device is operating at a representative inlet concentration. You must record information that is necessary to document emission capture system and add-on control device operating conditions during the test and explain why the conditions represent normal operation.

(b) You must conduct each performance test of an emission capture system according to the requirements in § 63.9322. You must conduct each performance test of an add-on control device according to the requirements in § 63.9323.

§ 63.9322 How do I determine the emission capture system efficiency?

You must use the procedures and test methods in this section to determine capture efficiency as part of the performance test required by § 63.9310.

(a) *Assuming 100 percent capture efficiency.* You may assume the capture system efficiency is 100 percent if both conditions in paragraphs (a)(1) and (2) of this section are met:

(1) The capture system meets the criteria in Method 204 of appendix M to 40 CFR part 51 for a potential to emit (PTE) and directs all the exhaust gases from the enclosure to an add-on control device.

(2) All engine test operations creating exhaust gases for which the test is applicable are conducted within the capture system.

(b) *Measuring capture efficiency.* If the capture system does not meet the criteria in paragraphs (a)(1) and (2) of this section, then you must use one of the two protocols described in paragraphs (c) and (d) of this section to measure capture efficiency. The capture efficiency measurements use total volatile hydrocarbon (TVH) capture efficiency as a surrogate for organic HAP capture efficiency. For the protocol in paragraph (c) of this section, the capture efficiency measurement must consist of three test runs. Each test run must be at least 3 hours in duration or the length of a production run, whichever is longer, up to 8 hours. For the purposes of this test, a production run means the time required for a single engine test to go from the beginning to the end.

(c) *Gas-to-gas protocol using a temporary total enclosure or a building enclosure.* The gas-to-gas protocol compares the mass of TVH emissions captured by the emission capture system to the mass of TVH emissions not captured. Use a temporary total enclosure or a building enclosure and the procedures in paragraphs (c)(1) through (5) of this section to measure emission capture system efficiency using the gas-to-gas protocol.

(1) Either use a building enclosure or construct an enclosure around the engine test cell/stand and all areas where emissions from the engine testing subsequently occur. The enclosure must meet the applicable definition of a temporary total enclosure or building enclosure in Method 204 of appendix M to 40 CFR part 51.

(2) Use Method 204B or 204C of appendix M to 40 CFR part 51 to measure the total mass, kg, of TVH emissions captured by the emission capture system during each capture efficiency test run as measured at the inlet to the add-on control device. To make the measurement, substitute TVH for each occurrence of the term VOC in the methods.

(i) The sampling points for the Method 204B or 204C of appendix M to 40 CFR part 51 measurement must be upstream from the add-on control device and must represent total emissions routed from the capture system and entering the add-on control device.

(ii) If multiple emission streams from the capture system enter the add-on control device without a single common duct, then the emissions entering the add-on control device must be simultaneously measured in each duct, and the total emissions entering the add-on control device must be determined.

(3) Use Method 204D or 204E of appendix M to 40 CFR part 51 to measure the total mass, kg, of TVH emissions that are not captured by the emission capture system; they are measured as they exit the temporary total enclosure or building enclosure during each capture efficiency test run. To make the measurement, substitute TVH for each occurrence of the term VOC in the methods.

(i) Use Method 204D of appendix M to 40 CFR part 51 if the enclosure is a temporary total enclosure.

(ii) Use Method 204E of appendix M to 40 CFR part 51 if the enclosure is a building enclosure. During the capture efficiency measurement, all organic compound emitting operations inside the building enclosure, other than the engine test cell/stand operation for which capture efficiency is being determined, must be shut down, but all fans and blowers must be operating normally.

(4) For each capture efficiency test run, determine the percent capture efficiency of the emission capture system using Equation 1 of this section:

$$CE = \frac{TVH_{captured}}{\left(TVH_{captured} + TVH_{uncaptured}\right)} \times 100 \qquad \text{(Eq. 1)}$$

Where:

CE = capture efficiency of the emission capture system vented to the add-on control device, percent

$TVH_{captured}$ = total mass of TVH captured by the emission capture system as measured at the inlet to the add-on control device during the emission capture efficiency test run, kg, determined according to paragraph (c)(2) of this section

$TVH_{uncaptured}$ = total mass of TVH that is not captured by the emission capture system and that exits from the temporary total enclosure or building enclosure during the capture efficiency test run, kg, determined according to paragraph (c)(3) of this section.

(5) Determine the capture efficiency the emission capture system as the average of the capture efficiencies measured in the three test runs.

(d) *Alternative capture efficiency protocol.* As an alternative to the procedure specified in paragraph (c) of this section, you may determine capture efficiency using any other capture efficiency protocol and test methods that satisfy the criteria of either the data quality objective or lower control limit approach as described in appendix A to subpart KK of this part.

§ 63.9323 How do I determine the add-on control device emission destruction or removal efficiency?

You must use the procedures and test methods in this section to determine the add-on control device emission destruction or removal efficiency as part of the performance test required by § 63.9310. You must conduct three test runs as specified in § 63.7(e)(3), and each test run must last at least 1 hour.

(a) For all types of add-on control devices, use the test methods specified in paragraphs (a)(1) through (5) of this section.

(1) Use Method 1 or 1A of appendix A to 40 CFR part 60, as appropriate, to select sampling sites and velocity traverse points.

(2) Use Method 2, 2A, 2C, 2D, 2F, or 2G of appendix A to 40 CFR part 60, as appropriate, to measure gas volumetric flow rate.

(3) Use Method 3, 3A, or 3B of appendix A to 40 CFR part 60, as appropriate, for gas analysis to determine dry molecular weight. The ANSI/ASME PTC 19.10–1981 Part 10 is an acceptable alternative to Method 3B (incorporated by reference, see § 63.14).

(4) Use Method 4 of appendix A to 40 CFR part 60, to determine stack gas moisture.

(5) Methods for determining gas volumetric flow rate, dry molecular weight, and stack gas moisture must be performed, as applicable, during each test run.

(b) Measure total gaseous organic mass emissions as carbon at the inlet and outlet of the add-on control device simultaneously, using either Method 25 or 25A of appendix A to 40 CFR part 60, as specified in paragraphs (b)(1) through (3) of this section. You must use the same method for both the inlet and outlet measurements.

(1) Use Method 25 of appendix A to 40 CFR part 60 if the add-on control device is an oxidizer, and you expect the total gaseous organic concentration as carbon to be more than 50 parts per million at the control device outlet.

(2) Use Method 25A of appendix A to 40 CFR part 60 if the add-on control device is an oxidizer, and you expect the total gaseous organic concentration as carbon to be 50 ppm or less at the control device outlet.

(c) For each test run, determine the total gaseous organic emissions mass flow rates for the inlet and the outlet of the add-on control device, using Equation 1 of this section. If there is more than one inlet or outlet to the add-on control device, you must calculate the total gaseous organic mass flow rate using Equation 1 of this section for each inlet and each outlet and then total all of the inlet emissions and total all of the outlet emissions.

$$M_f = Q_{sd} C_c (12)(0.0416)\left(10^{-6}\right) \qquad \text{(Eq. 1)}$$

Where:

M_f = total gaseous organic emissions mass flow rate, kg/hour (kg/h)

C_c = concentration of organic compounds as carbon in the vent gas, as determined by Method 25 or Method 25A, parts per million by volume (ppmv), dry basis

Q_{sd} = volumetric flow rate of gases entering or exiting the add-on control device, as determined by Method 2, 2A, 2C, 2D, 2F, or 2G, dry standard cubic meters/hour (dscm/h)

0.0416 = conversion factor for molar volume, kg-moles per cubic meter (mol/m^3) (@ 293 Kelvin [K] and 760 millimeters of mercury [mmHg]).

(d) For each test run, determine the add-on control device organic emissions destruction or removal efficiency, using Equation 2 of this section:

$$\mathrm{DRE} = 100 \times \frac{M_{fi} - M_{fo}}{M_{fi}} \qquad \text{(Eq. 2)}$$

Where:

DRE = organic emissions destruction or removal efficiency of the add-on control device, percent

M_{fi} = total gaseous organic emissions mass flow rate at the inlet(s) to the add-on control device, using Equation 1 of this section, kg/h

M_{fo} = total gaseous organic emissions mass flow rate at the outlet(s) of the add-on control device, using Equation 1 of this section, kg/h.

(e) Determine the emission destruction or removal efficiency of the add-on control device as the average of the efficiencies determined in the three test runs and calculated in Equation 2 of this section.

§ 63.9324 How do I establish the emission capture system and add-on control device operating limits during the performance test?

During the performance test required by § 63.9310, you must establish the operating limits required by § 63.9302 according to this section, unless you have received approval for alternative monitoring and operating limits under § 63.8(f) as specified in § 63.9302.

(a) *Thermal oxidizers.* If your add-on control device is a thermal oxidizer, establish the operating limits according to paragraphs (a)(1) and (2) of this section.

(1) During the performance test, you must monitor and record the combustion temperature at least once every 15 minutes during each of the three test runs. You must monitor the temperature in the firebox of the thermal oxidizer or immediately downstream of the firebox before any substantial heat exchange occurs.

(2) Use the data collected during the performance test to calculate and record the average combustion temperature maintained during the performance test. This average combustion temperature is the minimum operating limit for your thermal oxidizer.

(b) *Catalytic oxidizers.* If your add-on control device is a catalytic oxidizer, establish the operating limits according to either paragraphs (b)(1) and (2) or paragraphs (b)(3) and (4) of this section.

(1) During the performance test, you must monitor and record the temperature just before the catalyst bed and the temperature difference across the catalyst bed at least once every 15 minutes during each of the three test runs.

(2) Use the data collected during the performance test to calculate and record the average temperature just before the catalyst bed and the average temperature difference across the catalyst bed maintained during the performance test. These are the minimum operating limits for your catalytic oxidizer.

(3) As an alternative to monitoring the temperature difference across the catalyst bed, you may monitor the temperature at the inlet to the catalyst bed and implement a site-specific inspection and maintenance plan for your catalytic oxidizer as specified in paragraph (b)(4) of this section. During the performance test, you must monitor and record the temperature just before the catalyst bed at least once every 15 minutes during each of the three test runs. Use the data collected during the performance test to calculate and record the average temperature just before the catalyst bed during the performance test. This is the minimum operating limit for your catalytic oxidizer.

(4) You must develop and implement an inspection and maintenance plan for your catalytic oxidizer(s) for which you elect to monitor according to paragraph (b)(3) of this section. The plan must address, at a minimum, the elements specified in paragraphs (b)(4)(i) through (iii) of this section.

(i) Annual sampling and analysis of the catalyst activity (*i.e.,* conversion efficiency) following the manufacturer's or catalyst supplier's recommended procedures.

(ii) Monthly inspection of the oxidizer system, including the burner assembly and fuel supply lines for problems and, as necessary, adjust the equipment to assure proper air-to-fuel mixtures.

(iii) Annual internal and monthly external visual inspection of the catalyst bed to check for channeling, abrasion, and settling. If problems are found, you must take corrective action consistent with the manufacturer's recommendation and conduct a new performance test to determine destruction efficiency according to §63.9323.

(c) *Emission capture system.* For each capture device that is not part of a PTE that meets the criteria of §63.9322(a), establish an operating limit for either the gas volumetric flow rate or duct static pressure, as specified in paragraphs (c)(1) and (2) of this section. The operating limit for a PTE is specified in Table 3 to this subpart.

(1) During the capture efficiency determination required by §63.9310, you must monitor and record either the gas volumetric flow rate or the duct static pressure for each separate capture device in your emission capture system at least once every 15 minutes during each of the three test runs at a point in the duct between the capture device and the add-on control device inlet.

(2) Calculate and record the average gas volumetric flow rate or duct static pressure for the three test runs for each capture device. This average gas volumetric flow rate or duct static pressure is the minimum operating limit for that specific capture device.

§63.9330 How do I demonstrate initial compliance with the emission limitation?

(a) You must demonstrate initial compliance with the emission limitation that applies to you according to Table 3 to this subpart.

(b) You must submit the Notification of Compliance Status containing results of the initial compliance demonstration according to the requirements in §63.9345(c).

CONTINUOUS COMPLIANCE REQUIREMENTS

§63.9335 How do I monitor and collect data to demonstrate continuous compliance?

(a) Except for monitor malfunctions, associated repairs, and required quality assurance or quality control activities (including, as applicable, calibration drift checks and required zero and high-level adjustments of the monitoring system), you must conduct all monitoring in continuous operation at all times the engine test cell/stand is operating.

(b) Do not use data recorded during monitor malfunctions, associated repairs, and required quality assurance or quality control activities for meeting the requirements of this subpart, including data averages and calculations. You must use all the data collected during all other periods in assessing the performance of the emission control device or in assessing emissions from the new or reconstructed affected source.

§63.9340 How do I demonstrate continuous compliance with the emission limitations?

(a) You must demonstrate continuous compliance with the emission limitation in Table 1 to this subpart that applies to you according to methods specified in Table 5 to this subpart.

(b) You must report each instance in paragraphs (b)(1) and (2) of this section. These instances are deviations from the emission limitation in this subpart and must be reported according to the requirements in §63.9350.

(1) You must report each instance in which you did not meet the emission limitation that applies to you.

(2) You must report each instance in which you did not meet the requirements in Table 7 to this subpart that apply to you.

(c) *Startups, shutdowns, and malfunctions.* During periods of SSM of control device and associated monitoring equipment, you must operate in accordance with your SSMP.

(1) Consistent with §§63.6(e) and 63.7(e)(1), deviations that occur during a period of SSM of control devices and associated monitoring equipment are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with the SSMP.

(2) The Administrator will determine whether deviations that occur during a period of SSM of control devices and associated monitoring equipment are violations, according to the provisions in §63.6(e).

NOTIFICATIONS, REPORTS, AND RECORDS

§63.9345 What notifications must I submit and when?

(a) You must submit all of the notifications in §§63.8(e), 63.8(f)(4) and (6), and 63.9(b), (g)(1), (g)(2) and (h) that apply to you by the dates specified.

(b) If you own or operate a new or reconstructed test cell/stand used for testing internal combustion engines, you are required to submit an Initial Notification as specified in paragraphs (b)(1) through (3) of this section.

(1) As specified in § 63.9(b)(2), if you start up your new or reconstructed affected source before the effective date of this subpart, you must submit an Initial Notification not later than 120 calendar days after May 27, 2003.

(2) As specified in § 63.9(b), if you start up your new or reconstructed affected source on or after the effective date of this subpart, you must submit an Initial Notification not later than 120 calendar days after you become subject to this subpart.

(3) If you are required to submit an Initial Notification but are otherwise not affected by the requirements of this subpart, in accordance with § 63.9290(c), your notification should include the information in § 63.9(b)(2)(i) through (v) and a statement that your new or reconstructed engine test cell/stand has no additional requirements and explain the basis of the exclusion (for example, that the test cell/stand is used exclusively for testing internal combustion engines with rated power of less than 25 hp (19 kW)).

(c) If you are required to comply with the emission limitations in Table 1 to this subpart, you must submit a Notification of Compliance Status according to § 63.9(h)(2)(ii). For each initial compliance demonstration with the emission limitation, you must submit the Notification of Compliance Status before the close of business on the 30th calendar day following the completion of the initial compliance demonstration.

(d) You must submit a notification of initial performance evaluation of your CEMS or performance testing of your control device at least 60 calendar days before the performance testing/evaluation is scheduled to begin as required in § 63.8(e)(2).

§ 63.9350 What reports must I submit and when?

(a) If you own or operate a new or reconstructed affected source that must meet the emission limitation, you must submit a semiannual compliance report according to Table 6 to this subpart by the applicable dates specified in paragraphs (a)(1) through (6) of this section, unless the Administrator has approved a different schedule.

(1) The first semiannual compliance report must cover the period beginning on the compliance date specified in § 63.9295 and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after the compliance date specified in § 63.9295.

(2) The first semiannual compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date follows the end of the first calendar half after the compliance date that is specified in § 63.9295.

(3) Each subsequent semiannual compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) Each subsequent semiannual compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(5) For each new or reconstructed engine test cell/stand that is subject to permitting regulations pursuant to 40 CFR part 70 or 71, and if the permitting authority has established the date for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (a)(1) through (4) of this section.

(6) If you had an SSM of a control device or associated monitoring equipment during the reporting period and you took actions consistent with your SSMP, the compliance report must include the information in paragraphs § 63.10(d)(5)(i).

(b) If there is no deviation from the applicable emission limitation and the CEMS or CPMS was not out-of-control, according to § 63.8(c)(7), the semiannual compliance report must contain the information described in paragraphs (b)(1) through (4) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) A statement that no deviation from the emission limit occurred during the reporting period and that no CEMS or CPMS was out-of-control, according to § 63.8(c)(7).

(c) For each deviation from an emission limit, the semiannual compliance report must include the information in paragraphs (b)(1) through (3) of this section and the information included in paragraphs (c)(1) through (4) of this section.

(1) The date and time that each deviation started and stopped.

(2) The total operating time of each new or reconstructed engine test cell/stand during the reporting period.

(3) A summary of the total duration of the deviation during the reporting period (recorded in 4-hour periods), and the total duration as a percent of the total operating time during that reporting period.

(4) A breakdown of the total duration of the deviations during the reporting period into those that are due to control equipment problems, process problems, other known causes, and other unknown causes.

(d) For each CEMS or CPMS deviation, the semiannual compliance report must include the information in paragraphs (b)(1) through (3) of this section and the information included in paragraphs (d)(1) through (10) of this section.

(1) The date and time that each CEMS or CPMS was inoperative except for zero (low-level) and high-level checks.

(2) The date and time that each CEMS or CPMS was out-of-control including the information in § 63.8(c)(8).

(3) A summary of the total duration of CEMS or CPMS downtime during the reporting period (reported in 4-hour periods), and the total duration of CEMS or CPMS downtime as a percent of the total engine test cell/stand operating time during that reporting period.

(4) A breakdown of the total duration of CEMS or CPMS downtime during the reporting period into periods that are due to monitoring equipment malfunctions, nonmonitoring equipment malfunctions, quality assurance/quality control calibrations, other known causes and other unknown causes.

(5) The monitoring equipment manufacturer(s) and model number(s) of each monitor.

(6) The date of the latest CEMS or CPMS certification or audit.

(7) The date and time period of each deviation from an operating limit in Table 2 to this subpart; date and time period of any bypass of the add-on control device; and whether each deviation occurred during a period of SSM or during another period.

(8) A summary of the total duration of each deviation from an operating limit in Table 2 to this subpart, each bypass of the add-on control device during the semiannual reporting period, and the total duration as a percent of the total source operating time during that semiannual reporting period.

(9) A breakdown of the total duration of the deviations from the operating limits in Table 2 to this subpart and bypasses of the add-on control device during the semiannual reporting period by identifying deviations due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(10) A description of any changes in CEMS, CPMS, or controls since the last reporting period.

(e) If you had an SSM of a control device or associated monitoring equipment during the semiannual reporting period that was not consistent with your SSMP, you must submit an immediate SSM report according to the requirements in § 63.10(d)(5)(ii).

§ 63.9355 What records must I keep?

(a) You must keep the records as described in paragraphs (a)(1) through (5) of this section.

(1) A copy of each notification and report that you submitted to comply

with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirements in § 63.10(b)(2)(xiv).

(2) Records of performance evaluations as required in § 63.10(b)(2)(viii).

(3) Records of the occurrence and duration of each malfunction of the air pollution control equipment, if applicable, as required in § 63.10(b)(2)(ii).

(4) Records of all maintenance on the air pollution control equipment, if applicable, as required in § 63.10(b)(iii).

(5) The calculation of the mass of organic HAP emission reduction by emission capture systems and add-on control devices.

(b) For each CPMS, you must keep the records as described in paragraphs (b)(1) through (7) of this section.

(1) For each deviation, a record of whether the deviation occurred during a period of SSM of the control device and associated monitoring equipment.

(2) The records in § 63.6(e)(3)(iii) through (v) related to SSM.

(3) The records required to show continuous compliance with each operating limit specified in Table 2 to this subpart that applies to you.

(4) For each capture system that is a PTE, the data and documentation you used to support a determination that the capture system meets the criteria in Method 204 of appendix M to 40 CFR part 51 for a PTE and has a capture efficiency of 100 percent, as specified in § 63.9322(a).

(5) For each capture system that is not a PTE, the data and documentation you used to determine capture efficiency according to the requirements specified in §§ 63.9321 and 63.9322(b) through (e), including the records specified in paragraphs (b)(5)(i) and (ii) of this section that apply to you.

(i) Records for a gas-to-gas protocol using a temporary total enclosure or a building enclosure. Records of the mass of TVH emissions captured by the emission capture system as measured by Method 204B or C of appendix M to 40 CFR part 51 at the inlet to the add-on control device, including a copy of the test report. Records of the mass of TVH emissions not captured by the capture system that exited the temporary total enclosure or building enclosure during each capture efficiency test run as measured by Method 204D or E of appendix M to 40 CFR part 51, including a copy of the test report. Records documenting that the enclosure used for the capture efficiency test met the criteria in Method 204 of appendix M to 40 CFR part 51 for either a temporary total enclosure or a building enclosure.

(ii) Records for an alternative protocol. Records needed to document a capture efficiency determination using an alternative method or protocol as specified in § 63.9322(e), if applicable.

(6) The records specified in paragraphs (b)(6)(i) and (ii) of this section for each add-on control device organic HAP destruction or removal efficiency determination as specified in § 63.9323.

(i) Records of each add-on control device performance test conducted according to §§ 63.9321, 63.9322, and 63.9323.

(ii) Records of the engine testing conditions during the add-on control device performance test showing that the performance test was conducted under representative operating conditions.

(7) Records of the data and calculations you used to establish the emission capture and add-on control device operating limits as specified in § 63.9324 and to document compliance with the operating limits as specified in Table 2 to this subpart.

(c) For each CEMS, you must keep the records as described in paragraphs (c)(1) through (4) of this section.

(1) Records described in § 63.10(b)(2)(vi) through (xi).

(2) Previous (*i.e.*, superceded) versions of the performance evaluation plan as required in § 63.8(d)(3).

(3) Request for alternatives to the relative accuracy test for CEMS as required in § 63.8(f)(6)(i), if applicable.

(4) The records in § 63.6(e)(3)(iii) through (v) related to SSM of the control device and associated monitoring equipment.

(d) You must keep the records required in Table 5 to this subpart to show continuous compliance with each emission limitation that applies to you.

§63.9360 In what form and how long must I keep my records?

(a) You must maintain all applicable records in such a manner that they can be readily accessed and are suitable for inspection according to §63.10(b)(1).

(b) As specified in §63.10(b)(1), you must keep each records for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must retain your records of the most recent 2 years on site, or your records must be accessible on site. Your records of the remaining 3 years may be retained off site.

OTHER REQUIREMENTS AND INFORMATION

§63.9365 What parts of the General Provisions apply to me?

Table 7 to this subpart shows which parts of the General Provisions in §§63.1 through 63.15 apply to you.

§63.9370 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by us, the U.S. EPA, or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency, in addition to the U.S. EPA, has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if implementation and enforcement of this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under section 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that cannot be delegated to State, local, or tribal agencies are described in paragraphs (c)(1) through (4) of this section.

(1) Approval of alternatives to the emission limitations in §63.9300 under §63.6(g).

(2) Approval of major changes to test methods under §63.7(e)(2)(ii) and (f) and as defined in §63.90.

(3) Approval of major changes to monitoring under §63.8(f) and as defined in §63.90.

(4) Approval of major changes to recordkeeping and reporting under §63.10(f) and as defined in §63.90.

§63.9375 What definitions apply to this subpart?

Terms used in this subpart are defined in the CAA; in 40 CFR 63.2, and in this section:

CAA means the Clean Air Act (42 U.S.C. 7401 *et seq.*, as amended by Public Law 101–549, 104 Statute 2399).

Area source means any stationary source of HAP that is not a major source as defined in this part.

Combustion turbine engine means a device in which air is compressed in a compressor, enters a combustion chamber, and is compressed further by the combustion of fuel injected into the combustion chamber. The hot compressed combustion gases then expand over a series of curved vanes or blades arranged on a central spindle that rotates.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including but not limited to any emission limitations;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limitation in this subpart during malfunction, regardless or whether or not such failure is permitted by this subpart.

Engine means any internal combustion engine, any combustion turbine engine, or any rocket engine.

Engine Test Cell/Stand means any apparatus used for testing uninstalled stationary or uninstalled mobile (motive) engines.

Hazardous Air Pollutant (HAP) means any air pollutant listed in or pursuant to section 112(b) of the CAA.

Internal combustion engine means a device in which air enters a combustion chamber, is mixed with fuel, compressed in the chamber, and combusted. Fuel may enter the combustion chamber with the air or be injected into the combustion chamber. Expansion of the hot combustion gases in the chamber rotates a shaft, either through a reciprocating or rotary action. For purposes of this subpart, this definition does not include combustion turbine engines.

Major source, as used in this subpart, shall have the same meaning as in § 63.2.

Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

Rated power means the maximum power output of an engine in use.

Potential to emit means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the stationary source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable.

Responsible official means responsible official as defined by 40 CFR 70.2.

Rocket engine means a device consisting of a combustion chamber in which materials referred to as propellants, which provide both the fuel and the oxygen for combustion, are burned. Combustion gases escape through a nozzle, providing thrust.

Uninstalled engine means an engine not installed in, or an integrated part of, the final product.

TABLES TO SUBPART PPPPP OF PART 63

TABLE 1 TO SUBPART PPPPP OF PART 63.—EMISSION LIMITATIONS

You must comply with the emission limits that apply to your affected source in the following table as required by § 63.9300:

For each new or reconstructed affected source located at a major source facility that is used in whole or in part for testing . . .	You must meet one of the following emission limitations:
1. internal combustion engines with rated power of 25 hp (19 kW) or more.	a. limit the concentration of CO or THC to 20 ppmvd or less (corrected to 15 percent O_2 content); or b. achieve a reduction in CO or THC of 96 percent or more between the inlet and outlet concentrations (corrected to 15 percent O_2 content) of the emission control device.

TABLE 2 TO SUBPART PPPPP OF PART 63.—OPERATING LIMITS

If you are required to comply with operating limits in § 63.9302, you must comply with the applicable operating limits in the following table:

For the following device . . .	You must meet the following operating limit . . .	and you must demonstrate continuous compliance with the operating limit by . . .
1. Thermal oxidizer	a. The average combustion temperature in any 3-hour period must not fall below the the combustion temperature limit established according to § 63.9324(a).	i. Collecting the combustion temperature data according to § 63.9306(c); ii. Reducing the data to 3-hour block averages; and iii. Maintaining the 3-hour average combustion temperature at or above the temperature limit.
2. Catalytic oxidizer	a. The average temperature measured just before the catalyst bed in any 3-hour period must not fall below the limit established according to § 63.9324(b).	i. Collecting the temperature data according to § 63.9306(c); ii. Reducing the data to 3-hour block averages; and iii. Maintaining the 3-hour average temperature before the catalyst bed at or above the temperature limit.

If you are required to comply with operating limits in § 63.9302, you must comply with the applicable operating limits in the following table:

For the following device . . .	You must meet the following operating limit . . .	and you must demonstrate continuous compliance with the operating limit by . . .
	b. Either ensure that the average temperature difference across the catalyst bed in any 3-hour period does not fall below the temperature difference limit established according to § 63.9324(b)(2) or develop and implement an inspection and maintenance plan according to § 63.9324(b)(3) and (4).	i. Either collecting the temperature data according to § 63.9306(c), reducing the data to 3-hour block averages, and maintaining the 3-hour average temperature difference at or above the temperature difference limit; or ii. Complying with the inspection and maintenance plan developed according to § 63.9324(b)(3) and (4).
3. Emission capture system that is a PTE according to § 63.9322(a).	a. The direction of the air flow at all times must be into the enclosure; and either	i. Collecting the direction of air flow; and either the facial velocity of air through all natural draft openings according to § 63.9306(d)(1) or the pressure drop across the enclosure according to § 63.9306(d)(2); and ii. Maintaining the facial velocity of air flow through all natural draft openings or the pressure drop at or above the facial velocity limit or pressure drop limit, and maintaining the direction of air flow into the enclosure at all times.
	b. The average facial velocity of air through all natural draft openings in the enclosure must be at least 200 feet per minute; or	Follow the requirements in 3ai and ii of this table.
	c. The pressure drop across the enclosure must be at least 0.007 inch H_2O, as established in Method 204 of appendix M to 40 CFR part 51.	Follow the requirements in 3ai and ii of this table.
4. Emission capture system that is not a PTE according to § 63.9322(a).	a. The average gas volumetric flow rate or duct static pressure in each duct between a capture device and add-on control device inlet in any 3-hour period must not fall below the average volumetric flow rate or duct static pressure limit established for that capture device according § 63.9306(d).	i. Collecting the gas volumetric flow rate or duct static pressure for each capture device according to § 63.9306(d); ii. Reducing the data to 3-hour block averages; and iii. Maintaining the 3-hour average gas volumetric flow rate or duct static pressure for each capture device at or above the gas volumetric flow rate or duct static pressure limit.

TABLE 3 TO SUBPART PPPPP OF PART 63.—REQUIREMENTS FOR INITIAL COMPLIANCE DEMONSTRATIONS

As stated in § 63.9321, you must demonstrate initial compliance with each emission limitation that applies to you according to the following table:

For each new or reconstructed affected source complying with . . .	You must . . .	Using . . .	According to the following requirements . . .
1. The CO or THC outlet concentration emission limitation.	a. Demonstrate CO or THC emissions are 20 ppmvd or less.	i. EPA Methods 3A and 10 of appendix A to 40 CFR part 60 for CO measurement or EPA Method 25A of appendix A to 40 CFR part 60 for THC measurement; or	You must demonstrate that the outlet concentration of CO or THC emissions from the test cell/stand or emission control device is 20 ppmvd or less, corrected to 15 percent O_2 content, using the first 4-hour rolling average after a successful performance evaluation.

As stated in § 63.9321, you must demonstrate initial compliance with each emission limitation that applies to you according to the following table:

For each new or reconstructed affected source complying with . . .	You must . . .	Using . . .	According to the following requirements . . .
		ii. A CEMS for CO or THC and O_2 at the outlet of the engine test cell/stand or emission control device.	This demonstration is conducted immediately following a successful performance evaluation of the CEMS as required in § 63.9320(b). The demonstration consists of the first 4-hour rolling average of measurements. The CO or THC concentration must be corrected to 15 percent O_2 content, dry basis using Equation 1 in § 63.9320.
2. The CO or THC percent reduction emission limitation.	a. Demonstrate a reduction in CO or THC of 96 percent or more.	i. You must conduct an initial performance test to determine the capture and control efficiencies of the equipment and to establish operating limits to be achieved on a continuous basis; or	You must demonstrate that the reduction in CO or THC emissions is at least 96 percent using the first 4-hour rolling average after a successful performance evaluation. Your inlet and outlet measurements must be on a dry basis and corrected to 15 percent O_2 content.
		ii. A CEMS for CO or THC and O_2 at both the inlet and outlet of the emission control device.	This demonstration is conducted immediately following a successful performance evaluation of the CEMS as required in § 63.9320(b). The demonstration consists of the first 4-hour rolling average of measurements. The inlet and outlet CO or THC concentrations must be corrected to 15 percent O_2 content using Equation 1 in § 63.9320. The reduction in CO or THC is calculated using Equation 2 in § 63.9320.

TABLE 4 TO SUBPART PPPPP OF PART 63.—INITIAL COMPLIANCE WITH EMISSION LIMITATIONS

As stated in § 63.9330, you must demonstrate initial compliance with each emission limitation that applies to you according to the following table:

For the . . .	You have demonstrated initial compliance if . . .
1. CO or THC concentration emission limitation	The first 4-hour rolling average CO or THC concentration is 20 ppmvd or less, corrected to 15 percent O_2 content.
2. CO or THC percent reduction emission limitation	The first 4-hour rolling average reduction in CO or THC is 96 percent or more, dry basis, corrected to 15 percent O_2 content.

TABLE 5 TO SUBPART PPPPP OF PART 63.—CONTINUOUS COMPLIANCE WITH EMISSION LIMITATIONS

As stated in § 63.9340, you must demonstrate continuous compliance with each emission limitation that applies to you according to the following table:

For the . . .	You must . . .	By . . .
1. CO or THC concentration emission limitation.	a. Demonstrate CO or THC emissions are 20 ppmvd or less over each 4-hour rolling averaging period.	i. Collecting the CPMS data according to § 63.9306(a), reducing the measurements to 1-hour averages; or ii. Collecting the CEMS data according to § 63.9307(a), reducing the measurements to 1-hour averages, correcting them to 15 percent O_2 content, dry basis, according to § 63.9320;
2. CO or THC percent reduction emission limitation.	a. Demonstrate a reduction in CO or THC of 96 percent or more over each 4-hour rolling averaging period.	i. Collecting the CPMS data according to § 63.9306(a), reducing the measurements to 1-hour averages; or ii. Collecting the CEMS data according to § 63.9307(b), reducing the measurements to 1-hour averages, correcting them to 15 percent O_2 content, dry basis, calculating the CO or THC percent reduction according to § 63.9320.

TABLE 6 TO SUBPART PPPPP OF PART 63.—REQUIREMENTS FOR REPORTS

As stated in § 63.9350, you must submit each report that applies to you according to the following table:

If you own or operate a new or reconstructed affected source that must comply with emission limitations, you must submit a . . .	The report must contain . . .	You must submit the report . . .
1. Compliance report	a. If there are no deviations from the emission limitations that apply to you, a statement that there were no deviations from the emission limitations during the reporting period.	Semiannually, according to the requirements in § 63.9350.
	b. If there were no periods during which the CEMS or CPMS were out of control as specified in § 63.8(c)(7), a statement that there were no periods during which the CEMS or CPMS was out of control during the reporting period.	Semiannually, according to the requirements in § 63.9350.
	c. If you have a deviation from any emission limitation during the reporting period, the report must contain the information in § 63.9350(c).	Semiannually, according to the requirements in § 63.9350.
	d. If there were periods during which the CEMS or CPMS were out of control, as specified in § 63.8(c)(7), that report must contain the information in § 63.9350(d).	Semiannually, according to the requirements in § 63.9350.

As stated in § 63.9350, you must submit each report that applies to you according to the following table:

If you own or operate a new or reconstructed affected source that must comply with emission limitations, you must submit a . . .	The report must contain . . .	You must submit the report . . .
	e. If you had an SSM of a control device or associated monitoring equipment during the reporting period, the report must include the information in § 63.10(d)(5)(i).	Semiannually, according to the requirements in § 63.9350.

TABLE 7 TO SUBPART PPPPP OF PART 63.—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART PPPPP

As stated in 63.9365, you must comply with the General Provisions in §§ 63.1 through 63.15 that apply to you according to the following table:

Citation	Subject	Brief description	Applies to subpart PPPPP
§ 63.1(a)(1)	Applicability	General applicability of the General Provisions.	Yes. Additional terms defined in § 63.9375.
§ 63.1(a)(2)–(4)	Applicability	Applicability of source categories.	Yes.
§ 63.1(a)(5)	[Reserved].		
§ 63.1(a)(6)–(7)	Applicability	Contact for source category information; extension of compliance through early reduction.	Yes.
§ 63.1(a)(8)	Applicability	Establishment of State rules or programs.	No. Refers to State programs.
§ 63.1(a)(9)	[Reserved].		
§ 63.1(a)(10)–(14)	Applicability	Explanation of time periods, postmark deadlines.	Yes.
§ 63.1(b)(1)	Applicability	Initial applicability	Yes. Subpart PPPPP clarifies applicability at § 63.9285.
§ 63.1(b)(2)	Applicability	Title V operating permit-reference to part 70.	Yes. All major affected sources are required to obtain a Title V permit.
§ 63.1(b)(3)	Applicability	Record of applicability determination.	Yes.
§ 63.1(c)(1)	Applicability	Applicability after standards are set.	Yes. Subpart PPPPP clarifies the applicability of each paragraph of subpart A to sources subject to subpart PPPPP.
§ 63.1(c)(2)	Applicability	Title V permit requirement for area sources.	No. Area sources are not subject to subpart PPPPP.
§ 63.1(c)(3)	[Reserved].		
§ 63.1(c)(4)	Applicability	Extension of compliance for existing sources.	No. Existing sources are not covered by the substantive control requirements of subpart PPPPP.
§ 63.1(c)(5)	Applicability	Notification requirements for an area source becoming a major source.	Yes.
§ 63.1(d)	[Reserved].		

As stated in 63.9365, you must comply with the General Provisions in §§ 63.1 through 63.15 that apply to you according to the following table:

Citation	Subject	Brief description	Applies to subpart PPPPP
§ 63.1(e)	Applicability	Applicability of permit program before a relevant standard has been set.	Yes.
§ 63.2	Definitions	Definitions for Part 63 standards.	Yes. Additional definitions are specified in § 63.9375.
§ 63.3	Units and Abbreviations	Units and abbreviations for Part 63 standards.	Yes.
§ 63.4	Prohibited Activities	Prohibited activities; compliance date; circumvention, severability.	Yes.
§ 63.5(a)	Construction/Reconstruction	Construction and reconstruction—applicability.	Yes.
§ 63.5(b)(1)	Construction/Reconstruction	Requirements upon construction or reconstruction.	Yes.
§ 63.5(b)(2)	[Reserved].		
§ 63.5(b)(3)	Construction/Reconstruction	Approval of construction	Yes.
§ 63.5(b)(4)	Construction/Reconstruction	Notification of construction	Yes.
§ 63.5(b)(5)	Construction/Reconstruction	Compliance	Yes.
§ 63.5(b)(6)	Construction/Reconstruction	Addition of equipment	Yes.
§ 63.5(c)	[Reserved]		
§ 63.5(d)	Construction/Reconstruction	Application for construction reconstruction.	Yes.
§ 63.5(e)	Construction/Reconstruction	Approval of construction or reconstruction.	Yes.
§ 63.5(f)	Construction/Reconstruction	Approval of construction or reconstruction based on prior State review.	Yes.
§ 63.6(a)	Applicability	Applicability of standards and monitoring requirements.	Yes.
§ 63.6(b)(1)–(2)	Compliance Dates for New and Reconstructed Sources.	Standards apply at effective date; 3 years after effective date; upon startup; 10 years after construction or reconstruction commences for 112(f).	Yes.
§ 63.6(b)(3)	Compliance Dates for New and Reconstructed Sources.	Compliance dates for sources constructed or reconstructed before effective date.	No. Compliance is required by startup or effective date.
§ 63.6(b)(4)	Compliance Dates for New and Reconstructed Sources.	Compliance dates for sources also subject to § 112(f) standards.	Yes.
§ 63.6(b)(5)	Compliance Dates for New and Reconstructed Sources.	Notification	Yes.
§ 63.6(b)(6)	[Reserved].		
§ 63.6(b)(7)	Compliance Dates for New and Reconstructed Sources.	Compliance dates for new and reconstructed area sources that become major.	Yes.

As stated in 63.9365, you must comply with the General Provisions in §§ 63.1 through 63.15 that apply to you according to the following table:

Citation	Subject	Brief description	Applies to subpart PPPPP
§ 63.6(c)(1)–(2)	Compliance Dates for Existing Sources.	Effective date establishes compliance date.	No. Existing sources are not covered by the substantive control requirements of subpart PPPPP.
§ 63.6(c)(3)–(4)	[Reserved].		
§ 63.6(c)(5)	Compliance Dates for Existing Sources.	Compliance dates for existing area sources that becomes major.	Yes. If the area source become a major source by addition or reconstruction, the added or reconstructed portion will be subject to subpart PPPPP.
§ 63.6(d)	[Reserved].		
§ 63.6(e)(1)–(2)	Operation and Maintenance Requirements.	Operation and maintenance	Yes. Except that you are not required to have an SSMP for control devices and associated monitoring equipment.
§ 63.6(e)(3)	SSMP	1. Requirement for SSM and SSMP. 2. Content of SSMP.	Yes.You must develop an SSMP for each control device and associated monitoring equipment.
§ 63.6(f)(1)	Compliance Except During SSM.	You must comply with emission standards at all times except during SSM of control devices or associated monitoring equipment.	Yes, but you must comply with emission standards at all times except during SSM of control devices and associated monitoring equipment only.
§ 63.6(f)(2)–(3)	Methods for Determining Compliance.	Compliance based on performance test, operation and maintenance plans, records, inspection.	Yes.
§ 63.6(g)(1)–(3)	Alternative Standard	Procedures for getting an alternative standard.	Yes.
§ 63.6(h)	Opacity/Visible Emission (VE) Standards.	Requirements for opacity/VE standards.	No. Subpart PPPPP does not establish opacity/VE standards and does not require continuous opacity monitoring systems (COMS).
§ 63.6(i)(1)–(14)	Compliance Extension	Procedures and criteria for Administrator to grant compliance extension.	No. Compliance extension provisions apply to existing sources, which do not have emission limitations in subpart PPPPP.
§ 63.6(j)	Presidential Compliance Exemption.	President may exempt source category from requirement to comply with rule.	Yes.
§ 63.7(a)(1)–(2)	Performance Test Dates	Dates for conducting initial performance testing and other compliance demonstrations: Must conduct within 180 days after first subject to rule.	Yes.
§ 63.7(a)(3)	Section 114 Authority	Administrator may require a performance test under CAA Section 114 at any time.	Yes.

As stated in 63.9365, you must comply with the General Provisions in §§ 63.1 through 63.15 that apply to you according to the following table:

Citation	Subject	Brief description	Applies to subpart PPPPP
§ 63.7(b)(1)	Notification Performance Test	Must notify Administrator 60 days before the test.	Yes.
§ 63.7(b)(2)	Notification of Rescheduling	If have to reschedule performance test, must notify Administrator 5 days before schedule date of rescheduled date.	Yes.
§ 63.7(c)	Quality Assurance/Test Plan	1. Requirement to submit site-specific test plan 60 days before the test or on date Administrator agrees with. 2. Test plan approval procedures. 3. Performance audit requirements. 4. Internal and external QA procedures for testing.	Yes. Yes. Yes. Yes.
§ 63.7(d)	Testing Facilities	Requirements for testing facilities.	Yes.
§ 63.7(e)(1)	Conditions for Conducting Performance Tests.	Performance tests must be conducted under representative conditions; cannot conduct performance tests during SSM; not a violation to exceed standard during SSM.	Yes.
§ 63.7(e)(2)	Conditions for Conducting Performance Tests.	Must conduct according to rule and EPA test methods unless Administrator approves alternative.	Yes.
§ 63.7(e)(3)	Test Run Duration	1. Must have three test runs of at least 1 hour each. 2. Compliance is based on arithmetic mean of three runs. 3. Conditions when data from an additional test run can be used.	Yes. Yes. Yes.
§ 63.7(e)(4)	Other Performance Testing	Administrator may require other testing under section 114 of the CAA.	Yes.
§ 63.7(f)	Alternative Test Method	Procedures by which Administrator can grant approval to use an alternative test method.	Yes.
§ 63.7(g)	Performance Test Data Analysis.	1. Must include raw data in performance test report. 2. Must submit performance test data 60 days after end of test with the Notification of Compliance Status. 3. Keep data for 5 years	Yes. Yes. Yes.
§ 63.7(h)	Waiver of Tests	Procedures for Administrator to waive performance test.	Yes.
§ 63.8(a)(1)	Applicability of Monitoring Requirements.	Subject to all monitoring requirements in standard.	Yes. Subpart PPPPP contains specific requirements for monitoring at § 63.9325.
§ 63.8(a)(2)	Performance Specifications	Performance Specifications in appendix B of part 60 apply.	Yes.

As stated in 63.9365, you must comply with the General Provisions in §§ 63.1 through 63.15 that apply to you according to the following table:

Citation	Subject	Brief description	Applies to subpart PPPPP
§ 63.8(a)(3)	[Reserved]		
§ 63.8(a)(4)	Monitoring with Flares	Unless your rule says otherwise, the requirements for flares in 63.11 apply.	No. Subpart PPPPP does not have monitoring requirements for flares.
§ 63.8(b)(1)	Monitoring	Must conduct monitoring according to standard unless Administrator approves alternative.	Yes.
§ 63.8(b)(2)–(3)	Multiple Effluents and Multiple Monitoring Systems.	1. Specific requirements for installing monitoring systems. 2. Must install on each effluent before it is combined and before it is released to the atmosphere unless Administrator approves otherwise. 3. If more than one monitoring system on an emission point, must report all monitoring system results, unless one monitoring system is a backup.	Yes. Yes. Yes.
§ 63.8(c)(1)	Monitoring System Operation and Maintenance.	Maintain monitoring system in a manner consistent with good air pollution control practices.	Yes.
§ 63.8(c)(1)(i)	Routine and Predictable CMS Malfunctions.	1. Follow the SSMP for routine repairs of CMS. 2. Keep parts for routine repairs of CMS readily available. 3. Reporting requirements for SSM when action is described in SSMP.	Yes. Yes. Yes.
§ 63.8(c)(1)(ii)	SSM of CMS Not in SSMP	Reporting requirements for SSM of CMS when action is not described in SSMP.	Yes.
§ 63.8(c)(1)(iii)	Compliance with Operation and Maintenance Requirements.	1. How Administrator determines if source complying with operation and maintenance requirements. 2. Review of source O&M procedures, records, manufacturer's instructions and recommendations, and inspection	Yes.
§ 63.8(c)(2)–(3)	Monitoring System Installation	1. Must install to get representative emission of parameter measurements. 2. Must verify operational status before or at performance test.	Yes. Yes.
§ 63.8(c)(4)	Continuous Monitoring System (CMS) Requirements.	1. CMS must be operating except during breakdown, out of control, repair, maintenance, and high-level calibration drifts.	No. Follow specific requirements in § 63.9335(a) and (b) of subpart PPPPP.

As stated in 63.9365, you must comply with the General Provisions in §§ 63.1 through 63.15 that apply to you according to the following table:

Citation	Subject	Brief description	Applies to subpart PPPPP
		2. COMS must have a minimum of one cycle of sampling and analysis for each successive 10-second period and one cycle of data recording for each successive 6-minute period.	No. Follow specific requirements in § 63.9335(a) and (b) of subpart PPPP.
		3. CEMS must have a minimum of one cycle of operation for each successive 15-minute period.	No. Follow specific requirements in § 63.9335(a) and (b) of subpart PPPPP.
§ 63.8(c)(5)	COMS Minimum Procedures	COMS minimum procedures	No. Subpart PPPPP does not have opacity/VE standards.
§ 63.8(c)(6)–(8)	CMS Requirements	Zero and high-level calibration check requirements, out-of-control periods.	Yes. Except that PPPP does not require COMS.
§ 63.8(d)	CMS Quality Control	1. Requirements for CMS quality control, including calibration, etc.	Yes.
		2. Must keep quality control plan on record for 5 years. Keep old versions for 5 years after revisions.	Yes.
§ 63.8(e)	CMS Performance Evaluation	Notification, performance evaluation test plan, reports.	Yes. Except for § 63.8(e)(5)(ii), which applies to COMS.
§ 63.8(f)(1)–(5)	Alternative Monitoring Method	Procedures for Administrator to approve alternative monitoring.	Yes.
§ 63.8(f)(6)	Alternative to Relative Accuracy Test.	Procedures for Administrator to approve alternative relative accuracy tests for CEMS.	Yes.
§ 63.8(g)	Data Reduction	1. COMS 6-minute averages calculated over at least 36 evenly spaced data points. 2. CEMS 1-hour averages computed over at least 4 equally spaced data points	Yes. Except that provisions for COMS are not applicable. Averaging periods for demonstrating compliance are specified at § 63.9340.
§ 63.8(g)(5)	Data Reduction	Data that cannot be used in computing averages for CEMS and COMS.	No. Specific language is located at § 63.9335(a).
§ 63.9(a)	Notification Requirements	Applicability and State delegation.	Yes.
§ 63.9(b)(1)–(5)	Initial Notifications	1. Submit notification subject 120 days after effective date.	Yes.
		2. Notification of intent to construct/ reconstruct; notification of commencement of construct/ reconstruct; notification of startup.	Yes.
		3. Contents of each	Yes.
§ 63.9(c)	Request for Compliance Extension.	Can request if cannot comply by date or if installed BACT/LAER.	No. Compliance extensions do not apply to new or reconstructed sources.

As stated in 63.9365, you must comply with the General Provisions in §§ 63.1 through 63.15 that apply to you according to the following table:

Citation	Subject	Brief description	Applies to subpart PPPPP
§ 63.9(d)	Notification of Special Compliance Requirements for New Source.	For sources that commence construction between proposal and promulgation and want to comply 3 years after effective date.	Yes.
§ 63.9(e)	Notification of Performance Test.	Notify Administrator 60 days prior.	No. Subpart PPPPP does not require performance testing.
§ 63.9(f)	Notification of Opacity/VE Test.	Notify Administrator 30 days prior.	No. Subpart PPPPP does not have opacity/VE standards.
§ 63.9(g)(1)	Additional Notifications when Using CMS.	Notification of performance evaluation.	Yes.
§ 63.9(g)(2)	Additional Notifications when Using CMS.	Notification of use of COMS data.	No. Subpart PPPPP does not contain opacity or VE standards.
§ 63.9(g)(3)	Additional Notifications when Using CMS.	Notification that exceeded criterion for relative accuracy.	Yes. If alternative is in use.
§ 63.9(h)(1)–(6)	Notification of Compliance Status.	1. Contents 2. Due 60 days after end of performance test or other compliance demonstration, except for opacity/VE, which are due 30 days after. 3. When to submit to Federal vs. State authority.	Yes. Yes. Yes.
§ 63.9(i)	Adjustment of Submittal Deadlines.	Procedures for Administrator to approve change in when notifications must be submitted.	Yes.
§ 63.9(j)	Change in Previous Information.	Must submit within 15 days after the change.	Yes.
§ 63.10(a)	Recordkeeping/Reporting	1. Applies to all, unless compliance extension. 2. When to submit to Federal vs. State authority. 3. Procedures for owners of more than one source.	Yes. Yes. Yes.
§ 63.10(b)(1)	Recordkeeping/Reporting	1. General requirements 2. Keep all records readily available. 3. Keep for 5 years	Yes. Yes. Yes.
§ 63.10(b)(2)(i)–(v)	Records Related to SSM	1. Occurrence of each of operation (process equipment). 2. Occurrence of each malfunction of air pollution equipment. 3. Maintenance on air pollution control equipment. 4. Actions during SSM 5. All information necessary to demonstrate conformance with the SSMP.	Yes. Yes. Yes. Yes. Yes.
§ 63.10(b)(2)(vi)–(xi)	CMS Records	Malfunctions, inoperative, out of control.	Yes.
§ 63.10(b)(2)(xii)	Records	Records when under waiver	Yes.

As stated in 63.9365, you must comply with the General Provisions in §§ 63.1 through 63.15 that apply to you according to the following table:

Citation	Subject	Brief description	Applies to subpart PPPPP
§ 63.10(b)(2)(xiii)	Records	Records when using alternative to relative accuracy test.	Yes.
§ 63.10(b)(2)(xiv)	Records	All documentation supporting initial notification and notification of compliance status.	Yes.
§ 63.10(b)(3)	Records	Applicability determinations	Yes.
§ 63.10(c)(1)–(6), (9)–(15)	Records	Additional records for CEMS	Yes.
§ 63.10(c)(7)–(8)	Records	Records of excess emissions and parameter monitoring exceedances for CMS.	No. Specific language is located at § 63.9355 of subpart PPPPP.
§ 63.10(d)(1)	General Reporting Requirements.	Requirement to report	Yes.
§ 63.10(d)(2)	Report of Performance Test Results.	When to submit to Federal or State authority.	Yes.
§ 63.10(d)(3)	Reporting Opacity or VE Observations.	What to report and when	No. Subpart PPPPP does not have opacity/VE standards.
§ 63.10(d)(4)	Progress Reports	Must submit progress reports on schedule if under compliance extension.	No. Compliance extensions do not apply to new or reconstructed sources.
§ 63.10(d)(5)	SSM Reports	Contents and submission	Yes.
§ 63.10(e)(1) and (2)(i)	Additional CMS Reports	Additional CMS reports	Yes.
§ 63.10(e)(2)(ii)	Additional CMS Reports	COMS-related report	No. Subpart PPPPP does not require COMS.
§ 63.10(e)(3)	Additional CMS Reports	Excess emissions and parameter exceedances reports.	No. Specific language is located in § 63.9350 of subpart PPPPP.
§ 63.10(e)(4)	Additional CMS Reports	Reporting COMS data	No. Subpart PPPPP does not require COMS.
§ 63.10(f)	Waiver for Recordkeeping/Reporting.	Procedures for Administrator to waive.	Yes.
§ 63.11	Control Device Requirements	Requirements for flares	No. Subpart PPPPP does not specify use of flares for compliance.
§ 63.12	State Authority and Delegations.	State authority to enforce standards.	Yes.
§ 63.13	Addresses of State Air Pollution Control Offices and EPA Regional Offices.	Addresses where reports, notifications, and requests are sent.	Yes.
§ 63.14	Incorporations by Reference	Test methods incorporated by reference.	Yes. ASTM D 6522–00 and ANSI/ASME PTC 19.10–1981 (incorporated by reference-See § 63.14).
§ 63.15	Availability of Information and Confidentiality.	Public and confidential information.	Yes.

Subpart QQQQQ—National Emission Standards for Hazardous Air Pollutants for Friction Materials Manufacturing Facilities

SOURCE: 67 FR 64506, Oct. 18, 2002, unless otherwise noted.

WHAT THIS SUBPART COVERS

§ 63.9480 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants (NESHAP) for friction materials manufacturing facilities that use a solvent-based process. This subpart also establishes requirements to demonstrate initial and continuous compliance with all applicable emission limitations in this subpart.

§ 63.9485 Am I subject to this subpart?

(a) You are subject to this subpart if you own or operate a friction materials manufacturing facility (as defined in § 63.9565) that is (or is part of) a major source of hazardous air pollutants (HAP) emissions on the first compliance date that applies to you, as specified in § 63.9495. Your friction materials manufacturing facility is a major source of HAP if it emits or has the potential to emit any single HAP at a rate of 9.07 megagrams (10 tons) or more per year or any combination of HAP at a rate of 22.68 megagrams (25 tons) or more per year.

(b) The requirements in this subpart do not apply to research and development facilities, as defined in section 112(c)(7) of the Clean Air Act.

§ 63.9490 What parts of my plant does this subpart cover?

(a) This subpart applies to each new, reconstructed, or existing affected source at your friction materials manufacturing facility.

(b) The affected source covered by this subpart is each new, reconstructed, or existing solvent mixer (as defined in § 63.9565) at your friction materials manufacturing facility.

(c) A solvent mixer at your friction materials manufacturing facility is new if you commence construction of the solvent mixer after October 18, 2002. An affected source is reconstructed if it meets the definition of ‘‘reconstruction’’ in § 63.2, and reconstruction is commenced after October 18, 2002.

(d) A solvent mixer at your friction materials manufacturing facility is existing if it is not new or reconstructed.

§ 63.9495 When do I have to comply with this subpart?

(a) If you have an existing solvent mixer, you must comply with each of the requirements for existing sources no later than October 18, 2005.

(b) If you have a new or reconstructed solvent mixer and its initial startup date is after October 18, 2002, you must comply with the requirements for new and reconstructed sources upon initial startup.

(c) If your friction materials manufacturing facility is an area source that increases its emissions or its potential to emit such that it becomes a (or part of a) major source of HAP emissions, then paragraphs (c)(1) and (2) of this section apply.

(1) For any portion of the area source that becomes a new or reconstructed affected source, you must comply with the requirements for new and reconstructed sources upon startup or no later than October 18, 2002, whichever is later.

(2) For any portion of the area source that becomes an existing affected source, you must comply with the requirements for existing sources no later than 1 year after the area source becomes a major source or no later than October 18, 2005, whichever is later.

(d) You must meet the notification and schedule requirements in § 63.9535. Several of the notifications must be submitted before the compliance date for your affected source.

EMISSION LIMITATIONS

§ 63.9500 What emission limitations must I meet?

(a) For each new, reconstructed, or existing large solvent mixer at your friction materials manufacturing facility, you must limit HAP solvent emissions to the atmosphere to no more than 30 percent of that which would otherwise be emitted in the absence of solvent recovery and/or solvent substitution, based on a 7-day block average.

(b) For each new, reconstructed, or existing small solvent mixer at your friction materials manufacturing facility, you must limit HAP solvent emissions to the atmosphere to no more than 15 percent of that which would otherwise be emitted in the absence of solvent recovery and/or solvent substitution, based on a 7-day block average.

GENERAL COMPLIANCE REQUIREMENTS

§ 63.9505 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limitation in this subpart at all times, except during periods of startup, shutdown, or malfunction.

(b) You must always operate and maintain your affected source, including air pollution control and monitoring equipment, according to the provisions in § 63.6(e)(1)(i).

(c) You must develop and implement a written startup, shutdown, and malfunction plan according to the provisions in § 63.6(e)(3).

INITIAL COMPLIANCE DEMONSTRATION REQUIREMENTS

§ 63.9510 By what date must I conduct my initial compliance demonstration?

(a) If you use a solvent recovery system and/or solvent substitution, you must conduct your initial compliance demonstration within 7 calendar days after the compliance date that is specified for your source in § 63.9495.

(b) If you use a control technique other than a solvent recovery system and/or solvent substitution, you must comply with the provisions in § 63.9570.

§ 63.9515 How do I demonstrate initial compliance with the emission limitation that applies to me?

(a) You have demonstrated initial compliance for each new, reconstructed, or existing large solvent mixer subject to the emission limitation in § 63.9500(a) if the HAP solvent discharged to the atmosphere during the first 7 days after the compliance date, determined according to the provisions in § 63.9520, does not exceed a 7-day block average of 30 percent of that which would otherwise be emitted in the absence of solvent recovery and/or solvent substitution.

(b) You have demonstrated initial compliance for each new, reconstructed, or existing small solvent mixer subject to the emission limitation in § 63.9500(b) if the HAP solvent discharged to the atmosphere during the first 7 days after the compliance date, determined according to the provisions in § 63.9520, does not exceed a 7-day block average of 15 percent of that which would otherwise be emitted in the absence of solvent recovery and/or solvent substitution.

(c) You must submit a notification of compliance status containing the results of the initial compliance demonstration according to § 63.9535(e).

§ 63.9520 What procedures must I use to demonstrate initial compliance?

(a) If you use a solvent recovery system, you must use the procedures in paragraphs (a)(1) through (8) of this section to demonstrate initial compliance with the emission limitations in § 63.9500(a) and (b).

(1) Record the date and time of each mix batch.

(2) Record the identity of each mix batch using a unique batch ID, as defined in § 63.9565.

(3) Measure and record the weight of HAP solvent loaded into the solvent mixer for each mix batch.

(4) Measure and record the weight of HAP solvent recovered for each mix batch.

(5) If you use a solvent recovery system, you must determine the percent of HAP solvent discharged to the atmosphere for each mix batch according to Equation 1 of this section as follows:

(Eq. 1)

$$P_b = \left(1 - \frac{S_{rec}}{S_{mix}}\right)(100) \qquad \text{(Eq. 1)}$$

Where:

P_b = Percent of HAP solvent discharged to the atmosphere for each mix batch, percent;

S_{rec} = Weight of HAP solvent recovered for each mix batch, lb;

S_{mix} = Weight of HAP solvent loaded into the solvent mixer for each mix batch, lb.

(6) If you use solvent substitution for a mix batch, you must record the use of a non-HAP material as a substitute for a HAP solvent for that mix batch and assign a value of 0 percent to the percent of HAP solvent discharged to the atmosphere for that mix batch (Pb).

(7) Determine the 7-day block average percent of HAP solvent discharged to the atmosphere according to Equation 2 of this section as follows:

$$P_7 = \frac{1}{n}\sum_{i=1}^{n} P_b \qquad \text{(Eq. 2)}$$

Where:

%P_7 = 7-day block average percent of HAP solvent discharged to the atmosphere, percent;

i = mix batch;

n = number of mix batches in 7-day block average.

(8) Have valid data for at least 90 percent of the mix batches over the 7-day averaging period.

(b) If you use a control technique other than a solvent recovery system and/or solvent substitution, you may apply to EPA for approval to use an alternative method of demonstrating compliance with the emission limitations for solvent mixers in §63.9500(a) and (b), as provided in §63.9570.

§63.9525 What are the installation, operation, and maintenance requirements for my weight measurement device?

(a) If you use a solvent recovery system, you must install, operate, and maintain a weight measurement device to measure the weight of HAP solvent loaded into the solvent mixer and the weight of HAP solvent recovered for each mix batch.

(b) For each weight measurement device required by this section, you must develop and submit for approval a site-specific monitoring plan that addresses the requirements of paragraphs (b)(1) through (6) of this section:

(1) Procedures for installing the weight measurement device;

(2) The minimum accuracy of the weight measurement device in pounds and as a percent of the average weight of solvent to be loaded into the solvent mixer;

(3) Site-specific procedures for how the measurements will be made;

(4) How the measurement data will be recorded, reduced, and stored;

(5) Procedures and acceptance criteria for calibration of the weight measurement device; and

(6) How the measurement device will be maintained, including a routine maintenance schedule and spare parts inventory list.

(c) The site-specific monitoring plan required in paragraph (b) of this section must include, at a minimum, the requirements of paragraphs (c)(1) through (3) of this section:

(1) The weight measurement device must have a minimum accuracy of ±0.05 kilograms (±0.1 pounds) or ±1 percent of the average weight of solvent to be loaded into the solvent mixer, whichever is greater.

(2) An initial multi-point calibration of the weight measurement device must be made using 5 points spanning the expected range of weight measurements before the weight measurement device can be used. The manufacturer's calibration results can be used to meet this requirement.

(3) Once per day, an accuracy audit must be made using a single Class F calibration weight that corresponds to 20 to 80 percent of the average weight of solvent to be loaded into the solvent mixer. If the weight measurement device cannot reproduce the value of the calibration weight within ±0.05 kilograms (0.1 pounds) or ±1 percent of the average weight of solvent to be loaded into the solvent mixer, whichever is greater, the scale must be recalibrated before being used again. The recalibration must be performed with at least five Class F calibration weights spanning the expected range of weight measurements.

(d) You must operate and maintain the weight measurement device according to the site-specific monitoring plan.

(e) You must maintain records of all maintenance activities, calibrations, and calibration audits.

CONTINUOUS COMPLIANCE REQUIREMENTS

§ 63.9530 How do I demonstrate continuous compliance with the emission limitation that applies to me?

(a) If you use a solvent recovery system and/or solvent substitution, you must demonstrate continuous compliance with the emission limitations for solvent mixers in § 63.9500(a) and (b) according to the provisions in paragraphs (a)(1) through (3) of this section.

(1) Except for during malfunctions of your weight measurement device and associated repairs, you must collect and record the information required in § 63.9520(a)(1) through (8) at all times that the affected source is operating and record all information needed to document conformance with these requirements.

(2) For new, reconstructed, or existing large solvent mixers, maintain the 7-day block average percent of HAP solvent discharged to the atmosphere at or below 30 percent of that which would otherwise be emitted in the absence of solvent recovery and/or solvent substitution.

(3) For new, reconstructed, or existing small solvent mixers, maintain the 7-day block average percent of HAP solvent discharged to the atmosphere at or below 15 percent of that which would otherwise be emitted in the absence of solvent recovery and/or solvent substitution.

(b) If you use a control technique other than a solvent recovery system and/or solvent substitution, you must demonstrate continuous compliance with the emission limitations for solvent mixers in § 63.9500(a) and (b) according to the provisions in § 63.9570.

(c) You must report each instance in which you did not meet the emission limitations for solvent mixers in § 63.9500(a) and (b). This includes periods of startup, shutdown, or malfunction. These instances are deviations from the emission limitations in this subpart. These deviations must be reported according to the requirements in § 63.9540.

(d) During periods of startup, shutdown, or malfunction, you must operate in accordance with your startup, shutdown, and malfunction plan.

(e) Consistent with §§ 63.6(e) and 63.7(e)(1), deviations that occur during a period of startup, shutdown, or malfunction are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with the startup, shutdown, and malfunction plan. The Administrator will determine whether deviations that occur during a period of startup, shutdown, or malfunction are violations, according to the provisions in § 63.6(e).

NOTIFICATIONS, REPORTS, AND RECORDS

§ 63.9535 What notifications must I submit and when?

(a) You must submit all of the notifications in §§ 63.8(f)(4) and 63.9(b), (c), (d), and (h) that apply to you by the specified dates.

(b) If you use a control technique other than a solvent recovery system and/or solvent substitution, you must comply with the provisions in § 63.9570.

(c) As specified in § 63.9(b)(2), if you start up your affected source before October 18, 2002, you must submit your initial notification no later than 120 calendar days after October 18, 2002.

(d) As specified in § 63.9(b)(3), if you start up your new affected source on or after October 18, 2002, you must submit your initial notification no later than 120 calendar days after you become subject to this subpart.

(e) You must submit a notification of compliance status according to § 63.9(h)(2)(ii). You must submit the notification of compliance status before the close of business on the 30th calendar day following the completion of the initial compliance demonstration.

§ 63.9540 What reports must I submit and when?

(a) Unless the Administrator has approved a different schedule, you must submit each semiannual compliance report according to the requirements in paragraphs (a)(1) through (5) of this section.

(1) The first compliance report must cover the period beginning on the compliance date that is specified for your affected source in § 63.9495 and ending on June 30 or December 31, whichever date comes first after the compliance

date that is specified for your source in § 63.9495.

(2) The first compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date comes first after your first compliance report is due.

(3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date comes first after the end of the semiannual reporting period.

(5) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 71 of this chapter, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A) of this chapter, you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (a)(1) through (4) of this section.

(b) Each compliance report must include the information in paragraphs (b)(1) through (3) of this section, and if applicable, paragraphs (b)(4) through (6) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with the official's name, title, and signature, certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If you had a startup, shutdown, or malfunction during the reporting period and you took actions consistent with your startup, shutdown, and malfunction plan, the compliance report must include the information in § 63.10(d)(5)(i).

(5) If there were no deviations from the emission limitations for solvent mixers in § 63.9500(a) and (b), a statement that there were no deviations from the emission limitations during the reporting period.

(6) If there were no periods during which a monitoring system was out-of-control as specified in § 63.8(c)(7), a statement that there were no periods during which a monitoring system was out-of-control during the reporting period.

(c) For each deviation from an emission limitation occurring at an affected source, you must include the information in paragraphs (b)(1) through (4) and (c)(1) and (2) of this section. This includes periods of startup, shutdown, or malfunction.

(1) The total operating time of each affected source during the reporting period.

(2) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

(d) If you had a startup, shutdown, or malfunction during the semiannual reporting period that was not consistent with your startup, shutdown, and malfunction plan, you must submit an immediate startup, shutdown, and malfunction report according to the requirements in § 63.10(d)(5)(ii).

(e) If you have obtained a title V operating permit for an affected source pursuant to 40 CFR part 70 or 71 of this chapter, you must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A) of this chapter. If you submit a compliance report for an affected source along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A) of this chapter, and the compliance report includes all the required information concerning deviations from any emission limitation in this subpart, then submission of the compliance report satisfies any obligation to report the same deviations in the semiannual monitoring report. However, submission of a compliance report does not otherwise affect any obligation you may have to report deviations from permit requirements to your permitting authority.

§ 63.9545 What records must I keep?

(a) You must keep the records in paragraphs (a)(1) and (2) of this section that apply to you.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any initial notification or notification of compliance status that you submitted, according to the requirements in § 63.10(b)(2)(xiv).

(2) The records in § 63.6(e)(3)(iii) through (v) related to startup, shutdown, or malfunction.

(b) You must keep the records required in § 63.9525 to show proper operation and maintenance of the weight measurement device.

(c) You must keep the records required in § 63.9530 to show continuous compliance with the emission limitations for solvent mixers in § 63.9500(a) and (b).

§ 63.9550 In what form and how long must I keep my records?

(a) You must keep your records in a form suitable and readily available for expeditious review, according to § 63.10(b)(1).

(b) As specified in § 63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to § 63.10(b)(1). You can keep the records offsite for the remaining 3 years.

OTHER REQUIREMENTS AND INFORMATION

§ 63.9555 What parts of the General Provisions apply to me?

Table 1 to this subpart shows which parts of the General Provisions in §§ 63.1 through 63.15 apply to you.

§ 63.9560 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by the U.S. EPA, or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency, in addition to the U.S. EPA, has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraphs (c)(1) through (4) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that cannot be delegated to State, local or tribal agencies are as follows:

(1) Approval of alternatives to the emission limitations in § 63.9500(a) and (b) under § 63.6(g).

(2) Approval of major alternatives to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.90.

(3) Approval of major alternatives to monitoring under § 63.8(f) and as defined in § 63.90.

(4) Approval of major alternatives to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

§ 63.9565 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act, in § 63.2, and in this section as follows:

Batch ID means a unique identifier used to differentiate each individual mix batch.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including, but not limited to, any emission limitation (including any operating limit);

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limitation (including any operating limit) in this subpart during startup, shutdown, or malfunction, regardless of

whether or not such failure is permitted by this subpart.

Friction ingredients means any of the components used in the manufacture of friction materials, excluding the HAP solvent. Friction ingredients include, but are not limited to, reinforcement materials, property modifiers, resins, and other additives.

Friction materials manufacturing facility means a facility that manufactures friction materials using a solvent-based process. Friction materials are used in the manufacture of products used to accelerate or decelerate objects. Products that use friction materials include, but are not limited to, disc brake pucks, disc brake pads, brake linings, brake shoes, brake segments, brake blocks, brake discs, clutch facings, and clutches.

HAP solvent means a solvent that contains 10 percent or more of any one HAP, as listed in section 112(b) of the Clean Air Act, or any combination of HAP that is added to a solvent mixer. Examples include hexane, toluene, and trichloroethylene.

Initial startup means the first time that equipment is put into operation. Initial startup does not include operation solely for testing equipment. Initial startup does not include subsequent startups (as defined in this section) following malfunction or shutdowns or following changes in product or between batch operations.

Large solvent mixer means a solvent mixer with a design capacity greater than or equal to 2,000 pounds, including friction ingredients and HAP solvent.

Mix batch means each batch of friction materials manufactured in a solvent mixer.

Responsible official means responsible official as defined in § 63.2.

7-day block average means an averaging technique for a weekly compliance determination where the calculated values for percent HAP solvent discharged to the atmosphere are averaged together for all mix batches (for which there are valid data) in a 7-day block period according to the equation provided in § 63.9520(a)(6).

Small solvent mixer means a solvent mixer with a design capacity less than 2,000 pounds, including friction ingredients and HAP solvent.

Solvent mixer means a mixer used in the friction materials manufacturing process in which HAP solvent is used as one of the ingredients in at least one batch during a semiannual reporting period. Trace amounts of HAP solvents in resins or other friction ingredients do not qualify mixers as solvent mixers.

Solvent recovery system means equipment used for the purpose of recovering the HAP solvent from the exhaust stream. An example of a solvent recovery system is a condenser.

Solvent substitution means substitution of a non-HAP material for a HAP solvent.

Startup means bringing equipment online and starting the production process.

Startup, shutdown, and malfunction plan means a plan developed according to the provisions of § 63.6(e)(3).

§ 63.9570 How do I apply for alternative compliance requirements?

(a) If you use a control technique other than a solvent recovery system and/or solvent substitution, you may request approval to use an alternative method of demonstrating compliance with the emission limitations in § 63.9500(a) and (b) according to the procedures in this section.

(b) You can request approval to use an alternative method of demonstrating compliance in the initial notification for existing sources, the notification of construction or reconstruction for new sources, or at any time.

(c) You must submit a description of the proposed testing, monitoring, recordkeeping, and reporting that will be used and the proposed basis for demonstrating compliance.

(1) If you have not previously performed testing, you must submit a proposed test plan. If you are seeking permission to use an alternative method of compliance based on previously performed testing, you must submit the results of testing, a description of the procedures followed in testing, and a description of pertinent conditions during testing.

(2) You must submit a monitoring plan that includes a description of the control technique, test results

verifying the performance of the control technique, the appropriate operating parameters that will be monitored, and the frequency of measuring and recording to establish continuous compliance with the emission limitations in § 63.9500(a) and (b). You must also include the proposed performance specifications and quality assurance procedures for the monitors. The monitoring plan is subject to the Administrator's approval. You must install, calibrate, operate, and maintain the monitors in accordance with the monitoring plan approved by the Administrator.

(d) Use of the alternative method of demonstrating compliance must not begin until approval is granted by the Administrator.

§§ 63.9571–63.9579 [Reserved]

TABLE 1 TO SUBPART QQQQQ—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART QQQQQ

[As required in § 63.9505, you must comply with each applicable General Provisions requirement according to the following table]

Citation	Subject	Applies to subpart QQQQQ?	Explanation
§ 63.1	Applicability	Yes.	
§ 63.2	Definitions	Yes.	
§ 63.3	Units and Abbreviations	Yes.	
§ 63.4	Prohibited Activities	Yes.	
§ 63.5	Construction/Reconstruction	Yes.	
§ 63.6(a)–(c), (e)–(f), (i)–(j).	Compliance with Standards and Maintenance Requirements.	Yes.	
§ 63.6(d)	[Reserved].		
§ 63.6(g)	Use of an Alternative Nonopacity Emission Standard.	No	Subpart QQQQQ contains no work practice standards.
§ 63.6(h)	Compliance with Opacity and Visible Emission Standards.	No	Subpart QQQQQ contains no opacity or VE limits.
§ 63.7(a)(1)–(2)	Applicability and Performance Test Dates.	No	Subpart QQQQQ includes dates for initial compliance demonstrations.
§ 63.7(a)(3), (b)–(h)	Performance Testing Requirements	No	Subpart QQQQQ does not require performance tests.
§ 63.8(a)(1)–(2), (b), (c)(1)–(3), (f)(1)–(5).	Monitoring Requirements	Yes.	
§ 63.8(a)(3)	[Reserved].		
§ 63.8(a)(4)	Additional Monitoring Requirements for Control Devices in § 63.11.	No	Subpart QQQQQ does not require flares.
§ 63.8(c)(4)	Continuous Monitoring System (CMS) Requirements.	No	Subpart QQQQQ does not require CMS.
§ 63.8(c)(5)	Continuous Opacity Monitoring System (COMS) Minimum Procedures.	No	Subpart QQQQQ does not require COMS.
§ 63.8(c)(6)	Zero and High Level Calibration Check Requirements.	No	Subpart QQQQQ specifies calibration requirements.
§ 63.8(c)(7)–(8)	Out-of-Control Periods	No	Subpart QQQQQ specifies out-of-control periods and reporting requirements.
§ 63.8(d)	CMS Quality Control	No	Subpart QQQQQ requires a monitoring plan that specifies CMS quality control procedures.
§ 63.8(e)	CMS Performance Evaluation	No	Subpart QQQQQ does not require CMS performance evaluations.
§ 63.8(f)(6)	Relative Accuracy Test Audit (RATA) Alternative.	No	Subpart QQQQQ does not require continuous emissions monitoring systems (CEMS).
§ 63.8(g)(1)–(5)	Data Reduction	No	Subpart QQQQQ specifies data reduction requirements.
§ 63.9(a)–(d), (h)–(j)	Notification Requirements	Yes	Except that subpart QQQQQ does not require performance tests or CMS performance evaluations.
§ 63.9(e)	Notification of Performance Test	No	Subpart QQQQQ does not require performance tests.
§ 63.9(f)	Notification of VE/Opacity Test	No	Subpart QQQQQ contains no opacity or VE limits.
§ 63.9(g)	Additional Notifications When Using CMS.	No	Subpart QQQQQ does not require CMS performance evaluations.
§ 63.10(a), (b), (d)(1), (d)(4)–(5), (e)(3), (f).	Recordkeeping and Reporting Requirements.	Yes.	

[As required in § 63.9505, you must comply with each applicable General Provisions requirement according to the following table]

Citation	Subject	Applies to subpart QQQQQ?	Explanation
§ 63.10(c)(1)–(6), (9)–(15).	Additional Records for CMS	No	Subpart QQQQQ specifies record requirements.
§ 63.10(c)(7)–(8)	Records of Excess Emissions and Parameter Monitoring Exceedances for CMS.	No	Subpart QQQQQ specifies record requirements.
§ 63.10(d)(2)	Reporting Results of Performance Tests.	No	Subpart QQQQQ does not require performance tests.
§ 63.10(d)(3)	Reporting Opacity or VE Observations	No	Subpart QQQQQ contains no opacity or VE limits.
§ 63.10(e)(1)–(2)	Additional CMS Reports	No	Subpart QQQQQ does not require CMS.
§ 63.10(e)(4)	Reporting COMS Data	No	Subpart QQQQQ does not require COMS.
§ 63.11	Control Device Requirements	No	Subpart QQQQQ does not require flares.
§§ 63.12–63.15	Delegation, Addresses, Incorporation by Reference Availability of Information.	Yes.	

Subpart SSSSS—National Emission Standards for Hazardous Air Pollutants for Refractory Products Manufacturing

SOURCE: 68 FR 18747, Apr. 16, 2003, unless otherwise noted.

WHAT THIS SUBPART COVERS

§ 63.9780 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants (NESHAP) for refractory products manufacturing facilities. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations.

§ 63.9782 Am I subject to this subpart?

You are subject to this subpart if you own or operate a refractory products manufacturing facility that is, is located at, or is part of, a major source of hazardous air pollutant (HAP) emissions according to the criteria in paragraphs (a) and (b) of this section.

(a) A refractory products manufacturing facility is a plant site that manufactures refractory products (refractory bricks, refractory shapes, monolithics, kiln furniture, crucibles, and other materials used for lining furnaces and other high temperature process units), as defined in § 63.9824. Refractory products manufacturing facilities typically process raw material by crushing, grinding, and screening; mixing the processed raw materials with binders and other additives; forming the refractory mix into shapes; and drying and firing the shapes.

(b) A major source of HAP is a plant site that emits or has the potential to emit any single HAP at a rate of 9.07 megagrams (10 tons) or more per year or any combination of HAP at a rate of 22.68 megagrams (25 tons) or more per year.

§ 63.9784 What parts of my plant does this subpart cover?

(a) This subpart applies to each new, reconstructed, or existing affected source at a refractory products manufacturing facility.

(b) The existing affected sources are shape dryers, curing ovens, and kilns that are used to manufacture refractory products that use organic HAP; shape preheaters, pitch working tanks, defumers, and coking ovens that are used to produce pitch-impregnated refractory products; kilns that are used to manufacture chromium refractory products; and kilns that are used to manufacture clay refractory products.

(c) The new or reconstructed affected sources are shape dryers, curing ovens, and kilns that are used to manufacture refractory products that use organic HAP; shape preheaters, pitch working tanks, defumers, and coking ovens used to produce pitch-impregnated refractory products; kilns that are used to manufacture chromium refractory products; and kilns that are used to manufacture clay refractory products.

(d) Shape dryers, curing ovens, kilns, coking ovens, defumers, shape preheaters, and pitch working tanks that are research and development (R&D) process units are not subject to the requirements of this subpart. (See definition of *research and development process unit* in §63.9824).

(e) A source is a new affected source if you began construction of the affected source after June 20, 2002, and you met the applicability criteria at the time you began construction.

(f) An affected source is reconstructed if you meet the criteria as defined in §63.2.

(g) An affected source is existing if it is not new or reconstructed.

§63.9786 When do I have to comply with this subpart?

(a) If you have a new or reconstructed affected source, you must comply with this subpart according to paragraphs (a)(1) and (2) of this section.

(1) If the initial startup of your affected source is before April 16, 2003, then you must comply with the emission limitations for new and reconstructed sources in this subpart no later than April 16, 2003.

(2) If the initial startup of your affected source is after April 16, 2003, then you must comply with the emission limitations for new and reconstructed sources in this subpart upon initial startup of your affected source.

(b) If you have an existing affected source, you must comply with the emission limitations for existing sources no later than April 17, 2006.

(c) You must be in compliance with this subpart when you conduct a performance test on an affected source.

(d) If you have an existing area source that increases its emissions or its potential to emit such that it becomes a major source of HAP, you must be in compliance with this subpart according to paragraphs (d)(1) and (2) of this section.

(1) Any portion of the existing facility that is a new affected source or a new reconstructed source must be in compliance with this subpart upon startup.

(2) All other parts of the existing facility must be in compliance with this subpart by 3 years after the date the area source becomes a major source.

(e) If you have a new area source (*i.e.*, an area source for which construction or reconstruction was commenced after June 20, 2002) that increases its emissions or its potential to emit such that it becomes a major source of HAP, you must be in compliance with this subpart upon initial startup of your affected source as a major source.

(f) You must meet the notification requirements in §63.9812 according to the schedule in §63.9812 and in 40 CFR part 63, subpart A. Some of the notifications must be submitted before you are required to comply with the emission limitations in this subpart.

EMISSION LIMITATIONS AND WORK PRACTICE STANDARDS

§63.9788 What emission limits, operating limits, and work practice standards must I meet?

(a) You must meet each emission limit in Table 1 to this subpart that applies to you.

(b) You must meet each operating limit in Table 2 to this subpart that applies to you.

(c) You must meet each work practice standard in Table 3 to this subpart that applies to you.

§63.9790 What are my options for meeting the emission limits?

To meet the emission limits in Table 1 to this subpart, you must use one or both of the options listed in paragraphs (a) and (b) of this section.

(a) *Emissions control system.* Use an emissions capture and collection system and an add-on air pollution control device (APCD) and demonstrate that the resulting emissions or emissions reductions meet the applicable emission limits in Table 1 to this subpart, and demonstrate that the capture and collection system and APCD meet the applicable operating limits in Table 2 to this subpart.

(b) *Process changes.* Use raw materials that have little or no potential to emit HAP during the refractory products manufacturing process or implement manufacturing process changes and demonstrate that the resulting emissions or emissions reductions meet the applicable emission limits in Table 1 to this subpart without an add-on APCD.

GENERAL COMPLIANCE REQUIREMENTS

§ 63.9792 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limitations (including operating limits and work practice standards) in this subpart at all times, except during periods specified in paragraphs (a)(1) and (2) of this section.

(1) Periods of startup, shutdown, and malfunction.

(2) Periods of scheduled maintenance on a control device that is used on an affected continuous kiln, as specified in paragraph (e) of this section.

(b) Except as specified in paragraph (e) of this section, you must always operate and maintain your affected source, including air pollution control and monitoring equipment, according to the provisions in § 63.6(e)(1)(i). During the period between the compliance date specified for your affected source in § 63.9786 and the date upon which continuous monitoring systems have been installed and validated and any applicable operating limits have been established, you must maintain a log detailing the operation and maintenance of the process and emissions control equipment.

(c) You must develop and implement a written startup, shutdown, and malfunction plan (SSMP) according to the provisions in § 63.6(e)(3).

(d) You must prepare and implement a written operation, maintenance, and monitoring (OM&M) plan according to the requirements in § 63.9794.

(e) If you own or operate an affected continuous kiln and must perform scheduled maintenance on the control device for that kiln, you may bypass the kiln control device and continue operating the kiln upon approval by the Administrator, provided you satisfy the conditions listed in paragraphs (e)(1) through (3) of this section.

(1) You must request approval from the Administrator to bypass the control device while the scheduled maintenance is performed. You must submit a separate request each time you plan to bypass the control device, and your request must include the information specified in paragraphs (e)(1)(i) through (vi) of this section.

(i) Reason for the scheduled maintenance.

(ii) Explanation for why the maintenance cannot be performed when the kiln is shut down.

(iii) Detailed description of the maintenance activities.

(iv) Time required to complete the maintenance.

(v) How you will minimize HAP emissions from the kiln during the period when the control device is out of service.

(vi) How you will minimize the time when the kiln is operating and the control device is out of service for scheduled maintenance.

(2) You must minimize HAP emissions during the period when the kiln is operating and the control device is out of service.

(3) You must minimize the time period during which the kiln is operating and the control device is out of service.

(f) You must be in compliance with the provisions of subpart A of this part, except as noted in Table 11 to this subpart.

§ 63.9794 What do I need to know about operation, maintenance, and monitoring plans?

(a) For each continuous parameter monitoring system (CPMS) required by this subpart, you must develop, implement, make available for inspection, and revise, as necessary, an OM&M plan that includes the information in paragraphs (a)(1) through (13) of this section.

(1) A list and identification of each process and add-on APCD that is required by this subpart to be monitored, the type of monitoring device that will be used, and the operating parameters that will be monitored.

(2) Specifications for the sensor, signal analyzer, and data collection system.

(3) A monitoring schedule that specifies the frequency that the parameter values will be determined and recorded.

(4) The operating limits for each parameter that represent continuous

compliance with the emission limitations in § 63.9788, based on values of the monitored parameters recorded during performance tests.

(5) Procedures for installing the CPMS at a measurement location relative to each process unit or APCD such that measurement is representative of control of emissions.

(6) Procedures for the proper operation and routine and long-term maintenance of each process unit and APCD, including a maintenance and inspection schedule that is consistent with the manufacturer's recommendations.

(7) Procedures for the proper operation and maintenance of monitoring equipment consistent with the requirements in §§ 63.8(c)(1), (3), (4)(ii), (7), and (8), and 63.9804.

(8) Ongoing data quality assurance procedures in accordance with the general requirements of § 63.8(d).

(9) Procedures for evaluating the performance of each CPMS.

(10) Procedures for responding to operating parameter deviations, including the procedures in paragraphs (a)(10)(i) through (iii) of this section:

(i) Procedures for determining the cause of the operating parameter deviation.

(ii) Actions for correcting the deviation and returning the operating parameters to the allowable limits.

(iii) Procedures for recording the times that the deviation began and ended, and when corrective actions were initiated and completed.

(11) Procedures for keeping records to document compliance and reporting in accordance with the requirements of § 63.10(c), (e)(1), and (e)(2)(i).

(12) If you operate a kiln that is subject to the limits on the type of fuel used, as specified in items 3 and 4 of Table 3 to subpart SSSSS, procedures for using alternative fuels.

(13) If you operate an affected continuous kiln and you plan to take the kiln control device out of service for scheduled maintenance, as specified in § 63.9792(e), the procedures specified in paragraphs (a)(13)(i) and (ii) of this section.

(i) Procedures for minimizing HAP emissions from the kiln during periods of scheduled maintenance of the kiln control device when the kiln is operating and the control device is out of service.

(ii) Procedures for minimizing any period of scheduled maintenance on the kiln control device when the kiln is operating and the control device is out of service.

(b) Changes to the operating limits in your OM&M plan require a new performance test. If you are revising an operating limit parameter value, you must meet the requirements in paragraphs (b)(1) and (2) of this section.

(1) Submit a Notification of Performance Test to the Administrator as specified in § 63.7(b).

(2) After completing the performance tests to demonstrate that compliance with the emission limits can be achieved at the revised operating limit parameter value, you must submit the performance test results and the revised operating limits as part of the Notification of Compliance Status required under § 63.9(h).

(c) If you are revising the inspection and maintenance procedures in your OM&M plan, you do not need to conduct a new performance test.

TESTING AND INITIAL COMPLIANCE REQUIREMENTS

§ 63.9796 By what date must I conduct performance tests?

You must conduct performance tests within 180 calendar days after the compliance date that is specified for your source in § 63.9786 and according to the provisions in § 63.7(a)(2).

§ 63.9798 When must I conduct subsequent performance tests?

(a) You must conduct a performance test every 5 years following the initial performance test, as part of renewing your 40 CFR part 70 or 40 CFR part 71 operating permit.

(b) You must conduct a performance test when you want to change the parameter value for any operating limit specified in your OM&M plan.

(c) If you own or operate a source that is subject to the emission limits specified in items 2 through 9 of Table 1 to this subpart, you must conduct a performance test on the source(s) listed in paragraphs (c)(1) and (2) of this section before you start production of any refractory product for which the organic HAP processing rate is likely to exceed by more than 10 percent the maximum organic HAP processing rate established during the most recent performance test on that same source.

(1) Each affected shape dryer or curing oven that is used to process the refractory product with the higher organic HAP processing rate.

(2) Each affected kiln that follows an affected shape dryer or curing oven and is used to process the refractory product with the higher organic HAP processing rate.

(d) If you own or operate a kiln that is subject to the emission limits specified in item 5 or 9 of Table 1 to this subpart, you must conduct a performance test on the affected kiln following any process changes that are likely to increase organic HAP emissions from the kiln (*e.g.*, a decrease in the curing cycle time for a curing oven that precedes the affected kiln in the process line).

(e) If you own or operate a clay refractory products kiln that is subject to the emission limits specified in item 10 or 11 of Table 1 to this subpart and is controlled with a dry limestone adsorber (DLA), you must conduct a performance test on the affected kiln following any change in the source of limestone used in the DLA.

§ 63.9800 How do I conduct performance tests and establish operating limits?

(a) You must conduct each performance test in Table 4 to this subpart that applies to you.

(b) Before conducting the performance test, you must install and validate all monitoring equipment.

(c) Each performance test must be conducted according to the requirements in § 63.7 and under the specific conditions in Table 4 to this subpart.

(d) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in § 63.7(e)(1).

(e) You must conduct separate test runs for at least the duration specified for each performance test required in this section, as specified in § 63.7(e)(3) and Table 4 to this subpart.

(f) For batch process sources, you must satisfy the requirements specified in paragraphs (f)(1) through (5) of this section.

(1) You must conduct at least two test runs.

(2) Each test run must last an entire batch cycle unless you develop an emissions profile, as specified in items 8(a)(i)(4) and 17(b)(i)(4) of Table 4 to this subpart, or you satisfy the conditions for terminating a test run prior to the completion of a batch cycle as specified in item 8(a)(i)(5) of Table 4 to this subpart.

(3) Each test run must be performed over a separate batch cycle unless you satisfy the conditions for conducting both test runs over a single batch cycle, as described in paragraphs (f)(3)(i) and (ii) of this section.

(i) You do not produce the product that corresponds to the maximum organic HAP processing rate for that batch process source in consecutive batch cycles.

(ii) To produce that product in two consecutive batch cycles would disrupt production of other refractory products.

(4) If you want to conduct a performance test over a single batch cycle, you must include in your Notification of Performance Test the rationale for testing over a single batch cycle.

(5) If you are granted approval to conduct a performance test over a single batch cycle, you must use paired sampling trains and collect two sets of emissions data. Each set of data can be considered a separate test run.

(g) You must use the data gathered during the performance test and the equations in paragraphs (g)(1) through (3) of this section to determine compliance with the emission limitations.

(1) To determine compliance with the total hydrocarbon (THC) emission concentration limit listed in Table 1 to this subpart, you must calculate your emission concentration corrected to 18 percent oxygen for each test run using Equation 1 of this section:

$$C_{THC-C} = \frac{2.9 \times C_{THC}}{\left(20.9 - C_{O_2}\right)} \qquad \text{(Eq. 1)}$$

Where:

C_{THC-C}=THC concentration, corrected to 18 percent oxygen, parts per million by volume, dry basis (ppmvd)

C_{THC}=THC concentration (uncorrected), ppmvd

C_{O2}=oxygen concentration, percent.

(2) To determine compliance with any of the emission limits based on percentage reduction across an emissions control system specified in Table 1 to this subpart, you must calculate the percentage reduction for each test run using Equation 2 of this section:

$$PR = \frac{ER_i - ER_o}{ER_i} \times 100 \qquad \text{(Eq. 2)}$$

Where:

PR=percentage reduction, percent

ER_i=mass emissions rate of specific HAP or pollutant (THC, HF, or HCl) entering the control device, kilograms (pounds) per hour

ER_o=mass emissions rate of specific HAP or pollutant (THC, HF, or HCl) exiting the control device, kilograms (pounds) per hour.

(3) To determine compliance with production-based hydrogen fluoride (HF) and hydrogen chloride (HCl) emission limits in Table 1 to this subpart, you must calculate your mass emissions per unit of uncalcined clay processed for each test run using Equation 3 of this section:

$$MP = \frac{ER}{P} \qquad \text{(Eq. 3)}$$

Where:

MP=mass per unit of production, kilograms of pollutant per megagram (pounds per ton) of uncalcined clay processed

ER=mass emissions rate of specific HAP (HF or HCl) during each performance test run, kilograms (pounds) per hour

P=average uncalcined clay processing rate for the performance test, megagrams (tons) of uncalcined clay processed per hour.

(h) You must establish each site-specific operating limit in Table 2 to this subpart that applies to you, as specified in Table 4 to this subpart.

(i) For each affected source that is equipped with an add-on APCD that is not addressed in Table 2 to this subpart or that is using process changes as a means of meeting the emission limits in Table 1 to this subpart, you must meet the requirements in §63.8(f) and paragraphs (i)(1) through (3) of this section.

(1) For sources subject to the THC concentration limit specified in item 3 or 7 of Table 1 to this subpart, you must satisfy the requirements specified in paragraphs (i)(1)(i) through (iii) of this section.

(i) You must install a THC continuous emissions monitoring system (CEMS) at the outlet of the control device or in the stack of the affected source.

(ii) You must meet the requirements specified in Performance Specification (PS) 8 of 40 CFR part 60, appendix B.

(iii) You must meet the requirements specified in Procedure 1 of 40 CFR part 60, appendix F.

(2) For sources subject to the emission limits specified in item 3, 4, 7, or 8 of Table 1 to this subpart, you must submit a request for approval of alternative monitoring methods to the Administrator no later than the submittal date for the Notification of Performance Test, as specified in §63.9812(d). The request must contain the information specified in paragraphs (i)(2)(i) through (v) of this section.

(i) Description of the alternative add-on APCD or process changes.

(ii) Type of monitoring device or method that will be used, including the sensor type, location, inspection procedures, quality assurance and quality control measures, and data recording device.

(iii) Operating parameters that will be monitored.

(iv) Frequency that the operating parameter values will be determined and recorded to establish continuous compliance with the operating limits.

(v) Averaging time.

(3) You must establish site-specific operating limits during the performance test based on the information included in the approved alternative monitoring methods request and, as applicable, as specified in Table 4 to this subpart.

§ 63.9802 How do I develop an emissions profile?

If you decide to develop an emissions profile for an affected batch process source; as indicated in item 8(a)(i)(4) or 17(b)(i)(4) of Table 4 to this subpart, you must measure and record mass emissions of the applicable pollutant throughout a complete batch cycle of the affected batch process source according to the procedures described in paragraph (a) or (b) of this section.

(a) If your affected batch process source is subject to the THC concentration limit specified in item 6(a), 7(a), 8, or 9 of Table 1 to this subpart or the THC percentage reduction limit specified in item 6(b) or 7(b) of Table 1 to this subpart, you must measure and record the THC mass emissions rate at the inlet to the control device using the test methods, averaging periods, and procedures specified in items 10(a) and (b) of Table 4 to this subpart for each complete hour of the batch process cycle.

(b) If your affected batch process source is subject to the HF and HCl percentage reduction emission limits in item 11 of Table 1 to this subpart, you must measure and record the HF mass emissions rate at the inlet to the control device through a series of 1-hour test runs according to the test method specified in item 14(a) of Table 4 to this subpart for each complete hour of the batch process cycle.

§ 63.9804 What are my monitoring system installation, operation, and maintenance requirements?

(a) You must install, operate, and maintain each CPMS required by this subpart according to your OM&M plan and the requirements in paragraphs (a)(1) through (15) of this section.

(1) You must satisfy all applicable requirements of performance specifications for CPMS specified in 40 CFR part 60, appendix B, upon promulgation of such performance specifications.

(2) You must satisfy all applicable requirements of quality assurance (QA) procedures for CPMS specified in 40 CFR part 60, appendix F, upon promulgation of such QA procedures.

(3) You must install each sensor of your CPMS in a location that provides representative measurement of the appropriate parameter over all operating conditions, taking into account the manufacturer's guidelines.

(4) You must use a CPMS that is capable of measuring the appropriate parameter over a range that extends from a value of at least 20 percent less than the lowest value that you expect your CPMS to measure, to a value of at least 20 percent greater than the highest value that you expect your CPMS to measure.

(5) You must use a data acquisition and recording system that is capable of recording values over the entire range specified in paragraph (a)(4) of this section.

(6) You must use a signal conditioner, wiring, power supply, and data acquisition and recording system that are compatible with the output signal of the sensors used in your CPMS.

(7) You must perform an initial calibration of your CPMS based on the procedures specified in the manufacturer's owner's manual.

(8) You must use a CPMS that is designed to complete a minimum of one cycle of operation for each successive 15-minute period. To have a valid hour of data, you must have at least three of four equally-spaced data values (or at least 75 percent of the total number of values if you collect more than four data values per hour) for that hour (not including startup, shutdown, malfunction, or out-of-control periods).

(9) You must record valid data from at least 90 percent of the hours during which the affected source or process operates.

(10) You must determine and record the 15-minute block averages of all measurements, calculated after every 15 minutes of operation as the average of the previous 15 operating minutes (not including periods of startup, shutdown, or malfunction).

(11) You must determine and record the 3-hour block averages of all 15-minute recorded measurements, calculated after every 3 hours of operation as the average of the previous 3 operating hours (not including periods of startup, shutdown, or malfunction).

(12) You must record the results of each inspection, calibration, initial validation, and accuracy audit.

(13) At all times, you must maintain your CPMS including, but not limited to, maintaining necessary parts for routine repairs of the CPMS.

(14) You must perform an initial validation of your CPMS under the conditions specified in paragraphs (14)(i) and (ii) of this section.

(i) Prior to the initial performance test on the affected source for which the CPMS is required.

(ii) Within 180 days of your replacing or relocating one or more of the sensors of your CPMS.

(15) Except for redundant sensors, as defined in §63.9824, any device that you use to conduct an initial validation or accuracy audit of your CPMS must meet the accuracy requirements specified in paragraphs (15)(i) and (ii) of this section.

(i) The device must have an accuracy that is traceable to National Institute of Standards and Technology (NIST) standards.

(ii) The device must be at least three times as accurate as the required accuracy for the CPMS.

(b) For each temperature CPMS that is used to monitor the combustion chamber temperature of a thermal oxidizer or the catalyst bed inlet temperature of a catalytic oxidizer, you must meet the requirements in paragraphs (a) and (b)(1) through (6) of this section.

(1) Use a temperature CPMS with a minimum accuracy of ±1.0 percent of the temperature value or 2.8 degrees Celsius (°C) (5 degrees Fahrenheit (°F)), whichever is greater.

(2) Use a data recording system with a minimum resolution of one-half or better of the required CPMS accuracy specified in paragraph (b)(1) of this section.

(3) Perform an initial validation of your CPMS according to the requirements in paragraph (3)(i) or (ii) of this section.

(i) Place the sensor of a calibrated temperature measurement device adjacent to the sensor of your temperature CPMS in a location that is subject to the same environment as the sensor of your temperature CPMS. The calibrated temperature measurement device must satisfy the accuracy requirements of paragraph (a)(15) of this section. While the process and control device that is monitored by your CPMS are operating normally, record concurrently and compare the temperatures measured by your temperature CPMS and the calibrated temperature measurement device. Using the calibrated temperature measurement device as the reference, the temperature measured by your CPMS must be within the accuracy specified in paragraph (b)(1) of this section.

(ii) Perform any of the initial validation methods for temperature CPMS specified in performance specifications for CPMS established in 40 CFR part 60, appendix B.

(4) Perform an accuracy audit of your temperature CPMS at least quarterly, according to the requirements in paragraph (b)(4)(i), (ii), or (iii) of this section.

(i) If your temperature CPMS includes a redundant temperature sensor, record three pairs of concurrent temperature measurements within a 24-hour period. Each pair of concurrent measurements must consist of a temperature measurement by each of the two temperature sensors. The minimum time interval between any two such pairs of consecutive temperature measurements is 1 hour. The measurements must be taken during periods when the process and control device that is monitored by your temperature CPMS are operating normally. Calculate the mean of the three values for each temperature sensor. The mean values must agree within the required overall accuracy of the CPMS, as specified in paragraph (b)(1) of this section.

(ii) If your temperature CPMS does not include a redundant temperature sensor, place the sensor of a calibrated temperature measurement device adjacent to the sensor of your temperature CPMS in a location that is subject to the same environment as the sensor of your temperature CPMS. The calibrated temperature measurement device must satisfy the accuracy requirements of paragraph (a)(15) of this section. While the process and control device that is monitored by your temperature CPMS are operating normally, record concurrently and compare the temperatures measured by your CPMS and the calibrated temperature measurement device. Using the calibrated temperature measurement device as the reference, the temperature measured by your CPMS must be within the accuracy specified in paragraph (b)(1) of this section.

(iii) Perform any of the accuracy audit methods for temperature CPMS specified in QA procedures for CPMS established in 40 CFR part 60, appendix F.

(5) Conduct an accuracy audit of your CPMS following any 24-hour period throughout which the temperature measured by your CPMS exceeds the manufacturer's specified maximum operating temperature range, or install a new temperature sensor.

(6) If your CPMS is not equipped with a redundant temperature sensor, perform at least quarterly a visual inspection of all components of the CPMS for integrity, oxidation, and galvanic corrosion.

(c) For each pressure CPMS that is used to monitor the pressure drop across a DLA or wet scrubber, you must meet the requirements in paragraphs (a) and (c)(1) through (7) of this section.

(1) Use a pressure CPMS with a minimum accuracy of ±5.0 percent or 0.12 kilopascals (kPa) (0.5 inches of water column (in. w.c.)), whichever is greater.

(2) Use a data recording system with a minimum resolution of one-half the required CPMS accuracy specified in paragraph (c)(1) of this section, or better.

(3) Perform an initial validation of your pressure CPMS according to the requirements in paragraph (c)(3)(i) or (ii) of this section.

(i) Place the sensor of a calibrated pressure measurement device adjacent to the sensor of your pressure CPMS in a location that is subject to the same environment as the sensor of your pressure CPMS. The calibrated pressure measurement device must satisfy the accuracy requirements of paragraph (a)(15) of this section. While the process and control device that is monitored by your CPMS are operating normally, record concurrently and compare the pressure measured by your CPMS and the calibrated pressure measurement device. Using the calibrated pressure measurement device as the reference, the pressure measured by your CPMS must be within the accuracy specified in paragraph (c)(1) of this section.

(ii) Perform any of the initial validation methods for pressure CPMS specified in performance specifications for CPMS established in 40 CFR part 60, appendix B.

(4) Perform an accuracy audit of your pressure CPMS at least quarterly, according to the requirements in paragraph (c)(4)(i), (ii), or (iii) of this section.

(i) If your pressure CPMS includes a redundant pressure sensor, record three pairs of concurrent pressure measurements within a 24-hour period. Each pair of concurrent measurements must consist of a pressure measurement by each of the two pressure sensors. The minimum time interval between any two such pairs of consecutive pressure measurements is 1 hour. The measurements must be taken during periods when the process and control device that is monitored by your CPMS are operating normally. Calculate the mean of the three pressure measurement values for each pressure sensor. The mean values must agree within the required overall accuracy of the CPMS, as specified in paragraph (c)(1) of this section.

(ii) If your pressure CPMS does not include a redundant pressure sensor, place the sensor of a calibrated pressure measurement device adjacent to the sensor of your pressure CPMS in a location that is subject to the same environment as the sensor of your pressure CPMS. The calibrated pressure measurement device must satisfy the accuracy requirements of paragraph (a)(15) of this section. While the process and control device that is monitored by your pressure CPMS are operating normally, record concurrently and compare the pressure measured by your CPMS and the calibrated pressure measurement device. Using the calibrated pressure measurement device as the reference, the pressure measured by your CPMS must be within the accuracy specified in paragraph (c)(1) of this section.

(iii) Perform any of the accuracy audit methods for pressure CPMS specified in QA procedures for CPMS established in 40 CFR part 60, appendix F.

(5) Conduct an accuracy audit of your CPMS following any 24-hour period throughout which the pressure measured by your CPMS exceeds the manufacturer's specified maximum operating pressure range, or install a new pressure sensor.

(6) At least monthly, check all mechanical connections on your CPMS for leakage.

(7) If your CPMS is not equipped with a redundant pressure sensor, perform at least quarterly a visual inspection of all components of the CPMS for integrity, oxidation, and galvanic corrosion.

(d) For each liquid flow rate CPMS that is used to monitor the liquid flow rate in a wet scrubber, you must meet the requirements in paragraphs (a) and (d)(1) through (7) of this section.

(1) Use a flow rate CPMS with a minimum accuracy of ±5.0 percent or 1.9 liters per minute (L/min) (0.5 gallons per minute (gal/min)), whichever is greater.

(2) Use a data recording system with a minimum resolution of one-half the required CPMS accuracy specified in paragraph (d)(1) of this section, or better.

(3) Perform an initial validation of your CPMS according to the requirements in paragraph (3)(i) or (ii) of this section.

(i) Use a calibrated flow rate measurement system to measure the liquid flow rate in a location that is adjacent to the measurement location for your flow rate CPMS and is subject to the same environment as your flow rate CPMS. The calibrated flow rate measurement device must satisfy the accuracy requirements of paragraph (a)(15) of this section. While the process and control device that is monitored by your flow rate CPMS are operating normally, record concurrently and compare the flow rates measured by your flow rate CPMS and the calibrated flow rate measurement device. Using the calibrated flow rate measurement device as the reference, the flow rate measured by your CPMS must be within the accuracy specified in paragraph (d)(1) of this section.

(ii) Perform any of the initial validation methods for liquid flow rate CPMS specified in performance specifications for CPMS established in 40 CFR part 60, appendix B.

(4) Perform an accuracy audit of your flow rate CPMS at least quarterly, according to the requirements in paragraph (d)(4)(i), (ii), or (iii) of this section.

(i) If your flow rate CPMS includes a redundant sensor, record three pairs of concurrent flow rate measurements within a 24-hour period. Each pair of concurrent measurements must consist of a flow rate measurement by each of the two flow rate sensors. The minimum time interval between any two such pairs of consecutive flow rate measurements is 1 hour. The measurements must be taken during periods when the process and control device that is monitored by your flow rate CPMS are operating normally. Calculate the mean of the three flow rate measurement values for each flow rate sensor. The mean values must agree within the required overall accuracy of the CPMS, as specified in paragraph (d)(1) of this section.

(ii) If your flow rate CPMS does not include a redundant flow rate sensor, place the sensor of a calibrated flow rate measurement device adjacent to the sensor of your flow rate CPMS in a location that is subject to the same environment as the sensor of your flow rate CPMS. The calibrated flow rate measurement device must satisfy the accuracy requirements of paragraph (a)(15) of this section. While the process and control device that is monitored by your flow rate CPMS are operating normally, record concurrently and compare the flow rate measured by your pressure CPMS and the calibrated flow rate measurement device. Using the calibrated flow rate measurement device as the reference, the flow rate measured by your CPMS must be within the accuracy specified in paragraph (d)(1) of this section.

(iii) Perform any of the accuracy audit methods for liquid flow rate CPMS specified in QA procedures for CPMS established in 40 CFR part 60, appendix F.

(5) Conduct an accuracy audit of your flow rate CPMS following any 24-hour

period throughout which the flow rate measured by your CPMS exceeds the manufacturer's specified maximum operating range, or install a new flow rate sensor.

(6) At least monthly, check all mechanical connections on your CPMS for leakage.

(7) If your CPMS is not equipped with a redundant flow rate sensor, perform at least quarterly a visual inspection of all components of the CPMS for integrity, oxidation, and galvanic corrosion.

(e) For each pH CPMS that is used to monitor the pH of a wet scrubber liquid, you must meet the requirements in paragraphs (a) and (e)(1) through (5) of this section.

(1) Use a pH CPMS with a minium accuracy of ±0.2 pH units.

(2) Use a data recording system with a minimum resolution of 0.1 pH units, or better.

(3) Perform an initial validation of your pH CPMS according to the requirements in paragraph (e)(3)(i) or (ii) of this section.

(i) Perform a single-point calibration using an NIST-certified buffer solution that is accurate to within ±0.02 pH units at 25 °C (77 °F). If the expected pH of the liquid that is monitored lies in the acidic range (less than 7 pH), use a buffer solution with a pH value of 4.00. If the expected pH of the liquid that is monitored is neutral or lies in the basic range (equal to or greater than 7 pH), use a buffer solution with a pH value of 10.00. Place the electrode of your pH CPMS in the container of buffer solution. Record the pH measured by your CPMS. Using the certified buffer solution as the reference, the pH measured by your CPMS must be within the accuracy specified in paragraph (e)(1) of this section.

(ii) Perform any of the initial validation methods for pH CPMS specified in performance specifications for CPMS established in 40 CFR part 60, appendix B.

(4) Perform an accuracy audit of your pH CPMS at least weekly, according to the requirements in paragraph (e)(4)(i), (ii), or (iii) of this section.

(i) If your pH CPMS includes a redundant pH sensor, record the pH measured by each of the two pH sensors. The measurements must be taken during periods when the process and control device that is monitored by your pH CPMS are operating normally. The two pH values must agree within the required overall accuracy of the CPMS, as specified in paragraph (e)(1) of this section.

(ii) If your pH CPMS does not include a redundant pH sensor, perform a single point calibration using an NIST-certified buffer solution that is accurate to within ±0.02 pH units at 25 °C (77 °F). If the expected pH of the liquid that is monitored lies in the acidic range (less than 7 pH), use a buffer solution with a pH value of 4.00. If the expected pH of the liquid that is monitored is neutral or lies in the basic range (equal to or greater than 7 pH), use a buffer solution with a pH value of 10.00. Place the electrode of the pH CPMS in the container of buffer solution. Record the pH measured by your CPMS. Using the certified buffer solution as the reference, the pH measured by your CPMS must be within the accuracy specified in paragraph (e)(1) of this section.

(iii) Perform any of the accuracy audit methods for pH CPMS specified in QA procedures for CPMS established in 40 CFR part 60, appendix F.

(5) If your CPMS is not equipped with a redundant pH sensor, perform at least monthly a visual inspection of all components of the CPMS for integrity, oxidation, and galvanic corrosion.

(f) For each bag leak detection system, you must meet the requirements in paragraphs (f)(1) through (11) of this section.

(1) Each triboelectric bag leak detection system must be installed, calibrated, operated, and maintained according to the ''Fabric Filter Bag Leak Detection Guidance'' (EPA–454/R–98–015, September 1997). That document is available from the U.S. EPA; Office of Air Quality Planning and Standards; Emissions, Monitoring and Analysis Division; Emission Measurement Center (D205–02), Research Triangle Park, NC 27711. It is also available on the Technology Transfer Network (TTN) at the following address: *http://www.epa.gov/ttn/emc/cem.html.* Other types of bag leak detection systems must be installed, operated, calibrated, and maintained in a manner consistent

with the manufacturer's written specifications and recommendations.

(2) The bag leak detection system must be certified by the manufacturer to be capable of detecting particulate matter (PM) emissions at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.

(3) The bag leak detection system sensor must provide an output of relative PM loadings.

(4) The bag leak detection system must be equipped with a device to continuously record the output signal from the sensor.

(5) The bag leak detection system must be equipped with an alarm system that will be engaged automatically when an increase in relative PM emissions over a preset level is detected. The alarm must be located where it is easily recognized by plant operating personnel.

(6) For positive pressure fabric filter systems, a bag leak detector must be installed in each baghouse compartment or cell.

(7) For negative pressure or induced air fabric filters, the bag leak detector must be installed downstream of the fabric filter.

(8) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(9) The baseline output must be established by adjusting the range and the averaging period of the device and establishing the alarm set points and the alarm delay time according to section 5.0 of the "Fabric Filter Bag Leak Detection Guidance."

(10) Following initial adjustment of the system, the owner or operator must not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time except as detailed in the OM&M plan. In no case may the sensitivity be increased by more than 100 percent or decreased by more than 50 percent over a 365-day period unless such adjustment follows a complete fabric filter inspection that demonstrates that the fabric filter is in good operating condition. You must record each adjustment of your bag leak detection system.

(11) Record the results of each inspection, calibration, and validation check.

(g) For each lime feed rate measurement device that is used to monitor the lime feed rate of a dry injection fabric filter (DIFF) or dry lime scrubber/fabric filter (DLS/FF), or the chemical feed rate of a wet scrubber, you must meet the requirements in paragraph (a) of this section.

(h) For each affected source that is subject to the emission limit specified in item 3, 4, 7, or 8 of Table 1 to this subpart, you must satisfy the requirements of paragraphs (h)(1) through (3) of this section.

(1) Install a THC CEMS at the outlet of the control device or in the stack of the affected source.

(2) Meet the requirements of PS–8 of 40 CFR part 60, appendix B.

(3) Meet the requirements of Procedure 1 of 40 CFR part 60, appendix F.

(i) Requests for approval of alternate monitoring methods must meet the requirements in §§63.9800(i)(2) and 63.8(f).

§63.9806 How do I demonstrate initial compliance with the emission limits, operating limits, and work practice standards?

(a) You must demonstrate initial compliance with each emission limit that applies to you according to the requirements specified in Table 5 to this subpart.

(b) You must establish each site-specific operating limit in Table 2 to this subpart that applies to you according to the requirements specified in §63.9800 and Table 4 to this subpart.

(c) You must demonstrate initial compliance with each work practice standard that applies to you according to the requirements specified in Table 6 to this subpart.

(d) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in §63.9812(e).

CONTINUOUS COMPLIANCE REQUIREMENTS

§63.9808 How do I monitor and collect data to demonstrate continuous compliance?

(a) You must monitor and collect data according to this section.

(b) At all times, you must maintain your monitoring systems including, but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment.

(c) Except for, as applicable, monitoring system malfunctions, associated repairs, and required quality assurance or quality control activities, you must monitor continuously whenever your affected process unit is operating. For purposes of calculating data averages, you must not use data recorded during monitoring system malfunctions, associated repairs, and required quality assurance or quality control activities. You must use all the data collected during all other periods in assessing compliance. A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system malfunctions include out of control continuous monitoring systems (CMS), such as a CPMS. Any averaging period for which you do not have valid monitoring data as a result of a monitoring system malfunction and for which such data are required constitutes a deviation, and you must notify the Administrator in accordance with § 63.9814(e). Monitoring system failures are different from monitoring system malfunctions in that they are caused in part by poor maintenance or careless operation. Any period for which there is a monitoring system failure and data are not available for required calculations constitutes a deviation and you must notify the Administrator in accordance with § 63.9814(e).

§ 63.9810 How do I demonstrate continuous compliance with the emission limits, operating limits, and work practice standards?

(a) You must demonstrate continuous compliance with each emission limit specified in Table 1 to this subpart that applies to you according to the requirements specified in Table 7 to this subpart.

(b) You must demonstrate continuous compliance with each operating limit specified in Table 2 to this subpart that applies to you according to the requirements specified in Table 8 to this subpart.

(c) You must demonstrate continuous compliance with each work practice standard specified in Table 3 to this subpart that applies to you according to the requirements specified in Table 9 to this subpart.

(d) For each affected source that is equipped with an add-on APCD that is not addressed in Table 2 to this subpart or that is using process changes as a means of meeting the emission limits in Table 1 to this subpart, you must demonstrate continuous compliance with each emission limit in Table 1 to this subpart and each operating limit established as required in § 63.9800(i)(3) according to the methods specified in your approved alternative monitoring methods request as described in § 63.9800(i)(2).

(e) You must report each instance in which you did not meet each emission limit and each operating limit in this subpart that applies to you. This includes periods of startup, shutdown, and malfunction. These instances are deviations from the emission limitations in this subpart. These deviations must be reported according to the requirements in § 63.9814.

(1) During periods of startup, shutdown, and malfunction, you must operate according to your SSMP.

(2) Consistent with §§ 63.6(e) and 63.7(e)(1), deviations that occur during a period of startup, shutdown, or malfunction are not violations if you demonstrate to the Administrator's satisfaction that you were operating according to your SSMP and your OM&M plan. The Administrator will determine whether deviations that occur during a period of startup, shutdown, or malfunction are violations, according to the provisions in § 63.6(e).

NOTIFICATIONS, REPORTS, AND RECORDS

§ 63.9812 What notifications must I submit and when?

(a) You must submit all of the notifications in §§ 63.7(b) and (c), 63.8(f)(4), and 63.9 (b) through (e) and (h) that apply to you by the dates specified.

(b) As specified in § 63.9(b)(2) and (3), if you start up your affected source before April 16, 2003, you must submit an Initial Notification not later than 120 calendar days after April 16, 2003.

(c) As specified in §63.9(b)(3), if you start up your new or reconstructed affected source on or after April 16, 2003, you must submit an Initial Notification not later than 120 calendar days after you become subject to this subpart.

(d) If you are required to conduct a performance test, you must submit a Notification of Performance Test at least 60 calendar days before the performance test is scheduled to begin, as required in §63.7(b)(1).

(e) If you are required to conduct a performance test, you must submit a Notification of Compliance Status as specified in §63.9(h) and paragraphs (e)(1) and (2) of this section.

(1) For each compliance demonstration that includes a performance test conducted according to the requirements in Table 4 to this subpart, you must submit the Notification of Compliance Status, including the performance test results, before the close of business on the 60th calendar day following the completion of the performance test, according to §63.10(d)(2).

(2) In addition to the requirements in §63.9(h)(2)(i), you must include the information in paragraphs (e)(2)(i) through (iv) of this section in your Notification of Compliance Status.

(i) The operating limit parameter values established for each affected source with supporting documentation and a description of the procedure used to establish the values.

(ii) Design information and analysis with supporting documentation demonstrating conformance with requirements for capture/collection systems in Table 2 to this subpart.

(iii) A description of the methods used to comply with any applicable work practice standard.

(iv) For each APCD that includes a fabric filter, analysis and supporting documentation demonstrating conformance with EPA guidance and specifications for bag leak detection systems in §63.9804(f).

(f) If you operate a clay refractory products kiln or a chromium refractory products kiln that is subject to the work practice standard specified in item 3 or 4 of Table 3 to this subpart, and you intend to use a fuel other than natural gas or equivalent to fire the affected kiln, you must submit a notification of alternative fuel use within 48 hours of the declaration of a period of natural gas curtailment or supply interruption, as defined in §63.9824. The notification must include the information specified in paragraphs (f)(1) through (5) of this section.

(1) Company name and address.

(2) Identification of the affected kiln.

(3) Reason you are unable to use natural gas or equivalent fuel, including the date when the natural gas curtailment was declared or the natural gas supply interruption began.

(4) Type of alternative fuel that you intend to use.

(5) Dates when the alternative fuel use is expected to begin and end.

(g) If you own or operate an affected continuous kiln and must perform scheduled maintenance on the control device for that kiln, you must request approval from the Administrator before bypassing the control device, as specified in §63.9792(e). You must submit a separate request for approval each time you plan to bypass the kiln control device.

§63.9814 What reports must I submit and when?

(a) You must submit each report in Table 10 to this subpart that applies to you.

(b) Unless the Administrator has approved a different schedule for submission of reports under §63.10(a), you must submit each report by the date in Table 10 to this subpart and as specified in paragraphs (b)(1) through (5) of this section.

(1) The first compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.9786 and ending on June 30 or December 31 and lasting at least 6 months but less than 12 months. For example, if your compliance date is March 1, then the first semiannual reporting period would begin on March 1 and end on December 31.

(2) The first compliance report must be postmarked or delivered no later than July 31 or January 31 for compliance periods ending on June 30 and December 31, respectively.

(3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31 for compliance periods ending on June 30 and December 31, respectively.

(5) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 40 CFR part 71 and, if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (4) of this section. In such cases, you must notify the Administrator of this change.

(c) The compliance report must contain the information in paragraphs (c)(1) through (6) of this section.

(1) Company name and address.

(2) Statement by a responsible official with that official's name, title, and signature, certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If you had a startup, shutdown, or malfunction during the reporting period, and you took actions consistent with your SSMP and OM&M plan, the compliance report must include the information specified in § 63.10(d)(5)(i).

(5) If there are no deviations from any emission limitations (emission limit, operating limit, or work practice standard) that apply to you, the compliance report must include a statement that there were no deviations from the emission limitations during the reporting period.

(6) If there were no periods during which any affected CPMS was out of control as specified in § 63.8(c)(7), the compliance report must include a statement that there were no periods during which the CPMS was out of control during the reporting period.

(d) For each deviation from an emission limitation (emission limit, operating limit, or work practice standard) that occurs at an affected source where you are not using a CPMS to comply with the emission limitations in this subpart, the compliance report must contain the information in paragraphs (c)(1) through (4) and (d)(1) and (2) of this section. This includes periods of startup, shutdown, and malfunction.

(1) The compliance report must include the total operating time of each affected source during the reporting period.

(2) The compliance report must include information on the number, duration, and cause of deviations (including unknown cause, if applicable) and the corrective action taken.

(e) For each deviation from an emission limitation (emission limit, operating limit, or work practice standard) occurring at an affected source where you are using a CPMS to comply with the emission limitation in this subpart, the compliance report must include the information in paragraphs (c)(1) through (4) and (e)(1) through (13) of this section. This includes periods of startup, shutdown, and malfunction.

(1) The total operating time of each affected source during the reporting period.

(2) The date and time that each startup, shutdown, or malfunction started and stopped.

(3) The date, time, and duration that each CPMS was inoperative.

(4) The date, time and duration that each CPMS was out of control, including the information in § 63.8(c)(8), as required by your OM&M plan.

(5) The date and time that each deviation from an emission limitation (emission limit, operating limit, or work practice standard) started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction.

(6) A description of corrective action taken in response to a deviation.

(7) A summary of the total duration of the deviations during the reporting period and the total duration as a percentage of the total source operating time during that reporting period.

(8) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(9) A summary of the total duration of CPMS downtime during the reporting period and the total duration of CPMS downtime as a percentage of the total source operating time during that reporting period.

(10) A brief description of the process units.

(11) A brief description of the CPMS.

(12) The date of the latest CPMS initial validation or accuracy audit.

(13) A description of any changes in CPMS, processes, or controls since the last reporting period.

(f) If you have obtained a title V operating permit pursuant to 40 CFR part 70 or 40 CFR part 71, you must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If you submit a compliance report according to Table 10 to this subpart along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the compliance report includes all required information concerning deviations from any emission limitation (including any operating limit), then submitting the compliance report will satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submitting a compliance report will not otherwise affect any obligation you may have to report deviations from permit requirements to the permit authority.

(g) If you operate a clay refractory products kiln or a chromium refractory products kiln that is subject to the work practice standard specified in item 3 or 4 of Table 3 to this subpart, and you use a fuel other than natural gas or equivalent to fire the affected kiln, you must submit a report of alternative fuel use within 10 working days after terminating the use of the alternative fuel. The report must include the information in paragraphs (g)(1) through (6) of this section.

(1) Company name and address.

(2) Identification of the affected kiln.

(3) Reason for using the alternative fuel.

(4) Type of alternative fuel used to fire the affected kiln.

(5) Dates that the use of the alternative fuel started and ended.

(6) Amount of alternative fuel used.

§63.9816 What records must I keep?

(a) You must keep the records listed in paragraphs (a)(1) through (3) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirements in §63.10(b)(2)(xiv).

(2) The records in §63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

(3) Records of performance tests as required in §63.10(b)(2)(viii).

(b) You must keep the records required in Tables 7 through 9 to this subpart to show continuous compliance with each emission limitation that applies to you.

(c) You must also maintain the records listed in paragraphs (c)(1) through (10) of this section.

(1) Records of emission data used to develop an emissions profile, as indicated in items 8(a)(i)(4) and 17(b)(i)(4) of Table 4 to this subpart.

(2) Records that document how you comply with any applicable work practice standard.

(3) For each bag leak detection system, records of each alarm, the time of the alarm, the time corrective action was initiated and completed, and a brief description of the cause of the alarm and the corrective action taken.

(4) For each kiln controlled with a DLA, records that document the source of limestone used.

(5) For each deviation of an operating limit parameter value, the date, time, and duration of the deviation, a brief explanation of the cause of the deviation and the corrective action taken, and whether the deviation occurred during a period of startup, shutdown, or malfunction.

(6) For each affected source, records of production rate on a process throughput basis (either feed rate to

the process unit or discharge rate from the process unit).

(7) Records of any approved alternative monitoring method(s) or test procedure(s).

(8) Records of maintenance activities and inspections performed on control devices, including all records associated with the scheduled maintenance of continuous kiln control devices, as specified in § 63.9792(e).

(9) If you operate a source that is subject to the THC emission limits specified in item 2, 3, 6, or 7 of Table 1 to this subpart and is controlled with a catalytic oxidizer, records of annual checks of catalyst activity levels and subsequent corrective actions.

(10) Current copies of the SSMP and the OM&M plan, including any revisions and records documenting conformance with those revisions.

§ 63.9818 In what form and how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review, according to § 63.10(b)(1).

(b) As specified in § 63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record onsite for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to § 63.10(b)(1). You may keep the records offsite for the remaining 3 years.

OTHER REQUIREMENTS AND INFORMATION

§ 63.9820 What parts of the General Provisions apply to me?

Table 11 to this subpart shows which parts of the General Provisions specified in §§ 63.1 through 63.15 apply to you.

§ 63.9822 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by us, the U.S. Environmental Protection Agency (U.S. EPA), or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency, in addition to the U.S. EPA, has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if implementation and enforcement to this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority to this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that cannot be delegated to State, local, or tribal agencies are as specified in paragraphs (c)(1) through (4) of this section.

(1) Approval of alternatives to the applicability requirements in §§ 63.9782 and 63.9784, the compliance date requirements in § 63.9786, and the emission limitations in § 63.9788.

(2) Approval of major changes to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.90.

(3) Approval of major changes to monitoring under § 63.8(f) and as defined in § 63.90.

(4) Approval of major changes to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

§ 63.9824 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act, in 40 CFR 63.2, the General Provisions of this part, and in this section as follows:

Additive means a minor addition of a chemical, mineral, or metallic substance that is added to a refractory mixture to facilitate processing or impart specific properties to the final refractory product.

Add-on air pollution control device (APCD) means equipment installed on a process vent that reduces the quantity of a pollutant that is emitted to the air.

Autoclave means a vessel that is used to impregnate fired and/or unfired refractory shapes with pitch to form pitch-impregnated refractory products. Autoclaves also can be used as defumers following the impregnation process.

Bag leak detection system means an instrument that is capable of monitoring particulate matter loadings in the exhaust of a fabric filter in order to detect bag failures. A bag leak detection system includes, but is not limited to, an instrument that operates on triboelectric, light-scattering, light-transmittance, or other effects to monitor relative PM loadings.

Basket means the metal container used to hold refractory shapes for pitch impregnation during the shape preheating, impregnation, defuming, and, if applicable, coking processes.

Batch process means a process in which a set of refractory shapes is acted upon as a single unit according to a predetermined schedule, during which none of the refractory shapes being processed are added or removed. A batch process does not operate continuously.

Binder means a substance added to a granular material to give it workability and green or dry strength.

Catalytic oxidizer means an add-on air pollution control device that is designed specifically to destroy organic compounds in a process exhaust gas stream by catalytic incineration. A catalytic oxidizer includes a bed of catalyst media through which the process exhaust stream passes to promote combustion and incineration at a lower temperature than would be possible without the catalyst.

Chromium refractory product means a refractory product that contains at least 1 percent chromium by weight.

Clay refractory product means a refractory product that contains at least 10 percent uncalcined clay by weight prior to firing in a kiln. In this definition, the term ‘‘clay’’ means any of the following six classifications of clay defined by the U.S. Geologic Survey: ball clay, bentonite, common clay and shale, fire clay, fuller's earth, and kaolin.

Coking oven means a thermal process unit that operates at a peak temperature typically between 540° and 870 °C (1000° and 1600 °F) and is used to drive off the volatile constituents of pitch-impregnated refractory shapes under a reducing or oxygen-deprived atmosphere.

Continuous parameter monitoring system (CPMS) means the total equipment that is used to measure and record temperature, pressure, liquid flow rate, gas flow rate, or pH on a continuous basis in one or more locations. ‘‘Total equipment'' includes the sensor, mechanical components, electronic components, data acquisition system, data recording system, electrical wiring, and other components of a CPMS.

Continuous process means a process that operates continuously. In a continuous process unit, the materials or shapes that are processed are either continuously charged (fed) to and discharged from the process unit, or are charged and discharged at regular time intervals without the process unit being shut down. Continuous thermal process units, such as tunnel kilns, generally include temperature zones that are maintained at relatively constant temperature and through which the materials or shapes being processed are conveyed continuously or at regular time intervals.

Curing oven means a thermal process unit that operates at a peak temperature typically between 90° and 340 °C (200° and 650 °F) and is used to activate a thermosetting resin, pitch, or other binder in refractory shapes. Curing ovens also perform the same function as shape dryers in removing the free moisture from refractory shapes.

Defumer means a process unit that is used for holding pitch-impregnated refractory shapes as the shapes defume or cool immediately following the impregnation process. This definition includes autoclaves that are opened and exhausted to the atmosphere following an impregnation cycle and used for holding pitch-impregnated refractory shapes while the shapes defume or cool.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emission limitation (emission limit, operating limit, or work practice standard);

(2) Fails to meet any term or condition that is adopted to implement an

applicable requirement in this subpart for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limitation (emission limit, operating limit, or work practice standard) in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Dry injection fabric filter (DIFF) means an add-on air pollution control device that includes continuous injection of hydrated lime or other sorbent into a duct or reaction chamber followed by a fabric filter.

Dry lime scrubber/fabric filter (DLS/FF) means an add-on air pollution control device that includes continuous injection of humidified hydrated lime or other sorbent into a reaction chamber followed by a fabric filter. These systems may include recirculation of some of the sorbent.

Dry limestone adsorber (DLA) means an air pollution control device that includes a limestone storage bin, a reaction chamber that is essentially a packed-tower filled with limestone, and may or may not include a peeling drum that mechanically scrapes reacted limestone to regenerate the stone for reuse.

Emission limitation means any restriction on the emissions a process unit may discharge.

Fabric filter means an add-on air pollution control device used to capture particulate matter by filtering a process exhaust stream through a filter or filter media; a fabric filter is also known as a baghouse.

Fired refractory shape means a refractory shape that has been fired in a kiln.

HAP means any hazardous air pollutant that appears in section 112(b) of the Clean Air Act.

Kiln means a thermal process unit that operates at a peak temperature greater than 820 °C (1500 °F) and is used for firing or sintering refractory, ceramic, or other shapes.

Kiln furniture means any refractory shape that is used to hold, support, or position ceramic or refractory products in a kiln during the firing process.

Maximum organic HAP processing rate means the combination of process and refractory product formulation that has the greatest potential to emit organic HAP. The maximum organic HAP processing rate is a function of the organic HAP processing rate, process operating temperature, and other process operating parameters that affect emissions of organic HAP. (See also the definition of *organic HAP processing rate*.)

Organic HAP processing rate means the rate at which the mass of organic HAP materials contained in refractory shapes are processed in an affected thermal process unit. The organic HAP processing rate is a function of the amount of organic HAP contained in the resins, binders, and additives used in a refractory mix; the amounts of those resins, binders, and additives in the refractory mix; and the rate at which the refractory shapes formed from the refractory mix are processed in an affected thermal process unit. For continuous process units, the organic HAP processing rate is expressed in units of mass of organic HAP per unit of time (*e.g.*, pounds per hour). For batch process units, the organic HAP processing rate is expressed in units of mass of organic HAP per unit mass of refractory shapes processed during the batch process cycle (*e.g.*, pounds per ton).

Particulate matter (PM) means, for the purposes of this subpart, emissions of particulate matter that serve as a measure of total particulate emissions as measured by EPA Method 5 of 40 CFR part 60, appendix A.

Peak emissions period means the period of consecutive hourly mass emissions of the applicable pollutant that is greater than any other period of consecutive hourly mass emissions for the same pollutant over the course of a specified batch process cycle, as defined in paragraphs (1) and (2) of this definition. The peak emissions period is a function of the rate at which the temperature of the refractory shapes is increased, the mass and loading configuration of the shapes in the process unit, the constituents of the refractory mix, and the type of pollutants emitted.

(1) The 3-hour peak THC emissions period is the period of 3 consecutive hours over which the sum of the hourly

THC mass emissions rates is greater than the sum of the hourly THC mass emissions rates for any other period of 3 consecutive hours during the same batch process cycle.

(2) The 3-hour peak HF emissions period is the period of 3 consecutive hours over which the sum of the hourly HF mass emissions rates is greater than the sum of the hourly HF mass emissions rates for any other period of 3 consecutive hours during the same batch process cycle.

Period of natural gas curtailment or supply interruption means a period of time during which the supply of natural gas to an affected facility is halted for reasons beyond the control of the facility. An increase in the cost or unit price of natural gas does not constitute a period of natural gas curtailment or supply interruption.

Pitch means the residue from the distillation of petroleum or coal tar.

Pitch-bonded refractory product means a formed refractory product that is manufactured using pitch as a bonding agent. Pitch-bonded refractory products are manufactured by mixing pitch with magnesium oxide, graphite, alumina, silicon carbide, silica, or other refractory raw materials, and forming the mix into shapes. After forming, pitch-bonded refractory products are cured in a curing oven and may be subsequently fired in a kiln.

Pitch-impregnated refractory product means a refractory shape that has been fired in a kiln, then impregnated with heated coal tar or petroleum pitch under pressure. After impregnation, pitch-impregnated refractory shapes may undergo the coking process in a coking oven. The total carbon content of a pitch-impregnated refractory product is less than 50 percent.

Pitch working tank means a tank that is used for heating pitch to the impregnation temperature, typically between 150° and 260 °C (300° and 500 °F); temporarily storing heated pitch between impregnation cycles; and transferring pitch to and from the autoclave during the impregnation step in manufacturing pitch-impregnated refractory products.

Plant site means all contiguous or adjoining property that is under common control, including properties that are separated only by a road or other public right-of-way. Common control includes properties that are owned, leased, or operated by the same entity, parent entity, subsidiary, or any combination thereof.

Redundant sensor means a second sensor or a back-up sensor that is integrated into a CPMS and is used to check the parameter value (*e.g.*, temperature, pressure) measured by the primary sensor of the CPMS.

Refractory product means nonmetallic materials containing less than 50 percent carbon by weight and having those chemical and physical properties that make them applicable for structures, or as components of systems, that are exposed to environments above 538 °C (1000 °F). This definition includes, but is not limited to: refractory bricks, kiln furniture, crucibles, refractory ceramic fiber, and other materials used as linings for boilers, kilns, and other processing units and equipment where extremes of temperature, corrosion, and abrasion would destroy other materials.

Refractory products that use organic HAP means resin-bonded refractory products, pitch-bonded refractory products, and other refractory products that are produced using a substance that is an organic HAP, that releases an organic HAP during production of the refractory product, or that contains an organic HAP, such as methanol or ethylene glycol.

Refractory shape means any refractory piece forming a stable mass with specific dimensions.

Research and development process unit means any process unit whose purpose is to conduct research and development for new processes and products and is not engaged in the manufacture of products for commercial sale, except in a de minimis manner.

Resin-bonded refractory product means a formed refractory product that is manufactured using a phenolic resin or other type of thermosetting resin as a bonding agent. Resin-bonded refractory products are manufactured by mixing resin with alumina, magnesium oxide, graphite, silica, zirconia, or other refractory raw materials, and forming the mix into shapes. After forming, resin-bonded refractory products are cured in a curing oven and may be subsequently fired in a kiln.

Responsible official means one of the following:

(1) For a corporation: a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decisionmaking functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:

(i) The facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars); or

(ii) The delegation of authority to such representatives is approved in advance by the Administrator;

(2) For a partnership or sole proprietorship: a general partner or the proprietor, respectively;

(3) For a municipality, State, Federal, or other public agency: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (*e.g.*, a Regional Administrator of EPA); or

(4) For affected sources (as defined in this subpart) applying for or subject to a title V permit: ''responsible official'' shall have the same meaning as defined in part 70 or Federal title V regulations in this chapter (42 U.S.C. 7661), whichever is applicable.

Shape dryer means a thermal process unit that operates at a peak temperature typically between 40° and 700 °C (100° and 1300 °F) and is used exclusively to reduce the free moisture content of a refractory shape. Shape dryers generally are the initial thermal process step following the forming step in refractory products manufacturing. (See also the definition of a *curing oven*.)

Shape preheater means a thermal process unit that operates at a peak temperature typically between 180° and 320 °C (350° and 600 °F) and is used to heat fired refractory shapes prior to the impregnation step in manufacturing pitch-impregnated refractory products.

Thermal oxidizer means an add-on air pollution control device that includes one or more combustion chambers and is designed specifically to destroy organic compounds in a process exhaust gas stream by incineration.

Uncalcined clay means clay that has not undergone thermal processing in a calciner.

Wet scrubber means an add-on air pollution control device that removes pollutants from a gas stream by bringing them into contact with a liquid, typically water.

Work practice standard means any design, equipment, work practice, or operational standard, or combination thereof, that is promulgated pursuant to section 112(h) of the Clean Air Act.

TABLES TO SUBPART SSSSS OF PART 63

TABLE 1 TO SUBPART SSSSS OF PART 63.—EMISSION LIMITS

[As stated in § 63.9788, you must comply with the emission limits for affected sources in the following table:]

For . . .	You must meet the following emission limits . . .
1. Each new or existing curing oven, shape dryer, and kiln that is used to process refractory products that use organic HAP; each new or existing coking oven and defumer that is used to produce pitch-impregnated refractory products; each new shape preheater that is used to produce pitch-impregnated refractory products; AND each new or existing process unit that is exhausted to a thermal or catalytic oxidizer that also controls emissions from an affected shape preheater or pitch working tank.	As specified in items 2 through 9 of this table.
2. Continuous process units that are controlled with a thermal or catalytic oxidizer.	a. The 3-hour block average THC concentration must not exceed 20 parts per million by volume, dry basis (ppmvd), corrected to 18 percent oxygen, at the outlet of the control device; or

[As stated in § 63.9788, you must comply with the emission limits for affected sources in the following table:]

For . . .	You must meet the following emission limits . . .
	b. The 3-hour block average THC mass emissions rate must be reduced by at least 95 percent.
3. Continuous process units that are equipped with a control device other than a thermal or catalytic oxidizer.	a. The 3-hour block average THC concentration must not exceed 20 ppmvd, corrected to 18 percent oxygen, at the outlet of the control device; or b. The 3-hour block average THC mass emissions rate must be reduced by at least 95 percent.
4. Continuous process units that use process changes to reduce organic HAP emissions.	The 3-hour block average THC concentration must not exceed 20 ppmvd, corrected to 18 percent oxygen, at the outlet of the process gas stream.
5. Continuous kilns that are not equipped with a control device	The 3-hour block average THC concentration must not exceed 20 ppmvd, corrected to 18 percent oxygen, at the outlet of the process gas stream.
6. Batch process units that are controlled with a thermal or catalytic oxidizer.	a. The 2-run block average THC concentration for the 3-hour peak emissions period must not exceed 20 ppmvd, corrected to 18 percent oxygen, at the outlet of the control device; or b. The 2-run block average THC mass emissions rate for the 3-hour peak emissions period must be reduced by at least 95 percent.
7. Batch process units that are equipped with a control device other than a thermal or catalytic oxidizer.	a. The 2-run block average THC concentration for the 3-hour peak emissions period must not exceed 20 ppmvd, corrected to 18 percent oxygen, at the outlet of the control device; or b. The 2-run block average THC mass emissions rate for the 3-hour peak emissions period must be reduced by at least 95 percent.
8. Batch process units that use process changes to reduce organic HAP emissions.	The 2-run block average THC concentration for the 3-hour peak emissions period must not exceed 20 ppmvd, corrected to 18 percent oxygen, at the outlet of the process gas stream.
9. Batch process kilns that are not equipped with a control device.	The 2-run block average THC concentration for the 3-hour peak emissions period must not exceed 20 ppmvd, corrected to 18 percent oxygen, at the outlet of the process gas stream.
10. Each new continuous kiln that is used to produce clay refractory products.	a. The 3-hour block average HF emissions must not exceed 0.019 kilograms per megagram (kg/Mg) (0.038 pounds per ton (lb/ton)) of uncalcined clay processed, OR the 3-hour block average HF mass emissions rate must be reduced by at least 90 percent; and b. The 3-hour block average HCl emissions must not exceed 0.091 kg/Mg (0.18 lb/ton) of uncalcined clay processed, OR the 3-hour block average HCl mass emissions rate must be reduced by at least 30 percent.
11. Each new batch process kiln that is used to produce clay refractory products.	a. The 2-run block average HF mass emissions rate for the 3-hour peak emissions period must be reduced by at least 90 percent; and b. The 2-run block average HCl mass emissions rate for the 3-hour peak emissions period must be reduced by at least 30 percent.

TABLE 2 TO SUBPART SSSSS OF PART 63.—OPERATING LIMITS

[As stated in § 63.9788, you must comply with the operating limits for affected sources in the following table:]

For . . .	You must . . .
1. Each affected source listed in Table 1 to this subpart	a. Operate all affected sources according to the requirements to this subpart on and after the date on which the initial performance test is conducted or required to be conducted, whichever date is earlier; and b. Capture emissions and vent them through a closed system; and c. Operate each control device that is required to comply with this subpart on each affected source during all periods that the source is operating, except where specified in § 63.9792(e), item 2 of this table, and item 13 of Table 4 to this subpart; and d. Record all operating parameters specified in Table 8 to this subpart for the affected source; and e. Prepare and implement a written OM&M plan as specified in § 63.9792(d).

[As stated in § 63.9788, you must comply with the operating limits for affected sources in the following table:]

For . . .	You must . . .
2. Each affected continuous kiln that is equipped with an emission control device.	a. Receive approval from the Administrator before taking the control device on the affected kiln out of service for scheduled maintenance, as specified in § 63.9792(e); and b. Minimize HAP emissions from the affected kiln during all periods of scheduled maintenance of the kiln control device when the kiln is operating and the control device is out of service; and c. Minimize the duration of all periods of scheduled maintenance of the kiln control device when the kiln is operating and the control device is out of service.
3. Each new or existing curing oven, shape dryer, and kiln that is used to process refractory products that use organic HAP; each new or existing coking oven and defumer that is used to produce pitch-impregnated refractory products; each new shape preheater that is used to produce pitch-impregnated refractory products; AND each new or existing process unit that is exhausted to a thermal or catalytic oxidizer that also controls emissions from an affected shape preheater or pitch working tank.	Satisfy the applicable operating limits specified in items 4 through 9 of this table.
4. Each affected continuous process unit	Maintain the 3-hour block average organic HAP processing rate (pounds per hour) at or below the maximum organic HAP processing rate established during the most recent performance test.
5. Continuous process units that are equipped with a thermal oxidizer.	Maintain the 3-hour block average operating temperature in the thermal oxidizer combustion chamber at or above the minimum allowable operating temperature for the oxidizer established during the most recent performance test.
6. Continuous process units that are equipped with a catalytic oxidizer.	a. Maintain the 3-hour block average operating temperature at the inlet of the catalyst bed of the oxidizer at or above the minimum allowable operating temperature for the oxidizer established during the most recent performance test; and b. Check the activity level of the catalyst at least every 12 months.
7. Each affected batch process unit	For each batch cycle, maintain the organic HAP processing rate (pounds per batch) at or below the maximum organic HAP processing rate established during the most recent performance test.
8. Batch process units that are equipped with a thermal oxidizer.	a. From the start of each batch cycle until 3 hours have passed since the process unit reached maximum temperature, maintain the hourly average operating temperature in the thermal oxidizer combustion chamber at or above the minimum allowable operating temperature established for the corresponding period during the most recent performance test, as determined according to item 11 of Table 4 to this subpart; and b. For each subsequent hour of the batch cycle, maintain the hourly average operating temperature in the thermal oxidizer combustion chamber at or above the minimum allowable operating temperature established for the corresponding hour during the most recent performance test, as specified in item 13 of Table 4 to this subpart.
9. Batch process units that are equipped with a catalytic oxidizer.	a. From the start of each batch cycle until 3 hours have passed since the process unit reached maximum temperature, maintain the hourly average operating temperature at the inlet of the catalyst bed at or above the minimum allowable operating temperature established for the corresponding period during the most recent performance test, as determined according to item 12 of Table 4 to this subpart; and b. For each subsequent hour of the batch cycle, maintain the hourly average operating temperature at the inlet of the catalyst bed at or above the minimum allowable operating temperature established for the corresponding hour during the most recent performance test, as specified in item 13 of Table 4 to this subpart; and c. Check the activity level of the catalyst at least every 12 months.
10. Each new kiln that is used to process clay refractory products.	Satisfy the applicable operating limits specified in items 11 through 13 of this table.
11. Each affected kiln that is equipped with a DLA	a. Maintain the 3-hour block average pressure drop across the DLA at or above the minimum levels established during the most recent performance test; and

[As stated in § 63.9788, you must comply with the operating limits for affected sources in the following table:]

For . . .	You must . . .
	b. Maintain free-flowing limestone in the feed hopper, silo, and DLA at all times; and c. Maintain the limestone feeder at or above the level established during the most recent performance test; and d. Use the same grade of limestone from the same source as was used during the most recent performance test and maintain records of the source and type of limestone used.
12. Each affected kiln that is equipped with a DIFF or DLS/FF	a. Initiate corrective action within 1 hour of a bag leak detection system alarm and complete corrective actions in accordance with the OM&M plan; and b. Verify at least once each 8-hour shift that lime is free-flowing by means of a visual check, checking the output of a load cell, carrier gas/lime flow indicator, or carrier gas pressure drop measurement system; and c. Record the lime feeder setting daily to verify that the feeder setting is at or above the level established during the most recent performance test.
13. Each affected kiln that is equipped with a wet scrubber	a. Maintain the 3-hour block average pressure drop across the scrubber, liquid pH, and liquid flow rate at or above the minimum levels established during the most recent performance test; and b. If chemicals are added to the scrubber liquid, maintain the 3-hour block average chemical feed rate at or above the minimum chemical feed rate established during the most recent performance test.

TABLE 3 TO SUBPART SSSSS OF PART 63.—WORK PRACTICE STANDARDS

[As stated in § 63.9788, you must comply with the work practice standards for affected sources in the following table:]

For . . .	You must . . .	According to one of the following requirements . . .
1. Each basket or container that is used for holding fired refractory shapes in an existing shape preheater and autoclave during the pitch impregnation process.	a. Control POM emissions from any affected shape preheater.	i. At least every 10 preheating cycles, clean the residual pitch from the surfaces of the basket or container by abrasive blasting prior to placing the basket or container in the affected shape preheater; or ii. At least every 10 preheating cycles, subject the basket or container to a thermal process cycle that meets or exceeds the operating temperature and cycle time of the affected preheater, AND is conducted in a process unit that is exhausted to a thermal or catalytic oxidizer that is comparable to the control device used on an affected defumer or coking oven; or iii. Capture emissions from the affected shape preheater and vent them to the control device that is used to control emissions from an affected defumer or coking oven, or to a comparable thermal or catalytic oxidizer.
2. Each new or existing pitch working tank.	Control POM emissions	Capture emissions from the affected pitch working tank and vent them to the control device that is used to control emissions from an affected defumer or coking oven, OR to a comparable thermal or catalytic oxidizer.
3. Each new or existing chromium refractory products kiln.	Minimize fuel-based HAP emissions	Use natural gas, or equivalent, as the kiln fuel, except during periods of natural gas curtailment or supply interruption, as defined in § 63.9824.
4. Each existing clay refractory products kiln.	Minimize fuel-based HAP emissions	Use natural gas, or equivalent, as the kiln fuel, except during periods of natural gas curtailment or supply interruption, as defined in § 63.9824.

TABLE 4 TO SUBPART SSSSS TO PART 63.—REQUIREMENTS FOR PERFORMANCE TESTS

[As stated in § 63.9800, you must comply with the requirements for performance tests for affected sources in the following table:]

For . . .	You must . . .	Using . . .	According to the following requirements . . .
1. Each affected source listed in Table 1 to this subpart.	a. Conduct performance tests	i. The requirements of the general provisions in subpart A of this part and the requirements to this subpart.	(1) Record the date of the test; and (2) Identify the emission source that is tested; and (3) Collect and record the corresponding operating parameter and emission test data listed in this table for each run of the performance test; and (4) Repeat the performance test at least every 5 years; and (5) Repeat the performance test before changing the parameter value for any operating limit specified in your OM&M plan; and (6) If complying with the THC concentration or THC percentage reduction limits specified in items 2 through 9 of Table 1 to this subpart, repeat the performance test under the conditions specified in items 2.a.2. and 2.a.3. of this table; and (7) If complying with the emission limits for new clay refractory products kilns specified in items 10 and 11 of Table 1 to this subpart, repeat the performance test under the conditions specified in items 14.a.i.4. and 17.a.i.4. of this table.
	b. Select the locations of sampling ports and the number of traverse points.	i. Method 1 or 1A of 40 CFR part 60, appendix A	(1) To demonstrate compliance with the percentage reduction limits specified in items 2.b., 3.b., 6.b., 7.b., 10, and 11 of Table 1 to this subpart, locate sampling sites at the inlet of the control device and at either the outlet of the control device or at the stack prior to any releases to the atmosphere; and (2) To demonstrate compliance with any other emission limit specified in Table 1 to this subpart, locate all sampling sites at the outlet of the control device or at the stack prior to any releases to the atmosphere.
	c. Determine gas velocity and volumetric flow rate	Method 2, 2A, 2C, 2D, 2F, or 2G of 40 CFR part 60, appendix A.	Measure gas velocities and volumetric flow rates at 1-hour intervals throughout each test run.
	d. Conduct gas molecular weight analysis	(i) Method 3, 3A, or 3B of 40 CFR part 60, appendix A; or	As specified in the applicable test method.
		(ii) ASME PTC 19.10–1981–Part 10	You may use ASME PTC 19.10–1981–Part 10 (available for purchase from Three Park Avenue, New York, NY 10016–5990) as an alternative to EPA Method 3B.
	e. Measure gas moisture content	Method 4 of 40 CFR part 60, appendix A	As specified in the applicable test method.

2. Each new or existing curing oven, shape dryer, and kiln that is used to process refractory products that use organic HAP; each new or existing coking oven and defumer that is used to produce pitch-impregnated refractory products; each new shape preheater that is used to produce pitch-impregnated refractory products; AND each new or existing process unit that is exhausted to a thermal or catalytic oxidizer that also controls emissions from an affected shape preheater or pitch working tank.	a. Conduct performance tests		(1) Conduct the performance test while the source is operating at the maximum organic HAP processing rate, as defined in § 63.9824, reasonably expected to occur; and (2) Repeat the performance test before starting production of any product for which the organic HAP processing rate is likely to exceed the maximum organic HAP processing rate established during the most recent performance test by more than 10 percent, as specified in § 63.9798(c); and (3) Repeat the performance test on any affected uncontrolled kiln following process changes (e.g., shorter curing oven cycle time) that could increase organic HAP emissions from the affected kiln, as specified in § 63.9798(d).
	b. Satisfy the applicable requirements listed in items 3 through 13 of this table.		
3. Each affected continuous process unit.	a. Perform a minimum of 3 test runs	The appropriate test methods specified in items 1, 4, and 5 of this table.	Each test run must be at least 1 hour in duration.
	b. Establish the operating limit for the maximum organic HAP processing rate.	i. Method 311 of 40 CFR part 63, appendix A, OR material safety data sheets (MSDS), OR product labels to determine the mass fraction of organic HAP in each resin, binder, or additive; and	(1) Calculate and record the organic HAP content of all refractory shapes that are processed during the performance test, based on the mass fraction of organic HAP in the resins, binders, or additives; the mass fraction of each resin, binder, or additive, in the product; and the process feed rate; and
		ii. Product formulation data that specify the mass fraction of each resin, binder, and additive in the products that are processed during the performance test; and	(2) Calculate and record the organic HAP processing rate (pounds per hour) for each test run; and
		iii. Process feed rate data (tons per hour)	(3) Calculate and record the maximum organic HAP processing rate as the average of the organic HAP processing rates for the three test runs.
	c. Record the operating temperature of the affected source.	Process data	During each test run and at least once per hour, record the operating temperature in the highest temperature zone of the affected source.
4. Each continuous process unit that is subject to the THC emission limit listed in item 2.a., 3.a., 4, or 5 of Table 1 to this subpart.	a. Measure THC concentrations at the outlet of the control device or in the stack.	i. Method 25A of 40 CFR part 60, appendix A	(1) Each minute, measure and record the concentrations of THC in the exhaust stream; and (2) Provide at least 50 1-minute measurements for each valid hourly average THC concentration.

[As stated in § 63.9800, you must comply with the requirements for performance tests for affected sources in the following table:]

For . . .	You must . . .	Using . . .	According to the following requirements . . .
	b. Measure oxygen concentrations at the outlet of the control device or in the stack.	i. Method 3A of 40 CFR part 60, appendix A	(1) Each minute, measure and record the concentrations of oxygen in the exhaust stream; and (2) Provide at least 50 1-minute measurements for each valid hourly average THC concentration.
	c. Determine the hourly average THC concentration, corrected to 18 percent oxygen.	i. Equation 1 of § 63.9800(g)(1); and ii. The 1-minute THC and oxygen concentration data.	(1) Calculate the hourly average THC concentration for each hour of the performance test as the average of the 1-minute THC measurements; and (2) Calculate the hourly average oxygen concentration for each hour of the performance test as the average of the 1-minute oxygen measurements; and (3) Correct the hourly average THC concentrations to 18 percent oxygen using Equation 1 of § 63.9800(g)(1).
	d. Determine the 3-hour block average THC emission concentration, corrected to 18 percent oxygen.	The hourly average concentration of THC, corrected to 18 percent oxygen, for each test run.	Calculate the 3-hour block average THC emission concentration, corrected to 18 percent oxygen, as the average of the hourly average THC emission concentrations, corrected to 18 percent oxygen.
5. Each continuous process unit that is subject to the THC percentage reduction limit listed in item 2.b. or 3.b. of Table 1 to this subpart.	a. Measure THC concentrations at the inlet and outlet of the control device.	i. Method 25A of 40 CFR part 60, appendix A	(1) Each minute, measure and record the concentrations of THC at the inlet and outlet of the control device; and (2) Provide at least 50 1-minute measurements for each valid hourly average THC concentration at the control device inlet and outlet.
	b. Determine the hourly THC mass emissions rates at the inlet and outlet of the control device.	i. The 1-minute THC concentration data at the control device inlet and outlet; and ii. The volumetric flow rates at the control device inlet and outlet.	Calculate the hourly THC mass emissions rates at the control device inlet and outlet for each hour of the performance test.
	c. Determine the 3-hour block average THC percentage reduction.	i. The hourly THC mass emissions rates at the inlet and outlet of the control device.	(1) Calculate the hourly THC percentage reduction for each hour of the performance test using Equation 2 of § 63.9800(g)(1); and (2) Calculate the 3-hour block average THC percentage reduction.

6. Each continous process unit that is equipped with a thermal oxidizer.	a. Establish the operating limit for the minimum allowable thermal oxidizer combustion chamber temperature.	i. Continuous recording of the output of the combustion chamber temperature measurement device.	(1) At least every 15 minutes, measure and record the thermal oxidizer combustion chamber temperature; and (2) Provide at least one measurement during at least three 15-minute periods per hour of testing; and (3) Calculate the hourly average thermal oxidizer combustion chamber temperature for each hour of the performance test; and (4) Calculate the minimum allowable combustion chamber temperature as the average of the combustion chamber temperatures for the three test runs, minus 14 °C (25 °F).
7. Each continuous process unit that is equipped with a catalytic oxidizer.	a. Establish the operating limit for the minimum allowable temperature at the inlet of the catalyst bed.	i. Continuous recording of the output of the temperature measurement device.	(1) At least every 15 minutes, measure and record the temperature at the inlet of the catalyst bed; and (2) Provide at least one catalyst bed inlet temperature measurement during at least three 15-minute periods per hour of testing; and (3) Calculate the hourly average catalyst bed inlet temperature for each hour of the performance test; and (4) Calculate the minimum allowable catalyst bed inlet temperature as the average of the catalyst bed inlet temperatures for the three test runs, minus 14 °C (25 °F).
8. Each affected batch process unit.	a. Perform a minimum of two test runs	i. The appropriate test methods specified in items 1, 9, and 10 of this table.	(1) Each test run must be conducted over a separate batch cycle unless you satisfy the requirements of § 63.9800(f)(3) and (4); and (2) Each test run must begin with the start of a batch cycle, except as specified in item 8.a.i.4. of this table; and (3) Each test run must continue until the end of the batch cycle, except as specified in items 8.a.i.4. and 8.a.i.5. of this table; and (4) If you develop an emissions profile, as described in § 63.9802(a), AND for sources equipped with a thermal or catalytic oxidizer, you do not reduce the oxidizer operating temperature, as specified in item 13 of this table, you can limit each test run to the 3-hour peak THC emissions period; and

[As stated in § 63.9800, you must comply with the requirements for performance tests for affected sources in the following table:]

For . . .	You must . . .	Using . . .	According to the following requirements . . .
			(5) If you do not develop an emissions profile, a test run can be stopped, and the results of that run considered complete, if you measure emissions continuously until at least 3 hours after the affected process unit has reached maximum temperature, AND the hourly average THC mass emissions rate has not increased during the 3-hour period since maximum process temperature was reached, and the hourly average concentrations of THC at the inlet of the control device have not exceeded 20 ppmvd, corrected to 18 percent oxygen, during the 3-hour period since maximum process temperature was reached or the hourly average THC percentage reduction has been at least 95 percent during the 3-hour period since maximum process temperature was reached, AND, for sources equipped with a thermal or catalytic oxidizer, at least 1 hour has passed since any reduction in the operating temperature of the oxidizer, as specified in item 13 of this table.
	b. Establish the operating limit for the maximum organic HAP processing rate.	i. Method 311 of 40 CFR part 63, appendix A, OR MSDS, OR product labels to determine the mass fraction of organic HAP in each resin, binder, or additive; and	(1) Calculate and record the organic HAP content of all refractory shapes that are processed during the performance test, based on the mass fraction of HAP in the resins, binders, or additives; the mass fraction of each resin, binder, or additive, in the product, and the batch weight prior to processing; and
		ii. Product formulation data that specify the mass fraction of each resin, binder, and additive in the products that are processed during the performance test; and	(2) Calculate and record the organic HAP processing rate (pounds per batch) for each test run; and
		iii. Batch weight (tons)	(3) Calculate and record the maximum organic HAP processing rate as the average of the organic HAP processing rates for the two test runs.
	c. Record the batch cycle time	Process data	Record the total elapsed time from the start to the completion of the batch cycle.
	d. Record the operating temperature of the affected source.	Process data	Record the operating temperature of the affected source at least once every hour from the start to the completion of the batch cycle.
9. Each batch process unit that is subject to the THC emission limit listed in item 6.a., 7.a., 8, or 9 of Table 1 to this subpart.	a. Measure THC concentrations at the outlet of the control device or in the stack.	i. Method 25A of 40 CFR part 60, appendix A	(1) Each minute, measure and record the concentrations of THC in the exhaust stream; and (2) Provide at least 50 1-minute measurements for each valid hourly average THC concentration.

	b. Measure oxygen concentrations at the outlet of the control device or in the stack.	i. Method 3A of 40 CFR part 60, appendix A	(1) Each minute, measure and record the concentrations of oxygen in the exhaust stream; and (2) Provide at least 50 1-minute measurements for each valid hourly average oxygen concentration.
	c. Determine the hourly average THC concentration, corrected to 18 percent oxygen.	i. Equation 1 of § 63.9800(g)(1); and .... ii. The 1-minute THC and oxygen concentration data.	(1) Calculate the hourly average THC concentration for each hour of the performance test as the average of the 1-minute THC measurements; and (2) Calculate the hourly average oxygen concentration for each hour of the performance test as the average of the 1-minute oxygen measurements; and (3) Correct the hourly average THC concentrations to 18 percent oxygen using Equation 1 of § 63.9800(g)(1).
	d. Determine the 3-hour peak THC emissions period for each test run.	The hourly average THC concentrations, corrected to 18 percent oxygen.	Select the period of 3 consecutive hours over which the sum of the hourly average THC concentrations, corrected to 18 percent oxygen, is greater than the sum of the hourly average THC emission concentrations, corrected to 18 percent oxygen, for any other period of 3 consecutive hours during the test run.
	e. Determine the average THC concentration, corrected to 18 percent oxygen, for each test run.	The hourly average THC emission concentrations, corrected to 18 percent oxygen, for the 3-hour peak THC emissions period.	Calculate the average of the hourly average THC concentrations, corrected to 18 percent oxygen, for the 3 hours of the peak emissions period for each test run.
	f. Determine the 2-run block average THC concentration, corrected to 18 percent oxygen, for the emission test.	The average THC concentration, corrected to 18 percent oxygen, for each test run.	Calculate the average of the average THC concentrations, corrected to 18 percent oxygen, for each run.
10. Each batch process unit that is subject to the THC percentage reduction limit listed in item 6.b. or 7.b. of Table 1 to this subpart.	a. Measure THC concentrations at the inlet and outlet of the control device.	i. Method 25A of 40 CFR part 60, appendix A	(1) Each minute, measure and record the concentrations of THC at the control device inlet and outlet; and (2) Provide at least 50 1-minute measurements for each valid hourly average THC concentration at the control device inlet and outlet.
	b. Determine the hourly THC mass emissions rates at the control device inlet and outlet.	i. The 1-minute THC concentration data at the control device inlet and outlet; and ii. The volumetric flow rates at the control device inlet and outlet.	(1) Calculate the hourly mass emissions rates at the control device inlet and outlet for each hour of the performance test.
	c. Determine the 3-hour peak THC emissions period for each test run.	The hourly THC mass emissions rates at the control device inlet.	Select the period of 3 consecutive hours over which the sum of the hourly THC mass emissions rates at the control device inlet is greater than the sum of the hourly THC mass emissions rates at the control device inlet for any other period of 3 consecutive hours during the test run.
	d. Determine the average THC percentage reduction for each test run.	i. Equation 2 of § 63.9800(g)(2); and .... ii. The hourly THC mass emissions rates at the control device inlet and outlet for the 3-hour peak THC emissions period.	Calculate the average THC percentage reduction for each test run using Equation 2 of § 63.9800(g)(2).

[As stated in § 63.9800, you must comply with the requirements for performance tests for affected sources in the following table:]

For . . .	You must . . .	Using . . .	According to the following requirements . . .
	e. Determine the 2-run block average THC percentage reduction for the emission test.	The average THC percentage reduction for each test run.	Calculate the average of the average THC percentage reductions for each test run.
11. Each batch process unit that is equipped with a thermal oxidizer.	a. Establish the operating limit for the minimum thermal oxidizer combustion chamber temperature.	i. Continuous recording of the output of the combustion chamber temperature measurement device.	(1) At least every 15 minutes, measure and record the thermal oxidizer combustion chamber temperature; and (2) Provide at least one temperature measurement during at least three 15-minute periods per hour of testing; and (3) Calculate the hourly average combustion chamber temperature for each hour of the 3-hour peak emissions period, as defined in item 9.d. or 10.c. of this table, whichever applies; and (4) Calculate the minimum allowable thermal oxidizer combustion chamber operating temperature as the average of the hourly combustion chamber temperatures for the 3-hour peak emissions period, minus 14 °C (25 °F).
12. Each batch process unit that is equipped with a catalytic oxidizer.	a. Establish the operating limit for the minimum temperature at the inlet of the catalyst bed.	i. Continuous recording of the output of the temperature measurement device.	(1) At least every 15 minutes, measure and record the temperature at the inlet of the catalyst bed; and (2) Provide at least one catalyst bed inlet temperature measurement during at least three 15-minute periods per hour of testing; and (3) Calculate the hourly average catalyst bed inlet temperature for each hour of the 3-hour peak emissions period, as defined in item 9.d. or 10.c. of this table, whichever applies; and (4) Calculate the minimum allowable catalytic oxidizer catalyst bed inlet temperature as the average of the hourly catalyst bed inlet temperatures for the 3-hour peak emissions period, minus 14 °C (25 °F).
13. Each batch process unit that is equipped with a thermal or catalytic oxidizer.	a. During each test run, maintain the applicable operating temperature of the oxidizer until emission levels allow the oxidizer to be shut off or the operating temperature of the oxidizer to be reduced.		(1) The oxidizer can be shut off or the oxidizer operating temperature can be reduced if you do not use an emission profile to limit testing to the 3-hour peak emissions period, as specified in item 8.a.i.4. of this table; and (2) At least 3 hours have passed since the affected process unit reached maximum temperature; and (3) The applicable emission limit specified in item 6.a. or 6.b. of Table 1 to this subpart was met during each of the previous three 1-hour periods; and

			(4) The hourly average THC mass emissions rate did not increase during the 3-hour period since maximum process temperature was reached; and (5) The applicable emission limit specified in item 6.a. and 6.b. of Table 1 to this subpart was met during each of the four 15-minute periods immediately following the oxidizer temperature reduction; and (6) If the applicable emission limit specified in item 6.a. or 6.b. of Table 1 to this subpart was not met during any of the four 15-minute periods immediately following the oxidizer temperature reduction, you must return the oxidizer to its normal operating temperature as soon as possible and maintain that temperature for at least 1 hour; and (7) Continue the test run until the applicable emission limit specified in items 6.a. and 6.b. of Table 1 to this subpart is met for at least four consecutive 15-minute periods that immediately follow the temperature reduction; and (8) Calculate the hourly average oxidizer operating temperature for each hour of the performance test since the affected process unit reached maximum temperature.
14. Each new continuous kiln that is used to process clay refractory products.	a. Measure emissions of HF and HCl	i. Method 26A of 40 CFR part 60, appendix A; or ii. Method 26 of 40 CFR part 60, appendix A; or iii. Method 320 of 40 CFR part 63, appendix A	(1) Conduct the test while the kiln is operating at the maximum production level; and (2) You may use Method 26 of 40 CFR part 60, appendix A, only if no acid PM (*e.g.,* HF or HCl dissolved in water droplets emitted by sources controlled by a wet scrubber) is present; and (3) If you use Method 320 of 40 CFR part 63, appendix A, you must follow the analyte spiking procedures of Section 13 of Method 320 unless you can demonstrate that the complete spiking procedure has been conducted at a similar source; and (4) Repeat the performance test if the affected source is controlled with a DLA and you change the source of the limestone used in the DLA.
	b. Perform a minimum of 3 test runs	The appropriate test methods specified in items 1 and 14.a. of this table.	Each test run must be at least 1 hour in duration.

[As stated in § 63.9800, you must comply with the requirements for performance tests for affected sources in the following table:]

For . . .	You must . . .	Using . . .	According to the following requirements . . .
15. Each new continuous kiln that is subject to the production-based HF and HCl emission limits specified in items 10.a. and 10.b. of Table 1 to this subpart.	a. Record the uncalcined clay processing rate	i. Production data; and .... ii. Product formulation data that specify the mass fraction of uncalcined clay in the products that are processed during the performance test.	(1) Record the production rate (tons per hour of fired product); and (2) Calculate and record the average rate at which uncalcined clay is processed (tons per hour) for each test run; and (3) Calculate and record the 3-run average uncalcined clay processing rate as the average of the average uncalcined clay processing rates for each test run.
	b. Determine the HF mass emissions rate at the outlet of the control device or in the stack.	i. Method 26A of 40 CFR part 60, appendix A; or ii. Method 26 of 40 CFR part 60, appendix A; or iii. Method 320 of 40 CFR part 63, appendix A	Calculate the HF mass emissions rate for each test.
	c. Determine the 3-hour block average production-based HF emissions rate.	i. The HF mass emissions rate for each test run; and ii. The average uncalcined clay processing rate	(1) Calculate the hourly production-based HF emissions rate for each test run using Equation 3 of § 63.9800(g)(3); and (2) Calculate the 3-hour block average production-based HF emissions rate as the average of the hourly production-based HF emissions rates for each test run.
	d. Determine the HCl mass emissions rate at the outlet of the control device or in the stack.	i. Method 26A of 40 CFR part 60, appendix A; or ii. Method 26 of 40 CFR part 60, appendix A; or iii. Method 320 of 40 CFR part 63, appendix A	Calculate the HCl mass emissions rate for each test run.
	e. Determine the 3-hour block average production-based HCl emissions rate.	i. The HCl mass emissions rate for each test run; and ii. The average uncalcined clay processing rate	(1) Calculate the hourly production-based HCl emissions rate for each test run using Equation 3 of § 63.9800(g)(3); and (2) Calculate the 3-hour block average production-based HCl emissions rate as the average of the production-based HCl emissions rates for each test run.
16. Each new continuous kiln that is subject to the HF and HCl percentage reduction limits specified in items 10.a. and 10.b. of Table 1 to this subpart.	a. Measure the HF mass emissions rates at the inlet and outlet of the control device.	i. Method 26A of 40 CFR part 60, appendix A; or ii. Method 26 of 40 CFR part 60, appendix A; or iii. Method 320 of 40 CFR part 63, appendix A	Calculate the HF mass emissions rates at the control device inlet and outlet for each test run.
	b. Determine the 3-hour block average HF percentage reduction.	i. The HF mass emissions rates at the inlet and outlet of the control device for each test run	(1) Calculate the hourly HF percentage reduction using Equation 2 of § 63.9800(g)(2); and (2) Calculate the 3-hour block average HF percentage reduction as the average of the HF percentage reductions for each test run.
	c. Measure the HCl mass emissions rates at the inlet and outlet of the control device.	i. Method 26A of 40 CFR part 60, appendix A; or ii. Method 26 of 40 CFR part 60, appendix A; or iii. Method 320 of 40 CFR part 63, appendix A	Calculate the HCl mass emissions rates at the control device inlet and outlet for each test run.

	d. Determine the 3-hour block average HCl percentage reduction.	i. The HCl mass emissions rates at the inlet and outlet of the control device for each test run.	(1) Calculate the hourly HCl percentage reduction using Equation 2 of § 63.9800(g)(2); and (2) Calculate the 3-hour block average HCl percentage reduction as the average of HCl percentage reductions for each test run.
17. Each new batch process kiln that is used to process clay refractory products.	a. Measure emissions of HF and HCl at the inlet and outlet of the control device.	i. Method 26A of 40 CFR part 60, appendix A; or ii. Method 26 of 40 CFR part 60, appendix A; or iii. Method 320 of 40 CFR part 63, appendix A	(1) Conduct the test while the kiln is operating at the maximum production level; and (2) You may use Method 26 of 40 CFR part 60, appendix A, only if no acid PM (*e.g.,* HF or HCl dissolved in water droplets emitted by sources controlled by a wet scrubber) is present; and (3) If you use Method 320 of 40 CFR part 63, you must follow the analyte spiking procedures of Section 13 of Method 320 unless you can demonstrate that the complete spiking procedure has been conducted at a similar source; and (4) Repeat the performance test if the affected source is controlled with a DLA and you change the source of the limestone used in the DLA.
	b. Perform a minimum of 2 test runs	i. The appropriate test methods specified in items 1 and 17.a. of this table.	(1) Each test run must be conducted over a separate batch cycle unless you satisfy the requirements of § 63.9800(f)(3) and (4); and (2) Each test run must consist of a series of 1-hour runs at the inlet and outlet of the control device, beginning with the start of a batch cycle, except as specified in item 17.b.i.4. of this table; and (3) Each test run must continue until the end of the batch cycle, except as specified in item 17.b.i.4. of this table; and (4) If you develop an emissions profile, as described in § 63.9802(b), you can limit each test run to the 3-hour peak HF emissions period.
	c. Determine the hourly HF and HCl mass emissions rates at the inlet and outlet of the control device.	i. The appropriate test methods specified in items 1 and 17.a. of this table.	Determine the hourly mass HF and HCl emissions rates at the inlet and outlet of the control device for each hour of each test run.
	d. Determine the 3-hour peak HF emissions period	The hourly HF mass emissions rates at the inlet of the control device.	Select the period of 3 consecutive hours over which the sum of the hourly HF mass emissions rates at the control device inlet is greater than the sum of the hourly HF mass emissions rates at the control device inlet for any other period of 3 consecutive hours during the test run.
	e. Determine the 2-run block average HF percentage reduction for the emissions test.	i. The hourly average HF emissions rates at the inlet and outlet of the control device.	(1) Calculate the HF percentage reduction for each hour of the 3-hour peak HF emissions period using Equation 2 of § 63.9800(g)(2); and (2) Calculate the average HF percentage reduction for each test run as the average of the hourly HF percentage reductions for the 3-hour peak HF emissions period for that run; and

[As stated in § 63.9800, you must comply with the requirements for performance tests for affected sources in the following table:]

For . . .	You must . . .	Using . . .	According to the following requirements . . .
			(3) Calculate the 2-run block average HF percentage reduction for the emission test as the average of the average HF percentage reductions for the two test runs.
	f. Determine the 2-run block average HCl percentage reduction for the emission test.	i. The hourly average HCl emissions rates at the inlet and outlet of the control device.	(1) Calculate the HCl percentage reduction for each hour of the 3-hour peak HF emissions period using Equation 2 § 63.9800(g)(2); and (2) Calculate the average HCl percentage reduction for each test run as the average of the hourly HCl percentage reductions for the 3-hour peak HF emissions period for that run; and (3) Calculate the 2-run block average HCl percentage reduction for the emission test as the average of the average HCl percentage reductions for the two test runs.
18. Each new kiln that is used to process clay refractory products and is equipped with a DLA.	a. Establish the operating limit for the minimum pressure drop across the DLA.	Data from the pressure drop measurement device during the performance test.	(1) At least every 15 minutes, measure the pressure drop across the DLA; and (2) Provide at least one pressure drop measurement during at least three 15-minute periods per hour of testing; and (3) Calculate the hourly average pressure drop across the DLA for each hour of the performance test; and (4) Calculate and record the minimum pressure drop as the average of the hourly average pressure drops across the DLA for the two or three test runs, whichever applies.
	b. Establish the operating limit for the limestone feeder setting.	Data from the limestone feeder during the performance test.	(1) Ensure that limestone in the feed hopper, silo, and DLA is free-flowing at all times during the performance test; and (2) Establish the limestone feeder setting 1 week prior to the performance test; and (3) Record and maintain the feeder setting for the 1-week period that precedes the performance test and during the performance test.
19. Each new kiln that is used to process clay refractory products and is equipped with a DIFF or DLS/FF.	a. Document conformance with specifications and requirements of the bag leak detection system.	Data from the installation and calibration of the bag leak detection system.	Submit analyses and supporting documentation demonstrating conformance with EPA guidance and specifications for bag leak detection systems as part of the Notification of Compliance Status.
	b. Establish the operating limit for the lime feeder setting.	i. Data from the lime feeder during the performance test.	(1) For continuous lime injection systems, ensure that lime in the feed hopper or silo is free-flowing at all times during the performance test; and (2) Record the feeder setting for the three test runs; and

			(3) If the feed rate setting varies during the three test runs, calculate and record the average feed rate for the two or three test runs, whichever applies.
20. Each new kiln that is used to process clay refractory products and is equipped with a wet scrubber.	a. Establish the operating limit for the minimum scrubber pressure drop.	i. Data from the pressure drop measurement device during the performance test.	(1) At least every 15 minutes, measure the pressure drop across the scrubber; and (2) Provide at least one pressure drop measurement during at least three 15-minute periods per hour of testing; and (3) Calculate the hourly average pressure drop across the scrubber for each hour of the performance test; and (4) Calculate and record the minimum pressure drop as the average of the hourly average pressure drops across the scrubber for the two or three test runs, whichever applies.
	b. Establish the operating limit for the minimum scrubber liquid pH.	i. Data from the pH measurement device during the performance test.	(1) At least every 15 minutes, measure scrubber liquid pH; and (2) Provide at least one pH measurement during at least three 15-minute periods per hour of testing; and (3) Calculate the hourly average pH values for each hour of the performance test; and (4) Calculate and record the minimum liquid pH as the average of the hourly average pH measurements for the two or three test runs, whichever applies.
	c. Establish the operating limit for the minimum scrubber liquid flow rate.	i. Data from the flow rate measurement device during the performance test.	(1) At least every 15 minutes, measure the scrubber liquid flow rate; and (2) Provide at least one flow rate measurement during at least three 15-minute periods per hour of testing; and (3) Calculate the hourly average liquid flow rate for each hour of the performance test; and (4) Calculate and record the minimum liquid flow rate as the average of the hourly average liquid flow rates for the two or three test runs, whichever applies.
	d. If chemicals are added to the scrubber liquid, establish the operating limit for the minimum scrubber chemical feed rate.	i. Data from the chemical feed rate measurement device during the performance test.	(1) At least every 15 minutes, measure the scrubber chemical feed rate; and (2) Provide at least one chemical feed rate measurement during at least three 15-minute periods per hour of testing; and (3) Calculate the hourly average chemical feed rate for each hour of the performance test; and (4) Calculate and record the minimum chemical feed rate as the average of the hourly average chemical feed rates for the two or three test runs, whichever applies.

Table 5 to Subpart SSSSS of Part 63.—Initial Compliance With Emission Limits

[As stated in § 63.9806, you must show initial compliance with the emission limits for affected sources according to the following table:]

For . . .	For the following emission limit . . .	You have demonstrated compliance if . . .
1. Each affected source listed in Table 1 to this subpart.	a. Each applicable emission limit listed in Table 1 to this subpart.	i. Emissions measured using the test methods specified in Table 4 to this subpart satisfy the applicable emission limits specified in Table 1 to this subpart; and ii. You establish and have a record of the operating limits listed in Table 2 to this subpart over the performance test period; and iii. You report the results of the performance test in the Notification of Compliance Status, as specified by § 63.9812(e)(1) and (2).
2. Each new or existing curing oven, shape dryer, and kiln that is used to process refractory products that use organic HAP; each new or existing coking oven and defumer that is used to produce pitch-impregnated refractory products; each new shape preheater that is used to produce pitch-impregnated refractory products; AND each new or existing process unit that is exhausted to a thermal or catalytic oxidizer that also controls emissions from an affected shape preheater or pitch working tank.	As specified in items 3 through 8 of this table.	You have satisfied the applicable requirements specified in items 3 through 8 of this table.
3. Each affected continuous process unit that is subject to the THC emission concentration limit listed in item 2.a., 3.a., 4, or 5 of Table 1 to this subpart.	The average THC concentration must not exceed 20 ppmvd, corrected to 18 percent oxygen.	The 3-hour block average THC emission concentration measured during the performance test using Methods 25A and 3A is equal to or less than 20 ppmvd, corrected to 18 percent oxygen.
4. Each affected continuous process unit that is subject to the THC percentage reduction limit listed in item 2.b. or 3.b. of Table 1 to this subpart.	The average THC percentage reduction must equal or exceed 95 percent.	The 3-hour block average THC percentage reduction measured during the performance test using Method 25A is equal to or greater than 95 percent.
5. Each affected batch process unit that is subject to the THC emission concentration limit listed in item 6.a., 7.a., 8, or 9 of Table 1 to this subpart.	The average THC concentration must not exceed 20 ppmvd, corrected to 18 percent oxygen.	The 2-run block average THC emission concentration for the 3-hour peak emissions period measured during the performance test using Methods 25A and 3A is equal to or less than 20 ppmvd, corrected to 18 percent oxygen.
6. Each affected batch process unit that is subject to the THC percentage reduction limit listed in item 6.b. or 7.b. of Table 1 to this subpart.	The average THC percentage reduction must equal or exceed 95 percent.	The 2-run block average THC percentage reduction for the 3-hour peak emissions period measured during the performance test using Method 25A is equal to or exceeds 95 percent.
7. Each affected continuous or batch process unit that is equipped with a control device other than a thermal or catalytic oxidizer and is subject to the emission limit listed in item 3 or 7 of Table 1 to this subpart.	a. The average THC concentration must not exceed 20 ppmvd, corrected to 18 percent oxygen; or	i. You have installed a THC CEMS at the outlet of the control device or in the stack of the affected source; and
	b. The average THC percentage reduction must equal or exceed 95 percent.	ii. You have satisfied the requirements of PS–8 of 40 CFR part 60, appendix B.
8. Each affected continuous or batch process unit that uses process changes to reduce organic HAP emissions and is subject to the emission limit listed in item 4 or 8 of Table 1 to this subpart.	The average THC concentration must not exceed 20 ppmvd, corrected to 18 percent oxygen.	i. You have installed a THC CEMS at the outlet of the control device or in the stack of the affected source; and ii. You have satisfied the requirements of PS–8 of 40 CFR part 60, appendix B.

[As stated in § 63.9806, you must show initial compliance with the emission limits for affected sources according to the following table:]

For . . .	For the following emission limit . . .	You have demonstrated compliance if . . .
9. Each new continuous kiln that is used to process clay refractory products.	a. The average HF emissions must not exceed 0.019 kg/Mg (0.038 lb/ton) of uncalcined clay processed; OR the average uncontrolled HF emissions must be reduced by at least 90 percent.	i. The 3-hour block average production-based HF emissions rate measured during the performance test using one of the methods specified in item 14.a.i. of Table 4 to this subpart is equal to or less than 0.019 kg/Mg (0.038 lb/ton) of uncalcined clay processed; or ii. The 3-hour block average HF emissions reduction measured during the performance test is equal to or greater than 90 percent.
	b. The average HCl emissions must not exceed 0.091 kg/Mg (0.18 lb/ton) of uncalcined clay processed; OR the average uncontrolled HCl emissions must be reduced by at least 30 percent.	i. The 3-hour block average production-based HCl emissions rate measured during the performance test using one of the methods specified in item 14.a.i. of Table 4 to this subpart is equal to or less than 0.091 kg/Mg (0.18 lb/ton) of uncalcined clay processed; or ii. The 3-hour block average HCl emissions reduction measured during the performance test is equal to or greater than 30 percent.
10. Each new batch process kiln that is used to process clay refractory products.	a. The average uncontrolled HF emissions must be reduced by at least 90 percent.	The 2-run block average HF emission reduction measured during the performance test is equal to or greater than 90 percent.
	b. The average uncontrolled HCl emissions must be reduced by at least 30 percent.	The 2-run block average HCl emissions reduction measured during the performance test is equal to or greater than 30 percent.

TABLE 6 TO SUBPART SSSSS OF PART 63.—INITIAL COMPLIANCE WITH WORK PRACTICE STANDARDS

[As stated in § 63.9806, you must show initial compliance with the work practice standards for affected sources according to the following table:]

For each . . .	For the following standard . . .	You have demonstrated initial compliance if . . .
1. Each affected source listed in Table 3 to this subpart.	a. Each applicable work practice standard listed in Table 3 to this subpart.	i. You have selected a method for performing each of the applicable work practice standards listed in Table 3 to this subpart; and ii. You have included in your Initial Notification a description of the method selected for complying with each applicable work practice standard, as required by § 63.9(b); and iii. You submit a signed statement with the Notification of Compliance Status that you have implemented the applicable work practice standard listed in Table 3 to this subpart; and iv. You have described in your OM&M plan the method for complying with each applicable work practice standard specified in Table 3 to this subpart.
2. Each basket or container that is used for holding fired refractory shapes in an existing shape preheater and autoclave during the pitch impregnation process.	a. Control POM emissions from any affected shape preheater.	i. You have implemented at least one of the work practice standards listed in item 1 of Table 3 to this subpart; and ii. You have established a system for recording the date and cleaning method for each time you clean an affected basket or container.

[As stated in § 63.9806, you must show initial compliance with the work practice standards for affected sources according to the following table:]

For each . . .	For the following standard . . .	You have demonstrated initial compliance if . . .
3. Each affected new or existing pitch working tank.	Control POM emissions	You have captured and vented emissions from the affected pitch working tank to the device that is used to control emissions from an affected defumer or coking oven, or to a thermal or catalytic oxidizer that is comparable to the control device used on an affected defumer or coking oven.
4. Each new or existing chromium refractory products kiln.	Minimize fuel-based HAP emissions	You use natural gas, or equivalent, as the kiln fuel.
5. Each existing clay refractory products kiln.	Minimize fuel-based HAP emissions	You use natural gas, or equivalent, as the kiln fuel.

TABLE 7 TO SUBPART SSSSS TO PART 63.—CONTINUOUS COMPLIANCE WITH EMISSION LIMITS

[As stated in § 63.9810, you must show continuous compliance with the emission limits for affected sources according to the following table:]

For . . .	For the following emission limit . . .	You must demonstrate continuous compliance by . . .
1. Each affected source listed in Table 1 to this subpart.	a. Each applicable emission limit listed in Table 1 to this subpart.	i. Collecting and recording the monitoring and process data listed in Table 2 (operating limits) to this subpart; and ii. Reducing the monitoring and process data associated with the operating limits specified in Table 2 to this subpart; and iii. Recording the results of any control device inspections; and iv. Reporting, in accordance with § 63.9814(e), any deviation from the applicable operating limits specified in Table 2 to this subpart.
2. Each new or existing curing oven, shape dryer, and kiln that is used to process refractory products that use organic HAP; each new or existing coking oven and defumer that is used to produce pitch-impregnated refractory products; each new shape preheater that is used to produce pitch-impregnated refractory products; AND each new or existing process unit that is exhausted to a thermal or catalytic oxidizer that also controls emissions from an affected shape preheater or pitch working tank.	As specified in items 3 though 7 of this table.	Satisfying the applicable requirements specified in items 3 through 7 of this table.
3. Each affected process unit that is equipped with a thermal or catalytic oxidizer.	a. The average THC concentration must not exceed 20 ppmvd, corrected to 18 percent oxygen; OR the average THC percentage reduction must equal or exceed 95 percent.	i. Collecting the applicable data measured by the control device temperature monitoring system, as specified in items 5, 6, 8, and 9 of Table 8 to this subpart; and ii. Reducing the applicable data measured by the control device temperature monitoring system, as specified in items 5, 6, 8, and 9 of Table 8 to this subpart; and iii. Maintaining the average control device operating temperature for the applicable averaging period specified in items 5, 6, 8, and 9 of Table 2 to this subpart at or above the minimum allowable operating temperature established during the most recent performance test.

[As stated in § 63.9810, you must show continuous compliance with the emission limits for affected sources according to the following table:]

For . . .	For the following emission limit . . .	You must demonstrate continuous compliance by . . .
4. Each affected process unit that is equipped with a control device other than a thermal or catalytic oxidizer.	The average THC concentration must not exceed 20 ppmvd, corrected to 18 percent oxygen; OR the average THC performance reduction must equal or exceed 95 percent.	Operating and maintaining a THC CEMS at the outlet of the control device or in the stack of the affected source, according to the requirements of Procedure 1 of 40 CFR part 60, appendix F.
5. Each affected process unit that uses process changes to meet the applicable emission limit.	The average THC concentration must not exceed 20 ppmvd, corrected to 18 percent oxygen.	Operating and maintaining a THC CEMS at the outlet of the control device or in the stack of the affected source, according to the requirements of Procedure 1 of 40 CFR part 60, appendix F.
6. Each affected continuous process unit	The average THC concentration must not exceed 20 ppmvd, corrected to 18 percent oxygen; OR the average THC percentage reduction must equal or exceed 95 percent.	Recording the organic HAP processing rate (pounds per hour) and the operating temperature of the affected source, as specified in items 3.b. and 3.c. of Table 4 to this subpart.
7. Each affected batch process unit	The average THC concentration must not exceed 20 ppmvd, corrected to 18 percent oxygen; OR the average THC percentage reduction must equal or exceed 95 percent.	Recording the organic HAP processing rate (pounds per batch); and process cycle time for each batch cycle; and hourly average operating temperature of the affected source, as specified in items 8.b. through 8.d. of Table 4 to this subpart.
8. Each kiln that is used to process clay refractory products.	As specified in items 9 through 11 of this table.	Satisfying the applicable requirements specified in items 9 through 11 of this table.
9. Each affected kiln that is equipped with a DLA.	a. The average HF emissions must not exceed 0.019 kg/Mg (0.038 lb/ton) of uncalcined clay processed, OR the average uncontrolled HF emissions must be reduced by at least 90 percent; and b. The average HCl emissions must not exceed 0.091 kg/Mg (0.18 lb/ton) of uncalcined clay processed, or the average uncontrolled HCl emissions must be reduced by at least 30 percent.	i. Maintaining the pressure drop across the DLA at or above the minimum levels established during the most recent performance test; and ii. Verifying that the limestone hopper contains an adequate amount of free-flowing limestone by performing a daily visual check of the limestone in the feed hopper; and iii. Recording the limestone feeder setting daily to verify that the feeder setting is at or above the level established during the most recent performance test; and iv. Using the same grade of limestone as was used during the most recent performance test and maintaining records of the source and grade of limestone.
10. Each affected kiln that is equipped with a DIFF or DLS/FF.	a. The average HF emissions must not exceed 0.019 kg/Mg (0.038 lb/ton) of uncalcined clay processed; OR the average uncontrolled HF emissions must be reduced by at least 90 percent; and b. The average HCl emissions must not exceed 0.091 kg/Mg (0.18 lb/ton) of uncalcined clay processed; OR the average uncontrolled HCl emissions must be reduced by at least 30 percent.	i. Verifying at least once each 8-hour shift that lime is free-flowing by means of a visual check, checking the output of a load cell, carrier gas/lime flow indicator, or carrier gas pressure drop measurement system; and ii. Recording feeder setting daily to verify that the feeder setting is at or above the level established during the most recent performance test; and iii. Initiating corrective action within 1 hour of a bag leak detection system alarm AND completing corrective actions in accordance with the OM&M plan, AND operating and maintaining the fabric filter such that the alarm does not engage for more than 5 percent of the total operating time in a 6-month block reporting period.

[As stated in § 63.9810, you must show continuous compliance with the emission limits for affected sources according to the following table:]

For . . .	For the following emission limit . . .	You must demonstrate continuous compliance by . . .
11. Each affected kiln that is equipped with a wet scrubber.	a. The average HF emissions must not exceed 0.019 kg/Mg (0.038 lb/ton) of uncalcined clay processed; OR the average uncontrolled HF emissions must be reduced by at least 90 percent; and	i. Maintaining the pressure drop across the scrubber, liquid pH, and liquid flow rate at or above the minimum levels established during the most recent performance test; and
	b. The average HCl emissions must not exceed 0.091 kg/Mg (0.18 lb/ton) of uncalcined clay processed; OR the average uncontrolled HCl emissions must be reduced by at least 30 percent.	ii. If chemicals are added to the scrubber liquid, maintaining the average chemical feed rate at or above the minimum chemical feed rate established during the most recent performance test.

TABLE 8 TO SUBPART SSSSS OF PART 63.—CONTINUOUS COMPLIANCE WITH OPERATING LIMITS

(As stated in § 63.9810, you must show continuous compliance with the operating limits for affected sources according to the following table:)

For . . .	For the following operating limit . . .	You must demonstrate continuous compliance by . . .
1. Each affected source listed in Table 2 to this subpart.	a. Each applicable operating limit listed in Table 2 to this subpart.	i. Maintaining all applicable process and control device operating parameters within the limits established during the most recent performance test; and ii. Conducting annually an inspection of all duct work, vents, and capture devices to verify that no leaks exist and that the capture device is operating such that all emissions are properly vented to the control device in accordance with the OM&M plan.
2. Each affected continuous kiln that is equipped with a control device.	a. The operating limits specified in items 2.a. through 2.c. of Table 2 to this subpart.	i. Operating the control device on the affected kiln during all times except during periods of approved scheduled maintenance, as specified in § 63.9792(e); and ii. Minimizing HAP emissions from the affected kiln during all periods of scheduled maintenance of the kiln control device when the kiln is operating and the control device is out of service; and iii. Minimizing the duration of all periods of scheduled maintenance of the kiln control device when the kiln is operating and the control device is out of service.
3. Each new or existing curing oven, shape dryer, and kiln that is used to process refractory products that use organic HAP; each new or existing coking oven and defumer that is used to produce pitch-impregnated refractory products; each new shape preheater that is used to produce pitch-impregnated refractory products; AND each new or existing process unit that is exhausted to a thermal or catalytic oxidizer that also controls emissions from an affected shape preheater or pitch working tank.	As specified in items 4 through 9 of this table.	Satisfying the applicable requirements specified in items 4 through 9 of this table.

(As stated in § 63.9810, you must show continuous compliance with the operating limits for affected sources according to the following table:)

For . . .	For the following operating limit . . .	You must demonstrate continuous compliance by . . .
4. Each affected continuous process unit	Maintain process operating parameters within the limits established during the most recent performance test.	i. Recording the organic HAP processing rate (pounds per hour); and ii. Recording the operating temperature of the affected source at least hourly; and iii. Maintaining the 3-hour block average organic HAP processing rate at or below the maximum organic HAP processing rate established during the most recent performance test.
5. Continuous process units that are equipped with a thermal oxidizer.	Maintain the 3-hour block average operating temperature in the thermal oxidizer combustion chamber at or above the minimum allowable operating temperature established during the most recent performance test.	i. Measuring and recording the thermal oxidizer combustion chamber temperature at least every 15 minutes; and ii. Calculating the hourly average thermal oxidizer combustion chamber temperature; and iii. Maintaining the 3-hour block average thermal oxidizer combustion chamber temperature at or above the minimum allowable operating temperature established during the most recent performance test; and iv. Reporting, in accordance with § 63.9814(e), any 3-hour block average operating temperature measurements below the minimum allowable thermal oxidizer combustion chamber operating temperature established during the most recent performance test.
6. Continuous process units that are equipped with a catalytic oxidizer.	a. Maintain the 3-hour block average temperature at the inlet of the catalyst bed at or above the minimum allowable catalyst bed inlet temperature established during the most recent performance test.	i. Measuring and recording the temperature at the inlet of the catalyst bed at least every 15 minutes; and ii. Calculating the hourly average temperature at the inlet of the catalyst bed; and iii. Maintaining the 3-hour block average temperature at the inlet of the catalyst bed at or above the minimum allowable catalyst bed inlet temperature established during the most recent performance test; and iv. Reporting, in accordance with § 63.9814(e), any 3-hour block average catalyst bed inlet temperature measurements below the minimum allowable catalyst bed inlet temperature established during the most recent performance; and v. Checking the activity level of the catalyst at least every 12 months and taking any necessary corrective action, such as replacing the catalyst, to ensure that the catalyst is performing as designed.
7. Each affected batch process unit	Maintain process operating parameters within the limits established during the most recent performance test.	i. Recording the organic HAP processing rate (pounds per batch); and ii. Recording the hourly average operating temperature of the affected source; and iii. Recording the process cycle time for each batch cycle; and iv. Maintaining the organic HAP processing rate at or below the maximum organic HAP processing rate established during the most recent performance test.

(As stated in § 63.9810, you must show continuous compliance with the operating limits for affected sources according to the following table:)

For . . .	For the following operating limit . . .	You must demonstrate continuous compliance by . . .
8. Batch process units that are equipped with a thermal oxidizer.	Maintain the hourly average temperature in the thermal oxidizer combustion chamber at or above the hourly average temperature established for the corresponding 1-hour period of the cycle during the most recent performance test.	i. Measuring and recording the thermal oxidizer combustion chamber temperature at least every 15 minutes; and ii. Calculating the hourly average thermal oxidizer combustion chamber temperature; and iii. From the start of each batch cycle until 3 hours have passed since the process unit reached maximum temperature, maintaining the hourly average operating temperature in the thermal oxidizer combustion chamber at or above the minimum allowable operating temperature established for the corresponding period during the most recent performance test, as determined according to item 11 of Table 4 to this subpart; and iv. For each subsequent hour of the batch cycle, maintaining the hourly average operating temperature in the thermal oxidizer combustion chamber at or above the minimum allowable operating temperature established for the corresponding hour during the most recent performance test, as specified in item 13 of Table 4 to this subpart; and v. Reporting, in accordance with § 63.9814(e), any temperature measurements below the minimum allowable thermal oxidizer combustion chamber temperature measured during the most recent performance test.
9. Batch process units that are equipped with a catalytic oxidizer.	Maintain the hourly average temperature at the inlet of the catalyst bed at or above the corresponding hourly average temperature established for the corresponding 1-hour period of the cycle during the most recent performance test.	i. Measuring and recording temperatures at the inlet of the catalyst bed at least every 15 minutes; and ii. Calculating the hourly average temperature at the inlet of the catalyst bed; and iii. From the start of each batch cycle until 3 hours have passed since the process unit reached maximum temperature, maintaining the hourly average operating temperature at the inlet of the catalyst bed at or above the minimum allowable bed inlet temperature established for the corresponding period during the most recent performance test, as determined according to item 12 of Table 4 to this subpart; and iv. For each subsequent hour of the batch cycle, maintaining the hourly average operating temperature at the inlet of the catalyst bed at or above the minimum allowable bed inlet temperature established for the corresponding hour during the most recent performance test, as specified in item 13 of Table 4 to this subpart; and v. Reporting, in accordance with § 63.9814(e), any catalyst bed inlet temperature measurements below the minimum allowable bed inlet temperature measured during the most recent performance test; and

(As stated in § 63.9810, you must show continuous compliance with the operating limits for affected sources according to the following table:)

For . . .	For the following operating limit . . .	You must demonstrate continuous compliance by . . .
		vi. Checking the activity level of the catalyst at least every 12 months and taking any necessary corrective action, such as replacing the catalyst, to ensure that the catalyst is performing as designed.
10. Each new kiln that is used to process clay refractory products.	As specified in items 11 through 13 of this table.	Satisfying the applicable requirements specified in items 11 through 13 of this table.
11. Each new kiln that is equipped a DLA	a. Maintain the average pressure drop across the DLA for each 3-hour block period at or above the minimum pressure drop established during the most recent performance test.	i. Collecting the DLA pressure drop data, as specified in item 18.a. of Table 4 to this subpart; and ii. Reducing the DLA pressure drop data to 1-hour and 3-hour block averages; and iii. Maintaining the 3-hour block average pressure drop across the DLA at or above the minimum pressure drop established during the most recent performance test.
	b. Maintain free-flowing limestone in the feed hopper, silo, and DLA.	Verifying that the limestone hopper has an adequate amount of free-flowing limestone by performing a daily visual check of the limestone hopper.
	c. Maintain the limestone feeder setting at or above the level established during the most recent performance test.	Recording the limestone feeder setting at least daily to verify that the feeder setting is being maintained at or above the level established during the most recent performance test.
	d. Use the same grade of limestone from the same source as was used during the most recent performance test.	Using the same grade of limestone as was used during the most recent performance test and maintaining records of the source and grade of limestone.
12. Each new kiln that is equipped with a DIFF or DLS/FF.	a. Initiate corrective action within 1 hour of a bag leak detection system alarm and complete corrective actions in accordance with the OM&M plan; AND operate and maintain the fabric filter such that the alarm does not engage for more than 5 percent of the total operating time in a 6-month block reporting period.	i. Initiating corrective action within 1 hour of a bag leak detection system alarm and completing corrective actions in accordance with the OM&M plan; and ii. Operating and maintaining the fabric filter such that the alarm does not engage for more than 5 percent of the total operating time in a 6-month block reporting period; in calculating this operating time fraction, if inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted; if corrective action is required, each alarm shall be counted as a minimum of 1 hour; if you take longer than 1 hour to initiate corrective action, the alarm time shall be counted as the actual amount of time taken by you to initiate corrective action.
	b. Maintain free-flowing lime in the feed hopper or silo at all times for continuous injection systems; AND maintain feeder setting at or above the level established during the most recent performance test for continuous injection systems.	i. Verifying at least once each 8-hour shift that lime is free-flowing via a load cell, carrier gas/lime flow indicator, carrier gas pressure drop measurement system, or other system; recording all monitor or sensor output, and if lime is found not to be free flowing, promptly initiating and completing corrective actions; and ii. Recording the feeder setting once each day of operation to verify that the feeder setting is being maintained at or above the level established during the most recent performance test.

(As stated in § 63.9810, you must show continuous compliance with the operating limits for affected sources according to the following table:)

For . . .	For the following operating limit . . .	You must demonstrate continuous compliance by . . .
13. Each new kiln that is used to process clay refractory products and is equipped with a wet scrubber.	a. Maintain the average pressure drop across the scrubber for each 3-hour block period at or above the minimum pressure drop established during the most recent performance test.	i. Collecting the scrubber pressure drop data, as specified in item 20.a. of Table 4 to this subpart; and ii. Reducing the scrubber pressure drop data to 1-hour and 3-hour block averages; and iii. Maintaining the 3-hour block average scrubber pressure drop at or above the minimum pressure drop established during the most recent performance test.
	b. Maintain the average scrubber liquid pH for each 3-hour block period at or above the minimum scrubber liquid pH established during the most recent performance test.	i. Collecting the scrubber liquid pH data, as specified in item 20.b. of Table 4 to this subpart; and ii. Reducing the scrubber liquid pH data to 1-hour and 3-hour block averages; and iii. Maintaining the 3-hour block average scrubber liquid pH at or above the minimum scrubber liquid pH established during the most recent performance test.
	c. Maintain the average scrubber liquid flow rate for each 3-hour block period at or above the minimum scrubber liquid flow rate established during the most recent performance test.	i. Collecting the scrubber liquid flow rate data, as specified in item 20.c. of Table 4 to this subpart; and ii. Reducing the scrubber liquid flow rate data to 1-hour and 3-hour block averages; and iii. Maintaining the 3-hour block average scrubber liquid flow rate at or above the minimum scrubber liquid flow rate established during the most recent performance test.
	d. If chemicals are added to the scrubber liquid, maintain the average scrubber chemical feed rate for each 3-hour block period at or above the minimum scrubber chemical feed rate established during the most recent performance test.	i. Collecting the scrubber chemical feed rate data, as specified in item 20.d. of Table 4 to this subpart; and ii. Reducing the scrubber chemical feed rate data to 1-hour and 3-hour block averages; and iii. Maintaining the 3-hour block average scrubber chemical feed rate at or above the minimum scrubber chemical feed rate established during the most recent performance test.

TABLE 9 TO SUBPART SSSSS OF PART 63.—CONTINUOUS COMPLIANCE WITH WORK PRACTICE STANDARDS

As stated in § 63.9810, you must show continuous compliance with the work practice standards for affected sources according to the following table:]

For . . .	For the following work practice standard . . .	You must demonstrate continuous compliance by . . .
1. Each affected source listed in Table 3 to this subpart.	Each applicable work practice requirement listed in Table 3 to this subpart.	i. Performing each applicable work practice standard listed in Table 3 to this subpart; and ii. Maintaining records that document the method and frequency for complying with each applicable work practice standard listed in Table 3 to this subpart, as required by §§ 63.10(b) and 63.9816(c)(2).
2. Each basket or container that is used for holding fired refractory shapes in an existing shape preheater and autoclave during the pitch impregnation process.	Control POM emissions from any affected shape preheater.	i. Controlling emissions from the volatilization of residual pitch by implementing one of the work practice standards listed in item 1 of Table 3 to this subpart; and

As stated in § 63.9810, you must show continuous compliance with the work practice standards for affected sources according to the following table:]

For . . .	For the following work practice standard . . .	You must demonstrate continuous compliance by . . .
		ii. Recording the date and cleaning method each time you clean an affected basket or container.
3. Each new or existing pitch working tank	Control POM emissions	Capturing and venting emissions from the affected pitch working tank to the control device that is used to control emissions from an affected defumer or coking oven, or to a thermal or catalytic oxidizer that is comparable to the control device used on an affected defumer or coking oven.
4. Each new or existing chromium refractory products kiln.	Minimize fuel-based HAP emissions	i. Using natural gas, or equivalent, as the kiln fuel at all times except during periods of natural gas curtailment or supply interruption; and ii. If you intend to use an alternative fuel, submitting a notification of alternative fuel use within 48 hours of the declaration of a per-iod of natural gas curtailment or supply interruption, as defined in § 63.9824; and iii. Submitting a report of alternative fuel use within 10 working days after terminating the use of the alternative fuel, as specified in § 63.9814(g).
5. Each existing clay refractory products kiln.	Minimize fuel-based HAP emissions	i. Using natural gas, or equivalent, as the kiln fuel at all times except during periods of natural gas curtailment or supply interruption; and ii. If you intend to use an alternative fuel, submitting a notification of alternative fuel use within 48 hours of the declaration of a per-iod of natural gas curtailment or supply interruption, as defined in § 63.9824; and iii. Submitting a report of alternative fuel use within 10 working days after terminating the use of the alternative fuel, as specified in § 63.9814(g).

TABLE 10 TO SUBPART SSSSS OF PART 63.—REQUIREMENTS FOR REPORTS

[As stated in § 63.9814, you must comply with the requirements for reports in the following table;]

You must submit a(n) . . .	The report must contain . . .	You must submit the report . . .
1. Compliance report	The information in § 63.9814(c) through (f).	Semiannually according to the requirements in § 63.9814(a) through (f).
2. Immediate startup, shutdown, and malfunction report if you had a startup, shutdown, or malfunction during the reporting period that is not consistent with your SSMP.	a. Actions taken for the event	By fax or telephone within 2 working days after starting actions inconsistent with the plan.
	b. The information in § 63.10(d)(5)(ii)	By letter within 7 working days after the end of the event unless you have made alternative arrangements with the permitting authority.
3. Report of alternative fuel use	The information in § 63.9814(g) and items 4 and 5 of Table 9 to this subpart.	If you are subject to the work practice standard specified in item 3 or 4 of Table 3 to this subpart, and you use an alternative fuel in the affected kiln, by letter within 10 working days after terminating the use of the alternative fuel.

Table 11 to Subpart SSSSS of Part 63.—Applicability of General Provisions to Subpart SSSSS

[As stated in § 63.9820, you must comply with the applicable General Provisions requirements according to the following table:]

Citation	Subject	Brief description	Applies to subpart SSSSS
§ 63.1	Applicability		Yes.
§ 63.2	Definitions		Yes.
§ 63.3	Units and Abbreviations		Yes.
§ 63.4	Prohibited Activities	Compliance date; circumvention, severability.	Yes.
§ 63.5	Construction/Reconstruction	Applicability; applications; approvals	Yes.
§ 63.6(a)	Applicability	General Provisions (GP) apply unless compliance extension; GP apply to area sources that become major.	Yes.
§ 63.6(b)(1)–(4)	Compliance Dates for New and Reconstructed Sources.	Standards apply at effective date; 3 years after effective date; upon startup; 10 years after construction or reconstruction commences for section 112(f).	Yes.
§ 63.6(b)(5)	Notification		Yes.
§ 63.6(b)(6)	[Reserved]		
§ 63.6(b)(7)	Compliance Dates for New and Reconstructed Area Sources That Become Major.	Area sources that become major must comply with major source standards immediately upon becoming major, regardless of whether required to comply when they were area sources.	Yes.
§ 63.6(c)(1)–(2)	Compliance Dates for Existing Sources	Comply according to date in subpart, which must be no later than 3 years after effective date; for section 112(f) standards, comply within 90 days of effective date unless compliance extension.	Yes.
§ 63.6(c)(3)–(4)	[Reserved]		
§ 63.6(c)(5)	Compliance Dates for Existing Area Sources That Become Major.	Area sources that become major must comply with major source standards by date indicated in subpart or by equivalent time period (for example, 3 years).	Yes.
§ 63.6(d)	[Reserved]		
§ 63.6(e)(1)–(2)	Operation & Maintenance	Operate to minimize emissions at all times; correct malfunctions as soon as practicable; requirements independently enforceable; information Administrator will use to determine if operation and maintenance requirements were met.	Yes.
§ 63.6(e)(3)	Startup, Shutdown, and Malfunction Plan (SSMP).		Yes.
§ 63.6(f)(1)	Compliance Except During SSM	You must comply with emission standards at all times except during SSM.	Yes.
§ 63.6(f)(2)–(3)	Methods for Determining Compliance	Compliance based on performance test, operation and maintenance plans, records, inspection.	Yes.
§ 63.6(g)(1)–(3)	Alternative Standard	Procedures for getting an alternative standard.	Yes.
§ 63.6(h)(1)–(9)	Opacity/Visible Emission (VE) Standards		Not applicable.
§ 63.6(i)(1)–(14)	Compliance Extension	Procedures and criteria for Administrator to grant compliance extension.	Yes.
§ 63.6(j)	Presidential Compliance Exemption	President may exempt source category	Yes.
§ 63.7(a)(1)–(2)	Performance Test Dates	Dates for conducting initial performance testing and other compliance demonstrations; must conduct 180 days after first subject to rule.	Yes.
§ 63.7(a)(3)	Section 114 Authority	Administrator may require a performance test under CAA section 114 at any time.	Yes.
§ 63.7(b)(1)	Notification of Performance Test	Must notify Administrator 60 days before the test.	Yes.
§ 63.7(b)(2)	Notification of Rescheduling	Must notify Administrator 5 days before scheduled date and provide rescheduled date.	Yes.
§ 63.7(c)	Quality Assurance/Test Plan	Requirements; test plan approval procedures; performance audit requirements; internal and external QA procedures for testing.	Yes.
§ 63.7(d)	Testing Facilities		Yes.

[As stated in § 63.9820, you must comply with the applicable General Provisions requirements according to the following table:]

Citation	Subject	Brief description	Applies to subpart SSSSS
§ 63.7(e)(1)	Conditions for Conducting Performance Tests.	Performance tests must be conducted under representative conditions; cannot conduct performance tests during SSM; not a violation to exceed standard during SSM.	No, § 63.9800 specifies requirements; Yes; Yes.
§ 63.7(e)(2)	Conditions for Conducting Performance Tests.	Must conduct according to subpart and EPA test methods unless Administrator approves alternative.	Yes.
§ 63.7(e)(3)	Test Run Duration	Must have three test runs of at least 1 hour each; compliance is based on arithmetic mean of three runs; conditions when data from an additional test run can be used.	Yes; Yes, except where specified in § 63.9800 for batch process sources; Yes.
§ 63.7(f)	Alternative Test Method		Yes.
§ 63.7(g)	Performance Test Data Analysis		Yes.
§ 63.7(h)	Waiver of Test		Yes.
§ 63.8(a)(1)	Applicability of Monitoring Requirements		Yes.
§ 63.8(a)(2)	Performance Specifications	Performance Specifications in appendix B of 40 CFR part 60 apply.	Yes.
§ 63.8(a)(3)	[Reserved]		
§ 63.8(a)(4)	Monitoring with Flares		Not applicable.
§ 63.8(b)(1)	Monitoring	Must conduct monitoring according to standard unless Administrator approves alternative.	Yes.
§ 63.8(b)(2)–(3)	Multiple Effluents and Multiple Monitoring Systems.	Specific requirements for installing and reporting on monitoring systems.	Yes.
§ 63.8(c)(1)	Monitoring System Operation and Maintenance.	Maintenance consistent with good air pollution control practices.	Yes.
§ 63.8(c)(1)(i)	Routine and Predictable SSM	Reporting requirements for SSM when action is described in SSMP.	Yes.
§ 63.8(c)(1)(ii)	SSM not in SSMP	Reporting requirements for SSM when action is not described in SSMP.	Yes.
§ 63.8(c)(1)(iii)	Compliance with Operation and Maintenance Requirements.	How Administrator determines if source is complying with operation and maintenance requirements.	Yes.
§ 63.8(c)(2)–(3)	Monitoring System Installation	Must install to get representative emission and parameter measurements.	Yes.
§ 63.8(c)(4)	CMS Requirements		No, § 63.9808 specifies requirements.
§ 63.8(c)(5)	COMS Minimum Procedures		Not applicable.
§ 63.8(c)(6)	CMS Requirements		Applies only to sources required to install and operate a THC CEMS.
§ 63.8(c)(7)(i)(A)	CMS Requirements		Applies only to sources required to install and operate a THC CEMS.
§ 63.8(c)(7)(i)(B)	CMS Requirements		Applies only to sources required to install and operate a THC CEMS.
§ 63.8(c)(7)(i)(C)	CMS Requirements		Not applicable.
§ 63.8(c)(7)(ii)	CMS Requirements	Corrective action required when CMS is out of control.	Yes.
§ 63.8(c)(8)	CMS Requirements		Yes.
§ 63.8(d)	CMS Quality Control		Applies only to sources required to install and operate a THC CEMS.
§ 63.8(e)	CMS Performance Evaluation		Applies only to sources required to install and operate a THC CEMS.
§ 63.8(f)(1)–(5)	Alternative Monitoring Method		Yes.
§ 63.8(f)(6)	Alternative to Relative Accuracy Test		Yes.
§ 63.8(g)	Data Reduction		Applies only to sources required to install and operate a THC CEMS.
§ 63.9(a)	Notification Requirements		Yes.

[As stated in § 63.9820, you must comply with the applicable General Provisions requirements according to the following table:]

Citation	Subject	Brief description	Applies to subpart SSSSS
§ 63.9(b)(1)–(5)	Initial Notifications		Yes.
§ 63.9(c)	Request for Compliance Extension		Yes.
§ 63.9(d)	Notification of Special Compliance Requirements for New Source.		Yes.
§ 63.9(e)	Notification of Performance Test	Notify Administrator 60 days prior	Yes.
§ 63.9(f)	Notification of VE/Opacity Test		Not applicable.
§ 63.9(g)	Additional Notifications When Using CMS		Applies only to sources required to install and operate a THC CEMS.
§ 63.9(h)	Notification of Compliance Status		Yes.
§ 63.9(i)	Adjustment of Submittal Deadlines		Yes.
§ 63.9(j)	Change in Previous Information		Yes.
§ 63.10(a)	Recordkeeping/Reporting		Yes.
§ 63.10(b)(1)	Recordkeeping/Reporting		Yes.
§ 63.10(b)(2)(i)–(v).	Records Related to Startup, Shutdown, and Malfunction.		Yes.
§ 63.10(b)(2)(vi) and (x–xi).	CMS Records		Yes.
§ 63.10(b)(2)(vii)–(ix).	Records	Measurements to demonstrate compliance with emission limitations; performance test, performance evaluation, and visible emission observation results; measurements to determine conditions of performance tests and performance evaluations.	Yes.
§ 63.10(b)(2)(xii)	Records	Records when under waiver	Yes.
§ 63.10(b)(2)(xiii)	Records	Records when using alternative to relative accuracy test.	Not applicable.
§ 63.10(b)(2)(xiv)	Records	All documentation supporting Initial Notification and Notification of Compliance Status.	Yes.
§ 63.10(b)(3)	Records	Applicability Determinations	Yes.
§ 63.10(c)(1)–(6), (9)–(15).	Records	Additional Records for CMS	Not applicable.
§ 63.10(c)(7)–(8)	Records	Records of excess emissions and parameter monitoring exceedances for CMS.	No, § 63.9816 specifies requirements.
§ 63.10(d)(1)	General Reporting Requirements	Requirements for reporting	Yes.
§ 63.10(d)(2)	Report of Performance Test Results	When to submit to Federal or State authority.	Yes.
§ 63.10(d)(3)	Reporting Opacity or VE Observations		Not applicable.
§ 63.10(d)(4)	Progress Reports	Must submit progress reports on schedule if under compliance extension.	Yes.
§ 63.10(d)(5)	Startup, Shutdown, and Malfunction Reports.	Contents and submission	Yes.
§ 63.10(e)(1)–(2)	Additional CMS Reports		Applies only to sources required to install and operate a THC CEMS.
§ 63.10(e)(3)	Reports		No, § 63.9814 specifies requirements.
§ 63.10(e)(4)	Reporting COMS data		Not applicable.
§ 63.10(f)	Waiver for Recordkeeping/Reporting		Yes.
§ 63.11	Flares		Not applicable.
§ 63.12	Delegation		Yes.
§ 63.13	Addresses		Yes.
§ 63.14	Incorporation by Reference		Yes.
§ 63.15	Availability of Information		Yes.

APPENDIX A TO PART 63—TEST METHODS

METHOD 301—FIELD VALIDATION OF POLLUTANT MEASUREMENT METHODS FROM VARIOUS WASTE MEDIA

1. Applicability and principle

1.1 *Applicability.* This method, as specified in the applicable subpart, is to be used whenever a source owner or operator (hereafter referred to as an ''analyst'') proposes a test method to meet a U.S. Environmental Protection Agency (EPA) requirement in the absence of a validated method. This Method includes procedures for determining and documenting the quality, i.e., systematic error (bias) and random error (precision), of the measured concentrations from an effected source. This method is applicable to various waste media (i.e., exhaust gas, wastewater, sludge, etc.).

1.1.1 If EPA currently recognizes an appropriate test method or considers the analyst's test method to be satisfactory for a particular source, the Administrator may waive the use of this protocol or may specify a less rigorous validation procedure. A list of validated methods may be obtained by contacting the Emission Measurement Technical Information Center (EMTIC), Mail Drop 19, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711, (919) 541–0200. Procedures for obtaining a waiver are in Section 12.0.

1.1.2 This method includes optional procedures that may be used to expand the applicability of the proposed method. Section 7.0 involves ruggedness testing (Laboratory Evaluation), which demonstrates the sensitivity of the method to various parameters. Section 8.0 involves a procedure for including sample stability in bias and precision for assessing sample recovery and analysis times; Section 9.0 involves a procedure for the determination of the practical limit of quantitation for determining the lower limit of the method. These optional procedures are required for the waiver consideration outlined in Section 12.0.

1.2 *Principle.* The purpose of these procedures is to determine bias and precision of a test method at the level of the applicable standard. The procedures involve (a) introducing known concentrations of an analyte or comparing the test method against a validated test method to determine the method's bias and (b) collecting multiple or collocated simultaneous samples to determine the method's precision.

1.2.1 *Bias.* Bias is established by comparing the method's results against a reference value and may be eliminated by employing a correction factor established from the data obtained during the validation test. An offset bias may be handled accordingly. Methods that have bias correction factors outside 0.7 to 1.3 are unacceptable. Validated method to proposed method comparisons, section 6.2, requires a more restrictive test of central tendency and a lower correction factor allowance of 0.90 to 1.10.

1.2.2 *Precision.* At the minimum, paired sampling systems shall be used to establish precision. The precision of the method at the level of the standard shall not be greater than 50 percent relative standard deviation. For a validated method to proposed method equivalency comparisons, section 6.2, the analyst must demonstrate that the precision of the proposed test method is as precise as the validated method for acceptance.

2. Definitions

2.1 *Negative bias.* Bias resulting when the measured result is less than the ''true'' value.

2.2 *Paired sampling system.* A sampling system capable of obtaining two replicate samples that were collected as closely as possible in sampling time and sampling location.

2.3 *Positive bias.* Bias resulting when the measured result is greater than the ''true'' value.

2.4 *Proposed method.* The sampling and analytical methodology selected for field validation using the method described herein.

2.5 *Quadruplet sampling system.* A sampling system capable of obtaining four replicate samples that were collected as closely as possible in sampling time and sampling location.

2.6 *Surrogate compound.* A compound that serves as a model for the types of compounds being analyzed (i.e., similar chemical structure, properties, behavior). The model can be distinguished by the method from the compounds being analyzed.

3. Reference Material

The reference materials shall be obtained or prepared at the level of the standard. Additional runs with higher and lower reference material concentrations may be made to expand the applicable range of the method, in accordance with the ruggedness test procedures.

3.1 *Exhaust Gas Tests.* The analyst shall obtain a known concentration of the reference material (i.e., analyte of concern) from an independent source such as a specialty gas manufacturer, specialty chemical company, or commercial laboratory. A list of vendors may be obtained from EMTIC (see Section 1.1.1). The analyst should obtain the manufacturer's stability data of the analyte concentration and recommendations for recertification.

3.2 *Other Waste Media Tests.* The analyst shall obtain pure liquid components of the reference materials (i.e., analytes of concern) from an independent manufacturer and dilute them in the same type matrix as the source waste. The pure reference materials shall be certified by the manufacturer as to purity and shelf life. The accuracy of all diluted reference material concentrations shall be verified by comparing their response to independently-prepared materials (independently prepared in this case means prepared from pure components by a different analyst).

3.3 *Surrogate Reference Materials.* The analyst may use surrogate compounds, e.g., for highly toxic or reactive organic compounds, provided the analyst can demonstrate to the Administrator's satisfaction that the surrogate compound behaves as the analyte. A surrogate may be an isotope or one that contains a unique element (e.g., chlorine) that is not present in the source or a derivation of the toxic or reactive compound, if the derivative formation is part of the method's procedure. Laboratory experiments or literature data may be used to show behavioral acceptability.

3.4 *Isotopically Labeled Materials.* Isotope mixtures may contain the isotope and the natural analyte. For best results, the isotope labeled analyte concentration should be more than five times the natural concentration of the analyte.

4. EPA Performance Audit Material

4.1 To assess the method bias independently, the analyst shall use (in addition to the reference material) an EPA performance audit material, if it is available. The analyst may contact EMTIC (see section 1.1.1) to receive a list of currently available EPA audit materials. If the analyte is listed, the analyst should request the audit material at least 30 days before the validation test. If an EPA audit material is not available, request documentation from the validation report reviewing authority that the audit material is currently not available from EPA. Include this documentation with the field validation report.

4.2 The analyst shall sample and analyze the performance audit sample three times according to the instructions provided with the audit sample. The analyst shall submit the three results with the field validation report. Although no acceptance criteria are set for these performance audit results, the analyst and reviewing authority may use them to assess the relative error of sample recovery, sample preparation, and analytical procedures and then consider the relative error in evaluating the measured emissions.

5. Procedure for Determination of Bias and Precision in the Field

The analyst shall select one of the sampling approaches below to determine the bias and precision of the data. After analyzing the samples, the analyst shall calculate the bias and precision according to the procedure described in section 6.0. When sampling a stationary source, follow the probe placement procedures in section 5.4.

5.1 *Isotopic Spiking.* This approach shall be used only for methods that require mass spectrometry (MS) analysis. Bias and precision are calculated by procedures described in section 6.1.

5.1.1 *Number of Samples and Sampling Runs.* Collect a total of 12 replicate samples by either obtaining six sets of paired samples or three sets of quadruplet samples.

5.1.2 *Spiking Procedure.* Spike all 12 samples with the reference material at the level of the standard. Follow the appropriate spiking procedures listed below for the applicable waste medium.

5.1.2.1 *Exhaust Gas Testing.* The spike shall be introduced as close to the tip of the sampling probe as possible.

5.1.2.1.1 *Gaseous Reference Material with Sorbent or Impinger Sampling Trains.* Sample the reference material (in the laboratory or in the field) at a concentration which is close to the allowable concentration standard for the time required by the method, and then sample the gas stream for an equal amount of time. The time for sampling both the reference material and gas stream should be equal; however, the time should be adjusted to avoid sorbent breakthrough.

5.1.2.1.2 *Gaseous Reference Material with Sample Container (Bag or Canister).* Spike the sample containers after completion of each test run with an amount equal to the allowable concentration standard of the emission point. The final concentration of the reference material shall approximate the level of the emission concentration in the stack. The volume amount of reference material shall be less than 10 percent of the sample volume.

5.1.2.1.3 *Liquid and Solid Reference Material with Sorbent or Impinger Trains.* Spike the trains with an amount equal to the allowable concentration standard before sampling the stack gas. The spiking should be done in the field; however, it may be done in the laboratory.

5.1.2.1.4 *Liquid and Solid Reference Material with Sample Container (Bag or Canister).* Spike the containers at the completion of each test run with an amount equal to the level of the emission standard.

5.1.2.2 *Other Waste Media.* Spike the 12 replicate samples with the reference material either before or directly after sampling in the field.

5.2 *Comparison Against a Validated Test Method.* Bias and precision are calculated using the procedures described in section 6.2. This approach shall be used when a validated method is available and an alternative method is being proposed.

5.2.1 *Number of Samples and Sampling Runs.* Collect nine sets of replicate samples using a paired sampling system (a total of 18 samples) or four sets of replicate samples using a quadruplet sampling system (a total of 16 samples). In each sample set, the validated test method shall be used to collect and analyze half of the samples.

5.2.2 *Performance Audit Exception.* Conduct the performance audit as required in section 4.0 for the validated test method. Conducting a performance audit on the test method being evaluated is recommended.

5.3 *Analyte Spiking.* This approach shall be used when sections 5.1 and 5.2 are not applicable. Bias and precision are calculated using the procedures described in Section 6.3.

5.3.1 *Number of Samples and Sampling Runs.* Collect a total of 24 samples using the quadruplet sampling system (a total of 6 sets of replicate samples).

5.3.2 In each quadruplet set, spike half of the samples (two out of the four) with the reference material according to the applicable procedure in section 5.1.2.1 or 5.1.2.2.

5.4 *Probe Placement and Arrangement for Stationary Source Stack or Duct Sampling.* The probes shall be placed in the same horizontal plane. For paired sample probes the arrangement should be that the probe tip is 2.5 cm from the outside edge of the other with a pitot tube on the outside of each probe. Other paired arrangements for the pitot tube may be acceptable. For quadruplet sampling probes, the tips should be in a 6.0 cm × 6.0 cm square area measured from the center line of the opening of the probe tip with a single pitot tube in the center or two pitot tubes with their location on either side of the probe tip configuration. An alternative arrangement should be proposed whenever the cross-sectional area of the probe tip configuration is approximately 5 percent of the stack or duct cross-sectional area.

6. Calculations

Data resulting from the procedures specified in section 5.0 shall be treated as follows to determine bias, correction factors, relative standard deviations, precision, and data acceptance.

6.1 *Isotopic Spiking.* Analyze the data for isotopic spiking tests as outlined in sections 6.1.1 through 6.1.6.

6.1.1 Calculate the numerical value of the bias using the results from the analysis of the isotopically spiked field samples and the calculated value of the isotopically labeled spike:

$B = CS - S_m$ Eq. 301=1

where:

B=Bias at the spike level.

S_m=Mean of the measured values of the isotopically spiked samples.

CS=Calculated value of the isotopically labeled spike.

6.1.2 Calculate the standard deviation of the S_i values as follows:

$$SD = \sqrt{\frac{\sum\left(S_i - S_m\right)^2}{(n-1)}}$$

Eq. 301–2

where:

S_i=Measured value of the isotopically labeled analyte in the ith field sample,

n=Number of isotopically spiked samples, 12.

6.1.3. Calculate the standard deviation of the mean (SDM) as follows:

$$SDM = \frac{SD}{\sqrt{n}}$$

Eq. 301–3

6.1.4 Test the bias for statistical significance by calculating the t-statistic,

$$t = \frac{|B|}{SDM}$$

Eq. 301–4

and compare it with the critical value of the two-sided t-distribution at the 95-percent confidence level and n − 1 degrees of freedom. This critical value is 2.201 for the eleven degrees of freedom when the procedure specified in section 5.1.2 is followed. If the calculated t-value is greater than the critical value the bias is statistically significant and the analyst should proceed to evaluate the correction factor.

6.1.5 *Calculation of a Correction Factor.* If the t-test does not show that the bias is statistically significant, use all analytical results without correction and proceed to the precision evaluation. If the method's bias is statistically significant, calculate the correction factor, CF, using the following equation:

$$CF = \frac{1}{1 + \frac{B}{CS}}$$

Eq. 301–5

If the CF is outside the range of 0.70 to 1.30, the data and method are considered unacceptable. For correction factors within the range, multiply all analytical results by the CF to obtain the final values.

6.1.6 *Calculation of the Relative Standard Deviation (Precision).* Calculate the relative standard deviation as follows:

$$RSD = \left(\frac{SD}{S_m}\right) \times 100$$

Eq. 301–6

where S_m is the measured mean of the isotopically labeled spiked samples.

6.2 *Comparison with Validated Method.* Analyze the data for comparison with a validated method as outlined in sections 6.2.1 or 6.2.2, as appropriate. Conduct these procedures in order to determine if a proposed method produces results equivalent to a validated method. Make all necessary bias corrections for the validated method, as appropriate. If the proposed method fails either test, the method results are unacceptable, and conclude that the proposed method is not as precise or accurate as the validated method. For highly variable sources, additional precision checks may be necessary. The analyst should consult with the Administrator if a highly variable source is suspected.

6.2.1 *Paired Sampling Systems.*

6.2.1.1. *Precision.* Determine the acceptance of the proposed method's variance with respect to the variability of the validated method results. If a significant difference is determined, the proposed method and the results are rejected. Proposed methods demonstrating F-values equal to or less than the critical value have acceptable precision.

6.2.1.2 Calculate the variance of the proposed method, S_p2, and the variance of the validated method, S_v2, using the following equation:

$S_{(porv)}2=SD^2$ Eq. 301–7

where:

SD_v=Standard deviation provided with the validated method,

SD_p=Standard deviation of the proposed method calculated using Equation 301–9a.

6.2.1.3 *The F-test.* Determine if the variance of the proposed method is significantly different from that of the validated method by calculating the F-value using the following equation:

$$F=\frac{S_p^2}{S_v^2}$$

Eq. 301–8

Compare the experimental F value with the critical value of F. The critical value is 1.0 when the procedure specified in section 5.2.1 for paired trains is followed. If the calculated F is greater than the critical value, the difference in precision is significant and the data and proposed method are unacceptable.

6.2.1.4 *Bias Analysis.* Test the bias for statistical significance by calculating the t-statistic and determine if the mean of the differences between the proposed method and the validated method is significant at the 80-percent confidence level. This procedure requires the standard deviation of the validated method, SD_v, to be known. Employ the value furnished with the method. If the standard deviation of the validated method is not available, the paired replicate sampling procedure may not be used. Determine the mean of the paired sample differences, d_m, and the standard deviation, SD_d, of the differences, d_1's, using Equation 301–2 where: d_i replaces S_i, d_m replaces $S_{m.}$ Calculate the standard deviation of the proposed method, SD_p, as follows:

$SD_p=SD_d-SD_v$ Eq. 301–9a

(If $SD_v>SD_d$, let $SD=SD_d/1.414$).

Calculate the value of the t-statistic using the following equation:

$$t=\frac{d_m}{\left(\frac{SD_p}{\sqrt{n}}\right)}$$

Eq. 301–9

where n is the total number of paired samples. For the procedure in section 5.2.1, n equals nine. Compare the calculated t-statistic with the corresponding value from the table of the t-statistic. When nine runs are conducted, as specified in section 5.2.1, the critical value of the t-statistic is 1.397 for eight degrees of freedom. If the calculated t-value is greater than the critical value the bias is statistically significant and the analyst should proceed to evaluate the correction factor.

6.2.1.5 *Calculation of a Correction Factor.* If the statistical test cited above does not show a significant bias with respect to the reference method, assume that the proposed method is unbiased and use all analytical results without correction. If the method's bias is statistically significant, calculate the correction factor, CF, as follows:

$$CF=\frac{1}{1+\frac{d_m}{V_m}}$$

Eq. 301–10

where V_m is the mean of the validated method's values.

Multiply all analytical results by CF to obtain the final values. The method results, and the method, are unacceptable if the correction factor is outside the range of 0.9 to 1.10.

6.2.2 *Quadruplet Replicate Sampling Systems.*

6.2.2.1 *Precision.* Determine the acceptance of the proposed method's variance with respect to the variability of the validated method results. If a significant difference is determined the proposed method and the results are rejected.

6.2.2.2 Calculate the variance of the proposed method, S_p^2, using the following equation:

$$S^2 = \frac{\sum d_i^2}{2n}$$

Eq. 301–11

where the d_i's are the differences between the validated method values and the proposed method values.

6.2.2.3 *The F-test.* Determine if the variance of the proposed method is more variable than that of the validated method by calculating the F-value using Equation 301–8. Compare the experimental F value with the critical value of F. The critical value is 1.0 when the procedure specified in section 5.2.2 for quadruplet trains is followed. The calculated F should be less than or equal to the critical value. If the difference in precision is significant the results and the proposed method are unacceptable.

6.2.2.4 *Bias Analysis.* Test the bias for statistical significance at the 80 percent confidence level by calculating the t-statistic. Determine the bias (mean of the differences between the proposed method and the validated method, d_m) and the standard deviation, SD_d, of the differences. Calculate the standard deviation of the differences, SD_d, using Equation 301–2 and substituting d_i for $S_{i.}$ The following equation is used to calculate d_i:

$$d_i = \frac{\left(V_{1_i} + V_{2_i}\right)}{2} - \frac{\left(P_{1_i} + P_{2_i}\right)}{2}$$

Eq. 301–12

and: V_{1i}=First measured value of the validated method in the ith test sample.

P_{1i}=First measured value of the proposed method in the ith test sample.

Calculate the t-statistic using Equation 301–9 where n is the total number of test sample differences (d_i). For the procedure in section 5.2.2, n equals four. Compare the calculated t-statistic with the corresponding value from the table of the t-statistic and determine if the mean is significant at the 80-percent confidence level. When four runs are conducted, as specified in section 5.2.2, the critical value of the t-statistic is 1.638 for three degrees of freedom. If the calculated t-value is greater than the critical value the bias is statistically significant and the analyst should proceed to evaluate the correction factor.

6.2.2.5 *Correction Factor Calculation.* If the method's bias is statistically significant, calculate the correction factor, CF, using Equation 301–10. Multiply all analytical results by CF to obtain the final values. The method results, and the method, are unacceptable if the correction factor is outside the range of 0.9 to 1.10.

6.3 *Analyte Spiking.* Analyze the data for analyte spike testing as outlined in Sections 6.3.1 through 6.3.3.

6.3.1 *Precision.*

6.3.1.1 *Spiked Samples.* Calculate the difference, d_i, between the pairs of the spiked proposed method measurements for each replicate sample set. Determine the standard deviation (SD_s) of the spiked values using the following equation:

$$SD_s = \sqrt{\frac{\sum d_i^2}{2n}}$$

Eq. 301–13

where: n = Number of runs.

Calculate the relative standard deviation of the proposed spiked method using Equation 301–6 where S_m is the measured mean of the analyte spiked samples. The proposed method is unacceptable if the RSD is greater than 50 percent.

6.3.1.2 *Unspiked Samples.* Calculate the standard deviation of the unspiked values using Equation 301–13 and the relative standard deviation of the proposed unspiked method using Equation 301–6 where S_m is the measured mean of the analyte spiked samples. The RSD must be less than 50 percent.

6.3.2 *Bias.* Calculate the numerical value of the bias using the results from the analysis of the spiked field samples, the unspiked field samples, and the calculated value of the spike:

$B = S_m - M_m - CS$

Eq. 301–14

where: B = Bias at the spike level.

S_m = Mean of the spiked samples.

M_m = Mean of the unspiked samples.

CS = Calculated value of the spiked level.

6.3.2.1 Calculate the standard deviation of the mean using the following equation where SD_s and SD_u are the standard deviations of the spiked and unspiked sample values respectively as calculated using Equation 301–13.

$$SD = \sqrt{SD_s^2 + SD_u^2}$$

Eq. 301–15

6.3.2.2 Test the bias for statistical significance by calculating the t-statistic using Equation 301–4 and comparing it with the critical value of the two-sided t-distribution at the 95-percent confidence level and n-1 degrees of freedom. This critical value is 2.201 for the eleven degrees of freedom.

6.3.3 *Calculation of a Correction Factor.* If the t-test shows that the bias is not statistically significant, use all analytical results without correction. If the method's bias is statistically significant, calculate the correction factor using Equation 301–5. Multiply all analytical results by CF to obtain the final values.

7. Ruggedness Testing (Optional)

7.1 *Laboratory Evaluation.*

7.1.1 Ruggedness testing is a useful and cost-effective laboratory study to determine the sensitivity of a method to certain parameters such as sample collection rate, interferant concentration, collecting medium temperature, or sample recovery temperature. This Section generally discusses the principle of the ruggedness test. A more detailed description is presented in citation 10 of Section 13.0.

7.1.2 In a ruggedness test, several variables are changed simultaneously rather than one variable at a time. This reduces the number of experiments required to evaluate the effect of a variable. For example, the effect of seven variables can be determined in eight experiments rather than 128 (W.J. Youden, Statistical Manual of the Association of Official Analytical Chemists, Association of Official Analytical Chemists, Washington, DC, 1975, pp. 33–36).

7.1.3 Data from ruggedness tests are helpful in extending the applicability of a test method to different source concentrations or source categories.

8. Procedure for Including Sample Stability in Bias and Precision Evaluations

8.1 *Sample Stability.*

8.1.1 The test method being evaluated must include procedures for sample storage and the time within which the collected samples shall be analyzed.

8.1.2 This section identifies the procedures for including the effect of storage time in bias and precision evaluations. The evaluation may be deleted if the test method specifies a time for sample storage.

8.2 *Stability Test Design.* The following procedures shall be conducted to identify the effect of storage times on analyte samples. Store the samples according to the procedure specified in the test method. When using the analyte spiking procedures (section 5.3), the study should include equal numbers of spiked and unspiked samples.

8.2.1 Stack Emission Testing.

8.2.1.1 For sample container (bag or canister) and impinger sampling systems, sections 5.1 and 5.3, analyze six of the samples at the minimum storage time. Then analyze the same six samples at the maximum storage time.

8.2.1.2 For sorbent and impinger sampling systems, sections 5.1 and 5.3, that require extraction or digestion, extract or digest six of the samples at the minimum storage time and extract or digest six other samples at the maximum storage time. Analyze an aliquot of the first six extracts (digestates) at both the minimum and maximum storage times. This will provide some freedom to analyze extract storage impacts.

8.2.1.3 For sorbent sampling systems, sections 5.1 and 5.3, that require thermal desorption, analyze six samples at the minimum storage time. Analyze another set of six samples at the maximum storage time.

8.2.1.4 For systems set up in accordance with section 5.2, the number of samples analyzed at the minimum and maximum storage times shall be half those collected (8 or 9). The procedures for samples requiring extraction or digestion should parallel those in section 8.2.1.

8.2.2 *Other Waste Media Testing.* Analyze half of the replicate samples at the minimum storage time and the other half at the maximum storage time in order to identify the effect of storage times on analyte samples.

9. Procedure for Determination of Practical Limit of Quantitation (Optional)

9.1 *Practical Limit of Quantitation.*

9.1.1 The practical limit of quantitation (PLQ) is the lowest level above which quantitative results may be obtained with an acceptable degree of confidence. For this protocol, the PLQ is defined as 10 times the standard deviation, s_o, at the blank level. This PLQ corresponds to an uncertainty of ±30 percent at the 99-percent confidence level.

9.1.2 The PLQ will be used to establish the lower limit of the test method.

9.2 *Procedure I for Estimating* $s_{o.}$ This procedure is acceptable if the estimated PLQ is no more than twice the calculated PLQ. If the PLQ is greater than twice the calculated PLQ use Procedure II.

9.2.1 Estimate the PLQ and prepare a test standard at this level. The test standard could consist of a dilution of the reference material described in section 3.0.

9.2.2 Using the normal sampling and analytical procedures for the method, sample and analyze this standard at least seven times in the laboratory.

9.2.3 Calculate the standard deviation, s_o, of the measured values.

9.2.4 Calculate the PLQ as 10 times s_o.

9.3 *Procedure II for Estimating* $s_{o.}$ This procedure is to be used if the estimated PLQ is more than twice the calculated PLQ.

9.3.1 Prepare two additional standards at concentration levels lower than the standard used in Procedure I.

9.3.2 Sample and analyze each of these standards at least seven times.

9.3.3 Calculate the standard deviation for each concentration level.

9.3.4 Plot the standard deviations of the three test standards as a function of the standard concentrations.

9.3.5 Draw a best-fit straight line through the data points and extrapolate to zero concentration. The standard deviation at zero concentration is S_0.

9.3.6 Calculate the PLQ as 10 times S_0.

10.0 Field Validation Report Requirements

The field validation report shall include a discussion of the regulatory objectives for the testing which describe the reasons for the test, applicable emission limits, and a description of the source. In addition, validation results shall include:

10.1 Summary of the results and calculations shown in section 6.0.

10.2 Reference material certification and value(s).

10.3 Performance audit results or letter from the reviewing authority stating the audit material is currently not available.

10.4 Laboratory demonstration of the quality of the spiking system.

10.5 Discussion of laboratory evaluations.

10.6 Discussion of field sampling.

10.7 Discussion of sample preparations and analysis.

10.8 Storage times of samples (and extracts, if applicable).

10.9 Reasons for eliminating any results.

11. Followup Testing

The correction factor calculated in section 6.0 shall be used to adjust the sample concentrations in all followup tests conducted at the same source. These tests shall consist of at least three replicate samples, and the average shall be used to determine the pollutant concentration. The number of samples to be collected and analyzed shall be as follows, depending on the validated method precision level:

11.1 Validated relative standard deviation (RSD) $\leq \pm 15$ Percent. Three replicate samples.

11.2 Validated RSD $\leq \pm 30$ Percent. Six replicate samples.

11.3 Validated RSD $\leq \pm 50$ Percent. Nine replicate samples.

11.4 Equivalent method. Three replicate samples.

12. Procedure for Obtaining a Waiver

12.1 *Waivers.* These procedures may be waived or a less rigorous protocol may be granted for site-specific applications. The following are three example situations for which a waiver may be considered.

12.1.1 *''Similar'' Sources.* If the test method has been validated previously at a ''similar'' source, the procedures may be waived provided the requester can demonstrate to the satisfaction of the Administrator that the sources are ''similar.'' The methods's applicability to the ''similar'' source may be demonstrated by conducting a ruggedness test as described in section 6.0.

12.1.2 *''Documented'' Methods.* In some cases, bias and precision may have been documented through laboratory tests or protocols different from this method. If the analyst can demonstrate to the satisfaction of the Administrator that the bias and precision apply to a particular application, the Administrator may waive these procedures or parts of the procedures.

12.1.3 *''Conditional'' Test Methods.* When the method has been demonstrated to be valid at several sources, the analyst may seek a ''conditional'' method designation from the Administrator. ''Conditional'' method status provides an automatic waiver from the procedures provided the test method is used within the stated applicability.

12.2 *Application for Waiver.* In general, the requester shall provide a thorough description of the test method, the intended application, and results of any validation or other supporting documents. Because of the many potential situations in which the Administrator may grant a waiver, it is neither possible nor desirable to prescribe the exact criteria for a waiver. At a minimum, the requester is responsible for providing the following.

12.2.1 A clearly written test method, preferably in the format of 40 CFR part 60, appendix A Test Methods. The method must include an applicability statement, concentration range, precision, bias (accuracy), and time in which samples must be analyzed.

12.2.2.2 Summaries (see section 10.0) of previous validation tests or other supporting documents. If a different procedure from that described in this method was used, the requester shall provide appropriate documents substantiating (to the satisfaction of the Administrator) the bias and precision values.

12.2.2.3 Results of testing conducted with respect to sections 7.0, 8.0, and 9.0.

12.2.3 Discussion of the applicability statement and arguments for approval of the waiver. This discussion should address as applicable the following: Applicable regulation, emission standards, effluent characteristics, and process operations.

12.3 *Requests for Waiver.* Each request shall be in writing and signed by the analyst. Submit requests to the Director, OAQPS, Technical Support Division, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711.

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METHOD 303—DETERMINATION OF VISIBLE EMISSIONS FROM BY-PRODUCT COKE OVEN BATTERIES

NOTE: This method is not inclusive with respect to observer certification. Some material is incorporated by reference from other methods in appendix A to 40 CFR part 60. Therefore, to obtain reliable results, persons using this method should have a thorough knowledge of Method 9.

1.0 Scope and Application

1.1 Applicability. This method is applicable for the determination of visible emissions (VE) from the following by-product coke oven battery sources: charging systems during charging; doors, topside port lids, and offtake systems on operating coke ovens; and collecting mains. This method is also applicable for qualifying observers for visually determining the presence of VE.

2.0 Summary of Method

2.1 A certified observer visually determines the VE from coke oven battery sources. Certification procedures are presented. This method does not require that opacity of emissions be determined or that magnitude be differentiated.

3.0 Definitions

3.1 *Bench* means the platform structure in front of the oven doors.

3.2 *By-product Coke Oven Battery* means a source consisting of a group of ovens connected by common walls, where coal undergoes destructive distillation under positive pressure to produce coke and coke oven gas, from which by-products are recovered.

3.3 *Charge or charging period* means the period of time that commences when coal begins to flow into an oven through a topside port and ends when the last charging port is recapped.

3.4 *Charging system* means an apparatus used to charge coal to a coke oven (*e.g.*, a larry car for wet coal charging systems).

3.5 *Coke oven door* means each end enclosure on the push side and the coking side of an oven. The chuck, or leveler-bar, door is considered part of the push side door. The coke oven door area includes the entire area on the vertical face of a coke oven between the bench and the top of the battery between two adjacent buck stays.

3.6 *Coke side* means the side of a battery from which the coke is discharged from ovens at the end of the coking cycle.

3.7 *Collecting* main means any apparatus that is connected to one or more offtake systems and that provides a passage for conveying gases under positive pressure from the by-product coke oven battery to the by-product recovery system.

3.8 *Consecutive charges* means charges observed successively, excluding any charge during which the observer's view of the charging system or topside ports is obscured.

3.9 *Damper-off* means to close off the gas passage between the coke oven and the collecting main, with no flow of raw coke oven gas from the collecting main into the oven or into the oven's offtake system(s).

3.10 *Decarbonization period* means the period of time for combusting oven carbon that commences when the oven lids are removed from an empty oven or when standpipe caps of an oven are opened. The period ends with the initiation of the next charging period for that oven.

3.11 *Larry car* means an apparatus used to charge coal to a coke oven with a wet coal charging system.

3.12 *Log average* means logarithmic average as calculated in Section 12.4.

3.13 *Offtake system* means any individual oven apparatus that is stationary and provides a passage for gases from an oven to a coke oven battery collecting main or to another oven. Offtake system components include the standpipe and standpipe caps, goosenecks, stationary jumper pipes, mini-standpipes, and standpipe and gooseneck connections.

3.14 *Operating oven* means any oven not out of operation for rebuild or maintenance work extensive enough to require the oven to be skipped in the charging sequence.

3.15 *Oven* means a chamber in the coke oven battery in which coal undergoes destructive distillation to produce coke.

3.16 *Push side* means the side of the battery from which the coke is pushed from ovens at the end of the coking cycle.

3.17 *Run* means the observation of visible emissions from topside port lids, offtake systems, coke oven doors, or the charging of a single oven in accordance with this method.

3.18 *Shed* means an enclosure that covers the side of the coke oven battery, captures emissions from pushing operations and from leaking coke oven doors on the coke side or push side of the coke oven battery, and routes the emissions to a control device or system.

3.19 *Standpipe cap* means An apparatus used to cover the opening in the gooseneck of an offtake system.

3.20 *Topside port lid* means a cover, removed during charging or decarbonizing, that is placed over the opening through which coal can be charged into the oven of a by-product coke oven battery.

3.21 *Traverse time* means accumulated time for a traverse as measured by a stopwatch. Traverse time includes time to stop and write down oven numbers but excludes time waiting for obstructions of view to clear or for time to walk around obstacles.

3.22 *Visible Emissions or VE* means any emission seen by the unaided (except for corrective lenses) eye, excluding steam or condensing water.

4.0 Interferences [Reserved]

5.0 Safety

5.1 Disclaimer. This method may involve hazardous materials, operations, and equipment. This test method may not address all of the safety problems associated with its use. It is the responsibility of the user of this test method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to performing this test method.

5.2 Safety Training. Because coke oven batteries have hazardous environments, the training materials and the field training (Section 10.0) shall cover the precautions required by the company to address health and safety hazards. Special emphasis shall be given to the Occupational Safety and Health Administration (OSHA) regulations pertaining to exposure of coke oven workers (see Reference 3 in Section 16.0). In general, the regulation requires that special fire-retardant clothing and respirators be worn in certain restricted areas of the coke oven battery. The OSHA regulation also prohibits certain activities, such as chewing gum, smoking, and eating in these areas.

6.0 Equipment and Supplies [Reserved]

7.0 Reagents and Standards [Reserved]

8.0 Sample Collection, Preservation, Transport, and Storage [Reserved]

9.0 Quality Control [Reserved]

10.0 Calibration and Standardization

Observer certification and training requirements are as follows:

10.1 Certification Procedures. This method requires only the determination of whether VE occur and does not require the determination of opacity levels; therefore, observer certification according to Method 9 in appendix A to part 60 of this chapter is not required to obtain certification under this method. However, in order to receive Method 303 observer certification, the first-time observer (trainee) shall have attended the lecture portion of the Method 9 certification course. In addition, the trainee shall successfully complete the Method 303 training course, satisfy the field observation requirement, and demonstrate adequate performance and sufficient knowledge of Method 303. The Method 303 training course shall be conducted by or under the sanction of the EPA and shall consist of classroom instruction and field observations, and a proficiency test.

10.1.1 The classroom instruction shall familiarize the trainees with Method 303 through lecture, written training materials, and a Method 303 demonstration video. A successful completion of the classroom portion of the Method 303 training course shall be demonstrated by a perfect score on a written test. If the trainee fails to answer all of the questions correctly, the trainee may review the appropriate portion of the training materials and retake the test.

10.1.2 The field observations shall be a minimum of 12 hours and shall be completed before attending the Method 303 certification course. Trainees shall observe the operation of a coke oven battery as it pertains to Method 303, including topside operations, and shall also practice conducting Method 303 or similar methods. During the field observations, trainees unfamiliar with coke battery operations shall receive instruction from an experienced coke oven observer familiar with Method 303 or similar methods and with the operation of coke batteries. The trainee must verify completion of at least 12 hours of field observation prior to attending the Method 303 certification course.

10.1.3 All trainees must demonstrate proficiency in the application of Method 303 to a panel of three certified Method 303 observers, including an ability to differentiate coke oven emissions from condensing water vapor and smoldering coal. Each panel member shall have at least 120 days experience in reading visible emissions from coke ovens. The visible emissions inspections that will satisfy the experience requirement must be inspections of coke oven battery fugitive emissions from the emission points subject to emission standards under subpart L of this part (*i.e.*, coke oven doors, topside port lids, offtake system(s), and charging operations), using either Method 303 or predecessor State or local test methods. A ‘‘day's experience'' for a particular inspection is a day on which one complete inspection was performed for that emission point under Method 303 or a predecessor State or local method. A ‘‘day's experience'' does not mean 8 or 10 hours performing inspections, or any particular time expressed in minutes or hours that may have been spent performing them. Thus, it would be possible for an individual to qualify as a Method 303 panel member for some emission points, but not others (*e.g.*, an individual might satisfy the experience requirement for coke oven doors, but not topside port lids). Until November 15, 1994, the EPA may waive the certification requirement (but not the experience requirement) for panel members. The composition of the panel shall be approved by the EPA. The panel shall observe the trainee in a series of training runs and a series of certification runs. There shall be a minimum of 1 training run for doors, topside port lids, and offtake systems, and a minimum of 5 training runs (*i.e.*, 5 charges) for charging. During training runs, the panel can advise the trainee on proper procedures. There shall be a minimum of 3 certification runs for doors, topside port lids, and offtake systems, and a minimum of 15 certification runs for charging (*i.e.*, 15 charges). The certifications runs shall be unassisted. Following the certification test runs, the panel shall approve or disapprove certification based on the trainee's performance during the certification runs. To obtain certification, the trainee shall demonstrate to the satisfaction of the panel a high degree of proficiency in performing Method 303. To aid in evaluating the trainee's performance, a checklist, provided by the EPA, will be used by the panel members.

10.2 Observer Certification/Recertification. The coke oven observer certification is valid for 1 year from date of issue. The observer shall recertify annually by viewing the training video and answering all of the questions on the certification test correctly. Every 3 years, an observer shall be required to pass the proficiency test in Section 10.1.3 in order to be certified.

10.3 The EPA (or applicable enforcement agency) shall maintain records reflecting a certified observer's successful completion of the proficiency test, which shall include the completed proficiency test checklists for the certification runs.

10.4 An owner or operator of a coke oven battery subject to subpart L of this part may observe a training and certification program under this section.

11.0 Procedure

11.1 Procedure for Determining VE from Charging Systems During Charging.

11.1.1 Number of Oven Charges. Refer to § 63.309(c)(1) of this part for the number of oven charges to observe. The observer shall observe consecutive charges. Charges that are nonconsecutive can only be observed when necessary to replace observations terminated prior to the completion of a charge because of visual interferences. (See Section 11.1.5).

11.1.2 Data Records. Record all the information requested at the top of the charging system inspection sheet (Figure 303–1). For each charge, record the identification number of the oven being charged, the approximate beginning time of the charge, and the identification of the larry car used for the charge.

11.1.3 Observer Position. Stand in an area or move to positions on the topside of the coke oven battery with an unobstructed view of the entire charging system. For wet coal charging systems or non-pipeline coal charging systems, the observer should have an unobstructed view of the emission points of the charging system, including larry car hoppers, drop sleeves, and the topside ports of the oven being charged. Some charging systems are configured so that all emission points can only be seen from a distance of five ovens. For other batteries, distances of 8 to 12 ovens are adequate.

11.1.4 Observation. The charging period begins when coal begins to flow into the oven and ends when the last charging port is recapped. During the charging period, observe all of the potential sources of VE from the entire charging system. For wet coal charging systems or non-pipeline coal charging systems, sources of VE typically include the larry car hoppers, drop sleeves, slide gates, and topside ports on the oven being charged. Any VE from an open standpipe cap on the oven being charged is included as charging VE.

11.1.4.1 Using an accumulative-type stopwatch with unit divisions of at least 0.5 seconds, determine the total time VE are observed as follows. Upon observing any VE emerging from any part of the charging system, start the stopwatch. Stop the watch when VE are no longer observed emerging, and restart the watch when VE reemerges.

11.1.4.2 When VE occur simultaneously from several points during a charge, consider the sources as one. Time overlapping VE as continuous VE. Time single puffs of VE only for the time it takes for the puff to emerge from the charging system. Continue to time VE in this manner for the entire charging period. Record the accumulated time to the nearest 0.5 second under ''Visible emissions, seconds'' on Figure 303–1.

11.1.5 Visual Interference. If fugitive VE from other sources at the coke oven battery site (*e.g.*, door leaks or condensing water vapor from the coke oven wharf) prevent a clear view of the charging system during a charge, stop the stopwatch and make an appropriate notation under ''Comments'' on Figure 303–1. Label the observation an observation of an incomplete charge, and observe another charge to fulfill the requirements of Section 11.1.1.

11.1.6 VE Exemptions. Do not time the following VE:

11.1.6.1 The VE from burning or smoldering coal spilled on top of the oven, topside port lid, or larry car surfaces;

NOTE: The VE from smoldering coal are generally white or gray. These VE generally have a plume of less than 1 meter long. If the observer cannot safely and with reasonable confidence determine that VE are from charging, do not count them as charging emissions.

11.1.6.2 The VE from the coke oven doors or from the leveler bar; or

11.1.6.3 The VE that drift from the top of a larry car hopper if the emissions had already been timed as VE from the drop sleeve.

NOTE: When the slide gate on a larry car hopper closes after the coal has been added to the oven, the seal may not be airtight. On occasions, a puff of smoke observed at the drop sleeves is forced past the slide gate up into the larry car hopper and may drift from the top; time these VE either at the drop sleeves or the hopper. If the larry car hopper does not have a slide gate or the slide gate is left open or partially closed, VE may quickly pass through the larry car hopper without being observed at the drop sleeves and will appear as a strong surge of smoke; time these as charging VE.

11.1.7 Total Time Record. Record the total time that VE were observed for each charging operation in the appropriate column on the charging system inspection sheet.

11.1.8 Determination of Validity of a Set of Observations. Five charging observations (runs) obtained in accordance with this method shall be considered a valid set of observations for that day. No observation of an incomplete charge shall be included in a daily set of observations that is lower than the lowest reading for a complete charge. If both complete and incomplete charges have been observed, the daily set of observations shall include the five highest values observed. Four or three charging observations (runs) obtained in accordance with this method shall be considered a valid set of charging observations only where it is not possible to obtain five charging observations, because visual interferences (see Section 11.1.5) or inclement weather prevent a clear view of the charging system during charging. However, observations from three or four charges that satisfy these requirements shall not be considered a valid set of charging observations if use of such set of observations in a calculation under Section 12.4 would cause the value of A to be less than 145.

11.1.9 Log Average. For each day on which a valid daily set of observations is obtained, calculate the daily 30-day rolling log average of seconds of visible emissions from the charging operation for each battery using these data and the 29 previous valid daily sets of observations, in accordance with Section 12.4.

11.2. Procedure for Determining VE from Coke Oven Door Areas. The intent of this procedure is to determine VE from coke oven door areas by carefully observing the door area from a standard distance while walking at a normal pace.

11.2.1 Number of Runs. Refer to § 63.309(c)(1) of this part for the appropriate number of runs.

11.2.2 Battery Traverse. To conduct a battery traverse, walk the length of the battery on the outside of the pusher machine and quench car tracks at a steady, normal walking pace, pausing to make appropriate entries on the door area inspection sheet (Figure 303–2). A single test run consists of two timed traverses, one for the coke side and one for the push side. The walking pace shall be such that the duration of the traverse does not exceed an average of 4 seconds per oven door, excluding time spent moving around stationary obstructions or waiting for other obstructions to move from positions blocking the view of a series of doors. Extra time is allowed for each leak (a maximum of 10 additional seconds for each leaking door) for the observer to make the proper notation. A walking pace of 3 seconds per oven door has been found to be typical. Record the actual traverse time with a stopwatch.

11.2.2.1 Include in the traverse time only the time spent observing the doors and recording door leaks. To measure actual traverse time, use an accumulative-type stopwatch with unit divisions of 0.5 seconds or less. Exclude interruptions to the traverse and time required for the observer to move to positions where the view of the battery is unobstructed, or for obstructions, such as the door machine, to move from positions blocking the view of a series of doors.

11.2.2.2 Various situations may arise that will prevent the observer from viewing a door or a series of doors. Prior to the door inspection, the owner or operator may elect to temporarily suspend charging operations for the duration of the inspection, so that all of the doors can be viewed by the observer. The observer has two options for dealing with obstructions to view: (a) Stop the stopwatch and wait for the equipment to move or the fugitive emissions to dissipate before completing the traverse; or (b) stop the stopwatch, skip the affected ovens, and move to an unobstructed position to continue the traverse. Restart the stopwatch and continue the traverse. After the completion of the traverse, if the equipment has moved or the fugitive emissions have dissipated, inspect the affected doors. If the equipment is still preventing the observer from viewing the doors, then the affected doors may be counted as not observed. If option (b) is used because of doors blocked by machines during charging operations, then, of the affected doors, exclude the door from the most recently charged oven from the inspection. Record the oven numbers and make an appropriate notation under ‘‘Comments’’ on the door area inspection sheet (Figure 303–2).

11.2.2.3 When batteries have sheds to control emissions, conduct the inspection from outside the shed unless the doors cannot be adequately viewed. In this case, conduct the inspection from the bench. Be aware of special safety considerations pertinent to walking on the bench and follow the instructions of company personnel on the required equipment and procedures. If possible, conduct the bench traverse whenever the bench is clear of the door machine and hot coke guide.

11.2.3 Observations. Record all the information requested at the top of the door area inspection sheet (Figure 303–2), including the number of non-operating ovens. Record the clock time at the start of the traverse on each side of the battery. Record which side is being inspected (*i.e.,* coke side or push side). Other information may be recorded at the discretion of the observer, such as the location of the leak (*e.g.,* top of the door, chuck door, etc.), the reason for any interruption of the traverse, or the position of the sun relative to the battery and sky conditions (*e.g.,* overcast, partly sunny, etc.).

11.2.3.1 Begin the test run by starting the stopwatch and traversing either the coke side or the push side of the battery. After completing one side, stop the watch. Complete this procedure on the other side. If inspecting more than one battery, the observer may view the push sides and the coke sides sequentially.

11.2.3.2 During the traverse, look around the entire perimeter of each oven door. The door is considered leaking if VE are detected in the coke oven door area. The coke oven door area includes the entire area on the vertical face of a coke oven between the bench and the top of the battery between two adjacent buck stays (*e.g.,* the oven door, chuck door, between the masonry brick, buck stay or jamb, or other sources). Record the oven number and make the appropriate notation on the door area inspection sheet (Figure 303–2).

NOTE: Multiple VE from the same door area (*e.g.,* VE from both the chuck door and the push side door) are counted as only one emitting door, not as multiple emitting doors.

11.2.3.3 Do not record the following sources as door area VE:

11.2.3.3.1 VE from ovens with doors removed. Record the oven number and make an appropriate notation under ‘‘Comments;’’

11.2.3.3.2 VE from ovens taken out of service. The owner or operator shall notify the observer as to which ovens are out of service. Record the oven number and make an appropriate notation under ‘‘Comments;’’ or

11.2.3.3.3 VE from hot coke that has been spilled on the bench as a result of pushing.

11.2.4 Criteria for Acceptance. After completing the run, calculate the maximum time allowed to observe the ovens using the equation in Section 12.2. If the total traverse time exceeds T, void the run, and conduct another run to satisfy the requirements of § 63.309(c)(1) of this part.

11.2.5 Percent Leaking Doors. For each day on which a valid observation is obtained, calculate the daily 30-day rolling average for each battery using these data and the 29 previous valid daily observations, in accordance with Section 12.5.

11.3 Procedure for Determining VE from Topside Port Lids and Offtake Systems.

11.3.1 Number of Runs. Refer to § 63.309(c)(1) of this part for the number of runs to be conducted. Simultaneous runs or separate runs for the topside port lids and offtake systems may be conducted.

11.3.2 Battery Traverse. To conduct a topside traverse of the battery, walk the length of the battery at a steady, normal walking pace, pausing only to make appropriate entries on the topside inspection sheet (Figure 303–3). The walking pace shall not exceed an average rate of 4 seconds per oven, excluding time spent moving around stationary obstructions or waiting for other obstructions to move from positions blocking the view. Extra time is allowed for each leak for the observer to make the proper notation. A walking pace of 3 seconds per oven is typical. Record the actual traverse time with a stopwatch.

11.3.3 Topside Port Lid Observations. To observe lids of the ovens involved in the charging operation, the observer shall wait to view the lids until approximately 5 minutes after the completion of the charge. Record all the information requested on the topside inspection sheet (Figure 303–3). Record the clock time when traverses begin and end. If the observer's view is obstructed during the traverse (*e.g.*, steam from the coke wharf, larry car, etc.), follow the guidelines given in Section 11.2.2.2.

11.3.3.1 To perform a test run, conduct a single traverse on the topside of the battery. The observer shall walk near the center of the battery but may deviate from this path to avoid safety hazards (such as open or closed charging ports, luting buckets, lid removal bars, and topside port lids that have been removed) and any other obstacles. Upon noting VE from the topside port lid(s) of an oven, record the oven number and port number, then resume the traverse. If any oven is dampered-off from the collecting main for decarbonization, note this under ''Comments'' for that particular oven.

NOTE: Count the number of topside ports, not the number of points, exhibiting VE, *i.e.*, if a topside port has several points of VE, count this as one port exhibiting VE.

11.3.3.2 Do not count the following as topside port lid VE:

11.3.3.2.1 VE from between the brickwork and oven lid casing or VE from cracks in the oven brickwork. Note these VE under ''Comments;''

11.3.3.2.2 VE from topside ports involved in a charging operation. Record the oven number, and make an appropriate notation (*e.g.*, not observed because ports open for charging) under ''Comments;''

11.3.3.2.3 Topside ports having maintenance work done. Record the oven number and make an appropriate notation under ''Comments;'' or

11.3.3.2.4 Condensing water from wet-sealing material. Ports with only visible condensing water from wet-sealing material are counted as observed but not as having VE.

11.3.3.2.5 Visible emissions from the flue inspection ports and caps.

11.3.4 Offtake Systems Observations. To perform a test run, traverse the battery as in Section 11.3.3.1. Look ahead and back two to four ovens to get a clear view of the entire offtake system for each oven. Consider visible emissions from the following points as offtake system VE: (a) the flange between the gooseneck and collecting main (''saddle''), (b) the junction point of the standpipe and oven (''standpipe base''), (c) the other parts of the offtake system (*e.g.*, the standpipe cap), and (d) the junction points with ovens and flanges of jumper pipes.

11.3.4.1 Do not stray from the traverse line in order to get a ''closer look'' at any part of the offtake system unless it is to distinguish leaks from interferences from other sources or to avoid obstacles.

11.3.4.2 If the centerline does not provide a clear view of the entire offtake system for each oven (*e.g.*, when standpipes are longer than 15 feet), the observer may conduct the traverse farther from (rather than closer to) the offtake systems.

11.3.4.3 Upon noting a leak from an offtake system during a traverse, record the oven number. Resume the traverse. If the oven is dampered-off from the collecting main for decarbonization and VE are observed, note this under ''Comments'' for that particular oven.

11.3.4.4 If any part or parts of an offtake system have VE, count it as one emitting offtake system. Each stationary jumper pipe is considered a single offtake system.

11.3.4.5 Do not count standpipe caps open for a decarbonization period or standpipes of an oven being charged as source of offtake system VE. Record the oven number and write ''Not observed'' and the reason (*i.e.*, decarb or charging) under ''Comments.''

NOTE: VE from open standpipes of an oven being charged count as charging emissions. All VE from closed standpipe caps count as offtake leaks.

11.3.5 Criteria for Acceptance. After completing the run (allow 2 traverses for batteries with double mains), calculate the maximum time allowed to observe the topside port lids and/or offtake systems using the equation in Section 12.3. If the total traverse time exceeds T, void the run and conduct another run to satisfy the requirements of §63.309(c)(1) of this part.

11.3.6 In determining the percent leaking topside port lids and percent leaking offtake systems, do not include topside port lids or offtake systems with VE from the following ovens:

11.3.6.1 Empty ovens, including ovens undergoing maintenance, which are properly dampered off from the main.

11.3.6.2 Ovens being charged or being pushed.

11.3.6.3 Up to 3 full ovens that have been dampered off from the main prior to pushing.

11.3.6.4 Up to 3 additional full ovens in the pushing sequence that have been dampered off from the main for offtake system cleaning, for decarbonization, for safety reasons, or when a charging/pushing schedule involves widely separated ovens (e.g., a

Marquard system); or that have been dampered off from the main for maintenance near the end of the coking cycle. Examples of reasons that ovens are dampered off for safety reasons are to avoid exposing workers in areas with insufficient clearance between standpipes and the larry car, or in areas where workers could be exposed to flames or hot gases from open standpipes, and to avoid the potential for removing a door on an oven that is not dampered off from the main.

11.3.7 Percent Leaking Topside Port Lids and Offtake Systems. For each day on which a valid observation is obtained, calculate the daily 30-day rolling average for each battery using these data and the 29 previous valid daily observations, in accordance with Sections 12.6 and 12.7.

11.4 Procedure for Determining VE from Collecting Mains.

11.4.1 Traverse. To perform a test run, traverse both the collecting main catwalk and the battery topside along the side closest to the collecting main. If the battery has a double main, conduct two sets of traverses for each run, i.e., one set for each main.

11.4.2 Data Recording. Upon noting VE from any portion of a collection main, identify the source and approximate location of the source of VE and record the time under ‘‘Collecting main’’ on Figure 303–3; then resume the traverse.

11.4.3 Collecting Main Pressure Check. After the completion of the door traverse, the topside port lids, and offtake systems, compare the collecting main pressure during the inspection to the collecting main pressure during the previous 8 to 24 hours. Record the following: (a) the pressure during inspection, (b) presence of pressure deviation from normal operations, and (c) the explanation for any pressure deviation from normal operations, if any, offered by the operators. The owner or operator of the coke battery shall maintain the pressure recording equipment and conduct the quality assurance/quality control (QA/QC) necessary to ensure reliable pressure readings and shall keep the QA/QC records for at least 6 months. The observer may periodically check the QA/QC records to determine their completeness. The owner or operator shall provide access to the records within 1 hour of an observer's request.

12.0 Data Analysis and Calculations

12.1 Nomenclature.

A = 150 or the number of valid observations (runs). The value of A shall not be less than 145, except for purposes of determinations under § 63.306(c) (work practice plan implementation) or § 63.306(d) (work practice plan revisions) of this part. No set of observations shall be considered valid for such a recalculation that otherwise would not be considered a valid set of observations for a calculation under this paragraph.
D_i = Number of doors on non-operating ovens.
D_{no} = Number of doors not observed.
D_{ob} = Total number of doors observed on operating ovens.
D_t = Total number of oven doors on the battery.
e = 2.72
J = Number of stationary jumper pipes.
L = Number of doors with VE.
L_b = Yard-equivalent reading.
L_s = Number of doors with VE observed from the bench under sheds.
L_y = Number of doors with VE observed from the yard.
L_y = Number of doors with VE observed from the yard on the push side.
ln = Natural logarithm.
N = Total number of ovens in the battery.
N_i = Total number of inoperable ovens.
P_{NO} = Number of ports not observed.
P_{ovn} = Number of ports per oven.
P_{VE} = Number of topside port lids with VE.
PLD = Percent leaking coke oven doors for the test run.
PLL = Percent leaking topside port lids for the run.
PLO = Percent leaking offtake systems.
T = Total time allowed for traverse, seconds.
T_{ovn} = Number of offtake systems (excluding jumper pipes) per oven.
T_{NO} = Number of offtake systems not observed.
T_{VE} = Number of offtake systems with VE.
X_i = Seconds of VE during the ith charge.
Z = Number of topside port lids or offtake systems with VE.

12.2 Criteria for Acceptance for VE Determinations from Coke Oven Door Areas. After completing the run, calculate the maximum time allowed to observe the ovens using the following equation:

$$T = \left(4 \times D_t\right) + \left(10 \times L\right) \qquad \text{Eq. 303-1}$$

12.3 Criteria for Acceptance for VE Determinations from Topside Port Lids and Offtake Systems. After completing the run (allow 2 traverses for batteries with double mains), calculate the maximum time allowed to observe the topside port lids and/or offtake systems by the following equation:

$$T = (4 \times N) + (10 \times Z) \qquad \text{Eq. 303-2}$$

12.4 Average Duration of VE from Charging Operations. Use Equation 303–3 to calculate the daily 30-day rolling log average of seconds of visible emissions from the charging operation for each battery using these current day's observations and the 29 previous valid daily sets of observations.

$$\text{logarithmic average} = e^{y} - 1 = \frac{\ln\left(X_1 + 1\right) + \ln\left(X_2 + 1\right) + \ldots \ln\left(X_A + 1\right)}{A} \qquad \text{Eq. 303-3}$$

12.5 Percent Leaking Doors (PLD). Determine the total number of doors for which observations were made on the coke oven battery as follows:

$$D_{ob} = \left(2 \times N\right) - \left(D_i + D_{no}\right) \qquad \text{Eq. 303-4}$$

12.5.1 For each test run (one run includes both the coke side and the push side traverses), sum the number of doors with door area VE. For batteries subject to an approved alternative standard under §63.305 of this part, calculate the push side and the coke side PLD separately.

12.5.2 Calculate percent leaking doors by using Equation 303–5:

$$PLD = \frac{L_y}{D_{ob}} \times 100 \qquad \text{Eq. 303-5}$$

12.5.3 When traverses are conducted from the bench under sheds, calculate the coke side and the push side separately. Use Equation 303–6 to calculate a yard-equivalent reading:

$$L_b = L_s - (N \times 0.06) \qquad \text{Eq. 303-6}$$

If L_b is less than zero, use zero for L_b in Equation 303–7 in the calculation of PLD.

12.5.3.1 Use Equation 303–7 to calculate PLD:

$$PLD = \frac{L_b + L_y}{D_{ob}} \times 100 \qquad \text{Eq. 303-7}$$

Round off PLD to the nearest hundredth of 1 percent and record as the percent leaking coke oven doors for the run.

12.5.3.2 Average Percent Leaking Doors. Use Equation 303–8 to calculate the daily 30-day rolling average percent leaking doors for each battery using these current day's observations and the 29 previous valid daily sets of observations.

$$\mathrm{PLD}_{(\text{30-day})} = \frac{\left(\mathrm{PLD}_1 + \mathrm{PLD}_2 + \ldots + \mathrm{PLD}_{30}\right)}{30} \qquad \text{Eq. 303-8}$$

12.6 Topside Port Lids. Determine the percent leaking topside port lids for each run as follows:

$$\mathrm{PLL} = \frac{\mathrm{P}_{\mathrm{VE}}}{\mathrm{P}_{\mathrm{ovn}}\left(\mathrm{N} - \mathrm{N}_{\mathrm{i}}\right) - \mathrm{P}_{\mathrm{NO}}} \times 100 \qquad \text{Eq. 303-9}$$

12.6.1 Round off this percentage to the nearest hundredth of 1 percent and record this percentage as the percent leaking topside port lids for the run.

12.6.2 Average Percent Leaking Topside Port Lids. Use Equation 303–10 to calculate the daily 30-day rolling average percent leaking topside port lids for each battery using these current day's observations and the 29 previous valid daily sets of observations.

$$\mathrm{PLL}\ (\text{30-day}) = \frac{\left(\mathrm{PLL}_1 + \mathrm{PLL}_2 + \ldots + \mathrm{PLL}_{30}\right)}{30} \qquad \text{Eq. 303-10}$$

12.7 Offtake Systems. Determine the percent leaking offtake systems for the run as follows:

$$\mathrm{PLO} = \frac{\mathrm{T}_{\mathrm{VE}}}{\mathrm{T}_{\mathrm{ovn}}\left(\mathrm{N} - \mathrm{N}_{\mathrm{i}}\right) + \mathrm{J} - \mathrm{T}_{\mathrm{NO}}} \times 100 \qquad \text{Eq. 303-11}$$

12.7.1 Round off this percentage to the nearest hundredth of 1 percent and record this percentage as the percent leaking offtake systems for the run.

12.7.2 Average Percent Leaking Offtake Systems. Use Equation 303–12 to calculate the daily 30-day rolling average percent leaking offtake systems for each battery using these current day's observations and the 29 previous valid daily sets of observations.

$$\mathrm{PLO}\ (\text{30-day}) = \frac{\left(\mathrm{PLO}_1 + \mathrm{PLO}_2 \ldots + \mathrm{PLO}_{30}\right)}{30} \qquad \text{Eq. 303-12}$$

13.0 Method Performance. [Reserved]

14.0 Pollution Prevention. [Reserved]

15.0 Waste Management. [Reserved]

16.0 References.

1. Missan, R., and A. Stein. Guidelines for Evaluation of Visible Emissions Certification, Field Procedures, Legal Aspects, and Background Material. U.S. Environmental Protection Agency. EPA Publication No. EPA–340/1–75–007. April 1975.

2. Wohlschlegel, P., and D. E. Wagoner. Guideline for Development of a Quality Assurance Program: Volume IX—Visual Determination of Opacity Emission from Stationary Sources. U.S. Environmental Protection Agency. EPA Publication No. EPA–650/4–74–005i. November 1975.

3. U.S. Occupational Safety and Health Administration. Code of Federal Regulations. Title 29, Chapter XVII, Section 1910.1029(g). Washington, D.C. Government Printing Office. July 1, 1990.

4. U.S. Environmental Protection Agency. National Emission Standards for Hazardous Air Pollutants; Coke Oven Emissions from Wet-Coal Charged By-Product Coke Oven Batteries; Proposed Rule and Notice of Public Hearing. Washington, D.C. FEDERAL REGISTER. Vol. 52, No. 78 (13586). April 23, 1987.

17.0 Tables, Diagrams, Flowcharts, and Validation Data

Company name: __________________________
Battery no.: _____ Date: _____ Run no.: _____
City, State: ______________________________
Observer name: ____________________________
Company representative(s): ________________

Charge No.	Oven No.	Clock time	Visible emissions, seconds	Comments

Figure 303–1. Charging System Inspection

Company name: ____________________________
Battery no.: ________________________________
Date: ______________________________________
City, State: ________________________________
Total no. of ovens in battery: _______________
Observer name: ____________________________
Certification expiration date: _______________
Inoperable ovens: __________________________
Company representative(s): _________________
Traverse time CS: __________________________
Traverse time PS: __________________________
Valid run (Y or N): _________________________

Time traverse started/ completed	PS/CS	Door No.	Comments (No. of blocked doors, interruptions to traverse, *etc.*)

Figure 303–2. Door Area Inspection.

Company name: ____________________________
Battery no.: ________________________________
Date: ______________________________________
City, State: ________________________________
Total no. of ovens in battery: _______________
Observer name: ____________________________
Certification expiration date: _______________
Inoperable ovens: __________________________
Company representative(s): _________________
Total no. of lids: ___________________________
Total no. of offtakes: _______________________
Total no. of jumper pipes: ___________________
Ovens not observed: ________________________
Total traverse time: _________________________
Valid run (Y or N): _________________________

Time traverse started/ completed	Type of Inspection (lids, offtakes, collecting main)	Location of VE (Oven #/Port #)	Comments

Time traverse started/ completed	Type of Inspection (lids, offtakes, collecting main)	Location of VE (Oven #/Port #)	Comments

Figure 303–3. Topside Inspection

METHOD 303A—DETERMINATION OF VISIBLE EMISSIONS FROM NONRECOVERY COKE OVEN BATTERIES

NOTE: This method does not include all of the specifications pertaining to observer certification. Some material is incorporated by reference from other methods in this part and in appendix A to 40 CFR Part 60. Therefore, to obtain reliable results, persons using this method should have a thorough knowledge of Method 9 and Method 303.

1.0 Scope and Application

1.1 Applicability. This method is applicable for the determination of visible emissions (VE) from leaking doors at nonrecovery coke oven batteries.

2.0 Summary of Method

2.1 A certified observer visually determines the VE from coke oven battery sources while walking at a normal pace. This method does not require that opacity of emissions be determined or that magnitude be differentiated.

3.0 Definitions

3.1 *Bench* means the platform structure in front of the oven doors.

3.2 *Coke oven door* means each end enclosure on the push side and the coking side of an oven.

3.3 *Coke side* means the side of a battery from which the coke is discharged from ovens at the end of the coking cycle.

3.4 *Nonrecovery coke oven battery* means a source consisting of a group of ovens connected by common walls and operated as a unit, where coal undergoes destructive distillation under negative pressure to produce coke, and which is designed for the combustion of coke oven gas from which by-products are not recovered.

3.5 *Operating oven* means any oven not out of operation for rebuild or maintenance work extensive enough to require the oven to be skipped in the charging sequence.

3.6 *Oven* means a chamber in the coke oven battery in which coal undergoes destructive distillation to produce coke.

3.7 *Push side* means the side of the battery from which the coke is pushed from ovens at the end of the coking cycle.

3.8 *Run* means the observation of visible emissions from coke oven doors in accordance with this method.

3.9 *Shed* means an enclosure that covers the side of the coke oven battery, captures emissions from pushing operations and from leaking coke oven doors on the coke side or push side of the coke oven battery, and routes the emissions to a control device or system.

3.10 *Traverse time* means accumulated time for a traverse as measured by a stopwatch. Traverse time includes time to stop and write down oven numbers but excludes time waiting for obstructions of view to clear or for time to walk around obstacles.

3.11 *Visible Emissions or VE* means any emission seen by the unaided (except for corrective lenses) eye, excluding steam or condensing water.

4.0 Interferences. [Reserved]

5.0 Safety

5.1 Disclaimer. This method may involve hazardous materials, operations, and equipment. This test method may not address all of the safety problems associated with its use. It is the responsibility of the user of this test method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to performing this test method.

5.2 Safety Training. Because coke oven batteries have hazardous environments, the training materials and the field training (Section 10.0) shall cover the precautions required by the company to address health and safety hazards. Special emphasis shall be given to the Occupational Safety and Health Administration (OSHA) regulations pertaining to exposure of coke oven workers (see Reference 3 in Section 16.0). In general, the regulation requires that special fire-retardant clothing and respirators be worn in certain restricted areas of the coke oven battery. The OSHA regulation also prohibits certain activities, such as chewing gum, smoking, and eating in these areas.

6.0 Equipment and Supplies. [Reserved]

7.0 Reagents and Standards [Reserved]

8.0 Sample Collection, Preservation, Transport, and Storage. [Reserved]

9.0 Quality Control. [Reserved]

10.0 Calibration and Standardization.

10.1 Training. This method requires only the determination of whether VE occur and does not require the determination of opacity levels; therefore, observer certification according to Method 9 in Appendix A to Part 60 is not required. However, the first-time observer (trainee) shall have attended the lecture portion of the Method 9 certification course. Furthermore, before conducting any VE observations, an observer shall become familiar with nonrecovery coke oven battery operations and with this test method by observing for a minimum of 4 hours the operation of a nonrecovery coke oven battery in the presence of personnel experienced in performing Method 303 assessments.

11.0 Procedure

The intent of this procedure is to determine VE from coke oven door areas by carefully observing the door area while walking at a normal pace.

11.1 Number of Runs. Refer to §63.309(c)(1) of this part for the appropriate number of runs.

11.2 Battery Traverse. To conduct a battery traverse, walk the length of the battery on the outside of the pusher machine and quench car tracks at a steady, normal walking pace, pausing to make appropriate entries on the door area inspection sheet (Figure 303A–1). The walking pace shall be such that the duration of the traverse does not exceed an average of 4 seconds per oven door, excluding time spent moving around stationary obstructions or waiting for other obstructions to move from positions blocking the view of a series of doors. Extra time is allowed for each leak (a maximum of 10 additional seconds for each leaking door) for the observer to make the proper notation. A walking pace of 3 seconds per oven door has been found to be typical. Record the actual traverse time with a stopwatch. A single test run consists of two timed traverses, one for the coke side and one for the push side.

11.2.1 Various situations may arise that will prevent the observer from viewing a door or a series of doors. The observer has two options for dealing with obstructions to view: (a) Wait for the equipment to move or the fugitive emissions to dissipate before completing the traverse; or (b) skip the affected ovens and move to an unobstructed position to continue the traverse. Continue the traverse. After the completion of the traverse, if the equipment has moved or the fugitive emissions have dissipated, complete the traverse by inspecting the affected doors. Record the oven numbers and make an appropriate notation under ''Comments'' on the door area inspection sheet (Figure 303A–1).

NOTE: Extra time incurred for handling obstructions is not counted in the traverse time.

11.2.2 When batteries have sheds to control pushing emissions, conduct the inspection from outside the shed, if the shed allows such observations, or from the bench. Be aware of special safety considerations pertinent to walking on the bench and follow the instructions of company personnel on the required equipment and operations procedures. If possible, conduct the bench traverse whenever the bench is clear of the door machine and hot coke guide.

11.3 Observations. Record all the information requested at the top of the door area inspection sheet (Figure 303A–1), including the number of non-operating ovens. Record which side is being inspected, *i.e.*, coke side or push side. Other information may be recorded at the discretion of the observer, such as the location of the leak (*e.g.*, top of the door), the reason for any interruption of the traverse, or the position of the sun relative to the battery and sky conditions (*e.g.*, overcast, partly sunny, etc.).

11.3.1 Begin the test run by traversing either the coke side or the push side of the battery. After completing one side, traverse the other side.

11.3.2 During the traverse, look around the entire perimeter of each oven door. The door is considered leaking if VE are detected in the coke oven door area. The coke oven door area includes the entire area on the vertical face of a coke oven between the bench and the top of the battery and the adjacent doors on both sides. Record the oven number and make the appropriate notation on the door area inspection sheet (Figure 303A–1).

11.3.3 Do not record the following sources as door area VE:

11.3.3.1 VE from ovens with doors removed. Record the oven number and make an appropriate notation under ''Comments'';

11.3.3.2 VE from ovens where maintenance work is being conducted. Record the oven number and make an appropriate notation under ''Comments''; or

11.3.3.3 VE from hot coke that has been spilled on the bench as a result of pushing.

12.0 Data Analysis and Calculations

Same as Method 303, Section 12.1, 12.2, 12.3, 12.4, and 12.5.

13.0 Method Performance. [Reserved]

14.0 Pollution Prevention. [Reserved]

15.0 Waste Management. [Reserved]

16.0 References

Same as Method 303, Section 16.0.

17.0 Tables, Diagrams, Flowcharts, and Validation Data

Company name: ____________________________
Battery no.: ______________________________
Date: ____________________________________
City, State: ______________________________
Total no. of ovens in battery: _______________
Observer name: ____________________________
Certification expiration date: _______________
Inoperable ovens: ___________________________
Company representative(s): _________________
Traverse time CS: ___________________________
Traverse time PS: ___________________________
Valid run (Y or N): _________________________

Time traverse started/ completed	PS/CS	Door No.	Comments (No. of blocked doors, interruptions to traverse, *etc.*)

Figure 303A–1. Door Area Inspection

METHOD 304A: DETERMINATION OF BIODEGRADATION RATES OF ORGANIC COMPOUNDS (VENT OPTION)

1.0 Scope and Application

1.1 Applicability. This method is applicable for the determination of biodegradation rates of organic compounds in an activated sludge process. The test method is designed to evaluate the ability of an aerobic biological reaction system to degrade or destroy specific components in waste streams. The method may also be used to determine the effects of changes in wastewater composition on operation. The biodegradation rates determined by utilizing this method are not representative of a full-scale system. The rates measured by this method shall be used in conjunction with the procedures listed in appendix C of this part to calculate the fraction emitted to the air versus the fraction biodegraded.

2.0 Summary of Method

2.1 A self-contained benchtop bioreactor system is assembled in the laboratory. A sample of mixed liquor is added and the waste stream is then fed continuously. The benchtop bioreactor is operated under conditions nearly identical to the target full-scale activated sludge process. Bioreactor temperature, dissolved oxygen concentration, average residence time in the reactor, waste composition, biomass concentration, and biomass composition of the full-scale process are the parameters which are duplicated in the benchtop bioreactor. Biomass shall be removed from the target full-scale activated sludge unit and held for no more than 4 hours prior to use in the benchtop bioreactor. If antifoaming agents are used in the full-scale system, they shall also be used in the benchtop bioreactor. The feed flowing into and the effluent exiting the benchtop bioreactor are analyzed to determine the biodegradation rates of the target compounds. The flow rate of the exit vent is used to calculate the concentration of target compounds (utilizing Henry's law) in the exit gas stream. If Henry's law constants for the compounds of interest are not known, this method cannot be used in the determination of the biodegradation rate and Method 304B is the suggested method. The choice of analytical methodology for measuring the compounds of interest at the inlet and outlet to the benchtop bioreactor are left to the discretion of the source, except where validated methods are available.

3.0 Definitions. [Reserved]

4.0 Interferences. [Reserved]

5.0 Safety

5.1 If explosive gases are produced as a byproduct of biodegradation and could realistically pose a hazard, closely monitor headspace concentration of these gases to ensure laboratory safety. Placement of the benchtop bioreactor system inside a laboratory hood is recommended regardless of byproducts produced.

6.0. Equipment and Supplies

NOTE: Figure 304A–1 illustrates a typical laboratory apparatus used to measure biodegradation rates. While the following description refers to Figure 304A–1, the EPA recognizes that alternative reactor configurations, such as alternative reactor shapes and locations of probes and the feed inlet, will also meet the intent of this method. Ensure that the benchtop bioreactor system is self-contained and isolated from the atmosphere (except for the exit vent stream) by leak-checking fittings, tubing, etc.

6.1 Benchtop Bioreactor. The biological reaction is conducted in a biological oxidation reactor of at least 6 liters capacity. The benchtop bioreactor is sealed and equipped with internal probes for controlling and monitoring dissolved oxygen and internal temperature. The top of the reactor is equipped for aerators, gas flow ports, and instrumentation (while ensuring that no leaks to the atmosphere exist around the fittings).

6.2 Aeration gas. Aeration gas is added to the benchtop bioreactor through three diffusers, which are glass tubes that extend to the bottom fifth of the reactor depth. A pure oxygen pressurized cylinder is recommended in order to maintain the specified oxygen concentration. Install a blower (*e.g.,* Diaphragm Type, 15 SCFH capacity) to blow the aeration gas into the reactor diffusers. Measure the aeration gas flow rate with a rotameter (*e.g.,* 0–15 SCFH recommended). The aeration gas will rise through the benchtop bioreactor, dissolving oxygen into the mixture in the process. The aeration gas must provide sufficient agitation to keep the solids in suspension. Provide an exit for the aeration gas from the top flange of the benchtop bioreactor through a water-cooled (*e.g.,* Allihn-type) vertical condenser. Install the condenser through a gas-tight fitting in the benchtop bioreactor closure. Install a splitter which directs a portion of the gas to an exit vent and the rest of the gas through an air recycle pump back to the benchtop bioreactor. Monitor and record the flow rate through the exit vent at least 3 times per day throughout the day.

6.3 Wastewater Feed. Supply the wastewater feed to the benchtop bioreactor in a collapsible low-density polyethylene container or collapsible liner in a container (*e.g.,* 20 L) equipped with a spigot cap (collapsible containers or liners of other material may be required due to the permeability of some volatile compounds through polyethylene). Obtain the wastewater feed by sampling the wastewater feed in the target process. A representative sample of wastewater shall be obtained from the piping leading to the aeration tank. This sample may be obtained from existing sampling valves at the discharge of the wastewater feed pump, or collected from a pipe discharging to the aeration tank, or by pumping from a well-mixed equalization tank upstream from the aeration tank. Alternatively, wastewater can be pumped continuously to the laboratory apparatus from a bleed stream taken from the equalization tank of the full-scale treatment system.

6.3.1 Refrigeration System. Keep the wastewater feed cool by ice or by refrigeration to 4 °C. If using a bleed stream from the equalization tank, refrigeration is not required if the residence time in the bleed stream is less than five minutes.

6.3.2 Wastewater Feed Pump. The wastewater is pumped from the refrigerated container using a variable-speed peristaltic pump drive equipped with a peristaltic pump head. Add the feed solution to the benchtop bioreactor through a fitting on the top flange. Determine the rate of feed addition to provide a retention time in the benchtop bioreactor that is numerically equivalent to the retention time in the full-scale system. The wastewater shall be fed at a rate sufficient to achieve 90 to 100 percent of the full-scale system residence time.

6.3.3 Treated wastewater feed. The benchtop bioreactor effluent exits at the bottom of the reactor through a tube and proceeds to the clarifier.

6.4 Clarifier. The effluent flows to a separate closed clarifier that allows separation of biomass and effluent (*e.g.,* 2-liter pear-shaped glass separatory funnel, modified by removing the stopcock and adding a 25-mm OD glass tube at the bottom). Benchtop bioreactor effluent enters the clarifier through a tube inserted to a depth of 0.08 m (3 in.) through a stopper at the top of the clarifier. System effluent flows from a tube inserted through the stopper at the top of the clarifier to a drain (or sample bottle when sampling). The underflow from the clarifier leaves from the glass tube at the bottom of the clarifier. Flexible tubing connects this fitting to the sludge recycle pump. This pump is coupled to a variable speed pump drive. The discharge from this pump is returned through a tube inserted in a port on the side of the benchtop bioreactor. An additional port is provided near the bottom of the benchtop bioreactor for sampling the reactor contents. The mixed liquor from the benchtop bioreactor flows into the center of the clarifier. The clarified system effluent separates from the biomass and flows through an exit near the top of the clarifier. There shall be no headspace in the clarifier.

6.5 Temperature Control Apparatus. Capable of maintaining the system at a temperature equal to the temperature of the full-scale system. The average temperature should be maintained within ±2 °C of the set point.

6.5.1 Temperature Monitoring Device. A resistance type temperature probe or a thermocouple connected to a temperature readout with a resolution of 0.1 °C or better.

6.5.2 Benchtop Bioreactor Heater. The heater is connected to the temperature control device.

6.6 Oxygen Control System. Maintain the dissolved oxygen concentration at the levels present in the full-scale system. Target full-scale activated sludge systems with dissolved oxygen concentration below 2 mg/L are required to maintain the dissolved oxygen concentration in the benchtop ioreactor within 0.5 mg/L of the target dissolved oxygen level. Target full-scale activated sludge systems with dissolved oxygen concentration above 2 mg/L are required to maintain the dissolved oxygen concentration in the benchtop bioreactor within 1.5 mg/L of the target dissolved oxygen concentration; however, for target full-scale activated sludge systems with dissolved oxygen concentrations above 2 mg/L, the dissolved oxygen concentration in the benchtop bioreactor may not drop below 1.5 mg/L. If the benchtop bioreactor is outside the control range, the dissolved oxygen is noted and the reactor operation is adjusted.

6.6.1 Dissolved Oxygen Monitor. Dissolved oxygen is monitored with a polarographic probe (gas permeable membrane) connected to a dissolved oxygen meter (*e.g.,* 0 to 15 mg/L, 0 to 50 °C).

6.6.2 Benchtop Bioreactor Pressure Monitor. The benchtop bioreactor pressure is monitored through a port in the top flange of the reactor. This is connected to a gauge control with a span of 13-cm water vacuum to 13-cm water pressure or better. A relay is activated when the vacuum exceeds an adjustable setpoint which opens a solenoid valve (normally closed), admitting oxygen to the system. The vacuum setpoint controlling oxygen addition to the system shall be set at approximately 2.5 ± 0.5 cm water and maintained at this setting except during brief periods when the dissolved oxygen concentration is adjusted.

6.7 Connecting Tubing. All connecting tubing shall be Teflon or equivalent in impermeability. The only exception to this specification is the tubing directly inside the pump head of the wastewater feed pump, which may be Viton, Silicone or another type of flexible tubing.

NOTE: Mention of trade names or products does not constitute endorsement by the U.S. Environmental Protection Agency.

7.0 Reagents and Standards

7.1 Wastewater. Obtain a representative sample of wastewater at the inlet to the full-scale treatment plant if there is an existing full-scale treatment plant (see section 6.3). If there is no existing full-scale treatment plant, obtain the wastewater sample as close to the point of determination as possible. Collect the sample by pumping the wastewater into the 20-L collapsible container. The loss of volatiles shall be minimized from the wastewater by collapsing the container before filling, by minimizing the time of filling, and by avoiding a headspace in the container after filling. If the wastewater requires the addition of nutrients to support the biomass growth and maintain biomass characteristics, those nutrients are added and mixed with the container contents after the container is filled.

7.2 Biomass. Obtain the biomass or activated sludge used for rate constant determination in the bench-scale process from the existing full-scale process or from a representative biomass culture (*e.g.,* biomass that has been developed for a future full-scale process). This biomass is preferentially obtained from a thickened acclimated mixed liquor sample. Collect the sample either by bailing from the mixed liquor in the aeration tank with a weighted container, or by collecting aeration tank effluent at the effluent overflow weir. Transport the sample to the laboratory within no more than 4 hours of collection. Maintain the biomass concentration in the benchtop bioreactor at the level of the full-scale system +10 percent throughout the sampling period of the test method.

8.0 Sample Collection, Preservation, Storage, and Transport

8.1 Benchtop Bioreactor Operation. Charge the mixed liquor to the benchtop bioreactor, minimizing headspace over the liquid surface to minimize entrainment of mixed liquor in the circulating gas. Fasten the benchtop bioreactor headplate to the reactor over the liquid surface. Maintain the temperature of the contents of the benchtop bioreactor system at the temperature of the target full-scale system, ±2 °C, throughout the testing period. Monitor and record the temperature of the benchtop bioreactor contents at least to the nearest 0.1 °C.

8.1.1 Wastewater Storage. Collect the wastewater sample in the 20-L collapsible container. Store the container at 4 °C throughout the testing period. Connect the container to the benchtop bioreactor feed pump.

8.1.2 Wastewater Flow Rate.

8.1.2.1 The hydraulic residence time of the aeration tank is calculated as the ratio of the volume of the tank (L) to the flow rate (L/min). At the beginning of a test, the container shall be connected to the feed pump and solution shall be pumped to the benchtop bioreactor at the required flow rate to achieve the calculated hydraulic residence time of wastewater in the aeration tank.

$$Q_{test} = Q_{fs}\frac{L}{V_{fs}} \qquad \text{Eq. 304A-1}$$

Where:

Q_{test} = wastewater flow rate (L/min)

Q_{fs} = average flow rate of full-scale process (L/min)

V_{fs} = volume of full-scale aeration tank (L)

8.1.2.2 The target flow rate in the test apparatus is the same as the flow rate in the target full-scale process multiplied by the ratio of benchtop bioreactor volume (e.g., 6 L) to the volume of the full-scale aeration tank. The hydraulic residence time shall be maintained at 90 to 100 percent of the residence time maintained in the full-scale unit. A nominal flow rate is set on the pump based on a pump calibration. Changes in the elasticity of the tubing in the pump head and the accumulation of material in the tubing affect this calibration. The nominal pumping rate shall be changed as necessary based on volumetric flow measurements. Discharge the benchtop bioreactor effluent to a wastewater storage, treatment, or disposal facility, except during sampling or flow measurement periods.

8.1.3 Sludge Recycle Rate. Set the sludge recycle rate at a rate sufficient to prevent accumulation in the bottom of the clarifier. Set the air circulation rate sufficient to maintain the biomass in suspension.

8.1.4 Benchtop Bioreactor Operation and Maintenance. Temperature, dissolved oxygen concentration, exit vent flow rate, benchtop bioreactor effluent flow rate, and air circulation rate shall be measured and recorded three times throughout each day of benchtop bioreactor operation. If other parameters (such as pH) are measured and maintained in the target full-scale unit, these parameters, where appropriate, shall be monitored and maintained to target full-scale specifications in the benchtop bioreactor. At the beginning of each sampling period (Section 8.2), sample the benchtop bioreactor contents for suspended solids analysis. Take this sample by loosening a clamp on a length of tubing attached to the lower side port. Determine the suspended solids gravimetrically by the Gooch crucible/glass fiber filter method for total suspended solids, in accordance with Standard Methods[3] or equivalent. When necessary, sludge shall be wasted from the lower side port of the benchtop bioreactor, and the volume that is wasted shall be replaced with an equal volume of the reactor effluent. Add thickened activated sludge mixed liquor as necessary to the benchtop bioreactor to increase the suspended solids concentration to the desired level. Pump this mixed liquor to the benchtop bioreactor through the upper side port (Item 24 in Figure 304A–1). Change the membrane on the dissolved oxygen probe before starting the test. Calibrate the oxygen probe immediately before the start of the test and each time the membrane is changed.

8.1.5 Inspection and Correction Procedures. If the feed line tubing becomes clogged, replace with new tubing. If the feed flow rate is not within 5 percent of target flow any time the flow rate is measured, reset pump or check the flow measuring device and measure flow rate again until target flow rate is achieved.

8.2 Test Sampling. At least two and one half hydraulic residence times after the system has reached the targeted specifications shall be permitted to elapse before the first sample is taken. Effluent samples of the clarifier discharge (Item 20 in Figure 304A–1) and the influent wastewater feed are collected in 40-mL septum vials to which two drops of 1:10 hydrochloric acid (HCl) in water have been added. Sample the clarifier discharge directly from the drain line. These samples will be composed of the entire flow from the system for a period of several minutes. Feed samples shall be taken from the feed pump suction line after temporarily stopping the benchtop bioreactor feed, removing a connector, and squeezing the collapsible feed container. Store both influent and effluent samples at 4 °C immediately after collection and analyze within 8 hours of collection.

8.2.1 Frequency of Sampling. During the test, sample and analyze the wastewater feed and the clarifier effluent at least six times. The sampling intervals shall be separated by at least 8 hours. During any individual sampling interval, sample the wastewater feed simultaneously with or immediately after the effluent sample. Calculate the relative standard deviation (RSD) of the amount removed (*i.e.*, effluent concentration—wastewater feed concentration). The RSD values shall be < 15 percent. If an RSD value is > 15 percent, continue sampling and analyzing influent and effluent sets of samples until the RSD values are within specifications.

8.2.2 Sampling After Exposure of System to Atmosphere. If, after starting sampling procedures, the benchtop bioreactor system is exposed to the atmosphere (due to leaks, maintenance, etc.), allow at least one hydraulic residence time to elapse before resuming sampling.

9.0 Quality Control

9.1 Dissolved Oxygen. Fluctuation in dissolved oxygen concentration may occur for numerous reasons, including undetected gas leaks, increases and decreases in mixed liquor suspended solids resulting from cell growth and solids loss in the effluent stream, changes in diffuser performance, cycling of effluent flow rate, and overcorrection due to faulty or sluggish dissolved oxygen probe response. Control the dissolved oxygen concentration in the benchtop bioreactor by changing the proportion of oxygen in the circulating aeration gas. Should the dissolved oxygen concentration drift below the designated experimental condition, bleed a small amount of aeration gas from the system on the pressure side (i.e., immediately upstream of one of the diffusers). This will create a vacuum in the system, triggering the pressure sensitive relay to open the solenoid valve and admit oxygen to the system. Should the dissolved oxygen concentration drift above the designated experimental condition, slow or stop the oxygen input to the system until the dissolved oxygen concentration approaches the correct level.

9.2 Sludge Wasting.

9.2.1 Determine the suspended solids concentration (section 8.1.4) at the beginning of a test, and once per day thereafter during the test. If the test is completed within a two day period, determine the suspended solids concentration after the final sample set is taken. If the suspended solids concentration exceeds the specified concentration, remove a fraction of the sludge from the benchtop bioreactor. The required volume of mixed liquor to remove is determined as follows:

$$V_w = V_r\left(\frac{S_m - S_s}{S_m}\right) \qquad \text{Eq. 304A-2}$$

Where:

V_w is the wasted volume (Liters),
V_r is the volume of the benchtop bioreactor (Liters),
S_m is the measured solids (g/L), and
S_s is the specified solids (g/L).

9.2.2 Remove the mixed liquor from the benchtop bioreactor by loosening a clamp on the mixed liquor sampling tube and allowing the required volume to drain to a graduated flask. Clamp the tube when the correct volume has been wasted. Replace the volume of the liquid wasted by pouring the same volume of effluent back into the benchtop bioreactor. Dispose of the waste sludge properly.

9.3 Sludge Makeup. In the event that the suspended solids concentration is lower than the specifications, add makeup sludge back into the benchtop bioreactor. Determine the amount of sludge added by the following equation:

$$V_w = V_r \left(\frac{S_s - S_m}{S_w} \right) \qquad \text{Eq. 304A-3}$$

Where:

V_w is the volume of sludge to add (Liters),
V_r is the volume of the benchtop bioreactor (Liters),
S_w is the solids in the makeup sludge (g/L),
S_m is the measured solids (g/L), and S_s is the specified solids (g/L).

10.0 Calibration and Standardization

10.1 Wastewater Pump Calibration. Determine the wastewater flow rate by collecting the system effluent for a time period of at least one hour, and measuring the volume with a graduated cylinder. Record the collection time period and volume collected. Determine flow rate. Adjust the pump speed to deliver the specified flow rate.

10.2 Calibration Standards. Prepare calibration standards from pure certified standards in an aqueous medium. Prepare and analyze three concentrations of calibration standards for each target component (or for a mixture of components) in triplicate daily throughout the analyses of the test samples. At each concentration level, a single calibration shall be within 5 percent of the average of the three calibration results. The low and medium calibration standards shall bracket the expected concentration of the effluent (treated) wastewater. The medium and high standards shall bracket the expected influent concentration.

11.0 Analytical Procedures

11.1 Analysis. If the identity of the compounds of interest in the wastewater is not known, a representative sample of the wastewater shall be analyzed in order to identify all of the compounds of interest present. A gas chromatography/mass spectrometry screening method is recommended.

11.1.1 After identifying the compounds of interest in the wastewater, develop and/or use one or more analytical techniques capable of measuring each of those compounds (more than one analytical technique may be required, depending on the characteristics of the wastewater). Test Method 18, found in appendix A of 40 CFR 60, may be used as a guideline in developing the analytical technique. Purge and trap techniques may be used for analysis providing the target components are sufficiently volatile to make this technique appropriate. The limit of quantitation for each compound shall be determined (see reference 1). If the effluent concentration of any target compound is below the limit of quantitation determined for that compound, the operation of the Method 304 unit may be altered to attempt to increase the effluent concentration above the limit of quantitation. Modifications to the method shall be approved prior to the test. The request should be addressed to Method 304 contact, Emissions Measurement Center, Mail Drop 19, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711.

12.0 Data Analysis and Calculations

12.1 Nomenclature. The following symbols are used in the calculations.

C_i = Average inlet feed concentration for a compound of interest, as analyzed (mg/L)
C_o = Average outlet (effluent) concentration for a compound of interest, as analyzed (mg/L)
X = Biomass concentration, mixed liquor suspended solids (g/L)
t = Hydraulic residence time in the benchtop bioreactor (hours)
V = Volume of the benchtop bioreactor (L)
Q = Flow rate of wastewater into the benchtop bioreactor, average (L/hour)

12.2 Residence Time. The hydraulic residence time of the benchtop bioreactor is equal to the ratio of the volume of the benchtop bioreactor (L) to the flow rate (L/h):

$$t = \frac{V}{Q} \qquad \text{Eq. 304A-4}$$

12.3 Rate of Biodegradation. Calculate the rate of biodegradation for each component with the following equation:

$$\text{Rate}\left(\frac{\text{mg}}{\text{L} - \text{h}} \right) = \frac{C_i - C_o}{t} \qquad \text{Eq. 304A-5}$$

12.4 First-Order Biorate Constant. Calculate the first-order biorate constant (K1) for each component with the following equation:

$$K1\left(\frac{L}{g-h}\right)=\frac{C_i-C_o}{t\,C_o\,X} \qquad \text{Eq. 304A-6}$$

12.5 Relative Standard Deviation (RSD). Determine the standard deviation of both the influent and effluent sample concentrations (S) using the following equation:

$$RSD=\frac{100}{\overline{S}}\left(\sum_{i=1}^{n}\frac{\left(S_i-\overline{S}\right)^2}{(n-1)}\right)^{1/2} \qquad \text{Eq. 304A-7}$$

12.6 Determination of Percent Air Emissions and Percent Biodegraded. Use the results from this test method and follow the applicable procedures in appendix C of 40 CFR part 63, entitled, ‘‘Determination of the Fraction Biodegraded (F_{bio}) in a Biological Treatment Unit’’ to determine $F_{bio.}$

13.0 Method Performance. [Reserved]

14.0 Pollution Prevention. [Reserved]

15.0 Waste Management. [Reserved]

16.0 References

1. ‘‘Guidelines for data acquisition and data quality evaluation in Environmental Chemistry,’’ Daniel MacDoughal, Analytical Chemistry, Volume 52, p. 2242, 1980.

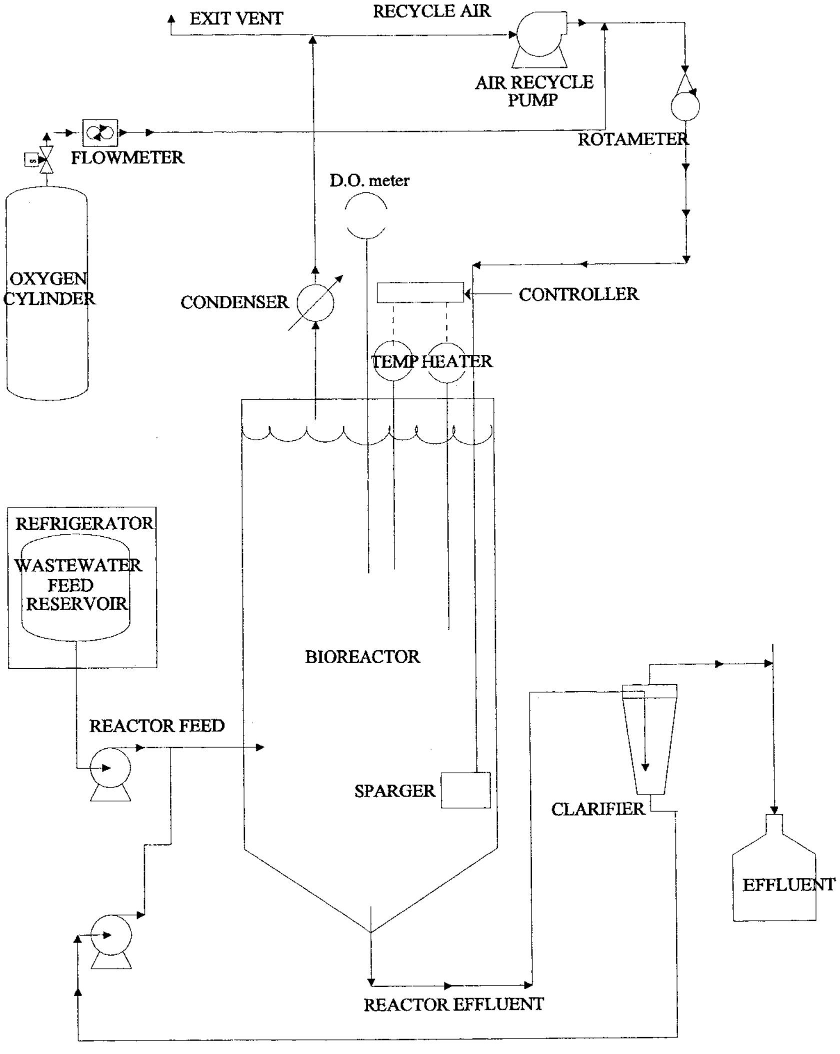
2. Test Method 18, 40 CFR 60, appendix A.

3. Standard Methods for the Examination of Water and Wastewater, 16th Edition, Method 209C, Total Suspended Solids Dried at 103–105 °C, APHA, 1985.

4. Water7, Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)—Air Emission Models, U.S. Environmental Protection Agency, EPA–450/3–87–026, Review Draft, November 1989.

5. Chemdat7, Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)—Air Emission Models, U.S. Environmental Protection Agency, EPA–450/3–87–026, Review Draft, November 1989.

17.0 Tables, Diagrams, Flowcharts, and Validation Data



EPA METHOD 304A VENT BIOREACTOR SYSTEM

METHOD 304B: DETERMINATION OF BIODEGRADATION RATES OF ORGANIC COMPOUNDS (SCRUBBER OPTION)

1.0 Scope and Application

1.1 Applicability. This method is applicable for the determination of biodegradation rates of organic compounds in an activated sludge process. The test method is designed to evaluate the ability of an aerobic biological reaction system to degrade or destroy specific components in waste streams. The method may also be used to determine the effects of changes in wastewater composition on operation. The biodegradation rates determined by utilizing this method are not representative of a full-scale system. Full-scale systems embody biodegradation and air emissions in competing reactions. This method measures biodegradation in absence of air emissions. The rates measured by this method shall be used in conjunction with the procedures listed in appendix C of this part to calculate the fraction emitted to the air versus the fraction biodegraded.

2.0 Summary of Method

2.1 A self-contained benchtop bioreactor system is assembled in the laboratory. A sample of mixed liquor is added and the waste stream is then fed continuously. The benchtop bioreactor is operated under conditions nearly identical to the target full-scale activated sludge process, except that air emissions are not a factor. The benchtop bioreactor temperature, dissolved oxygen concentration, average residence time in the reactor, waste composition, biomass concentration, and biomass composition of the target full-scale process are the parameters which are duplicated in the laboratory system. Biomass shall be removed from the target full-scale activated sludge unit and held for no more than 4 hours prior to use in the benchtop bioreactor. If antifoaming agents are used in the full-scale system, they shall also be used in the benchtop bioreactor. The feed flowing into and the effluent exiting the benchtop bioreactor are analyzed to determine the biodegradation rates of the target compounds. The choice of analytical methodology for measuring the compounds of interest at the inlet and outlet to the benchtop bioreactor are left to the discretion of the source, except where validated methods are available.

3.0 Definitions. [Reserved]

4.0 Interferences. [Reserved]

5.0 Safety

5.1 If explosive gases are produced as a byproduct of biodegradation and could realistically pose a hazard, closely monitor headspace concentration of these gases to ensure laboratory safety. Placement of the benchtop bioreactor system inside a laboratory hood is recommended regardless of byproducts produced.

6.0 Equipment and Supplies

NOTE: Figure 304B–1 illustrates a typical laboratory apparatus used to measure biodegradation rates. While the following description refers to Figure 304B–1, the EPA recognizes that alternative reactor configurations, such as alternative reactor shapes and locations of probes and the feed inlet, will also meet the intent of this method. Ensure that the benchtop bioreactor system is self-contained and isolated from the atmosphere by leak-checking fittings, tubing, etc.

6.1 Benchtop Bioreactor. The biological reaction is conducted in a biological oxidation reactor of at least 6-liters capacity. The benchtop bioreactor is sealed and equipped with internal probes for controlling and monitoring dissolved oxygen and internal temperature. The top of the benchtop bioreactor is equipped for aerators, gas flow ports, and instrumentation (while ensuring that no leaks to the atmosphere exist around the fittings).

6.2 Aeration gas. Aeration gas is added to the benchtop bioreactor through three diffusers, which are glass tubes that extend to the bottom fifth of the reactor depth. A pure oxygen pressurized cylinder is recommended in order to maintain the specified oxygen concentration. Install a blower (*e.g.,* Diaphragm Type, 15 SCFH capacity) to blow the aeration gas into the benchtop bioreactor diffusers. Measure the aeration gas flow rate with a rotameter (*e.g.,* 0–15 SCFH recommended). The aeration gas will rise through the benchtop bioreactor, dissolving oxygen into the mixture in the process. The aeration gas must provide sufficient agitation to keep the solids in suspension. Provide an exit for the aeration gas from the top flange of the benchtop bioreactor through a water-cooled (*e.g.,* Allihn-type) vertical condenser. Install the condenser through a gas-tight fitting in the benchtop bioreactor closure. Design the system so that at least 10 percent of the gas flows through an alkaline scrubber containing 175 mL of 45 percent by weight solution of potassium hydroxide (KOH) and 5 drops of 0.2 percent alizarin yellow dye. Route the balance of the gas through an adjustable scrubber bypass. Route all of the gas through a 1-L knock-out flask to remove entrained moisture and then to the intake of the blower. The blower recirculates the gas to the benchtop bioreactor.

6.3 Wastewater Feed. Supply the wastewater feed to the benchtop bioreactor in a collapsible low-density polyethylene container or collapsible liner in a container (*e.g.,* 20 L) equipped with a spigot cap (collapsible containers or liners of other material may be required due to the permeability of some volatile compounds through polyethylene). Obtain the wastewater feed by sampling the wastewater feed in the target process. A representative sample of wastewater shall be obtained from the piping leading to the aeration tank. This sample may be obtained from existing sampling valves at the discharge of the wastewater feed pump, or collected from a pipe discharging to the aeration tank, or by pumping from a well-mixed equalization tank upstream from the aeration tank. Alternatively, wastewater can be pumped continuously to the laboratory apparatus from a bleed stream taken from the equalization tank of the full-scale treatment system.

6.3.1 Refrigeration System. Keep the wastewater feed cool by ice or by refrigeration to 4 °C. If using a bleed stream from the equalization tank, refrigeration is not required if the residence time in the bleed stream is less than five minutes.

6.3.2 Wastewater Feed Pump. The wastewater is pumped from the refrigerated container using a variable-speed peristaltic pump drive equipped with a peristaltic pump head. Add the feed solution to the benchtop bioreactor through a fitting on the top flange. Determine the rate of feed addition to provide a retention time in the benchtop bioreactor that is numerically equivalent to the retention time in the target full-scale system. The wastewater shall be fed at a rate sufficient to achieve 90 to 100 percent of the target full-scale system residence time.

6.3.3 Treated wastewater feed. The benchtop bioreactor effluent exits at the bottom of the reactor through a tube and proceeds to the clarifier.

6.4 Clarifier. The effluent flows to a separate closed clarifier that allows separation of biomass and effluent (*e.g.*, 2-liter pear-shaped glass separatory funnel, modified by removing the stopcock and adding a 25-mm OD glass tube at the bottom). Benchtop bioreactor effluent enters the clarifier through a tube inserted to a depth of 0.08 m (3 in.) through a stopper at the top of the clarifier. System effluent flows from a tube inserted through the stopper at the top of the clarifier to a drain (or sample bottle when sampling). The underflow from the clarifier leaves from the glass tube at the bottom of the clarifier. Flexible tubing connects this fitting to the sludge recycle pump. This pump is coupled to a variable speed pump drive. The discharge from this pump is returned through a tube inserted in a port on the side of the benchtop bioreactor. An additional port is provided near the bottom of the benchtop bioreactor for sampling the reactor contents. The mixed liquor from the benchtop bioreactor flows into the center of the clarifier. The clarified system effluent separates from the biomass and flows through an exit near the top of the clarifier. There shall be no headspace in the clarifier.

6.5 Temperature Control Apparatus. Capable of maintaining the system at a temperature equal to the temperature of the full-scale system. The average temperature should be maintained within ±2 °C of the set point.

6.5.1 Temperature Monitoring Device. A resistance type temperature probe or a thermocouple connected to a temperature readout with a resolution of 0.1 °C or better.

6.5.2 Benchtop Bioreactor Heater. The heater is connected to the temperature control device.

6.6 Oxygen Control System. Maintain the dissolved oxygen concentration at the levels present in the full-scale system. Target full-scale activated sludge systems with dissolved oxygen concentration below 2 mg/L are required to maintain the dissolved oxygen concentration in the benchtop bioreactor within 0.5 mg/L of the target dissolved oxygen level. Target full-scale activated sludge systems with dissolved oxygen concentration above 2 mg/L are required to maintain the dissolved oxygen concentration in the benchtop bioreactor within 1.5 mg/L of the target dissolved oxygen concentration; however, for target full-scale activated sludge systems with dissolved oxygen concentrations above 2 mg/L, the dissolved oxygen concentration in the benchtop bioreactor may not drop below 1.5 mg/L. If the benchtop bioreactor is outside the control range, the dissolved oxygen is noted and the reactor operation is adjusted.

6.6.1 Dissolved Oxygen Monitor. Dissolved oxygen is monitored with a polarographic probe (gas permeable membrane) connected to a dissolved oxygen meter (*e.g.*, 0 to 15 mg/L, 0 to 50 °C).

6.6.2 Benchtop Bioreactor Pressure Monitor. The benchtop bioreactor pressure is monitored through a port in the top flange of the reactor. This is connected to a gauge control with a span of 13-cm water vacuum to 13-cm water pressure or better. A relay is activated when the vacuum exceeds an adjustable setpoint which opens a solenoid valve (normally closed), admitting oxygen to the system. The vacuum setpoint controlling oxygen addition to the system shall be set at approximately 2.5 ± 0.5 cm water and maintained at this setting except during brief periods when the dissolved oxygen concentration is adjusted.

6.7 Connecting Tubing. All connecting tubing shall be Teflon or equivalent in impermeability. The only exception to this specification is the tubing directly inside the pump head of the wastewater feed pump, which may be Viton, Silicone or another type of flexible tubing.

NOTE: Mention of trade names or products does not constitute endorsement by the U.S. Environmental Protection Agency.

7.0. Reagents and Standards

7.1 Wastewater. Obtain a representative sample of wastewater at the inlet to the full-scale treatment plant if there is an existing full-scale treatment plant (See Section 6.3). If there is no existing full-scale treatment plant, obtain the wastewater sample as close to the point of determination as possible. Collect the sample by pumping the wastewater into the 20-L collapsible container. The loss of volatiles shall be minimized from the wastewater by collapsing the container before filling, by minimizing the time of filling, and by avoiding a headspace in the container after filling. If the wastewater requires the addition of nutrients to support the biomass growth and maintain biomass characteristics, those nutrients are added and mixed with the container contents after the container is filled.

7.2 Biomass. Obtain the biomass or activated sludge used for rate constant determination in the bench-scale process from the existing full-scale process or from a representative biomass culture (*e.g.*, biomass that has been developed for a future full-scale process). This biomass is preferentially obtained from a thickened acclimated mixed liquor sample. Collect the sample either by bailing from the mixed liquor in the aeration tank with a weighted container, or by collecting aeration tank effluent at the effluent overflow weir. Transport the sample to the laboratory within no more than 4 hours of collection. Maintain the biomass concentration in the benchtop bioreactor at the level of the target full-scale system +10 percent throughout the sampling period of the test method.

8.0 Sample Collection, Preservation, Storage, and Transport

8.1 Benchtop Bioreactor Operation. Charge the mixed liquor to the benchtop bioreactor, minimizing headspace over the liquid surface to minimize entrainment of mixed liquor in the circulating gas. Fasten the benchtop bioreactor headplate to the reactor over the liquid surface. Maintain the temperature of the contents of the benchtop bioreactor system at the temperature of the target full-scale system, ±2 °C, throughout the testing period. Monitor and record the temperature of the reactor contents at least to the nearest 0.1 °C.

8.1.1 Wastewater Storage. Collect the wastewater sample in the 20-L collapsible container. Store the container at 4 °C throughout the testing period. Connect the container to the benchtop bioreactor feed pump.

8.1.2 Wastewater Flow Rate.

8.1.2.1 The hydraulic residence time of the aeration tank is calculated as the ratio of the volume of the tank (L) to the flow rate (L/min). At the beginning of a test, the container shall be connected to the feed pump and solution shall be pumped to the benchtop bioreactor at the required flow rate to achieve the calculated hydraulic residence time of wastewater in the aeration tank.

$$Q_{test} = Q_{fs}\frac{L}{V_{fs}} \qquad \text{Eq. 304B-1}$$

Where:

Q_{test} = wastewater flow rate (L/min)

Q_{fs} = average flow rate of full-scale process (L/min)

V_{fs} = volume of full-scale aeration tank (L)

8.1.2.2 The target flow rate in the test apparatus is the same as the flow rate in the target full-scale process multiplied by the ratio of benchtop bioreactor volume (*e.g.*, 6 L) to the volume of the full-scale aeration tank. The hydraulic residence time shall be maintained at 90 to 100 percent of the residence time maintained in the target full-scale unit. A nominal flow rate is set on the pump based on a pump calibration. Changes in the elasticity of the tubing in the pump head and the accumulation of material in the tubing affect this calibration. The nominal pumping rate shall be changed as necessary based on volumetric flow measurements. Discharge the benchtop bioreactor effluent to a wastewater storage, treatment, or disposal facility, except during sampling or flow measurement periods.

8.1.3 Sludge Recycle Rate. Set the sludge recycle rate at a rate sufficient to prevent accumulation in the bottom of the clarifier. Set the air circulation rate sufficient to maintain the biomass in suspension.

8.1.4 Benchtop Bioreactor Operation and Maintenance. Temperature, dissolved oxygen concentration, flow rate, and air circulation rate shall be measured and recorded three times throughout each day of testing. If other parameters (such as pH) are measured and maintained in the target full-scale unit, these parameters shall, where appropriate, be monitored and maintained to full-scale specifications in the benchtop bioreactor. At the beginning of each sampling period (section 8.2), sample the benchtop bioreactor contents for suspended solids analysis. Take this sample by loosening a clamp on a length of tubing attached to the lower side port. Determine the suspended solids gravimetrically by the Gooch crucible/glass fiber filter method for total suspended solids, in accordance with Standard Methods[3] or equivalent. When necessary, sludge shall be wasted from the lower side port of the benchtop bioreactor, and the volume that is wasted shall be replaced with an equal volume of the benchtop bioreactor effluent. Add thickened activated sludge mixed liquor as necessary to the benchtop bioreactor to increase the suspended solids concentration to the desired level. Pump this mixed liquor to the benchtop bioreactor through the upper side port (Item 24 in Figure 304B–1). Change the membrane on the dissolved oxygen probe before starting the test. Calibrate the oxygen probe immediately before the start of the test and each time the membrane is changed.

The scrubber solution shall be replaced each weekday with 175 mL 45 percent W/W KOH solution to which five drops of 0.2 percent alizarin yellow indicator in water have been added. The potassium hydroxide solution in the alkaline scrubber shall be changed if the alizarin yellow dye color changes.

8.1.5 Inspection and Correction Procedures. If the feed line tubing becomes clogged, replace with new tubing. If the feed flow rate is not within 5 percent of target flow any time the flow rate is measured, reset pump or check the flow measuring device and measure flow rate again until target flow rate is achieved.

8.2 Test Sampling. At least two and one half hydraulic residence times after the system has reached the targeted specifications shall be permitted to elapse before the first sample is taken. Effluent samples of the clarifier discharge (Item 20 in Figure 304B–1) and the influent wastewater feed are collected in 40-mL septum vials to which two drops of 1:10 hydrochloric acid (HCl) in water have been added. Sample the clarifier discharge directly from the drain line. These samples will be composed of the entire flow from the system for a period of several minutes. Feed samples shall be taken from the feed pump suction line after temporarily stopping the benchtop bioreactor feed, removing a connector, and squeezing the collapsible feed container. Store both influent and effluent samples at 4 °C immediately after collection and analyze within 8 hours of collection.

8.2.1 Frequency of Sampling. During the test, sample and analyze the wastewater feed and the clarifier effluent at least six times. The sampling intervals shall be separated by at least 8 hours. During any individual sampling interval, sample the wastewater feed simultaneously with or immediately after the effluent sample. Calculate the RSD of the amount removed (*i.e.*, effluent concentration—wastewater feed concentration). The RSD values shall be <15 percent. If an RSD value is >15 percent, continue sampling and analyzing influent and effluent sets of samples until the RSD values are within specifications.

8.2.2 Sampling After Exposure of System to Atmosphere. If, after starting sampling procedures, the benchtop bioreactor system is exposed to the atmosphere (due to leaks, maintenance, etc.), allow at least one hydraulic residence time to elapse before resuming sampling.

9.0 Quality Control

9.1 Dissolved Oxygen. Fluctuation in dissolved oxygen concentration may occur for numerous reasons, including undetected gas leaks, increases and decreases in mixed liquor suspended solids resulting from cell growth and solids loss in the effluent stream, changes in diffuser performance, cycling of effluent flow rate, and overcorrection due to faulty or sluggish dissolved oxygen probe response. Control the dissolved oxygen concentration in the benchtop bioreactor by changing the proportion of oxygen in the circulating aeration gas. Should the dissolved oxygen concentration drift below the designated experimental condition, bleed a small amount of aeration gas from the system on the pressure side (*i.e.*, immediately upstream of one of the diffusers). This will create a vacuum in the system, triggering the pressure sensitive relay to open the solenoid valve and admit oxygen to the system. Should the dissolved oxygen concentration drift above the designated experimental condition, slow or stop the oxygen input to the system until the dissolved oxygen concentration approaches the correct level.

9.2 Sludge Wasting.

9.2.1 Determine the suspended solids concentration (section 8.1.4) at the beginning of a test, and once per day thereafter during the test. If the test is completed within a two day period, determine the suspended solids concentration after the final sample set is taken. If the suspended solids concentration exceeds the specified concentration, remove a fraction of the sludge from the benchtop bioreactor. The required volume of mixed liquor to remove is determined as follows:

$$V_w = V_r\left(\frac{S_m - S_s}{S_m}\right) \qquad \text{Eq. 304B-2}$$

Where:

V_w is the wasted volume (Liters),
V_r is the volume of the benchtop bioreactor (Liters),
S_m is the measured solids (g/L), and
S_s is the specified solids (g/L).

9.2.2 Remove the mixed liquor from the benchtop bioreactor by loosening a clamp on the mixed liquor sampling tube and allowing the required volume to drain to a graduated flask. Clamp the tube when the correct volume has been wasted. Replace the volume of the liquid wasted by pouring the same volume of effluent back into the benchtop bioreactor. Dispose of the waste sludge properly.

9.3 Sludge Makeup. In the event that the suspended solids concentration is lower than the specifications, add makeup sludge back into the benchtop bioreactor. Determine the amount of sludge added by the following equation:

$$V_w = V_r\left(\frac{S_s - S_m}{S_w}\right) \qquad \text{Eq. 304B-3}$$

Where:

V_w is the volume of sludge to add (Liters),
V_r is the volume of the benchtop bioreactor (Liters),
S_w is the solids in the makeup sludge (g/L),
S_m is the measured solids (g/L), and
S_s is the specified solids (g/L).

10.0 Calibration and Standardizations

10.1 Wastewater Pump Calibration. Determine the wastewater flow rate by collecting the system effluent for a time period of at least one hour, and measuring the volume with a graduated cylinder. Record the collection time period and volume collected. Determine flow rate. Adjust the pump speed to deliver the specified flow rate.

10.2 Calibration Standards. Prepare calibration standards from pure certified standards in an aqueous medium. Prepare and analyze three concentrations of calibration standards for each target component (or for a mixture of components) in triplicate daily throughout the analyses of the test samples. At each concentration level, a single calibration shall be within 5 percent of the average of the three calibration results. The low and medium calibration standards shall bracket the expected concentration of the effluent (treated) wastewater. The medium and high standards shall bracket the expected influent concentration.

11.0 Analytical Test Procedures

11.1 Analysis. If the identity of the compounds of interest in the wastewater is not known, a representative sample of the wastewater shall be analyzed in order to identify all of the compounds of interest present. A gas chromatography/mass spectrometry screening method is recommended.

11.1.1 After identifying the compounds of interest in the wastewater, develop and/or use one or more analytical technique capable of measuring each of those compounds (more than one analytical technique may be required, depending on the characteristics of the wastewater). Method 18, found in appendix A of 40 CFR 60, may be used as a guideline in developing the analytical technique. Purge and trap techniques may be used for analysis providing the target components are sufficiently volatile to make this technique appropriate. The limit of quantitation for each compound shall be determined.[1] If the effluent concentration of any target compound is below the limit of quantitation determined for that compound, the operation of the Method 304 unit may be altered to attempt to increase the effluent concentration above the limit of quantitation. Modifications to the method shall be approved prior to the test. The request should be addressed to Method 304 contact, Emissions Measurement Center, Mail Drop 19, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711.

12.0 Data Analysis and Calculations

12.1 Nomenclature. The following symbols are used in the calculations.

C_i = Average inlet feed concentration for a compound of interest, as analyzed (mg/L)
C_o = Average outlet (effluent) concentration for a compound of interest, as analyzed (mg/L)
X = Biomass concentration, mixed liquor suspended solids (g/L)
t = Hydraulic residence time in the benchtop bioreactor (hours)
V = Volume of the benchtop bioreactor (L)
Q = Flow rate of wastewater into the benchtop bioreactor, average (L/hour)

12.2 Residence Time. The hydraulic residence time of the benchtop bioreactor is equal to the ratio of the volume of the benchtop bioreactor (L) to the flow rate (L/h)

$$t = \frac{V}{Q} \qquad \text{Eq. 304B-4}$$

12.3 Rate of Biodegradation. Calculate the rate of biodegradation for each component with the following equation:

$$\text{Rate}\left(\frac{\text{mg}}{\text{L}-\text{h}}\right)=\frac{C_i-C_o}{t} \qquad \text{Eq. 304B-5}$$

12.4 First-Order Biorate Constant. Calculate the first-order biorate constant (K1) for each component with the following equation:

$$\text{K1}\left(\frac{\text{L}}{\text{g}-\text{h}}\right)=\frac{C_i-C_o}{tC_oX} \qquad \text{Eq. 304B-6}$$

12.5 Relative Standard Deviation (RSD). Determine the standard deviation of both the influent and effluent sample concentrations (S) using the following equation:

$$\text{RSD}=\frac{100}{\overline{S}}\left(\sum_{i=1}^{n}\frac{\left(S_i-\overline{S}\right)^2}{(n-1)}\right)^{1/2} \qquad \text{Eq. 304B-7}$$

12.6 Determination of Percent Air Emissions and Percent Biodegraded. Use the results from this test method and follow the applicable procedures in appendix C of 40 CFR Part 63, entitled, ''Determination of the Fraction Biodegraded (F_{bio}) in a Biological Treatment Unit'' to determine $F_{bio.}$

13.0 Method Performance. [Reserved]

14.0 Pollution Prevention. [Reserved]

15.0 Waste Management. [Reserved]

16.0 References

1. ''Guidelines for data acquisition and data quality evaluation in Environmental Chemistry'', Daniel MacDoughal, Analytical Chemistry, Volume 52, p. 2242, 1980.

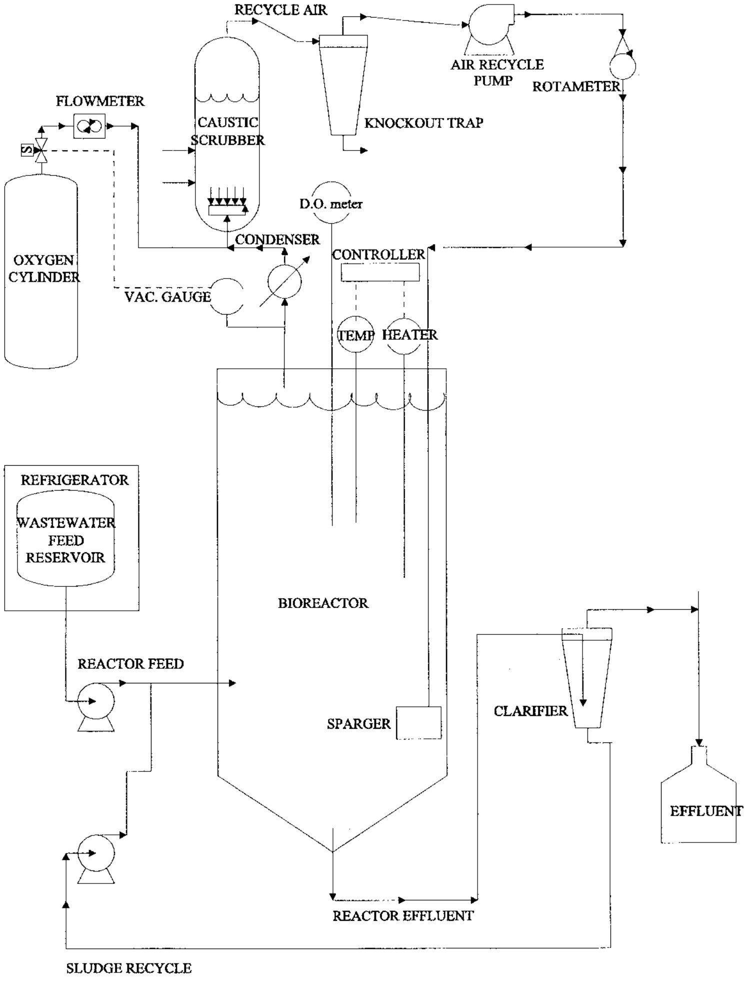
2. Test Method 18, 40 CFR 60, Appendix A.

3. Standard Methods for the Examination of Water and Wastewater, 16th Edition, Method 209C, Total Suspended Solids Dried at 103–105 °C, APHA, 1985.

4. Water—7, Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)—Air Emission Models, U.S. Environmental Protection Agency, EPA–450/3–87–026, Review Draft, November 1989.

5. Chemdat7, Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)—Air Emission Models, U.S. Environmental Protection Agency, EPA–450/3–87–026, Review Draft, November 1989.

17.0 Tables, Diagrams, Flowcharts, and Validation Data



EPA METHOD 304B BIOREACTOR SYSTEM

METHOD 305: MEASUREMENT OF EMISSION POTENTIAL OF INDIVIDUAL VOLATILE ORGANIC COMPOUNDS IN WASTE

NOTE: This method does not include all of the specifications (*e.g.*, equipment and supplies) and procedures (*e.g.*, sampling and analytical) essential to its performance. Some material is incorporated by reference from other methods in 40 CFR Part 60, Appendix A. Therefore, to obtain reliable results, persons using this method should have a thorough knowledge of at least Method 25D.

1.0 Scope and Application

1.1 Analyte. Volatile Organics. No CAS No. assigned.

1.2 Applicability. This procedure is used to determine the emission potential of individual volatile organics (VOs) in waste.

1.3 Data Quality Objectives. Adherence to the requirements of this method will enhance the quality of the data obtained from air pollutant sampling methods.

2.0 Summary of Method

2.1 The heated purge conditions established by Method 25D (40 CFR Part 60, Appendix A) are used to remove VOs from a 10 gram sample of waste suspended in a 50/50 solution of polyethylene glycol (PEG) and water. The purged VOs are quantified by using the sample collection and analytical techniques (*e.g.* gas chromatography) appropriate for the VOs present in the waste. The recovery efficiency of the sample collection and analytical technique is determined for each waste matrix. A correction factor is determined for each compound (if acceptable recovery criteria requirements are met of 70 to 130 percent recovery for every target compound), and the measured waste concentration is corrected with the correction factor for each compound. A minimum of three replicate waste samples shall be analyzed.

3.0 Definitions. [Reserved]

4.0 Interferences. [Reserved]

5.0 Safety

5.1 Disclaimer. This method may involve hazardous materials, operations, and equipment. This test method may not address all of the safety problems associated with its use. It is the responsibility of the user of this test method to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to performing this test method.

6.0 Equipment and Supplies

6.1 Method 25D Purge Apparatus.

6.1.1 Purge Chamber. The purge chamber shall accommodate the 10 gram sample of waste suspended in a matrix of 50 mL of PEG and 50 mL of deionized, hydrocarbon-free water. Three fittings are used on the glass chamber top. Two #7 Ace-threads are used for the purge gas inlet and outlet connections. A #50 Ace-thread is used to connect the top of the chamber to the base (see Figure 305–1). The base of the chamber has a side-arm equipped with a #22 Sovirel fitting to allow for easy sample introductions into the chamber. The dimensions of the chamber are shown in Figure 305–1.

6.1.2 Flow Distribution Device (FDD). The FDD enhances the gas-to-liquid contact for improved purging efficiency. The FDD is a 6 mm OD (0.2 in) by 30 cm (12 in) long glass tube equipped with four arm bubblers as shown in Figure 305–1. Each arm shall have an opening of 1 mm (0.04 in) in diameter.

6.1.3 Coalescing Filter. The coalescing filter serves to discourage aerosol formation of sample gas once it leaves the purge chamber. The glass filter has a fritted disc mounted 10 cm (3.9 in) from the bottom. Two #7 Ace-threads are used for the inlet and outlet connections. The dimensions of the chamber are shown in Figure 305–2.

6.1.4 Oven. A forced convection airflow oven capable of maintaining the purge chamber and coalescing filter at 75 ± 2 °C (167 ± 3.6 °F).

6.1.5 Toggle Valve. An on/off valve constructed from brass or stainless steel rated to 100 psig. This valve is placed in line between the purge nitrogen source and the flow controller.

6.1.6 Flow Controller. High-quality stainless steel flow controller capable of restricting a flow of nitrogen to 6 ± 0.06 L/min (0.2 ± 0.002 ft^3/min) at 40 psig.

6.1.7 Polyethylene Glycol Cleaning System.

6.1.7.1 Round-Bottom Flask. One liter, three-neck glass round-bottom flask for cleaning PEG. Standard taper 24/40 joints are mounted on each neck.

6.1.7.2 Heating Mantle. Capable of heating contents of the 1-L flask to 120 °C (248 °F).

6.1.7.3 Nitrogen Bubbler. Teflon® or glass tube, 0.25 in OD (6.35 mm).

6.1.7.4 Temperature Sensor. Partial immersion glass thermometer.

6.1.7.5 Hose Adapter. Glass with 24/40 standard tapered joint.

6.2 Volatile Organic Recovery System.

6.2.1 Splitter Valve (Optional). Stainless steel cross-pattern valve capable of splitting nominal flow rates from the purge flow of 6 L/min (0.2 ft^3/min). The valve shall be maintained at 75 + 2 °C (167 ± 3.6 °F) in the heated zone and shall be placed downstream of the coalescing filter. It is recommended that 0.125 in OD (3.175 mm) tubing be used to direct the split vent flow from the heated zone. The back pressure caused by the 0.125 in OD (3.175 mm) tubing is critical for maintaining proper split valve operation.

NOTE: The splitter valve design is optional; it may be used in cases where the concentration of a pollutant would saturate the adsorbents.

6.2.2 Injection Port. Stainless steel 1/4 in OD (6.35 mm) compression fitting tee with a 6 mm (0.2 in) septum fixed on the top port. The injection port is the point of entry for the recovery study solution. If using a gaseous standard to determine recovery efficiency, connect the gaseous standard to the injection port of the tee.

6.2.3 Knockout Trap (Optional but Recommended). A 25 mL capacity glass reservoir body with a full-stem impinger (to avoid leaks, a modified midget glass impinger with a screw cap and ball/socket clamps on the inlet and outlet is recommended). The empty impinger is placed in an ice water bath between the injection port and the sorbent cartridge. Its purpose is to reduce the water content of the purge gas (saturated at 75 °C (167 °F)) before the sorbent cartridge.

6.2.4 Insulated Ice Bath. A 350 mL dewar or other type of insulated bath is used to maintain ice water around the knockout trap.

6.2.5 Sorbent Cartridges. Commercially available glass or stainless steel cartridge packed with one or more appropriate sorbents. The amount of adsorbent packed in the cartridge depends on the breakthrough volume of the test compounds but is limited by back pressure caused by the packing (not to exceed 7 psig). More than one sorbent cartridge placed in series may be necessary depending upon the mixture of the measured components.

6.2.6 Volumetric Glassware. Type A glass 10 mL volumetric flasks for measuring a final volume from the water catch in the knockout trap.

6.2.7 Thermal Desorption Unit. A clamshell type oven, used for the desorption of direct thermal desorption sorbent tubes. The oven shall be capable of increasing the temperature of the desorption tubes rapidly to recommended desorption temperature.

6.2.8 Ultrasonic Bath. Small bath used to agitate sorbent material and desorption solvent. Ice water shall be used in the bath because of heat transfer caused by operation of the bath.

6.2.9 Desorption Vials. Four-dram (15 mL) capacity borosilicate glass vials with Teflon-lined caps.

6.3 Analytical System. A gas chromatograph (GC) is commonly used to separate and quantify compounds from the sample collection and recovery procedure. Method 18 (40 CFR Part 60, Appendix A) may be used as a guideline for determining the appropriate GC column and GC detector based on the test compounds to be determined. Other types of analytical instrumentation may be used (HPLC) in lieu of GC systems as long as the recovery efficiency criteria of this method are met.

6.3.1 Gas Chromatograph (GC). The GC shall be equipped with a constant-temperature liquid injection port or a heated sampling loop/valve system, as appropriate. The GC oven shall be temperature-programmable over the useful range of the GC column. The choice of detectors is based on the test compounds to be determined.

6.3.2 GC Column. Select the appropriate GC column based on (1) literature review or previous experience, (2) polarity of the analytes, (3) capacity of the column, or (4) resolving power (*e.g.*, length, diameter, film thickness) required.

6.3.3 Data System. A programmable electronic integrator for recording, analyzing, and storing the signal generated by the detector.

7.0 Reagents and Standards

7.1 Method 25D Purge Apparatus.

7.1.1 Polyethylene Glycol (PEG). Ninety-eight percent pure organic polymer with an average molecular weight of 400 g/mol. Volatile organics are removed from the PEG prior to use by heating to 120 ± 5 °C (248 ± 9 °F) and purging with pure nitrogen at 1 L/min (0.04 ft^3/min) for 2 hours. After purging and heating, the PEG is maintained at room temperature under a nitrogen purge maintained at 1 L/min (0.04 ft^3/min) until used. A typical apparatus used to clean the PEG is shown in Figure 305–3.

7.1.2 Water. Organic-free deionized water is required.

7.1.3 Nitrogen. High-purity nitrogen (less than 0.5 ppm total hydrocarbons) is used to remove test compounds from the purge matrix. The source of nitrogen shall be regulated continuously to 40 psig before the on/off toggle valve.

7.2 Volatile Organic Recovery System.

7.2.1 Water. Organic-free deionized water is required.

7.2.2 Desorption Solvent (when used). Appropriate high-purity (99.99 percent) solvent for desorption shall be used. Analysis shall be performed (utilizing the same analytical technique as that used in the analysis of the waste samples) on each lot to determine purity.

7.3 Analytical System. The gases required for GC operation shall be of the highest obtainable purity (hydrocarbon free). Consult the operating manual for recommended settings.

8.0 Sample Collection, Preservation, Storage, and Transport

8.1 Assemble the glassware and associated fittings (see Figures 305–3 and 305–4, as appropriate) and leak-check the system (approximately 7 psig is the target pressure). After an initial leak check, mark the pressure gauge and use the initial checkpoint to monitor for leaks throughout subsequent analyses. If the pressure in the system drops below the target pressure at any time during analysis, that analysis shall be considered invalid.

8.2 Recovery Efficiency Determination. Determine the individual recovery efficiency (RE) for each of the target compounds in duplicate before the waste samples are analyzed. To determine the RE, generate a water blank (Section 11.1) and use the injection port to introduce a known volume of spike solution (or certified gaseous standard) containing all of the target compounds at the levels expected in the waste sample. Introduce the spike solution immediately after the nitrogen purge has been started (Section 8.3.2). Follow the procedures outlined in Section 8.3.3. Analyze the recovery efficiency samples using the techniques described in Section 11.2. Determine the recovery efficiency (Equation 305–1, Section 12.2) by comparing the amount of compound recovered to the theoretical amount spiked. Determine the RE twice for each compound; the relative standard deviation, (RSD) shall be ≤ 10 percent for each compound. If the RSD for any compound is not ≤ 10 percent, modify the sampling/analytical procedure and complete an RE study in duplicate, or continue determining RE until the RSD meets the acceptable criteria. The average RE shall be 0.70 ≤ RE ≤ 1.30 for each compound. If the average RE does not meet these criteria, an alternative sample collection and/or analysis technique shall be developed and the recovery efficiency determination shall be repeated for that compound until the criteria are met for every target compound. Example modifications of the sampling/analytical system include changing the adsorbent material, changing the desorption solvent, utilizing direct thermal desorption of test compounds from the sorbent tubes, utilizing another analytical technique.

8.3 Sample Collection and Recovery.

8.3.1 The sample collection procedure in Method 25D shall be used to collect (into a preweighed vial) 10 g of waste into PEG, cool, and ship to the laboratory. Remove the sample container from the cooler and wipe the exterior to remove any ice or water. Weigh the container and sample to the nearest 0.01 g and record the weight. Pour the sample from the container into the purge flask. Rinse the sample container three times with approximately 6 mL of PEG (or the volume needed to total 50 mL of PEG in the purge flask), transferring the rinses to the purge flask. Add 50 mL of organic-free deionized water to the purge flask. Cap the purge flask tightly in between each rinse and after adding all the components into the flask.

8.3.2 Allow the oven to equilibrate to 75 ± 2 °C (167 ± 3.6 °F). Begin the sample recovery process by turning the toggle valve on, thus allowing a 6 L/min flow of pure nitrogen through the purge chamber.

8.3.3 Stop the purge after 30 min. Immediately remove the sorbent tube(s) from the apparatus and cap both ends. Remove the knockout trap and transfer the water catch to a 10 mL volumetric flask. Rinse the trap with organic-free deionized water and transfer the rinse to the volumetric flask. Dilute to the 10 mL mark with water. Transfer the water sample to a sample vial and store at 4 °C (39.2 °F) with zero headspace. The analysis of the contents of the water knockout trap is optional for this method. If the target compounds are water soluble, analysis of the water is recommended; meeting the recovery efficiency criteria in these cases would be difficult without adding the amount captured in the knockout trap.

9.0 Quality Control

9.1 Miscellaneous Quality Control Measures.

Section	Quality control measure	Effect
8.1	Sampling equipment leak-check	Ensures accurate measurement of sample volume.
8.2	Recovery efficiency (RE) determination for each measured compound..	Ensures accurate sample collection and analysis.
8.3	Calibration of analytical instrument with at least 3 calibration standards..	Ensures linear measurement of compounds over the instrument span.

10.0 Calibration and Standardization

10.1 The analytical instrument shall be calibrated with a minimum of three levels of standards for each compound whose concentrations bracket the concentration of test compounds from the sorbent tubes. Liquid calibration standards shall be used for calibration in the analysis of the solvent extracts. The liquid calibration standards shall be prepared in the desorption solvent matrix. The calibration standards may be prepared and injected individually or as a mixture. If thermal desorption and focusing (onto another sorbent or cryogen focusing) are used, a certified gaseous mixture or a series of gaseous standards shall be used for calibration of the instrument. The gaseous standards shall be focused and analyzed in the same manner as the samples.

10.2 The analytical system shall be certified free from contaminants before a calibration is performed (see Section 11.1). The calibration standards are used to determine the linearity of the analytical system. Perform an initial calibration and linearity check by analyzing the three calibration standards for each target compound in triplicate starting with the lowest level and continuing to the highest level. If the triplicate analyses do not agree within 5 percent of their average, additional analyses will be needed until the 5 percent criteria is met. Calculate the response factor (Equation 305–3, Section 12.4) from the average area counts of the injections for each concentration level. Average the response factors of the standards for each compound. The linearity of the detector is acceptable if the response factor of each compound at a particular concentration is within 10 percent of the overall mean response factor for that compound. Analyze daily a mid-level calibration standard in duplicate and calculate a new response factor. Compare the daily response factor average to the average response factor calculated for the mid-level calibration during the initial linearity check; repeat the three-level calibration procedure if the daily average response factor differs from the initial linearity check mid-level response factor by more than 10 percent. Otherwise, proceed with the sample analysis.

11.0 Analytical Procedure

11.1 Water Blank Analysis. A water blank shall be analyzed daily to determine the cleanliness of the purge and recovery system. A water blank is generated by adding 60 mL of organic-free deionized water to 50 mL of PEG in the purge chamber. Treat the blank as described in Sections 8.3.2 and 8.3.3. The purpose of the water blank is to insure that no contaminants exist in the sampling and analytical apparatus which would interfere with the quantitation of the target compounds. If contaminants are present, locate the source of contamination, remove it, and repeat the water blank analysis.

11.2 Sample Analysis. Sample analysis in the context of this method refers to techniques to remove the target compounds from the sorbent tubes, separate them using a chromatography technique, and quantify them with an appropriate detector. Two types of sample extraction techniques typically used for sorbents include solvent desorption or direct thermal desorption of test compounds to a secondary focusing unit (either sorbent or cryogen based). The test compounds are then typically transferred to a GC system for analysis. Other analytical systems may be used (e.g., HPLC) in lieu of GC systems as long as the recovery efficiency criteria of this method are met.

11.2.1 Recover the test compounds from the sorbent tubes that require solvent desorption by transferring the adsorbent material to a sample vial containing the desorption solvent. The desorption solvent shall be the same as the solvent used to prepare calibration standards. The volume of solvent depends on the amount of adsorbed material to be desorbed (1.0 mL per 100 mg of adsorbent material) and also on the amount of test compounds present. Final volume adjustment and or dilution can be made so that the concentration of test compounds in the desorption solvent is bracketed by the concentration of the calibration solutions. Ultrasonicate the desorption solvent for 15 min in an ice bath. Allow the sample to sit for a period of time so that the adsorbent material can settle to the bottom of the vial. Transfer the solvent with a pasteur pipet (minimizing the amount of adsorbent material taken) to another vial and store at 4 °C (39.2 °F).

11.2.2 Analyze the desorption solvent or direct thermal desorption tubes from each sample using the same analytical parameters used for the calibration standard. Calculate the total weight detected for each compound (Equation 305–4, Section 12.5). The slope (area/amount) and y-intercept are calculated from the line bracketed between the two closest calibration points. Correct the concentration of each waste sample with the appropriate recovery efficiency factor and the split flow ratio (if used). The final concentration of each individual test compound is calculated by dividing the corrected measured weight for that compound by the weight of the original sample determined in Section 8.3.1 (Equation 305–5, Section 12.6).

11.2.3 Repeat the analysis for the three samples collected in Section 8.3. Report the corrected concentration of each of the waste samples, average waste concentration, and relative standard deviation (Equation 305–6, Section 12.7).

12.0 Data Analysis and Calculations.

12.1 Nomenclature.

A_S = Mean area counts of test compound in standard.

A_U = Mean area counts of test compound in sample desorption solvent.

b = Y-intercept of the line formed between the two closest calibration standards that bracket the concentration of the sample.

C_T = Amount of test compound (μg) in calibration standard.

C_F = Correction for adjusting final amount of sample detected for losses during individual sample runs.

F_P = Nitrogen flow through the purge chamber (6 L/min).

F_S = Nitrogen split flow directed to the sample recovery system (use 6 L/min if split flow design was not used).

PPM = Final concentration of test compound in waste sample [μg/g (which is equivalent to parts per million by weight (ppmw))].

RE = Recovery efficiency for adjusting final amount of sample detected for losses due to inefficient trapping and desorption techniques.

R.F. = Response factor for test compound, calculated from a calibration standard.

S = Slope of the line (area counts/C_T) formed between two closest calibration points that bracket the concentration of the sample.

W_C = Weight of test compound expected to be recovered in spike solution based on theoretical amount (μg).

W_E = Weight of vial and PEG (g).

W_F = Weight of vial, PEG and waste sample (g).

W_S = Weight of original waste sample (g).

W_T = Corrected weight of test compound measured (μg) in sample.

W_X = Weight of test compound measured during analysis of recovery efficiency spike samples (μg).

12.2 Recovery efficiency for determining trapping/desorption efficiency of individual test compounds in the spike solution, decimal value.

$$RE = \frac{W_X}{W_C} \qquad \text{Eq. 305-1}$$

12.3 Weight of waste sample (g).

$$W_S = W_F - W_E \qquad \text{Eq. 305-2}$$

12.4 Response factor for individual test compounds.

$$RF = \frac{C_T}{A_S} \qquad \text{Eq. 305-3}$$

12.5 Corrected weight of a test compound in the sample, in µg.

$$W_T = \frac{A_u - b}{S} \times \frac{1}{RE} \times \frac{F_p}{F_s} \qquad \text{Eq. 305-4}$$

12.6 Final concentration of a test compound in the sample in ppmw.

$$PPM = \frac{W_T}{W_S} \qquad \text{Eq. 305-5}$$

12.7 Relative standard deviation (RSD) calculation.

$$RSD = \frac{100}{\overline{PPM}} \sqrt{\frac{\sum_{i=1}^{n} \left(PPM_i - \overline{PPM} \right)^2}{n-1}} \qquad \text{Eq. 305-6}$$

13.0 Method Performance. [Reserved]

14.0 Pollution Prevention. [Reserved]

15.0 Waste Management. [Reserved]

16.0 References. [Reserved]

17.0 Tables, Diagrams, Flowcharts, and Validation Data

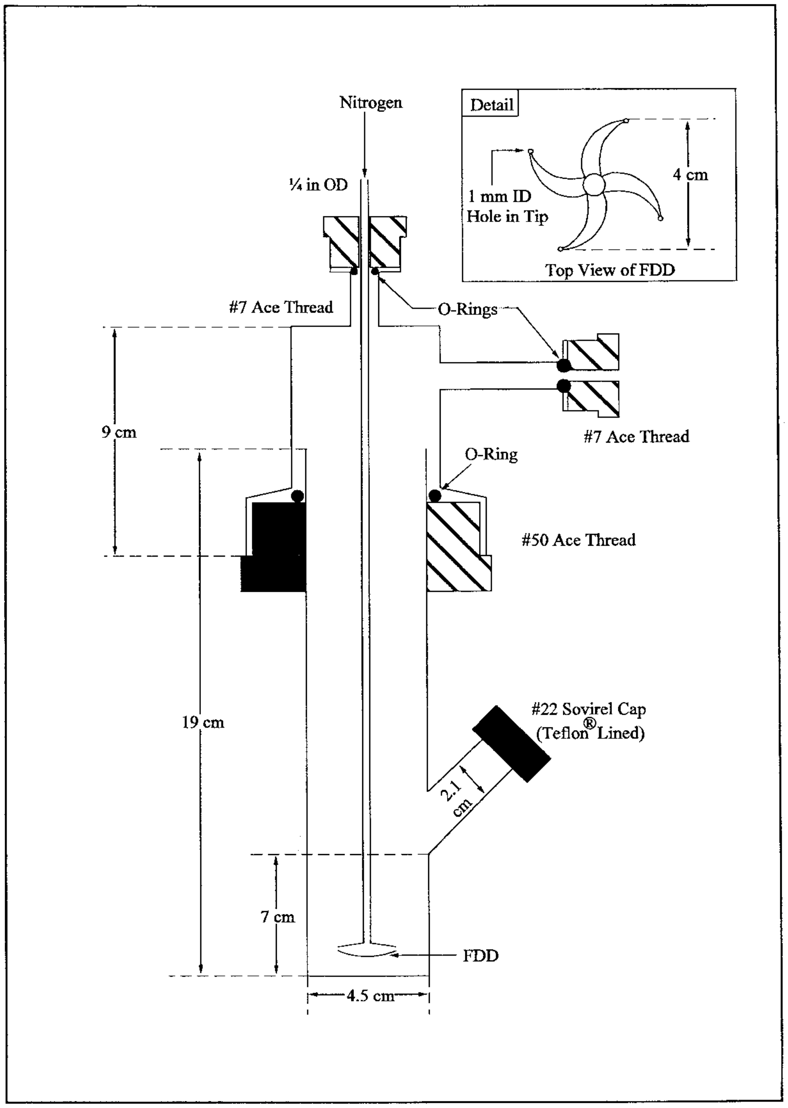


Figure 305-1. Schematic of Purge Chamber.

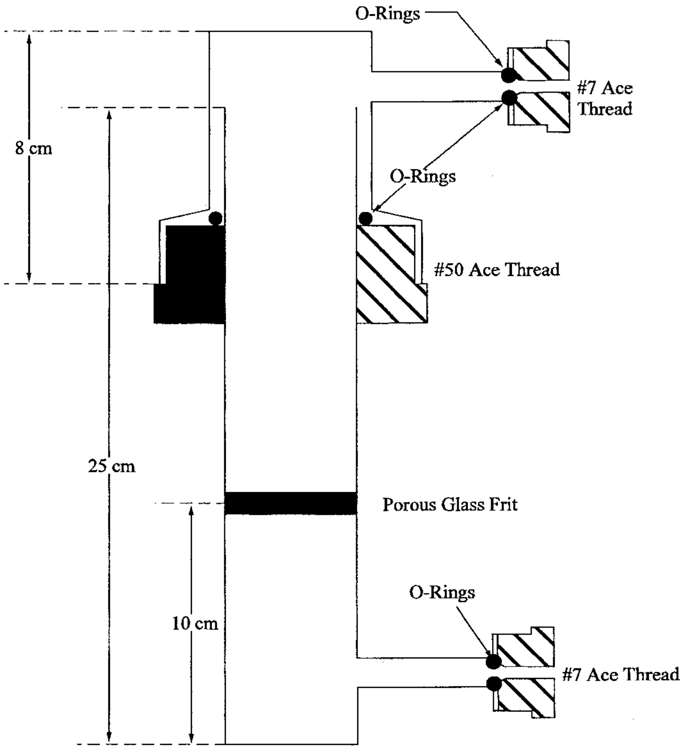


Figure 305-2. Schematic of Coalescing Filter.

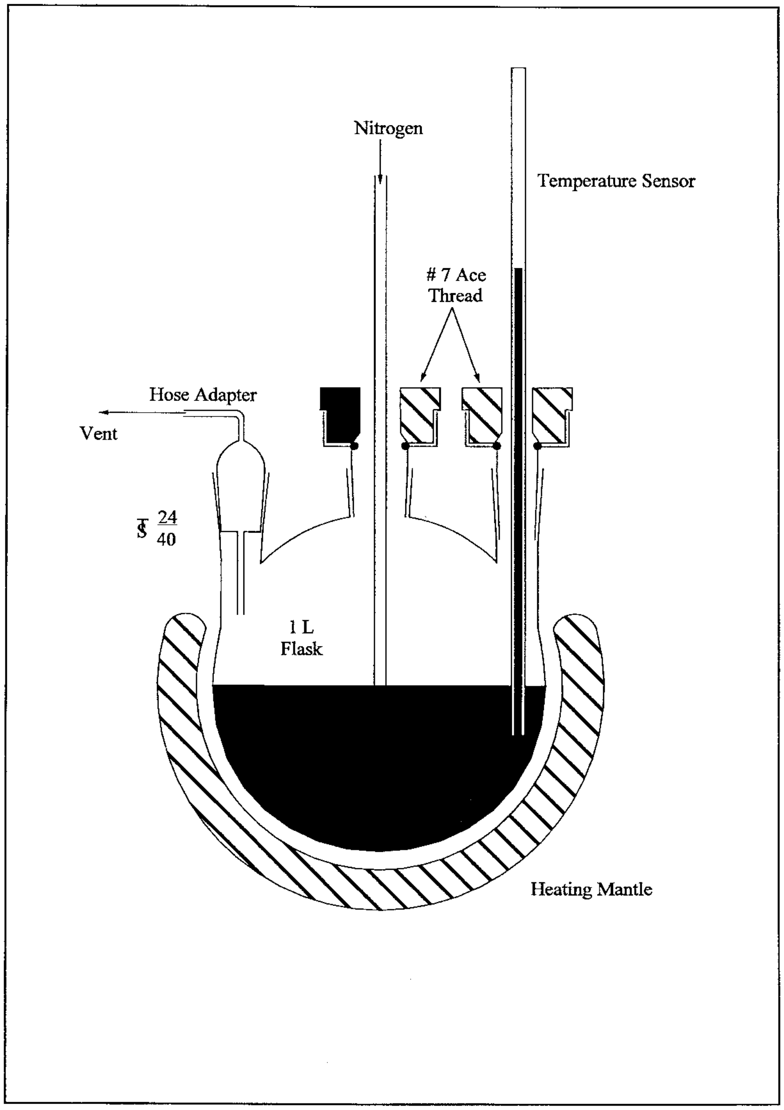


Figure 305-3. Schematic of PEG Cleaning System.

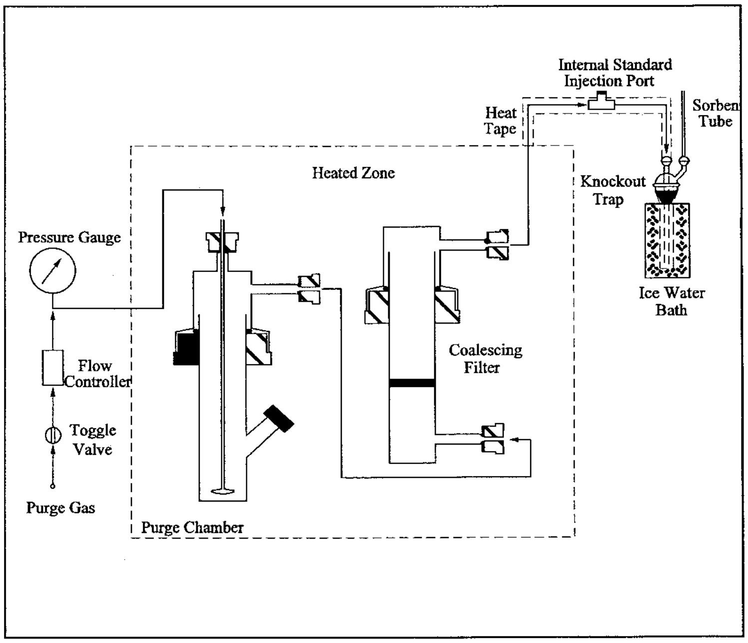


Figure 305-4. Schematic of Purge and Recovery Apparatus.

METHOD 306—DETERMINATION OF CHROMIUM EMISSIONS FROM DECORATIVE AND HARD CHROMIUM ELECTROPLATING AND CHROMIUM ANODIZING OPERATIONS—ISOKINETIC METHOD

Note: This method does not include all of the specifications (*e.g.*, equipment and supplies) and procedures (*e.g.*, sampling and analytical) essential to its performance. Some material is incorporated by reference from other methods in 40 CFR Part 60, Appendix A. Therefore, to obtain reliable results, persons using this method should have a thorough knowledge of at least Method 5.

1.0 Scope and Application

1.1 Analytes.

Analyte	CAS No.	Sensitivity
Chromium	7440–47–3	See Sec. 13.2.

1.2 Applicability. This method applies to the determination of chromium (Cr) in emissions from decorative and hard chrome electroplating facilities, chromium anodizing operations, and continuous chromium plating operations at iron and steel facilities.

1.3 Data Quality Objectives. [Reserved]

2.0 Summary of Method

2.1 Sampling. An emission sample is extracted isokinetically from the source using an unheated Method 5 sampling train (40 CFR Part 60, Appendix A), with a glass nozzle and probe liner, but with the filter omitted. The sample time shall be at least two hours. The Cr emissions are collected in an alkaline solution containing 0.1 N sodium hydroxide (NaOH) or 0.1 N sodium bicarbonate ($NaHCO_3$). The collected samples are recovered using an alkaline solution and are then transported to the laboratory for analysis.

2.2 Analysis.

2.2.1 Total chromium samples with high chromium concentrations ($\geq$35 μg/L) may be analyzed using inductively coupled plasma emission spectrometry (ICP) at 267.72 nm.

NOTE: The ICP analysis is applicable for this method only when the solution analyzed has a Cr concentration greater than or equal to 35 μg/L or five times the method detection limit as determined according to Appendix B in 40 CFR Part 136.

2.2.2 Alternatively, when lower total chromium concentrations (<35 µg/L) are encountered, a portion of the alkaline sample solution may be digested with nitric acid and analyzed by graphite furnace atomic absorption spectroscopy (GFAAS) at 357.9 nm.

2.2.3 If it is desirable to determine hexavalent chromium (Cr^{+6}) emissions, the samples may be analyzed using an ion chromatograph equipped with a post-column reactor (IC/PCR) and a visible wavelength detector. To increase sensitivity for trace levels of Cr^{+6}, a preconcentration system may be used in conjunction with the IC/PCR.

3.0 Definitions

3.1 *Total Chromium*—measured chromium content that includes both major chromium oxidation states (Cr^{+3}, Cr^{+3}).

3.2 *May*—Implies an optional operation.

3.3 *Digestion*—The analytical operation involving the complete (or nearly complete) dissolution of the sample in order to ensure the complete solubilization of the element (analyte) to be measured.

3.4 *Interferences*—Physical, chemical, or spectral phenomena that may produce a high or low bias in the analytical result.

3.5 *Analytical System*—All components of the analytical process including the sample digestion and measurement apparatus.

3.6 *Sample Recovery*—The quantitative transfer of sample from the collection apparatus to the sample preparation (digestion, etc.) apparatus. This term should not be confused with analytical recovery.

3.7 *Matrix Modifier*—A chemical modification to the sample during GFAAS determinations to ensure that the analyte is not lost during the measurement process (prior to the atomization stage)

3.8 *Calibration Reference Standards*—Quality control standards used to check the accuracy of the instrument calibration curve prior to sample analysis.

3.9 *Continuing Check Standard*—Quality control standards used to verify that unacceptable drift in the measurement system has not occurred.

3.10 *Calibration Blank*—A blank used to verify that there has been no unacceptable shift in the baseline either immediately following calibration or during the course of the analytical measurement.

3.11 *Interference Check*—An analytical/measurement operation that ascertains whether a measurable interference in the sample exists.

3.12 *Interelement Correction Factors*—Factors used to correct for interfering elements that produce a false signal (high bias).

3.13 *Duplicate Sample Analysis*—Either the repeat measurement of a single solution or the measurement of duplicate preparations of the same sample. It is important to be aware of which approach is required for a particular type of measurement. For example, no digestion is required for the ICP determination and the duplicate instrument measurement is therefore adequate whereas duplicate digestion/instrument measurements are required for GFAAS.

3.14 *Matrix Spiking*—Analytical spikes that have been added to the actual sample matrix either before (Section 9.2.5.2) or after (Section 9.1.6). Spikes added to the sample *prior* to a preparation technique (*e.g.*, digestion) allow for the assessment of an overall method accuracy while those added *after* only provide for the *measurement* accuracy determination.

4.0 Interferences

4.1 ICP Interferences.

4.1.1 ICP Spectral Interferences. Spectral interferences are caused by: overlap of a spectral line from another element; unresolved overlap of molecular band spectra; background contribution from continuous or recombination phenomena; and, stray light from the line emission of high-concentrated elements. Spectral overlap may be compensated for by correcting the raw data with a computer and measuring the interfering element. At the 267.72 nm Cr analytical wavelength, iron, manganese, and uranium are potential interfering elements. Background and stray light interferences can usually be compensated for by a background correction adjacent to the analytical line. Unresolved overlap requires the selection of an alternative chromium wavelength. Consult the instrument manufacturer's operation manual for interference correction procedures.

4.1.2 ICP Physical Interferences. High levels of dissolved solids in the samples may cause significant inaccuracies due to salt buildup at the nebulizer and torch tips. This problem can be controlled by diluting the sample or by extending the rinse times between sample analyses. Standards shall be prepared in the same solution matrix as the samples (*i.e.*, 0.1 N NaOH or 0.1 N $NaHCO_3$).

4.1.3 ICP Chemical Interferences. These include molecular compound formation, ionization effects and solute vaporization effects, and are usually not significant in the ICP procedure, especially if the standards and samples are matrix matched.

4.2 GFAAS Interferences.

4.2.1 GFAAS Chemical Interferences. Low concentrations of calcium and/or phosphate may cause interferences; at concentrations above 200 µg/L, calcium's effect is constant and eliminates the effect of phosphate. Calcium nitrate is therefore added to the concentrated analyte to ensure a known constant effect. Other matrix modifiers recommended by the instrument manufacturer may also be considered.

4.2.2 GFAAS Cyanide Band Interferences. Nitrogen should not be used as the purge gas due to cyanide band interference.

4.2.3 GFAAS Spectral Interferences. Background correction may be required because of possible significant levels of nonspecific absorption and scattering at the 357.9 nm analytical wavelength.

4.2.4 GFAAS Background Interferences. Zeeman or Smith-Hieftje background correction is recommended for interferences resulting from high levels of dissolved solids in the alkaline impinger solutions.

4.3 IC/PCR Interferences.

4.3.1 IC/PCR Chemical Interferences. Components in the sample matrix may cause Cr^{+6} to convert to trivalent chromium (Cr^{+3}) or cause Cr^{+3} to convert to $Cr^{+6.}$ The chromatographic separation of Cr^{+6} using ion chromatography reduces the potential for other metals to interfere with the post column reaction. For the IC/PCR analysis, only compounds that coelute with Cr^{+6} and affect the diphenylcarbazide reaction will cause interference.

4.3.2 IC/PCR Background Interferences. Periodic analyses of reagent water blanks are used to demonstrate that the analytical system is essentially free of contamination. Sample cross-contamination can occur when high-level and low-level samples or standards are analyzed alternately and can be eliminated by thorough purging of the sample loop. Purging of the sample can easily be achieved by increasing the injection volume to ten times the size of the sample loop.

5.0 Safety

5.1 Disclaimer. This method may involve hazardous materials, operations, and equipment. This test method may not address all of the safety problems associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to performing this test method.

5.2 Hexavalent chromium compounds have been listed as carcinogens although chromium (III) compounds show little or no toxicity. Chromium can be a skin and respiratory irritant.

6.0 Equipment and Supplies

6.1 Sampling Train.

6.1.1 A schematic of the sampling train used in this method is shown in Figure 306–1. The train is the same as shown in Method 5, Section 6.0 (40 CFR Part 60, Appendix A) except that the probe liner is unheated, the particulate filter is omitted, and quartz or borosilicate glass must be used for the probe nozzle and liner in place of stainless steel.

6.1.2 Probe fittings of plastic such as Teflon, polypropylene, etc. are recommended over metal fittings to prevent contamination. If desired, a single combined probe nozzle and liner may be used, but such a single glass assembly is not a requirement of this methodology.

6.1.3 Use 0.1 N NaOH or 0.1 N $NaHCO_3$ in the impingers in place of water.

6.1.4 Operating and maintenance procedures for the sampling train are described in APTD–0576 of Method 5. Users should read the APTD–0576 document and adopt the outlined procedures.

6.1.5 Similar collection systems which have been approved by the Administrator may be used.

6.2 Sample Recovery. Same as Method 5, [40 CFR Part 60, Appendix A], with the following exceptions:

6.2.1 Probe-Liner and Probe-Nozzle Brushes. Brushes are not necessary for sample recovery. If a probe brush is used, it must be non-metallic.

6.2.2 Sample Recovery Solution. Use 0.1 N NaOH or 0.1 N $NaHCO_3$, whichever is used as the impinger absorbing solution, in place of acetone to recover the sample.

6.2.3 Sample Storage Containers. Polyethylene, with leak-free screw cap, 250 mL, 500 mL or 1,000 mL.

6.3 Analysis.

6.3.1 General. For analysis, the following equipment is needed.

6.3.1.1 Phillips Beakers. (Phillips beakers are preferred, but regular beakers may also be used.)

6.3.1.2 Hot Plate.

6.3.1.3 Volumetric Flasks. Class A, various sizes as appropriate.

6.3.1.4 Assorted Pipettes.

6.3.2 Analysis by ICP.

6.3.2.1 ICP Spectrometer. Computer-controlled emission spectrometer with background correction and radio frequency generator.

6.3.2.2 Argon Gas Supply. Welding grade or better.

6.3.3 Analysis by GFAAS.

6.3.3.1 Chromium Hollow Cathode Lamp or Electrodeless Discharge Lamp.

6.3.3.2 Graphite Furnace Atomic Absorption Spectrophotometer.

6.3.3.3 Furnace Autosampler.

6.3.4 Analysis by IC/PCR.

6.3.4.1 IC/PCR System. High performance liquid chromatograph pump, sample injection valve, post-column reagent delivery and mixing system, and a visible detector, capable of operating at 520 nm-540 nm, all with a non-metallic (or inert) flow path. An electronic peak area mode is recommended, but other recording devices and integration techniques are acceptable provided the repeatability criteria and the linearity criteria for the calibration curve described in Section 10.4 can be satisfied. A sample loading system is required if preconcentration is employed.

6.3.4.2 Analytical Column. A high performance ion chromatograph (HPIC) non-metallic column with anion separation characteristics and a high loading capacity designed for separation of metal chelating compounds to prevent metal interference. Resolution described in Section 11.6 must be obtained. A non-metallic guard column with the same ion-exchange material is recommended.

6.3.4.3 Preconcentration Column (for older instruments). An HPIC non-metallic column with acceptable anion retention characteristics and sample loading rates must be used as described in Section 11.6.

6.3.4.4 Filtration Apparatus for IC/PCR.

6.3.4.4.1 Teflon, or equivalent, filter holder to accommodate 0.45-µm acetate, or equivalent, filter, if needed to remove insoluble particulate matter.

6.3.4.4.2 0.45-µm Filter Cartridge. For the removal of insoluble material. To be used just prior to sample injection/analysis.

7.0 Reagents and Standards

NOTE: Unless otherwise indicated, all reagents should conform to the specifications established by the Committee on Analytical Reagents of the American Chemical Society (ACS reagent grade). Where such specifications are not available, use the best available grade. Reagents should be checked by the appropriate analysis prior to field use to assure that contamination is below the analytical detection limit for the ICP or GFAAS total chromium analysis; and that contamination is below the analytical detection limit for Cr^{+6} using IC/PCR for direct injection or, if selected, preconcentration.

7.1 Sampling.

7.1.1 Water. Reagent water that conforms to ASTM Specification D1193–77 or 91 Type II (incorporated by reference see §63.14). All references to water in the method refer to reagent water unless otherwise specified. It is recommended that water blanks be checked prior to preparing the sampling reagents to ensure that the Cr content is less than three (3) times the anticipated detection limit of the analytical method.

7.1.2 Sodium Hydroxide (NaOH) Absorbing Solution, 0.1 N. Dissolve 4.0 g of sodium hydroxide in 1 liter of water to obtain a pH of approximately 8.5.

7.1.3 Sodium Bicarbonate ($NaHCO_3$) Absorbing Solution, 0.1 N. Dissolve approximately 8.5 g of sodium bicarbonate in 1 liter of water to obtain a pH of approximately 8.3.

7.1.4 Chromium Contamination.

7.1.4.1 The absorbing solution shall not exceed the QC criteria noted in Section 7.1.1 (≤3 times the instrument detection limit).

7.1.4.2 When the Cr^{+6} content in the field samples exceeds the blank concentration by at least a factor of ten (10), Cr^{+6} blank concentrations ≥ 10 times the detection limit will be allowed.

NOTE: At sources with high concentrations of acids and/or SO_2, the concentration of NaOH or $NaHCO_3$ should be ≥ 0.5 N to insure that the pH of the solution remains at or above 8.5 for NaOH and 8.0 for $NaHCO_3$ during and after sampling.

7.1.5 Silica Gel. Same as in Method 5.

7.2 Sample Recovery.

7.2.1 0.1 N NaOH or 0.1 N $NaHCO_3$. Use the same solution for the sample recovery that is used for the impinger absorbing solution.

7.2.2 pH Indicator Strip, for IC/PCR. pH indicator capable of determining the pH of solutions between the pH range of 7 and 12, at 0.5 pH increments.

7.3 Sample Preparation and Analysis.

7.3.1 Nitric Acid (HNO_3), Concentrated, for GFAAS. Trace metals grade or better HNO_3 must be used for reagent preparation. The ACS reagent grade HNO_3 is acceptable for cleaning glassware.

7.3.2 HNO_3, 1.0% (v/v), for GFAAS. Prepare, by slowly stirring, 10 mL of concentrated HNO_3) into 800 mL of reagent water. Dilute to 1,000 mL with reagent water. The solution shall contain less than 0.001 mg Cr/L.

7.3.3 Calcium Nitrate $Ca(NO_3)_2$ Solution (10 µg Ca/mL) for GFAAS analysis. Prepare the solution by weighing 40.9 mg of $Ca(NO_3)_2$ into a 1 liter volumetric flask. Dilute with reagent water to 1 liter.

7.3.4 Matrix Modifier, for GFAAS. See instrument manufacturer's manual for suggested matrix modifier.

7.3.5 Chromatographic Eluent, for IC/PCR. The eluent used in the analytical system is ammonium sulfate based.

7.3.5.1 Prepare by adding 6.5 mL of 29 percent ammonium hydroxide (NH_4OH) and 33 g of ammonium sulfate ($(NH_4)_2SO_4$) to 500 mL of reagent water. Dilute to 1 liter with reagent water and mix well.

7.3.5.2 Other combinations of eluents and/or columns may be employed provided peak resolution, repeatability, linearity, and analytical sensitivity as described in Sections 9.3 and 11.6 are acceptable.

7.3.6 Post-Column Reagent, for IC/PCR. An effective post-column reagent for use with the chromatographic eluent described in Section 7.3.5 is a diphenylcarbazide (DPC)-based system. Dissolve 0.5 g of 1,5-diphenylcarbazide in 100 mL of ACS grade methanol. Add 500 mL of reagent water containing 50 mL of 96 percent spectrophotometric grade sulfuric acid. Dilute to 1 liter with reagent water.

7.3.7 Chromium Standard Stock Solution (1000 mg/L). Procure a certified aqueous standard or dissolve 2.829 g of potassium dichromate ($K_2Cr_2O_7$), in reagent water and dilute to 1 liter.

7.3.8 Calibration Standards for ICP or IC/PCR. Prepare calibration standards for ICP or IC/PCR by diluting the Cr standard stock solution (Section 7.3.7) with 0.1 N NaOH or

0.1 N $NaHCO_3$, whichever is used as the impinger absorbing solution, to achieve a matrix similar to the actual field samples. Suggested levels are 0, 50, 100, and 200 µg Cr/L for ICP, and 0, 1, 5, and 10 µg Cr^{+6}/L for IC/PCR.

7.3.9 Calibration Standards for GFAAS. Chromium solutions for GFAAS calibration shall contain 1.0 percent (v/v) HNO_3. The zero standard shall be 1.0 percent (v/v) HNO_3. Calibration standards should be prepared daily by diluting the Cr standard stock solution (Section 7.3.7) with 1.0 percent HNO_3. Use at least four standards to make the calibration curve. Suggested levels are 0, 10, 50, and 100 µg Cr/L.

7.4 Glassware Cleaning Reagents.

7.4.1 HNO_3, Concentrated. ACS reagent grade or equivalent.

7.4.2 Water. Reagent water that conforms to ASTM Specification D1193–77 or 91 Type II.

7.4.3 HNO_3, 10 percent (v/v). Add by stirring 500 mL of concentrated HNO_3 into a flask containing approximately 4,000 mL of reagent water. Dilute to 5,000 mL with reagent water. Mix well. The reagent shall contain less than 2 µg Cr/L.

7.5 Quality Assurance Audit Samples.

7.5.1 When making compliance determinations, and upon availability, audit samples shall be obtained from the appropriate EPA regional Office or from the responsible enforcement authority and analyzed in conjunction with the field samples.

7.5.2 If EPA or National Institute of Standards and Technology (NIST) reference audit sample are not available, a mid-range standard, prepared from an independent commercial source, may be used.

NOTE: To order audit samples, contact the responsible enforcement authority at least 30 days prior to the test date to allow sufficient time for the audit sample to be delivered.

8.0 Sample Collection, Preservation, Holding Times, Storage, and Transport

NOTE: Prior to sample collection, consideration should be given to the type of analysis (Cr^{+6} or total Cr) that will be performed. Which analysis option(s) will be performed will determine which sample recovery and storage procedures will be required to process the sample (See Figures 306–3 and 306–4).

8.1 Sample Collection. Same as Method 5 (40 CFR part 60, Appendix A), with the following exceptions.

8.1.1 Omit the particulate filter and filter holder from the sampling train. Use a glass nozzle and probe liner instead of stainless steel. Do not heat the probe. Place 100 mL of 0.1 N NaOH or 0.1 N $NaHCO_3$ in each of the first two impingers, and record the data for each run on a data sheet such as shown in Figure 306–2.

8.1.2 Clean all glassware prior to sampling in hot soapy water designed for laboratory cleaning of glassware. Next, rinse the glassware three times with tap water, followed by three additional rinses with reagent water. Then soak the glassware in 10% (v/v) HNO_3 solution for a minimum of 4 hours, rinse three times with reagent water, and allow to air dry. Cover all glassware openings where contamination can occur with Parafilm, or equivalent, until the sampling train is assembled for sampling.

8.1.3 Train Operation. Follow the basic procedures outlined in Method 5 in conjunction with the following instructions. Train sampling rate shall not exceed 0.030 m^3/min (1.0 cfm) during a run.

8.2 Sample Recovery. Follow the basic procedures of Method 5, with the exceptions noted.

8.2.1 A particulate filter is not recovered from this train.

8.2.2 Tester shall select either the total Cr or Cr^{+6} sample recovery option.

8.2.3 Samples to be analyzed for both total Cr and Cr^{+6}, shall be recovered using the Cr^{+6} sample option (Section 8.2.6).

8.2.4 A field reagent blank shall be collected for either of the Cr or the Cr^{+6} analysis. If both analyses (Cr and Cr^{+6}) are to be conducted on the samples, collect separate reagent blanks for each analysis.

NOTE: Since particulate matter is not usually present at chromium electroplating and/or chromium anodizing operations, it is not necessary to filter the Cr^{+6} samples unless there is observed sediment in the collected solutions. If it is necessary to filter the Cr^{+6} solutions, please refer to Method 0061, Determination of Hexavalent Chromium Emissions From Stationary Sources, Section 7.4, Sample Preparation in SW–846 (see Reference 1).

8.2.5 Total Cr Sample Option.

8.2.5.1 Container No. 1. Measure the volume of the liquid in the first, second, and third impingers and quantitatively transfer into a labeled sample container.

8.2.5.2 Use approximately 200 to 300 mL of the 0.1 N NaOH or 0.1 N $NaHCO_3$ absorbing solution to rinse the probe nozzle, probe liner, three impingers, and connecting glassware; add this rinse to Container No. 1.

8.2.6 Cr^{+6} Sample Option.

8.2.6.1 Container No. 1. Measure and record the pH of the absorbing solution contained in the *first* impinger at the end of the sampling run using a pH indicator strip. The pH of the solution must be ≥8.5 for NaOH and ≥8.0 for $NaHCO_3$. If it is not, discard the collected sample, increase the normality of the NaOH or $NaHCO_3$ impinger absorbing solution to 0.5 N or to a solution normality approved by the Administrator and collect another air emission sample.

8.2.6.2 After determining the pH of the first impinger solution, combine and measure the volume of the liquid in the first, second, and third impingers and quantitatively transfer into the labeled sample container.

Use approximately 200 to 300 mL of the 0.1 N NaOH or 0.1 N $NaHCO_3$ absorbing solution to rinse the probe nozzle, probe liner, three impingers, and connecting glassware; add this rinse to Container No. 1.

8.2.7 Field Reagent Blank.

8.2.7.1 Container No. 2.

8.2.7.2 Place approximately 500 mL of the 0.1 N NaOH or 0.1 N $NaHCO_3$ absorbing solution into a labeled sample container.

8.3 Sample Preservation, Storage, and Transport.

8.3.1 Total Cr Sample Option. Samples to be analyzed for total Cr need not be refrigerated.

8.3.2 Cr^{+6} Sample Option. Samples to be analyzed for Cr^{+6} must be shipped and stored at 4 °C. Allow Cr^{+6} samples to return to ambient temperature prior to analysis.

8.4 Sample Holding Times.

8.4.1 Total Cr Sample Option. Samples to be analyzed for total Cr shall be analyzed within 60 days of collection.

8.4.2 Cr^{+6} Sample Option. Samples to be analyzed for Cr^{+6} shall be analyzed within 14 days of collection.

9.0 Quality Control

9.1 ICP Quality Control.

9.1.1 ICP Calibration Reference Standards. Prepare a calibration reference standard using the same alkaline matrix as the calibration standards; it should be at least 10 times the instrumental detection limit.

9.1.1.1 This reference standard must be prepared from a different Cr stock solution source than that used for preparation of the calibration curve standards.

9.1.1.2 Prior to sample analysis, analyze at least one reference standard.

9.1.1.3 The calibration reference standard must be measured within 10 percent of it's true value for the curve to be considered valid.

9.1.1.4 The curve must be validated before sample analyses are performed.

9.1.2 ICP Continuing Check Standard.

9.1.2.1 Perform analysis of the check standard with the field samples as described in Section 11.2 (at least after every 10 samples, and at the end of the analytical run).

9.1.2.2 The check standard can either be the mid-range calibration standard or the reference standard. The results of the check standard shall agree within 10 percent of the expected value; if not, terminate the analyses, correct the problem, recalibrate the instrument, and rerun all samples analyzed subsequent to the last acceptable check standard analysis.

9.1.3 ICP Calibration Blank.

9.1.3.1 Perform analysis of the calibration blank with the field samples as described in Section 11.2 (at least after every 10 samples, and at the end of the analytical run).

9.1.3.2 The results of the calibration blank shall agree within three standard deviations of the mean blank value. If not, analyze the calibration blank two more times and average the results. If the average is not within three standard deviations of the background mean, terminate the analyses, correct the problem, recalibrate, and reanalyze all samples analyzed subsequent to the last acceptable calibration blank analysis.

9.1.4 ICP Interference Check. Prepare an interference check solution that contains known concentrations of interfering elements that will provide an adequate test of the correction factors in the event of potential spectral interferences.

9.1.4.1 Two potential interferences, iron and manganese, may be prepared as 1000 μg/mL and 200 μg/mL solutions, respectively. The solutions should be prepared in dilute HNO_3 (1–5 percent). Particular care must be used to ensure that the solutions and/or salts used to prepare the solutions are of ICP grade purity (*i.e.*, that no measurable Cr contamination exists in the salts/solutions). Commercially prepared interfering element check standards are available.

9.1.4.2 Verify the interelement correction factors every three months by analyzing the interference check solution. The correction factors are calculated according to the instrument manufacturer's directions. If the interelement correction factors are used properly, no false Cr should be detected.

9.1.4.3 Negative results with an absolute value greater than three (3) times the detection limit are usually the results of the background correction position being set incorrectly. Scan the spectral region to ensure that the correction position has not been placed on an interfering peak.

9.1.5 ICP Duplicate Sample Analysis. Perform one duplicate sample analysis for each compliance sample batch (3 runs).

9.1.5.1 As there is no sample preparation required for the ICP analysis, a duplicate analysis is defined as a repeat analysis of one of the field samples. The selected sample shall be analyzed using the same procedures that were used to analyze the original sample.

9.1.5.2 Duplicate sample analyses shall agree within 10 percent of the original measurement value.

9.1.5.3 Report the original analysis value for the sample and report the duplicate analysis value as the QC check value. If agreement is not achieved, perform the duplicate analysis again. If agreement is not achieved the second time, perform corrective action to identify and correct the problem before analyzing the sample for a third time.

9.1.6 ICP Matrix Spiking. Spiked samples shall be prepared and analyzed daily to ensure that there are no matrix effects, that samples and standards have been matrix-matched, and that the laboratory equipment is operating properly.

9.1.6.1 Spiked sample recovery analyses should indicate a recovery for the Cr spike of between 75 and 125 percent.

9.1.6.2 Cr levels in the spiked sample should provide final solution concentrations that are within the linear portion of the calibration curve, as well as, at a concentration level at least: equal to that of the original sample; and, ten (10) times the detection limit.

9.1.6.3 If the spiked sample concentration meets the stated criteria but exceeds the linear calibration range, the spiked sample must be diluted with the field absorbing solution.

9.1.6.4 If the recoveries for the Cr spiked samples do not meet the specified criteria, perform corrective action to identify and correct the problem prior to reanalyzing the samples.

9.1.7 ICP Field Reagent Blank.

9.1.7.1 Analyze a minimum of one matrix-matched field reagent blank (Section 8.2.4) per sample batch to determine if contamination or memory effects are occurring.

9.1.7.2 If contamination or memory effects are observed, perform corrective action to identify and correct the problem before reanalyzing the samples.

9.1.8 Audit Sample Analysis.

9.1.8.1 When the method is used to analyze samples to demonstrate compliance with a source emission regulation, an audit sample must be analyzed, subject to availability.

9.1.8.2 Concurrently analyze the audit sample and the compliance samples in the same manner to evaluate the technique of the analyst and the standards preparation.

9.1.8.3 The same analyst, analytical reagents, and analytical system shall be used for the compliance samples and the audit sample. If this condition is met, duplicate auditing of subsequent compliance analyses for the same enforcement agency within a 30-day period is waived. An audit sample set may not be used to validate different sets of compliance samples under the jurisdiction of separate enforcement agencies, unless prior arrangements have been made with both enforcement agencies.

9.1.9 Audit Sample Results.

9.1.9.1 Calculate the audit sample concentrations and submit results using the instructions provided with the audit samples.

9.1.9.2 Report the results of the audit samples and the compliance determination samples along with their identification numbers, and the analyst's name to the responsible enforcement authority. Include this information with reports of any subsequent compliance analyses for the same enforcement authority during the 30-day period.

9.1.9.3 The concentrations of the audit samples obtained by the analyst shall agree within the values specified by the compliance auditor. If the specified range is not met, reanalyze the compliance and audit samples, and include initial and reanalysis values in the test report.

9.1.9.4 Failure to meet the specified range may require retests unless the audit problems are resolved. However, if the audit results do not affect the compliance or noncompliance status of the affected facility, the Administrator may waive the reanalysis requirement, further audits, or retests and accept the results of the compliance test. While steps are being taken to resolve audit analysis problems, the Administrator may also choose to use the data to determine the compliance or noncompliance status of the affected facility.

9.2 GFAAS Quality Control.

9.2.1 GFAAS Calibration Reference Standards. The calibration curve must be verified by using at least one calibration reference standard (made from a reference material or other independent standard material) at or near the mid-range of the calibration curve.

9.2.1.1 The calibration curve must be validated before sample analyses are performed.

9.2.1.2 The calibration reference standard must be measured within 10 percent of its true value for the curve to be considered valid.

9.2.2 GFAAS Continuing Check Standard.

9.2.2.1 Perform analysis of the check standard with the field samples as described in Section 11.4 (at least after every 10 samples, and at the end of the analytical run).

9.2.2.2 These standards are analyzed, in part, to monitor the life and performance of the graphite tube. Lack of reproducibility or a significant change in the signal for the check standard may indicate that the graphite tube should be replaced.

9.2.2.3 The check standard may be either the mid-range calibration standard or the reference standard.

9.2.2.4 The results of the check standard shall agree within 10 percent of the expected value.

9.2.2.5 If not, terminate the analyses, correct the problem, recalibrate the instrument, and reanalyze all samples analyzed subsequent to the last acceptable check standard analysis.

9.2.3 GFAAS Calibration Blank.

9.2.3.1 Perform analysis of the calibration blank with the field samples as described in Section 11.4 (at least after every 10 samples, and at the end of the analytical run).

9.2.3.2 The calibration blank is analyzed to monitor the life and performance of the graphite tube as well as the existence of any memory effects. Lack of reproducibility or a significant change in the signal, may indicate that the graphite tube should be replaced.

9.2.3.3 The results of the calibration blank shall agree within three standard deviations of the mean blank value.

9.2.3.4 If not, analyze the calibration blank two more times and average the results. If the average is not within three standard deviations of the background mean, terminate the analyses, correct the problem, recalibrate, and reanalyze all samples analyzed subsequent to the last acceptable calibration blank analysis.

9.2.4 GFAAS Duplicate Sample Analysis. Perform one duplicate sample analysis for each compliance sample batch (3 runs).

9.2.4.1 A digested aliquot of the selected sample is processed and analyzed using the identical procedures that were used for the whole sample preparation and analytical efforts.

9.2.4.2 Duplicate sample analyses results incorporating duplicate digestions shall agree within 20 percent for sample results exceeding ten (10) times the detection limit.

9.2.4.3 Report the original analysis value for the sample and report the duplicate analysis value as the QC check value.

9.2.4.4 If agreement is not achieved, perform the duplicate analysis again. If agreement is not achieved the second time, perform corrective action to identify and correct the problem before analyzing the sample for a third time.

9.2.5 GFAAS Matrix Spiking.

9.2.5.1 Spiked samples shall be prepared and analyzed daily to ensure that (1) correct procedures are being followed, (2) there are no matrix effects and (3) all equipment is operating properly.

9.2.5.2 Cr spikes are added prior to any sample preparation.

9.2.5.3 Cr levels in the spiked sample should provide final solution concentrations that are within the linear portion of the calibration curve, as well as, at a concentration level at least: equal to that of the original sample; and, ten (10) times the detection limit.

9.2.5.4 Spiked sample recovery analyses should indicate a recovery for the Cr spike of between 75 and 125 percent.

9.2.5.5 If the recoveries for the Cr spiked samples do not meet the specified criteria, perform corrective action to identify and correct the problem prior to reanalyzing the samples.

9.2.6 GFAAS Method of Standard Additions.

9.2.6.1 Method of Standard Additions. Perform procedures in Section 5.4 of Method 12 (40 CFR Part 60, Appendix A)

9.2.6.2 Whenever sample matrix problems are suspected and standard/sample matrix matching is not possible or whenever a new sample matrix is being analyzed, perform referenced procedures to determine if the method of standard additions is necessary.

9.2.7 GFAAS Field Reagent Blank.

9.2.7.1 Analyze a minimum of one matrix-matched field reagent blank (Section 8.2.4) per sample batch to determine if contamination or memory effects are occurring.

9.2.7.2 If contamination or memory effects are observed, perform corrective action to identify and correct the problem before reanalyzing the samples.

9.2.8 Audit Sample Analysis.

9.2.8.1 When the method is used to analyze samples to demonstrate compliance with a source emission regulation, an audit sample must be analyzed, subject to availability.

9.2.8.2 Concurrently analyze the audit sample and the compliance samples in the same manner to evaluate the technique of the analyst and the standards preparation.

9.2.8.3 The same analyst, analytical reagents, and analytical system shall be used for the compliance samples and the audit sample. If this condition is met, duplicate auditing of subsequent compliance analyses for the same enforcement agency within a 30-day period is waived. An audit sample set may not be used to validate different sets of compliance samples under the jurisdiction of separate enforcement agencies, unless prior arrangements have been made with both enforcement agencies.

9.2.9 Audit Sample Results.

9.2.9.1 Calculate the audit sample concentrations and submit results using the instructions provided with the audit samples.

9.2.9.2 Report the results of the audit samples and the compliance determination samples along with their identification numbers, and the analyst's name to the responsible enforcement authority. Include this information with reports of any subsequent compliance analyses for the same enforcement authority during the 30-day period.

9.2.9.3 The concentrations of the audit samples obtained by the analyst shall agree within the values specified by the compliance auditor. If the specified range is not met, reanalyze the compliance and audit samples, and include initial and reanalysis values in the test report.

9.2.9.4 Failure to meet the specified range may require retests unless the audit problems are resolved. However, if the audit results do not affect the compliance or noncompliance status of the affected facility, the Administrator may waive the reanalysis requirement, further audits, or retests and accept the results of the compliance test. While steps are being taken to resolve audit analysis problems, the Administrator may also choose to use the data to determine the compliance or noncompliance status of the affected facility.

9.3 IC/PCR Quality Control.

9.3.1 IC/PCR Calibration Reference Standards.

9.3.1.1 Prepare a calibration reference standard at a concentration that is at or near the mid-point of the calibration curve using the same alkaline matrix as the calibration standards. This reference standard should be prepared from a different Cr stock solution than that used to prepare the calibration curve standards. The reference standard is used to verify the accuracy of the calibration curve.

9.3.1.2 The curve must be validated before sample analyses are performed. Prior to sample analysis, analyze at least one reference standard with an expected value within the calibration range.

9.3.1.3 The results of this reference standard analysis must be within 10 percent of the true value of the reference standard for the calibration curve to be considered valid.

9.3.2 IC/PCR Continuing Check Standard and Calibration Blank.

9.3.2.1 Perform analysis of the check standard and the calibration blank with the field samples as described in Section 11.6 (at least after every 10 samples, and at the end of the analytical run).

9.3.2.2 The result from the check standard must be within 10 percent of the expected value.

9.3.2.3 If the 10 percent criteria is exceeded, excessive drift and/or instrument degradation may have occurred, and must be corrected before further analyses can be performed.

9.3.2.4 The results of the calibration blank analyses must agree within three standard deviations of the mean blank value.

9.3.2.5 If not, analyze the calibration blank two more times and average the results.

9.3.2.6 If the average is not within three standard deviations of the background mean, terminate the analyses, correct the problem, recalibrate, and reanalyze all samples analyzed subsequent to the last acceptable calibration blank analysis.

9.3.3 IC/PCR Duplicate Sample Analysis.

9.3.3.1 Perform one duplicate sample analysis for each compliance sample batch (3 runs).

9.3.3.2 An aliquot of the selected sample is prepared and analyzed using procedures identical to those used for the emission samples (for example, filtration and/or, if necessary, preconcentration).

9.3.3.3 Duplicate sample injection results shall agree within 10 percent for sample results exceeding ten (10) times the detection limit.

9.3.3.4 Report the original analysis value for the sample and report the duplicate analysis value as the QC check value.

9.3.3.5 If agreement is not achieved, perform the duplicate analysis again.

9.3.3.6 If agreement is not achieved the second time, perform corrective action to identify and correct the problem prior to analyzing the sample for a third time.

9.3.4 ICP/PCR Matrix Spiking. Spiked samples shall be prepared and analyzed with each sample set to ensure that there are no matrix effects, that samples and standards have been matrix-matched, and that the equipment is operating properly.

9.3.4.1 Spiked sample recovery analysis should indicate a recovery of the Cr^{+6} spike between 75 and 125 percent.

9.3.4.2 The spiked sample concentration should be within the linear portion of the calibration curve and should be equal to or greater than the concentration of the original sample. In addition, the spiked sample concentration should be at least ten (10) times the detection limit.

9.3.4.3 If the recoveries for the Cr^{+6} spiked samples do not meet the specified criteria, perform corrective action to identify and correct the problem prior to reanalyzing the samples.

9.3.5 IC/PCR Field Reagent Blank.

9.3.5.1 Analyze a minimum of one matrix-matched field reagent blank (Section 8.2.4) per sample batch to determine if contamination or memory effects are occurring.

9.3.5.2 If contamination or memory effects are observed, perform corrective action to identify and correct the problem before reanalyzing the samples.

9.3.6 Audit Sample Analysis.

9.3.6.1 When the method is used to analyze samples to demonstrate compliance with source emission regulation, an audit sample must be analyzed, subject to availability.

9.3.6.2 Concurrently analyze the audit sample and the compliance samples in the same manner to evaluate the technique of the analyst and the standards preparation.

9.3.6.3 The same analyst, analytical reagents, and analytical system shall be used for the compliance samples and the audit sample. If this condition is met, duplicate auditing of subsequent compliance analyses for the same enforcement agency within a 30-day period is waived. An audit sample set may not be used to validate different sets of compliance samples under the jurisdiction of separate enforcement agencies, unless prior arrangements have been made with both enforcement agencies.

9.3.7 Audit Sample Results.

9.3.7.1 Calculate the audit sample concentrations and submit results using the instructions provided with the audit samples.

9.3.7.2 Report the results of the audit samples and the compliance determination samples along with their identification numbers, and the analyst's name to the responsible enforcement authority. Include this information with reports of any subsequent compliance analyses for the same enforcement authority during the 30-day period.

9.3.7.3 The concentrations of the audit samples obtained by the analyst shall agree within the values specified by the compliance auditor. If the specified range is not met, reanalyze the compliance and audit samples, and include initial and reanalysis values in the test report.

9.3.7.4 Failure to meet the specified range may require retests unless the audit problems are resolved. However, if the audit results do not affect the compliance or noncompliance status of the affected facility, the Administrator may waive the reanalysis requirement, further audits, or retests and accept the results of the compliance test. While steps are being taken to resolve audit analysis problems, the Administrator may also choose to use the data to determine the compliance or noncompliance status of the affected facility.

10.0 Calibration and Standardization

10.1 Sampling Train Calibration. Perform calibrations described in Method 5, (40 CFR Part 60, Appendix A). The alternate calibration procedures described in Method 5, may also be used.

10.2 ICP Calibration.

10.2.1 Calibrate the instrument according to the instrument manufacturer's recommended procedures, using a calibration blank and three standards for the initial calibration.

10.2.2 Calibration standards should be prepared fresh daily, as described in Section 7.3.8. Be sure that samples and calibration standards are matrix matched. Flush the system with the calibration blank between each standard.

10.2.3 Use the average intensity of multiple exposures (3 or more) for both standardization and sample analysis to reduce random error.

10.2.4 Employing linear regression, calculate the correlation coefficient .

10.2.5 The correlation coefficient must equal or exceed 0.995.

10.2.6 If linearity is not acceptable, prepare and rerun another set of calibration standards or reduce the range of the calibration standards, as necessary.

10.3 GFAAS Calibration.

10.3.1 For instruments that measure directly in concentration, set the instrument software to display the correct concentration, if applicable.

10.3.2 Curve must be linear in order to correctly perform the method of standard additions which is customarily performed automatically with most instrument computer-based data systems.

10.3.3 The calibration curve (direct calibration or standard additions) must be prepared daily with a minimum of a calibration blank and three standards that are prepared fresh daily.

10.3.4 The calibration curve acceptance criteria must equal or exceed 0.995.

10.3.5 If linearity is not acceptable, prepare and rerun another set of calibration standards or reduce the range of calibration standards, as necessary.

10.4 IC/PCR Calibration.

10.4.1 Prepare a calibration curve using the calibration blank and three calibration standards prepared fresh daily as described in Section 7.3.8.

10.4.2 The calibration curve acceptance criteria must equal or exceed 0.995.

10.4.3 If linearity is not acceptable, remake and/or rerun the calibration standards. If the calibration curve is still unacceptable, reduce the range of the curve.

10.4.4 Analyze the standards with the field samples as described in Section 11.6.

11.0 Analytical Procedures

NOTE: The method determines the chromium concentration in µg Cr/mL. It is important that the analyst measure the field sample volume prior to analyzing the sample. This will allow for conversion of µg Cr/mL to µg Cr/sample.

11.1 ICP Sample Preparation.

11.1.1 The ICP analysis is performed directly on the alkaline impinger solution; acid digestion is not necessary, provided the samples and standards are matrix matched.

11.1.2 The ICP analysis should only be employed when the solution analyzed has a Cr concentration greater than 35 µg/L or five times the method detection limit as determined according to Appendix B in 40 CFR Part 136 or by other commonly accepted analytical procedures.

11.2 ICP Sample Analysis.

11.2.1 The ICP analysis is applicable for the determination of total chromium only.

11.2.2 ICP Blanks. Two types of blanks are required for the ICP analysis.

11.2.2.1 Calibration Blank. The calibration blank is used in establishing the calibration curve. For the calibration blank, use either 0.1 N NaOH or 0.1 N $NaHCO_3$, whichever is used for the impinger absorbing solution. The calibration blank can be prepared fresh in the laboratory; it does not have to be prepared from the same batch of solution that was used in the field. A sufficient quantity should be prepared to flush the system between standards and samples.

11.2.2.2 Field Reagent Blank. The field reagent blank is collected in the field during the testing program. The field reagent blank (Section 8.2.4) is an aliquot of the absorbing solution prepared in Section 7.1.2. The reagent blank is used to assess possible contamination resulting from sample processing.

11.2.3 ICP Instrument Adjustment.

11.2.3.1 Adjust the ICP instrument for proper operating parameters including wavelength, background correction settings (if necessary), and interfering element correction settings (if necessary).

11.2.3.2 The instrument must be allowed to become thermally stable before beginning measurements (usually requiring at least 30 min of operation prior to calibration). During this warmup period, the optical calibration and torch position optimization may be performed (consult the operator's manual).

11.2.4 ICP Instrument Calibration.

11.2.4.1 Calibrate the instrument according to the instrument manufacturer's recommended procedures, and the procedures specified in Section 10.2.

11.2.4.2 Prior to analyzing the field samples, reanalyze the highest calibration standard as if it were a sample.

11.2.4.3 Concentration values obtained should not deviate from the actual values or from the established control limits by more than 5 percent, whichever is lower (see Sections 9.1 and 10.2).

11.2.4.4 If they do, follow the recommendations of the instrument manufacturer to correct the problem.

11.2.5 ICP Operational Quality Control Procedures.

11.2.5.1 Flush the system with the calibration blank solution for at least 1 min before the analysis of each sample or standard.

11.2.5.2 Analyze the continuing check standard and the calibration blank after each batch of 10 samples.

11.2.5.3 Use the average intensity of multiple exposures for both standardization and sample analysis to reduce random error.

11.2.6 ICP Sample Dilution.

11.2.6.1 Dilute and reanalyze samples that are more concentrated than the linear calibration limit or use an alternate, less sensitive Cr wavelength for which quality control data have already been established.

11.2.6.2 When dilutions are performed, the appropriate factors must be applied to sample measurement results.

11.2.7 Reporting Analytical Results. All analytical results should be reported in μg Cr/mL using three significant figures. Field sample volumes (mL) must be reported also.

11.3 GFAAS Sample Preparation.

11.3.1 GFAAS Acid Digestion. An acid digestion of the alkaline impinger solution is required for the GFAAS analysis.

11.3.1.1 In a beaker, add 10 mL of concentrated HNO_3 to a 100 mL sample aliquot that has been well mixed. Cover the beaker with a watch glass. Place the beaker on a hot plate and reflux the sample to near dryness. Add another 5 mL of concentrated HNO_3 to complete the digestion. Again, carefully reflux the sample volume to near dryness. Rinse the beaker walls and watch glass with reagent water.

11.3.1.2 The final concentration of HNO_3 in the solution should be 1 percent (v/v).

11.3.1.3 Transfer the digested sample to a 50-mL volumetric flask. Add 0.5 mL of concentrated HNO_3 and 1 mL of the 10 μg/mL of $Ca(NO_3)_2$. Dilute to 50 mL with reagent water.

11.3.2 HNO_3 Concentration. A different final volume may be used based on the expected Cr concentration, but the HNO_3 concentration must be maintained at 1 percent (v/v).

11.4 GFAAS Sample Analysis.

11.4.1 The GFAAS analysis is applicable for the determination of total chromium only.

11.4.2 GFAAS Blanks. Two types of blanks are required for the GFAAS analysis.

11.4.2.1 Calibration Blank. The 1.0 percent HNO_3 is the calibration blank which is used in establishing the calibration curve.

11.4.2.2 Field Reagent Blank. An aliquot of the 0.1 N NaOH solution or the 0.1 N $NaHCO_3$ prepared in Section 7.1.2 is collected for the field reagent blank. The field reagent blank is used to assess possible contamination resulting from processing the sample.

11.4.2.2.1 The reagent blank must be subjected to the entire series of sample preparation and analytical procedures, including the acid digestion.

11.4.2.2.2 The reagent blank's final solution must contain the same acid concentration as the sample solutions.

11.4.3 GFAAS Instrument Adjustment.

11.4.3.1 The 357.9 nm wavelength line shall be used.

11.4.3.2 Follow the manufacturer's instructions for all other spectrophotometer operating parameters.

11.4.4 Furnace Operational Parameters. Parameters suggested by the manufacturer should be employed as guidelines.

11.4.4.1 Temperature-sensing mechanisms and temperature controllers can vary between instruments and/or with time; the validity of the furnace operating parameters must be periodically confirmed by systematically altering the furnace parameters while analyzing a standard. In this manner, losses of analyte due to higher-than-necessary temperature settings or losses in sensitivity due to less than optimum settings can be minimized.

11.4.4.2 Similar verification of furnace operating parameters may be required for complex sample matrices (consult instrument manual for additional information). Calibrate the GFAAS system following the procedures specified in Section 10.3.

11.4.5 GFAAS Operational Quality Control Procedures.

11.4.5.1 Introduce a measured aliquot of digested sample into the furnace and atomize.

11.4.5.2 If the measured concentration exceeds the calibration range, the sample should be diluted with the calibration blank solution (1.0 percent HNO_3) and reanalyzed.

11.4.5.3 Consult the operator's manual for suggested injection volumes. The use of multiple injections can improve accuracy and assist in detecting furnace pipetting errors.

11.4.5.4 Analyze a minimum of one matrix-matched reagent blank per sample batch to determine if contamination or any memory effects are occurring.

11.4.5.5 Analyze a calibration blank and a continuing check standard after approximately every batch of 10 sample injections.

11.4.6 GFAAS Sample Dilution.

11.4.6.1 Dilute and reanalyze samples that are more concentrated than the instrument calibration range.

11.4.6.2 If dilutions are performed, the appropriate factors must be applied to sample measurement results.

11.4.7 Reporting Analytical Results.

11.4.7.1 Calculate the Cr concentrations by the method of standard additions (see operator's manual) or, from direct calibration. All dilution and/or concentration factors must be used when calculating the results.

11.4.7.2 Analytical results should be reported in µg Cr/mL using three significant figures. Field sample volumes (mL) must be reported also.

11.5 IC/PCR Sample Preparation.

11.5.1 Sample pH. Measure and record the sample pH prior to analysis.

11.5.2 Sample Filtration. Prior to preconcentration and/or analysis, filter all field samples through a 0.45-µm filter. The filtration step should be conducted just prior to sample injection/analysis.

11.5.2.1 Use a portion of the sample to rinse the syringe filtration unit and acetate filter and then collect the required volume of filtrate.

11.5.2.2 Retain the filter if total Cr is to be determined also.

11.5.3 Sample Preconcentration (older instruments).

11.5.3.1 For older instruments, a preconcentration system may be used in conjunction with the IC/PCR to increase sensitivity for trace levels of $Cr^{+6.}$

11.5.3.2 The preconcentration is accomplished by selectively retaining the analyte on a solid absorbent, followed by removal of the analyte from the absorbent (consult instrument manual).

11.5.3.3 For a manual system, position the injection valve so that the eluent displaces the concentrated Cr^{+6} sample, transferring it from the preconcentration column and onto the IC anion separation column.

11.6 IC/PCR Sample Analyses.

11.6.1 The IC/PCR analysis is applicable for hexavalent chromium measurements only.

11.6.2 IC/PCR Blanks. Two types of blanks are required for the IC/PCR analysis.

11.6.2.1 Calibration Blank. The calibration blank is used in establishing the analytical curve. For the calibration blank, use either 0.1 N NaOH or 0.1 N $NaHCO_3$, whichever is used for the impinger solution. The calibration blank can be prepared fresh in the laboratory; it does not have to be prepared from the same batch of absorbing solution that is used in the field.

11.6.2.2 Field Reagent Blank. An aliquot of the 0.1 N NaOH solution or the 0.1 N $NaHCO_3$ solution prepared in Section 7.1.2 is collected for the field reagent blank. The field reagent blank is used to assess possible contamination resulting from processing the sample.

11.6.3 Stabilized Baseline. Prior to sample analysis, establish a stable baseline with the detector set at the required attenuation by setting the eluent and post-column reagent flow rates according to the manufacturers recommendations.

NOTE: As long as the ratio of eluent flow rate to PCR flow rate remains constant, the standard curve should remain linear. Inject a sample of reagent water to ensure that no Cr^{+6} appears in the water blank.

11.6.4 Sample Injection Loop. Size of injection loop is based on standard/sample concentrations and the selected attenuator setting.

11.6.4.1 A 50-µL loop is normally sufficient for most higher concentrations.

11.6.4.2 The sample volume used to load the injection loop should be at least 10 times the loop size so that all tubing in contact with the sample is thoroughly flushed with the new sample to prevent cross contamination.

11.6.5 IC/PCR Instrument Calibration.

11.6.5.1 First, inject the calibration standards prepared, as described in Section 7.3.8 to correspond to the appropriate concentration range, starting with the lowest standard first.

11.6.5.2 Check the performance of the instrument and verify the calibration using data gathered from analyses of laboratory blanks, calibration standards, and a quality control sample.

11.6.5.3 Verify the calibration by analyzing a calibration reference standard. If the measured concentration exceeds the established value by more than 10 percent, perform a second analysis. If the measured concentration still exceeds the established value by more than 10 percent, terminate the analysis until the problem can be identified and corrected.

11.6.6 IC/PCR Instrument Operation.

11.6.6.1 Inject the calibration reference standard (as described in Section 9.3.1), followed by the field reagent blank (Section 8.2.4), and the field samples.

11.6.6.1.1 Standards (and QC standards) and samples are injected into the sample loop of the desired size (use a larger size loop for greater sensitivity). The Cr^{+6} is collected on the resin bed of the column.

11.6.6.1.2 After separation from other sample components, the Cr^{+6} forms a specific complex in the post-column reactor with the DPC reaction solution, and the complex is detected by visible absorbance at a maximum wavelength of 540 nm.

11.6.6.1.3 The amount of absorbance measured is proportional to the concentration of the Cr^{+6} complex formed.

11.6.6.1.4 The IC retention time and the absorbance of the Cr^{+6} complex with known Cr^{+6} standards analyzed under identical conditions must be compared to provide both qualitative and quantitative analyses.

11.6.6.1.5 If a sample peak appears near the expected retention time of the Cr^{+6} ion, spike the sample according to Section 9.3.4 to verify peak identity.

11.6.7 IC/PCR Operational Quality Control Procedures.

11.6.7.1 Samples should be at a pH ≥8.5 for NaOH and ≥8.0 if using $NaHCO_3$; document any discrepancies.

11.6.7.2 Refrigerated samples should be allowed to equilibrate to ambient temperature prior to preparation and analysis.

11.6.7.3 Repeat the injection of the calibration standards at the end of the analytical run to assess instrument drift. Measure areas or heights of the Cr^{+6}/DPC complex chromatogram peaks.

11.6.7.4 To ensure the precision of the sample injection (manual or autosampler), the response for the second set of injected standards must be within 10 percent of the average response.

11.6.7.5 If the 10 percent criteria duplicate injection cannot be achieved, identify the source of the problem and rerun the calibration standards.

11.6.7.6 Use peak areas or peak heights from the injections of calibration standards to generate a linear calibration curve. From the calibration curve, determine the concentrations of the field samples.

11.6.8 IC/PCR Sample Dilution.

11.6.8.1 Samples having concentrations higher than the established calibration range must be diluted into the calibration range and re-analyzed.

11.6.8.2 If dilutions are performed, the appropriate factors must be applied to sample measurement results.

11.6.9 Reporting Analytical Results. Results should be reported in μg Cr^{+6}/mL using three significant figures. Field sample volumes (mL) must be reported also.

12.0 Data Analysis and Calculations

12.1 Pretest Calculations.

12.1.1 Pretest Protocol (Site Test Plan).

12.1.1.1 The pretest protocol should define and address the test data quality objectives (DQOs), with all assumptions, that will be required by the end user (enforcement authority); what data are needed? why are the data needed? how will the data be used? what are method detection limits? and what are estimated target analyte levels for the following test parameters.

12.1.1.1.1 Estimated source concentration for total chromium and/or $Cr^{+6.}$

12.1.1.1.2 Estimated minimum sampling time and/or volume required to meet method detection limit requirements (Appendix B 40 CFR Part 136) for measurement of total chromium and/or $Cr^{+6.}$

12.1.1.1.3 Demonstrate that planned sampling parameters will meet DQOs. The protocol must demonstrate that the planned sampling parameters calculated by the tester will meet the needs of the source and the enforcement authority.

12.1.1.2 The pre-test protocol should include information on equipment, logistics, personnel, process operation, and other resources necessary for an efficient and coordinated test.

12.1.1.3 At a minimum, the pre-test protocol should identify and be approved by the source, the tester, the analytical laboratory, and the regulatory enforcement authority. The tester should not proceed with the compliance testing before obtaining approval from the enforcement authority.

12.1.2 Post Test Calculations.

12.1.2.1 Perform the calculations, retaining one extra decimal figure beyond that of the acquired data. Round off figures after final calculations.

12.1.2.2 Nomenclature.

C_S = Concentration of Cr in sample solution, μg Cr/mL.
C_{cr} = Concentration of Cr in stack gas, dry basis, corrected to standard conditions, mg/dscm.
D = Digestion factor, dimension less.
F = Dilution factor, dimension less.
M_{Cr} = Total Cr in each sample, μg.
V_{ad} = Volume of sample aliquot after digestion, mL.
V_{af} = Volume of sample aliquot after dilution, mL.
V_{bd} = Volume of sample aliquot submitted to digestion, mL.
V_{bf} = Volume of sample aliquot before dilution, mL.
V_{mL} = Volume of impinger contents plus rinses, mL.
$V_{m(std)}$ = Volume of gas sample measured by the dry gas meter, corrected to standard conditions, dscm.

12.1.2.3 Dilution Factor. The dilution factor is the ratio of the volume of sample aliquot after dilution to the volume before dilution. This ratio is given by the following equation:

$$F = \frac{V_{af}}{V_{bf}} \qquad \text{Eq. 306-1}$$

12.1.2.4 Digestion Factor. The digestion factor is the ratio of the volume of sample aliquot after digestion to the volume before digestion. This ratio is given by Equation 306–2.

$$D = \frac{V_{ad}}{V_{bd}} \qquad \text{Eq. 306-2}$$

12.1.2.5 Total Cr in Sample. Calculate MCr, the total µg Cr in each sample, using the following equation:

$$M_{cr} = V_{mL} \times C_S \times F \times D \qquad \text{Eq. 306-3}$$

12.1.2.6 Average Dry Gas Meter Temperature and Average Orifice Pressure Drop. Same as Method 5.

12.1.2.7 Dry Gas Volume, Volume of Water Vapor, Moisture Content. Same as Method 5.

12.1.2.8 Cr Emission Concentration (C_{Cr}). Calculate C_{Cr}, the Cr concentration in the stack gas, in mg/dscm on a dry basis, corrected to standard conditions using the following equation:

$$C_{Cr} = \frac{M_{Cr}}{V_{m(std)}} \times 10^{-3} \frac{mg}{\mu g} \qquad \text{Eq. 306-4}$$

12.1.2.9 Isokinetic Variation, Acceptable Results. Same as Method 5.

13.0 Method Performance

13.1 Range. The recommended working range for all of the three analytical techniques starts at five times the analytical detection limit (see also Section 13.2.2). The upper limit of all three techniques can be extended indefinitely by appropriate dilution.

13.2 Sensitivity.

13.2.1 Analytical Sensitivity. The estimated instrumental detection limits listed are provided as a guide for an instrumental limit. The actual method detection limits are sample and instrument dependent and may vary as the sample matrix varies.

13.2.1.2 ICP Analytical Sensitivity. The minimum estimated detection limits for ICP, as reported in Method 6010A and the recently revised Method 6010B of SW–846 (Reference 1), are 7.0 µg Cr/L and 4.7 µg Cr/L, respectively.

13.2.1.3 GFAAS Analytical Sensitivity. The minimum estimated detection limit for GFAAS, as reported in Methods 7000A and 7191 of SW–846 (Reference 1), is 1 µg Cr/L.

13.2.1.4 IC/PCR Analytical Sensitivity. The minimum detection limit for IC/PCR with a preconcentrator, as reported in Methods 0061 and 7199 of SW–846 (Reference 1), is 0.05 µg Cr^{+6}/L.

1.3.2.1.5 Determination of Detection Limits. The laboratory performing the Cr^{+6} measurements must determine the method detection limit on a quarterly basis using a suitable procedure such as that found in 40 CFR, Part 136, Appendix B. The determination should be made on samples in the appropriate alkaline matrix. Normally this involves the preparation (if applicable) and consecutive measurement of seven (7) separate aliquots of a sample with a concentration <5 times the expected detection limit. The detection limit is 3.14 times the standard deviation of these results.

13.2.2 In-stack Sensitivity. The in-stack sensitivity depends upon the analytical detection limit, the volume of stack gas sampled, the total volume of the impinger absorbing solution plus the rinses, and, in some cases, dilution or concentration factors from sample preparation. Using the analytical detection limits given in Sections 13.2.1.1, 13.2.1.2, and 13.2.1.3; a stack gas sample volume of 1.7 dscm; a total liquid sample volume of 500 mL; and the digestion concentration factor of 1/2 for the GFAAS analysis; the corresponding in-stack detection limits are 0.0014 mg Cr/dscm to 0.0021 mg Cr/dscm for ICP, 0.00015 mg Cr/dscm for GFAAS, and 0.000015 mg Cr^{+6}/dscm for IC/PCR with preconcentration.

NOTE: It is recommended that the concentration of Cr in the analytical solutions be at least five times the analytical detection limit to optimize sensitivity in the analyses. Using this guideline and the same assumptions for impinger sample volume, stack gas sample volume, and the digestion concentration factor for the GFAAS analysis (500 mL,1.7 dscm, and 1/2, respectively), the recommended minimum stack concentrations for optimum sensitivity are 0.0068 mg Cr/dscm to 0.0103 mg Cr/dscm for ICP, 0.00074 mg Cr/dscm for GFAAS, and 0.000074 mg Cr^{+6}/dscm for IC/PCR with preconcentration. If required, the in-stack detection limits can be improved by either increasing the stack gas sample volume, further reducing the volume of the digested sample for GFAAS, improving the analytical detection limits, or any combination of the three.

13.3 Precision.

13.3.1 The following precision data have been reported for the three analytical methods. In each case, when the sampling precision is combined with the reported analytical precision, the resulting overall precision may decrease.

13.3.2 Bias data is also reported for GFAAS.

13.4 ICP Precision.

13.4.1 As reported in Method 6010B of SW–846 (Reference 1), in an EPA round-robin Phase 1 study, seven laboratories applied the ICP technique to acid/distilled water matrices that had been spiked with various metal concentrates. For true values of 10, 50, and 150 μg Cr/L; the mean reported values were 10, 50, and 149 μg Cr/L; and the mean percent relative standard deviations were 18, 3.3, and 3.8 percent, respectively.

13.4.2 In another multi laboratory study cited in Method 6010B, a mean relative standard of 8.2 percent was reported for an aqueous sample concentration of approximately 3750 μg Cr/L.

13.5 GFAAS Precision. As reported in Method 7191 of SW–846 (Reference 1), in a single laboratory (EMSL), using Cincinnati, Ohio tap water spiked at concentrations of 19, 48, and 77 μg Cr/L, the standard deviations were ±0.1, ±0.2, and ±0.8, respectively. Recoveries at these levels were 97 percent, 101 percent, and 102 percent, respectively.

13.6 IC/PCR Precision. As reported in Methods 0061 and 7199 of SW–846 (Reference 1), the precision of IC/PCR with sample preconcentration is 5 to 10 percent. The overall precision for sewage sludge incinerators emitting 120 ng/dscm of Cr^{+6} and 3.5 μg/dscm of total Cr was 25 percent and 9 percent, respectively; and for hazardous waste incinerators emitting 300 ng/dscm of C^{+6} the precision was 20 percent.

14.0 Pollution Prevention

14.1 The only materials used in this method that could be considered pollutants are the chromium standards used for instrument calibration and acids used in the cleaning of the collection and measurement containers/labware, in the preparation of standards, and in the acid digestion of samples. Both reagents can be stored in the same waste container.

14.2 Cleaning solutions containing acids should be prepared in volumes consistent with use to minimize the disposal of excessive volumes of acid.

14.3 To the extent possible, the containers/vessels used to collect and prepare samples should be cleaned and reused to minimize the generation of solid waste.

15.0 Waste Management

15.1 It is the responsibility of the laboratory and the sampling team to comply with all federal, state, and local regulations governing waste management, particularly the discharge regulations, hazardous waste identification rules, and land disposal restrictions; and to protect the air, water, and land by minimizing and controlling all releases from field operations.

15.2 For further information on waste management, consult The Waste Management Manual for Laboratory Personnel and Less is Better—Laboratory Chemical Management for Waste Reduction, available from the American Chemical Society's Department of Government Relations and Science Policy, 1155 16th Street NW, Washington, DC 20036.

16.0 References

1. ''Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW–846, Third Edition,'' as amended by Updates I, II, IIA, IIB, and III. Document No. 955–001–000001. Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC, November 1986.

2. Cox, X.B., R.W. Linton, and F.E. Butler. Determination of Chromium Speciation in Environmental Particles—A Multi-technique

Study of Ferrochrome Smelter Dust. Accepted for publication in Environmental Science and Technology.

3. Same as Section 17.0 of Method 5, References 2, 3, 4, 5, and 7.

4. California Air Resources Board, "Determination of Total Chromium and Hexavalent Chromium Emissions from Stationary Sources." Method 425, September 12, 1990.

5. *The Merck Index.* Eleventh Edition. Merck & Co., Inc., 1989.

6. Walpole, R.E., and R.H. Myers. "Probability and Statistics for Scientists and Engineering." 3rd Edition. MacMillan Publishing Co., NewYork, N.Y., 1985.

17.0 Tables, Diagrams, Flowcharts, and Validation Data

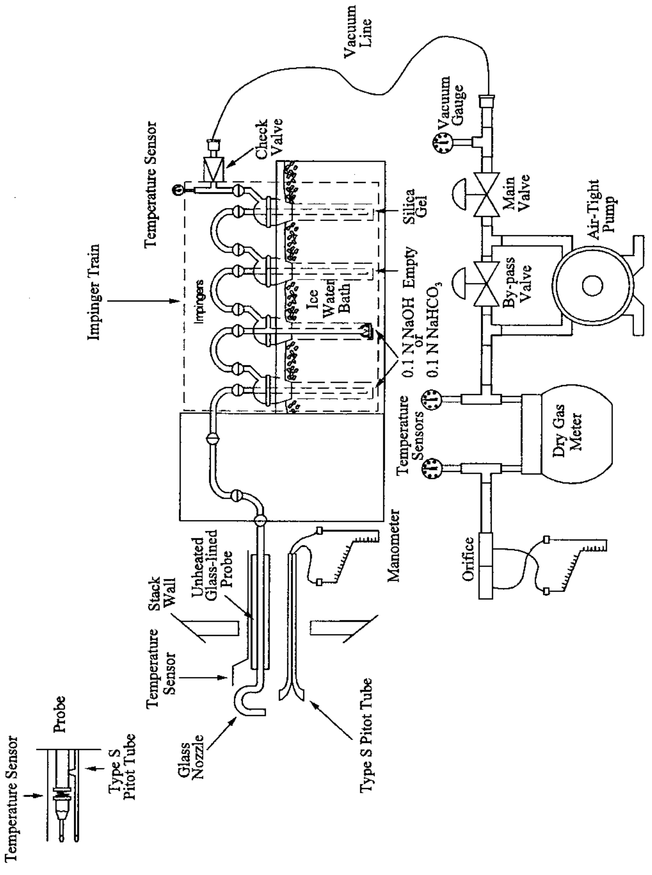


Figure 306-1. Chromium Sampling Train.

Plant __________
Location __________
Operator __________
Date __________
Run No. __________
Sample box No. __________
Meter box No. __________
Meter $\Delta H@$ __________
C factor __________
Pitot tube coefficient, C_p __________

SCHEMATIC OF STACK CROSS SECTION

Ambient temperature __________
Barometric pressure __________
Assumed moisture, % __________
Probe length, (ft.) __________
Nozzle identification No. __________
Average calibrated nozzle diameter, (in.) __________
Leak rate, (cfm) __________
Static pressure, (in. Hg) __________

Traverse point number	Sampling time	Vacuum	Stack temperature	Velocity head	Pressure differential across orifice meter	Gas meter reading	Gas sample temperature at dry gas meter		Temperature of gas leaving condenser or last impinger
							Inlet	Outlet	
	min.	(in. Hg)	(T_s) (°F)	(ΔP_s) (in. H_2O)	(in. H_2O)	(ft³)	(°F)	(°F)	(°F)
Total							Avg.	Avg.	
Average							Avg.		

Figure 306-2. Chromium Field Data Sheet.

METHOD 306A—DETERMINATION OF CHROMIUM EMISSIONS FROM DECORATIVE AND HARD CHROMIUM ELECTROPLATING AND CHROMIUM ANODIZING OPERATIONS

NOTE: This method does not include all of the specifications (*e.g.*, equipment and supplies) and procedures (*e.g.*, sampling and analytical) essential to its performance. Some material is incorporated by reference from other methods in 40 CFR Part 60, Appendix A and in this part. Therefore, to obtain reliable results, persons using this method should have a thorough knowledge of at least Methods 5 and 306.

1.0 Scope and Application

1.1 Analyte. Chromium. CAS Number (7440–47–3).

1.2 Applicability.

1.2.1 This method applies to the determination of chromium (Cr) in emissions from decorative and hard chromium electroplating facilities, chromium anodizing operations, and continuous chromium plating at iron and steel facilities. The method is less expensive and less complex to conduct than Method 306. Correctly applied, the precision and bias of the sample results should be comparable to those obtained with the isokinetic Method 306. This method is applicable for the determination of air emissions under nominal ambient moisture, temperature, and pressure conditions.

1.2.2 The method is also applicable to electroplating and anodizing sources controlled by wet scrubbers.

1.3 Data Quality Objectives.

1.3.1 Pretest Protocol.

1.3.1.1 The pretest protocol should define and address the test data quality objectives (DQOs), with all assumptions, that will be required by the end user (enforcement authority); what data are needed? why are the data needed? how will data be used? what are method detection limits? and what are estimated target analyte levels for the following test parameters.

1.3.1.1.1 Estimated source concentration for total chromium and/or Cr^{+6}.

1.3.1.1.2 Estimated minimum sampling time and/or volume required to meet method detection limit requirements (Appendix B 40 CFR Part 136) for measurement of total chromium and/or Cr^{+6}.

1.3.1.1.3 Demonstrate that planned sampling parameters will meet DQOs. The protocol must demonstrate that the planned sampling parameters calculated by the tester will meet the needs of the source and the enforcement authority.

1.3.1.2 The pre-test protocol should include information on equipment, logistics, personnel, process operation, and other resources necessary for an efficient and coordinated performance test.

1.3.1.3 At a minimum, the pre-test protocol should identify and be approved by the source, the tester, the analytical laboratory, and the regulatory enforcement authority. The tester should not proceed with the compliance testing before obtaining approval from the enforcement authority.

2.0 Summary of Method

2.1 Sampling.

2.1.1 An emission sample is extracted from the source at a constant sampling rate determined by a critical orifice and collected in a sampling train composed of a probe and impingers. The proportional sampling time at the cross sectional traverse points is varied according to the stack gas velocity at each point. The total sample time must be at least two hours.

2.1.2 The chromium emission concentration is determined by the same analytical procedures described in Method 306: inductively-coupled plasma emission spectrometry (ICP), graphite furnace atomic absorption spectrometry (GFAAS), or ion chromatography with a post-column reactor (IC/PCR).

2.1.2.1 Total chromium samples with high chromium concentrations (≥35 μg/L) may be analyzed using inductively coupled plasma emission spectrometry (ICP) at 267.72 nm.

NOTE: The ICP analysis is applicable for this method only when the solution analyzed has a Cr concentration greater than or equal to 35 μg/L or five times the method detection limit as determined according to Appendix B in 40 CFR Part 136.

2.1.2.2 Alternatively, when lower total chromium concentrations (<35 μg/L) are encountered, a portion of the alkaline sample solution may be digested with nitric acid and analyzed by graphite furnace atomic absorption spectroscopy (GFAAS) at 357.9 nm.

2.1.2.3 If it is desirable to determine hexavalent chromium (Cr^{+6}) emissions, the samples may be analyzed using an ion chromatograph equipped with a post-column reactor (IC/PCR) and a visible wavelength detector. To increase sensitivity for trace levels of Cr^{+6}, a preconcentration system may be used in conjunction with the IC/PCR.

3.0 Definitions

3.1 *Total Chromium*—measured chromium content that includes both major chromium oxidation states (Cr+3, Cr+6).

3.2 *May*—Implies an optional operation.

3.3 *Digestion*—The analytical operation involving the complete (or nearly complete) dissolution of the sample in order to ensure the complete solubilization of the element (analyte) to be measured.

3.4 *Interferences*—Physical, chemical, or spectral phenomena that may produce a high or low bias in the analytical result.

3.5 *Analytical System*—All components of the analytical process including the sample digestion and measurement apparatus.

3.6 *Sample Recovery*—The quantitative transfer of sample from the collection apparatus to the sample preparation (digestion, etc.) apparatus. This term should not be confused with analytical recovery.

4.0 Interferences

4.1 Same as in Method 306, Section 4.0.

5.0 Safety

5.1 Disclaimer. This method may involve hazardous materials, operations, and equipment. This test method does not purport to address all of the safety issues associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to performing this test method.

5.2 Chromium and some chromium compounds have been listed as carcinogens although Chromium (III) compounds show little or no toxicity. Chromium is a skin and respiratory irritant.

6.0 Equipment and Supplies

NOTE: Mention of trade names or specific products does not constitute endorsement by the Environmental Protection Agency.

6.1 Sampling Train. A schematic of the sampling train is shown in Figure 306A–1. The individual components of the train are available commercially, however, some fabrication and assembly are required.

6.1.1 Probe Nozzle/Tubing and Sheath.

6.1.1.1 Use approximately 6.4-mm (¼-in.) inside diameter (ID) glass or rigid plastic tubing approximately 20 cm (8 in.) in length with a short 90 degree bend at one end to form the sampling nozzle. Grind a slight taper on the nozzle end before making the bend. Attach the nozzle to flexible tubing of sufficient length to enable collection of a sample from the stack.

6.1.1.2 Use a straight piece of larger diameter rigid tubing (such as metal conduit or plastic water pipe) to form a sheath that begins about 2.5 cm (1 in.) from the 90 ° bend on the nozzle and encases and supports the flexible tubing.

6.1.2 Type S Pitot Tube. Same as Method 2, Section 6.1 (40 CFR Part 60, Appendix A).

6.1.3 Temperature Sensor.

6.1.3.1 A thermocouple, liquid-filled bulb thermometer, bimetallic thermometer, mercury-in-glass thermometer, or other sensor capable of measuring temperature to within 1.5 percent of the minimum absolute stack temperature.

6.1.3.2 The temperature sensor shall either be positioned near the center of the stack, or be attached to the pitot tube as directed in Section 6.3 of Method 2.

6.1.4 Sample Train Connectors.

6.1.4.1 Use thick wall flexible plastic tubing (polyethylene, polypropylene, or polyvinyl chloride) ~ 6.4-mm (¼-in.) to 9.5-mm (⅜-in.) ID to connect the train components.

6.1.4.2 A combination of rigid plastic tubing and thin wall flexible tubing may be used as long as tubing walls do not collapse when leak-checking the train. Metal tubing cannot be used.

6.1.5 Impingers. Three, one-quart capacity, glass canning jars with vacuum seal lids, or three Greenburg-Smith (GS) design impingers connected in series, or equivalent, may be used.

6.1.5.1 One-quart glass canning jar. Three separate jar containers are required: (1) the first jar contains the absorbing solution; (2) the second is empty and is used to collect any reagent carried over from the first container; and (3) the third contains the desiccant drying agent.

6.1.5.2 Canning Jar Connectors. The jar containers are connected by leak-tight inlet and outlet tubes installed in the lids of each container for assembly with the train. The tubes may be made of ~ 6.4 mm (¼-in.) ID glass or rigid plastic tubing. For the inlet tube of the first impinger, heat the glass or plastic tubing and draw until the tubing separates. Fabricate the necked tip to form an orifice tip that is approximately 2.4 mm (3⁄32-in.) ID.

6.1.5.2.1 When assembling the first container, place the orifice tip end of the tube approximately 4.8 mm (3⁄16-in.) above the inside bottom of the jar.

6.1.5.2.2 For the second container, the inlet tube need not be drawn and sized, but the tip should be approximately 25 mm (1 in.) above the bottom of the jar.

6.1.5.2.3 The inlet tube of the third container should extend to approximately 12.7 mm (½-in.) above the bottom of the jar.

6.1.5.2.4 Extend the outlet tube for each container approximately 50 mm (2 in.) above the jar lid and downward through the lid, approximately 12.7 mm (½-in.) beneath the bottom of the lid.

6.1.5.3 Greenburg-Smith Impingers. Three separate impingers of the Greenburg-Smith (GS) design as described in Section 6.0 of Method 5 are required. The first GS impinger shall have a standard tip (orifice/plate), and the second and third GS impingers shall be modified by replacing the orifice/plate tube with a 13 mm (½-in.) ID glass tube, having an unrestricted opening located 13 mm (½-in.) from the bottom of the outer flask.

6.1.5.4 Greenburg-Smith Connectors. The GS impingers shall be connected by leak-free ground glass ''U'' tube connectors or by leak-free non-contaminating flexible tubing. The first impinger shall contain the absorbing solution, the second is empty and the third contains the desiccant drying agent.

6.1.6 Manometer. Inclined/vertical type, or equivalent device, as described in Section 6.2 of Method 2 (40 CFR Part 60, Appendix A).

6.1.7 Critical Orifice. The critical orifice is a small restriction in the sample line that is located upstream of the vacuum pump. The orifice produces a constant sampling flow rate that is approximately 0.021 cubic meters per minute (m^3/min) or 0.75 cubic feet per minute (cfm).

6.1.7.1 The critical orifice can be constructed by sealing a 2.4-mm (3⁄32-in.) ID brass tube approximately 14.3 mm (9⁄16-in.) in length inside a second brass tube that is approximately 8 mm (5⁄16-in.) ID and 14.3-mm (9⁄16-in.) in length .

6.1.7.2 Materials other than brass can be used to construct the critical orifice as long as the flow through the sampling train can be maintained at approximately 0.021 cubic meter per minute (0.75) cfm.

6.1.8 Connecting Hardware. Standard pipe and fittings, 9.5-mm (⅜-in.), 6.4-mm (¼-in.)

or 3.2-mm (⅛-in.) ID, may be used to assemble the vacuum pump, dry gas meter and other sampling train components.

6.1.9 Vacuum Gauge. Capable of measuring approximately 760 mm H_g (30 in. H_g) vacuum in 25.4 mm H_G (1 in. H_g) increments. Locate vacuum gauge between the critical orifice and the vacuum pump.

6.1.10 Pump Oiler. A glass oil reservoir with a wick mounted at the vacuum pump inlet that lubricates the pump vanes. The oiler should be an in-line type and not vented to the atmosphere. See EMTIC Guideline Document No. GD-041.WPD for additional information.

6.1.11 Vacuum Pump. Gast Model 0522–V103–G18DX, or equivalent, capable of delivering at least 1.5 cfm at 15 in. H_g vacuum.

6.1.12 Oil Trap/Muffler. An empty glass oil reservoir without wick mounted at the pump outlet to control the pump noise and prevent oil from reaching the dry gas meter.

6.1.13 By-pass Fine Adjust Valve (Optional). Needle valve assembly 6.4-mm (¼-in.), Whitey 1 RF 4–A, or equivalent, that allows for adjustment of the train vacuum.

6.1.13.1 A fine-adjustment valve is positioned in the optional pump by-pass system that allows the gas flow to recirculate through the pump. This by-pass system allows the tester to control/reduce the maximum leak-check vacuum pressure produced by the pump.

6.1.13.1.1 The tester must conduct the post test leak check at a vacuum equal to or greater than the maximum vacuum encountered during the sampling run.

6.1.13.1.2 The pump by-pass assembly is not required, but is recommended if the tester intends to leak-check the 306A train at the vacuum experienced during a run.

6.1.14 Dry Gas Meter. An Equimeter Model 110 test meter or, equivalent with temperature sensor(s) installed (inlet/outlet) to monitor the meter temperature. If only one temperature sensor is installed, locate the sensor at the outlet side of the meter. The dry gas meter must be capable of measuring the gaseous volume to within ±2% of the true volume.

NOTE: The Method 306 sampling train is also commercially available and may be used to perform the Method 306A tests. The sampling train may be assembled as specified in Method 306A with the sampling rate being operated at the delta $H_@$ specified for the calibrated orifice located in the meter box. The Method 306 train is then operated as described in Method 306A.

6.2 Barometer. Mercury aneroid barometer, or other barometer equivalent, capable of measuring atmospheric pressure to within ±2.5 mm H_g (0.1 in. H_g).

6.2.1 A preliminary check of the barometer shall be made against a mercury-in-glass reference barometer or its equivalent.

6.2.2 Tester may elect to obtain the absolute barometric pressure from a nearby National Weather Service station.

6.2.2.1 The station value (which is the absolute barometric pressure) must be adjusted for elevation differences between the weather station and the sampling location. Either subtract 2.5 mm H_g (0.1 in. H_g) from the station value per 30 m (100 ft) of elevation increase or add the same for an elevation decrease.

6.2.2.2 If the field barometer cannot be adjusted to agree within 0.1 in. H_g of the reference barometric, repair or discard the unit. The barometer pressure measurement shall be recorded on the sampling data sheet.

6.3 Sample Recovery. Same as Method 5, Section 6.2 (40 CFR Part 60, Appendix A), with the following exceptions:

6.3.1 Probe-Liner and Probe-Nozzle Brushes. Brushes are not necessary for sample recovery. If a probe brush is used, it must be non-metallic.

6.3.2 Wash Bottles. Polyethylene wash bottle, for sample recovery absorbing solution.

6.3.3 Sample Recovery Solution. Use 0.1 N NaOH or 0.1 N $NaHCO_3$, whichever is used as the impinger absorbing solution, to replace the acetone.

6.3.4 Sample Storage Containers.

6.3.4.1 Glass Canning Jar. The first canning jar container of the sampling train may serve as the sample shipping container. A new lid and sealing plastic wrap shall be substituted for the container lid assembly.

6.3.4.2 Polyethylene or Glass Containers. Transfer the Greenburg-Smith impinger contents to precleaned polyethylene or glass containers. The samples shall be stored and shipped in 250-mL, 500-mL or 1000-mL polyethylene or glass containers with leak-free, non metal screw caps.

6.3.5 pH Indicator Strip, for Cr^{+6} Samples. pH indicator strips, or equivalent, capable of determining the pH of solutions between the range of 7 and 12, at 0.5 pH increments.

6.3.6 Plastic Storage Containers. Air tight containers to store silica gel.

6.4 Analysis. Same as Method 306, Section 6.3.

7.0 Reagents and Standards.

NOTE: Unless otherwise indicated, all reagents shall conform to the specifications established by the Committee on Analytical Reagents of the American Chemical Society (ACS reagent grade). Where such specifications are not available, use the best available grade. It is recommended, but not required, that reagents be checked by the appropriate analysis prior to field use to assure that contamination is below the analytical detection limit for the ICP or GFAAS total chromium analysis; and that contamination is below the analytical detection limit for

Cr^{+6} using IC/PCR for direct injection or, if selected, preconcentration.

7.1 Sampling.

7.1.1 Water. Reagent water that conforms to ASTM Specification D1193 Type II (incorporated by reference see § 63.14). All references to water in the method refer to reagent water unless otherwise specified. It is recommended that water blanks be checked prior to preparing the sampling reagents to ensure that the Cr content is less than three (3) times the anticipated detection limit of the analytical method.

7.1.2 Sodium Hydroxide (NaOH) Absorbing Solution, 0.1 N. Dissolve 4.0 g of sodium hydroxide in 1 liter of water to obtain a pH of approximately 8.5.

7.1.3 Sodium Bicarbonate ($NaHCO_3$) Absorbing Solution, 0.1 N. Dissolve approximately 8.5 g of sodium bicarbonate in 1 liter of water to obtain a pH of approximately 8.3.

7.1.4 Chromium Contamination.

7.1.4.1 The absorbing solution shall not exceed the QC criteria noted in Method 306, Section 7.1.1 (≤3 times the instrument detection limit).

7.1.4.2 When the Cr^{+6} content in the field samples exceeds the blank concentration by at least a factor of ten (10), Cr^{+6} blank levels ≤10 times the detection limit will be allowed.

NOTE: At sources with high concentrations of acids and/or SO_2, the concentration of NaOH or $NaHCO_3$ should be ≥0.5 N to insure that the pH of the solution remains at or above 8.5 for NaOH and 8.0 for $NaHCO_3$ during and after sampling.

7.1.3 Desiccant. Silica Gel, 6–16 mesh, indicating type. Alternatively, other types of desiccants may be used, subject to the approval of the Administrator.

7.2 Sample Recovery. Same as Method 306, Section 7.2.

7.3 Sample Preparation and Analysis. Same as Method 306, Section 7.3.

7.4 Glassware Cleaning Reagents. Same as Method 306, Section 7.4.

7.5 Quality Assurance Audit Samples.

7.5.1 It is recommended, but not required, that a performance audit sample be analyzed in conjunction with the field samples. The audit sample should be in a suitable sample matrix at a concentration similar to the actual field samples.

7.5.2 When making compliance determinations, and upon availability, audit samples may be obtained from the appropriate EPA regional Office or from the responsible enforcement authority and analyzed in conjunction with the field samples.

NOTE: The responsible enforcement authority should be notified at least 30 days prior to the test date to allow sufficient time for the audit sample to be delivered.

8.0 Sample Collection, Recovery, Preservation, Holding Times, Storage, and Transport

NOTE: Prior to sample collection, consideration should be given as to the type of analysis (Cr^{+6} or total Cr) that will be performed. Deciding which analysis will be performed will enable the tester to determine which appropriate sample recovery and storage procedures will be required to process the sample.

8.1 Sample Collection.

8.1.1 Pretest Preparation.

8.1.1.1 Selection of Measurement Site. Locate the sampling ports as specified in Section 11.0 of Method 1 (40 CFR Part 60, Appendix A).

8.1.1.2 Location of Traverse Points.

8.1.1.2.1 Locate the traverse points as specified in Section 11.0 of Method 1 (40 CFR Part 60, Appendix A). Use a total of 24 sampling points for round ducts and 24 or 25 points for rectangular ducts. Mark the pitot and sampling probe to identify the sample traversing points.

8.1.1.2.2 For round ducts less than 12 inches in diameter, use a total of 16 points.

8.1.1.3 Velocity Pressure Traverse. Perform an initial velocity traverse before obtaining samples. The Figure 306A–2 data sheet may be used to record velocity traverse data.

8.1.1.3.1 To demonstrate that the flow rate is constant over several days of testing, perform complete traverses at the beginning and end of each day's test effort, and calculate the deviation of the flow rate for each daily period. The beginning and end flow rates are considered constant if the deviation does not exceed 10 percent. If the flow rate exceeds the 10 percent criteria, either correct the inconsistent flow rate problem, or obtain the Administrator's approval for the test results.

8.1.1.3.2 Perform traverses as specified in Section 8.0 of Method 2, but record only the Δp (velocity pressure) values for each sampling point. If a mass emission rate is desired, stack velocity pressures shall be recorded before and after each test, and an average stack velocity pressure determined for the testing period.

8.1.1.4 Verification of Absence of Cyclonic Flow. Check for cyclonic flow during the initial traverse to verify that it does not exist. Perform the cyclonic flow check as specified in Section 11.4 of Method 1 (40 CFR Part 60, Appendix A).

8.1.1.4.1 If cyclonic flow is present, verify that the absolute average angle of the tangential flow does not exceed 20 degrees. If the average value exceeds 20 degrees at the sampling location, the flow condition in the stack is unacceptable for testing.

8.1.1.4.2 Alternative procedures, subject to approval of the Administrator, *e.g.*, installing straightening vanes to eliminate the cyclonic flow, must be implemented prior to conducting the testing.

8.1.1.5 Stack Gas Moisture Measurements. *Not required*. Measuring the moisture content is optional when a mass emission rate is to be calculated.

8.1.1.5.1 The tester may elect to either measure the actual stack gas moisture during the sampling run or utilize a nominal moisture value of 2 percent.

8.1.1.5.2 For additional information on determining sampling train moisture, please refer to Method 4 (40 CFR Part 60, Appendix A).

8.1.1.6 Stack Temperature Measurements. If a mass emission rate is to be calculated, a temperature sensor must be placed either near the center of the stack, or attached to the pitot tube as described in Section 8.3 of Method 2. Stack temperature measurements, shall be recorded before and after each test, and an average stack temperature determined for the testing period.

8.1.1.7 Point Sampling Times. Since the sampling rate of the train (0.75 cfm) is maintained constant by the critical orifice, it is necessary to calculate specific sampling times for each traverse point in order to obtain a proportional sample.

8.1.1.7.1 If the sampling period (3 runs) is to be completed in a single day, the point sampling times shall be calculated only once.

8.1.1.7.2 If the sampling period is to occur over several days, the sampling times must be calculated daily using the initial velocity pressure data recorded for that day. Determine the average of the Δp values obtained during the velocity traverse (Figure 306A–2).

8.1.1.7.3 If the stack diameter is less than 12 inches, use 7.5 minutes in place of 5 minutes in the equation and 16 sampling points instead of 24 or 25 points. Calculate the sampling times for each traverse point using the following equation:

$$\text{Minutes at point n} = \frac{\sqrt{\Delta p \text{ at Point n}}}{\left(\sqrt{\Delta p}\right)_{avg}} \times 5 \text{ min.} \qquad \text{Eq. 306A-1}$$

Where:

n = Sampling point number.

Δp = Average pressure differential across pitot tube, mm H_2O (in. H_2O).

ΔP_{avg} = Average of Δp values, mm H_2O (in. H_2O).

NOTE: Convert the decimal fractions for minutes to seconds.

8.1.1.8 Pretest Preparation. It is recommended, but not required, that all items which will be in contact with the sample be cleaned prior to performing the testing to avoid possible sample contamination (positive chromium bias). These items include, but are not limited to: Sampling probe, connecting tubing, impingers, and jar containers.

8.1.1.8.1 Sample train components should be: (1) Rinsed with hot tap water; (2) washed with hot soapy water; (3) rinsed with tap water; (4) rinsed with reagent water; (5) soaked in a 10 percent (v/v) nitric acid solution for at least four hours; and (6) rinsed throughly with reagent water before use.

8.1.1.8.2 At a minimum, the tester should, rinse the probe, connecting tubing, and first and second impingers twice with either 0.1 N sodium hydroxide (NaOH) or 0.1 N sodium bicarbonate ($NaHCO_3$) and discard the rinse solution.

8.1.1.8.3 If separate sample shipping containers are to be used, these also should be precleaned using the specified cleaning procedures.

8.1.1.9 Preparation of Sampling Train. Assemble the sampling train as shown in Figure 306A–1. Secure the nozzle-liner assembly to the outer sheath to prevent movement when sampling.

8.1.1.9.1 Place 250 mL of 0.1 N NaOH or 0.1 N $NaHCO_3$ absorbing solution into the first jar container or impinger. The second jar/impinger is to remain empty. Place 6 to 16 mesh indicating silica gel, or equivalent desiccant into the third jar/impinger until the container is half full (~ 300 to 400 g).

8.1.1.9.2 Place a small cotton ball in the outlet exit tube of the third jar to collect small silica gel particles that may dislodge and impair the pump and/or gas meter.

8.1.1.10 Pretest Leak-Check. A pretest leak-check is recommended, but not required. If the tester opts to conduct the pretest leak-check, the following procedures shall be performed: (1) Place the jar/impinger containers into an ice bath and wait 10 minutes for the ice to cool the containers before performing the leak check and/or start sampling; (2) to perform the leak check, seal the nozzle using a piece of clear plastic wrap placed over the end of a finger and switch on the pump; and (3) the train system leak rate should not exceed 0.02 cfm at a vacuum of 380 mm Hg (15 in. Hg) or greater. If the leak rate does exceed the 0.02 cfm requirement, identify and repair the leak area and perform the leak check again.

NOTE: Use caution when releasing the vacuum following the leak check. Always allow air to slowly flow through the nozzle end of the train system while the pump is still operating. Switching off the pump with vacuum on the system may result in the silica gel being pulled into the second jar container.

8.1.1.11 Leak-Checks During Sample Run. If, during the sampling run, a component (e.g., jar container) exchange becomes necessary, a leak-check shall be conducted *immediately before* the component exchange is made. The leak-check shall be performed according to the procedure outlined in Section 8.1.1.10 of this method. If the leakage rate is found to be ≤ 0.02 cfm at the maximum operating vacuum, the results are acceptable. If, however, a higher leak rate is obtained, either record the leakage rate and correct the sample volume as shown in Section 12.3 of Method 5 or void the sample and initiate a replacement run. Following the component change, leak-checks are optional, but are recommended as are the pretest leak-checks.

8.1.1.12 Post Test Leak Check. Remove the probe assembly and flexible tubing from the first jar/impinger container. Seal the inlet tube of the first container using clear plastic wrap and switch on the pump. The vacuum in the line between the pump and the critical orifice must be ≥15 in. Hg. Record the vacuum gauge measurement along with the leak rate observed on the train system.

8.1.1.12.1 If the leak rate does not exceed 0.02 cfm, the results are acceptable and no sample volume correction is necessary.

8.1.1.12.2 If, however, a higher leak rate is obtained (>0.02 cfm), the tester shall either record the leakage rate and correct the sample volume as shown in Section 12.3 of Method 5, or void the sampling run and initiate a replacement run. After completing the leak-check, slowly release the vacuum at the first container while the pump is still operating. Afterwards, switch-off the pump.

8.1.2 Sample Train Operation.

8.1.2.1 Data Recording. Record all pertinent process and sampling data on the data sheet (see Figure 306A–3). Ensure that the process operation is suitable for sample collection.

8.1.2.2 Starting the Test. Place the probe/nozzle into the duct at the first sampling point and switch on the pump. Start the sampling using the time interval calculated for the first point. When the first point sampling time has been completed, move to the second point and continue to sample for the time interval calculated for that point; sample each point on the traverse in this manner. Maintain ice around the sample containers during the run.

8.1.2.3 Critical Flow. The sample line between the critical orifice and the pump must operate at a vacuum of ≥ 380 mm Hg (≥15 in. Hg) in order for critical flow to be maintained. This vacuum must be monitored and documented using the vacuum gauge located between the critical orifice and the pump.

NOTE: Theoretically, critical flow for air occurs when the ratio of the orifice outlet absolute pressure to the orifice inlet absolute pressure is less than a factor of 0.53. This means that the system vacuum should be at least ≥ 356 mm Hg (≥ 14 in. Hg) at sea level and ~ 305 mm Hg (~ 12 in. Hg) at higher elevations.

8.1.2.4 Completion of Test.

8.1.2.4.1 Circular Stacks. Complete the first port traverse and switch off the pump. Testers may opt to perform a leak-check between the port changes to verify the leak rate however, this is not mandatory. Move the sampling train to the next sampling port and repeat the sequence. Be sure to record the final dry gas meter reading after completing the test run. After performing the post test leak check, disconnect the jar/impinger containers from the pump and meter assembly and transport the probe, connecting tubing, and containers to the sample recovery area.

8.1.2.4.2 Rectangle Stacks. Complete each port traverse as per the instructions provided in 8.1.2.4.1.

NOTE: If an approximate mass emission rate is to be calculated, measure and record the stack velocity pressure and temperature before and after the test run.

8.2 Sample Recovery. After the train has been transferred to the sample recovery area, disconnect the tubing that connects the jar/impingers. The tester shall select either the total Cr or Cr^{+6} sample recovery option. Samples to be analyzed for both total Cr and Cr^{+6} shall be recovered using the Cr^{+6} sample option (Section 8.2.2).

NOTE: Collect a reagent blank sample for each of the total Cr or the Cr^{+6} analytical options. If both analyses (Cr and Cr^{+6}) are to be conducted on the samples, collect separate reagent blanks for each analysis.

8.2.1 Total Cr Sample Option.

8.2.1.1 Shipping Container No. 1. The first jar container may either be used to store and transport the sample, or if GS impingers are used, samples may be stored and shipped in precleaned 250-mL, 500-mL or 1000-mL polyethylene or glass bottles with leak-free, nonmetal screw caps.

8.2.1.1.1 Unscrew the lid from the first jar/impinger container.

8.2.1.1.2 Lift the inner tube assembly almost out of the container, and using the wash bottle containing fresh absorbing solution, rinse the outside of the tube that was immersed in the container solution; rinse the inside of the tube as well, by rinsing twice from the top of the tube down through the inner tube into the container.

8.2.1.2 Recover the contents of the second jar/impinger container by removing the lid and pouring any contents into the first shipping container.

8.2.1.2.1 Rinse twice, using fresh absorbing solution, the inner walls of the second container including the inside and outside of the inner tube.

8.2.1.2.2 Rinse the connecting tubing between the first and second sample containers with absorbing solution and place the rinses into the first container.

8.2.1.3 Position the nozzle, probe and connecting plastic tubing in a vertical position so that the tubing forms a ''U''.

8.2.1.3.1 Using the wash bottle, partially fill the tubing with fresh absorbing solution. Raise and lower the end of the plastic tubing several times to allow the solution to contact the internal surfaces. Do not allow the solution to overflow or part of the sample will be lost. Place the nozzle end of the probe over the mouth of the first container and elevate the plastic tubing so that the solution flows into the sample container.

8.2.1.3.2 Repeat the probe/tubing sample recovery procedure but allow the solution to flow out the opposite end of the plastic tubing into the sample container. Repeat the entire sample recovery procedure once again.

8.2.1.4 Use approximately 200 to 300 mL of the 0.1 N NaOH or 0.1 N $NaHCO_3$ absorbing solution during the rinsing of the probe nozzle, probe liner, sample containers, and connecting tubing.

8.2.1.5 Place a piece of clear plastic wrap over the mouth of the sample jar to seal the shipping container. Use a standard lid and band assembly to seal and secure the sample in the jar.

8.2.1.5.1 Label the jar clearly to identify its contents, sample number and date.

8.2.1.5.2 Mark the height of the liquid level on the container to identify any losses during shipping and handling.

8.2.1.5.3 Prepare a chain-of-custody sheet to accompany the sample to the laboratory.

8.2.2 Cr^{+6} Sample Option.

8.2.2.1 Shipping Container No. 1. The first jar container may either be used to store and transport the sample, or if GS impingers are used, samples may be stored and shipped in precleaned 250-mL, 500-mL or 1000-mL polyethylene or glass bottles with leak-free non-metal screw caps.

8.2.2.1.1 Unscrew and remove the lid from the first jar container.

8.2.2.1.2 Measure and record the pH of the solution in the first container by using a pH indicator strip. The pH of the solution must be ≥8.5 for NaOH and ≥8.0 for $NaHCO_3$. If not, discard the collected sample, increase the concentration of the NaOH or NaHCO3 absorbing solution to 0.5 M and collect another air emission sample.

8.2.2.2 After measuring the pH of the first container, follow sample recovery procedures described in Sections 8.2.1.1 through 8.2.1.5.

NOTE: Since particulate matter is not usually present at chromium electroplating and/or chromium anodizing facilities, it is not necessary to filter the Cr^{+6} samples unless there is observed sediment in the collected solutions. If it is necessary to filter the Cr^{+6} solutions, please refer to the EPA Method 0061, Determination of Hexavalent Chromium Emissions from Stationary Sources, Section 7.4, Sample Preparation in SW–846 (see Reference 5) for procedure.

8.2.3 Silica Gel Container. Observe the color of the indicating silica gel to determine if it has been completely spent and make a notation of its condition/color on the field data sheet. Do not use water or other liquids to remove and transfer the silica gel.

8.2.4 Total Cr and/or Cr^{+6} Reagent Blank.

8.2.4.1 Shipping Container No. 2. Place approximately 500 mL of the 0.1 N NaOH or 0.1 N $NaHCO_3$ absorbing solution in a precleaned, labeled sample container and include with the field samples for analysis.

8.3 Sample Preservation, Storage, and Transport.

8.3.1 Total Cr Option. Samples that are to be analyzed for total Cr need not be refrigerated.

8.3.2 Cr^{+6} Option. Samples that are to be analyzed for Cr^{+6} must be shipped and stored at 4 °C (~40 °F).

NOTE: Allow Cr^{+6} samples to return to ambient temperature prior to analysis.

8.4 Sample Holding Times.

8.4.1 Total Cr Option. Samples that are to be analyzed for total chromium must be analyzed within 60 days of collection.

8.4.2 Cr^{+6} Option. Samples that are to be analyzed for Cr^{+6} must be analyzed within 14 days of collection.

9.0 Quality Control

9.1 Same as Method 306, Section 9.0.

10.0 Calibration and Standardization

NOTE: Tester shall maintain a performance log of all calibration results.

10.1 Pitot Tube. The Type S pitot tube assembly shall be calibrated according to the procedures outlined in Section 10.1 of Method 2.

10.2 Temperature Sensor. Use the procedure in Section 10.3 of Method 2 to calibrate the in-stack temperature sensor.

10.3 Metering System.

10.3.1 Sample Train Dry Gas Meter Calibration. Calibrations may be performed as described in Section 16.2 of Method 5 by either the manufacturer, a firm who provides calibration services, or the tester.

10.3.2 Dry Gas Meter Calibration Coefficient (Y_m). The meter calibration coefficient (Y_m) must be determined prior to the initial use of the meter, and following each field test program. If the dry gas meter is new, the manufacturer will have specified the Y_m value for the meter. This Y_m value can be used as the pretest value for the first test. For subsequent tests, the tester must use the Y_m value established during the pretest calibration.

10.3.3 Calibration Orifice. The manufacturer may have included a calibration orifice and a summary spreadsheet with the meter that may be used for calibration purposes. The spreadsheet will provide data necessary to determine the calibration for the orifice and meter (standard cubic feet volume, sample time, *etc.*). These data were produced when the initial Y_m value was determined for the meter.

10.3.4 Y_m Meter Value Verification or Meter Calibration.

10.3.4.1 The Y_m meter value may be determined by replacing the sampling train critical orifice with the calibration orifice. Replace the critical orifice assembly by installing the calibration orifice in the same location. The inlet side of the calibration orifice is to be left open to the atmosphere and is *not* to be reconnected to the sample train during the calibration procedure.

10.3.4.2 If the vacuum pump is cold, switch on the pump and allow it to operate (become warm) for several minutes prior to starting the calibration. After stopping the pump, record the initial dry gas meter volume and meter temperature.

10.3.4.3 Perform the calibration for the number of minutes specified by the manufacturer's data sheet (usually 5 minutes). Stop the pump and record the final dry gas meter volume and temperature. Subtract the start volume from the stop volume to obtain the V_m and average the meter temperatures (t_m).

10.3.5 Y_m Value Calculation. Y_m is the calculated value for the dry gas meter. Calculate Y_m using the following equation:

$$Y_m = \frac{V_{m(std),mfg}}{V_m\left(\frac{T_{std}}{P_{std}}\right)\left(\frac{P_{bar}}{T_m}\right)}$$

$$Y_m = \frac{V_{m(std),mfg}T_m}{17.64\ V_m\ P_{bar}} \qquad \text{Eq. 306A-2}$$

Where:

P_{bar} = Barometric pressure at meter, mm Hg, (in. Hg).

P_{std} = Standard absolute pressure,

Metric = 760 mm Hg.

English = 29.92 in. Hg.

t_m = Average dry gas meter temperature, °C, (°F).

T_m = Absolute average dry gas meter temperature,

Metric °K = 273 + tm (°C).

English °R = 460 + t_m(°F).

T_{std} = Standard absolute temperature,

Metric = 293 °K.

English = 528 °R.

V_m = Volume of gas sample as measured (actual) by dry gas meter, dcm,(dcf).

$V_{m(std),mfg}$ = Volume of gas sample measured by manufacture's calibrated orifice and dry gas meter, corrected to standard conditions (pressure/temperature) dscm (dscf).

Y_m = Dry gas meter calibration factor, (dimensionless).

10.3.6 Y_m Comparison. Compare the Y_m value provided by the manufacturer (Section 10.3.3) or the pretest Y_m value to the post test Y_m value using the following equation:

$$\frac{Y_m(\text{manufacturer's or pretest value})}{Y_m(\text{post-test value})} \qquad \text{Eq. 306A-3}$$

10.3.6.1 If this ratio is between 0.95 and 1.05, the designated Y_m value for the meter is acceptable for use in later calculations.

10.3.6.1.1 If the value is outside the specified range, the test series shall either be: 1) voided and the samples discarded; or 2) calculations for the test series shall be conducted using whichever meter coefficient value (i.e., manufacturers's/pretest Y_m value or post test Y_m value) produces the lowest sample volume.

10.3.6.1.2 If the post test dry gas meter Y_m value differs by more than 5% as compared to the pretest value, either perform the calibration again to determine acceptability or return the meter to the manufacturer for recalibration.

10.3.6.1.3 The calibration may also be conducted as specified in Section 10.3 or Section 16.0 of Method 5 (40 CFR Part 60, Appendix A), except that it is only necessary to check the calibration at one flow rate of ~ 0.75 cfm.

10.3.6.1.4 The calibration of the dry gas meter must be verified after each field test program using the same procedures.

NOTE: The tester may elect to use the Y_m post test value for the next pretest Y_m value; e.g., Test 1 post test Y_m value and Test 2 pretest Y_m value would be the same.

10.4 Barometer. Calibrate against a mercury barometer that has been corrected for temperature and elevation.

10.5 ICP Spectrometer Calibration. Same as Method 306, Section 10.2.

10.6 GFAA Spectrometer Calibration. Same as Method 306, Section 10.3.

10.7 IC/PCR Calibration. Same as Method 306, Section 10.4.

11.0 Analytical Procedures

NOTE: The method determines the chromium concentration in µg Cr/mL. It is important that the analyst measure the volume of the field sample prior to analyzing the sample. This will allow for conversion of µg Cr/mL to µg Cr/sample.

11.1 Analysis. Refer to Method 306 for sample preparation and analysis procedures.

12.0 Data Analysis and Calculations

12.1 Calculations. Perform the calculations, retaining one extra decimal point beyond that of the acquired data. When reporting final results, round number of figures consistent with the original data.

12.2 Nomenclature.

A = Cross-sectional area of stack, m_2 (ft_2).

B_{ws} = Water vapor in gas stream, proportion by volume, dimensionless (assume 2 percent moisture = 0.02).

C_p = Pitot tube coefficient; ''S'' type pitot coefficient usually 0.840, dimensionless.

C_S = Concentration of Cr in sample solution, µg Cr/mL.

C_{Cr} = Concentration of Cr in stack gas, dry basis, corrected to standard conditions µg/dscm (gr/dscf).

d = Diameter of stack, m (ft).

D = Digestion factor, dimensionless.

ER = Approximate mass emission rate, mg/hr (lb/hr).

F = Dilution factor, dimensionless.

L = Length of a square or rectangular duct, m (ft).

M_{Cr} = Total Cr in each sample, µg (gr).

M_s = Molecular weight of wet stack gas, wet basis, g/g-mole, (lb/lb-mole); in a nominal gas stream at 2% moisture the value is 28.62.

P_{bar} = Barometric pressure at sampling site, mm Hg (in. Hg).

P_s = Absolute stack gas pressure; in this case, usually the same value as the barometric pressure, mm Hg (in. Hg).

P_{std} = Standard absolute pressure:
Metric = 760 mm Hg.
English = 29.92 in. Hg.

Q_{std} = Average stack gas volumetric flow, dry, corrected to standard conditions, dscm/hr (dscf/hr).

t_m = Average dry gas meter temperature, °C (°F).

T_m = Absolute average dry gas meter temperature:
Metric °K = 273 + t_m (°C).
English °R = 460 + t_m(°F).

t_s = Average stack temperature, °C (°F).

T_s = Absolute average stack gas temperature: Metric °K = 273 + t_s (°C). English °R = 460 + t_s(°F).

T_{std} = Standard absolute temperature: Metric = 293 °K. English = 528 °R.

V_{ad} = Volume of sample aliquot after digestion (mL).

V_{af} = Volume of sample aliquot after dilution (mL).

V_{bd} = Volume of sample aliquot submitted to digestion (mL).

V_{bf} = Volume of sample aliquot before dilution (mL).

V_m = Volume of gas sample as measured (actual, dry) by dry gas meter, dcm (dcf).

V_{mL} = Volume of impinger contents plus rinses (mL).

$V_{m(std)}$ = Volume of gas sample measured by the dry gas meter, corrected to standard conditions (temperature/pressure), dscm (dscf).

v_s = Stack gas average velocity, calculated by Method 2, Equation 2–9, m/sec (ft/sec).

W = Width of a square or rectangular duct, m (ft).

Y_m = Dry gas meter calibration factor, (dimensionless).

Δp = Velocity head measured by the Type S pitot tube, cm H_2O (in. H_2O).

Δp_{avg} = Average of Δp values, mm H_2O (in. H_2O).

12.3 Dilution Factor. The dilution factor is the ratio of the volume of sample aliquot after dilution to the volume before dilution. The dilution factor is usually calculated by the laboratory. This ratio is derived by the following equation:

$$F = \frac{V_{af}}{V_{bf}} \qquad \text{Eq. 306A-4}$$

12.4 Digestion Factor. The digestion factor is the ratio of the volume of sample aliquot after digestion to the volume before digestion. The digestion factor is usually calculated by the laboratory. This ratio is derived by the following equation.

$$D = \frac{V_{ad}}{V_{bd}} \qquad \text{Eq. 306A-5}$$

12.5 Total Cr in Sample. Calculate M_{Cr}, the total µg Cr in each sample, using the following equation:

$$M_{Cr} = V_{mL} \times C_S \times F \times D \qquad \text{Eq. 306A-6}$$

12.6 Dry Gas Volume. Correct the sample volume measured by the dry gas meter to standard conditions (20 °C, 760 mm Hg or 68'F, 29.92 in. Hg) using the following equation:

$$V_{m(std)} = V_m Y_m \left(\frac{T_{std}}{T_m}\right)\left(\frac{P_{bar}}{P_{std}}\right) = K_1 V_m Y_m \left(\frac{P_{bar}}{T_m}\right) \qquad \text{Eq. 306A-7}$$

Where:

K_1 = Metric units—0.3855 °K/mm Hg.
English units—17.64 °R/in. Hg.

12.7 Cr Emission Concentration (C_{Cr}). Calculate C_{Cr}, the Cr concentration in the stack gas, in µg/dscm (µg/dscf) on a dry basis, corrected to standard conditions, using the following equation:

$$C_{Cr} = \frac{M_{Cr}}{V_{m(std)}} \qquad \text{Eq. 306A-8}$$

Note: To convert µg/dscm (µg/dscf) to mg/dscm (mg/dscf), divide by 1000.

12.8 Stack Gas Velocity.

12.8.1 K_p = Velocity equation constant:

$$\text{Metric } K_p = 34.97 \frac{\text{m}}{\text{sec}} \left[\frac{(\text{g/g-mole})(\text{mm Hg})}{(^\circ\text{K})(\text{mm H}_2\text{O})}\right]^{1/2}$$

$$\text{English } K_p = 85.49 \frac{\text{ft}}{\text{sec}}\left[\frac{(\text{lb/lb-mole})(\text{in. Hg})}{({}^{\circ}\text{R})(\text{in. H}_2\text{O})}\right]^{1/2}$$

12.8.2 Average Stack Gas Velocity.

$$v_s = K_p C_p\left(\sqrt{\Delta p}\right)_{avg}\sqrt{\frac{T_{s(avg)}}{P_s M_s}}$$

$$= 34.97\ C_p\left(\sqrt{\Delta p}\right)_{avg}\sqrt{\frac{T_{s(avg)}}{P_s M_s}} \qquad \text{Eq. 306A-9}$$

12.9 Cross sectional area of stack.

$$A = \frac{\Pi d^2}{4} \text{ or } A = LW \qquad \text{Eq. 306A-10}$$

12.10 Average Stack Gas Dry Volumetric Flow Rate.

NOTE: The emission rate may be based on a nominal stack moisture content of 2 percent (0.02). To calculate an emission rate, the tester may elect to use either the nominal stack gas moisture value or the actual stack gas moisture collected during the sampling run.

Volumetric Flow Rate Equation:

$$Q_{std} = 3600(1 - B_{ws})v_s A\left(\frac{T_{std}}{T_{s(avg)}}\right)\left(\frac{P_s}{P_{std}}\right) \qquad \text{Eq. 306A-11}$$

Where:
3600 = Conversion factor, sec/hr.

$$Q_{std} = 62{,}234\ v_s A\left(\frac{P_s}{T_{s(avg)}}\right) \qquad \text{Eq. 306A-12}$$

NOTE: To convert Q_{std} from dscm/hr (dscf/hr) to dscm/min (dscf/min), divide Q_{std} by 60.

12.11 Mass emission rate, mg/hr (lb/hr):

$$ER = C_{cr} \times Q_{std} \times 10^{-3}\ (\text{mg/hr}) \qquad \text{Eq. 306A-13}$$

$$ER = C_{cr} \times Q_{std} \times 1.43 \times 10^{-4} \left(\mathrm{lb/hr}\right) \qquad \text{Eq. 306A-14}$$

13.0 Method Performance

13.1 Range. The recommended working range for all of the three analytical techniques starts at five times the analytical detection limit (see also Method 306, Section 13.2.2). The upper limit of all three techniques can be extended indefinitely by appropriate dilution.

13.2 Sensitivity.

13.2.1 Analytical Sensitivity. The estimated instrumental detection limits listed are provided as a guide for an instrumental limit. The actual method detection limits are sample and instrument dependent and may vary as the sample matrix varies.

13.2.1.1 ICP Analytical Sensitivity. The minimum estimated detection limits for ICP, as reported in Method 6010A and the recently revised Method 6010B of SW–846 (Reference 1), are 7.0 μg Cr/L and 4.7 μg Cr/L, respectively.

13.2.1.2 GFAAS Analytical Sensitivity. The minimum estimated detection limit for GFAAS, as reported in Methods 7000A and 7191 of SW–846 (Reference 1), is 1.0 μg Cr/L.

13.2.1.3 IC/PCR Analytical Sensitivity. The minimum detection limit for IC/PCR with a preconcentrator, as reported in Methods 0061 and 7199 of SW–846 (Reference 1), is 0.05 μg Cr^{+6}/L.

13.2.2 In-stack Sensitivity. The in-stack sensitivity depends upon the analytical detection limit, the volume of stack gas sampled, and the total volume of the impinger absorbing solution plus the rinses. Using the analytical detection limits given in Sections 13.2.1.1, 13.2.1.2, and 13.2.1.3; a stack gas sample volume of 1.7 dscm; and a total liquid sample volume of 500 mL; the corresponding in-stack detection limits are 0.0014 mg Cr/dscm to 0.0021 mg Cr/dscm for ICP, 0.00029 mg Cr/dscm for GFAAS, and 0.000015 mg Cr^{+36}/dscm for IC/PCR with preconcentration.

NOTE: It is recommended that the concentration of Cr in the analytical solutions be at least five times the analytical detection limit to optimize sensitivity in the analyses. Using this guideline and the same assumptions for impinger sample volume and stack gas sample volume (500 mL and 1.7 dscm, respectively), the recommended minimum stack concentrations for optimum sensitivity are 0.0068 mg Cr/dscm to 0.0103 mg Cr/dscm for ICP, 0.0015 mg Cr/dscm for GFAAS, and 0.000074 mg Cr^{+6} dscm for IC/PCR with preconcentration. If required, the in-stack detection limits can be improved by either increasing the sampling time, the stack gas sample volume, reducing the volume of the digested sample for GFAAS, improving the analytical detection limits, or any combination of the three.

13.3 Precision.

13.3.1 The following precision data have been reported for the three analytical methods. In each case, when the sampling precision is combined with the reported analytical precision, the resulting overall precision may decrease.

13.3.2 Bias data is also reported for GFAAS.

13.4 ICP Precision.

13.4.1 As reported in Method 6010B of SW–846 (Reference 1), in an EPA round-robin Phase 1 study, seven laboratories applied the ICP technique to acid/distilled water matrices that had been spiked with various metal concentrates. For true values of 10, 50, and 150 μg Cr/L; the mean reported values were 10, 50, and 149 μg Cr/L; and the mean percent relative standard deviations were 18, 3.3, and 3.8 percent, respectively.

13.4.2 In another multilaboratory study cited in Method 6010B, a mean relative standard of 8.2 percent was reported for an aqueous sample concentration of approximately 3750 μg Cr/L.

13.5 GFAAS Precision. As reported in Method 7191 of SW–846 (Reference 1), in a single laboratory (EMSL), using Cincinnati, Ohio tap water spiked at concentrations of 19, 48, and 77 μg Cr/L, the standard deviations were ±0.1, ±0.2, and ±0.8, respectively. Recoveries at these levels were 97 percent, 101 percent, and 102 percent, respectively.

13.6 IC/PCR Precision. As reported in Methods 0061 and 7199 of SW–846 (Reference 1), the precision of IC/PCR with sample preconcentration is 5 to 10 percent; the overall precision for sewage sludge incinerators emitting 120 ng/dscm of Cr^{+6} and 3.5 μg/dscm of total Cr is 25 percent and 9 percent, respectively; and for hazardous waste incinerators emitting 300 ng/dscm of Cr^{+6} the precision is 20 percent.

14.0 Pollution Prevention

14.1 The only materials used in this method that could be considered pollutants are the chromium standards used for instrument calibration and acids used in the cleaning of the collection and measurement containers/labware, in the preparation of standards, and in the acid digestion of samples. Both reagents can be stored in the same waste container.

14.2 Cleaning solutions containing acids should be prepared in volumes consistent with use to minimize the disposal of excessive volumes of acid.

14.3 To the extent possible, the containers/vessels used to collect and prepare samples should be cleaned and reused to minimize the generation of solid waste.

15.0 Waste Management

15.1 It is the responsibility of the laboratory and the sampling team to comply with all federal, state, and local regulations governing waste management, particularly the discharge regulations, hazardous waste identification rules, and land disposal restrictions; and to protect the air, water, and land by minimizing and controlling all releases from field operations.

15.2 For further information on waste management, consult The Waste Management Manual for Laboratory Personnel and Less is Better-Laboratory Chemical Management for Waste Reduction, available from the American Chemical Society's Department of Government Relations and Science Policy, 1155 16th Street NW, Washington, DC 20036.

16.0 References

1. F.R. Clay, Memo, Impinger Collection Efficiency—Mason Jars vs. Greenburg-Smith Impingers, Dec. 1989.

2. Segall, R.R., W.G. DeWees, F.R. Clay, and J.W. Brown. Development of Screening Methods for Use in Chromium Emissions Measurement and Regulations Enforcement. In: Proceedings of the 1989 EPA/A&WMA International Symposium-Measurement of Toxic and Related Air Pollutants, A&WMA Publication VIP–13, EPA Report No. 600/9–89–060, p. 785.

3. Clay, F.R., Chromium Sampling Method. In: Proceedings of the 1990 EPA/A&WMA International Symposium-Measurement of Toxic and Related Air Pollutants, A&WMA Publication VIP–17, EPA Report No. 600/9–90–026, p. 576.

4. Clay, F.R., Proposed Sampling Method 306A for the Determination of Hexavalent Chromium Emissions from Electroplating and Anodizing Facilities. In: Proceedings of the 1992 EPA/A&WMA International Symposium-Measurement of Toxic and Related Air Pollutants, A&WMA Publication VIP–25, EPA Report No. 600/R–92/131, p. 209.

5. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW–846, Third Edition as amended by Updates I, II, IIA, IIB, and III. Document No. 955–001–000001. Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC, November 1986.

17.0 Tables, Diagrams, Flowcharts, and Validation Data

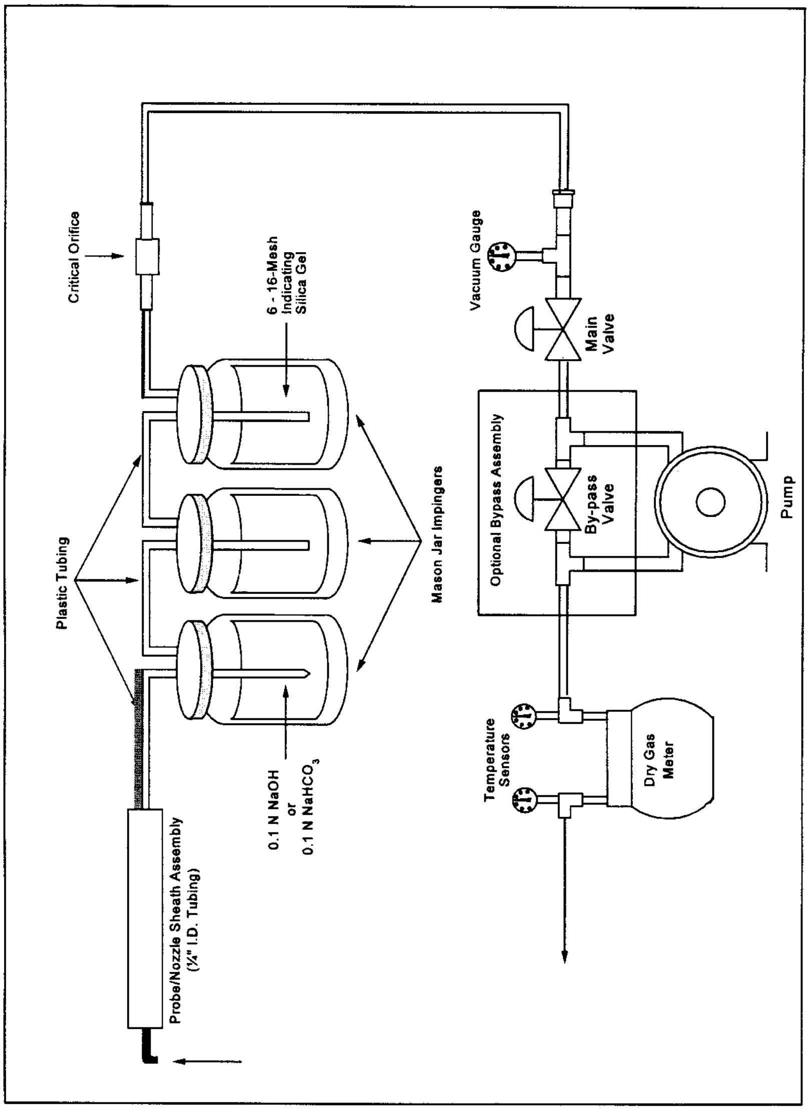
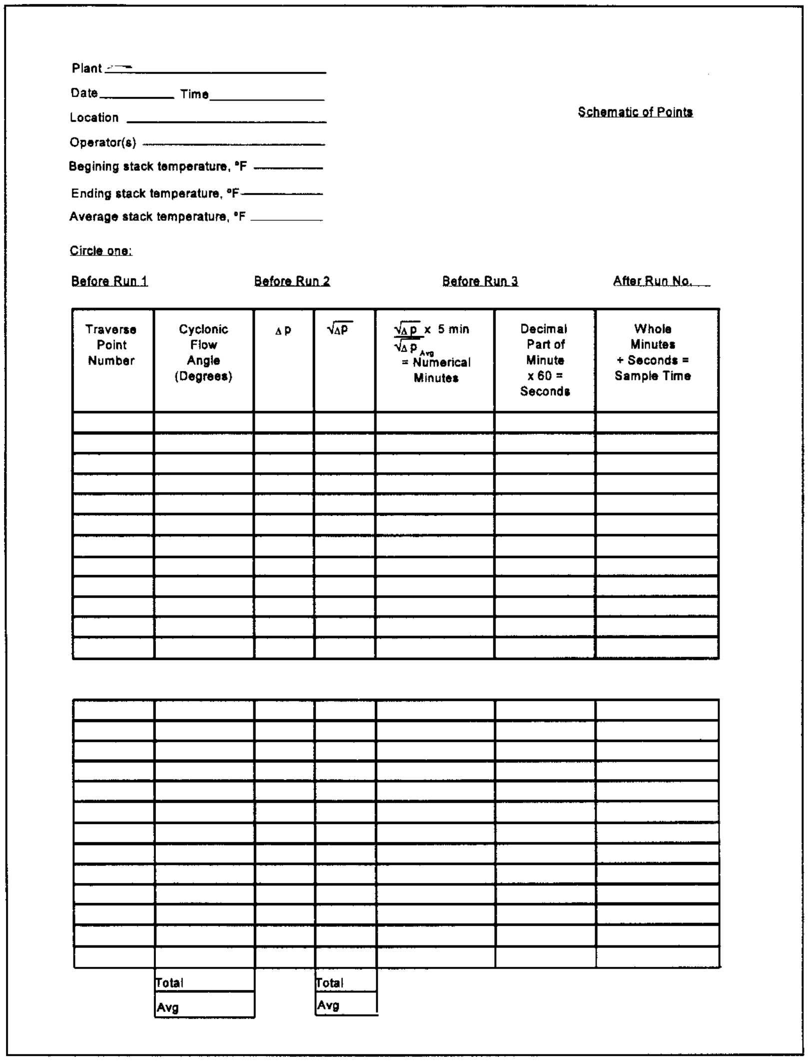


Figure 306A-1. Method 306A Sampling Train.



Plant ______________________________

Date__________ Time______________

Location ___________________________

Operator(s) _________________________

Begining stack temperature, °F _________

Ending stack temperature, °F_________

Average stack temperature, °F _________

Schematic of Points

Circle one:

Before Run 1 Before Run 2 Before Run 3 After Run No. __

Traverse Point Number	Cyclonic Flow Angle (Degrees)	Δp	$\sqrt{\Delta p}$	$\frac{\sqrt{\Delta p}}{\sqrt{\Delta p}_{Avg}}$ x 5 min = Numerical Minutes	Decimal Part of Minute x 60 = Seconds	Whole Minutes + Seconds = Sample Time

	Total		Total			
	Avg		Avg			

Figure 306A-2. Velocity Traverse and Point Sample Time Calculation Sheet.

Plant ____________________

Sampling Site ____________________

Total Cr catch, M, μg ____________________

Avg dry gas meter temp, T_m, °F ____________________

Meter correction factor, Y_m ____________________

Meter volume, V_m, ft³ ____________________

Barometric press, P_{bar}, in. Hg ____________________

Start clock time ____________________

Stop clock time ____________________

Date __________ Run Number __________

Operator ____________________

Stack radius, r, in. ____________________

Avg delta p, Δ p in., H_2O ____________________

Stack temp, T_s, °F ____________________

Leak rate before run, cfm ____________________

Leak rate after run, cfm ____________________

Stop meter volume, ft³ ____________________

Start meter volume, ft³ ____________________

POINT NO	SAMPLE (MIN/SEC)	GAS METER TEMP (F)		CRITICAL ORIFICE VACUUM IN. HG	POINT NO	SAMPLE (MIN/SEC)	GAS METER TEMP (F)		CRITICAL ORIFICE VACUUM IN. HG
	TOTAL					TOTAL			
		AVG					AVG		

REMARKS ____

____

____

Figure 306A-3. Chromium Constant Sampling Rate Field Data Sheet.

METHOD 306B—SURFACE TENSION MEASUREMENT FOR TANKS USED AT DECORATIVE CHROMIUM ELECTROPLATING AND CHROMIUM ANODIZING FACILITIES

NOTE: This method does not include all of the specifications (*e.g.,* equipment and supplies) and procedures (*e.g.,* sampling and analytical) essential to its performance. Some material is incorporated by reference from other methods in 40 CFR Part 60, Appendix A and in this part. Therefore, to obtain reliable results, persons using this method should have a thorough knowledge of at least Methods 5 and 306.

1.0 Scope and Application

1.1 Analyte. Not applicable.

1.2 Applicability. This method is applicable to all decorative chromium plating and chromium anodizing operations, and continuous chromium plating at iron and steel facilities where a wetting agent is used in the tank as the primary mechanism for reducing emissions from the surface of the plating solution.

2.0 Summary of Method

2.1 During an electroplating or anodizing operation, gas bubbles generated during the process rise to the surface of the liquid and burst. Upon bursting, tiny droplets of chromic acid become entrained in ambient air. The addition of a wetting agent to the tank bath reduces the surface tension of the liquid and diminishes the formation of these droplets.

2.2 This method determines the surface tension of the bath using a stalagmometer or a tensiometer to confirm that there is sufficient wetting agent present.

3.0 Definitions. [Reserved]

4.0 Interferences. [Reserved]

5.0 Safety

5.1 Disclaimer. This method may involve hazardous materials, operations, and equipment. This test method may not address all of the safety problems associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to performing this test method.

6.0 Equipment and Supplies

6.1 Stalagmometer. Any commercially available stalagmometer or equivalent surface tension measuring device may be used to measure the surface tension of the plating or anodizing tank liquid.

6.2 Tensiometer. A tensiometer may be used to measure the surface tension of the tank liquid provided the procedures specified in ASTM Method D 1331–89, Standard Test Methods for Surface and Interfacial Tension of Solutions of Surface Active Agents (incorporated by reference—see §63.14) are followed.

7.0 Reagents and Standards. [Reserved]

8.0 Sample Collection, Sample Recovery, Sample Preservation, Sample Holding Times, Storage, and Transport. [Reserved]

9.0 Quality Control. [Reserved]

10.0 Calibration and Standardization. [Reserved]

11.0 Analytical Procedure

11.1 Procedure. The surface tension of the tank bath may be measured by using a tensiometer, a stalagmometer or any other equivalent surface tension measuring device approved by the Administrator for measuring surface tension in dynes per centimeter. If the tensiometer is used, the procedures specified in ASTM Method D 1331–89 must be followed. If a stalagmometer or other device is used to measure surface tension, the instructions provided with the measuring device must be followed.

11.2 Frequency of Measurements.

11.2.1 Measurements of the bath surface tension are performed using a progressive system which decreases the frequency of surface tension measurements required when the proper surface tension is maintained.

11.2.1.1 Initially, following the compliance date, surface tension measurements must be conducted once every 4 hours of tank operation for the first 40 hours of tank operation.

11.2.1.2 Once there are no exceedances during a period of 40 hours of tank operation, measurements may be conducted once every 8 hours of tank operation.

11.2.1.3 Once there are no exceedances during a second period of 40 consecutive hours of tank operation, measurements may be conducted once every 40 hours of tank operation on an on-going basis, until an exceedance occurs. The maximum time interval for measurements is once every 40 hours of tank operation.

11.2.2 If a measurement of the surface tension of the solution is above the 45 dynes per centimeter limit, or above an alternate surface tension limit established during the performance test, the time interval shall revert back to the original monitoring schedule of once every 4 hours. A subsequent decrease in frequency would then be allowed according to Section 11.2.1.

12.0 Data Analysis and Calculations

12.1 Log Book of Surface Tension Measurements and Fume Suppressant Additions.

12.1.1 The surface tension of the plating or anodizing tank bath must be measured as specified in Section 11.2.

12.1.2 The measurements must be recorded in the log book. In addition to the record of surface tension measurements, the frequency of fume suppressant maintenance additions and the amount of fume suppressant added during each maintenance addition must be recorded in the log book.

12.1.3 The log book will be readily available for inspection by regulatory personnel.

12.2 Instructions for Apparatus Used in Measuring Surface Tension.

12.2.1 Included with the log book must be a copy of the instructions for the apparatus used for measuring the surface tension of the plating or anodizing bath.

12.2.2 If a tensiometer is used, a copy of ASTM Method D 1331–89 must be included with the log book.

13.0 Method Performance. [Reserved]

14.0 Pollution Prevention. [Reserved]

15.0 Waste Management. [Reserved]

16.0 References. [Reserved]

17.0 Tables, Diagrams, Flowcharts, and Validation Data. [Reserved]

METHOD 307—DETERMINATION OF EMISSIONS FROM HALOGENATED SOLVENT VAPOR CLEANING MACHINES USING A LIQUID LEVEL PROCEDURE

1. Applicability and Principle

1.1 Applicability. This method is applicable to the determination of the halogenated solvent emissions from solvent vapor cleaners in the idling mode.

1.2 Principle. The solvent level in the solvent cleaning machine is measured using inclined liquid level indicators. The change in liquid level corresponds directly to the amount of solvent lost from the solvent cleaning machine.

2. Apparatus

NOTE: Mention of trade names or specific products does not constitute endorsement by the Environmental Protection Agency.

2.1 Inclined Liquid Level Indicator. A schematic of the inclined liquid level indicators used in this method is shown in figure 307–1; two inclined liquid level indicators having 0.05 centimeters divisions or smaller shall be used. The liquid level indicators shall be made of glass, Teflon, or any similar material that will not react with the solvent being used. A 6-inch by 1-inch slope is recommended; however the slope may vary depending on the size and design of the solvent cleaning machine.

NOTE: It is important that the inclined liquid level indicators be constructed with ease of reading in mind. The inclined liquid level indicators should also be mounted so that they can be raised or lowered if necessary to suit the solvent cleaning machine size.

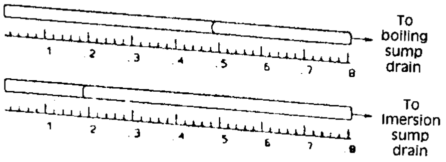


Figure 307-1. Inclined Liquid Level Indicator Apparatus.

2.2 Horizontal Indicator. Device to check the inclined liquid level indicators orientation relative to horizontal.

2.3 Velocity Meter. Hotwire and vane anemometers, or other devices capable of measuring the flow rates ranging from 0 to 15.2 meters per minute across the solvent cleaning machine.

3. Procedure

3.1 Connection of the Inclined Liquid Level Indicator. Connect one of the inclined liquid level indicators to the boiling sump drain and the other inclined liquid level indicator to the immersion sump drain using Teflon tubing and the appropriate fittings. A schematic diagram is shown in figure 307–2.

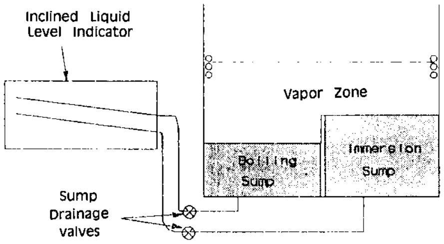


Figure 307-2. Solvent Cleaner Test Setup.

3.2 Positioning of Velocity Meter. Position the velocity meter so that it measures the flow rate of the air passing directly across the solvent cleaning machine.

3.3 Level the Inclined Liquid Level Indicators.

3.4 Initial Inclined Liquid Level Indicator Readings. Open the sump drainage valves. Allow the solvent cleaning machine to operate long enough for the vapor zone to form and the system to stabilize (check with manufacturer). Record the inclined liquid level indicators readings and the starting time on the data sheet. A sample data sheet is provided in figure 307–3.

Date ________________

Run ________________

Solvent type ________________

Solvent density, g/m^3 (lb/ft^3) ________________

Length of boiling sump (S_B), m (ft) ________

Width of boiling sump (W_B), m (ft) ________

Length of immersion sump (S_I), m (ft) ______

Width of immersion sump (W_I), m (ft) ______

Length of solvent vapor/air interface (S_V), m (ft) ___________

Width of solvent vapor/air interface (W_V), m (ft) ___________

Clock time	Boiling sump reading	Immersion sump reading	Flow rate reading

Figure 307–3. Data sheet.

3.5 Final Inclined Liquid Level Indicator Readings. At the end of the 16-hour test run, check to make sure the inclined liquid level indicators are level; if not, make the necessary adjustments. Record the final inclined liquid level indicators readings and time.

3.6 Determination of Solvent Vapor/Air Interface Area for Each Sump. Determine the area of the solvent/air interface of the individual sumps. Whenever possible, physically measure these dimensions, rather than using factory specifications. A schematic of the dimensions of a solvent cleaning machine is provided in figure 307–4.

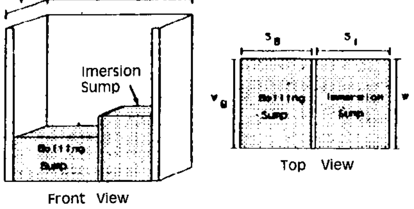


Figure 307-4. Solvent Cleaner Dimensions.

4. Calculations

4.1 Nomenclature.

A_B = area of boiling sump interface, m^2 (ft^2).

A_I = area of immersion sump interface, m^2 (ft^2).

A_V = area of solvent/air interface, m^2 (ft^2).
E = emission rate, kg/m^2-hr (lb/ft^2-hr).
K = 100,000 cm . g/m . kg for metric units.
= 12 in./ft for English units.
L_{BF} = final boiling sump inclined liquid level indicators reading, cm (in.).
L_{Bi} = initial boiling sump inclined liquid level indicators reading, cm (in.).
L_{If} = final immersion sump inclined liquid level indicators reading, cm (in.).
L_{Ii} = initial immersion sump inclined liquid level indicators reading, cm (in.).
S_B = length of the boiling sump, m (ft).
S_I = length of the immersion sump, m (ft).
S_V = length of the solvent vapor/air interface, m (ft).
W_B = width of the boiling sump, m (ft).
W_I = width of the immersion sump, m (ft).
W_V = width of the solvent vapor/air interface, m (ft).
ρ = density of solvent, g/m3 (lb/ft3).
θ = test time, hr.

4.2 Area of Sump Interfaces. Calculate the areas of the boiling and immersion sump interfaces as follows:

$$A_B = S_B W_B \quad \text{Eq. 307–1}$$
$$A_I = S_I W_I \quad \text{Eq. 307–2}$$

4.3 Area of Solvent/Air Interface. Calculate the area of the solvent vapor/air interface as follows:

$$A_V = S_V W_V \quad \text{Eq. 307–3}$$

4.4 Emission Rate. Calculate the emission rate as follows:

$$E = \frac{\left(L_{B_f} - L_{B_i}\right)\rho A_B + \left(L_{I_f} - L_{I_i}\right)\rho A_I}{KA_V\theta} \quad \text{Eq. 307-4}$$

METHOD 308—PROCEDURE FOR DETERMINATION OF METHANOL EMISSION FROM STATIONARY SOURCES

1.0 Scope and Application

1.1 Analyte. Methanol. Chemical Abstract Service (CAS) No. 67–56–1.

1.2 Applicability. This method applies to the measurement of methanol emissions from specified stationary sources.

2.0 Summary of Method

A gas sample is extracted from the sampling point in the stack. The methanol is collected in deionized distilled water and adsorbed on silica gel. The sample is returned to the laboratory where the methanol in the water fraction is separated from other organic compounds with a gas chromatograph (GC) and is then measured by a flame ionization detector (FID). The fraction adsorbed on silica gel is extracted with an aqueous solution of n-propanol and is then separated and measured by GC/FID.

3.0 Definitions. [Reserved]

4.0 Interferences. [Reserved]

5.0 Safety

5.1 Disclaimer. This method may involve hazardous materials, operations, and equipment. This test method does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this test method to establish appropriate safety and health practices and to determine the applicability of regulatory limitations before performing this test method.

5.2 Methanol Characteristics. Methanol is flammable and a dangerous fire and explosion risk. It is moderately toxic by ingestion and inhalation.

6.0 Equipment and Supplies

6.1 Sample Collection. The following items are required for sample collection:

6.1.1 Sampling Train. The sampling train is shown in Figure 308–1 and component parts are discussed below.

6.1.1.1 Probe. Teflon®, approximately 6-millimeter (mm) (0.24 inch) outside diameter.

6.1.1.2 Impinger. A 30-milliliter (ml) midget impinger. The impinger must be connected with leak-free glass connectors. Silicone grease may not be used to lubricate the connectors.

6.1.1.3 Adsorbent Tube. Glass tubes packed with the required amount of the specified adsorbent.

6.1.1.4 Valve. Needle valve, to regulate sample gas flow rate.

6.1.1.5 Pump. Leak-free diaphragm pump, or equivalent, to pull gas through the sampling train. Install a small surge tank between the pump and rate meter to eliminate the pulsation effect of the diaphragm pump on the rotameter.

6.1.1.6 Rate Meter. Rotameter, or equivalent, capable of measuring flow rate to within 2 percent of the selected flow rate of up to 1000 milliliter per minute (ml/min). Alternatively, the tester may use a critical orifice to set the flow rate.

6.1.1.7 Volume Meter. Dry gas meter (DGM), sufficiently accurate to measure the sample volume to within 2 percent, calibrated at the selected flow rate and conditions actually encountered during sampling, and equipped with a temperature sensor (dial thermometer, or equivalent) capable of measuring temperature accurately to within 3 °C (5.4 °F).

6.1.1.8 Barometer. Mercury (Hg), aneroid, or other barometer capable of measuring atmospheric pressure to within 2.5 mm (0.1 inch) Hg. See the NOTE in Method 5 (40 CFR part 60, appendix A), section 6.1.2.

6.1.1.9 Vacuum Gauge and Rotameter. At least 760-mm (30-inch) Hg gauge and 0- to 40-

ml/min rotameter, to be used for leak-check of the sampling train.

6.2 Sample Recovery. The following items are required for sample recovery:

6.2.1 Wash Bottles. Polyethylene or glass, 500-ml, two.

6.2.2 Sample Vials. Glass, 40-ml, with Teflon®-lined septa, to store impinger samples (one per sample).

6.2.3 Graduated Cylinder. 100-ml size.

6.3 Analysis. The following are required for analysis:

6.3.1 Gas Chromatograph. GC with an FID, programmable temperature control, and heated liquid injection port.

6.3.2 Pump. Capable of pumping 100 ml/min. For flushing sample loop.

6.3.3 Flow Meter. To monitor accurately sample loop flow rate of 100 ml/min.

6.3.4 Regulators. Two-stage regulators used on gas cylinders for GC and for cylinder standards.

6.3.5 Recorder. To record, integrate, and store chromatograms.

6.3.6 Syringes. 1.0- and 10-microliter (l) size, calibrated, for injecting samples.

6.3.7 Tubing Fittings. Stainless steel, to plumb GC and gas cylinders.

6.3.8 Vials. Two 5.0-ml glass vials with screw caps fitted with Teflon®-lined septa for each sample.

6.3.9 Pipettes. Volumetric type, assorted sizes for preparing calibration standards.

6.3.10 Volumetric Flasks. Assorted sizes for preparing calibration standards.

6.3.11 Vials. Glass 40-ml with Teflon®-lined septa, to store calibration standards (one per standard).

7.0 Reagents and Standards

NOTE: Unless otherwise indicated, all reagents must conform to the specifications established by the Committee on Analytical Reagents of the American Chemical Society. Where such specifications are not available, use the best available grade.

7.1 Sampling. The following are required for sampling:

7.1.1 Water. Deionized distilled to conform to the American Society for Testing and Materials (ASTM) Specification D 1193–77, Type 3. At the option of the analyst, the potassium permanganate ($KMnO_4$) test for oxidizable organic matter may be omitted when high concentrations of organic matter are not expected to be present.

7.1.2 Silica Gel. Deactivated chromatographic grade 20/40 mesh silica gel packed in glass adsorbent tubes. The silica gel is packed in two sections. The front section contains 520 milligrams (mg) of silica gel, and the back section contains 260 mg.

7.2 Analysis. The following are required for analysis:

7.2.1 Water. Same as specified in section 7.1.1.

7.2.2 n-Propanol, 3 Percent. Mix 3 ml of n-propanol with 97 ml of water.

7.2.3 Methanol Stock Standard. Prepare a methanol stock standard by weighing 1 gram of methanol into a 100-ml volumetric flask. Dilute to 100 ml with water.

7.2.3.1 Methanol Working Standard. Prepare a methanol working standard by pipetting 1 ml of the methanol stock standard into a 100-ml volumetric flask. Dilute the solution to 100 ml with water.

7.2.3.2 Methanol Standards For Impinger Samples. Prepare a series of methanol standards by pipetting 1, 2, 5, 10, and 25 ml of methanol working standard solution respectively into five 50-ml volumetric flasks. Dilute the solutions to 50 ml with water. These standards will have 2, 4, 10, 20, and 50 µg/ml of methanol, respectively. After preparation, transfer the solutions to 40-ml glass vials capped with Teflon® septa and store the vials under refrigeration. Discard any excess solution.

7.2.3.3 Methanol Standards for Adsorbent Tube Samples. Prepare a series of methanol standards by first pipetting 10 ml of the methanol working standard into a 100-ml volumetric flask and diluting the contents to exactly 100 ml with 3 percent n-propanol solution. This standard will contain 10 µg/ml of methanol. Pipette 5, 15, and 25 ml of this standard, respectively, into four 50-ml volumetric flasks. Dilute each solution to 50 ml with 3 percent n-propanol solution. These standards will have 1, 3, and 5 µg/ml of methanol, respectively. Transfer all four standards into 40-ml glass vials capped with Teflon®-lined septa and store under refrigeration. Discard any excess solution.

7.2.4 GC Column. Capillary column, 30 meters (100 feet) long with an inside diameter (ID) of 0.53 mm (0.02 inch), coated with DB 624 to a film thickness of 3.0 micrometers, (µm) or an equivalent column. Alternatively, a 30-meter capillary column coated with polyethylene glycol to a film thickness of 1 µm such as AT–WAX or its equivalent.

7.2.5 Helium. Ultra high purity.

7.2.6 Hydrogen. Zero grade.

7.2.7 Oxygen. Zero grade.

8.0 Procedure

8.1 Sampling. The following items are required for sampling:

8.1.1 Preparation of Collection Train. Measure 20 ml of water into the midget impinger. The adsorbent tube must contain 520 mg of silica gel in the front section and 260 mg of silica gel in the backup section. Assemble the train as shown in Figure 308–1. An optional, second impinger that is left empty may be placed in front of the water-containing impinger to act as a condensate trap. Place crushed ice and water around the impinger.

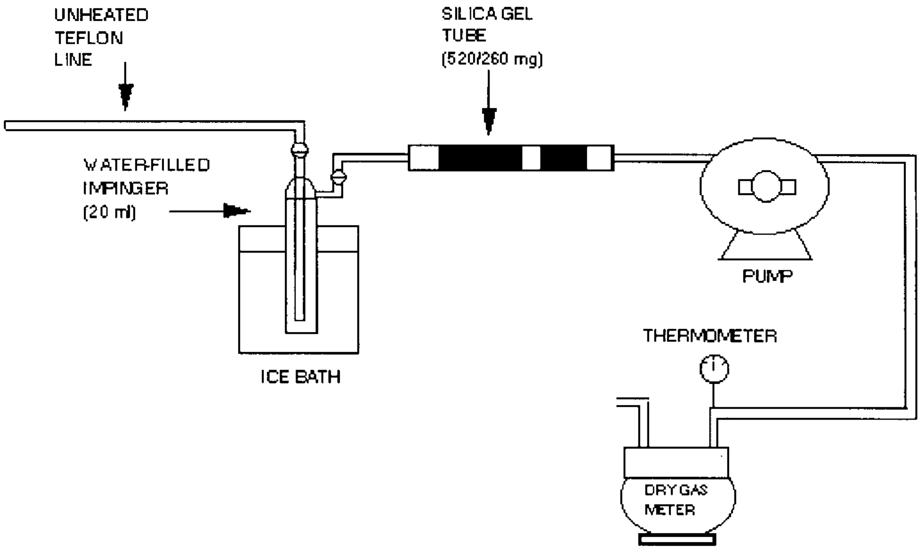


Figure 308.1. Sampling train schematic

8.1.2 Leak Check. A leak check prior to the sampling run is optional; however, a leak check after the sampling run is mandatory. The leak-check procedure is as follows:

Temporarily attach a suitable (e.g., 0-to 40-ml/min) rotameter to the outlet of the DGM, and place a vacuum gauge at or near the probe inlet. Plug the probe inlet, pull a vacuum of at least 250 mm (10 inch) Hg, and note the flow rate as indicated by the rotameter. A leakage rate not in excess of 2 percent of the average sampling rate is acceptable.

NOTE: Carefully release the probe inlet plug before turning off the pump.

8.1.3 Sample Collection. Record the initial DGM reading and barometric pressure. To begin sampling, position the tip of the Teflon® tubing at the sampling point, connect the tubing to the impinger, and start the pump. Adjust the sample flow to a constant rate between 200 and 1000 ml/min as indicated by the rotameter. Maintain this constant rate (±10 percent) during the entire sampling run. Take readings (DGM, temperatures at DGM and at impinger outlet, and rate meter) at least every 5 minutes. Add more ice during the run to keep the temperature of the gases leaving the last impinger at 20 °C (68 °F) or less. At the conclusion of each run, turn off the pump, remove the Teflon® tubing from the stack, and record the final readings. Conduct a leak check as in section 8.1.2. (This leak check is mandatory.) If a leak is found, void the test run or use procedures acceptable to the Administrator to adjust the sample volume for the leakage.

8.2 Sample Recovery. The following items are required for sample recovery:

8.2.1 Impinger. Disconnect the impinger. Pour the contents of the midget impinger into a graduated cylinder. Rinse the midget impinger and the connecting tubes with water, and add the rinses to the graduated cylinder. Record the sample volume. Transfer the sample to a glass vial and cap with a Teflon® septum. Discard any excess sample. Place the samples in an ice chest for shipment to the laboratory.

8.2.2. Adsorbent Tubes. Seal the silica gel adsorbent tubes and place them in an ice chest for shipment to the laboratory.

9.0 Quality Control

9.1 Miscellaneous Quality Control Measures. The following quality control measures are required:

Section	Quality control measure	Effect
8.1.2, 8.1.3, 10.1.	Sampling equipment leak check and calibration.	Ensures accurate measurement of sample volume.
10.2	GC calibration	Ensures precision of GC analysis.

9.2 Applicability. When the method is used to analyze samples to demonstrate compliance with a source emission regulation, an audit sample must be analyzed, subject to availability.

9.3 Audit Procedure. Analyze an audit sample with each set of compliance samples. Concurrently analyze the audit sample and a set of compliance samples in the same manner to evaluate the technique of the analyst and the standards preparation. The same analyst, analytical reagents, and analytical system shall be used both for the compliance samples and the EPA audit sample.

9.4 Audit Sample Availability. Audit samples will be supplied only to enforcement agencies for compliance tests. Audit samples may be obtained by writing: Source Test Audit Coordinator (MD–77B), Air Measurement Research Division, National Exposure Research Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711; or by calling the Source Test Audit Coordinator (STAC) at (919) 541–7834. The audit sample request must be made at least 30 days prior to the scheduled compliance sample analysis.

9.5 Audit Results. Calculate the audit sample concentration according to the calculation procedure provided in the audit instructions included with the audit sample. Fill in the audit sample concentration and the analyst's name on the audit response form included with the audit instructions. Send one copy to the EPA Regional Office or the appropriate enforcement agency and a second copy to the STAC. The EPA Regional office or the appropriate enforcement agency will report the results of the audit to the laboratory being audited. Include this response with the results of the compliance samples in relevant reports to the EPA Regional Office or the appropriate enforcement agency.

10.0 Calibration and Standardization

10.1 Metering System. The following items are required for the metering system:

10.1.1 Initial Calibration.

10.1.1.1 Before its initial use in the field, first leak-check the metering system (drying tube, needle valve, pump, rotameter, and DGM) as follows: Place a vacuum gauge at the inlet to the drying tube, and pull a vacuum of 250 mm (10 inch) Hg; plug or pinch off the outlet of the flow meter, and then turn off the pump. The vacuum shall remain stable for at least 30 seconds. Carefully release the vacuum gauge before releasing the flow meter end.

10.1.1.2 Next, remove the drying tube, and calibrate the metering system (at the sampling flow rate specified by the method) as follows: Connect an appropriately sized wet test meter (e.g., 1 liter per revolution (0.035 cubic feet per revolution)) to the inlet of the drying tube. Make three independent calibrations runs, using at least five revolutions of the DGM per run. Calculate the calibration factor, Y (wet test meter calibration volume divided by the DGM volume, both volumes adjusted to the same reference temperature and pressure), for each run, and average the results. If any Y-value deviates by more than 2 percent from the average, the metering system is unacceptable for use. Otherwise, use the average as the calibration factor for subsequent test runs.

10.1.2 Posttest Calibration Check. After each field test series, conduct a calibration check as in section 10.1.1 above, except for the following variations: (a) The leak check is not to be conducted, (b) three, or more revolutions of the DGM may be used, and (c) only two independent runs need be made. If the calibration factor does not deviate by more than 5 percent from the initial calibration factor (determined in section 10.1.1), then the DGM volumes obtained during the test series are acceptable. If the calibration factor deviates by more than 5 percent, recalibrate the metering system as in section 10.1.1, and for the calculations, use the calibration factor (initial or recalibration) that yields the lower gas volume for each test run.

10.1.3 Temperature Sensors. Calibrate against mercury-in-glass thermometers.

10.1.4 Rotameter. The rotameter need not be calibrated, but should be cleaned and maintained according to the manufacturer's instruction.

10.1.5 Barometer. Calibrate against a mercury barometer.

10.2 Gas Chromatograph. The following procedures are required for the gas chromatograph:

10.2.1 Initial Calibration. Inject 1 μl of each of the standards prepared in sections 7.2.3.3 and 7.2.3.4 into the GC and record the response. Repeat the injections for each standard until two successive injections agree within 5 percent. Using the mean response for each calibration standard, prepare a linear least squares equation relating the response to the mass of methanol in the sample. Perform the calibration before analyzing each set of samples.

10.2.2 Continuing Calibration. At the beginning of each day, analyze the mid level calibration standard as described in section 10.5.1. The response from the daily analysis must agree with the response from the initial calibration within 10 percent. If it does not, the initial calibration must be repeated.

11.0 Analytical Procedure

11.1 Gas Chromatograph Operating Conditions. The following operating conditions are required for the GC:

11.1.1 Injector. Configured for capillary column, splitless, 200 °C (392 °F).

11.1.2 Carrier. Helium at 10 ml/min.

11.1.3 Oven. Initially at 45 °C for 3 minutes; then raise by 10 °C to 70 °C; then raise by 70 °C/min to 200 °C.

11.2 Impinger Sample. Inject 1 μl of the stored sample into the GC. Repeat the injection and average the results. If the sample response is above that of the highest calibration standard, either dilute the sample until it is in the measurement range of the calibration line or prepare additional calibration standards. If the sample response is below that of the lowest calibration standard, prepare additional calibration standards. If additional calibration standards are prepared, there shall be at least two that bracket the response of the sample. These standards should produce approximately 50 percent and 150 percent of the response of the sample.

11.3 Silica Gel Adsorbent Sample. The following items are required for the silica gel adsorbent samples:

11.3.1 Preparation of Samples. Extract the front and backup sections of the adsorbent tube separately. With a file, score the glass adsorbent tube in front of the first section of silica gel. Break the tube open. Remove and discard the glass wool. Transfer the first section of the silica gel to a 5-ml glass vial and stopper the vial. Remove the spacer between the first and second section of the adsorbent tube and discard it. Transfer the second section of silica gel to a separate 5-ml glass vial and stopper the vial.

11.3.2 Desorption of Samples. Add 3 ml of the 10 percent n-propanol solution to each of the stoppered vials and shake or vibrate the vials for 30 minutes.

11.3.3 Inject a 1-μl aliquot of the diluted sample from each vial into the GC. Repeat the injection and average the results. If the sample response is above that of the highest calibration standard, either dilute the sample until it is in the measurement range of the calibration line or prepare additional calibration standards. If the sample response is below that of the lowest calibration standard, prepare additional calibration standards. If additional calibration standards are prepared, there shall be at least two that bracket the response of the sample. These standards should produce approximately 50 percent and 150 percent of the response of the sample.

12.0 Data Analysis and Calculations

12.1 Nomenclature.

C_{af}=Concentration of methanol in the front of the adsorbent tube, μg/ml.
C_{ab}=Concentration of methanol in the back of the adsorbent tube, μg/ml.
C_i=Concentration of methanol in the impinger portion of the sample train, μg/ml.
E=Mass emission rate of methanol, μg/hr (lb/hr).
M_{tot}=Total mass of methanol collected in the sample train, μg.
P_{bar}=Barometric pressure at the exit orifice of the DGM, mm Hg (in. Hg).
P_{std}=Standard absolute pressure, 760 mm Hg (29.92 in. Hg).
Q_{std}=Dry volumetric stack gas flow rate corrected to standard conditions, dscm/hr (dscf/hr).
T_m=Average DGM absolute temperature, degrees K (°R).
T_{std}=Standard absolute temperature, 293 degrees K (528 °R).
V_{af}=Volume of front half adsorbent sample, ml.
V_{ab}=Volume of back half adsorbent sample, ml.
V_i=Volume of impinger sample, ml.
V_m=Dry gas volume as measured by the DGM, dry cubic meters (dcm), dry cubic feet (dcf).
$V_{m(std)}$=Dry gas volume measured by the DGM, corrected to standard conditions, dry standard cubic meters (dscm), dry standard cubic feet (dscf).

12.2 Mass of Methanol. Calculate the total mass of methanol collected in the sampling train using Equation 308–1.

$$M_{tot} = V_i C_i + V_{af} C_{af} + V_{ab} C_{ab} \qquad \text{Equation 308-1}$$

12.3 Dry Sample Gas Volume, Corrected to Standard Conditions. Calculate the volume of gas sampled at standard conditions using Equation 308–2.

$$V_m(\text{std}) = \frac{V_m Y\, T_{std} P_{bar}}{T_m P_{std}} \qquad \text{Equation 308-2}$$

12.4 Mass Emission Rate of Methanol. Calculate the mass emission rate of methanol using Equation 308–3.

$$E = \frac{M_{tot} Q_{sd}}{V_{m(std)}} \qquad \text{Equation 308-3}$$

13.0 Method Performance. [Reserved]

14.0 Pollution Prevention. [Reserved]

15.0 Waste Management. [Reserved]

16.0 Bibliography

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17.0 Tables, Diagrams, Flowcharts, and Validation Data. [Reserved]

METHOD 310A—DETERMINATION OF RESIDUAL HEXANE THROUGH GAS CHROMATOGRAPHY

1.0 Scope and Application

1.1 This method is used to analyze any crumb rubber or water samples for residual hexane content.

1.2 The sample is heated in a sealed bottle with an internal standard and the vapor is analyzed by gas chromatography.

2.0 Summary of Method

2.1 This method, utilizing a capillary column gas chromatograph with a flame ionization detector, determines the concentration of residual hexane in rubber crumb samples.

3.0 Definitions

3.1 The definitions are included in the text as needed.

4.0 Interferences

4.1 There are no known interferences.

5.0 Safety

5.1 It is the responsibility of the user of this procedure to establish safety and health practices applicable to their specific operation.

6.0 Equipment and Supplies

6.1 Gas Chromatograph with a flame ionization detector and data handling station equipped with a capillary column 30 meters long.

6.2 Chromatograph conditions for Sigma 1:

6.2.1 Helium pressure: 50# inlet A, 14# aux

6.2.2 Carrier flow: 25 cc/min

6.2.3 Range switch: 100x

6.2.4 DB: 1 capillary column

6.3 Chromatograph conditions for Hewlett-Packard GC:

6.3.1 Initial temperature: 40 °C

6.3.2 Initial time: 8 min

6.3.3 Rate: 0

6.3.4 Range: 2

6.3.5 DB: 1705 capillary column

6.4 Septum bottles and stoppers

6.5 Gas Syringe—0.5 cc

7.0 Reagents and Standards

7.1 Chloroform, 99.9+%, A.S.C. HPLC grade

8.0 Sample Collection, Preservation, and Storage

8.1 A representative sample should be caught in a clean 8 oz. container with a secure lid.

8.2 The container should be labeled with sample identification, date and time.

9.0 Quality Control

9.1 The instrument is calibrated by injecting calibration solution (Section 10.2 of this method) five times.

9.2 The retention time for components of interest and relative response of monomer to the internal standard is determined.

9.3 Recovery efficiency must be determined once for each sample type and whenever modifications are made to the method.

9.3.1 Determine the percent hexane in three separate dried rubber crumb samples.

9.3.2 Weigh a portion of each crumb sample into separate sample bottles and add a known amount of hexane (10 microliters) by microliter syringe and 20 microliters of internal standard. Analyze each by the described procedure and calculate the percent recovery of the known added hexane.

9.3.3 Repeat the previous step using twice the hexane level (20 microliters), analyze and calculate the percent recovery of the known added hexane.

9.3.4 Set up two additional sets of samples using 10 microliters and 20 microliters of hexane as before, but add an amount of water equal to the dry crumb used. Analyze and calculate percent recovery to show the effect of free water on the results obtained.

9.3.5 A value of R between 0.70 and 1.30 is acceptable.

9.3.6 R shall be used to correct all reported results for each compound by dividing the measured results of each compound by the R for that compound for the same sample type.

10.0 Calibration and Instrument Settings

10.1 Calibrate the chromatograph using a standard made by injecting 10 µl of fresh hexane and 20 µl of chloroform into a sealed septum bottle. This standard will be 0.6 wt.% *total* hexane based on 1 gram of dry rubber.

10.2 Analyze the hexane used and calculate the percentage of each hexane isomer (2-methylpentane, 3-methylpentane, n-hexane, and methylcyclo-pentane). Enter these percentages into the method calibration table.

10.3 Heat the standard bottle for 30 minutes in a 105 °C oven.

10.4 Inject about 0.25 cc of vapor into the gas chromatograph and after the analysis is finished, calibrate according to the procedures described by the instrument manufacturer.

11.0 Procedure

11.1 Using a cold mill set at a wide roller gap (125–150 mm), mill about 250 grams of crumb two times to homogenize the sample.

11.2 Weigh about 2 grams of wet crumb into a septum bottle and cap with a septum ring. Add 20 µl of chloroform with a syringe and place in a 105 °C oven for 45 minutes.

11.3 Run the moisture content on a separate portion of the sample and calculate the grams of dry rubber put into the septum bottle.

11.4 Set up the data station on the required method and enter the dry rubber weight in the sample weight field.

11.5 Inject a 0.25 cc vapor sample into the chromatograph and push the start button.

11.6 At the end of the analysis, the data station will print a report listing the concentration of each identified component.

11.7 To analyze water samples, pipet 5 ml of sample into the septum bottle, cap and add 20 µl of chloroform. Place in a 105 °C oven for 30 minutes.

11.8 Enter 5 grams into the sample weight field.

11.9 Inject a 0.25 cc vapor sample into the chromatograph and push the start button.

11.10 At the end of the analysis, the data station will print a report listing the concentration of each identified component.

12.0 Data Analysis and Calculation

12.1 For samples that are prepared as in section 11 of this method, ppm n-hexane is read directly from the computer.

12.2 The formulas for calculation of the results are as follows:

$ppm_{hexane}=(A_{hexane}\times R_{hexane})/(A_{is}\times R_{is})$

Where:

A_{hexane}=area of hexane

R_{hexane}=response of hexane

A_{is}=area of the internal standard

R_{is}=response of the internal standard

$\% \text{ hexane in crumb} = (\text{ppm}_{\text{hexane}}/\text{sample amount})100$

12.3 Correct the results by the value of R (as determined in sections 9.3.4, 9.3.5, and 9.3.6 of this method).

13.0 Method Performance

13.1 The test has a standard deviation of 0.14 wt% at 0.66 wt% hexane. Spike recovery of 12 samples at two levels of hexane averaged 102.3%. Note: Recovery must be determined for each type of sample. The values given here are meant to be examples of method performance.

14.0 Pollution Prevention

14.1 Waste generation should be minimized where possible. Sample size should be an amount necessary to adequately run the analysis.

15.0 Waste Management

15.1 All waste shall be handled in accordance with federal and state environmental regulations.

16.0 References and Publications

16.1 DSM Copolymer Test Method T–3380.

Method 310B—Determination of Residual Hexane Through Gas Chromatography

1.0 Scope and Application

Analyte	CAS No.	Matrix	Method sensitivity (5.5g sample size)
Hexane	110–54–3	Rubber crumb	.01 wt%.
Applicable Termonomer		Rubber crumb	.001 wt%.

1.1 Data Quality Objectives:

In the production of ethylene-propylene terpolymer crumb rubber, the polymer is recovered from solution by flashing off the solvent with steam and hot water. The resulting water-crumb slurry is then pumped to the finishing units. Certain amounts of solvent (hexane being the most commonly used solvent) and diene monomer remain in the crumb. The analyst uses the following procedure to determine those amounts.

2.0 Summary of Method

2.1 The crumb rubber sample is dissolved in toluene to which heptane has been added as an internal standard. Acetone is then added to this solution to precipitate the crumb, and the supernatant is analyzed for hexane and diene by a gas chromatograph equipped with a flame ionization detector (FID).

3.0 Definitions

3.1 Included in text as needed.

4.0 Interferences

4.1 None known.

4.2 Benzene, introduced as a contaminant in the toluene solvent, elutes between methyl cyclopentane and cyclohexane. However, the benzene peak is completely resolved.

4.3 2,2-dimethyl pentane, a minor component of the hexane used in our process, elutes just prior to methyl cyclopentane. It is included as ‘‘hexane’’ in the analysis whether it is integrated separately or included in the methyl cyclopentane peak.

5.0 Safety

5.1 This procedure does not purport to address all of the safety concerns associated with its use. It is the responsibility of the user of this procedure to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

5.2 Chemicals used in this analysis are flammable and hazardous (see specific toxicity information below). Avoid contact with sources of ignition during sample prep. All handling should be done beneath a hood. Playtex or nitrile gloves recommended.

5.3 Hexane is toxic by ingestion and inhalation. Vapor inhalation causes irritation of nasal and respiratory passages, headache, dizziness, nausea, central nervous system depression. Chronic overexposure can cause severe nerve damage. May cause irritation on contact with skin or eyes. May cause damage to kidneys.

5.4 Termonomer may be harmful by inhalation, ingestion, or skin absorption. Vapor or mist is irritating to the eyes, mucous membranes, and upper respiratory tract. Causes skin irritation.

5.5 Toluene is harmful or fatal if swallowed. Vapor harmful if inhaled. Symptoms: headache, dizziness, hallucinations, distorted perceptions, changes in motor activity, nausea, diarrhea, respiratory irritation, central nervous system depression, unconsciousness, liver, kidney and lung damage. Contact can cause severe eye irritation. May cause skin irritation. Causes irritation of eyes, nose, and throat.

5.6 Acetone, at high concentrations or prolonged overexposure, may cause headache, dizziness, irritation of eyes and respiratory tract, loss of strength, and narcosis. Eye contact causes severe irritation; skin contact may cause mild irritation. Concentrations of 20,000 ppm are immediately dangerous to life and health.

5.7 Heptane is harmful if inhaled or swallowed. May be harmful if absorbed through the skin. Vapor or mist is irritating to the eyes, mucous membranes, and upper respiratory tract. Prolonged or repeated exposure to skin causes defatting and dermatitis.

5.8 The steam oven used to dry the polymer in this procedure is set at 110 °C. Wear leather gloves when removing bottles from the oven.

6.0 Equipment and Supplies

6.1 4000-ml volumetric flask

6.2 100-ml volumetric pipette

6.3 1000-ml volumetric flask

6.4 8-oz. French Square sample bottles with plastic-lined caps

6.5 Top-loading balance

6.6 Laboratory shaker

6.7 Laboratory oven set at 110 °C (steam oven)

6.8 Gas chromatograph, Hewlett-Packard 5890A, or equivalent, interfaced with HP 7673A (or equivalent) autosampler (equipped with nanoliter adapter and robotic arm), and HP 3396 series II or 3392A (or equivalent) integrator/controller.

6.9 GC column, capillary type, 50m × 0.53mm, methyl silicone, 5 micron film thickness, Quadrex, or equivalent.

6.10 Computerized data acquisition system, such as CIS/CALS

6.11 Crimp-top sample vials and HP p/n 5181–1211 crimp caps, or screw-top autosampler vials and screw tops.

6.12 Glass syringes, 5-ml, with ‘‘Luer-lock’’ fitting

6.13 Filters, PTFE, .45μm pore size, Gelman Acrodisc or equivalent, to fit on Luer-lock syringes (in 6.12, above).

7.0 Reagents and Standards

7.1 Reagent toluene, EM Science Omnisolv (or equivalent)

Purity Check: Prior to using any bottle of reagent toluene, analyze it according to section 11.2 of this method. Use the bottle only if hexane, heptane, and termonomer peak areas are less than 15 each (note that an area of 15 is equivalent to less than 0.01 wt% in a 10g sample).

7.2 Reagent acetone, EM Science Omnisolv HR-GC (or equivalent)

Purity Check: Prior to using any bottle of reagent acetone, analyze it according to section 11.2 of this method. Use the bottle only if hexane, heptane, and termonomer peak areas are less than 15 each.

7.3 Reagent heptane, Aldrich Chemical Gold Label, Cat #15,487–3 (or equivalent)

Purity Check: Prior to using any bottle of reagent heptane, analyze it according to section 11.2 of this method. Use the bottle only if hexane and termonomer peak areas are less than 5 each.

7.4 Internal standard solution—used as a concentrate for preparation of the more dilute Polymer Dissolving Solution. It contains 12.00g heptane/100ml of solution which is 120.0g per liter.

Preparation of internal standard solution (polymer dissolving stock solution):

Action	Notes
7.4.1 Tare a clean, dry 1-liter volumetric flask on the balance. Record the weight to three places.	If the 1-liter volumetric flask is too tall to fit in the balance case, you can shield the flask from drafts by inverting a paint bucket with a hole cut in the bottom over the balance cover. Allow the neck of the flask to project through the hole in the bucket.
7.4.2 Weigh 120.00 g of n-heptane into the flask. Record the total weight of the flask and heptane as well as the weight of heptane added.	Use 99+% n-heptane from Aldrich or Janssen Chimica.
7.4.3 Fill the flask close to the mark with toluene, about 1 to 2″ below the mark.	Use EM Science Omnisolve toluene, Grade TX0737–1, or equivalent.
7.4.4 Shake the flask vigorously to mix the contents	Allow any bubbles to clear before proceeding to the next step.
7.4.5 Top off the flask to the mark with toluene. Shake vigorously, as in section 7.4.4 of this method, to mix well.	
7.4.6 Weigh the flask containing the solution on the three place balance record the weight	
7.4.7 Transfer the contents of the flask to a 1 qt Boston round bottle.	Discard any excess solution
7.4.8 Label the bottle with the identity of the contents, the weights of heptane and toluene used, the date of preparation and the preparer's name.	Be sure to include the words *‘‘Hexane in Crumb Polymer Dissolving Stock Solution’’* on the label.
7.4.9 Refrigerate the completed blend for the use of the routine Technicians.	

7.5 Polymer Dissolving Solution (''PDS'')—Heptane (as internal standard) in toluene. This solution contains 0.3g of heptane internal standard per 100 ml of solution.

7.5.1 Preparation of Polymer Dissolving Solution. Fill a 4,000-ml volumetric flask about ¾ full with toluene.

7.5.2 Add 100 ml of the internal standard solution (section 7.4 of this method) to the flask using the 100ml pipette.

7.5.3 Fill the flask to the mark with toluene. Discard any excess.

7.5.4 Add a large magnetic stirring bar to the flask and mix by stirring.

7.5.5 Transfer the polymer solvent solution to the one-gallon labeled container with 50ml volumetric dispenser attached.

7.5.6 Purity Check: Analyze according to section 11.2. *NOTE:* You must ''precipitate'' the sample with an equal part of acetone (thus duplicating actual test conditions— see section 11.1 of this method, sample prep) before analyzing. Analyze the reagent 3 times to quantify the C_6 and termonomer interferences. Inspect the results to ensure good agreement among the three runs (within 10%).

7.5.7 Tag the bottle with the following information:

POLYMER DISSOLVING SOLUTION FOR C_6 IN CRUMB ANALYSIS
PREPARER'S NAME
DATE
CALS FILE ID'S OF THE THREE ANALYSES FOR PURITY (from section 7.5.6 of this method)

7.6 Quality Control Solution: the quality control solution is prepared by adding specific amounts of mixed hexanes (barge hexane), n-nonane and termonomer to some polymer dissolving solution. Nonane elutes in the same approximate time region as termonomer and is used to quantify in that region because it has a longer shelf life. Termonomer, having a high tendency to polymerize, is used in the QC solution only to ensure that both termonomer isomers elute at the proper time.

First, a concentrated stock solution is prepared; the final QC solution can then be prepared by diluting the stock solution.

7.6.1 In preparation of stock solution, fill a 1-liter volumetric flask partially with polymer dissolving solution (PDS)—see section 7.5 of this method. Add 20.0 ml barge hexane, 5.0 ml n-nonane, and 3 ml termonomer. Finish filling the volumetric to the mark with PDS.

7.6.2 In preparation of quality control solution, dilute the quality control stock solution (above) precisely 1:10 with PDS, i.e. 10 ml of stock solution made up to 100 ml (volumetric flask) with PDS. Pour the solution into a 4 oz. Boston round bottle and store in the refrigerator.

8.0 Sample Collection, Preservation and Storage

8.1 Line up facility to catch crumb samples. The facility is a special facility where the sample is drawn.

8.1.1 Ensure that the cock valve beneath facility is closed.

8.1.2 Line up the system from the slurry line cock valve to the cock valve at the nozzle on the stripper.

8.1.3 Allow the system to flush through facility for a period of 30 seconds.

8.2 Catch a slurry crumb sample.

8.2.1 Simultaneously close the cock valves upstream and downstream of facility.

8.2.2 Close the cock valve beneath the slurry line in service.

8.2.3 Line up the cooling tower water through the sample bomb water jacket to the sewer for a minimum of 30 minutes.

8.2.4 Place the sample catching basket beneath facility and open the cock valve underneath the bomb to retrieve the rubber crumb.

8.2.5 If no rubber falls by gravity into the basket, line up nitrogen to the bleeder upstream of the sample bomb and force the rubber into the basket.

8.2.6 Close the cock valve underneath the sample bomb.

8.3 Fill a plastic ''Whirl-pak'' sample bag with slurry crumb and send it to the lab immediately.

8.4 Once the sample reaches the lab, it should be prepped as soon as possible to avoid hexane loss through evaporation. Samples which have lain untouched for more than 30 minutes should be discarded.

9.0 Quality Control

Quality control is monitored via a computer program that tracks analyses of a prepared QC sample (from section 7.6.2 of this method). The QC sample result is entered daily into the program, which plots the result as a data point on a statistical chart. If the data point does not satisfy the ''in-control'' criteria (as defined by the lab quality facilitator), an ''out-of-control'' flag appears, mandating corrective action.

In addition, the area of the n-heptane peak is monitored so that any errors in making up the polymer dissolving solution will be caught and corrected. Refer to section 12.4 of this method.

9.1 Fill an autosampler vial with the quality control solution (from section 7.6.2 of this method) and analyze on the GC as normal (per section 11 of this method).

9.2 Add the concentrations of the 5 hexane isomers as they appear on the CALS printout. Also include the 2,2-dimethyl-pentane peak just ahead of the methyl cyclopentane (the fourth major isomer) peak in the event that the peak integration split this peak out. Do not include the benzene peak in the sum.

Note the nonane concentration. Record both results (total hexane and nonane) in the QC computer program. If out of control, and GC appears to be functioning within normal parameters, reanalyze a fresh control sample. If the fresh QC is not in control, check stock solution for contaminants or make up a new QC sample with the toluene currently in use. If instrument remains out-of-control, more thorough GC troubleshooting may be needed.

Also, verify that the instrument has detected both isomers of termonomer (quantification not necessary—see section 7.0 of this method).

9.3 Recovery efficiency must be determined for high ethylene concentration, low ethylene concentration, E-P terpolymer, or oil extended samples and whenever modifications are made to the method. Recovery shall be between 70 and 130 percent. All test results must be corrected by the recovery efficiency value (R).

9.3.1 Approximately 10 grams of wet EPDM crumb (equivalent to about 5 grams of dry rubber) shall be added to six sample bottles containing 100 ml of hexane in crumb polymer dissolving solution (toluene containing 0.3 gram n-heptane/100 ml solution). The polymer shall be dissolved by agitating the bottles on a shaker for 4 hours. The polymer shall be precipitated using 100 ml acetone.

9.3.2 The supernatant liquid shall be decanted from the polymer. Care shall be taken to remove as much of the liquid phase from the sample as possible to minimize the effect of retained liquid phase upon the next cycle of the analysis. The supernatant liquid shall be analyzed by gas chromatography using an internal standard quantitation method with heptane as the internal standard.

9.3.3 The precipitated polymer from the steps described above shall be redissolved using toluene as the solvent. No heptane shall be added to the sample in the second dissolving step. The toluene solvent and acetone precipitant shall be determined to be free of interfering compounds.

9.3.4 The rubber which was dissolved in the toluene shall be precipitated with acetone as before, and the supernatant liquid decanted from the precipitated polymer. The liquid shall be analyzed by gas chromatography and the rubber phase dried in a steam-oven to determine the final polymer weight.

9.3.5 The ratios of the areas of the hexane peaks and of the heptane internal standard peak shall be calculated for each of the six samples in the two analysis cycles outlined above. The area ratios of the total hexane to heptane (R1) shall be determined for the two analysis cycles of the sample set. The ratio of the values of R1 from the second analysis cycle to the first cycle shall be determined to give a second ratio (R2).

10.0 Calibration and Standardization

The procedure for preparing a Quality Control sample with the internal standard in it is outlined in section 7.6 of this method.

10.1 The relative FID response factors for n-heptane, the internal standard, versus the various hexane isomers and termonomer are relatively constant and should seldom need to be altered. However Baseline construction is a most critical factor in the production of good data. For this reason, close attention should be paid to peak integration. Procedures for handling peak integration will depend upon the data system used.

10.2 If recalibration of the analysis is needed, make up a calibration blend of the internal standard and the analytes as detailed below and analyze it using the analytical method used for the samples.

10.2.1 Weigh 5 g heptane into a tared scintillation vial to five places.

10.2.2 Add 0.2 ml termonomer to the vial and reweigh.

10.2.3 Add 0.5 ml hexane to the vial and reweigh.

10.2.4 Cap, and shake vigorously to mix.

10.2.5 Calculate the weights of termonomer and of hexane added and divide their weights by the weight of the n-heptane added. The result is the known of given value for the calibration.

10.2.6 Add 0.4 ml of this mixture to a mixture of 100 ml toluene and 100 ml of acetone. Cap and shake vigorously to mix.

10.2.7 Analyze the sample.

10.2.8 Divide the termonomer area and the total areas of the hexane peaks by the n-heptane area. This result is the ''found'' value for the calibration.

10.2.9 Divide the appropriate ''known'' value from 10.2.5 by the found value from 10.2.8. The result is the response factor for the analyte in question. Previous work has shown that the standard deviation of the calibration method is about 1% relative.

11.0 Procedure

11.1 SAMPLE PREPARATION

11.1.1 Tare an 8oz sample bottle—Tag attached, cap off; record weight and sample ID on tag in pencil.

11.1.2 Place crumb sample in bottle: RLA–3: 10 g (gives a dry wt. of ~5.5 g).

11.1.3 Dispense 100ml of PDS into each bottle. SAMPLE SHOULD BE PLACED INTO SOLUTION ASAP TO AVOID HEXANE LOSS—Using ''Dispensette'' pipettor. *Before dispensing, ''purge'' the dispensette (25% of its volume) into a waste bottle to eliminate any voids.*

11.1.4 Tightly cap bottles and load samples into shaker.

11.1.5 Insure that ''ON–OFF'' switch on the shaker itself is ''ON.''

11.1.6 Locate shaker timer. Insure that toggle switch atop timer control box is in the middle (''off'') position. If display reads ''04:00'' (4 hours), move toggle switch to the left position. Shaker should begin operating.

11.1.7 After shaker stops, add 100 ml acetone to each sample to precipitate polymer. Shake minimum of 5 minutes on shaker—Vistalon sample may not have fully dissolved; nevertheless, for purposes of consistency, 4 hours is the agreed-upon dissolving time.

11.1.8 Using a 5-ml glass Luer-lock syringe and Acrodisc filter, filter some of the supernatant liquid into an autosampler vial; crimp the vial and load it into the GC autosampler for analysis (section 11.2 of this method)—The samples are filtered to prevent polymer buildup in the GC. Clean the syringes in toluene.

11.1.9 Decant remaining supernatant into a hydrocarbon waste sink, being careful not to discard any of the polymer. Place bottle of precipitate into the steam oven and dry for six hours—Some grades of Vistalon produce very small particles in the precipitate, thus making complete decanting impossible without discarding some polymer. In this case, decant as much as possible and put into the oven as is, allowing the oven to drive off remaining supernatant (this practice is avoided for environmental reasons). WARNING: OVEN IS HOT—110 °C (230 °F).

11.1.10 Cool, weigh and record final weight of bottle.

11.2 GC ANALYSIS

11.2.1 Initiate the CALS computer channel.

11.2.2 Enter the correct instrument method into the GC's integrator.

11.2.3 Load sample vial(s) into autosampler.

11.2.4 Start the integrator.

11.2.5 When analysis is complete, plot CALS run to check baseline skim.

12.0 Data Analysis and Calculations

12.1 Add the concentrations of the hexane peaks as they appear on the CALS printout. Do not include the benzene peak in the sum.

12.2 Subtract any hexane interferences found in the PDS (see section 7.5.6 of this method); record the result.

12.3 Note the termonomer concentration on the CALS printout. Subtract any termonomer interference found in the PDS and record this result in a ''% termonomer by GC'' column in a logbook.

12.4 Record the area (from CALS printout) of the heptane internal standard peak in a ''C7 area'' column in the logbook. This helps track instrument performance over the long term.

12.5 After obtaining the final dry weight of polymer used (Section 11.1.10 of this method), record that result in a ''dry wt.'' column of the logbook (for oil extended polymer, the amount of oil extracted is added to the dry rubber weight).

12.6 Divide the %C6 by the dry weight to obtain the total PHR hexane in crumb. Similarly, divide the % termonomer by the dry weight to obtain the total PHR termonomer in crumb. Note that PHR is an abbreviation for ''parts per hundred''. Record both the hexane and termonomer results in the logbook.

12.7 Correct all results by the recovery efficiency value (R).

13.0 Method Performance

13.1 The method has been shown to provide 100% recovery of the hexane analyte. The method was found to give a 6% relative standard deviation when the same six portions of the same sample were carried through the procedure. Note: These values are examples; each sample type, as specified in Section 9.3, must be tested for sample recovery.

14.0 Pollution Prevention

14.1 Dispose of all hydrocarbon liquids in the appropriate disposal sink system; never pour hydrocarbons down a water sink.

14.2 As discussed in section 11.1.9 of this method, the analyst can minimize venting hydrocarbon vapor to the atmosphere by decanting as much hydrocarbon liquid as possible before oven drying.

15.0 Waste Mamagement

15.1 The Technician conducting the analysis should follow the proper waste management practices for their laboratory location.

16.0 References

16.1 Baton Rouge Chemical Plant Analytical Procedure no. BRCP 1302

16.2 Material Safety Data Sheets (from chemical vendors) for hexane, ENB, toluene, acetone, and heptane

METHOD 310C—DETERMINATION OF RESIDUAL N-HEXANE IN EPDM RUBBER THROUGH GAS CHROMATOGRAPHY

1.0 Scope and Application

1.1 This method describes a procedure for the determination of residual hexane in EPDM wet crumb rubber in the 0.01—2% range by solvent extraction of the hexane followed by gas chromatographic analysis where the hexane is detected by flame ionization and quantified via an internal standard.

1.2 This method may involve hazardous materials operations and equipment. This method does not purport to address all the safety problems associated with it use, if any. It is the responsibility of the user to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2.0 Summary

2.1 Residual hexane contained in wet pieces of EPDM polymer is extracted with MIBK. A known amount of an internal standard (IS) is added to the extract which is subsequently analyzed via gas chromatography where the hexane and IS are separated and detected utilizing a megabore column and flame ionization detection (FID). From the response to the hexane and the IS, the amount of hexane in the EPDM polymer is calculated.

3.0 Definitions

3.1 Hexane—refers to n-hexane

3.2 Heptane—refers to n-heptane

3.3 MIBK—methyl isobutyl ketone (4 methyl 2—Pentanone)

4.0 Interferences

4.1 Material eluting at or near the hexane and/or the IS will cause erroneous results. Prior to extraction, solvent blanks must be analyzed to confirm the absence of interfering peaks.

5.0 Safety

5.1 Review Material Safety Data Sheets of the chemicals used in this method.

6.0 Equipment and Supplies

6.1 4 oz round glass jar with a wide mouth screw cap lid.

6.2 Vacuum oven.

6.3 50 ml pipettes.

6.4 A gas chromatograph with an auto sampler and a 50 meter, 0.53 ID, methyl silicone column with 5 micron phase thickness.

6.5 Shaker, large enough to hold 10, 4 oz. jars.

6.6 1000 and 4000 ml volumetric flasks.

6.7 Electronic integrator or equivalent data system.

6.8 GC autosampler vials.

6.9 50 uL syringe.

7.0 Reagents and Standards

7.1 Reagent grade Methyl-Iso-Butyl-Ketone (MIBK)

7.2 n-heptane, 99% + purity

7.3 n-hexane, 99% + purity

8.0 Sample Collection

8.1 Trap a sample of the EPDM crumb slurry in the sampling apparatus. Allow the crumb slurry to circulate through the sampling apparatus for 5 minutes; then close off the values at the bottom and top of the sampling apparatus, trapping the crumb slurry. Run cooling water through the water jacket for a minimum of 30 minutes. Expel the cooled crumb slurry into a sample catching basket. If the crumb does not fall by gravity, force it out with demineralized water or nitrogen. Send the crumb slurry to the lab for analysis.

9.0 Quality Control

9.1 The Royalene crumb sample is extracted three times with MIBK containing an internal standard. The hexane from each extraction is added together to obtain a total hexane content. The percent hexane in the first extraction is then calculated and used as the recovery factor for the analysis.

9.2 Follow this test method through section 11.4 of the method. After removing the sample of the first extraction to be run on the gas chromatograph, drain off the remainder of the extraction solvent, retaining the crumb sample in the sample jar. Rinse the crumb with demineralized water to remove any MIBK left on the surface of the crumb. Repeat the extraction procedure with fresh MIBK with internal standard two more times.

9.3 After the third extraction, proceed to section 11.5 of this method and obtain the percent hexane in each extraction. Use the sample weight obtained in section 12.1 of this method to calculate the percent hexane in each of the extracts.

9.4 Add the percent hexane obtained from the three extractions for a total percent hexane in the sample.

9.5 Use the following equations to determine the recovery factor (R):

% Recovery of the first extraction=(% hexane in the first extract/total % hexane)×100

Recovery Factor (R)=(% Hexane Recovered in the first extract)/100

10.0 Calibration

10.1 Preparation of Internal Standard (IS) solution:

Accuracy weigh 30 grams of n-heptane into a 1000 ml volumetric flask. Dilute to the mark with reagent grade MIBK. Label this Solution ‘‘A’’. Pipette 100 mls. of Solution A into a 4 liter volumetric flask. Fill the flask to the mark with reagent MIBK. Label this Solution ‘‘B’’. Solution ‘‘B’’ will have a concentration of 0.75 mg/ml of heptane.

10.2 Preparation of Hexane Standard Solution (HS):

Using a 50 uL syringe, weigh by difference, 20 mg of n-hexane into a 50 ml volumetric flask containing approximately 40 ml of Solution B. Fill the flask to the mark with Solution B and mix well.

10.3 Conditions for GC analysis of standards and samples:

Temperature:
Initial=40 °C
Final=150 °C
Injector=160 °C
Detector=280 °C
Program Rate=5.0 °C/min

Initial Time=5 minutes Final Time=6 minutes

Flow Rate=5.0 ml/min

Sensitivity=detector response must be adjusted to keep the hexane and IS on scale.

10.4 Fill an autosampler vial with the HS, analyze it three times and calculate a Hexane Relative Response Factor (RF) as follows:

$$RF=(A_{IS} \times C_{HS} \times P_{HS})/(A_{HS} \times C_{IS} \times P_{IS}) \quad (1)$$

Where:

A_{IS}=Area of IS peak (Heptane)
A_{HS}=Area of peak (Hexane Standard)
C_{HS}=Mg of Hexane/50 ml HS
C_{IS}=Mg of Heptane/50 ml IS Solution B
P_{IS}=Purity of the IS n-heptane
P_{HS}=Purity of the HS n-hexane

11.0 Procedure

11.1 Weight 10 grams of wet crumb into a tared (W1), wide mouth 4 oz. jar.

11.2 Pipette 50 ml of Solution B into the jar with the wet crumb rubber.

11.3 Screw the cap on tightly and place it on a shaker for 4 hours.

11.4 Remove the sample from the shaker and fill an autosampler vial with the MIBK extract.

11.5 Analyze the sample two times.

11.6 Analyze the HS twice, followed by the samples. Inject the HS twice at the end of each 10 samples or at the end of the run.

12.0 Calculations

12.1 Drain off the remainder of the MIBK extract from the polymer in the 4 oz. jar. Retain all the polymer in the jar. Place the uncovered jar and polymer in a heated vacuum oven until the polymer is dry. Reweigh the jar and polymer (W2) and calculate the dried sample weight of the polymer as follows:

Dried SW=W2—W1 (2)

12.2 Should the polymer be oil extended, pipette 10 ml of the MIBK extract into a tared evaporating dish (W1) and evaporate to dryness on a steam plate.

Reweigh the evaporating dish containing the extracted oil (W2). Calculate the oil content of the polymer as follows:

Gram of oil extracted =5 (W2—W1) (3)

$$\% \text{ Hexane in polymer}=(A_s \times RF \times C_{IS} \times P_{IS})/(A_{IS} \times SW) \quad (4)$$

Where:

A_s=Area of sample hexane sample peak.
A_{IS}=Area of IS peak in sample.
C_{IS}=Concentration of IS in 50 ml.
P_{IS}=Purity of IS.
SW=Weight of dried rubber after extraction. (For oil extended polymer, the amount of oil extracted is added to the dry rubber weight).
% Corrected Hexane=(% Hexane in Polymer)/R (5)
R=Recovery factor determined in section 9 of this method.

13.0 Method Performance

13.1 Performance must be determined for each sample type by following the procedures in section 9 of this method.

14.0 Waste Generation

14.1 Waste generation should be minimized where possible.

15.0 Waste Management

15.1 All waste shall be handled in accordance with Federal and State environmental regulations.

16.0 References. [Reserved]

METHOD 311—ANALYSIS OF HAZARDOUS AIR POLLUTANT COMPOUNDS IN PAINTS AND COATINGS BY DIRECT INJECTION INTO A GAS CHROMATOGRAPH

1. Scope and Application

1.1 Applicability. This method is applicable for determination of most compounds designated by the U.S. Environmental Protection Agency as volatile hazardous air pollutants (HAP's) (See Reference 1) that are contained in paints and coatings. Styrene, ethyl acrylate, and methyl methacrylate can be measured by ASTM D 4827–93 or ASTM D 4747–87. Formaldehyde can be measured by ASTM PS 9–94 or ASTM D 1979–91. Toluene diisocyanate can be measured in urethane prepolymers by ASTM D 3432–89. Method 311 applies only to those volatile HAP's which are added to the coating when it is manufactured, not to those which may form as the coating cures (reaction products or cure volatiles). A separate or modified test procedure must be used to measure these reaction products or cure volatiles in order to determine the total volatile HAP emissions from a coating. Cure volatiles are a significant component of the total HAP content of some coatings. The term ''coating'' used in this method shall be understood to mean paints and coatings.

1.2 Principle. The method uses the principle of gas chromatographic separation and quantification using a detector that responds to concentration differences. Because there are many potential analytical systems or sets of operating conditions that may represent useable methods for determining the concentrations of the compounds cited in Section 1.1 in the applicable matrices, all systems that employ this principle, but differ only in details of equipment and operation, may be used as alternative methods, provided that the prescribed quality control, calibration, and method performance requirements are met. Certified product data sheets (CPDS) may also include information relevant to the analysis of the coating sample including, but not limited to, separation column, oven temperature, carrier gas, injection port temperature, extraction solvent, and internal standard.

2. Summary of Method

Whole coating is added to dimethylformamide and a suitable internal standard compound is added. An aliquot of the sample mixture is injected onto a chromatographic column containing a stationary phase that separates the analytes from each other and from other volatile compounds contained in the sample. The concentrations of the analytes are determined by comparing the detector responses for the sample to the responses obtained using known concentrations of the analytes.

3. Definitions. [Reserved]

4. Interferences

4.1 Coating samples of unknown composition may contain the compound used as the internal standard. Whether or not this is the case may be determined by following the procedures of Section 11 and deleting the addition of the internal standard specified in Section 11.5.3. If necessary, a different internal standard may be used.

4.2 The GC column and operating conditions developed for one coating formulation may not ensure adequate resolution of target analytes for other coating formulations. Some formulations may contain nontarget analytes that coelute with target analytes. If there is any doubt about the identification or resolution of any gas chromatograph (GC) peak, it may be necessary to analyze the sample using a different GC column or different GC operating conditions.

4.3 Cross-contamination may occur whenever high-level and low-level samples are analyzed sequentially. The order of sample analyses specified in Section 11.7 is designed to minimize this problem.

4.4 Cross-contamination may also occur if the devices used to transfer coating during the sample preparation process or for injecting the sample into the GC are not adequately cleaned between uses. All such devices should be cleaned with acetone or other suitable solvent and checked for plugs or cracks before and after each use.

5. Safety

5.1 Many solvents used in coatings are hazardous. Precautions should be taken to avoid unnecessary inhalation and skin or eye contact. This method may involve hazardous materials, operations, and equipment. This test method does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this test method to establish appropriate safety and health practices and to determine the applicability of regulatory limitations in regards to the performance of this test method.

5.2 Dimethylformamide is harmful if inhaled or absorbed through the skin. The user should obtain relevant health and safety information from the manufacturer. Dimethylformamide should be used only with adequate ventilation. Avoid contact with skin, eyes, and clothing. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. If eyes are affected, consult a physician. Remove and wash contaminated clothing before reuse.

5.3 User's manuals for the gas chromatograph and other related equipment should be consulted for specific precautions to be taken related to their use.

6. Equipment and Supplies

NOTE: Certified product data sheets (CPDS) may also include information relevant to the analysis of the coating sample including, but not limited to, separation column, oven temperature, carrier gas, injection port temperature, extraction solvent, and internal standard.

6.1 Sample Collection.

6.1.1 Sampling Containers. Dual-seal sampling containers, four to eight fluid ounce capacity, should be used to collect the samples. Glass sample bottles or plastic containers with volatile organic compound (VOC) impermeable walls must be used for corrosive substances (*e.g.*, etch primers and certain coating catalysts such as methyl ethyl ketone (MEK) peroxide). Sample containers, caps, and inner seal liners must be inert to the compounds in the sample and must be selected on a case-by-case basis.

6.1.1.1 Other routine sampling supplies needed include waterproof marking pens, tubing, scrappers/spatulas, clean rags, paper towels, cooler/ice, long handle tongs, and mixing/stirring paddles.

6.1.2 Personal safety equipment needed includes eye protection, respiratory protection, a hard hat, gloves, steel toe shoes, etc.

6.1.3 Shipping supplies needed include shipping boxes, packing material, shipping labels, strapping tape, etc.

6.1.4 Data recording forms and labels needed include coating data sheets and sample can labels.

NOTE: The actual requirements will depend upon the conditions existing at the source sampled.

6.2 Laboratory Equipment and Supplies.

6.2.1 Gas Chromatograph (GC). Any instrument equipped with a flame ionization detector and capable of being temperature programmed may be used. Optionally, other types of detectors (e.g., a mass spectrometer), and any necessary interfaces, may be used provided that the detector system yields an appropriate and reproducible response to the analytes in the injected sample. Autosampler injection may be used, if available.

6.2.2 Recorder. If available, an electronic data station or integrator may be used to record the gas chromatogram and associated data. If a strip chart recorder is used, it must meet the following criteria: A 1 to 10 millivolt (mV) linear response with a full scale response time of 2 seconds or less and a maximum noise level of ±0.03 percent of full scale. Other types of recorders may be used as appropriate to the specific detector installed provided that the recorder has a full scale response time of 2 seconds or less and a maximum noise level of ±0.03 percent of full scale.

6.2.3 Column. The column must be constructed of materials that do not react with components of the sample (*e.g.*, fused silica, stainless steel, glass). The column should be of appropriate physical dimensions (*e.g.*, length, internal diameter) and contain sufficient suitable stationary phase to allow separation of the analytes. DB–5, DB-Wax, and FFAP columns are commonly used for paint analysis; however, it is the responsibility of each analyst to select appropriate columns and stationary phases.

6.2.4 Tube and Tube Fittings. Supplies to connect the GC and gas cylinders.

6.2.5 Pressure Regulators. Devices used to regulate the pressure between gas cylinders and the GC.

6.2.6 Flow Meter. A device used to determine the carrier gas flow rate through the GC. Either a digital flow meter or a soap film bubble meter may be used to measure gas flow rates.

6.2.7 Septa. Seals on the GC injection port through which liquid or gas samples can be injected using a syringe.

6.2.8 Liquid Charging Devices. Devices used to inject samples into the GC such as clean and graduated 1, 5, and 10 microliter (µl) capacity syringes.

6.2.9 Vials. Containers that can be sealed with a septum in which samples may be prepared or stored. The recommended size is 25 ml capacity. Mininert® valves have been found satisfactory and are available from Pierce Chemical Company, Rockford, Illinois.

6.2.10 Balance. Device used to determine the weights of standards and samples. An analytical balance capable of accurately weighing to 0.0001 g is required.

7. Reagents and Standards

7.1 Purity of Reagents. Reagent grade chemicals shall be used in all tests. Unless otherwise specified, all reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available. Other grades may be used provided it is first ascertained that the reagent is of sufficient purity to permit its use without lessening the accuracy of determination.

7.2 Carrier Gas. Helium carrier gas shall have a purity of 99.995 percent or higher. High purity nitrogen may also be used. Other carrier gases that are appropriate for the column system and analyte may also be used. Ultra-high purity grade hydrogen gas and zero-grade air shall be used for the flame ionization detector.

7.3 Dimethylformamide (DMF). Solvent for all standards and samples. Some other suitable solvent may be used if DMF is not compatible with the sample or coelutes with a target analyte.

NOTE: DMF may coelute with ethylbenzene or p-xylene under the conditions described in the note under Section 6.2.3.

7.4 Internal Standard Materials. The internal standard material is used in the quantitation of the analytes for this method. It shall be gas chromatography spectrophotometric quality or, if this grade is not available, the highest quality available. Obtain the assay for the internal standard material and maintain at that purity during use. The recommended internal standard material is 1-propanol; however, selection of an appropriate internal standard material for the particular coating and GC conditions used is the responsibility of each analyst.

7.5 Reference Standard Materials. The reference standard materials are the chemicals cited in Section 1.1 which are of known identity and purity and which are used to assist in the identification and quantification of the analytes of this method. They shall be the highest quality available. Obtain the assays for the reference standard materials and maintain at those purities during use.

7.6 Stock Reference Standards. Stock reference standards are dilutions of the reference standard materials that may be used on a daily basis to prepare calibration standards, calibration check standards, and quality control check standards. Stock reference standards may be prepared from the reference standard materials or purchased as certified solutions.

7.6.1 Stock reference standards should be prepared in dimethylformamide for each analyte expected in the coating samples to be analyzed. The concentrations of analytes in the stock reference standards are not specified but must be adequate to prepare the calibration standards required in the method. A stock reference standard may contain more than one analyte provided all analytes are chemically compatible and no analytes coelute. The actual concentrations prepared must be known to within 0.1 percent (e.g., 0.1000 ± 0.0001 g/g solution). The following procedure is suggested. Place about 35 ml of dimethylformamide into a tared ground-glass stoppered 50 ml volumetric flask. Weigh the flask to the nearest 0.1 mg. Add 12.5 g of the reference standard material and reweigh the flask. Dilute to volume with dimethylformamide and reweigh. Stopper the flask and mix the contents by inverting the flask several times. Calculate the concentration in grams per gram of solution from the net gain in weights, correcting for the assayed purity of the reference standard material.

NOTE: Although a glass-stoppered volumetric flask is convenient, any suitable glass container may be used because stock reference standards are prepared by weight.

7.6.2 Transfer the stock reference standard solution into one or more Teflon-sealed screw-cap bottles. Store, with minimal headspace, at −10 °C to 0 °C and protect from light.

7.6.3 Prepare fresh stock reference standards every six months, or sooner if analysis results from daily calibration check standards indicate a problem. Fresh stock reference standards for very volatile HAP's may have to be prepared more frequently.

7.7 Calibration Standards. Calibration standards are used to determine the response of the detector to known amounts of reference material. Calibration standards must be prepared at a minimum of three concentration levels from the stock reference standards (see Section 7.6). Prepare the calibration standards in dimethylformamide (see Section 7.3). The lowest concentration standard should contain a concentration of analyte equivalent either to a concentration of no more than 0.01% of the analyte in a coating or to a concentration that is lower than the actual concentration of the analyte in the coating, whichever concentration is higher. The highest concentration standard should contain a concentration of analyte equivalent to slightly more than the highest concentration expected for the analyte in a coating. The remaining calibration standard should contain a concentration of analyte roughly at the midpoint of the range defined by the lowest and highest concentration calibration standards. The concentration range of the standards should thus correspond to the expected range of analyte concentrations in the prepared coating samples (see Section 11.5). Each calibration standard should contain each analyte for detection by this method expected in the actual coating samples (e.g., some or all of the compounds listed in Section 1.1 may be included). Each calibration standard should also contain an appropriate amount of internal standard material (response for the internal standard material is within 25 to 75 percent of full scale on the attenuation setting for the particular reference standard concentration level). Calibration Standards should be stored for 1 week only in sealed vials with minimal headspace. If the stock reference standards were prepared as specified in Section 7.6, the calibration standards may be prepared by either weighing each addition of the stock reference standard or by adding known volumes of the stock reference standard and calculating the mass of the standard reference material added. Alternative 1 (Section 7.7.1) specifies the procedure to be followed when the stock reference standard is added by volume. Alternative 2 (Section 7.7.2) specifies the procedure to be followed when the stock reference standard is added by weight.

NOTE: To assist with determining the appropriate amount of internal standard to add, as required here and in other sections of this method, the analyst may find it advantageous to prepare a curve showing the area response versus the amount of internal standard injected into the GC.

7.7.1 Preparation Alternative 1. Determine the amount of each stock reference standard and dimethylformamide solvent needed to prepare approximately 25 ml of the specific calibration concentration level desired. To a tared 25 ml vial that can be sealed with a crimp-on or Mininert® valve, add the total amount of dimethylformamide calculated to be needed. As quickly as practical, add the calculated amount of each stock reference standard using new pipets (or pipet tips) for each stock reference standard. Reweigh the vial and seal it. Using the known weights of the standard reference materials per ml in the stock reference standards, the volumes added, and the total weight of all reagents added to the vial, calculate the weight percent of each standard reference material in the calibration standard prepared. Repeat this process for each calibration standard to be prepared.

7.7.2 Preparation Alternative 2. Determine the amount of each stock reference standard and dimethylformamide solvent needed to prepare approximately 25 ml of the specific calibration concentration level desired. To a tared 25 ml vial that can be sealed with a crimp-on or Mininert® valve, add the total amount of dimethylformamide calculated to be needed. As quickly as practical, add the calculated amount of a stock reference standard using a new pipet (or pipet tip) and reweigh the vial. Repeat this process for each stock reference standard to be added. Seal the vial after obtaining the final weight. Using the known weight percents of the standard reference materials in the stock reference standards, the weights of the stock reference standards added, and the total weight of all reagents added to the vial, calculate the weight percent of each standard reference material in the calibration standard prepared. Repeat this process for each calibration standard to be prepared.

8. Sample Collection, Preservation, Transport, and Storage

8.1 Copies of material safety data sheets (MSDS's) for each sample should be obtained prior to sampling. The MSDS's contain information on the ingredients, and physical and chemical properties data. The MSDS's also contain recommendations for proper handling or required safety precautions. Certified product data sheets (CPDS) may also include information relevant to the analysis of the coating sample including, but not limited to, separation column, oven temperature, carrier gas, injection port temperature, extraction solvent, and internal standard.

8.2 A copy of the blender's worksheet can be requested to obtain data on the exact coating being sampled. A blank coating data sheet form (see Section 18) may also be used. The manufacturer's formulation information from the product data sheet should also be obtained.

8.3 Prior to sample collection, thoroughly mix the coating to ensure that a representative, homogeneous sample is obtained. It is preferred that this be accomplished using a coating can shaker or similar device; however, when necessary, this may be accomplished using mechanical agitation or circulation systems.

8.3.1 Water-thinned coatings tend to incorporate or entrain air bubbles if stirred too vigorously; mix these types of coatings slowly and only as long as necessary to homogenize.

8.3.2 Each component of multicomponent coatings that harden when mixed must be sampled separately. The component mix ratios must be obtained at the facility at the time of sampling and submitted to the analytical laboratory.

8.4 Sample Collection. Samples must be collected in a manner that prevents or minimizes loss of volatile components and that does not contaminate the coating reservoir. A suggested procedure is as follows. Select a sample collection container which has a capacity at least 25 percent greater than the container in which the sample is to be transported. Make sure both sample containers are clean and dry. Using clean, long-handled tongs, turn the sample collection container upside down and lower it into the coating reservoir. The mouth of the sample collection container should be at approximately the midpoint of the reservoir (do not take the sample from the top surface). Turn the sample collection container over and slowly bring it to the top of the coating reservoir. Rapidly pour the collected coating into the sample container, filling it completely. It is important to fill the sample container completely to avoid any loss of volatiles due to volatilization into the headspace. Return any unused coating to the reservoir or dispose as appropriate.

NOTE: If a company requests a set of samples for its own analysis, a separate set of samples, using new sample containers, should be taken at the same time.

8.5 Once the sample is collected, place the sample container on a firm surface and insert the inner seal in the container by placing the seal inside the rim of the container, inverting a screw cap, and pressing down on the screw cap which will evenly force the inner seal into the container for a tight fit. Using clean towels or rags, remove all residual coating material from the outside of the sample container after inserting the inner seal. Screw the cap onto the container.

8.5.1 Affix a sample label (see Section 18) clearly identifying the sample, date collected, and person collecting the sample.

8.5.2 Prepare the sample for transportation to the laboratory. The sample should be maintained at the coating's recommended storage temperature specified on the Material Safety Data Sheet, or, if no temperature is specified, the sample should be maintained within the range of 5 °C to 38 °C.

8.9 The shipping container should adhere to U.S. Department of Transportation specification DOT 12–B. Coating samples are considered hazardous materials; appropriate shipping procedures should be followed.

9. Quality Control

9.1 Laboratories using this method should operate a formal quality control program. The minimum requirements of the program should consist of an initial demonstration of laboratory capability and an ongoing analysis of blanks and quality control samples to evaluate and document quality data. The laboratory must maintain records to document the quality of the data generated. When results indicate atypical method performance, a quality control check standard (see Section 9.4) must be analyzed to confirm that the measurements were performed in an in-control mode of operation.

9.2 Before processing any samples, the analyst must demonstrate, through analysis of a reagent blank, that there are no interferences from the analytical system, glassware, and reagents that would bias the sample analysis results. Each time a set of analytical samples is processed or there is a change in reagents, a reagent blank should be processed as a safeguard against chronic laboratory contamination. The blank samples should be carried through all stages of the sample preparation and measurement steps.

9.3 Required instrument quality control parameters are found in the following sections:

9.3.1 Baseline stability must be demonstrated to be ≤5 percent of full scale using the procedures given in Section 10.1.

9.3.2 The GC calibration is not valid unless the retention time (RT) for each analyte at each concentration is within ±0.05 min of the retention time measured for that analyte in the stock standard.

9.3.3 The retention time (RT) of any sample analyte must be within ±0.05 min of the average RT of the analyte in the calibration standards for the analyte to be considered tentatively identified.

9.3.4 The GC system must be calibrated as specified in Section 10.2.

9.3.5 A one-point daily calibration check must be performed as specified in Section 10.3.

9.4 To establish the ability to generate results having acceptable accuracy and precision, the analyst must perform the following operations.

9.4.1 Prepare a quality control check standard (QCCS) containing each analyte expected in the coating samples at a concentration expected to result in a response between 25 percent and 75 percent of the limits of the calibration curve when the sample is prepared as described in Section 11.5. The QCCS may be prepared from reference standard materials or purchased as certified solutions. If prepared in the laboratory, the QCCS must be prepared independently from the calibration standards.

9.4.2 Analyze three aliquots of the QCCS according to the method beginning in Section 11.5.3 and calculate the weight percent of each analyte using Equation 1, Section 12.

_9.4.3 Calculate the mean weight percent (X) for each analyte from the three results obtained in Section 9.4.2.

9.4.4 Calculate the percent accuracy for each analyte using the known concentrations (Ti) in the QCCS using Equation 3, Section 12.

9.4.5 Calculate the percent relative standard deviation (percent RSD) for each analyte using Equation 7, Section 12, substituting the appropriate values for the relative response factors (RRF's) in said equation.

9.4.6 If the percent accuracy (Section 9.4.4) for all analytes is within the range 90 percent to 110 percent and the percent RSD (Section 9.4.5) for all analytes is ≤20 percent, system performance is acceptable and sample analysis may begin. If these criteria are not met for any analyte, then system performance is not acceptable for that analyte and the test must be repeated for those analytes only. Repeated failures indicate a general problem with the measurement system that must be located and corrected. In this case, the entire test, beginning at Section 9.4.1, must be repeated after the problem is corrected.

9.5 Great care must be exercised to maintain the integrity of all standards. It is recommended that all standards be stored at −10 °C to 0 °C in screw-cap amber glass bottles with Teflon liners.

9.6 Unless otherwise specified, all weights are to be recorded within 0.1 mg.

10. Calibration and Standardization.

10.1 Column Baseline Drift. Before each calibration and series of determinations and before the daily calibration check, condition the column using procedures developed by the laboratory or as specified by the column supplier. Operate the GC at initial (i.e., before sample injection) conditions on the lowest attenuation to be used during sample analysis. Adjust the recorder pen to zero on the chart and obtain a baseline for at least one minute. Initiate the GC operating cycle that would be used for sample analysis. On the recorder chart, mark the pen position at the end of the simulated sample analysis cycle. Baseline drift is defined as the absolute difference in the pen positions at the beginning and end of the cycle in the direction perpendicular to the chart movement. Calculate the percent baseline drift by dividing the baseline drift by the chart width representing full-scale deflection and multiply the result by 100.

10.2 Calibration of GC. Bring all stock standards and calibration standards to room temperature while establishing the GC at the determined operating conditions.

10.2.1 Retention Times (RT's) for Individual Compounds.

NOTE: The procedures of this subsection are required only for the initial calibration. However, it is good laboratory practice to follow these procedures for some or all analytes before each calibration. The procedures were written for chromatograms output to a strip chart recorder. More modern instruments (e.g., integrators and electronic data stations) determine and print out or display retention times automatically.

The RT for each analyte should be determined before calibration. This provides a positive identification for each peak observed from the calibration standards. Inject an appropriate volume (see NOTE in Section 11.5.2) of one of the stock reference standards into the gas chromatograph and record on the chart the pen position at the time of the injection (see Section 7.6.1). Dilute an aliquot of the stock reference standard as required in dimethylformamide to achieve a concentration that will result in an on-scale response. Operate the gas chromatograph according to the determined procedures. Select the peak(s) that correspond to the analyte(s) [and internal standard, if used] and measure the retention time(s). If a chart recorder is used, measure the distance(s) on the chart from the injection point to the peak maxima. These distances, divided by the chart speed, are defined as the RT's of the analytes in question. Repeat this process for each of the stock reference standard solutions.

NOTE: If gas chromatography with mass spectrometer detection (GC–MS) is used, a stock reference standard may contain a group of analytes, provided all analytes are adequately separated during the analysis. Mass spectral library matching can be used to identify the analyte associated with each peak in the gas chromatogram. The retention time for the analyte then becomes the retention time of its peak in the chromatogram.

10.2.2 Calibration. The GC must be calibrated using a minimum of three concentration levels of each potential analyte. (See Section 7.7 for instructions on preparation of the calibration standards.) Beginning with the lowest concentration level calibration standard, carry out the analysis procedure as described beginning in Section 11.7. Repeat the procedure for each progressively higher concentration level until all calibration standards have been analyzed.

10.2.2.1 Calculate the RT's for the internal standard and for each analyte in the calibration standards at each concentration level as described in Section 10.2.1. The RT's for the internal standard must not vary by more than 0.10 minutes. Identify each analyte by comparison of the RT's for peak maxima to the RT's determined in Section 10.2.1.

10.2.2.2 Compare the retention times (RT's) for each potential analyte in the calibration standards for each concentration level to the retention times determined in Section 10.2.1. The calibration is not valid unless all RT's for all analytes meet the criteria given in Section 9.3.2.

10.2.2.3 Tabulate the area responses and the concentrations for the internal standard and each analyte in the calibration standards. Calculate the response factor for the internal standard (RF_{is}) and the response factor for each compound relative to the internal standard (RRF) for each concentration level using Equations 5 and 6, Section 12.

10.2.2.4 Using the RRF's from the calibration, calculate the percent relative standard deviation (percent RSD) for each analyte in the calibration standard using Equation 7, Section 12. The percent RSD for each individual calibration analyte must be *less* than 15 percent. This criterion must be met in order for the calibration to be valid. If the criterion is met, the mean RRF's determined above are to be used until the next calibration.

10.3 Daily Calibration Checks. The calibration curve (Section 10.2.2) must be checked and verified at least once each day that samples are analyzed. This is accomplished by analyzing a calibration standard that is at a concentration near the midpoint of the working range and performing the checks in Sections 10.3.1, 10.3.2, and 10.3.3.

10.3.1 For each analyte in the calibration standard, calculate the percent difference in the RRF from the last calibration using Equation 8, Section 12. If the percent difference for each calibration analyte is less than 10 percent, the last calibration curve is assumed to be valid. If the percent difference for any analyte is greater than 5 percent, the analyst should consider this a warning limit. If the percent difference for any one calibration analyte exceeds 10 percent, corrective action must be taken. If no source of the problem can be determined after corrective action has been taken, a new three-point (minimum) calibration must be generated. This criterion must be met before quantitative analysis begins.

10.3.2 If the RF_{is} for the internal standard changes by more than ±20 percent from the last daily calibration check, the system must be inspected for malfunctions and corrections made as appropriate.

10.3.3 The retention times for the internal standard and all calibration check analytes must be evaluated. If the retention time for the internal standard or for any calibration check analyte changes by more than 0.10 min from the last calibration, the system must be inspected for malfunctions and corrections made as required.

11. Procedure

11.1 All samples and standards must be allowed to warm to room temperature before analysis. Observe the given order of ingredient addition to minimize loss of volatiles.

11.2 Bring the GC system to the determined operating conditions and condition the column as described in Section 10.1.

NOTE: The temperature of the injection port may be an especially critical parameter.Information about the proper temperature may be found on the CPDS.

11.3 Perform the daily calibration checks as described in Section 10.3. Samples are not to be analyzed until the criteria in Section 10.3 are met.

11.4 Place the as-received coating sample on a paint shaker, or similar device, and shake the sample for a minimum of 5 minutes to achieve homogenization.

11.5 NOTE: The steps in this section must be performed rapidly and without interruption to avoid loss of volatile organics. These steps must be performed in a laboratory hood free from solvent vapors. All weights must be recorded to the nearest 0.1 mg.

11.5.1 Add 16 g of dimethylformamide to each of two tared vials (A and B) capable of being septum sealed.

11.5.2 To each vial add a weight of coating that will result in the response for the major constituent being in the upper half of the linear range of the calibration curve.

NOTE: The magnitude of the response obviously depends on the amount of sample injected into the GC as specified in Section 11.8. This volume must be the same as used for preparation of the calibration curve, otherwise shifts in compound retention times may occur. If a sample is prepared that results in a response outside the limits of the calibration curve, new samples must be prepared; changing the volume injected to bring the response within the calibration curve limits is not permitted.

11.5.3 Add a weight of internal standard to each vial (A and B) that will result in the response for the internal standard being between 25 percent and 75 percent of the linear range of the calibration curve.

11.5.4 Seal the vials with crimp-on or Mininert® septum seals.

11.6 Shake the vials containing the prepared coating samples for 60 seconds. Allow the vials to stand undisturbed for ten minutes. If solids have not settled out on the bottom after 10 minutes, then centrifuge at 1,000 rpm for 5 minutes. The analyst also has the option of injecting the sample without allowing the solids to settle.

11.7 Analyses should be conducted in the following order: daily calibration check sample, method blank, up to 10 injections from sample vials (*i.e.*, one injection each from up to five pairs of vials, which corresponds to analysis of 5 coating samples).

11.8 Inject the prescribed volume of supernatant from the calibration check sample, the method blank, and the sample vials onto the chromatographic column and record the chromatograms while operating the system under the specified operating conditions.

NOTE: The analyst has the option of injecting the unseparated sample.

12. Data Analysis and Calculations

12.1 Qualitative Analysis. An analyte (e.g., those cited in Section 1.1) is considered tentatively identified if two criteria are satisfied: (1) elution of the sample analyte within ±0.05 min of the average GC retention time of the same analyte in the calibration standard; and (2) either (a) confirmation of the identity of the compound by spectral matching on a gas chromatograph equipped with a mass selective detector or (b) elution of the sample analyte within ±0.05 min of the average GC retention time of the same analyte in the calibration standard analyzed on a dissimilar GC column.

12.1.1 The RT of the sample analyte must meet the criteria specified in Section 9.3.3.

12.1.2 When doubt exists as to the identification of a peak or the resolution of two or more components possibly comprising one peak, additional confirmatory techniques (listed in Section 12.1) must be used.

12.2 Quantitative Analysis. When an analyte has been identified, the quantification of that compound will be based on the internal standard technique.

12.2.1 A single analysis consists of one injection from each of two sample vials (A and B) prepared using the same coating. Calculate the concentration of each identified analyte in the sample as follows:

$$\mathrm{HAP}_{\mathrm{wt\%}} = 100 \times \frac{(\mathrm{A_x})(\mathrm{W_{is}})}{(\mathrm{A_{is}})(\overline{\mathrm{RRF_x}})(\mathrm{W_x})} \qquad \text{Eq. (1)}$$

where:

$\mathrm{HAP}_{\mathrm{wt\%}}$ = weight percent of the analyte in coating.
$\mathrm{A_x}$ = Area response of the analyte in the sample.
$\mathrm{W_{is}}$ = Weight of internal standard added to sample, g.
$\mathrm{A_{is}}$ = Area response of the internal standard in the sample.
$\overline{\mathrm{RRF_x}}$ = Mean relative response factor for the analyte in the calibration standards.
$\mathrm{W_x}$ = Weight of coating added to the sample solution, g.

12.2.2 Report results for duplicate analysis (sample vials A and B) without correction.

12.3 Precision Data. Calculate the percent difference between the measured concentrations of each analyte in vials A and B as follows.

12.3.1 Calculate the weight percent of the analyte in each of the two sample vials as described in Section 12.2.1.

12.3.2 Calculate the percent difference for each analyte as:

$$\%\mathrm{Dif_i} = 100 \times \frac{\left|\mathrm{A_i} - \mathrm{B_i}\right|}{\frac{(\mathrm{A_i} + \mathrm{B_i})}{2}} \qquad \text{Eq. (2)}$$

where A_i and B_i are the measured concentrations of the analyte in vials A and B.

12.4 Calculate the percent accuracy for analytes in the QCCS (See Section 9.4) as follows:

$$\%\ \text{Accuracy}_x = 100 \times \frac{\overline{X}_x}{T_x} \qquad \text{Eq. (3)}$$

where X_x is the mean measured value and T_x is the known true value of the analyte in the QCCS.

12.5 Obtain retention times (RT's) from data station or integrator or, for chromatograms from a chart recorder, calculate the RT's for analytes in the calibration standards (See Section 10.2.2.2) as follows:

$$\text{RT} = \frac{\text{Distance from injection to peak maximum}}{\text{Recorder chart speed}} \qquad \text{Eq. (4)}$$

12.6 Calculate the response factor for the internal standard (See Section 10.2.2.3) as follows:

$$\text{RF}_{is} = \frac{A_{is}}{C_{is}} \qquad \text{Eq. (5)}$$

where:

A_{is} = Area response of the internal standard.

C_{is} = Weight percent of the internal standard.

12.7 Calculate the relative response factors for analytes in the calibration standards (See Section 10.2.2.3) as follows:

where:

$$\text{RRF}_x = \frac{A_x}{\text{RF}_{is}\ \ C_x} \qquad \text{Eq. (6)}$$

RRF_x = Relative response factor for an individual analyte.

A_x = Area response of the analyte being measured.

C_x = Weight percent of the analyte being measured.

12.8 Calculate the percent relative standard deviation of the relative response factors for analytes in the calibration standards (See Section 10.2.2.4) as follows:

$$\%\text{RSD} = 100 \times \frac{\sqrt{\dfrac{\sum_{i=1}^{n} \left(\text{RRF}_x - \overline{\text{RRF}_x}\right)^2}{n-1}}}{\overline{\text{RRF}_x}} \qquad \text{Eq. (7)}$$

where:

n = Number of calibration concentration levels used for an analyte.

RRF_x = Individual RRF for an analyte.

$\overline{\text{RRF}_x}$ = Mean of all RRF′s for an analyte.

12.9 Calculate the percent difference in the relative response factors between the calibration curve and the daily calibration checks (See Section 10.3) as follows:

$$\% \text{ Difference } = \frac{\left| \overline{\text{RRF}_x} - \text{RRF}_c \right|}{\overline{\text{RRF}_x}} \times 100 \qquad \text{Eq. (8)}$$

where:

$\overline{\text{RRF}}$ = mean relative response factor from last calibration.
RRF = relative response factor from calibration check standard.

13. *Measurement of Reaction Byproducts That are HAP.* [Reserved]

14. *Method Performance.* [Reserved]

15. *Pollution Prevention.* [Reserved]

16. *Waste Management*

16.1 The coating samples and laboratory standards and reagents may contain compounds which require management as hazardous waste. It is the laboratory's responsibility to ensure all wastes are managed in accordance with all applicable laws and regulations.

16.2 To avoid excessive laboratory waste, obtain only enough sample for laboratory analysis.

16.3 It is recommended that discarded waste coating solids, used rags, used paper towels, and other nonglass or nonsharp waste materials be placed in a plastic bag before disposal. A separate container, designated ''For Sharp Objects Only,'' is recommended for collection of discarded glassware and other sharp-edge items used in the laboratory. It is recommended that unused or excess samples and reagents be placed in a solvent-resistant plastic or metal container with a lid or cover designed for flammable liquids. This container should not be stored in the area where analytical work is performed. It is recommended that a record be kept of all compounds placed in the container for identification of the contents upon disposal.

17. References

1. Clean Air Act Amendments, Public Law 101–549, Titles I–XI, November, 1990.

2. Standard Test Method for Water Content of Water-Reducible Paints by Direct Injection into a Gas Chromatograph. ASTM Designation D3792–79.

3. Standard Practice for Sampling Liquid Paints and Related Pigment Coatings. ASTM Designation D3925–81.

4. Standard Test Method for Determination of Dichloromethane and 1,1,1-Trichloroethane in Paints and Coatings by Direct Injection into a Gas Chromatograph. ASTM Designation D4457–85.

5. Standard Test Method for Determining the Unreacted Monomer Content of Latexes Using Capillary Column Gas Chromatography. ASTM Designation D4827–93.

6. Standard Test Method for Determining Unreacted Monomer Content of Latexes Using Gas-Liquid Chromatography. ASTM Designation D 4747–87.

7. Method 301—''Field Validation of Pollutant Measurement Methods from Various Waste Media,'' 40 CFR 63, Appendix A.

8. ''Reagent Chemicals, American Chemical Society Specifications,'' American Chemical Society, Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see ''Reagent Chemicals and Standards'' by Joseph Rosin, D. Van Nostrand Co., Inc., New York, NY and the ''United States Pharmacopeia.''

18. Tables, Diagrams, Flowcharts, and Validation Data

Agency: ________________________
Inspector: ________________________
Date/Time: ________________________
Sample ID#: ________________________
Source ID: ________________________
Coating Name/Type: ________________________
Plant Witness: ________________________
Type Analysis Required: ________________________
Special Handling: ________________________

Sample Container Label

Coating Data

Date: ________________________
Source: ________________________

Data	Sample ID No.	Sample ID No.
Coating:		
Supplier Name		
Name and Color of Coating		
Type of Coating (primer, clearcoat, etc.)		
Identification Number for Coating		
Coating Density (lbs/gal)		

Data	Sample ID No.	Sample ID No.
Total Volatiles Content (wt percent)		
Water Content (wt percent)		
Exempt Solvents Content (wt percent)		
VOC Content (wt percent)		
Solids Content (vol percent)		
Diluent Properties:		
Name.		
Identification Number		
Diluent Solvent Density (lbs/gal)		
VOC Content (wt percent)		
Water Content (wt percent)		
Exempt Solvent Content (wt percent)		
Diluent/Solvent Ratio (gal diluent solvent/gal coating)		

Stock Reference Standard

Name of Reference Material: ______________

Supplier Name: ______________

Lot Number: ______________

Purity: ______________

Name of Solvent Material: *Dimethylformamide* ______________

Supplier Name: ______________

Lot Number: ______________

Purity: ______________

Date Prepared: ______________

Prepared By: ______________

Notebook/page no.: ______________

PREPARATION INFORMATION

1. Weight Empty Flask ...... ________,g
2. Weight Plus DMF .... ________,g
3. Weight Plus Reference Material. ________,g
4. Weight After Made to Volume. ________,g
5. Weight DMF (lines 2–1+3–4). ________,g
6. Weight Ref. Material (lines 3–2). ________,g
7. Corrected Weight of Reference Material (line 6 times purity). ________,g

PREPARATION INFORMATION—Continued

8. Fraction Reference Material in Standard (Line 7 ÷ Line 5) soln. ________,g/g
9. Total Volume of Standard Solution. ________, ml
10. Weight Reference Material per ml of Solution (Line 7 ÷ Line 9). ________,g/ml

Laboratory ID No. for this Standard. ________

Expiration Date for this Standard. ________

CALIBRATION STANDARD

Date Prepared: ______________

Date Expires: ______________

Prepared By: ______________

Notebook/page: ______________

Calibration Standard Identification No.: ______________

PREPARATION INFORMATION

Final Weight Flask Plus Reagents. ________, g

Weight Empty Flask .... ________, g

Total Weight Of Reagents ________, g

Analyte name [a]	Stock reference standard ID No.	Amount of stock reference standard added (by volume or by weight)				Calculated weight analyte added, g	Weight percent analyte in calibration standard [b]
		Volume added, ml	Amount in standard, g/ml	Weight added, g	Amount in standard, g/g soln		

[a] Include internal standard(s).

[b] Weight percent = weight analyte added ÷ total weight of reagents.

Quality Control Check Standard

Date Prepared: ____________________________
Date Expires: ____________________________
Prepared By: ____________________________
Notebook/page: ____________________________
Quality Control Check Standard Identification No.:

PREPARATION INFORMATION

Final Weight Flask Plus Reagents.	________,g
Weight Empty Flask	________,g
Total Weight Of Reagents	________,g

Analyte name[a]	Stock reference standard ID No.	Amount of stock reference standard added (by volume or by weight)				Calculated weight analyte added, g	Weight percent analyte in QCC standard[b]
		Volume added, ml	Amount in standard, g/ml	Weight added, g	Amount in standard, g/g soln		
....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....

[a] Include internal Standard(s).
[b] Weight percent=weight analyte added ÷ total weight of reagents.

Quality Control Check Standard Analysis

Date OCCS Analyzed: ______________________

OCCS Identification No. __________________
Analyst: ________________________________
QCC Expiration Date: ______________________

ANALYSIS RESULTS

Analyte	Weight percent determined			Mean Wt percent	Percent accuracx	Percent RSD	Meets criteria in Section 9.4.6	
	Run 1	Run 2	Run 3				Percent accuracy	Percent RSD
....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....
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....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....

Calibration of Gas Chromatograph

Calibration Date: __________________________

Calibrated By: ______________________________

PART 1—RETENTION TIMES FOR INDIVIDUAL ANALYTES

Analyte	Stock standard. ID No.	Recorder chart speed		Distance from injection point to peak maximum		Retention time, minutes[a]
		Inches/min.	cm/min.	Inches	Centimeters	
....	....	....	....	....	....	....
....	....	....	....	....	....	....
....	....	....	....	....	....	....
....	....	....	....	....	....	....
....	....	....	....	....	....	....
....	....	....	....	....	....	....
....	....	....	....	....	....	....

PART 1—RETENTION TIMES FOR INDIVIDUAL ANALYTES—Continued

Analyte	Stock standard. ID No.	Recorder chart speed		Distance from injection point to peak maximum		Retention time, minutes[a]
		Inches/min.	cm/min.	Inches	Centimeters	

[a] Retention time=distance to peak maxima÷chart speed.

CALIBRATION OF GAS CHROMATOGRAPH Calibrated By: ______________________________

Calibration Date: __________________________

PART 2—ANALYSIS OF CALIBRATION STANDARDS

Analyte	Calib. STD ID No.	Calib. STD ID No.	Calib. STD ID No.
Name:			
Conc. in STD			
Area Response			
RT			
Name:			
Conc. in STD			
Area Response			
RT			
Name:			
Conc. in STD			
Area Response			
RT			
Name:			
Conc. in STD			
Area Response			
RT			
Name:			
Conc. in STD			
Area Response			
RT			
Name:			
Conc. in STD			
Area Response			
RT			
Name:			
Conc. in STD			
Area Response			
RT			
Name:			
Conc. in STD			
Area Response			
RT			
Internal Standard Name:			
Conc. in STD			
Area Response			
RT			

Calibration of Gas Chromatograph Calibrated By: ______________________________

Calibration Date: __________________________

PART 3—DATA ANALYSIS FOR CALIBRATION STANDARDS

Analyte	Calib. STD ID	Calib. STD ID	Calib. STD ID	Mean	percent RSD of RF	Is RT within ±0.05 min of RT for stock? (Y/N)	Is percent RSD <30% (Y/N)
Name:							
RT							
RF							
Name:							
RT							

PART 3—DATA ANALYSIS FOR CALIBRATION STANDARDS—Continued

Analyte	Calib. STD ID	Calib. STD ID	Calib. STD ID	Mean	percent RSD of RF	Is RT within ±0.05 min of RT for stock? (Y/N)	Is percent RSD <30% (Y/N)
RF							
Name:							
RT							
RF							
Name:							
RT							
RF							
Name:							
RT							
RF							
Name:							
RT							
RF							
Name:							
RT							
RF							

Daily Calibration Check

Date: ____________________

Analyst: ____________________

Calibration Check Standard ID No.:

Expiration Date: ____________________

Analyte	Retention Time (RT)			Response Factor (RF)		
	Last	This	Difference[a]	Last	This	Difference[b]

[a] Retention time (RT) change (difference) must be less than ±0.10 minutes.

[b] Response factor (RF) change (difference) must be less than 20 percent for each analyte and for the internal standard.

Sample Analysis

Vial A ID No.: ____________________

Vial B ID No.: ____________________

Analyzed By: ____________________

Date: ____________________

Sample preparation information	Vial A (g)	Vial B (g)
Measured:		
wt empty vial		
wt plus DMF		
wt plus sample		
wt plus internal standard		
Calculated:		
wt DMF		
wt sample		
wt internal standard		

ANALYSIS RESULTS: DUPLICATE SAMPLES

Analyte	Area response		RF	Wt percent in sample		
	Vial A	Vial B		Vial A	Vial B	Average

ANALYSIS RESULTS: DUPLICATE SAMPLES—Continued

Analyte	Area response		RF	Wt percent in sample		
	Vial A	Vial B		Vial A	Vial B	Average
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....						
Internal Standard						

METHOD 312A—DETERMINATION OF STYRENE IN LATEX STYRENE-BUTADIENE RUBBER, THROUGH GAS CHROMATOGRAPHY

1. Scope and Application

1.1 This method describes a procedure for determining parts per million (ppm) styrene monomer (CAS No. 100–42–5) in aqueous samples, including latex samples and styrene stripper water.

1.2 The sample is separated in a gas chromatograph equipped with a packed column and a flame ionization detector.

2.0 Summary of Method

2.1 This method utilizes a packed column gas chromatograph with a flame ionization detector to determine the concentration of residual styrene in styrene butadiene rubber (SBR) latex samples.

3.0 Definitions

3.1 The definitions are included in the text as needed.

4.0 Interferences

4.1 In order to reduce matrix effects and emulsify the styrene, similar styrene free latex is added to the internal standard. There are no known interferences.

4.2 The operating parameters are selected to obtain resolution necessary to determine styrene monomer concentrations in latex.

5.0 Safety

5.1 It is the responsibility of the user of this procedure to establish appropriate safety and health practices.

6.0 Equipment and Supplies

6.1 Adjustable bottle-top dispenser, set to deliver 3 ml. (for internal standard), Brinkmann Dispensette, or equivalent.

6.2 Pipettor, set to 10 ml., Oxford Macroset, or equivalent.

6.3 Volumetric flask, 100-ml, with stopper.

6.4 Hewlett Packard Model 5710A dual channel gas chromatograph equipped with flame ionization detector.

6.4.1 11 ft. × ⅛ in. stainless steel column packed with 10% TCEP on 100/120 mesh Chromosorb P, or equivalent.

6.4.2 Perkin Elmer Model 023 strip chart recorder, or equivalent.

6.5 Helium carrier gas, zero grade.

6.6 Liquid syringe, 25-µl.

6.7 Digital MicroVAX 3100 computer with VG Multichrom software, or equivalent data handling system.

6.6 Wire Screens, circular, 70-mm, 80-mesh diamond weave.

6.7 DEHA—(N,N-Diethyl hydroxylamine), 97+% purity, CAS No. 3710–84–7

6.8 p-Dioxane, CAS No. 123–91–1

7.0 Reagents and Standards

7.1 Internal standard preparation.

7.1.1 Pipette 5 ml p-dioxane into a 1000-ml volumetric flask and fill to the mark with distilled water and mix thoroughly.

7.2 Calibration solution preparation.

7.2.1 Pipette 10 ml styrene-free latex (eg: NBR latex) into a 100-ml volumetric flask.

7.2.2 Add 3 ml internal standard (section 7.1.1 of this method).

7.2.3 Weigh exactly 10µl fresh styrene and record the weight.

7.2.4 Inject the styrene into the flask and mix well.

7.2.5 Add 2 drops of DEHA, fill to the mark with water and mix well again.

7.2.6 Calculate concentration of the calibration solution as follows:

mg/l styrene=(mg styrene added)/0.1 L

8.0 Sample Collection, Preservation, and Storage

8.1 A representative SBR emulsion sample should be caught in a clean, dry 6-oz. teflon lined glass container. Close it properly to assure no sample leakage.

8.2 The container should be labeled with sample identification, date and time.

9.0 Quality Control

9.1 The instrument is calibrated by injecting calibration solution (Section 7.2 of this method) five times.

9.2 The retention time for components of interest and relative response of monomer to the internal standard is determined.

9.3 Recovery efficiency must be determined once for each sample type and whenever modifications are made to the method.

9.3.1 A set of six latex samples shall be collected. Two samples shall be prepared for analysis from each sample. Each sample shall be analyzed in duplicate.

9.3.2 The second set of six latex samples shall be analyzed in duplicate before spiking each sample with approximately 1000 ppm styrene. The spiked samples shall be analyzed in duplicate.

9.3.3 For each hydrocarbon, calculate the average recovery efficiency (R) using the following equations:

where:

$R=\Sigma(R_n)/6$

where:

$R_n=(c_{ns}-c_v)/S_n$

n=sample number

c_{ns}=concentration of compound measured in spiked sample number n.

c_{nu}= concentration of compound measured in unspiked sample number n.

S_n=theoretical concentration of compound spiked into sample n.

9.3.4 A value of R between 0.70 and 1.30 is acceptable.

9.3.5 R is used to correct all reported results for each compound by dividing the measured results of each compound by the R for that compound for the same sample type.

10.0 Calibration and Instrument Settings

10.1 Injection port temperature, 250 °C.

10.2 Oven temperature, 110 °C, isothermal.

10.3 Carrier gas flow, 25 cc/min.

10.4 Detector temperature, 250 °C.

10.5 Range, 1X.

11.0 Procedure

11.1 Turn on recorder and adjust baseline to zero.

11.2 Prepare sample.

11.2.1 For latex samples, add 3 ml Internal Standard (section 7.1 of this method) to a 100-ml volumetric flask. Pipet 10 ml sample into the flask using the Oxford pipettor, dilute to the 100-ml mark with water, and shake well.

11.2.2 For water samples, add 3 ml Internal Standard (section 7.1 of this method) to a 100-ml volumetric flask and fill to the mark with sample. Shake well.

11.3 Flush syringe with sample.

11.4 Carefully inject 2 µl of sample into the gas chromatograph column injection port and press the start button.

11.5 When the run is complete the computer will print a report of the analysis.

12.0 Data Analysis and Calculation

12.1 For samples that are prepared as in section 11.2.1 of this method:

ppm styrene = A×D

Where:

A = ''ppm'' readout from computer

D = dilution factor (10 for latex samples)

12.2 For samples that are prepared as in section 11.2.2 of this method, ppm styrene is read directly from the computer.

13.0 Method Performance

13.1 This test has a standard deviation (1) of 3.3 ppm at 100 ppm styrene. The average Spike Recovery from six samples at 1000 ppm Styrene was 96.7 percent. The test method was validated using 926 ppm styrene standard. Six analysis of the same standard provided average 97.7 percent recovery. Note: These are example recoveries and do not replace quality assurance procedures in this method.

14.0 Pollution Prevention

14.1 Waste generation should be minimized where possible. Sample size should be an amount necessary to adequately run the analysis.

15.0 Waste Management

15.1 All waste shall be handled in accordance with Federal and State environmental regulations.

16.0 References and Publications

16.1 40 CFR 63 Appendix A—Method 301 Test Methods Field Validation of Pollutant Measurement

16.2 DSM Copolymer Test Method T–3060, dated October 19, 1995, entitled: *Determination of Residual Styrene in Latex*, Leonard, C.D., Vora, N.M.*et al*

Method 312B—Determination of Residual Styrene in Styrene-Butadiene (SBR) Rubber Latex by Capillary Gas Chromatography

1.0 Scope

1.1 This method is applicable to SBR latex solutions.

1.2 This method quantitatively determines residual styrene concentrations in SBR latex solutions at levels from 80 to 1200 ppm.

2.0 Principle of Method

2.1 A weighed sample of a latex solution is coagulated with an ethyl alcohol (EtOH) solution containing a specific amount of alpha-methyl styrene (AMS) as the internal standard. The extract of this coagulation is then injected into a gas chromatograph and separated into individual components. Quantification is achieved by the method of internal standardization.

3.0 Definitions

3.1 The definitions are included in the text as needed.

4.0 Interferences. [Reserved]

5.0 Safety

5.1 This method may involve hazardous materials, operations, and equipment. This method does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

6.0 Equipment and Supplies

6.1 Analytical balance, 160 g capacity, and 0.1 mg resolution

6.2 Bottles, 2-oz capacity, with poly-cap screw lids

6.3 Mechanical shaker

6.4 Syringe, 10-ul capacity

6.5 Gas chromatograph, Hewlett Packard model 5890A, or equivalent, configured with FID with a megabore jet, splitless injector packed with silanized glass wool.

6.5.1 Establish the following gas chromatographic conditions, and allow the system to thoroughly equilibrate before use.

Injection technique = Splitless
Injector temperature = 225 deg C
Oven temperature = 70 deg C (isothermal)
Detector: temperature = 300 deg C
range = 5
attenuation = 0
Carrier gas: helium = 47 ml/min
Detector gases: hydrogen = 30 ml/min
air = 270 ml/min
make-up = 0 ml/min
Analysis time: = 3.2 min at the specified carrier gas flow rate and column temperature.

6.6 Gas chromatographic column, DB–1, 30 M X 0.53 ID, or equivalent, with a 1.5 micron film thickness.

6.7 Data collection system, Perkin-Elmer/Nelson Series Turbochrom 4 Series 900 Interface, or equivalent.

6.8 Pipet, automatic dispensing, 50-ml capacity, and 2-liter reservoir.

6.9 Flasks, volumetric, class A, 100-ml and 1000-ml capacity.

6.10 Pipet, volumetric delivery, 10-ml capacity, class A.

7.0 Chemicals and Reagents

CHEMICALS:

7.1 Styrene, C8H8, 99+%, CAS 100–42–5

7.2 Alpha methyl styrene, C9H10, 99%, CAS 98–83–9

7.3 Ethyl alcohol, C2H5OH, denatured formula 2B, CAS 64–17–5

REAGENTS:

7.4 Internal Standard Stock Solution: 5.0 mg/ml AMS in ethyl alcohol.

7.4.1 Into a 100-ml volumetric flask, weigh 0.50 g of AMS to the nearest 0.1 mg.

7.4.2 Dilute to the mark with ethyl alcohol. This solution will contain 5.0 mg/ml AMS in ethyl alcohol and will be labeled the AMS STOCK SOLUTION.

7.5 Internal Standard Working Solution: 2500 ug/50 ml of AMS in ethyl alcohol.

7.5.1 Using a 10 ml volumetric pipet, quantitatively transfer 10.0 ml of the AMS STOCK SOLUTION into a 1000-ml volumetric flask.

7.5.2 Dilute to the mark with ethyl alcohol. This solution will contain 2500 ug/50ml of AMS in ethyl alcohol and will be labeled the AMS WORKING SOLUTION.

7.5.3 Transfer the AMS WORKING SOLUTION to the automatic dispensing pipet reservoir.

7.6 Styrene Stock Solution: 5.0 mg/ml styrene in ethyl alcohol.

7.6.1 Into a 100-ml volumetric flask, weigh 0.50 g of styrene to the nearest 0.1 mg.

7.6.2 Dilute to the mark with ethyl alcohol. This solution will contain 5.0 mg/ml styrene in ethyl alcohol and will be labeled the STYRENE STOCK SOLUTION.

7.7 Styrene Working Solution: 5000 ug/10 ml of styrene in ethyl alcohol.

7.7.1 Using a 10-ml volumetric pipet, quantitatively transfer 10.0 ml of the STYRENE STOCK SOLUTION into a 100-ml volumetric flask.

7.7.2 Dilute to the mark with ethyl alcohol. This solution will contain 5000 ug/10 ml of styrene in ethyl alcohol and will be labeled the STYRENE WORKING SOLUTION.

8.0 Sample Collection, Preservation and Storage

8.1 Label a 2-oz sample poly-cap lid with the identity, date and time of the sample to be obtained.

8.2 At the sample location, open sample valve for at least 15 seconds to ensure that the sampling pipe has been properly flushed with fresh sample.

8.3 Fill the sample jar to the top (no headspace) with sample, then cap it tightly.

8.4 Deliver sample to the Laboratory for testing within one hour of sampling.

8.5 Laboratory testing will be done within two hours of the sampling time.

8.6 No special storage conditions are required unless the storage time exceeds 2 hours in which case refrigeration of the sample is recommended.

9.0 Quality Control

9.1 For each sample type, 12 samples of SBR latex shall be obtained from the process for the recovery study. Half the vials and caps shall be tared, labeled ''spiked'', and numbered 1 through 6. The other vials are labeled ''unspiked'' and need not be tared, but are also numbered 1 through 6.

9.2 The six vials labeled ''spiked'' shall be spiked with an amount of styrene to approximate 50% of the solution's expected residual styrene level.

9.3 The spiked samples shall be shaken for several hours and allowed to cool to room temperature before analysis.

9.4 The six samples of unspiked solution shall be coagulated and a mean styrene value shall be determined, along with the standard deviation, and the percent relative standard deviation.

9.5 The six samples of the spiked solution shall be coagulated and the results of the analyses shall be determined using the following equations:

$M_r = M_s - M_u$

$R = M_r / S$

where:

M_u=Mean value of styrene in the unspiked sample

M_s=Measured amount of styrene in the spiked sample

M_r=Measured amount of the spiked compound

S=Amount of styrene added to the spiked sample

R=Fraction of spiked styrene recovered

9.6 A value of R between 0.70 and 1.30 is acceptable.

9.7 R is used to correct all reported results for each compound by dividing the measured results of each compound by the R for that compound for the same sample type.

10.0 Calibration

10.1 Using a 10-ml volumetric pipet, quantitatively transfer 10.0 ml of the STYRENE WORKING SOLUTION (section 7.7.2 of this method) into a 2-oz bottle.

10.2 Using the AMS WORKING SOLUTION equipped with the automatic dispensing pipet (section 7.5.3 of this method), transfer 50.0 ml of the internal standard solution into the 2-oz bottle.

10.3 Cap the 2-oz bottle and swirl. This is the calibration standard, which contains 5000 μg of styrene and 2500 μg of AMS.

10.4 Using the conditions prescribed (section 6.5 of this method), chromatograph 1 μl of the calibration standard.

10.5 Obtain the peak areas and calculate the relative response factor as described in the calculations section (section 12.1 of this method).

11.0 Procedure

11.1 Into a tared 2-oz bottle, weigh 10.0 g of latex to the nearest 0.1 g.

11.2 Using the AMS WORKING SOLUTION equipped with the automatic dispensing pipet (section 7.5.3 of this method), transfer 50.0 ml of the internal standard solution into the 2-oz bottle.

11.3 Cap the bottle. Using a mechanical shaker, shake the bottle for at least one minute or until coagulation of the latex is complete as indicated by a clear solvent.

11.4 Using the conditions prescribed (section 6.5 of this method), chromatograph 1 ul of the liquor.

11.5 Obtain the peak areas and calculate the concentration of styrene in the latex as described in the calculations section (Section 12.2 of this method).

12.0 Calculations

12.1 Calibration:

$RF = (W_x \times A_{is}) / (W_{is} \times A_x)$

where:

RF=the relative response factor for styrene

W_x=the weight (ug) of styrene

A_{is}=the area of AMS

W_{is}=the weight (ug) of AMS

A_x=the area of styrene

12.2 Procedure:

$ppm_{styrene} = (A_x\ RF \times W_{is}) / (A_{is} \times W_s)$

where:

$ppm_{styrene}$=parts per million of styrene in the latex

A_x=the area of styrene

RF=the response factor for styrene

W_{is}=the weight (ug) of AMS

A_{is}=the area of AMS

W_s=the weight (g) of the latex sample

12.3 Correct for recovery (R) as determined by section 9.0 of this method.

13.0 Precision

13.1 Precision for the method was determined at the 80, 144, 590, and 1160 ppm levels. The standard deviations were 0.8, 1.5, 5 and 9 ppm respectively. The percent relative standard deviations (%RSD) were 1% or less at all levels. Five degrees of freedom were used for all precision data except at the 80 ppm level, where nine degrees of freedom were used. Note: These are example results and do not replace quality assurance procedures in this method.

14.0 Pollution Prevention

14.1 Waste generation should be minimized where possible. Sample size should be an amount necessary to adequately run the analysis.

15.0 Waste Management

15.1 Discard liquid chemical waste into the chemical waste drum.

15.2 Discard latex sample waste into the latex waste drum.

15.3 Discard polymer waste into the polymer waste container.

16.0 References

16.1 This method is based on Goodyear Chemical Division Test Method E–889.

Method 312C—Determination of Residual Styrene in SBR Latex Produced by Emulsion Polymerization

1.0 Scope

1.1 This method is applicable for determining the amount of residual styrene in SBR latex as produced in the emulsion polymerization process.

2.0 Principle of Method

2.1 A weighed sample of latex is coagulated in 2-propanol which contains alpha-methyl styrene as an Internal Standard. The extract from the coagulation will contain the alpha-methyl styrene as the Internal Standard and the residual styrene from the latex. The extract is analyzed by a Gas Chromatograph. Percent styrene is calculated by relating the area of the styrene peak to the area of the Internal Standard peak of known concentration.

3.0 Definitions

3.1 The definitions are included in the text as needed.

4.0 Interferences. [Reserved]

5.0 Safety

5.1 When using solvents, avoid contact with skin and eyes. Wear hand and eye protection. Wash thoroughly after use.

5.2 Avoid overexposure to solvent vapors. Handle only in well ventilated areas.

6.0 Equipment and Supplies

6.1 *Gas Chromatograph*—Hewlett Packard 5890, Series II with flame ionization detector, or equivalent.

Column—HP 19095F–123, 30m × 0.53mm, or equivalent. Substrate HP FFAP (cross-linked) film thickness 1 micrometer. Glass injector port liners with silanized glass wool plug.

Integrator—HP 3396, Series II, or equivalent.

6.2 Wrist action shaker

6.3 Automatic dispenser

6.4 Automatic pipet, calibrated to deliver 5.0 ±0.01 grams of latex

6.5 Four-ounce wide-mouth bottles with foil lined lids

6.6 Crimp cap vials, 2ml, teflon lined septa

6.7 Disposable pipets

6.8 Qualitative filter paper

6.9 Cap crimper

6.10 Analytical balance

6.11 10ml pipette

6.12 Two-inch funnel

7.0 Reagents and Standards

7.1 2-Propanol (HP2C grade)

7.2 Alpha methyl styrene (99+% purity)

7.3 Styrene (99+% purity)

7.4 Zero air

7.5 Hydrogen (chromatographic grade)

7.6 Helium

7.7 Internal Standard preparation

7.7.1 Weigh 5.000–5.005 grams of alpha-methyl styrene into a 100ml volumetric flask and bring to mark with 2-propanol to make Stock ‘‘A’’ Solution.

NOTE: Shelf life—6 months.

7.7.2 Pipette 10ml of Stock ‘‘A’’ Solution into a 100ml volumetric flask and bring to mark with 2-propanol to prepare Stock ‘‘B’’ Solution.

7.7.3 Pipette 10ml of the Stock ‘‘B’’ solution to a 1000ml volumetric flask and bring to the mark with 2-propanol. This will be the Internal Standard Solution (0.00005 grams/ml).

7.8 Certification of Internal Standard—Each batch of Stock ‘‘B’’ Solution will be certified to confirm concentration.

7.8.1 Prepare a Standard Styrene Control Solution in 2-propanol by the following method:

7.8.1.1 Weigh 5.000 ±.005g of styrene to a 100ml volumetric flask and fill to mark with 2-propanol to make Styrene Stock ‘‘A’’ Solution.

7.8.1.2 Pipette 10ml of Styrene Stock ‘‘A’’ Solution to a 100ml volumetric flask and fill to mark with 2-propanol to make Styrene Stock ‘‘B’’ Solution.

7.8.1.3 Pipette 10ml of Styrene Stock ‘‘B’’ soluion to a 250ml volumtric flask and fill to mark wtih 2-propanol to make the Certification Solution.

7.8.2 Certify Alpha-Methyl Styrene Stock ‘‘B’’ Solution.

7.8.2.1 Pipette 5ml of the Certification Solution and 25ml of the Alpha Methyl Styrene Internal Standard Solution to a 4-oz. bottle, cap and shake well.

7.8.2.2 Analyze the resulting mixture by GC using the residual styrene method. (11.4–11.6 of this method)

7.8.2.3 Calculate the weight of alpha methyl styrene present in the 25ml aliquat of the new Alpha Methyl Styrene Standard by the following equation:

$W_x = F_x \, x W_{is}(A_x/A_{is})$

Where

A_x = Peak area of alpha methyl styrene

A_{is} = Peak area of styrene

W_x = Weight of alpha methyl styrene

W_{is} = Weight of styrene (.00100)

F_x = Analyzed response factor = 1

The Alpha Methyl Styrene Stock Solution used to prepare the Internal Standard Solution may be considered certified if the weight of alpha methyl styrene analyzed by this method is within the range of .00121g to .00129g.

8.0 Sampling

8.1 Collect a latex sample in a capped container. Cap the bottle and identify the sample as to location and time.

8.2 Deliver sample to Laboratory for testing within one hour.

8.3 Laboratory will test within two hours.

8.4 No special storage conditions are required.

9.0 Quality Control

9.1 The laboratory is required to operate a formal quality control program. This consists of an initial demonstration of the capability of the method as well as ongoing analysis of standards, blanks, and spiked samples to demonstrate continued performance.

9.1.1 When the method is first set up, a calibration is run and the recovery efficiency for each type of sample must be determined.

9.1.2 If new types of samples are being analyzed, then recovery efficiency for each new type of sample must be determined. New type includes any change, such as polymer type, physical form or a significant change in the composition of the matrix.

9.2 Recovery efficiency must be determined once for each sample type and whenever modifications are made to the method.

9.2.1 In determining the recovery efficiency, the quadruplet sampling system shall be used. Six sets of samples (for a total of 24) shall be taken. In each quadruplet set, half of the samples (two out of the four) shall be spiked with styrene.

9.2.2 Prepare the samples as described in section 8 of this method. To the vials labeled ‘‘spiked’’, add a known amount of styrene that is expected to be present in the latex.

9.2.3 Run the spiked and unspiked samples in the normal manner. Record the concentrations of styrene reported for each pair of spiked and unspiked samples with the same vial number.

9.2.4 For each hydrocarbon, calculate the average recovery efficiency (R) using the following equation:

$R=\Sigma(R_n)/12$

Where: n = sample number

$R_n=(M_s-M_u)/S$

M_s=total mass of compound (styrene) measured in spiked sample (μg)

M_u=total mass of compound (styrene) measured in unspiked sample (μg)

S=theoretical mass of compound (styrene) spiked into sample (μg)

R=fraction of spiked compound (styrene) recovered

9.2.5 A different R value should be obtained for each sample type. A value of R between 0.70 and 1.30 is acceptable.

9.2.6 R is used to correct all reported results for each compound by dividing the measured results of each compound by the R for that compound for the same sample type.

10.0 Calibration

A styrene control sample will be tested weekly to confirm the FID response and calibration.

10.1 Using the Styrene Certification Solution prepared in 7.8.1, perform test analysis as described in 7.8.2 using the equation in 7.8.2.3 to calculate results.

10.2 Calculate the weight of styrene in the styrene control sample using the following equation:

$W_{sty}=(F_x\ xA_{sty}\ xW_{is})A_{is}$

The instrument can be considered calibrated if the weight of the styrene analyzed is within range of 0.00097—0.00103gms.

11.0 Procedure

11.1 Using an auto pipet, add 25ml of Internal Standard Solution to a 4 oz. widemouth bottle.

11.2 Using a calibrated auto pipet, add 5.0 ± 0.01g latex to the bottle containing the 25ml of Internal Standard Solution.

11.3 Cap the bottle and place on the wrist action shaker. Shake the sample for a minimum of five minutes using the timer on the shaker. Remove from shaker.

11.4 Using a disposable pipet, fill the 2ml sample vial with the clear alcohol extract. (If the extract is not clear, it should be filtered using a funnel and filter paper.) Cap and seal the vial.

11.5 Place the sample in the autosampler tray and start the GC and Integrator. The sample will be injected into the GC by the auto-injector, and the Integrator will print the results.

11.6 *Gas Chromatograph Conditions*

Oven Temp—70 °C
Injector Temp—225 °C
Detector Temp—275 °C
Helium Pressure—500 KPA
Column Head Pressure—70 KPA
Makeup Gas—30 ml/min.
Column—HP 19095F—123, 30m×0.53mm Substrate: HP—FFAP (cross-linked) 1 micrometer film thickness

12.0 Calculations

12.1 The integrator is programmed to do the following calculation at the end of the analysis:

$\%ResidualStyrene=(A_x\ XW_{is})/(A_{is}\ XW_x)XF_x\ X100$

Where:

A_x=Peak area of styrene

A_{is}=Peak area of internal standard

W_x=Weight of sample = 5g

W_{is}=Weight of internal std. = 0.00125g

F_x=Analyzed response factor = 1.0

12.2 The response factor is determined by analyzing a solution of 0.02g of styrene and

0.02g of alpha methyl styrene in 100ml of 2-propanol. Calculate the factor by the following equation:

$F_x=(W_x \times A_{is})/(W_{is} \times A_x)$

Where:
W_x=Weight of styrene
A_x=Peak area of styrene
W_{is}=Weight of alpha methyl styrene
A_{is}=Peak area of alpha methyl styrene

13.0 Method Performance

13.1 Performance must be determined for each sample type by following the procedures in section 9 of this method.

14.0 Waste Generation

14.1 Waste generation should be minimized where possible.

15.0 Waste Management

15.1 All waste shall be handled in accordance with Federal and State environmental regulations.

16.0 References. [Reserved]

METHOD 313A—DETERMINATION OF RESIDUAL HYDROCARBONS IN RUBBER CRUMB

1.0 Scope and Application

1.1 This method determines residual toluene and styrene in stripper crumb of the of the following types of rubber: polybutadiene (PBR) and styrene/butadiene rubber (SBR), both derived from solution polymerization processes that utilize toluene as the polymerization solvent.

1.2 The method is applicable to a wide range of concentrations of toluene and styrene provided that calibration standards cover the desired range. It is applicable at least over the range of 0.01 to 10.0 % residual toluene and from 0.1 to 3.0 % residual styrene. It is probably applicable over a wider range, but this must be verified prior to use.

1.3 The method may also be applicable to other process samples as long as they are of a similar composition to stripper crumb. See section 3.1 of this method for a description of stripper crumb.

2.0 Summary of Method

2.1 The wet crumb is placed in a sealed vial and run on a headspace sampler which heats the vial to a specified temperature for a specific time and then injects a known volume of vapor into a capillary GC. The concentration of each component in the vapor is proportional to the level of that component in the crumb sample and does not depend on water content of the crumb.

2.2 Identification of each component is performed by comparing the retention times to those of known standards.

2.3 Results are calculated by the external standard method since injections are all performed in an identical manner. The response for each component is compared with that obtained from dosed samples of crumb.

2.4 Measured results of each compound are corrected by dividing each by the average recovery efficiency determined for the same compound in the same sample type.

3.0 Definitions

3.1 Stripper crumb refers to pieces of rubber resulting from the steam stripping of a toluene solution of the same polymer in a water slurry. The primary component of this will be polymer with lesser amounts of entrained water and residual toluene and other hydrocarbons. The amounts of hydrocarbons present must be such that the crumb is a solid material, generally less that 10 % of the dry rubber weight.

4.0 Interferences

4.1 Contamination is not normally a problem since samples are sealed into vials immediately on sampling.

4.2 Cross contamination in the headspace sampler should not be a problem if the correct sampler settings are used. This should be verified by running a blank sample immediately following a normal or high sample. Settings may be modified if necessary if this proves to be a problem, or a blank sample may be inserted between samples.

4.3 Interferences may occur if volatile hydrocarbons are present which have retention times close to that of the components of interest. Since the solvent makeup of the processes involved are normally fairly well defined this should not be a problem. If it is found to be the case, switching to a different chromatographic column will probably resolve the situation.

5.0 Safety

5.1 The chemicals specified in this method should all be handled according to standard laboratory practices as well as any special precautions that may be listed in the MSDS for that compound.

5.2 Sampling of strippers or other process streams may involve high pressures and temperatures or may have the potential for exposure to chemical fumes. Only personnel who have been trained in the specific sampling procedures required for that process should perform this operation. An understanding of the process involved is necessary. Proper personal protective equipment should be worn. Any sampling devices should be inspected prior to use. A detailed sampling procedure which specifies exactly how to obtain the sample must be written and followed.

6.0 Equipment and Supplies

6.1 Hewlett Packard (HP) 7694 Headspace sampler, or equivalent, with the following conditions:

Times (min.): GC cycle time 6.0 , vial equilibration 30.0 , pressurization 0.25 , loop fill 0.25, loop equilibration 0.05 , inject 0.25
Temperatures (deg C): oven 70, loop 80, transfer line 90
Pressurization gas: He @ 16 psi

6.2 HP 5890 Series II capillary gas chromatograph, or equivalent, with the following conditions:

Column: Supelco SPB–1, or equivalent, 15m × .25mm × .25μ film
Carrier: He @ 6 psi
Run time: 4 minutes
Oven: 70 deg C isothermal
Injector: 200 deg C split ratio 50:1
Detector: FID @ 220 deg C

6.3 HP Chemstation consisting of computer, printer and Chemstation software, or an equivalent chromatographic data system.

6.4 20 ml headspace vials with caps and septa.

6.5 Headspace vial crimper.

6.6 Microliter pipetting syringes.

6.7 Drying oven at 100 deg C vented into cold trap or other means of trapping hydrocarbons released.

6.8 Laboratory shaker or tumbler suitable for the headspace vials.

6.9 Personal protective equipment required for sampling the process such as rubber gloves and face and eye protection.

7.0 Reagents and Standards

7.1 Toluene, 99.9+% purity, HPLC grade.

7.2 Styrene, 99.9+% purity, HPLC grade.

7.3 Dry rubber of same type as the stripper crumb samples.

8.0 Sample Collection, Preservation and Storage

8.1 Collect a sample of crumb in a manner appropriate for the process equipment being sampled.

8.1.1 If conditions permit, this may be done by passing a stream of the crumb slurry through a strainer, thus separating the crumb from the water. Allow the water to drain freely, do not attempt to squeeze any water from the crumb. Results will not depend on the exact water content of the samples. Immediately place several pieces of crumb directly into a headspace vial. This should be done with rubber gloves to protect the hands from both the heat and from contact with residual hydrocarbons. The vial should be between ¼ and ⅓ full. Results do not depend on sample size as long as there is sufficient sample to reach an equilibrium vapor pressure in the headspace of the vial. Cap and seal the vial. Prepare each sample at least in duplicate. This is to minimize the effect of the variation that naturally occurs in the composition of non homogeneous crumb. The free water is not analyzed by this method and should be disposed of appropriately along with any unused rubber crumb.

8.1.2 Alternatively the process can be sampled in a specially constructed sealed bomb which can then be transported to the laboratory. The bomb is then cooled to ambient temperature by applying a stream of running water. The bomb can then be opened and the crumb separated from the water and the vials filled as described in section 8.1.1 of this method. The bomb may be stored up to 8 hours prior to transferring the crumb into vials.

8.2 The sealed headspace vials may be run immediately or may be stored up to 72 hours prior to running. It is possible that even longer storage times may be acceptable, but this must be verified for the particular type of sample being analyzed (see section 9.2.3 of this method). The main concern here is that some types of rubber eventually may flow, thus compacting the crumb so that the surface area is reduced. This may have some effect on the headspace equilibration.

9.0 Quality Control

9.1 The laboratory is required to operate a formal quality control program. This consists of an initial demonstration of the capability of the method as well as ongoing analysis of standards, blanks and spiked samples to demonstrate continued performance.

9.1.1 When the method is first set up a calibration is run (described in section 10 of this method) and an initial demonstration of method capability is performed (described in section 9.2 of this method). Also recovery efficiency for each type of sample must be determined (see section 9.4 of this method).

9.1.2 It is permissible to modify this method in order to improve separations or make other improvements, provided that all performance specifications are met. Each time a modification to the method is made it is necessary to repeat the calibration (section 10 of this method), the demonstration of method performance (section 9.2 of this method) and the recovery efficiency for each type of sample (section 9.4 of this method).

9.1.3 Ongoing performance should be monitored by running a spiked rubber standard. If this test fails to demonstrate that the analysis is in control, then corrective action must be taken. This method is described in section 9.3 of this method.

9.1.4 If new types of samples are being analyzed then recovery efficiency for each new type of sample must be determined. New type includes any change, such as polymer type, physical form or a significant change in the composition of the matrix.

9.2 Initial demonstration of method capability to establish the accuracy and precision of the method. This is to be run following the calibration described in section 10 of this method.

9.2.1 Prepare a series of identical spiked rubber standards as described in section 9.3 of this method. A sufficient number to determine statistical information on the test should be run. Ten may be a suitable number, depending on the quality control methodology used at the laboratory running the tests. These are run in the same manner as unknown samples (see section 11 of this method).

9.2.2 Determine mean and standard deviation for the results. Use these to determine the capability of the method and to calculate suitable control limits for the ongoing performance check which will utilize the same standards.

9.2.3 Prepare several additional spiked rubber standards and run 2 each day to determine the suitability of storage of the samples for 24, 48 and 72 hours or longer if longer storage times are desired.

9.3 A spiked rubber standard should be run on a regular basis to verify system performance. This would probably be done daily if samples are run daily. This is prepared in the same manner as the calibration standards (section 10.1 of this method), except that only one concentration of toluene and styrene is prepared. Choose concentrations of toluene and styrene that fall in the middle of the range expected in the stripper crumb and then do not change these unless there is a major change in the composition of the unknowns. If it becomes necessary to change the composition of this standard the initial performance demonstration must be repeated with the new standard (section 9.2 of this method).

9.3.1 Each day prepare one spiked rubber standard to be run the following day. The dry rubber may be prepared in bulk and stored for any length of time consistent with the shelf life of the product. The addition of water and hydrocarbons must be performed daily and all the steps described under section 10.1 of this method must be followed.

9.3.2 Run the spiked rubber standard prepared the previous day. Record the results and plot on an appropriate control chart or other means of determining statistical control.

9.3.3 If the results for the standard indicate that the test is out of control then corrective action must be taken. This may include a check on procedures, instrument settings, maintenance or recalibration. Samples may be stored (see section 8.2 of this method) until compliance is demonstrated.

9.4 Recovery efficiency must be determined once for each sample type and whenever modifications are made to the method.

9.4.1 For each sample type collect 12 samples from the process (section 8.1 of this method). This should be done when the process is operating in a normal manner and residual hydrocarbon levels are in the normal range. Half the vials and caps should be tared, labeled ‘‘spiked’’ and numbered 1 through 6. The other vials are labeled ‘‘unspiked’’ and need not be tared but are also numbered 1 through 6. Immediately on sampling, the vials should be capped to prevent loss of volatiles. Allow all the samples to cool completely to ambient temperature. Reweigh each of the vials labeled ‘‘spiked’’ to determine the weight of wet crumb inside.

9.4.2 The dry weight of rubber present in the wet crumb is estimated by multiplying the weight of wet crumb by the fraction of nonvolatiles typical for the sample. If this is not known, an additional quantity of crumb may be sampled, weighed, dried in an oven and reweighed to determine the fraction of volatiles and nonvolatiles prior to starting this procedure.

9.4.3 To the vials labeled ‘‘spiked’’ add an amount of a mixture of toluene and styrene that is between 40 and 60 % of the amount expected in the crumb. This is done by removing the cap, adding the mixture by syringe, touching the tip of the needle to the sample in order to remove the drop and then immediately recapping the vials. The mixture is not added through the septum, because a punctured septum may leak and vent vapors as the vial is heated. The weights of toluene and styrene added may be calculated from the volumes of the mixture added, its composition and density, or may be determined by the weight of the vials and caps prior to and after addition. The exact dry weight of rubber present and the concentration of residual toluene and styrene are not known at this time so an exact calculation of the concentration of hydrocarbons is not possible until the test is completed.

9.4.4 Place all the vials onto a shaker or tumbler for 24 ± 2 hours. This is essential in order for the hydrocarbons to be evenly distributed and completely absorbed into the rubber. If this is not followed the toluene and styrene will be mostly at the surface of the rubber and high results will be obtained.

9.4.5 Remove the vials from the shaker and tap them so that all the crumb settles to the bottom of the vials. Allow them to stand for 1 hour prior to analysis to allow any liquid to drain fully to the bottom.

9.4.6 Run the spiked and unspiked samples in the normal manner. Record the concentrations of toluene and styrene reported for each pair of spiked and unspiked samples with the same vial number.

9.4.7 Open each of the vials labeled ‘‘spiked’’, remove all the rubber crumb and place it into a tarred drying pan. Place in a 100 deg C oven for two hours, cool and reweigh. Subtract the weight of the tare to give the dry weight of rubber in each spiked vial. Calculate the concentration of toluene and styrene spiked into each vial as percent of dry rubber weight. This will be slightly different for each vial since the weights of dry rubber will be different.

9.4.8 For each hydrocarbon calculate the average recovery efficiency (R) using the following equations:

$R=R\_\_\Sigma(P_n)/6$ (average of the 6 individual R_n values)

Where:

$R_n=(C_{ns}—C_{nu)}\ /\ S_n$

Where:

n=vial number

Cns=concentration of compound measured in spiked sample number n.

Cnu=concentration of compound measured in unspiked sample number n.

Sn=theoretical concentration of compound spiked into sample n calculated in step 9.4.7

9.4.9 A different R value should be obtained for each compound (styrene and toluene) and for each sample type.

9.4.10 A value of R between 0.70 and 1.30 is acceptable.

9.4.11 R is used to correct all reported results for each compound by dividing the measured results of each compound by the R for that compound for the same sample type (see section 12.2 of this method.)

10.0 Calibration

10.1 Calibration standards are prepared by dosing known amounts of the hydrocarbons of interest into vials containing known amounts of rubber and water.

10.1.1 Cut a sufficient quantity of dry rubber of the same type as will be analyzed into pieces about the same size as that of the crumb. Place these in a single layer on a piece of aluminum foil or other suitable surface and place into a forced air oven at 100 °C for four hours. This is to remove any residual hydrocarbons that may be present. This step may be performed in advance.

10.1.2 Into each of a series of vials add 3.0 g of the dry rubber.

10.1.3 Into each vial add 1.0 ml distilled water or an amount that is close to the amount that will be present in the unknowns. The exact amount of water present does not have much effect on the analysis, but it is necessary to have a saturated environment. The water will also aid in the uniform distribution of the spiked hydrocarbons over the surface of the rubber after the vials are placed on the shaker (in step 10.1.5 of this method).

10.1.4 Into each vial add varying amounts of toluene and styrene by microliter syringe and cap the vials immediately to prevent loss. The tip of the needle should be carefully touched to the rubber in order to transfer the last drop to the rubber. Toluene and styrene may first be mixed together in suitable proportions and added together if desired. The weights of toluene and styrene added may be calculated from the volumes of the mixture added, its composition and density, or may be determined by the weight of the vials and caps prior to and after addition. Concentrations of added hydrocarbons are calculated as percent of the dry rubber weight. At least 5 standards should be prepared with the amounts of hydrocarbons added being calculated to cover the entire range possible in the unknowns. Retain two samples with no added hydrocarbons as blanks.

10.1.5 Place all the vials onto a shaker or tumbler for 24 ± 2 hours. This is essential in order for the hydrocarbons to be evenly distributed and completely absorbed into the rubber. If this is not followed the toluene and styrene will be mostly at the surface of the rubber and high results will be obtained.

10.1.6 Remove the vials from the shaker and tap them so that all the crumb settles to the bottom of the vials. Allow them to stand for 1 hour prior to analysis to allow any liquid to drain fully to the bottom.

10.2 Run the standards and blanks in the same manner as described for unknowns (section 11 of this method), starting with a blank, then in order of increasing hydrocarbon content and ending with the other blank.

10.3 Verify that the blanks are sufficiently free from toluene and styrene or any interfering hydrocarbons.

10.3.1 It is possible that trace levels may be present even in dry product. If levels are high enough that they will interfere with the calibration then the drying procedure in section 10.1.1 of this method should be reviewed and modified as needed to ensure that suitable standards can be prepared.

10.3.2 It is possible that the final blank is contaminated by the previous standard. If this is the case review and modify the sampler parameters as needed to eliminate this problem. If necessary it is possible to run blank samples between regular samples in order to reduce this problem, though it should not be necessary if the sampler is properly set up.

10.4 Enter the amounts of toluene and styrene added to each of the samples (as calculated in section 10.1.4 of this method) into the calibration table and perform a calibration utilizing the external standard method of analysis.

10.5 At low concentrations the calibration should be close to linear. If a wide range of levels are to be determined it may be desirable to apply a nonlinear calibration to get the best fit.

11.0 Procedure

11.1 Place the vials in the tray of the headspace sampler. Enter the starting and ending positions through the console of the sampler. For unknown samples each is run in duplicate to minimize the effect of variations in crumb composition. If excessive variation is noted it may be desirable to run more than two of each sample.

11.2 Make sure the correct method is loaded on the Chemstation. Turn on the gas flows and light the FID flame.

11.3 Start the sequence on the Chemstation. Press the START button on the headspace unit. The samples will be automatically injected after equilibrating for 30 minutes in the oven. As each sample is completed the Chemstation will calculate and print out the results as percent toluene and styrene in the crumb based on the dry weight of rubber.

12.0 Data Analysis and Calculations

12.1 For each set of duplicate samples calculate the average of the measured concentration of toluene and styrene. If more than two replicates of each sample are run calculate the average over all replicates.

12.2 For each sample correct the measured amounts of toluene and styrene using the following equation:

Corrected Result = C_m/R

Where:

C_m = Average measured concentration for that compound.

R = Recovery efficiency for that compound in the same sample type (see section 9.4 of this method)

12.3 Report the recovery efficiency (R) and the corrected results of toluene and styrene for each sample.

13.0 Method Performance

13.1 This method can be very sensitive and reproducible. The actual performance depends largely on the exact nature of the samples being analyzed. Actual performance must be determined by each laboratory for each sample type.

13.2 The main source of variation is the actual variation in the composition of non homogeneous crumb in a stripping system and the small sample sizes employed here. It therefore is the responsibility of each laboratory to determine the optimum number of replicates of each sample required to obtain accurate results.

14.0 Pollution Prevention

14.1 Samples should be kept sealed when possible in order to prevent evaporation of hydrocarbons.

14.2 When drying of samples is required it should be done in an oven which vents into a suitable device that can trap the hydrocarbons released.

14.3 Dispose of samples as described in section 15.

15.0 Waste Management

15.1 Excess stripper crumb and water as well as the contents of the used sample vials should be properly disposed of in accordance with local and federal regulations.

15.2 Preferably this will be accomplished by having a system of returning unused and spent samples to the process.

16.0 References

16.1 ‘‘HP 7694 Headspace Sampler—Operating and Service Manual’’, Hewlett-Packard Company, publication number G1290–90310, June 1993.

METHOD 313B—THE DETERMINATION OF RESIDUAL HYDROCARBON IN SOLUTION POLYMERS BY CAPILLARY GAS CHROMATOGRAPHY

1.0 Scope

1.1 This method is applicable to solution polymerized polybutadiene (PBD).

1.2 This method quantitatively determines n-hexane in wet crumb polymer at levels from 0.08 to 0.15% by weight.

1.3 This method may be extended to the determination of other hydrocarbons in solution produced polymers with proper experimentation and documentation.

2.0 Principle of Method

2.1 A weighed sample of polymer is dissolved in chloroform and the cement is coagulated with an isopropyl alcohol solution containing a specific amount of alpha-methyl styrene (AMS) as the internal standard. The extract of this coagulation is then injected into a gas chromatograph and separated into individual components. Quantification is achieved by the method of internal standardization.

3.0 Definitions

3.1 The definitions are included in the text as needed.

4.0 Interferences. [Reserved]

5.0 Safety

5.1 This method may involve hazardous materials, operations, and equipment. This method does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

6.0 Equipment and Supplies

6.1 Analytical balance, 160 g capacity, 0.1 mg resolution

6.2 Bottles, 2-oz capacity with poly-cap screw lids

6.3 Mechanical shaker

6.4 Syringe, 10–ul capacity

6.5 Syringe, 2.5–ml capacity, with 22 gauge 1.25 inch needle, PP/PE material, disposable

6.6 Gas chromatograph, Hewlett-Packard model 5890, or equivalent, configured with FID, split injector packed with silanized glass wool.

6.6.1 Establish the following gas chromatographic conditions, and allow the system to thoroughly equilibrate before use.

6.6.2 Injector parameters:

Injection technique=Split
Injector split flow=86 ml/min
Injector temperature=225 deg C

6.6.3 Oven temperature program:
Initial temperature=40 deg C
Initial time=6 min
Program rate=10 deg C/min
Upper limit temperature=175 deg C
Upper limit interval=10 min

6.6.4 Detector parameters:
Detector temperature=300 deg C
Hydrogen flow=30 ml/min
Air flow=350 ml/min
Nitrogen make up=26 ml/min

6.7 Gas chromatographic columns: SE–54 (5%-phenyl) (1%-vinyl)-methylpolysiloxane, 15 M×0.53 mm ID with a 1.2 micron film thickness, and a Carbowax 20M (polyethylene glycol), 15 M×0.53 mm ID with a 1.2 micron film thickness.

6.7.1 Column assembly: using a 0.53 mm ID butt connector union, join the 15 M×0.53 mm SE–54 column to the 15 M×0.53 mm Carbowax 20M. The SE–54 column will be inserted into the injector and the Carbowax 20M inserted into the detector after they have been joined.

6.7.2 Column parameters:

Helium flow=2.8 ml/min
Helium headpressure=2 psig

6.8 Centrifuge

6.9 Data collection system, Hewlett-Packard Model 3396, or equivalent

6.10 Pipet, 25–ml capacity, automatic dispensing, and 2 liter reservoir

6.11 Pipet, 2–ml capacity, volumetric delivery, class A

6.12 Flasks, 100 and 1000-ml capacity, volumetric, class A

6.13 Vial, serum, 50-ml capacity, red rubber septa and crimp ring seals

6.14 Sample collection basket fabricated out of wire mesh to allow for drainage

7.0 Chemicals and Reagents

CHEMICALS:

7.1 alpha-Methyl Styrene, C_9H_{10}, 99+% purity, CAS 98–83–9

7.2 n-Hexane, C_6H_{14}, 99+% purity, CAS 110–54–3

7.3 Isopropyl alcohol, C_3H_8O 99.5+% purity, reagent grade, CAS 67–63–0

7.4 Chloroform, $CHCl_3$, 99% min., CAS 67–66–3

REAGENTS:

7.5 Internal Standard Stock Solution: 10 mg/25 ml AMS in isopropyl alcohol.

7.5.1 Into a 25-ml beaker, weigh 0.4 g of AMS to the nearest 0.1 mg.

7.5.2 Quantitatively transfer this AMS into a 1-L volumetric flask. Dilute to the mark with isopropyl alcohol.

7.5.3 Transfer this solution to the automatic dispensing pipet reservoir. This will be labeled the AMS STOCK SOLUTION.

7.6 n-Hexane Stock Solution: 13mg/2ml hexane in isopropyl alcohol.

7.6.1 Into a 100-ml volumetric flask, weigh 0.65 g of n-hexane to the nearest 0.1 mg.

7.6.2 Dilute to the mark with isopropyl alcohol. This solution will be labeled the n-HEXANE STOCK SOLUTION.

8.0 Sample Collection, Preservation and Storage

8.1 A sampling device similar to Figure 1 is used to collect a non-vented crumb rubber sample at a location that is after the stripping operation but before the sample is exposed to the atmosphere.

8.2 The crumb rubber is allowed to cool before opening the sampling device and removing the sample.

8.3 The sampling device is opened and the crumb rubber sample is collected in the sampling basket.

8.4 One pound of crumb rubber sample is placed into a polyethylene bag. The bag is labeled with the time, date and sample location.

8.5 The sample should be delivered to the laboratory for testing within one hour of sampling.

8.6 Laboratory testing will be done within 3 hours of the sampling time.

8.7 No special storage conditions are required unless the storage time exceeds 3 hours in which case refrigeration of the samples is recommended.

9.0 Quality Control

9.1 For each sample type, 12 samples shall be obtained from the process for the recovery study. Half of the vials and caps shall be tared, labeled ‘‘spiked’’, and numbered 1 through 6. The other vials shall be labeled ‘‘unspiked’’ and need not be tared, but are also numbered 1 through 6.

9.2 Determine the % moisture content of the crumb sample. After determining the % moisture content, the correction factor for calculating the dry crumb weight can be determined by using the equation in section 12.2 of this method.

9.3 Run the spiked and unspiked samples in the normal manner. Record the concentrations of the n-hexane content of the mixed hexane reported for each pair of spiked and unspiked samples.

9.4 For the recovery study, each sample of crumb shall be dissolved in chloroform containing a known amount of mixed hexane solvent.

9.5 For each hydrocarbon, calculate the recovery efficiency (R) using the following equations:

$M_r = M_s - M_u$

$R = M_r/S$

Where:

M_u=Measured amount of compound in the unspiked sample

M_s=Measured amount of compound in the spiked sample

M_r=Measured amount of the spiked compound

S=Amount of compound added to the spiked sample

R=Fraction of spiked compound recovered

9.6 Normally a value of R between 0.70 and 1.30 is acceptable.

9.7 R is used to correct all reported results for each compound by dividing the measured results of each compound by the R for that compound for the same sample type.

10.0 Calibration

10.1 Using the AMS STOCK SOLUTION equipped with the automatic dispensing pipet (7.5.3 of this method), transfer 25.0 ml of the internal standard solution into an uncapped 50-ml serum vial.

10.2 Using a 2.0 ml volumetric pipet, quantitatively transfer 2.0 ml of the n-HEXANE STOCK SOLUTION (7.6.2 of this method) into the 50-ml serum vial and cap. This solution will be labeled the CALIBRATION SOLUTION.

10.3 Using the conditions prescribed (6.6 of this method), inject 1 µl of the supernate.

10.4 Obtain the peak areas and calculate the response factor as described in the calculations section (12.1 of this method).

11.0 Procedure

11.1 Determination of Dry Polymer Weight

11.1.1 Remove wet crumb from the polyethylene bag and place on paper towels to absorb excess surface moisture.

11.1.2 Cut small slices or cubes from the center of the crumb sample to improve sample uniformity and further eliminate surface moisture.

11.1.3 A suitable gravimetric measurement should be made on a sample of this wet crumb to determine the correction factor needed to calculate the dry polymer weight.

11.2 Determination of n-Hexane in Wet Crumb

11.2.1 Remove wet crumb from the polyethylene bag and place on paper towels to absorb excess surface moisture.

11.2.2 Cut small slices or cubes from the center of the crumb sample to improve sample uniformity and further eliminate surface moisture.

11.2.3 Into a tared 2 oz bottle, weigh 1.5 g of wet polymer to the nearest 0.1 mg.

11.2.4 Add 25 ml of chloroform to the 2 oz bottle and cap.

11.2.5 Using a mechanical shaker, shake the bottle until the polymer dissolves.

11.2.6 Using the autodispensing pipet, add 25.0 ml of the AMS STOCK SOLUTION (7.5.3 of this method) to the dissolved polymer solution and cap.

11.2.7 Using a mechanical shaker, shake the bottle for 10 minutes to coagulate the dissolved polymer.

11.2.8 Centrifuge the sample for 3 minutes at 2000 rpm.

11.2.9 Using the conditions prescribed (6.6 of this method), chromatograph 1 µl of the supernate.

11.2.10 Obtain the peak areas and calculate the concentration of the component of interest as described in the calculations (12.2 of this method).

12.0 Calculations

12.1 Calibration:

$RF_x = (W_x \times A_{is}) / (W_{is} \times A_x)$

Where:

RF_x=the relative response factor for n-hexane

W_x=the weight (g) of n-hexane in the CALIBRATION SOLUTION

A_{is}=the area of AMS

W_{is}=the weight (g) of AMS in the CALIBRATION SOLUTION

A_x=the area of n-hexane

12.2 Procedure:

12.2.1 Correction Factor for calculating dry crumb weight.

F=1—(% moisture / 100)

Where:

F=Correction factor for calculating dry crumb weight

% moisture determined by appropriate method

12.2.2 Moisture adjustment for chromatographic determination.

$W_s = F \times W_c$

Where:

W_s=the weight (g) of the dry polymer corrected for moisture

F=Correction factor for calculating dry crumb weight

W_c=the weight (g) of the wet crumb in section 9.6

12.2.3 Concentration (ppm) of hexane in the wet crumb.

$ppm_x = (A_x * RF_x * W_{is} * 10000) / (A_{is} * W_s)$

Where:

ppm_x=parts per million of n-hexane in the polymer

A_x=the area of n-hexane

RF_x=the relative response factor for n-hexane

W_{is}=the weight (g) of AMS in the sample solution

A_{is}=the area of AMS

W_s=the weight (g) of the dry polymer corrected for moisture

13.0 Method Performance

13.1 Precision for the method was determined at the 0.08% level.

The standard deviation was 0.01 and the percent relative standard deviation (RSD) was 16.3 % with five degrees of freedom.

14.0 Waste Generation

14.1 Waste generation should be minimized where possible.

15.0 Waste Management

15.1 Discard liquid chemical waste into the chemical waste drum.

15.2 Discard polymer waste into the polymer waste container.

16.0 References

16.1 This method is based on Goodyear Chemical Division Test Method E–964.

METHOD 315—DETERMINATION OF PARTICULATE AND METHYLENE CHLORIDE EXTRACTABLE MATTER (MCEM) FROM SELECTED SOURCES AT PRIMARY ALUMINUM PRODUCTION FACILITIES

NOTE: This method does not include all of the specifications (e.g., equipment and supplies) and procedures (e.g., sampling and analytical) essential to its performance. Some material is incorporated by reference from other methods in this part. Therefore, to obtain reliable results, persons using this method should have a thorough knowledge of at least the following additional test methods: Method 1, Method 2, Method 3, and Method 5 of 40 CFR part 60, appendix A.

1.0 Scope and Application.

1.1 Analytes. Particulate matter (PM). No CAS number assigned. Methylene chloride extractable matter (MCEM). No CAS number assigned.

1.2 Applicability. This method is applicable for the simultaneous determination of PM and MCEM when specified in an applicable regulation. This method was developed by consensus with the Aluminum Association and the U.S. Environmental Protection Agency (EPA) and has limited precision estimates for MCEM; it should have similar precision to Method 5 for PM in 40 CFR part 60, appendix A since the procedures are similar for PM.

1.3 Data quality objectives. Adherence to the requirements of this method will enhance the quality of the data obtained from air pollutant sampling methods.

2.0 Summary of Method.

Particulate matter and MCEM are withdrawn isokinetically from the source. PM is collected on a glass fiber filter maintained at a temperature in the range of 120 ± 14 °C (248 ±25 °F) or such other temperature as specified by an applicable subpart of the standards or approved by the Administrator for a particular application. The PM mass, which includes any material that condenses on the probe and is subsequently removed in an acetone rinse or on the filter at or above the filtration temperature, is determined gravimetrically after removal of uncombined water. MCEM is then determined by adding a methylene chloride rinse of the probe and filter holder, extracting the condensable hydrocarbons collected in the impinger water, adding an acetone rinse followed by a methylene chloride rinse of the sampling train components after the filter and before the silica gel impinger, and determining residue gravimetrically after evaporating the solvents.

3.0 Definitions. [Reserved]

4.0 Interferences. [Reserved]

5.0 Safety.

This method may involve hazardous materials, operations, and equipment. This method does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to performing this test method.

6.0 Equipment and Supplies.

NOTE: Mention of trade names or specific products does not constitute endorsement by the EPA.

6.1 Sample collection. The following items are required for sample collection:

6.1.1 Sampling train. A schematic of the sampling train used in this method is shown in Figure 5–1, Method 5, 40 CFR part 60, appendix A. Complete construction details are given in APTD–0581 (Reference 2 in section 17.0 of this method); commercial models of this train are also available. For changes from APTD–0581 and for allowable modifications of the train shown in Figure 5–1, Method 5, 40 CFR part 60, appendix A, see the following subsections.

NOTE: The operating and maintenance procedures for the sampling train are described in APTD–0576 (Reference 3 in section 17.0 of this method). Since correct usage is important in obtaining valid results, all users should read APTD–0576 and adopt the operating and maintenance procedures outlined in it, unless otherwise specified herein. The use of grease for sealing sampling train components is not recommended because many greases are soluble in methylene chloride. The sampling train consists of the following components:

6.1.1.1 Probe nozzle. Glass or glass lined with sharp, tapered leading edge. The angle of taper shall be ≤30 °, and the taper shall be on the outside to preserve a constant internal diameter. The probe nozzle shall be of the button-hook or elbow design, unless otherwise specified by the Administrator. Other materials of construction may be used, subject to the approval of the Administrator. A range of nozzle sizes suitable for isokinetic sampling should be available. Typical nozzle sizes range from 0.32 to 1.27 cm (⅛to ½ in.) inside diameter (ID) in increments of 0.16 cm (¹⁄₁₆in.). Larger nozzle sizes are also available if higher volume sampling trains are used. Each nozzle shall be calibrated according to the procedures outlined in section 10.0 of this method.

6.1.1.2 Probe liner. Borosilicate or quartz glass tubing with a heating system capable of maintaining a probe gas temperature at the exit end during sampling of 120±14 °C (248±25 °F), or such other temperature as specified by an applicable subpart of the standards or approved by the Administrator for a particular application. Because the actual temperature at the outlet of the probe is not usually monitored during sampling, probes constructed according to APTD–0581 and using the calibration curves of APTD–0576 (or calibrated according to the procedure outlined in APTD–0576) will be considered acceptable. Either borosilicate or quartz glass probe liners may be used for stack temperatures up to about 480 °C (900 °F); quartz liners shall be used for temperatures between 480 and 900 °C (900 and 1,650 °F). Both types of liners may be used at higher temperatures than specified for short periods of time, subject to the approval of the Administrator. The softening temperature for borosilicate glass is 820 °C (1,500 °F) and for quartz glass it is 1,500 °C (2,700 °F).

6.1.1.3 Pitot tube. Type S, as described in section 6.1 of Method 2, 40 CFR part 60, appendix A, or other device approved by the Administrator. The pitot tube shall be attached to the probe (as shown in Figure 5–1 of Method 5, 40 CFR part 60, appendix A) to allow constant monitoring of the stack gas velocity. The impact (high pressure) opening plane of the pitot tube shall be even with or above the nozzle entry plane (see Method 2, Figure 2–6b, 40 CFR part 60, appendix A) during sampling. The Type S pitot tube assembly shall have a known coefficient, determined as outlined in section 10.0 of Method 2, 40 CFR part 60, appendix A.

6.1.1.4 Differential pressure gauge. Inclined manometer or equivalent device (two), as described in section 6.2 of Method 2, 40 CFR part 60, appendix A. One manometer shall be used for velocity head (Dp) readings, and the other, for orifice differential pressure readings.

6.1.1.5 Filter holder. Borosilicate glass, with a glass frit filter support and a silicone rubber gasket. The holder design shall provide a positive seal against leakage from the outside or around the filter. The holder shall be attached immediately at the outlet of the probe (or cyclone, if used).

6.1.1.6 Filter heating system. Any heating system capable of maintaining a temperature around the filter holder of 120±14 °C (248±25 °F) during sampling, or such other temperature as specified by an applicable subpart of the standards or approved by the Administrator for a particular application. Alternatively, the tester may opt to operate the equipment at a temperature lower than that specified. A temperature gauge capable of measuring temperature to within 3 °C (5.4 °F) shall be installed so that the temperature around the filter holder can be regulated and monitored during sampling. Heating systems other than the one shown in APTD–0581 may be used.

6.1.1.7 Temperature sensor. A temperature sensor capable of measuring temperature to within ±3 °C (5.4 °F) shall be installed so that the sensing tip of the temperature sensor is in direct contact with the sample gas, and the temperature around the filter holder can be regulated and monitored during sampling.

6.1.1.8 Condenser. The following system shall be used to determine the stack gas moisture content: four glass impingers connected in series with leak-free ground glass fittings. The first, third, and fourth impingers shall be of the Greenburg-Smith design, modified by replacing the tip with a 1.3 cm (1/2 in.) ID glass tube extending to about 1.3 cm (1/2 in.) from the bottom of the flask. The second impinger shall be of the Greenburg-Smith design with the standard tip. The first and second impingers shall contain known quantities of water (section 8.3.1 of this method), the third shall be empty, and the fourth shall contain a known weight of silica gel or equivalent desiccant. A temperature sensor capable of measuring temperature to within 1 °C (2 °F) shall be placed at the outlet of the fourth impinger for monitoring.

6.1.1.9 Metering system. Vacuum gauge, leak-free pump, temperature sensors capable of measuring temperature to within 3 °C (5.4 °F), dry gas meter (DGM) capable of measuring volume to within 2 percent, and related equipment, as shown in Figure 5–1 of Method 5, 40 CFR part 60, appendix A. Other metering systems capable of maintaining sampling rates within 10 percent of isokinetic and of determining sample volumes to within 2 percent may be used, subject to the approval of the Administrator.

When the metering system is used in conjunction with a pitot tube, the system shall allow periodic checks of isokinetic rates.

6.1.1.10 Sampling trains using metering systems designed for higher flow rates than that described in APTD–0581 or APTD–0576 may be used provided that the specifications of this method are met.

6.1.2 Barometer. Mercury, aneroid, or other barometer capable of measuring atmospheric pressure to within 2.5 mm (0.1 in.) Hg.

NOTE: The barometric reading may be obtained from a nearby National Weather Service station. In this case, the station value (which is the absolute barometric pressure) shall be requested and an adjustment for elevation differences between the weather station and sampling point shall be made at a rate of minus 2.5 mm (0.1 in) Hg per 30 m (100 ft) elevation increase or plus 2.5 mm (0.1 in) Hg per 30 m (100 ft) elevation decrease.

6.1.3 Gas density determination equipment. Temperature sensor and pressure gauge, as described in sections 6.3 and 6.4 of Method 2, 40 CFR part 60, appendix A, and gas analyzer, if necessary, as described in Method 3, 40 CFR part 60, appendix A. The temperature sensor shall, preferably, be permanently attached to the pitot tube or sampling probe in a fixed configuration, such that the tip of the sensor extends beyond the leading edge of the probe sheath and does not touch any metal. Alternatively, the sensor may be attached just prior to use in the field. Note, however, that if the temperature sensor is attached in the field, the sensor must be placed in an interference-free arrangement with respect to the Type S pitot tube openings (see Method 2, Figure 2–4, 40 CFR part 60, appendix A). As a second alternative, if a difference of not more than 1 percent in the average velocity measurement is to be introduced, the temperature sensor need not be attached to the probe or pitot tube. (This alternative is subject to the approval of the Administrator.)

6.2 Sample recovery. The following items are required for sample recovery:

6.2.1 Probe-liner and probe-nozzle brushes. Nylon or Teflon® bristle brushes with stainless steel wire handles. The probe brush shall have extensions (at least as long as the probe) constructed of stainless steel, nylon, Teflon®, or similarly inert material. The brushes shall be properly sized and shaped to brush out the probe liner and nozzle.

6.2.2 Wash bottles. Glass wash bottles are recommended. Polyethylene or tetrafluoroethylene (TFE) wash bottles may be used, but they may introduce a positive bias due to contamination from the bottle. It is recommended that acetone not be stored in polyethylene or TFE bottles for longer than a month.

6.2.3 Glass sample storage containers. Chemically resistant, borosilicate glass bottles, for acetone and methylene chloride washes and impinger water, 500 ml or 1,000 ml. Screw-cap liners shall either be rubber-backed Teflon® or shall be constructed so as to be leak-free and resistant to chemical attack by acetone or methylene chloride. (Narrow-mouth glass bottles have been found to be less prone to leakage.) Alternatively, polyethylene bottles may be used.

6.2.4 Petri dishes. For filter samples, glass, unless otherwise specified by the Administrator.

6.2.5 Graduated cylinder and/or balance. To measure condensed water, acetone wash and methylene chloride wash used during field recovery of the samples, to within 1 ml or 1 g. Graduated cylinders shall have subdivisions no greater than 2 ml. Most laboratory balances are capable of weighing to the nearest 0.5 g or less. Any such balance is suitable for use here and in section 6.3.4 of this method.

6.2.6 Plastic storage containers. Air-tight containers to store silica gel.

6.2.7 Funnel and rubber policeman. To aid in transfer of silica gel to container; not necessary if silica gel is weighed in the field.

6.2.8 Funnel. Glass or polyethylene, to aid in sample recovery.

6.3 Sample analysis. The following equipment is required for sample analysis:

6.3.1 Glass or Teflon® weighing dishes.

6.3.2 Desiccator. It is recommended that fresh desiccant be used to minimize the chance for positive bias due to absorption of organic material during drying.

6.3.3 Analytical balance. To measure to within 0.1 mg.

6.3.4 Balance. To measure to within 0.5 g.

6.3.5 Beakers. 250 ml.

6.3.6 Hygrometer. To measure the relative humidity of the laboratory environment.

6.3.7 Temperature sensor. To measure the temperature of the laboratory environment.

6.3.8 Buchner fritted funnel. 30 ml size, fine (<50 micron)-porosity fritted glass.

6.3.9 Pressure filtration apparatus.

6.3.10 Aluminum dish. Flat bottom, smooth sides, and flanged top, 18 mm deep and with an inside diameter of approximately 60 mm.

7.0 Reagents and Standards.

7.1 Sample collection. The following reagents are required for sample collection:

7.1.1 Filters. Glass fiber filters, without organic binder, exhibiting at least 99.95 percent efficiency (<0.05 percent penetration) on 0.3 micron dioctyl phthalate smoke particles. The filter efficiency test shall be conducted in accordance with ASTM Method D 2986–95A (incorporated by reference in §63.841 of this part). Test data from the supplier's quality control program are sufficient for this purpose. In sources containing $S0_2$ or

$S0_3$, the filter material must be of a type that is unreactive to $S0_2$ or $S0_3$. Reference 10 in section 17.0 of this method may be used to select the appropriate filter.

7.1.2 Silica gel. Indicating type, 6 to l6 mesh. If previously used, dry at l75 °C (350 °F) for 2 hours. New silica gel may be used as received. Alternatively, other types of desiccants (equivalent or better) may be used, subject to the approval of the Administrator.

7.1.3 Water. When analysis of the material caught in the impingers is required, deionized distilled water shall be used. Run blanks prior to field use to eliminate a high blank on test samples.

7.1.4 Crushed ice.

7.1.5 Stopcock grease. Acetone-insoluble, heat-stable silicone grease. This is not necessary if screw-on connectors with Teflon'' sleeves, or similar, are used. Alternatively, other types of stopcock grease may be used, subject to the approval of the Administrator. [Caution: Many stopcock greases are methylene chloride-soluble. Use sparingly and carefully remove prior to recovery to prevent contamination of the MCEM analysis.]

7.2 Sample recovery. The following reagents are required for sample recovery:

7.2.1 Acetone. Acetone with blank values < 1 ppm, by weight residue, is required. Acetone blanks may be run prior to field use, and only acetone with low blank values may be used. In no case shall a blank value of greater than 1E–06 of the weight of acetone used be subtracted from the sample weight.

NOTE: This is more restrictive than Method 5, 40 CFR part 60, appendix A. At least one vendor (Supelco Incorporated located in Bellefonte, Pennsylvania) lists <1 mg/l as residue for its Environmental Analysis Solvents.

7.2.2 Methylene chloride. Methylene chloride with a blank value <1.5 ppm, by weight, residue. Methylene chloride blanks may be run prior to field use, and only methylene chloride with low blank values may be used. In no case shall a blank value of greater than 1.6E–06 of the weight of methylene chloride used be subtracted from the sample weight.

NOTE: A least one vendor quotes <1 mg/l for Environmental Analysis Solvents-grade methylene chloride.

7.3 Sample analysis. The following reagents are required for sample analysis:

7.3.l Acetone. Same as in section 7.2.1 of this method.

7.3.2 Desiccant. Anhydrous calcium sulfate, indicating type. Alternatively, other types of desiccants may be used, subject to the approval of the Administrator.

7.3.3 Methylene chloride. Same as in section 7.2.2 of this method.

8.0 Sample Collection, Preservation, Storage, and Transport.

NOTE: The complexity of this method is such that, in order to obtain reliable results, testers should be trained and experienced with the test procedures.

8.11 Pretest preparation. It is suggested that sampling equipment be maintained according to the procedures described in APTD–0576.

8.1.1 Weigh several 200 g to 300 g portions of silica gel in airtight containers to the nearest 0.5 g. Record on each container the total weight of the silica gel plus container. As an alternative, the silica gel need not be preweighed but may be weighed directly in its impinger or sampling holder just prior to train assembly.

8.1.2 A batch of glass fiber filters, no more than 50 at a time, should placed in a soxhlet extraction apparatus and extracted using methylene chloride for at least 16 hours. After extraction, check filters visually against light for irregularities, flaws, or pinhole leaks. Label the shipping containers (glass or plastic petri dishes), and keep the filters in these containers at all times except during sampling and weighing.

8.1.3 Desiccate the filters at 20 ±5.6 °C (68 ±10 °F) and ambient pressure for at least 24 hours and weigh at intervals of at least 6 hours to a constant weight, i.e., <0.5 mg change from previous weighing; record results to the nearest 0.1 mg. During each weighing the filter must not be exposed to the laboratory atmosphere for longer than 2 minutes and a relative humidity above 50 percent. Alternatively (unless otherwise specified by the Administrator), the filters may be oven-dried at 104 °C (220 °F) for 2 to 3 hours, desiccated for 2 hours, and weighed. Procedures other than those described, which account for relative humidity effects, may be used, subject to the approval of the Administrator.

8.2 Preliminary determinations.

8.2.1 Select the sampling site and the minimum number of sampling points according to Method 1, 40 CFR part 60, appendix A or as specified by the Administrator. Determine the stack pressure, temperature, and the range of velocity heads using Method 2, 40 CFR part 60, appendix A; it is recommended that a leak check of the pitot lines (see section 8.1 of Method 2, 40 CFR part 60, appendix A) be performed. Determine the moisture content using Approximation Method 4 (section 1.2 of Method 4, 40 CFR part 60, appendix A) or its alternatives to make isokinetic sampling rate settings. Determine the stack gas dry molecular weight, as described in section 8.6 of Method 2, 40 CFR part 60, appendix A; if integrated Method 3 sampling is used for molecular weight determination, the integrated bag sample shall be taken simultaneously with, and for the same total length of time as, the particulate sample run.

8.2.2 Select a nozzle size based on the range of velocity heads such that it is not necessary to change the nozzle size in order to maintain isokinetic sampling rates. During the run, do not change the nozzle size. Ensure that the proper differential pressure gauge is chosen for the range of velocity heads encountered (see section 8.2 of Method 2, 40 CFR part 60, appendix A).

8.2.3 Select a suitable probe liner and probe length such that all traverse points can be sampled. For large stacks, consider sampling from opposite sides of the stack to reduce the required probe length.

8.2.4 Select a total sampling time greater than or equal to the minimum total sampling time specified in the test procedures for the specific industry such that: (1) The sampling time per point is not less than 2 minutes (or some greater time interval as specified by the Administrator); and (2) the sample volume taken (corrected to standard conditions) will exceed the required minimum total gas sample volume. The latter is based on an approximate average sampling rate.

8.2.5 The sampling time at each point shall be the same. It is recommended that the number of minutes sampled at each point be an integer or an integer plus one-half minute, in order to eliminate timekeeping errors.

8.2.6 In some circumstances (e.g., batch cycles), it may be necessary to sample for shorter times at the traverse points and to obtain smaller gas sample volumes. In these cases, the Administrator's approval must first be obtained.

8.3 Preparation of sampling train.

8.3.1 During preparation and assembly of the sampling train, keep all openings where contamination can occur covered until just prior to assembly or until sampling is about to begin. Place l00 ml of water in each of the first two impingers, leave the third impinger empty, and transfer approximately 200 to 300 g of preweighed silica gel from its container to the fourth impinger. More silica gel may be used, but care should be taken to ensure that it is not entrained and carried out from the impinger during sampling. Place the container in a clean place for later use in the sample recovery. Alternatively, the weight of the silica gel plus impinger may be determined to the nearest 0.5 g and recorded.

8.3.2 Using a tweezer or clean disposable surgical gloves, place a labeled (identified) and weighed filter in the filter holder. Be sure that the filter is properly centered and the gasket properly placed so as to prevent the sample gas stream from circumventing the filter. Check the filter for tears after assembly is completed.

8.3.3 When glass liners are used, install the selected nozzle using a Viton A 0-ring when stack temperatures are less than 260 °C (500 °F) and an asbestos string gasket when temperatures are higher. See APTD–0576 for details. Mark the probe with heat-resistant tape or by some other method to denote the proper distance into the stack or duct for each sampling point.

8.3.4 Set up the train as in Figure 5-1 of Method 5, 40 CFR part 60, appendix A, using (if necessary) a very light coat of silicone grease on all ground glass joints, greasing only the outer portion (see APTD–0576) to avoid possibility of contamination by the silicone grease. Subject to the approval of the Administrator, a glass cyclone may be used between the probe and filter holder when the total particulate catch is expected to exceed 100 mg or when water droplets are present in the stack gas.

8.3.5 Place crushed ice around the impingers.

8.4 Leak-check procedures.

8.4.1 Leak check of metering system shown in Figure 5-1 of Method 5, 40 CFR part 60, appendix A. That portion of the sampling train from the pump to the orifice meter should be leak-checked prior to initial use and after each shipment. Leakage after the pump will result in less volume being recorded than is actually sampled. The following procedure is suggested (see Figure 5–2 of Method 5, 40 CFR part 60, appendix A): Close the main valve on the meter box. Insert a one-hole rubber stopper with rubber tubing attached into the orifice exhaust pipe. Disconnect and vent the low side of the orifice manometer. Close off the low side orifice tap. Pressurize the system to 13 to 18 cm (5 to 7 in.) water column by blowing into the rubber tubing. Pinch off the tubing, and observe the manometer for 1 minute. A loss of pressure on the manometer indicates a leak in the meter box; leaks, if present, must be corrected.

8.4.2 Pretest leak check. A pretest leak-check is recommended but not required. If the pretest leak-check is conducted, the following procedure should be used.

8.4.2.1 After the sampling train has been assembled, turn on and set the filter and probe heating systems to the desired operating temperatures. Allow time for the temperatures to stabilize. If a Viton A 0-ring or other leak-free connection is used in assembling the probe nozzle to the probe liner, leak-check the train at the sampling site by plugging the nozzle and pulling a 380 mm (15 in.) Hg vacuum.

NOTE: A lower vacuum may be used, provided that it is not exceeded during the test.

8.4.2.2 If an asbestos string is used, do not connect the probe to the train during the leak check. Instead, leak-check the train by first plugging the inlet to the filter holder (cyclone, if applicable) and pulling a 380 mm (15 in.) Hg vacuum. (See NOTE in section

8.4.2.1 of this method). Then connect the probe to the train and perform the leak check at approximately 25 mm (1 in.) Hg vacuum; alternatively, the probe may be leak-checked with the rest of the sampling train, in one step, at 380 mm (15 in.) Hg vacuum. Leakage rates in excess of 4 percent of the average sampling rate or 0.00057 m^3/min (0.02 cfm), whichever is less, are unacceptable.

8.4.2.3 The following leak check instructions for the sampling train described in APTD–0576 and APTD–058l may be helpful. Start the pump with the bypass valve fully open and the coarse adjust valve completely closed. Partially open the coarse adjust valve and slowly close the bypass valve until the desired vacuum is reached. *Do not* reverse the direction of the bypass valve, as this will cause water to back up into the filter holder. If the desired vacuum is exceeded, either leak-check at this higher vacuum or end the leak check as shown below and start over.

8.4.2.4 When the leak check is completed, first slowly remove the plug from the inlet to the probe, filter holder, or cyclone (if applicable) and immediately turn off the vacuum pump. This prevents the water in the impingers from being forced backward into the filter holder and the silica gel from being entrained backward into the third impinger.

8.4.3 Leak checks during sample run. If, during the sampling run, a component (e.g., filter assembly or impinger) change becomes necessary, a leak check shall be conducted immediately before the change is made. The leak check shall be done according to the procedure outlined in section 8.4.2 of this method, except that it shall be done at a vacuum equal to or greater than the maximum value recorded up to that point in the test. If the leakage rate is found to be no greater than 0.00057 m^3/min (0.02 cfm) or 4 percent of the average sampling rate (whichever is less), the results are acceptable, and no correction will need to be applied to the total volume of dry gas metered; if, however, a higher leakage rate is obtained, either record the leakage rate and plan to correct the sample volume as shown in section 12.3 of this method or void the sample run.

NOTE: Immediately after component changes, leak checks are optional; if such leak checks are done, the procedure outlined in section 8.4.2 of this method should be used.

8.4.4 Post-test leak check. A leak check is mandatory at the conclusion of each sampling run. The leak check shall be performed in accordance with the procedures outlined in section 8.4.2 of this method, except that it shall be conducted at a vacuum equal to or greater than the maximum value reached during the sampling run. If the leakage rate is found to be no greater than 0.00057 m^3/min (0.02 cfm) or 4 percent of the average sampling rate (whichever is less), the results are acceptable, and no correction need be applied to the total volume of dry gas metered. If, however, a higher leakage rate is obtained, either record the leakage rate and correct the sample volume, as shown in section 12.4 of this method, or void the sampling run.

8.5 Sampling train operation. During the sampling run, maintain an isokinetic sampling rate (within l0 percent of true isokinetic unless otherwise specified by the Administrator) and a temperature around the filter of 120 14 °C (248 25 °F), or such other temperature as specified by an applicable subpart of the standards or approved by the Administrator.

8.5.1 For each run, record the data required on a data sheet such as the one shown in Figure 5–2 of Method 5, 40 CFR part 60, appendix A. Be sure to record the initial reading. Record the DGM readings at the beginning and end of each sampling time increment, when changes in flow rates are made, before and after each leak-check, and when sampling is halted. Take other readings indicated by Figure 5–2 of Method 5, 40 CFR part 60, appendix A at least once at each sample point during each time increment and additional readings when significant changes (20 percent variation in velocity head readings) necessitate additional adjustments in flow rate. Level and zero the manometer. Because the manometer level and zero may drift due to vibrations and temperature changes, make periodic checks during the traverse.

8.5.2 Clean the portholes prior to the test run to minimize the chance of sampling deposited material. To begin sampling, remove the nozzle cap and verify that the filter and probe heating systems are up to temperature and that the pitot tube and probe are properly positioned. Position the nozzle at the first traverse point with the tip pointing directly into the gas stream. Immediately start the pump and adjust the flow to isokinetic conditions. Nomographs are available, which aid in the rapid adjustment of the isokinetic sampling rate without excessive computations. These nomographs are designed for use when the Type S pitot tube coefficient (C_p) is 0.85 # 0.02 and the stack gas equivalent density (dry molecular weight) is 29 ± 4. APTD–0576 details the procedure for using the nomographs. If C_p and M_d are outside the above-stated ranges, do not use the nomographs unless appropriate steps (see Reference 7 in section 17.0 of this method) are taken to compensate for the deviations.

8.5.3 When the stack is under significant negative pressure (height of impinger stem), close the coarse adjust valve before inserting the probe into the stack to prevent water from backing into the filter holder. If necessary, the pump may be turned on with the coarse adjust valve closed.

8.5.4 When the probe is in position, block off the openings around the probe and porthole to prevent unrepresentative dilution of the gas stream.

8.5.5 Traverse the stack cross-section, as required by Method 1, 40 CFR part 60, appendix A or as specified by the Administrator, being careful not to bump the probe nozzle into the stack walls when sampling near the walls or when removing or inserting the probe through the portholes; this minimizes the chance of extracting deposited material.

8.5.6 During the test run, make periodic adjustments to keep the temperature around the filter holder at the proper level; add more ice and, if necessary, salt to maintain a temperature of less than 20 °C (68 °F) at the condenser/silica gel outlet. Also, periodically check the level and zero of the manometer.

8.5.7 If the pressure drop across the filter becomes too high, making isokinetic sampling difficult to maintain, the filter may be replaced in the midst of the sample run. It is recommended that another complete filter assembly be used rather than attempting to change the filter itself. Before a new filter assembly is installed, conduct a leak check (see section 8.4.3 of this method). The total PM weight shall include the summation of the filter assembly catches.

8.5.8 A single train shall be used for the entire sample run, except in cases where simultaneous sampling is required in two or more separate ducts or at two or more different locations within the same duct, or in cases where equipment failure necessitates a change of trains. In all other situations, the use of two or more trains will be subject to the approval of the Administrator.

NOTE: When two or more trains are used, separate analyses of the front-half and (if applicable) impinger catches from each train shall be performed, unless identical nozzle sizes were used in all trains, in which case the front-half catches from the individual trains may be combined (as may the impinger catches) and one analysis of the front-half catch and one analysis of the impinger catch may be performed.

8.5.9 At the end of the sample run, turn off the coarse adjust valve, remove the probe and nozzle from the stack, turn off the pump, record the final DGM reading, and then conduct a post-test leak check, as outlined in section 8.4.4 of this method. Also leak-check the pitot lines as described in section 8.1 of Method 2, 40 CFR part 60, appendix A. The lines must pass this leak check in order to validate the velocity head data.

8.6 Calculation of percent isokinetic. Calculate percent isokinetic (see Calculations, section 12.12 of this method) to determine whether a run was valid or another test run should be made. If there was difficulty in maintaining isokinetic rates because of source conditions, consult the Administrator for possible variance on the isokinetic rates.

8.7 Sample recovery.

8.7.1 Proper cleanup procedure begins as soon as the probe is removed from the stack at the end of the sampling period. Allow the probe to cool.

8.7.2 When the probe can be safely handled, wipe off all external PM near the tip of the probe nozzle and place a cap over it to prevent losing or gaining PM. Do not cap off the probe tip tightly while the sampling train is cooling down. This would create a vacuum in the filter holder, thus drawing water from the impingers into the filter holder.

8.7.3 Before moving the sample train to the cleanup site, remove the probe from the sample train, wipe off the silicone grease, and cap the open outlet of the probe. Be careful not to lose any condensate that might be present. Wipe off the silicone grease from the filter inlet where the probe was fastened and cap it. Remove the umbilical cord from the last impinger and cap the impinger. If a flexible line is used between the first impinger or condenser and the filter holder, disconnect the line at the filter holder and let any condensed water or liquid drain into the impingers or condenser. After wiping off the silicone grease, cap off the filter holder outlet and impinger inlet. Ground-glass stoppers, plastic caps, or serum caps may be used to close these openings.

8.7.4 Transfer the probe and filter-impinger assembly to the cleanup area. This area should be clean and protected from the wind so that the chances of contaminating or losing the sample will be minimized.

8.7.5 Save a portion of the acetone and methylene chloride used for cleanup as blanks. Take 200 ml of each solvent directly from the wash bottle being used and place it in glass sample containers labeled ‘‘acetone blank’’ and ‘‘methylene chloride blank,’’ respectively.

8.7.6 Inspect the train prior to and during disassembly and note any abnormal conditions. Treat the samples as follows:

8.7.6.1 Container No. 1. Carefully remove the filter from the filter holder, and place it in its identified petri dish container. Use a pair of tweezers and/or clean disposable surgical gloves to handle the filter. If it is necessary to fold the filter, do so such that the PM cake is inside the fold. Using a dry nylon bristle brush and/or a sharp-edged blade, carefully transfer to the petri dish any PM and/or filter fibers that adhere to the filter holder gasket. Seal the container.

8.7.6.2 Container No. 2. Taking care to see that dust on the outside of the probe or other exterior surfaces does not get into the sample, quantitatively recover PM or any condensate from the probe nozzle, probe fitting, probe liner, and front half of the filter holder by washing these components with acetone and placing the wash in a glass container. Perform the acetone rinse as follows:

8.7.6.2.1 Carefully remove the probe nozzle and clean the inside surface by rinsing with acetone from a wash bottle and brushing with a nylon bristle brush. Brush until the acetone rinse shows no visible particles, after which make a final rinse of the inside surface with acetone.

8.7.6.2.2 Brush and rinse the inside parts of the Swagelok fitting with acetone in a similar way until no visible particles remain.

8.7.6.2.3 Rinse the probe liner with acetone by tilting and rotating the probe while squirting acetone into its upper end so that all inside surfaces are wetted with acetone. Let the acetone drain from the lower end into the sample container. A funnel (glass or polyethylene) may be used to aid in transferring liquid washes to the container. Follow the acetone rinse with a probe brush. Hold the probe in an inclined position, squirt acetone into the upper end as the probe brush is being pushed with a twisting action through the probe, hold a sample container under the lower end of the probe, and catch any acetone and PM that is brushed from the probe. Run the brush through the probe three times or more until no visible PM is carried out with the acetone or until none remains in the probe liner on visual inspection. With stainless steel or other metal probes, run the brush through in the above-described manner at least six times, since metal probes have small crevices in which PM can be entrapped. Rinse the brush with acetone and quantitatively collect these washings in the sample container. After the brushing, make a final acetone rinse of the probe as described above.

8.7.6.2.4 It is recommended that two people clean the probe to minimize sample losses. Between sampling runs, keep brushes clean and protected from contamination.

8.7.6.2.5 After ensuring that all joints have been wiped clean of silicone grease, clean the inside of the front half of the filter holder by rubbing the surfaces with a nylon bristle brush and rinsing with acetone. Rinse each surface three times or more if needed to remove visible particulate. Make a final rinse of the brush and filter holder. Carefully rinse out the glass cyclone also (if applicable).

8.7.6.2.6 After rinsing the nozzle, probe, and front half of the filter holder with acetone, repeat the entire procedure with methylene chloride and save in a separate No. 2M container.

8.7.6.2.7 After acetone and methylene chloride washings and PM have been collected in the proper sample containers, tighten the lid on the sample containers so that acetone and methylene chloride will not leak out when it is shipped to the laboratory. Mark the height of the fluid level to determine whether leakage occurs during transport. Label each container to identify clearly its contents.

8.7.6.3 Container No. 3. Note the color of the indicating silica gel to determine whether it has been completely spent, and make a notation of its condition. Transfer the silica gel from the fourth impinger to its original container and seal the container. A funnel may make it easier to pour the silica gel without spilling. A rubber policeman may be used as an aid in removing the silica gel from the impinger. It is not necessary to remove the small amount of dust particles that may adhere to the impinger wall and are difficult to remove. Since the gain in weight is to be used for moisture calculations, do not use any water or other liquids to transfer the silica gel. If a balance is available in the field, follow the procedure for Container No. 3 in section 11.2.3 of this method.

8.7.6.4 Impinger water. Treat the impingers as follows:

8.7.6.4.1 Make a notation of any color or film in the liquid catch. Measure the liquid that is in the first three impingers to within 1 ml by using a graduated cylinder or by weighing it to within 0.5 g by using a balance (if one is available). Record the volume or weight of liquid present. This information is required to calculate the moisture content of the effluent gas.

8.7.6.4.2 Following the determination of the volume of liquid present, rinse the back half of the train with water, add it to the impinger catch, and store it in a container labeled 3W (water).

8.7.6.4.3 Following the water rinse, rinse the back half of the train with acetone to remove the excess water to enhance subsequent organic recovery with methylene chloride and quantitatively recover to a container labeled 3S (solvent) followed by at least three sequential rinsings with aliquots of methylene chloride. Quantitatively recover to the same container labeled 3S. Record separately the amount of both acetone and methylene chloride used to the nearest 1 ml or 0.5g.

NOTE: Because the subsequent analytical finish is gravimetric, it is okay to recover both solvents to the same container. This would not be recommended if other analytical finishes were required.

8.8 Sample transport. Whenever possible, containers should be shipped in such a way that they remain upright at all times.

9.0 Quality Control.

9.1 Miscellaneous quality control measures.

Section	Quality control measure	Effect
8.4, 10.1–10.6.	Sampling and equipment leak check and calibration.	Ensure accurate measurement of stack gas flow rate, sample volume.

9.2 Volume metering system checks. The following quality control procedures are suggested to check the volume metering system calibration values at the field test site prior to sample collection. These procedures are optional.

9.2.1 Meter orifice check. Using the calibration data obtained during the calibration procedure described in section 10.3 of this method, determine the ΔH_a for the metering system orifice. The ΔH_a is the orifice pressure differential in units of in. H_20 that correlates to 0.75 cfm of air at 528 °R and 29.92 in. Hg. The ΔH_a is calculated as follows:

$$\Delta H_a = 0..0319\ \Delta H \frac{T_m \Theta^2}{P_{bar} Y^2 V_m^2}$$

Where

0.0319 = (0.0567 in. Hg/ °R)(0.75 cfm)^2;

ΔH = Average pressure differential across the orifice meter, in. H_20;

T_m = Absolute average DGM temperature, °R;

Θ = Total sampling time, min;

P_{bar} = Barometric pressure, in. Hg;

Y = DGM calibration factor, dimensionless;

V_m = Volume of gas sample as measured by DGM, dcf.

9.2.1.1 Before beginning the field test (a set of three runs usually constitutes a field test), operate the metering system (i.e., pump, volume meter, and orifice) at the ΔH_a pressure differential for 10 minutes. Record the volume collected, the DGM temperature, and the barometric pressure. Calculate a DGM calibration check value, Y_c, as follows:

$$Y_c = \frac{10}{V_m}\left[\frac{0.0319\ T_m}{P_{bar}}\right]^{\frac{1}{2}}$$

Where

Y_c = DGM calibration check value, dimensionless;

10 = Run time, min.

9.2.1.2 Compare the Y_c value with the dry gas meter calibration factor Y to determine that: $0.97\ Y < Y_c < 1.03Y$. If the Y_c value is not within this range, the volume metering system should be investigated before beginning the test.

9.2.2 Calibrated critical orifice. A calibrated critical orifice, calibrated against a wet test meter or spirometer and designed to be inserted at the inlet of the sampling meter box, may be used as a quality control check by following the procedure of section 16.2 of this method.

10.0 Calibration and Standardization.

NOTE: Maintain a laboratory log of all calibrations.

10.1 Probe nozzle. Probe nozzles shall be calibrated before their initial use in the field. Using a micrometer, measure the ID of the nozzle to the nearest 0.025 mm (0.001 in.). Make three separate measurements using different diameters each time, and obtain the average of the measurements. The difference between the high and low numbers shall not exceed 0.1 mm (0.004 in.). When nozzles become nicked, dented, or corroded, they shall be reshaped, sharpened, and recalibrated before use. Each nozzle shall be permanently and uniquely identified.

10.2 Pitot tube assembly. The Type S pitot tube assembly shall be calibrated according to the procedure outlined in section 10.1 of Method 2, 40 CFR part 60, appendix A.

10.3 Metering system.

10.3.1 Calibration prior to use. Before its initial use in the field, the metering system shall be calibrated as follows: Connect the metering system inlet to the outlet of a wet test meter that is accurate to within 1 percent. Refer to Figure 5–5 of Method 5, 40 CFR part 60, appendix A. The wet test meter should have a capacity of 30 liters/revolution (1 ft^3/rev). A spirometer of 400 liters (14 ft^3) or more capacity, or equivalent, may be used for this calibration, although a wet test meter is usually more practical. The wet test meter should be periodically calibrated with a spirometer or a liquid displacement meter to ensure the accuracy of the wet test meter. Spirometers or wet test meters of other sizes may be used, provided that the specified accuracies of the procedure are maintained. Run the metering system pump for about 15 minutes with the orifice manometer indicating a median reading, as expected in field use, to allow the pump to warm up and to permit the interior surface of the wet test meter to be thoroughly wetted. Then, at each of a minimum of three orifice manometer settings, pass an exact quantity of gas through the wet test meter and note the gas volume indicated by the DGM. Also note the barometric pressure and the temperatures of the wet test meter, the inlet of the DGM, and the outlet of the DGM. Select the highest and lowest orifice settings to bracket the expected field operating range of the orifice. Use a minimum volume of 0.15 m^3 (5 cf) at all orifice settings. Record all the data on a form similar to Figure 5–6 of Method 5, 40 CFR part 60, appendix A, and calculate Y (the DGM calibration factor) and ΔH_a (the orifice calibration factor) at each orifice setting, as shown on Figure 5–6 of Method 5, 40 CFR part 60, appendix A. Allowable tolerances for individual Y and ΔH_a values are given in Figure 5–6 of Method 5, 40 CFR part 60, appendix A. Use the average of the Y values in the calculations in section 12 of this method.

10.3.1.1 Before calibrating the metering system, it is suggested that a leak check be conducted. For metering systems having diaphragm pumps, the normal leak check procedure will not detect leakages within the pump. For these cases the following leak check procedure is suggested: make a 10-minute calibration run at 0.00057 m^3/min (0.02 cfm); at the end of the run, take the difference of the measured wet test meter and DGM volumes; divide the difference by 10 to get the leak rate. The leak rate should not exceed 0.00057 m^3/min (0.02 cfm).

10.3.2 Calibration after use. After each field use, the calibration of the metering system shall be checked by performing three calibration runs at a single, intermediate orifice setting (based on the previous field test) with the vacuum set at the maximum value reached during the test series. To adjust the vacuum, insert a valve between the wet test meter and the inlet of the metering system. Calculate the average value of the DGM calibration factor. If the value has changed by more than 5 percent, recalibrate the meter over the full range of orifice settings, as previously detailed.

NOTE: Alternative procedures, e.g., rechecking the orifice meter coefficient, may be used, subject to the approval of the Administrator.

10.3.3 Acceptable variation in calibration. If the DGM coefficient values obtained before and after a test series differ by more than 5 percent, either the test series shall be voided or calculations for the test series shall be performed using whichever meter coefficient value (i.e., before or after) gives the lower value of total sample volume.

10.4 Probe heater calibration. Use a heat source to generate air heated to selected temperatures that approximate those expected to occur in the sources to be sampled. Pass this air through the probe at a typical sample flow rate while measuring the probe inlet and outlet temperatures at various probe heater settings. For each air temperature generated, construct a graph of probe heating system setting versus probe outlet temperature. The procedure outlined in APTD–0576 can also be used. Probes constructed according to APTD–0581 need not be calibrated if the calibration curves in APTD–0576 are used. Also, probes with outlet temperature monitoring capabilities do not require calibration.

NOTE: The probe heating system shall be calibrated before its initial use in the field.

10.5 Temperature sensors. Use the procedure in section 10.3 of Method 2, 40 CFR part 60, appendix A to calibrate in-stack temperature sensors. Dial thermometers, such as are used for the DGM and condenser outlet, shall be calibrated against mercury-in-glass thermometers.

10.6 Barometer. Calibrate against a mercury barometer.

11.0 Analytical Procedure.

11.1 Record the data required on a sheet such as the one shown in Figure 315–1 of this method.

11.2 Handle each sample container as follows:

11.2.1 Container No. 1.

11.2.1.1 PM analysis. Leave the contents in the shipping container or transfer the filter and any loose PM from the sample container to a tared glass weighing dish. Desiccate for 24 hours in a desiccator containing anhydrous calcium sulfate. Weigh to a constant weight and report the results to the nearest 0.1 mg. For purposes of this section, the term ‘‘constant weight’’ means a difference of no more than 0.5 mg or 1 percent of total weight less tare weight, whichever is greater, between two consecutive weighings, with no less than 6 hours of desiccation time between weighings (overnight desiccation is a common practice). If a third weighing is required and it agrees within ±0.5 mg, then the results of the second weighing should be used. For quality assurance purposes, record and report each individual weighing; if more than three weighings are required, note this in the results for the subsequent MCEM results.

11.2.1.2 MCEM analysis. Transfer the filter and contents quantitatively into a beaker. Add 100 ml of methylene chloride and cover with aluminum foil. Sonicate for 3 minutes then allow to stand for 20 minutes. Set up the filtration apparatus. Decant the solution into a clean Buchner fritted funnel. Immediately pressure filter the solution through the tube into another clean, dry beaker. Continue decanting and pressure filtration until all the solvent is transferred. Rinse the beaker and filter with 10 to 20 ml methylene chloride, decant into the Buchner fritted funnel and pressure filter. Place the beaker on a low-temperature hot plate (maximum 40 °C) and slowly evaporate almost to dryness. Transfer the remaining last few milliliters of solution quantitatively from the beaker (using at least three aliquots of methylene chloride rinse) to a tared clean dry aluminum dish and evaporate to complete dryness. Remove from heat once solvent is evaporated. Reweigh the dish after a 30-minute equilibrium in the balance room and determine the weight to the nearest 0.1 mg. Conduct a methylene chloride blank run in an identical fashion.

11.2.2 Container No. 2.

11.2.2.1 PM analysis. Note the level of liquid in the container, and confirm on the analysis sheet whether leakage occurred during transport. If a noticeable amount of leakage has occurred, either void the sample or use methods, subject to the approval of the Administrator, to correct the final results. Measure the liquid in this container either volumetrically to ±1 ml or gravimetrically to 1±0.5 g. Transfer the contents to a tared 250 ml beaker and evaporate to dryness at ambient temperature and pressure. Desiccate for 24 hours, and weigh to a constant weight. Report the results to the nearest 0.1 mg.

11.2.2.2 MCEM analysis. Add 25 ml methylene chloride to the beaker and cover with aluminum foil. Sonicate for 3 minutes then allow to stand for 20 minutes; combine with contents of Container No. 2M and pressure filter and evaporate as described for Container 1 in section 11.2.1.2 of this method.

Notes for MCEM Analysis

1. Light finger pressure only is necessary on 24/40 adaptor. A Chemplast adapter #15055–240 has been found satisfactory.
2. Avoid aluminum dishes made with fluted sides, as these may promote solvent ‘‘creep,’’ resulting in possible sample loss.
3. If multiple samples are being run, rinse the Buchner fritted funnel twice between samples with 5 ml solvent using pressure filtration. After the second rinse, continue the flow of air until the glass frit is completely dry. Clean the Buchner fritted funnels thoroughly after filtering five or six samples.

11.2.3 Container No. 3. Weigh the spent silica gel (or silica gel plus impinger) to the nearest 0.5 g using a balance. This step may be conducted in the field.

11.2.4 Container 3W (impinger water).

11.2.4.1 MCEM analysis. Transfer the solution into a 1,000 ml separatory funnel quantitatively with methylene chloride washes. Add enough solvent to total approximately 50 ml, if necessary. Shake the funnel for 1 minute, allow the phases to separate, and drain the solvent layer into a 250 ml beaker. Repeat the extraction twice. Evaporate with low heat (less than 40 °C) until near dryness. Transfer the remaining few milliliters of solvent quantitatively with small solvent washes into a clean, dry, tared aluminum dish and evaporate to dryness. Remove from heat once solvent is evaporated. Reweigh the dish after a 30-minute equilibration in the balance room and determine the weight to the nearest 0.1 mg.

11.2.5 Container 3S (solvent).

11.2.5.1 MCEM analysis. Transfer the mixed solvent to 250 ml beaker(s). Evaporate and weigh following the procedures detailed for container 3W in section 11.2.4 of this method.

11.2.6 Blank containers. Measure the distilled water, acetone, or methylene chloride in each container either volumetrically or gravimetrically. Transfer the ‘‘solvent’’ to a tared 250 ml beaker, and evaporate to dryness at ambient temperature and pressure. (Conduct a solvent blank on the distilled deionized water blank in an identical fashion to that described in section 11.2.4.1 of this method.) Desiccate for 24 hours, and weigh to a constant weight. Report the results to the nearest 0.l mg.

NOTE: The contents of Containers No. 2, 3W, and 3M as well as the blank containers may be evaporated at temperatures higher than ambient. If evaporation is done at an elevated temperature, the temperature must be below the boiling point of the solvent; also, to prevent ‘‘bumping,’’ the evaporation process must be closely supervised, and the contents of the beaker must be swirled occasionally to maintain an even temperature. Use extreme care, as acetone and methylene chloride are highly flammable and have a low flash point.

12.0 Data Analysis and Calculations.

12.1 Carry out calculations, retaining at least one extra decimal figure beyond that of the acquired data. Round off figures after the final calculation. Other forms of the equations may be used as long as they give equivalent results.

12.2 Nomenclature.

A_n = Cross-sectional area of nozzle, m^3 (ft^3).

B_{ws} = Water vapor in the gas stream, proportion by volume.

C_a = Acetone blank residue concentration, mg/g.

C_s = Concentration of particulate matter in stack gas, dry basis, corrected to standard conditions, g/dscm (g/dscf).

I = Percent of isokinetic sampling.

L_a = Maximum acceptable leakage rate for either a pretest leak check or for a leak check following a component change; equal to 0.00057 m^3/min (0.02 cfm) or 4 percent of the average sampling rate, whichever is less.

L_i = Individual leakage rate observed during the leak check conducted prior to the ‘‘ith’’ component change (I = l, 2, 3...n), m^3/min (cfm).

L_p = Leakage rate observed during the post-test leak check, m^3/min (cfm).

m_a = Mass of residue of acetone after evaporation, mg.

m_n = Total amount of particulate matter collected, mg.

M_w = Molecular weight of water, 18.0 g/g-mole (18.0 lb/lb-mole).

P_{bar} = Barometric pressure at the sampling site, mm Hg (in Hg).

P_s = Absolute stack gas pressure, mm Hg (in. Hg).

P_{std} = Standard absolute pressure, 760 mm Hg (29.92 in. Hg).

R = Ideal gas constant, 0.06236 [(mm Hg)(m^3)]/[(°K) (g-mole)] ’61’ 21.85 [(in. Hg)(ft^3)]/[(°R)(lb-mole)’61’].

T_m = Absolute average dry gas meter (DGM) temperature (see Figure 5–2 of Method 5, 40 CFR part 60, appendix A), °K (°R).

T_s = Absolute average stack gas temperature (see Figure 5–2 of Method 5, 40 CFR part 60, appendix A), °K(°R).

T_{std} = Standard absolute temperature, 293 °K (528 °R).

V_a = Volume of acetone blank, ml.

V_{aw} = Volume of acetone used in wash, ml.

V_t = Volume of methylene chloride blank, ml.

V_{tw} = Volume of methylene chloride used in wash, ml.

V_{lc} = Total volume liquid collected in impingers and silica gel (see Figure 5–3 of Method 5, 40 CFR part 60, appendix A), ml.

V_m = Volume of gas sample as measured by dry gas meter, dcm (dcf).

$V_{m(std)}$ = Volume of gas sample measured by the dry gas meter, corrected to standard conditions, dscm (dscf).

$V_{w(std)}$ = Volume of water vapor in the gas sample, corrected to standard conditions, scm (scf).

V_s = Stack gas velocity, calculated by Equation 2–9 in Method 2, 40 CFR part 60, appendix A, using data obtained from Method 5, 40 CFR part 60, appendix A, m/sec (ft/sec).

W_a = Weight of residue in acetone wash, mg.

Y = Dry gas meter calibration factor.

ΔH = Average pressure differential across the orifice meter (see Figure 5–2 of Method 5, 40 CFR part 60, appendix A), mm H_2O (in H_2O).

ρ_a = Density of acetone, 785.1 mg/ml (or see label on bottle).

ρ_w = Density of water, 0.9982 g/ml (0.002201 lb/ml).

ρ_t = Density of methylene chloride, 1316.8 mg/ml (or see label on bottle).

Θ = Total sampling time, min.

Θ_1 = Sampling time interval, from the beginning of a run until the first component change, min.

Θ_1 = Sampling time interval, between two successive component changes, beginning with the interval between the first and second changes, min.

Θ_p = Sampling time interval, from the final (n^{th}) component change until the end of the sampling run, min.

13.6 = Specific gravity of mercury.

60 = Sec/min.

100 = Conversion to percent.

12.3 Average dry gas meter temperature and average orifice pressure drop. See data sheet (Figure 5–2 of Method 5, 40 CFR part 60, appendix A).

12.4 Dry gas volume. Correct the sample volume measured by the dry gas meter to standard conditions (20 °C, 760 mm Hg or 68 °F, 29.92 in Hg) by using Equation 315–1.

$$V = V_m Y \frac{T_{std}\left(P_{bar} + \frac{\Delta H}{13.6}\right)}{T_m P_{std}} = V = K_1 V_m Y \frac{P_{bar} + \left(\frac{\Delta H}{13.6}\right)}{T_m} \qquad \text{Eq. 315-1}$$

Where

K_1 = 0.3858 °K/mm Hg for metric units,

= 17.64 °R/in Hg for English units.

NOTE: Equation 315–1 can be used as written unless the leakage rate observed during any of the mandatory leak checks (i.e., the post-test leak check or leak checks conducted prior to component changes) exceeds L_a. If L_p or L_i exceeds L_a, Equation 315–1 must be modified as follows:

(a) Case I. No component changes made during sampling run. In this case, replace V_m in Equation 315–1 with the expression:

$[V_m—(L_p—L_a)\ \Theta]$

(b) Case II. One or more component changes made during the sampling run. In this case, replace V_m in Equation 315–1 by the expression:

$$\left[V_m - \left(L_1 - L_a\right)\Theta_1 - \sum_{i=2}^{n}\left(L_i - L_a\right)\Theta_i - \left(L_p - L_a\right)\Theta_p\right]$$

and substitute only for those leakage rates (L_i or L_p) which exceed L_a.

12.5 Volume of water vapor condensed.

$$V_{w(std)} = V_{1c}\frac{\rho_w R T_{std}}{M_w P_{std}} = K_2 V_{1c} \qquad \text{Eq. 315-2}$$

Where

K_2 = 0.001333 m^3/ml for metric units;
= 0.04706 ft^3/ml for English units.

12.6 Moisture content.

$$B_{ws} = \frac{V_{w(std)}}{V_{m(std)} + V_{w(std)}} \qquad \text{Eq. 315-3}$$

NOTE: In saturated or water droplet-laden gas streams, two calculations of the moisture content of the stack gas shall be made, one from the impinger analysis (Equation 315-3), and a second from the assumption of saturated conditions. The lower of the two values of B_{ws} shall be considered correct. The procedure for determining the moisture content based upon assumption of saturated conditions is given in section 4.0 of Method 4, 40 CFR part 60, appendix A. For the purposes of this method, the average stack gas temperature from Figure 5–2 of Method 5, 40 CFR part 60, appendix A may be used to make this determination, provided that the accuracy of the in-stack temperature sensor is ±1 °C (2 °F).

12.7 Acetone blank concentration.

$$C_a = \frac{M_a}{V_a \rho_a} \qquad \text{Eq. 315-4}$$

12.8 Acetone wash blank.

$W_a = C_a\ V_{aw}\ \rho a$ *Eq. 315–5*

12.9 Total particulate weight. Determine the total PM catch from the sum of the weights obtained from Containers 1 and 2 less the acetone blank associated with these two containers (see Figure 315–1).

NOTE: Refer to section 8.5.8 of this method to assist in calculation of results involving two or more filter assemblies or two or more sampling trains.

12.10 Particulate concentration.

$c_s = K_3\ m_n/V_{m(std)}$ Eq. 315–6

where

K = 0.001 g/mg for metric units;
= 0.0154 gr/mg for English units.

12.11 Conversion factors.

From	To	Multiply by
ft^3	m^3	0.02832
gr	mg	64.80004
gr/ft^3	mg/m^3	2288.4
mg	g	0.001
gr	lb	1.429×10^{-4}

12.12 Isokinetic variation.

12.12.1 Calculation from raw data.

$$I = \frac{100\ T_s\left|K_4 V_{1c} + \left(\frac{V_m Y}{T_m}\right)\left(P_{bar} + \frac{\Delta H}{13.6}\right)\right.}{60\ \Theta\ V_s P_s A_n} \qquad \text{Eq. 315-7}$$

where

K_4 = 0.003454 [(mm Hg)(m^3)]/[(m1)(°K)] for metric units;
= 0.002669 [(in Hg)(ft^3)]/[(m1)(°R)] for English units.

12.12.2 Calculation from intermediate values.

$$I = \frac{T_s V_{m(std)} P_{std} 100}{T_{std} V_s \Theta A_n P_s 60 \left(1 - B_{ws}\right)} = K_5 \frac{T_s V_{m(std)}}{P_s V_s A_n \Theta \left(1 - B_{ws}\right)} \qquad \text{Eq. 315-8}$$

where

K_5 = 4.320 for metric units;
= 0.09450 for English units.

12.12.3 Acceptable results. If 90 percent ≤ I ≤ 110 percent, the results are acceptable. If the PM or MCEM results are low in comparison to the standard, and ‘‘I’’ is over 110 percent or less than 90 percent, the Administrator may opt to accept the results. Reference 4 in the Bibliography may be used to make acceptability judgments. If ‘‘I’’ is judged to be unacceptable, reject the results, and repeat the test.

12.13 Stack gas velocity and volumetric flow rate. Calculate the average stack gas velocity and volumetric flow rate, if needed, using data obtained in this method and the equations in sections 5.2 and 5.3 of Method 2, 40 CFR part 60, appendix A.

12.14 MCEM results. Determine the MCEM concentration from the results from Containers 1, 2, 2M, 3W, and 3S less the acetone, methylene chloride, and filter blanks value as determined in the following equation:

$m_{mcem} = Sm_{total} - w_a - w_t - f_b$

13.0 Method Performance. [Reserved]

14.0 Pollution Prevention. [Reserved]

15.0 Waste Management. [Reserved]

16.0 Alternative Procedures.

16.1 Dry gas meter as a calibration standard. A DGM may be used as a calibration standard for volume measurements in place of the wet test meter specified in section 16.1 of this method, provided that it is calibrated initially and recalibrated periodically as follows:

16.1.1 Standard dry gas meter calibration.

16.1.1.1. The DGM to be calibrated and used as a secondary reference meter should be of high quality and have an appropriately sized capacity, e.g., 3 liters/rev (0.1 ft^3/rev). A spirometer (400 liters or more capacity), or equivalent, may be used for this calibration, although a wet test meter is usually more practical. The wet test meter should have a capacity of 30 liters/rev (1 ft^3/rev) and be capable of measuring volume to within 1.0 percent; wet test meters should be checked against a spirometer or a liquid displacement meter to ensure the accuracy of the wet test meter. Spirometers or wet test meters of other sizes may be used, provided that the specified accuracies of the procedure are maintained.

16.1.1.2 Set up the components as shown in Figure 5–7 of Method 5, 40 CFR part 60, appendix A. A spirometer, or equivalent, may be used in place of the wet test meter in the system. Run the pump for at least 5 minutes at a flow rate of about 10 liters/min (0.35 cfm) to condition the interior surface of the wet test meter. The pressure drop indicated by the manometer at the inlet side of the DGM should be minimized (no greater than 100 mm H_2O [4 in. H_2O] at a flow rate of 30 liters/min [1 cfm]). This can be accomplished by using large-diameter tubing connections and straight pipe fittings.

16.1.1.3 Collect the data as shown in the example data sheet (see Figure 5–8 of Method 5, 40 CFR part 60, appendix A). Make triplicate runs at each of the flow rates and at no less than five different flow rates. The range of flow rates should be between 10 and 34 liters/min (0.35 and 1.2 cfm) or over the expected operating range.

16.1.1.4 Calculate flow rate, Q, for each run using the wet test meter volume, V_w, and the run time, q. Calculate the DGM coefficient, Y_{ds}, for each run. These calculations are as follows:

$$Q = K_1 \frac{P_{bar} V_w}{\left(t_w + t_{std}\right)\Theta} \qquad \text{Eq. 315-9}$$

$$Y_{ds} = \frac{V_w \left(T_{ds} + T_{std}\right) P_{bar}}{V_{ds}\left(T_w + T_{std}\right)\left(P_{bar} + \frac{\Delta p}{13.6}\right)} \qquad \text{Eq. 315-10}$$

Where

K_1 = 0.3858 for international system of units (SI); 17.64 for English units;

P_{bar} = Barometric pressure, mm Hg (in Hg);

V_w = Wet test meter volume, liter (ft^3);

t_w = Average wet test meter temperature, °C (°F);

t_{std} = 273 °C for SI units; 460'F for English units;
Θ = Run time, min;
t_{ds} = Average dry gas meter temperature, °C (°F);
V_{ds} = Dry gas meter volume, liter (ft^3);
Δp = Dry gas meter inlet differential pressure, mm H_2O (in H_2O).

16.1.1.5 Compare the three Y_{ds} values at each of the flow rates and determine the maximum and minimum values. The difference between the maximum and minimum values at each flow rate should be no greater than 0.030. Extra sets of triplicate runs may be made in order to complete this requirement. In addition, the meter coefficients should be between 0.95 and 1.05. If these specifications cannot be met in three sets of successive triplicate runs, the meter is not suitable as a calibration standard and should not be used as such. If these specifications are met, average the three Y_{ds} values at each flow rate resulting in five average meter coefficients, Y_{ds}.

16.1.1.6 Prepare a curve of meter coefficient, Y_{ds}, versus flow rate, Q, for the DGM. This curve shall be used as a reference when the meter is used to calibrate other DGMs and to determine whether recalibration is required.

16.1.2 Standard dry gas meter recalibration.

16.1.2.1 Recalibrate the standard DGM against a wet test meter or spirometer annually or after every 200 hours of operation, whichever comes first. This requirement is valid provided the standard DGM is kept in a laboratory and, if transported, cared for as any other laboratory instrument. Abuse to the standard meter may cause a change in the calibration and will require more frequent recalibrations.

16.1.2.2 As an alternative to full recalibration, a two-point calibration check may be made. Follow the same procedure and equipment arrangement as for a full recalibration, but run the meter at only two flow rates (suggested rates are 14 and 28 liters/min [0.5 and 1.0 cfm]). Calculate the meter coefficients for these two points, and compare the values with the meter calibration curve. If the two coefficients are within 1.5 percent of the calibration curve values at the same flow rates, the meter need not be recalibrated until the next date for a recalibration check.

6.2 Critical orifices as calibration standards. Critical orifices may be used as calibration standards in place of the wet test meter specified in section 10.3 of this method, provided that they are selected, calibrated, and used as follows:

16.2.1 Selection of critical orifices.

16.2.1.1 The procedure that follows describes the use of hypodermic needles or stainless steel needle tubing that has been found suitable for use as critical orifices. Other materials and critical orifice designs may be used provided the orifices act as true critical orifices; i.e., a critical vacuum can be obtained, as described in section 7.2.2.2.3 of Method 5, 40 CFR part 60, appendix A. Select five critical orifices that are appropriately sized to cover the range of flow rates between 10 and 34 liters/min or the expected operating range. Two of the critical orifices should bracket the expected operating range. A minimum of three critical orifices will be needed to calibrate a Method 5 DGM; the other two critical orifices can serve as spares and provide better selection for bracketing the range of operating flow rates. The needle sizes and tubing lengths shown in Table 315–1 give the approximate flow rates indicated in the table.

16.2.1.2 These needles can be adapted to a Method 5 type sampling train as follows: Insert a serum bottle stopper, 13×20 mm sleeve type, into a 0.5 in Swagelok quick connect. Insert the needle into the stopper as shown in Figure 5–9 of Method 5, 40 CFR part 60, appendix A.

16.2.2 Critical orifice calibration. The procedure described in this section uses the Method 5 meter box configuration with a DGM as described in section 6.1.1.9 of this method to calibrate the critical orifices. Other schemes may be used, subject to the approval of the Administrator.

16.2.2.1 Calibration of meter box. The critical orifices must be calibrated in the same configuration as they will be used; i.e., there should be no connections to the inlet of the orifice.

16.2.2.1.1 Before calibrating the meter box, leak-check the system as follows: Fully open the coarse adjust valve and completely close the bypass valve. Plug the inlet. Then turn on the pump and determine whether there is any leakage. The leakage rate shall be zero; i.e., no detectable movement of the DGM dial shall be seen for 1 minute.

16.2.2.1.2 Check also for leakages in that portion of the sampling train between the pump and the orifice meter. See section 5.6 of Method 5, 40 CFR part 60, appendix A for the procedure; make any corrections, if necessary. If leakage is detected, check for cracked gaskets, loose fittings, worn 0-rings, etc. and make the necessary repairs.

16.2.2.1.3 After determining that the meter box is leakless, calibrate the meter box according to the procedure given in section 5.3 of Method 5, 40 CFR part 60, appendix A. Make sure that the wet test meter meets the requirements stated in section 7.1.1.1 of Method 5, 40 CFR part 60, appendix A. Check the water level in the wet test meter. Record the DGM calibration factor, Y.

16.2.2.2 Calibration of critical orifices. Set up the apparatus as shown in Figure 5–10 of Method 5, 40 CFR part 60, appendix A.

16.2.2.2.1 Allow a warm-up time of 15 minutes. This step is important to equilibrate the temperature conditions through the DGM.

16.2.2.2.2 Leak-check the system as in section 7.2.2.1.1 of Method 5, 40 CFR part 60, appendix A. The leakage rate shall be zero.

16.2.2.2.3 Before calibrating the critical orifice, determine its suitability and the appropriate operating vacuum as follows: turn on the pump, fully open the coarse adjust valve, and adjust the bypass valve to give a vacuum reading corresponding to about half of atmospheric pressure. Observe the meter box orifice manometer reading, DH. Slowly increase the vacuum reading until a stable reading is obtained on the meter box orifice manometer. Record the critical vacuum for each orifice. Orifices that do not reach a critical value shall not be used.

16.2.2.2.4 Obtain the barometric pressure using a barometer as described in section 6.1.2 of this method. Record the barometric pressure, P_{bar}, in mm Hg (in. Hg).

16.2.2.2.5 Conduct duplicate runs at a vacuum of 25 to 50 mm Hg (1 to 2 in. Hg) above the critical vacuum. The runs shall be at least 5 minutes each. The DGM volume readings shall be in increments of complete revolutions of the DGM. As a guideline, the times should not differ by more than 3.0 seconds (this includes allowance for changes in the DGM temperatures) to achieve ±0.5 percent in K′. Record the information listed in Figure 5–11 of Method 5, 40 CFR part 60, appendix A.

16.2.2.2.6 Calculate K′ using Equation 315–11.

$$K' = \frac{K_1 V_m Y \left(P_{bar} + \frac{\Delta H}{13.6}\right) T_{amb}^{\frac{1}{2}}}{P_{bar} T_m \, \Theta} \qquad \text{Eq. 315-11}$$

where

K′ = Critical orifice coefficient, [m^3)(°K)$^{1/2}$]/[(mm Hg)(min)] ’61’ [(ft^3)(°R)$^{1/2}$)]/[(in. Hg)(min)]’61’

T_{amb} = Absolute ambient temperature, °K (°R).

16.2.2.2.7 Average the K′ values. The individual K’ values should not differ by more than ±0.5 percent from the average.

16.2.3 Using the critical orifices as calibration standards.

16.2.3.1 Record the barometric pressure.

16.2.3.2 Calibrate the metering system according to the procedure outlined in sections 7.2.2.2.1 to 7.2.2.2.5 of Method 5, 40 CFR part 60, appendix A. Record the information listed in Figure 5–12 of Method 5, 40 CFR part 60, appendix A.

16.2.3.3 Calculate the standard volumes of air passed through the DGM and the critical orifices, and calculate the DGM calibration factor, Y, using the equations below:

$V_{m(std)} = K_1 \; V_m \; [P_{bar} + (\Delta H/13.6)]/T_m$ *Eq. 315–12*

$V_{cr(std)} = K' \, (P_{bar} \, \Theta)/T_{amb}^{1/2}$ *Eq. 315–13*

$Y = V_{cr(std)}/V_{m(std)}$ *Eq. 315–14*

where

$V_{cr(std)}$ = Volume of gas sample passed through the critical orifice, corrected to standard conditions, dscm (dscf).

K′ = 0.3858 °K/mm Hg for metric units
= 17.64 °R/in Hg for English units.

16.2.3.4 Average the DGM calibration values for each of the flow rates. The calibration factor, Y, at each of the flow rates should not differ by more than ±2 percent from the average.

16.2.3.5 To determine the need for recalibrating the critical orifices, compare the DGM Y factors obtained from two adjacent orifices each time a DGM is calibrated; for example, when checking orifice 13/2.5, use orifices 12/10.2 and 13/5.1. If any critical orifice yields a DGM Y factor differing by more than 2 percent from the others, recalibrate the critical orifice according to section 7.2.2.2 of Method 5, 40 CFR part 60, appendix A.

17.0 References.

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18.0 Tables, Diagrams, Flowcharts, and Validation Data

TABLE 315–1. FLOW RATES FOR VARIOUS NEEDLE SIZES AND TUBE LENGTHS.

Gauge/length (cm)	Flow rate (liters/min)	Gauge/length (cm)	Flow rate (liters/min)
12/7.6	32.56	14/2.5	19.54
12/10.2	30.02	14/5.1	17.27
13/2.5	25.77	14/7.6	16.14
13/5.1	23.50	15/3.2	14.16
13/7.6	22.37	15/7.6	11.61
13/10.2	20.67	115/10.2	10.48

FIGURE 315–1. PARTICULATE AND MCEM ANALYSES

Particulate Analysis

Plant
Date
Run No.
Filter No.
Amount liquid lost during transport
Acetone blank volume (ml)
Acetone blank concentration (Eq. 315–4) (mg/mg)
Acetone wash blank (Eq. 315–5) (mg)

	Final weight (mg)	Tare weight (mg)	Weight gain (mg)
Container No. 1			
Container No. 2			
Total			
Less Acetone blank			
Weight of particulate matter			

Moisture Analysis	Final volume (mg)	Initial volume (mg)	Liquid collected (mg)
Impingers	Note 1	Note 1	
Silica gel			
Total			

Note 1: Convert volume of water to weight by multiplying by the density of water (1 g/ml).

Container No.	Final weight (mg)	Tare of aluminum dish (mg)	Weight gain	Acetone wash volume (ml)	Methylene chloride wash volume (ml)
MCEM Analysis					
1					

Container No.	Final weight (mg)	Tare of aluminum dish (mg)	Weight gain	Acetone wash volume (ml)	Methylene chloride wash volume (ml)
2+2M					
3W					
3S					
Total	....	....	$\sum m_{total}$	$\sum V_{aw}$	$\sum V_{tw}$

Less acetone wash blank (mg) (not to exceed 1 mg/l of acetone used).	$w_a = c_a p_a \sum V_{aw}$
Less methylene chloride wash blank (mg) (not to exceed 1.5 mg/l of methylene chloride used).	$w_t = c_t p_t \sum V_{tw}$
Less filter blank (mg) (not to exceed . . . (mg/filter)	F_b
MCEM weight (mg)	$m_{MCEOM} = \sum m_{total} - w_a - w_t - f_b$

METHOD 316—SAMPLING AND ANALYSIS FOR FORMALDEHYDE EMISSIONS FROM STATIONARY SOURCES IN THE MINERAL WOOL AND WOOL FIBERGLASS INDUSTRIES

1.0 *Introduction*

This method is applicable to the determination of formaldehyde, CAS Registry number 50–00–0, from stationary sources in the mineral wool and wool fiber glass industries. High purity water is used to collect the formaldehyde. The formaldehyde concentrations in the stack samples are determined using the modified pararosaniline method. Formaldehyde can be detected as low as 8.8×10^{10} lbs/cu ft (11.3 ppbv) or as high as 1.8×10^{3} lbs/cu ft (23,000,000 ppbv), at standard conditions over a 1 hour sampling period, sampling approximately 30 cu ft.

2.0 *Summary of Method*

Gaseous and particulate pollutants are withdrawn isokinetically from an emission source and are collected in high purity water. Formaldehyde present in the emissions is highly soluble in high purity water. The high purity water containing formaldehyde is then analyzed using the modified pararosaniline method. Formaldehyde in the sample reacts with acidic pararosaniline, and the sodium sulfite, forming a purple chromophore. The intensity of the purple color, measured spectrophotometrically, provides an accurate and precise measure of the formaldehyde concentration in the sample.

3.0 *Definitions*

See the definitions in the General Provisions of this Subpart.

4.0 *Interferences*

Sulfite and cyanide in solution interfere with the pararosaniline method. A procedure to overcome the interference by each compound has been described by Miksch, et al.

5.0 *Safety*. (Reserved)

6.0 *Apparatus and Materials*

6.1 A schematic of the sampling train is shown in Figure 1. This sampling train configuration is adapted from EPA Method 5, 40 CFR part 60, appendix A, procedures.

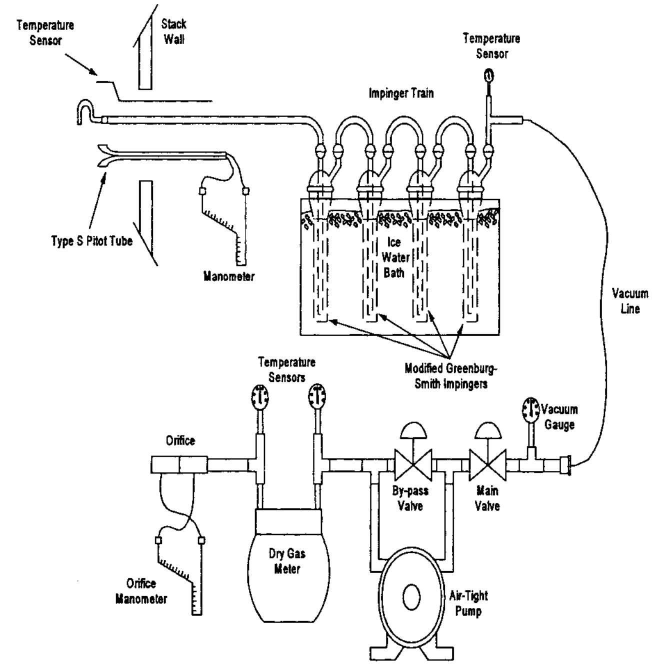


Figure 1. Sampling Train.

The sampling train consists of the following components: probe nozzle, probe liner, pitot tube, differential pressure gauge, impingers, metering system, barometer, and gas density determination equipment.

6.1.1 Probe Nozzle: Quartz, glass, or stainless steel with sharp, tapered (30 ° angle) leading edge. The taper shall be on the outside to preserve a constant inner diameter. The nozzle shall be buttonhook or elbow design. A range of nozzle sizes suitable for isokinetic sampling should be available in increments of 0.15 cm (1⁄16in), e.g., 0.32 to 1.27 cm (⅛to ½ in), or larger if higher volume sampling trains are used. Each nozzle shall be calibrated according to the procedure outlined in Section 10.1.

6.1.2 Probe Liner: Borosilicate glass or quartz shall be used for the probe liner. The probe shall be maintained at a temperature of 120 °C ± 14 °C (248 °F ± 25 °F).

6.1.3 Pitot Tube: The pitot tube shall be Type S, as described in Section 2.1 of EPA Method 2, 40 CFR part 60, appendix A, or any other appropriate device. The pitot tube shall be attached to the probe to allow constant monitoring of the stack gas velocity. The impact (high pressure) opening plane of the pitot tube shall be even with or above the nozzle entry plane (see Figure 2–6b, EPA Method 2, 40 CFR part 60, appendix A) during sampling. The Type S pitot tube assembly shall have a known coefficient, determined as outlined in Section 4 of EPA Method 2, 40 CFR part 60, appendix A.

6.1.4 Differential Pressure Gauge: The differential pressure gauge shall be an inclined manometer or equivalent device as described in Section 2.2 of EPA Method 2, 40 CFR part 60, appendix A. One manometer shall be used for velocity-head reading and the other for orifice differential pressure readings.

6.1.5 Impingers: The sampling train requires a minimum of four impingers, connected as shown in Figure 1, with ground glass (or equivalent) vacuum-tight fittings. For the first, third, and fourth impingers, use the Greenburg-Smith design, modified by replacing the tip with a 1.3 cm inside diameters (½in) glass tube extending to 1.3 cm (½in) from the bottom of the flask. For the second impinger, use a Greenburg-Smith impinger with the standard tip. Place a thermometer capable of measuring temperature to within 1 °C (2 °F) at the outlet of the fourth impinger for monitoring purposes.

6.1.6 Metering System: The necessary components are a vacuum gauge, leak-free pump, thermometers capable of measuring temperatures within 3 °C (5.4 °F), dry-gas meter capable of measuring volume to within 1 percent, and related equipment as shown in Figure 1. At a minimum, the pump should be capable of 4 cfm free flow, and the dry gas meter should have a recording capacity of 0–999.9 cu ft with a resolution of 0.005 cu ft. Other metering systems may be used which are capable of maintaining sample volumes to within 2 percent. The metering system may be used in conjunction with a pitot tube to enable checks of isokinetic sampling rates.

6.1.7 Barometer: The barometer may be mercury, aneroid, or other barometer capable of measuring atmospheric pressure to within 2.5 mm Hg (0.1 in Hg). In many cases, the barometric reading may be obtained from a nearby National Weather Service Station, in which case the station value (which is the absolute barometric pressure) is requested and an adjustment for elevation differences between the weather station and sampling point is applied at a rate of minus 2.5 mm Hg (0.1 in Hg) per 30 m (100 ft) elevation increase (rate is plus 2.5 mm Hg per 30 m (100 ft) of elevation decrease).

6.1.8 Gas Density Determination Equipment: Temperature sensor and pressure gauge (as described in Sections 2.3 and 2.3 of EPA Method 2, 40 CFR part 60, appendix A), and gas analyzer, if necessary (as described in EPA Method 3, 40 CFR part 60, appendix A). The temperature sensor ideally should be permanently attached to the pitot tube or sampling probe in a fixed configuration such that the top of the sensor extends beyond the leading edge of the probe sheath and does not touch any metal. Alternatively, the sensor may be attached just prior to use in the field. Note, however, that if the temperature sensor is attached in the field, the sensor must be placed in an interference-free arrangement with respect to the Type S pitot openings (see Figure 2–7, EPA Method 2, 40 CFR part 60, appendix A). As a second alternative, if a difference of no more than 1 percent in the average velocity measurement is to be introduced, the temperature gauge need not be attached to the probe or pitot tube.

6.2 Sample Recovery

6.2.1 Probe Liner: Probe nozzle and brushes; bristle brushes with stainless steel wire handles are required. The probe brush shall have extensions of stainless steel, Teflon™, or inert material at least as long as the probe. The brushes shall be properly sized and shaped to brush out the probe liner, the probe nozzle, and the impingers.

6.2.2 Wash Bottles: One wash bottle is required. Polyethylene, Teflon™, or glass wash bottles may be used for sample recovery.

6.2.3 Graduated Cylinder and/or Balance: A graduated cylinder or balance is required to measure condensed water to the nearest 1 ml or 1 g. Graduated cylinders shall have division not >2 ml. Laboratory balances capable of weighing to ± 0.5 g are required.

6.2.4 Polyethylene Storage Containers: 500 ml wide-mouth polyethylene bottles are required to store impinger water samples.

6.2.5 Rubber Policeman and Funnel: A rubber policeman and funnel are required to aid the transfer of material into and out of containers in the field.

6.3 Sample Analysis

6.3.1 Spectrophotometer—B&L 70, 710, 2000, etc., or equivalent; 1 cm pathlength cuvette holder.

6.3.2 Disposable polystyrene cuvettes, pathlengh 1 cm, volume of about 4.5 ml.

6.3.3 Pipettors—Fixed-volume Oxford pipet (250 µl; 500 µl; 1000 µl); adjustable volume Oxford or equivalent pipettor 1–5 ml model, set to 2.50 ml.

6.3.4 Pipet tips for pipettors above.

6.3.5 Parafilm, 2 ° wide; cut into about 1’’ squares.

7.0 *Reagents*

7.1 High purity water: All references to water in this method refer to high purity water (ASTM Type I water or equivalent). The water purity will dictate the lower limits of formaldehyde quantification.

7.2 Silica Gel: Silica gel shall be indicting type, 6–16 mesh. If the silica gel has been used previously, dry at 175 °C (350 °F) for 2 hours before using. New silica gel may be used as received. Alternatively, other types of desiccants (equivalent or better) may be used.

7.3 Crushed Ice: Quantities ranging from 10–50 lbs may be necessary during a sampling run, depending upon ambient temperature. Samples which have been taken must be stored and shipped cold; sufficient ice for this purpose must be allowed.

7.4 Quaternary ammonium compound stock solution: Prepare a stock solution of dodecyltrimethylammonium chloride (98 percent minimum assay, reagent grade) by dissolving 1.0 gram in 1000 ml water. This solution contains nominally 1000 µg/ml quaternary ammonium compound, and is used as a biocide for some sources which are prone to microbial contamination.

7.5 Pararosaniline: Weigh 0.16 grams pararosaniline (free base; assay of 95 percent or greater, C.I. 42500; Sigma P7632 has been found to be acceptable) into a 100 ml flask. Exercise care, since pararosaniline is a dye and will stain. Using a wash bottle with high-purity water, rinse the walls of the flask. Add no more than 25 ml water. Then, carefully add 20 ml of concentrated hydrochloric acid to the flask. The flask will become warm after the addition of acid. Add a magnetic stir bar to the flask, cap, and place on a magnetic stirrer for approximately 4 hours. Then, add additional water so the total volume is 100 ml. This solution is stable for several months when stored tightly capped at room temperature.

7.6 Sodium sulfite: Weigh 0.10 grams anhydrous sodium sulfite into a 100 ml flask. Dilute to the mark with high purity water. Invert 15–20 times to mix and dissolve the sodium sulfite. This solution must be prepared fresh every day.

7.7 Formaldehyde standard solution: Pipet exactly 2.70 ml of 37 percent formaldehyde solution into a 1000 ml volumetric flask which contains about 500 ml of high-purity water. Dilute to the mark with high-purity water. This solution contains nominally 1000 μg/ml of formaldehyde, and is used to prepare the working formaldehyde standards. The exact formaldehyde concentration may be determined if needed by suitable modification of the sodium sulfite method (Reference: J.F. Walker, Formaldehyde (Third Edition), 1964.). The 1000 μg/ml formaldehyde stock solution is stable for at least a year if kept tightly closed, with the neck of the flask sealed with Parafilm. Store at room temperature.

7.8 Working formaldehyde standards: Pipet exactly 10.0 ml of the 1000 μg/ml formaldehyde stock solution into a 100 ml volumetric flask which is about half full of high-purity water. Dilute to the mark with high-purity water, and invert 15–20 times to mix thoroughly. This solution contains nominally 100 μg/ml formaldehyde. Prepare the working standards from this 100 μg/ml standard solution and using the Oxford pipets:

Working standard, μ/mL	μL or 100 μg/mL solution	Volumetric flask volume (dilute to mark with water)
0.250	250	100
0.500	500	100
1.00	1000	100
2.00	2000	100
3.00	1500	50

The 100 μg/ml stock solution is stable for 4 weeks if kept refrigerated between analyses. The working standards (0.25–3.00 μg/ml) should be prepared fresh every day, consistent with good laboratory practice for trace analysis. If the laboratory water is not of sufficient purity, it may be necessary to prepare the working standards every day. The laboratory must establish that the working standards are stable—DO NOT assume that your working standards are stable for more than a day unless you have verified this by actual testing for several series of working standards.

8.0 Sample Collection

8.1 Because of the complexity of this method, field personnel should be trained in and experienced with the test procedures in order to obtain reliable results.

8.2 Laboratory Preparation

8.2.1 All the components shall be maintained and calibrated according to the procedure described in APTD–0576, unless otherwise specified.

8.2.2 Weigh several 200 to 300 g portions of silica gel in airtight containers to the nearest 0.5 g. Record on each container the total weight of the silica gel plus containers. As an alternative to preweighing the silica gel, it may instead be weighed directly in the impinger or sampling holder just prior to train assembly.

8.3 Preliminary Field Determinations

8.3.1 Select the sampling site and the minimum number of sampling points according to EPA Method 1, 40 CFR part 60, appendix A, or other relevant criteria. Determine the stack pressure, temperature, and range of velocity heads using EPA Method 2, 40 CFR part 60, appendix A. A leak-check of the pitot lines according to Section 3.1 of EPA Method 2, 40 CFR part 60, appendix A, must be performed. Determine the stack gas moisture content using EPA Approximation Method 4,40 CFR part 60, appendix A, or its alternatives to establish estimates of isokinetic sampling rate settings. Determine the stack gas dry molecular weight, as described in EPA Method 2, 40 CFR part 60, appendix A, Section 3.6. If integrated EPA Method 3, 40 CFR part 60, appendix A, sampling is used for molecular weight determination, the integrated bag sample shall be taken simultaneously with, and for the same total length of time as, the sample run.

8.3.2 Select a nozzle size based on the range of velocity heads so that it is not necessary to change the nozzle size in order to maintain isokinetic sampling rates below 28 l/min (1.0 cfm). During the run do not change the nozzle. Ensure that the proper differential pressure gauge is chosen for the range of velocity heads encountered (see Section 2.2 of EPA Method 2, 40 CFR part 60, appendix A).

8.3.3 Select a suitable probe liner and probe length so that all traverse points can be sampled. For large stacks, to reduce the length of the probe, consider sampling from opposite sides of the stack.

8.3.4 A minimum of 30 cu ft of sample volume is suggested for emission sources with stack concentrations not greater than 23,000,000 ppbv. Additional sample volume shall be collected as necessitated by the capacity of the water reagent and analytical detection limit constraint. Reduced sample volume may be collected as long as the final concentration of formaldehyde in the stack sample is greater than 10 (ten) times the detection limit.

8.3.5 Determine the total length of sampling time needed to obtain the identified minimum volume by comparing the anticipated average sampling rate with the volume requirement. Allocate the same time to all traverse points defined by EPA Method 1, 40 CFR part 60, appendix A. To avoid timekeeping errors, the length of time sampled at each traverse point should be an integer or an integer plus 0.5 min.

8.3.6 In some circumstances (e.g., batch cycles) it may be necessary to sample for shorter times at the traverse points and to obtain smaller gas-volume samples. In these cases, careful documentation must be maintained in order to allow accurate calculations of concentrations.

8.4 Preparation of Collection Train

8.4.1 During preparation and assembly of the sampling train, keep all openings where contamination can occur covered with Teflon™ film or aluminum foil until just prior to assembly or until sampling is about to begin.

8.4.2 Place 100 ml of water in each of the first two impingers, and leave the third impinger empty. If additional capacity is required for high expected concentrations of formaldehyde in the stack gas, 200 ml of water per impinger may be used or additional impingers may be used for sampling. Transfer approximately 200 to 300 g of preweighed silica gel from its container to the fourth impinger. Care should be taken to ensure that the silica gel is not entrained and carried out from the impinger during sampling. Place the silica gel container in a clean place for later use in the sample recovery. Alternatively, the weight of the silica gel plus impinger may be determined to the nearest 0.5 g and recorded.

8.4.3 With a glass or quartz liner, install the selected nozzle using a Viton-A O-ring when stack temperatures are <260 °C (500 °F) and a woven glass-fiber gasket when temperatures are higher. See APTD–0576 for details. Other connection systems utilizing either 316 stainless steel or Teflon™ ferrules may be used. Mark the probe with heat-resistant tape or by some other method to denote the proper distance into the stack or duct for each sampling point.

8.4.4 Assemble the train as shown in Figure 1. During assembly, a very light coating of silicone grease may be used on ground-glass joints of the impingers, but the silicone grease should be limited to the outer portion (see APTD–0576) of the ground-glass joints to minimize silicone grease contamination. If necessary, Teflon™ tape may be used to seal leaks. Connect all temperature sensors to an appropriate potentiometer/display unit. Check all temperature sensors at ambient temperatures.

8.4.5 Place crushed ice all around the impingers.

8.4.6 Turn on and set the probe heating system at the desired operating temperature. Allow time for the temperature to stabilize.

8.5 Leak-Check Procedures

8.5.1 Pre-test Leak-check: Recommended, but not required. If the tester elects to conduct the pre-test leak-check, the following procedure shall be used.

8.5.1.1 After the sampling train has been assembled, turn on and set probe heating system at the desired operating temperature. Allow time for the temperature to stabilize. If a Viton-a O-ring or other leak-free connection is used in assembling the probe nozzle to the probe liner, leak-check the train at the sampling site by plugging the nozzle and pulling a 381 mm Hg (15 in Hg) vacuum.

NOTE: A lower vacuum may be used, provided that the lower vacuum is not exceeded during the test.

If a woven glass fiber gasket is used, do not connect the probe to the train during the leak-check. Instead, leak-check the train by first attaching a carbon-filled leak-check impinger to the inlet and then plugging the inlet and pulling a 381 mm Hg (15 in Hg) vacuum. (A lower vacuum may be used if this lower vacuum is not exceeded during the test.) Next connect the probe to the train and leak-check at about 25 mm Hg (1 in Hg) vacuum. Alternatively, leak-check the probe with the rest of the sampling train in one step at 381 mm Hg (15 in Hg) vacuum. Leakage rates in excess of (a) 4 percent of the average sampling rate or (b) 0.00057 m^3/min (0.02 cfm), whichever is less, are unacceptable.

8.5.1.2 The following leak-check instructions for the sampling train described in APTD–0576 and APTD–0581 may be helpful. Start the pump with the fine-adjust valve fully open and coarse-valve completely closed. Partially open the coarse-adjust valve and slowly close the fine-adjust valve until the desired vacuum is reached. Do not reverse direction of the fine-adjust valve, as liquid will back up into the train. If the desired vacuum is exceeded, either perform the leak-check at this higher vacuum or end the leak-check, as described below, and start over.

8.5.1.3 When the leak-check is completed, first slowly remove the plug from the inlet to the probe. When the vacuum drops to 127 mm (5 in) Hg or less, immediately close the coarse-adjust valve. Switch off the pumping system and reopen the fine-adjust valve. Do not reopen the fine-adjust valve until the coarse-adjust valve has been closed to prevent the liquid in the impingers from being forced backward in the sampling line and silica gel from being entrained backward into the third impinger.

8.5.2 Leak-checks During Sampling Run:

8.5.2.1 If, during the sampling run, a component change (e.g., impinger) becomes necessary, a leak-check shall be conducted immediately after the interruption of sampling and before the change is made. The leak-check shall be done according to the procedure described in Section 10.3.3, except that it shall be done at a vacuum greater than or equal to the maximum value recorded up to that point in the test. If the leakage rate is found to be no greater than 0.0057 m^3/min (0.02 cfm) or 4 percent of the average sampling rate (whichever is less), the results are acceptable. If a higher leakage rate is obtained, the tester must void the sampling run.

NOTE: Any correction of the sample volume by calculation reduces the integrity of the pollutant concentration data generated and must be avoided.

8.5.2.2 Immediately after component changes, leak-checks are optional. If performed, the procedure described in section 8.5.1.1 shall be used.

8.5.3 Post-test Leak-check:

8.5.3.1 A leak-check is mandatory at the conclusion of each sampling run. The leak-check shall be done with the same procedures as the pre-test leak-check, except that the post-test leak-check shall be conducted at a vacuum greater than or equal to the maximum value reached during the sampling run. If the leakage rate is found to be no greater than 0.00057 m^3/min (0.02 cfm) or 4 percent of the average sampling rate (whichever is less), the results are acceptable. If, however, a higher leakage rate is obtained, the tester shall record the leakage rate and void the sampling run.

8.6 Sampling Train Operation

8.6.1 During the sampling run, maintain an isokinetic sampling rate to within 10 percent of true isokinetic, below 28 l/min (1.0 cfm). Maintain a temperature around the probe of 120 °C ± 14 °C (248 ° ± 25 °F).

8.6.2 For each run, record the data on a data sheet such as the one shown in Figure 2. Be sure to record the initial dry-gas meter reading. Record the dry-gas meter readings at the beginning and end of each sampling time increment, when changes in flow rates are made, before and after each leak-check, and when sampling is halted. Take other readings required by Figure 2 at least once at each sample point during each time increment and additional readings when significant adjustments (20 percent variation in velocity head readings) necessitate additional adjustments in flow rate. Level and zero the manometer. Because the manometer level and zero may drift due to vibrations and temperature changes, make periodic checks during the traverse.

Figure 2 - Formaldehyde Field Data

Plant . . . .

Location . . . .

Operator . . . .

Date . . . .

Run No . . . .

Sample box No . . . . . .

Meter box No . . . . . .

Meter ΔH . . . .

C Factor . . . .

Pitot tube coefficient, Op

SCHEMATIC OF STACK CROSS SECTION

Ambient temperature . . . .

Barometric pressure . . . .

Assumed moisture, percent . . . .

Probe length, m (ft) . . . . . .

Nozzle Identification No . . . .

Average calibrated nozzle diameter, cm (in.) . . . .

Probe heater setting . . . . . .

Leak rate, m^3/min (cfm) . . . . .

Probe liner material . . . . . .

Static pressure, mm Hg (in. Hg) .

Filter No. . . . .

Traverse point number	Sampling time (e) min.	Vacuum mm Hg (in. Hg)	Stack temperature (T) deg;C (°F)	Velocity head (ΔP) mm (in) H_2O	Pressure differential across orifice meter mm H_2O (in. H_2O)	Gas sample volume m^3 (ft^3)	Gas sample temperature at dry gas meter		Filter holder temperature deg;C (°F)	Temperature of gas leaving condenser or last impinger deg;C (°F)
							Inlet deg;C (°F)	Outlet deg;C (°F)		
	....	....	....	....	....	....	....	....	....	....
	....	....	....	....	....	....	....	....	....	....
	....	....	....	....	....	....	....	....	....	....
	....	....	....	....	....	....	....	....	....	....
	....	....	....	....	....	....	....	....	....	....
Total	....	....	....	....	....	....	Avg.	Avg.	....	....
Average	....	....	....	....	....	....	Avg.	....	....	....

8.6.3 Clean the stack access ports prior to the test run to eliminate the chance of sampling deposited material. To begin sampling, remove the nozzle cap, verify that the probe heating system are at the specified temperature, and verify that the pitot tube and probe are properly positioned. Position the nozzle at the first traverse point, with the tip pointing directly into the gas stream. Immediately start the pump and adjust the flow to isokinetic conditions. Nomographs, which aid in the rapid adjustment of the isokinetic sampling rate without excessive computations, are available. These nomographs are designed for use when the Type S pitot tube coefficient is 0.84 ± 0.02 and the stack gas equivalent density (dry molecular weight) is equal to 29 ± 4. APTD–0576 details the procedure for using the nomographs. If the stack gas molecular weight and the pitot tube coefficient are outside the above ranges, do not use the nomographs unless appropriate steps are taken to compensate for the deviations.

8.6.4 When the stack is under significant negative pressure (equivalent to the height of the impinger stem), take care to close the coarse-adjust valve before inserting the probe into the stack in order to prevent liquid from backing up through the train. If necessary, a low vacuum on the train may have to be started prior to entering the stack.

8.6.5 When the probe is in position, block off the openings around the probe and stack access port to prevent unrepresentative dilution of the gas stream.

8.6.6 Traverse the stack cross section, as required by EPA Method 1, 40 CFR part 60, appendix A, being careful not to bump the probe nozzle into the stack walls when sampling near the walls or when removing or inserting the probe through the access port, in order to minimize the chance of extracting deposited material.

8.6.7 During the test run, make periodic adjustments to keep the temperature around the probe at the proper levels. Add more ice and, if necessary, salt, to maintain a temperature of <20 °C (68 °F) at the silica gel outlet.

8.6.8 A single train shall be used for the entire sampling run, except in cases where simultaneous sampling is required in two or more separate ducts or at two or more different locations within the same duct, or in cases where equipment failure necessitates a change of trains. An additional train or trains may also be used for sampling when the capacity of a single train is exceeded.

8.6.9 When two or more trains are used, separate analyses of components from each train shall be performed. If multiple trains have been used because the capacity of a single train would be exceeded, first impingers from each train may be combined, and second impingers from each train may be combined.

8.6.10 At the end of the sampling run, turn off the coarse-adjust valve, remove the probe and nozzle from the stack, turn off the pump, record the final dry gas meter reading, and conduct a post-test leak-check. Also, check the pitot lines as described in EPA Method 2, 40 CFR part 60, appendix A. The lines must pass this leak-check in order to validate the velocity-head data.

8.6.11 Calculate percent isokineticity (see Method 2) to determine whether the run was valid or another test should be made.

8.7 Sample Preservation and Handling

8.7.1 Samples from most sources applicable to this method have acceptable holding times using normal handling practices (shipping samples iced, storing in refrigerator at 2 °C until analysis). However, forming section stacks and other sources using waste water sprays may be subject to microbial contamination. For these sources, a biocide (quaternary ammonium compound solution) may be added to collected samples to improve sample stability and method ruggedness.

8.7.2 Sample holding time: Samples should be analyzed within 14 days of collection. Samples must be refrigerated/kept cold for the entire period preceding analysis. After the samples have been brought to room temperature for analysis, any analyses needed should be performed on the same day. Repeated cycles of warming the samples to room temperature/refrigerating/rewarming, then analyzing again, etc., have not been investigated in depth to evaluate if analyte levels remain stable for all sources.

8.7.3 Additional studies will be performed to evaluate whether longer sample holding times are feasible for this method.

8.8 Sample Recovery

8.8.1 Preparation:

8.8.1.1 Proper cleanup procedure begins as soon as the probe is removed from the stack at the end of the sampling period. Allow the probe to cool. When the probe can be handled safely, wipe off all external particulate matter near the tip of the probe nozzle and place a cap over the tip to prevent losing or gaining particulate matter. Do not cap the probe tightly while the sampling train is cooling because a vacuum will be created, drawing liquid from the impingers back through the sampling train.

8.8.1.2 Before moving the sampling train to the cleanup site, remove the probe from the sampling train and cap the open outlet, being careful not to lose any condensate that might be present. Remove the umbilical cord from the last impinger and cap the impinger. If a flexible line is used, let any condensed water or liquid drain into the impingers. Cap off any open impinger inlets and outlets. Ground glass stoppers, Teflon™ caps, or caps of other inert materials may be used to seal all openings.

8.8.1.3 Transfer the probe and impinger assembly to an area that is clean and protected from wind so that the chances of contaminating or losing the sample are minimized.

8.8.1.4 Inspect the train before and during disassembly, and note any abnormal conditions.

8.8.1.5 Save a portion of the washing solution (high purity water) used for cleanup as a blank.

8.8.2 Sample Containers:

8.8.2.1 Container 1: Probe and Impinger Catches. Using a graduated cylinder, measure to the nearest ml, and record the volume of the solution in the first three impingers. Alternatively, the solution may be weighed to the nearest 0.5 g. Include any condensate in the probe in this determination. Transfer the combined impinger solution from the graduated cylinder into the polyethylene bottle. Taking care that dust on the outside of the probe or other exterior surfaces does not get into the sample, clean all surfaces to which the sample is exposed (including the probe nozzle, probe fitting, probe liner, first three impingers, and impinger connectors) with water. Use less than 400 ml for the entire waste (250 ml would be better, if possible). Add the rinse water to the sample container.

8.8.2.1.1 Carefully remove the probe nozzle and rinse the inside surface with water from a wash bottle. Brush with a bristle brush and rinse until the rinse shows no visible particles, after which make a final rinse of the inside surface. Brush and rinse the inside parts of the Swagelok (or equivalent) fitting with water in a similar way.

8.8.2.1.2 Rinse the probe liner with water. While squirting the water into the upper end of the probe, tilt and rotate the probe so that all inside surfaces will be wetted with water. Let the water drain from the lower end into the sample container. The tester may use a funnel (glass or polyethylene) to aid in transferring the liquid washes to the container. Follow the rinse with a bristle brush. Hold the probe in an inclined position, and squirt water into the upper end as the probe brush is being pushed with a twisting action through the probe. Hold the sample container underneath the lower end of the probe, and catch any water and particulate matter that is brushed from the probe. Run the brush through the probe three times or more. Rinse the brush with water and quantitatively collect these washings in the sample container. After the brushing, make a final rinse of the probe as describe above.

NOTE: Two people should clean the probe in order to minimize sample losses. Between sampling runs, brushes must be kept clean and free from contamination.

8.8.2.1.3 Rinse the inside surface of each of the first three impingers (and connecting tubing) three separate times. Use a small portion of water for each rinse, and brush each surface to which the sample is exposed with a bristle brush to ensure recovery of fine particulate matter. Make a final rinse of each surface and of the brush, using water.

8.8.2.1.4 After all water washing and particulate matter have been collected in the sample container, tighten the lid so the sample will not leak out when the container is shipped to the laboratory. Mark the height of the fluid level to determine whether leakage occurs during transport. Label the container clearly to identify its contents.

8.8.2.1.5 If the first two impingers are to be analyzed separately to check for breakthrough, separate the contents and rinses of the two impingers into individual containers. Care must be taken to avoid physical carryover from the first impinger to the second. Any physical carryover of collected moisture into the second impinger will invalidate a breakthrough assessment.

8.8.2.2 Container 2: Sample Blank. Prepare a blank by using a polyethylene container and adding a volume of water equal to the total volume in Container 1. Process the blank in the same manner as Container 1.

8.8.2.3 Container 3: Silica Gel. Note the color of the indicating silica gel to determine whether it has been completely spent and make a notation of its condition. The impinger containing the silica gel may be used as a sample transport container with both ends sealed with tightly fitting caps or plugs. Ground-glass stoppers or Teflon™ caps maybe used. The silica gel impinger should then be labeled, covered with aluminum foil, and packaged on ice for transport to the laboratory. If the silica gel is removed from the impinger, the tester may use a funnel to pour the silica gel and a rubber policeman to remove the silica gel from the impinger. It is not necessary to remove the small amount of dust particles that may adhere to the impinger wall and are difficult to remove. Since the gain in weight is to be used for moisture calculations, do not use water or other liquids to transfer the silica gel. If a balance is available in the field, the spent silica gel (or silica gel plus impinger) may be weighed to the nearest 0.5 g.

8.8.2.4 Sample containers should be placed in a cooler, cooled by (although not in contact with) ice. Putting sample bottles in Zip-Lock™ bags can aid in maintaining the integrity of the sample labels. Sample containers should be placed vertically to avoid leakage during shipment. Samples should be cooled during shipment so they will be received cold at the laboratory. It is critical that samples be chilled immediately after recovery. If the source is susceptible to microbial contamination from wash water (e.g. forming section stack), add biocide as directed in section 8.2.5.

8.8.2.5 A quaternary ammonium compound can be used as a biocide to stabilize samples against microbial degradation following collection. Using the stock quaternary ammonium compound (QAC) solution; add 2.5 ml QAC solution for every 100 ml of recovered sample volume (estimate of volume is satisfactory) immediately after collection. The total volume of QAC solution must be accurately known and recorded, to correct for any dilution caused by the QAC solution addition.

8.8.3 Sample Preparation for Analysis

8.8.3.1 The sample should be refrigerated if the analysis will not be performed on the day of sampling. Allow the sample to warm at room temperature for about two hours (if it has been refrigerated) prior to analyzing.

8.8.3.2 Analyze the sample by the pararosaniline method, as described in Section 11. If the color-developed sample has an absorbance above the highest standard, a suitable dilution in high purity water should be prepared and analyzed.

9.0 Quality Control

9.1 Sampling: See EPA Manual 600/4–77–02b for Method 5 quality control.

9.2 Analysis: The quality assurance program required for this method includes the analysis of the field and method blanks, and procedure validations. The positive identification and quantitation of formaldehyde are dependent on the integrity of the samples received and the precision and accuracy of the analytical methodology. Quality assurance procedures for this method are designed to monitor the performance of the analytical methodology and to provide the required information to take corrective action if problems are observed in laboratory operations or in field sampling activities.

9.2.1 Field Blanks: Field blanks must be submitted with the samples collected at each sampling site. The field blanks include the sample bottles containing aliquots of sample recover water, and water reagent. At a minimum, one complete sampling train will be assembled in the field staging area, taken to the sampling area, and leak-checked at the beginning and end of the testing (or for the same total number of times as the actual sampling train). The probe of the blank train must be heated during the sample test. The train will be recovered as if it were an actual test sample. No gaseous sample will be passed through the blank sampling train.

9.2.2 Blank Correction: The field blank formaldehyde concentrations will be subtracted from the appropriate sample formaldehyde concentrations. Blank formaldehyde concentrations above 0.25 µg/ml should be considered suspect, and subtraction from the sample formaldehyde concentrations should be performed in a manner acceptable to the Administrator.

9.2.3 Method Blanks: A method blank must be prepared for each set of analytical operations, to evaluate contamination and artifacts that can be derived from glassware, reagents, and sample handling in the laboratory.

10 Calibration

10.1 Probe Nozzle: Probe nozzles shall be calibrated before their initial use in the field. Using a micrometer, measure the inside diameter of the nozzle to the nearest 0.025 mm (0.001 in). Make measurements at three separate places across the diameter and obtain the average of the measurements. The difference between the high and low numbers shall not exceed 0.1 mm (0.004 in). When the nozzle becomes nicked or corroded, it shall be repaired and calibrated, or replaced with a calibrated nozzle before use. Each nozzle must be permanently and uniquely identified.

10.2 Pitot Tube: The Type S pitot tube assembly shall be calibrated according to the procedure outlined in Section 4 of EPA Method 2, or assigned a nominal coefficient of 0.84 if it is not visibly nicked or corroded and if it meets design and intercomponent spacing specifications.

10.3 Metering System

10.3.1 Before its initial use in the field, the metering system shall be calibrated according to the procedure outlined in APTD–0576. Instead of physically adjusting the dry-gas meter dial readings to correspond to the wet-test meter readings, calibration factors may be used to correct the gas meter dial readings mathematically to the proper values. Before calibrating the metering system, it is suggested that a leak-check be conducted. For metering systems having diaphragm pumps, the normal leak-check procedure will not delete leakages with the pump. For these cases, the following leak-check procedure will apply: Make a ten-minute calibration run at 0.00057 m^3/min (0.02 cfm). At the end of the run, take the difference of the measured wet-test and dry-gas meter volumes and divide the difference by 10 to get the leak rate. The leak rate should not exceed 0.00057 m^3/min (0.02 cfm).

10.3.2 After each field use, check the calibration of the metering system by performing three calibration runs at a single intermediate orifice setting (based on the previous field test). Set the vacuum at the maximum value reached during the test series. To adjust the vacuum, insert a valve between the wet-test meter and the inlet of the metering system. Calculate the average value of the calibration factor. If the calibration has changed by more than 5 percent, recalibrate the meter over the full range of orifice settings, as outlined in APTD–0576.

10.3.3 Leak-check of metering system: The portion of the sampling train from the pump to the orifice meter (see Figure 1) should be leak-checked prior to initial use and after each shipment. Leakage after the pump will result in less volume being recorded than is actually sampled. Use the following procedure: Close the main valve on the meter box. Insert a one-hole rubber stopper with rubber tubing attached into the orifice exhaust pipe. Disconnect and vent the low side of the orifice manometer. Close off the low side orifice tap. Pressurize the system to 13–18 cm (5–7 in) water column by blowing into the rubber tubing. Pinch off the tubing and observe the manometer for 1 min. A loss of pressure on the manometer indicates a leak in the meter box. Leaks must be corrected.

NOTE: If the dry-gas meter coefficient values obtained before and after a test series differ by >5 percent, either the test series must be voided or calculations for test series must be performed using whichever meter coefficient value (i.e., before or after) gives the lower value of total sample volume.

10.4 Probe Heater: The probe heating system must be calibrated before its initial use in the field according to the procedure outlined in APTD–0576. Probes constructed according to APTD–0581 need not be calibrated if the calibration curves in APTD–0576 are used.

10.5 Temperature gauges: Use the procedure in section 4.3 of USEPA Method 2 to calibrate in-stack temperature gauges. Dial thermometers such as are used for the dry gas meter and condenser outlet, shall be calibrated against mercury-in-glass thermometers.

10.6 Barometer: Adjust the barometer initially and before each test series to agree to within ±2.5 mm Hg (0.1 in Hg) of the mercury barometer. Alternately, if a National Weather Service Station (NWSS) is located at the same altitude above sea level as the test site, the barometric pressure reported by the NWSS may be used.

10.7 Balance: Calibrate the balance before each test series, using Class S standard weights. The weights must be within ±0.5 percent of the standards, or the balance must be adjusted to meet these limits.

11.0 Procedure for Analysis.

The working formaldehyde standards (0.25, 0.50, 1.0, 2.0, and 3.0 µg/ml) are analyzed and a calibration curve is calculated for each day's analysis. The standards should be analyzed first to ensure that the method is working properly prior to analyzing the samples. In addition, a sample of the high-purity water should also be analyzed and used as a ''0'' formaldehyde standard.

The procedure for analysis of samples and standards is identical: Using the pipet set to 2.50 ml, pipet 2.50 ml of the solution to be analyzed into a polystyrene cuvette. Using the 250 µl pipet, pipet 250 µl of the pararosaniline reagent solution into the cuvette. Seal the top of the cuvette with a Parafilm square and shake at least 30 seconds to ensure the solution in the cuvette is well-mixed. Peel back a corner of the Parafilm so the next reagent can be added. Using the 250 µl pipet, pipet 250 µl of the sodium sulfite reagent solution into the cuvette. Reseal the cuvette with the Parafilm, and again shake for about 30 seconds to mix the solution in the cuvette. Record the time of addition of the sodium sulfite and let the color develop at room temperature for 60 minutes. Set the spectrophotometer to 570 nm and set to read in Absorbance Units. The spectrophotometer should be equipped with a holder for the 1-cm pathlength cuvettes. Place cuvette(s) containing high-purity water in the spectrophotometer and adjust to read 0.000 AU.

After the 60 minutes color development period, read the standard and samples in the spectrophotometer. Record the absorbance reading for each cuvette. The calibration curve is calculated by linear regression, with the formaldehyde concentration as the ''x'' coordinate of the pair, and the absorbance reading as the ''y'' coordinate. The procedure is very reproducible, and typically will yield values similar to these for the calibration curve:

Correlation Coefficient: 0.9999
Slope: 0.50
Y-Intercept: 0.090

The formaldehyde concentration of the samples can be found by using the trend-line feature of the calculator or computer program used for the linear regression. For example, the TI–55 calculators use the ''X'' key (this gives the predicted formaldehyde concentration for the value of the absorbance you key in for the sample). Multiply the formaldehyde concentration from the sample by the dilution factor, if any, for the sample to give the formaldehyde concentration of the original, undiluted, sample (units will be micrograms/ml).

11.1 Notes on the Pararosaniline Procedure

11.1.1 The pararosaniline method is temperature-sensitive. However, the small fluctuations typical of a laboratory will not significantly affect the results.

11.1.2 The calibration curve is linear to beyond 4 ''µg/ml'' formaldehyde, however, a research-grade spectrophotometer is required to reproducibly read the high absorbance values. Consult your instrument manual to evaluate the capability of the spectrophotometer.

11.1.3 The quality of the laboratory water used to prepare standards and make dilutions is critical. It is important that the cautions given in the Reagents section be observed. This procedure allows quantitation of formaldehyde at very low levels, and thus it is imperative to avoid contamination from other sources of formaldehyde and to exercise the degree of care required for trace analyses.

11.1.4 The analyst should become familiar with the operation of the Oxford or equivalent pipettors before using them for an analysis. Follow the instructions of the manufacturer; one can pipet water into a tared container on any analytical balance to check pipet accuracy and precision. This will also establish if the proper technique is being used. Always use a new tip for each pipetting operation.

11.1.5 This procedure follows the recommendations of ASTM Standard Guide D 3614, reading all solutions versus water in the reference cell. This allows the absorbance of the blank to be tracked on a daily basis. Refer to ASTM D 3614 for more information.

12.0 Calculations

Carry out calculations, retaining at least one extra decimal figure beyond that of the acquired data. Round off figures after final calculations.

12.1 Calculations of Total Formaldehyde

12.1.1 To determine the total formaldehyde in mg, use the following equation if biocide was not used:

Total mg formaldehyde=

$$C_d \times V \times DF \times 0.001 \text{ mg/µg}$$

Where:

C_d = measured conc. formaldehyde, µg/ml
V = total volume of stack sample, ml
DF = dilution factor

12.1.2 To determine the total formaldehyde in mg, use the following equation if biocide was used:

Total mg formaldehyde=

$$\frac{C_d \times V}{(V - B) \times DF \times 0.001 \text{ mg/µg}}$$

Where:

C_d = measured conc. formaldehyde, µg/ml
V = total volume of stack sample, ml
B = total volume of biocide added to sample, ml
DF = dilution factor

12.2 Formaldehyde concentration (mg/m^3) in stack gas. Determine the formaldehyde concentration (mg/m^3) in the stack gas using the following equation: Formaldehyde concentration (mg/m^3) =

$$\frac{K \times [\text{total formaldehyde, mg}]}{V_m(\text{std})}$$

Where:

K = 35.31 cu ft/m^3 for V_m(std) in English units, or
K = 1.00 m^3/m^3 for V_m(std) in metric units
V_m(std) = volume of gas sample measured by a dry gas meter, corrected to standard conditions, dscm (dscf)

12.3 Average dry gas meter temperature and average orifice pressure drop are obtained from the data sheet.

12.4 Dry Gas Volume: Calculate V_m(std) and adjust for leakage, if necessary, using the equation in Section 6.3 of EPA Method 5, 40 CFR part 60, appendix A.

12.5 Volume of Water Vapor and Moisture Content: Calculated the volume of water vapor and moisture content from equations 5–2 and 5–3 of EPA Method 5.

13.0 Method Performance

The precision of this method is estimated to be better than ±5 percent, expressed as ± the percent relative standard deviation.

14.0 *Pollution Prevention*. (Reserved)

15.0 *Waste Management*. (Reserved)

16.0 *References*

R.R. Miksch, et al., Analytical Chemistry, November 1981, 53 pp. 2118–2123.

J.F. Walker, Formaldehyde, Third Edition, 1964.

US EPA 40 CFR, part 60, Appendix A, Test Methods 1–5

Method 318—Extractive FTIR Method for the Measurement of Emissions From the Mineral Wool and Wool Fiberglass Industries

1.0 *Scope and Application*

This method has been validated and approved for mineral wool and wool fiberglass sources. This method may not be applied to other source categories without validation and approval by the Administrator according to the procedures in Test Method 301, 40 CFR part 63, appendix A. For sources seeking to apply FTIR to other source categories, Test Method 320 (40 CFR part 63, appendix A) may be utilized.

1.1 Scope. The analytes measured by this method and their CAS numbers are:

Carbon Monoxide	630–08–0
Carbonyl Sulfide	463–58–1
Formaldehyde	50–00–0
Methanol	1455–13–6
Phenol	108–95–2

1.2 *Applicability*

1.2.1 This method is applicable for the determination of formaldehyde, phenol, methanol, carbonyl sulfide (COS) and carbon monoxide (CO) concentrations in controlled and uncontrolled emissions from manufacturing processes using phenolic resins. The compounds are analyzed in the mid-infrared spectral region (about 400 to 4000 cm − 1 or 25 to 2.5 μm). Suggested analytical regions are given below (Table 1). Slight deviations from these recommended regions may be necessary due to variations in moisture content and ammonia concentration from source to source.

TABLE 1—EXAMPLE ANALYTICAL REGIONS

Compound	Analytical region (cm − 1) $FL_m - FU_m$	Potential interferants
Formaldehyde	2840.93 − 2679.83	Water, Methane.
Phenol	1231.32 − 1131.47	Water, Ammonia, Methane.
Methanol	1041.56 − 1019.95	Water, Ammonia.
COS[a]	2028.4 − 2091.9	Water, CO_2, CO.
CO[a]	2092.1 − 2191.8	Water, CO_2, COS.

[a] Suggested analytical regions assume about 15 percent moisture and CO_2, and that COS and CO have about the same absorbance (in the range of 10 to 50 ppm). If CO and COS are hundreds of ppm or higher, then CO_2 and moisture interference is reduced. If CO or COS is present at high concentration and the other at low concentration, then a shorter cell pathlength may be necessary to measure the high concentration component.

1.2.2 This method does not apply when: (a) Polymerization of formaldehyde occurs, (b) moisture condenses in either the sampling system or the instrumentation, and (c) when moisture content of the gas stream is so high relative to the analyte concentrations that it causes severe spectral interference.

1.3 *Method Range and Sensitivity*

1.3.1 The analytical range is a function of instrumental design and composition of the gas stream. Theoretical detection limits depend, in part, on (a) the absorption coefficient of the compound in the analytical frequency region, (b) the spectral resolution, (c) interferometer sampling time, (d) detector sensitivity and response, and (e) absorption pathlength.

1.3.2 Practically, there is no upper limit to the range. The practical lower detection limit is usually higher than the theoretical value, and depends on (a) moisture content of the flue gas, (b) presence of interferants, and (c) losses in the sampling system. In general, a 22 meter pathlength cell in a suitable sampling system can achieve practical detection limits of 1.5 ppm for three compounds (formaldehyde, phenol, and methanol) at moisture levels up to 15 percent by volume. Sources with uncontrolled emissions of CO and COS may require a 4 meter pathlength cell due to high concentration levels. For these two compounds, make sure absorbance of highest concentration component is <1.0.

1.4 *Data Quality Objectives*

1.4.1 In designing or configuring the system, the analyst first sets the data quality objectives, i.e., the desired lower detection limit (DL_i) and the desired analytical uncertainty (AU_i) for each compound. The instrumental parameters (factors b, c, d, and e in Section 1.3.1) are then chosen to meet these requirements, using Appendix D of the FTIR Protocol.

1.4.2 Data quality for each application is determined, in part, by measuring the RMS (Root Mean Square) noise level in each analytical spectral region (Appendix C of the FTIR Protocol). The RMS noise is defined as the RMSD (Root Mean Square Deviation) of the absorbance values in an analytical region from the mean absorbance value of the region. Appendix D of the FTIR Protocol defines the MAU_{im} (minimum analyte uncertainty of the i^{th} analyte in the m^{th} analytical region). The MAU is the minimum analyte concentration for which the analytical uncertainty limit (AU_i) can be maintained: if the measured analyte concentration is less than MAU_i, then data quality is unacceptable. Table 2 gives some example DL and AU values along with calculated areas and MAU values using the protocol procedures.

TABLE 2—EXAMPLE PRE-TEST PROTOCOL CALCULATIONS

Protocol value	Form	Phenol	Methanol	Protocol appendix
Reference concentration[a] (ppm-meters)/K	3.016	3.017	5.064	
Reference Band Area	8.2544	16.6417	4.9416	B
DL (ppm-meters)/K	0.1117	0.1117	0.1117	B
AU	0.2	0.2	0.2	B
CL	0.02234	0.02234	0.02234	B
FL	2679.83	1131.47	1019.95	B
FU	2840.93	1231.32	1041.56	B
FC	2760.38	1181.395	1030.755	B
AAI (ppm-meters)/K	0.18440	0.01201	0.00132	B
RMSD	2.28E–03	1.21E–03	1.07E–03	C
MAU (ppm-meters)/K	4.45E–02	7.26E–03	4.68E–03	D
MAU (ppm at 22)	0.0797	0.0130	0.0084	D

[a] Concentration units are: ppm concentration of the reference sample (ASC), times the path length of the FTIR cell used when the reference spectrum was measured (meters), divided by the absolute temperature of the reference sample in Kelvin (K), or (ppm-meters)/K.

2.0 Summary of Method

2.1 Principle

2.1.1 Molecules are composed of chemically bonded atoms, which are in constant motion. The atomic motions result in bond deformations (bond stretching and bond-angle bending). The number of fundamental (or independent) vibrational motions depends on the number of atoms (N) in the molecule. At typical testing temperatures, most molecules are in the ground-state vibrational state for most of their fundamental vibrational motions. A molecule can undergo a transition from its ground state (for a particular vibration) to the first excited state by absorbing a quantum of light at a frequency characteristic of the molecule and the molecular motion. Molecules also undergo rotational transitions by absorbing energies in the far-infrared or microwave spectral regions. Rotational transition absorbencies are superimposed on the vibrational absorbencies to give a characteristic shape to each rotational-vibrational absorbance ‘‘band.’’

2.1.2 Most molecules exhibit more than one absorbance band in several frequency regions to produce an infrared spectrum (a characteristic pattern of bands or a ‘‘fingerprint’’) that is unique to each molecule. The infrared spectrum of a molecule depends on its structure (bond lengths, bond angles, bond strengths, and atomic masses). Even small differences in structure can produce significantly different spectra.

2.1.3 Spectral band intensities vary with the concentration of the absorbing compound. Within constraints, the relationship between absorbance and sample concentration is linear. Sample spectra are compared to reference spectra to determine the species and their concentrations.

2.2 Sampling and Analysis

2.2.1 Flue gas is continuously extracted from the source, and the gas or a portion of the gas is conveyed to the FTIR gas cell, where a spectrum of the flue gas is recorded. Absorbance band intensities are related to sample concentrations by Beer’s Law.
Where:

$$A_v = \sum a_i b c_i \qquad (6)$$

A_ν = absorbance of the i^{th} component at the given frequency, ν.
a = absorption coefficient of the i^{th} component at the frequency, ν.
b = path length of the cell.
c = concentration of the i^{th} compound in the sample at frequency ν.

2.2.2 After identifying a compound from the infrared spectrum, its concentration is determined by comparing band intensities in the sample spectrum to band intensities in ‘‘reference spectra’’ of the formaldehyde, phenol, methanol, COS and CO. These reference spectra are available in a permanent soft copy from the EPA spectral library on the EMTIC bulletin board. The source may also prepare reference spectra according to Section 4.5 of the FTIR Protocol.

NOTE: Reference spectra not prepared according to the FTIR Protocol are not acceptable for use in this test method. Documentation detailing the FTIR Protocol steps used in preparing any non-EPA reference spectra shall be included in each test report submitted by the source.

2.3 Operator Requirements. The analyst must have some knowledge of source sampling and of infrared spectral patterns to operate the sampling system and to choose a suitable instrument configuration. The analyst should also understand FTIR instrument operation well enough to choose an instrument configuration consistent with the data quality objectives.

3.0 Definitions

See Appendix A of the *FTIR* Protocol.

4.0 Interferences

4.1 Analytical (or Spectral) Interferences. Water vapor. High concentrations of ammonia (hundreds of ppm) may interfere with the analysis of low concentrations of methanol (1 to 5 ppm). For CO, carbon dioxide and water may be interferants. In cases where COS levels are low relative to CO levels, CO and water may be interferants.

4.2 Sampling System Interferences. Water, if it condenses, and ammonia, which reacts with formaldehyde.

5.0 Safety

5.1 Formaldehyde is a suspected carcinogen; therefore, exposure to this compound must be limited. Proper monitoring and safety precautions must be practiced in any atmosphere with potentially high concentrations of CO.

5.2 This method may involve sampling at locations having high positive or negative pressures, high temperatures, elevated heights, high concentrations of hazardous or toxic pollutants, or other diverse sampling conditions. It is the responsibility of the tester(s) to ensure proper safety and health practices, and to determine the applicability of regulatory limitations before performing this test method.

6.0 Equipment and Supplies

The equipment and supplies are based on the schematic of a sampling train shown in Figure 1. Either the evacuated or purged sampling technique may be used with this sampling train. Alternatives may be used, provided that the data quality objectives of this method are met.

6.1 Sampling Probe. Glass, stainless steel, or other appropriate material of sufficient length and physical integrity to sustain heating, prevent adsorption of analytes, and to reach gas sampling point.

6.2 Particulate Filters. A glass wool plug (optional) inserted at the probe tip (for large particulate removal) and a filter rated at 1-micron (e.g., Balston™) for fine particulate removal, placed immediately after the heated probe.

6.3 Sampling Line/Heating System. Heated (maintained at 250 ± 25 degrees F) stainless steel, Teflon™, or other inert material that does not adsorb the analytes, to transport the sample to analytical system.

6.4 Stainless Steel Tubing. Type 316, e.g., ⅜ in. diameter, and appropriate length for heated connections.

6.5 Gas Regulators. Appropriate for individual gas cylinders.

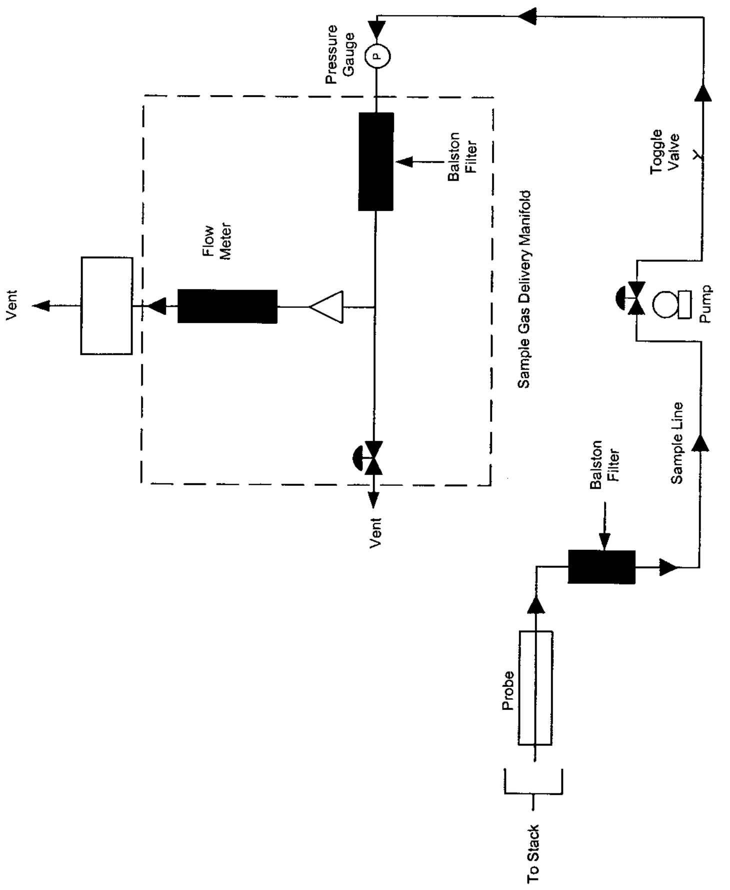


Figure 1. The extractive FTIR sampling system.

6.6 Teflon™ Tubing. Diameter (e.g., ⅜ in.) and length suitable to connect cylinder regulators.

6.7 Sample Pump. A leak-free pump (e.g., KNF™), with by-pass valve, capable of pulling sample through entire sampling system at a rate of about 10 to 20 L/min. If placed before the analytical system, heat the pump and use a pump fabricated from materials non-reactive to the target pollutants. If the pump is located after the instrument, systematically record the sample pressure in the gas cell.

6.8 Gas Sample Manifold. A heated manifold that diverts part of the sample stream to the analyzer, and the rest to the by-pass discharge vent or other analytical instrumentation.

6.9 Rotameter. A calibrated 0 to 20 L/min range rotameter.

6.10 FTIR Analytical System. Spectrometer and detector, capable of measuring formaldehyde, phenol, methanol, COS and CO to the predetermined minimum detectable level. The system shall include a personal computer with compatible software that provides real-time updates of the spectral profile during sample collection and spectral collection.

6.11 FTIR Cell Pump. Required for the evacuated sampling technique, capable of evacuating the FTIR cell volume within 2 minutes. The FTIR cell pump should allow the operator to obtain at least 8 sample spectra in 1 hour.

6.12 Absolute Pressure Gauge. Heatable and capable of measuring pressure from 0 to 1000 mmHg to within ±2.5 mmHg (e.g., Baratron™).

6.13 Temperature Gauge. Capable of measuring the cell temperature to within ±2 °C.

7.0 Reagents and Standards

7.1 Ethylene (Calibration Transfer Standard). Obtain NIST traceable (or Protocol) cylinder gas.

7.2 Nitrogen. Ultra high purity (UHP) grade.

7.3 Reference Spectra. Obtain reference spectra for the target pollutants at concentrations that bracket (in ppm-meter/K) the emission source levels. Also, obtain reference spectra for SF_6 and ethylene. Suitable concentrations are 0.0112 to 0.112 (ppm-meter)/K for SF_6 and 5.61 (ppm-meter)/K or less for ethylene. The reference spectra shall meet the criteria for acceptance outlined in Section 2.2.2. The optical density (ppm-meters/K) of the reference spectrum must match the optical density of the sample spectrum within (less than) 25 percent.

8.0 Sample Collection, Preservation, and Storage

Sampling should be performed in the following sequence: Collect background, collect CTS spectrum, collect samples, collect post-test CTS spectrum, verify that two copies of all data were stored on separate computer media.

8.1 Pretest Preparations and Evaluations. Using the procedure in Section 4.0 of the *FTIR Protocol*, determine the optimum sampling system configuration for sampling the target pollutants. Table 2 gives some example values for AU, DL, and MAU. Based on a study (Reference 1), an FTIR system using 1 cm^{-1} resolution, 22 meter path length, and a broad band MCT detector was suitable for meeting the requirements in Table 2. Other factors that must be determined are:

a. Test requirements: AU_i, $CMAX_i$, DL_i, OFU_i, and t_{AN} for each.

b. Interferants: See Table 1.

c. Sampling system: L_S', P_{min}, P_S', T_S', t_{SS}, V_{SS}; fractional error, MIL.

d. Analytical regions: 1 through N_m, FL_m, FC_m, and FU_m, plus interferants, FFU_m, FFL_m, wavenumber range FNU to FNL. See Tables 1 and 2.

8.1.1 If necessary, sample and acquire an initial spectrum. Then determine the proper operational pathlength of the instrument to obtain non-saturated absorbances of the target analytes.

8.1.2 Set up the sampling train as shown in Figure 1.

8.2 Sampling System Leak-check. Leak-check from the probe tip to pump outlet as follows: Connect a 0- to 250-mL/min rate meter (rotameter or bubble meter) to the outlet of the pump. Close off the inlet to the probe, and note the leakage rate. The leakage rate shall be ≤200 mL/min.

8.3 Analytical System Leak-check.

8.3.1 For the evacuated sample technique, close the valve to the FTIR cell, and evacuate the absorption cell to the minimum absolute pressure $P_{min.}$ Close the valve to the pump, and determine the change in pressure ΔP_v after 2 minutes.

8.3.2 For both the evacuated sample and purging techniques, pressurize the system to about 100 mmHg above atmospheric pressure. Isolate the pump and determine the change in pressure ΔP_p after 2 minutes.

8.3.3 Measure the barometric pressure, P_b in mmHg.

8.3.4 Determine the percent leak volume $\%V_L$ for the signal integration time t_{SS} and for ΔP_{max}, i.e., the larger of ΔP_v or ΔP_p, as follows:

$$\%V_L = 50\, t_{SS} \frac{\Delta P_{max}}{P_{SS}} \qquad (2)$$

Where:

50 = 100% divided by the leak-check time of 2 minutes.

8.3.5 Leak volumes in excess of 4 percent of the sample system volume V_{SS} are unacceptable.

8.4 Background Spectrum. Evacuate the gas cell to ≤5 mmHg, and fill with dry nitrogen gas to ambient pressure. Verify that no significant amounts of absorbing species (for example water vapor and CO_2) are present. Collect a background spectrum, using a signal averaging period equal to or greater than the averaging period for the sample spectra. Assign a unique file name to the background spectrum. Store the spectra of the background interferogram and processed single-beam background spectrum on two separate computer media (one is used as the back-up). If continuous sampling will be used during sample collection, collect the background spectrum with nitrogen gas flowing through the cell at the same pressure and temperature as will be used during sampling.

8.5 Pre-Test Calibration Transfer Standard. Evacuate the gas cell to ≤5 mmHg absolute pressure, and fill the FTIR cell to atmospheric pressure with the CTS gas. Or, purge the cell with 10 cell volumes of CTS gas. Record the spectrum. If continuous sampling will be used during sample collection, collect the CTS spectrum with CTS gas flowing through the cell at the same pressure and temperature as will be used during sampling.

8.6 Samples

8.6.1 Evacuated Samples. Evacuate the absorbance cell to ≤5 mmHg absolute pressure. Fill the cell with flue gas to ambient pressure and record the spectrum. Before taking the next sample, evacuate the cell until no further evidence of absorption exists. Repeat this procedure to collect at least 8 separate spectra (samples) in 1 hour.

8.6.2 Purge Sampling. Purge the FTIR cell with 10 cell volumes of flue gas and at least for about 10 minutes. Discontinue the gas cell purge, isolate the cell, and record the sample spectrum and the pressure. Before taking the next sample, purge the cell with 10 cell volumes of flue gas.

8.6.3 Continuous Sampling. Spectra can be collected continuously while the FTIR cell is being purged. The sample integration time, t_{ss}, the sample flow rate through the FTIR gas cell, and the total run time must be chosen so that the collected data consist of at least 10 spectra with each spectrum being of a separate cell volume of flue gas. More spectra can be collected over the run time and the total run time (and number of spectra) can be extended as well.

8.7 Sampling QA, Data Storage and Reporting

8.7.1 Sample integration times should be sufficient to achieve the required signal-to-noise ratios. Obtain an absorbance spectrum by filling the cell with nitrogen. Measure the RMSD in each analytical region in this absorbance spectrum. Verify that the number of scans is sufficient to achieve the target MAU (Table 2).

8.7.2 Identify all sample spectra with unique file names.

8.7.3 Store on two separate computer media a copy of sample interferograms and processed spectra. The data shall be available to the Administrator on request for the length of time specified in the applicable regulation.

8.7.4 For each sample spectrum, document the sampling conditions, the sampling time (while the cell was being filled), the time the spectrum was recorded, the instrumental conditions (path length, temperature, pressure, resolution, integration time), and the spectral file name. Keep a hard copy of these data sheets.

8.8 Signal Transmittance. While sampling, monitor the signal transmittance through the instrumental system. If signal transmittance (relative to the background) drops below 95 percent in any spectral region where the sample does not absorb infrared energy, obtain a new background spectrum.

8.9 Post-run CTS. After each sampling run, record another CTS spectrum.

8.10 Post-test QA

8.10.1 Inspect the sample spectra immediately after the run to verify that the gas matrix composition was close to the expected (assumed) gas matrix.

8.10.2 Verify that the sampling and instrumental parameters were appropriate for the conditions encountered. For example, if the moisture is much greater than anticipated, it will be necessary to use a shorter path length or dilute the sample.

8.10.3 Compare the pre and post-run CTS spectra. They shall agree to within −5 percent. See FTIR Protocol, Appendix E.

9.0 *Quality Control*

Follow the quality assurance procedures in the method, including the analysis of pre and post-run calibration transfer standards (Sections 8.5 and 8.9) and the post-test quality assurance procedures in Section 8.10.

10.0 *Calibration and Standardization*

10.1 Signal-to-Noise Ratio (S/N). The S/N shall be sufficient to meet the MAU in each analytical region.

10.2 Absorbance Pathlength. Verify the absorbance path length by comparing CTS spectra to reference spectra of the calibration gas(es). See FTIR Protocol, Appendix E.

10.3 Instrument Resolution. Measure the line width of appropriate CTS band(s) and compare to reference CTS spectra to verify instrumental resolution.

10.4 Apodization Function. Choose appropriate apodization function. Determine any appropriate mathematical transformations that are required to correct instrumental errors by measuring the CTS. Any mathematical transformations must be documented and reproducible.

10.5 FTIR Cell Volume. Evacuate the cell to ≤5 mmHg. Measure the initial absolute temperature (T_i) and absolute pressure (P_i). Connect a wet test meter (or a calibrated dry gas meter), and slowly draw room air into the cell. Measure the meter volume (V_m), meter absolute temperature (T_m), and meter absolute pressure (P_m), and the cell final absolute temperature (T_f) and absolute pressure (P_f). Calculate the FTIR cell volume V_{ss}, including that of the connecting tubing, as follows:

$$V_{SS} = \frac{V_m \dfrac{P_m}{T_m}}{\left[\dfrac{P_f}{T_f} - \dfrac{P_i}{T_i}\right]} \qquad (8)$$

As an alternative to the wet test meter/calibrated dry gas meter procedure, measure the inside dimensions of the cell cylinder and calculate its volume.

11.0 Procedure

Refer to Sections 4.6–4.11, Sections 5, 6, and 7, and the appendices of the FTIR Protocol.

12.0 Data Analysis and Calculations

a. Data analysis is performed using appropriate reference spectra whose concentrations can be verified using CTS spectra. Various analytical programs are available to relate sample absorbance to a concentration standard. Calculated concentrations should be verified by analyzing spectral baselines after mathematically subtracting scaled reference spectra from the sample spectra. A full description of the data analysis and calculations may be found in the FTIR Protocol (Sections 4.0, 5.0, 6.0 and appendices).

b. Correct the calculated concentrations in sample spectra for differences in absorption pathlength between the reference and sample spectra by:

$$C_{corr} = \left[\frac{L_r}{L_s}\right]\left[\frac{T_s}{T_r}\right]C_{calc} \qquad (9)$$

Where:

C_{corr} = The pathlength corrected concentration.

C_{calc} = The initial calculated concentration (output of the Multicomp program designed for the compound).

L_r = The pathlength associated with the reference spectra.

L_s = The pathlength associated with the sample spectra.

T_s = The absolute temperature (K) of the sample gas.

T_r = The absolute gas temperature (K) at which reference spectra were recorded.

13.0 Reporting and Recordkeeping

All interferograms used in determining source concentration shall be stored for the period of time required in the applicable regulation. The Administrator has the option of requesting the interferograms recorded during the test in electronic form as part of the test report.

14.0 Method Performance

Refer to the FTIR Protocol.

15.0 Pollution Prevention. [Reserved]

16.0 Waste Management

Laboratory standards prepared from the formaldehyde and phenol are handled according to the instructions in the materials safety data sheets (MSDS).

17.0 References

(1) ‘‘Field Validation Test Using Fourier Transform Infrared (FTIR) Spectrometry To Measure Formaldehyde, Phenol and Methanol at a Wool Fiberglass Production Facility.’’ Draft. U.S. Environmental Protection Agency Report, Entropy, Inc., EPA Contract No. 68D20163, Work Assignment I–32, December 1994 (docket item II–A–13).

(2) ‘‘Method 301—Field Validation of Pollutant Measurement Methods from Various Waste Media,’’ 40 CFR part 63, appendix A.

METHOD 319—DETERMINATION OF FILTRATION EFFICIENCY FOR PAINT OVERSPRAY ARRESTORS

1.0 Scope and Application.

1.1 This method applies to the determination of the initial, particle size dependent, filtration efficiency for paint arrestors over the particle diameter range from 0.3 to 10 μm. The method applies to single and multiple stage paint arrestors or paint arrestor media. The method is applicable to efficiency determinations from 0 to 99 percent. Two test aerosols are used—one liquid phase and one solid phase. Oleic acid, a low-volatility liquid (CAS Number 112–80–1), is used to simulate the behavior of wet paint overspray. The solid-phase aerosol is potassium chloride salt (KCl, CAS Number 7447–40–7) and is used to simulate the behavior of a dry overspray. The method is limited to determination of the initial, clean filtration efficiency of the arrestor. Changes in efficiency (either increase or decrease) due to the accumulation of paint overspray on and within the arrestor are not evaluated.

1.2 Efficiency is defined as 1—Penetration (e.g., 70 percent efficiency is equal to 0.30 penetration). Penetration is based on the ratio of the downstream particle concentration to the upstream concentration. It is often more useful, from a mathematical or statistical point of view, to discuss the upstream and downstream counts in terms of penetration rather than the derived efficiency value. Thus, this document uses both penetration and efficiency as appropriate.

1.3 For a paint arrestor system or subsystem which has been tested by this method, adding additional filtration devices to the system or subsystem shall be assumed to result in an efficiency of at least that of the original system without the requirement for additional testing. (For example, if the final stage of a three-stage paint arrestor system has been tested by itself, then the addition of the other two stages shall be assumed to maintain, as a minimum, the filtration efficiency provided by the final stage alone. Thus, in this example, if the final stage has been shown to meet the filtration requirements of Table 1 of §63.745 of subpart GG, then the final stage in combination with any additional paint arrestor stages also passes the filtration requirements.)

2.0 Summary of Method.

2.1 This method applies to the determination of the fractional (i.e., particle-size dependent) aerosol penetration of several types of paint arrestors. Fractional penetration is computed from aerosol concentrations measured upstream and downstream of an arrestor installed in a laboratory test rig. The aerosol concentrations upstream and downstream of the arrestors are measured with an aerosol analyzer that simultaneously counts and sizes the particles in the aerosol stream. The aerosol analyzer covers the particle diameter size range from 0.3 to 10 µm in a minimum of 12 contiguous sizing channels. Each sizing channel covers a narrow range of particle diameters. For example, Channel 1 may cover from 0.3 to 0.4 µm, Channel 2 from 0.4 to 0.5 µm, * * * By taking the ratio of the downstream to upstream counts on a channel by channel basis, the penetration is computed for each of the sizing channels.

2.2 The upstream and downstream aerosol measurements are made while injecting the test aerosol into the air stream upstream of the arrestor (ambient aerosol is removed with HEPA filters on the inlet of the test rig). This test aerosol spans the particle size range from 0.3 to 10 µm and provides sufficient upstream concentration in each of the optical particle counter (OPC) sizing channels to allow accurate calculation of penetration, down to penetrations of approximately 0.01 (i.e., 1 percent penetration; 99 percent efficiency). Results are presented as a graph and a data table showing the aerodynamic particle diameter and the corresponding fractional efficiency.

3.0 Definitions.

Aerodynamic Diameter—diameter of a unit density sphere having the same aerodynamic properties as the particle in question.

Efficiency is defined as equal to 1—Penetration.

Optical Particle Counter (OPC)—an instrument that counts particles by size using light scattering. An OPC gives particle diameters based on size, index of refraction, and shape.

Penetration—the fraction of the aerosol that penetrates the filter at a given particle diameter. Penetration equals the downstream concentration divided by the upstream concentration.

4.0 Interferences.

4.1 The influence of the known interferences (particle losses) are negated by correction of the data using blanks.

5.0 Safety.

5.1 There are no specific safety precautions for this method above those of good laboratory practice. This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

6.0 Equipment and Supplies.

6.1 Test Facility. A schematic diagram of a test duct used in the development of the method is shown in Figure 319–1.

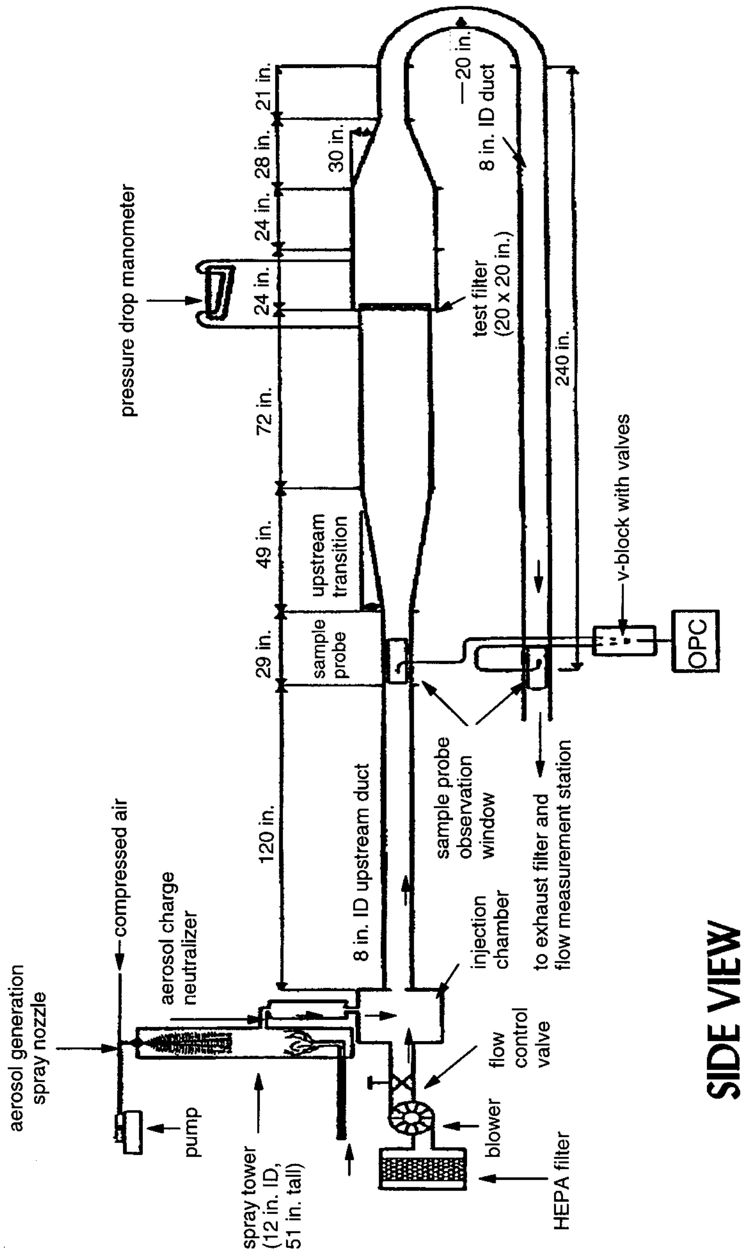


Figure 319-1. Schematic illustration of the fractional efficiency test rig.

6.1.1 The test section, paint spray section, and attached transitions are constructed of stainless and galvanized steel. The upstream and downstream ducting is 20 cm diameter polyvinyl chloride (PVC). The upstream transition provides a 7 ° angle of expansion to provide a uniform air flow distribution to the paint arrestors. Aerosol concentration is measured upstream and downstream of the test section to obtain the challenge and penetrating aerosol concentrations, respectively. Because the downstream ducting runs back under the test section, the challenge and penetrating aerosol taps are located physically near each other, thereby facilitating aerosol sampling and reducing sample-line length. The inlet nozzles of the upstream and downstream aerosol probes are designed to yield isokinetic sampling conditions.

6.1.2 The configuration and dimensions of the test duct can deviate from those of Figure 319–1 provided that the following key elements are maintained: the test duct must meet the criteria specified in Table 319–1; the inlet air is HEPA filtered; the blower is on the upstream side of the duct thereby creating a positive pressure in the duct relative to the surrounding room; the challenge air has a temperature between 50 ° and 100 °F and a relative humidity of less than 65 percent; the angle of the upstream transition (if used) to the paint arrestor must not exceed 7 °; the angle of the downstream transition (if used) from the paint arrestor must not exceed 30 °; the test duct must provide a means for mixing the challenge aerosol with the upstream flow (in lieu of any mixing device, a duct length of 15 duct diameters fulfills this requirement); the test duct must provide a means for mixing any penetrating aerosol with the downstream flow (in lieu of any mixing device, a duct length of 15 duct diameters fulfills this requirement); the test section must provide a secure and leak-free mounting for single and multiple stage arrestors; and the test duct may utilize a 180 ° bend in the downstream duct.

TABLE 319–1—QC CONTROL LIMITS

	Frequency and description	Control limits
OPC zero count	Each Test. OPC samples HEPA-filtered air.	<50 counts per minute.
OPC sizing accuracy check	Daily. Sample aerosolized PSL spheres	Peak of distribution should be in correct OPC channel.
Minimum counts per channel for challenge aerosol.	Each Test	Minimum total of 500 particle counts per channel.
Maximum particle concentration	Each Test. Needed to ensure OPC is not overloaded.	<10% of manufacturer's claimed upper limit corresponding to a 10% count error.
Standard Deviation of Penetration	Computed for each test based on the CV of the upstream and downstream counts.	<0.10 for 0.3 to 3 μm diameter. <0.30 for >3 μm diameter.
0% Penetration	Monthly	<0.01.
100% Penetration—KCl	Triplicate tests performed immediately before, during, or after triplicate arrestor tests.	0.3 to 1 μm: 0.90 to 1.10. 1 to 3 μm: 0.75 to 1.25. 3 to 10 μm: 0.50 to 1.50.
100% Penetration—Oleic Acid	Triplicate tests performed immediately before, during, or after triplicate arrestor tests.	0.3 to 1 μm: 0.90 to 1.10. 1 to 3 μm: 0.75 to 1.25. 3 to 10 μm: 0.50 to 1.50.

6.2 Aerosol Generator. The aerosol generator is used to produce a stable aerosol covering the particle size range from 0.3 to 10 μm diameter. The generator used in the development of this method consists of an air atomizing nozzle positioned at the top of a 0.30–m (12-in.) diameter, 1.3–m (51-in.) tall, acrylic, transparent, spray tower. This tower allows larger sized particles, which would otherwise foul the test duct and sample lines, to fall out of the aerosol. It also adds drying air to ensure that the KCl droplets dry to solid salt particles. After generation, the aerosol passes through an aerosol neutralizer (Kr85 radioactive source) to neutralize any electrostatic charge on the aerosol (electrostatic charge is an unavoidable consequence of most aerosol generation methods). To improve the mixing of the aerosol with the air stream, the aerosol is injected counter to the airflow. Generators of other designs may be used, but they must produce a stable aerosol concentration over the 0.3 to 10 μm diameter size range; provide a means of ensuring the complete drying of the KCl aerosol; and utilize a charge neutralizer to neutralize any electrostatic charge on the aerosol. The resultant challenge aerosol must meet the minimum count per channel and maximum concentration criteria of Table 319–1.

6.3 Installation of Paint Arrestor. The paint arrestor is to be installed in the test duct in a manner that precludes air bypassing the arrestor. Since arrestor media are often sold unmounted, a mounting frame may be used to provide back support for the media in addition to sealing it into the duct. The mounting frame for 20 in.×20 in. arrestors will have minimum open internal dimensions of 18 in. square. Mounting frames for 24 in.×24 in. arrestors will have minimum open internal dimensions of 22 in. square. The open internal dimensions of the mounting frame shall not be less than 75 percent of the approach duct dimensions.

6.4 Optical Particle Counter. The upstream and downstream aerosol concentrations are measured with a high-resolution optical particle counter (OPC). To ensure comparability of test results, the OPC shall utilize an optical design based on wide-angle light scattering and provided a minimum of 12 contiguous particle sizing channels from 0.3 to 10μm diameter (based on response to PSL) where, for each channel, the ratio of the diameter corresponding to the upper channel bound to the lower channel bound must not exceed 1.5.

6.5 Aerosol Sampling System. The upstream and downstream sample lines must be made of rigid electrically-grounded metallic tubing having a smooth inside surface, and they must be rigidly secured to prevent movement during testing. The upstream and downstream sample lines are to be nominally identical in geometry. The use of a short length (100 mm maximum) of straight flexible tubing to make the final connection to the OPC is acceptable. The inlet nozzles of the upstream and downstream probes must be sharp-edged and of appropriate entrance diameter to maintain isokinetic sampling within 20 percent of the air velocity.

6.5.1 The sampling system may be designed to acquire the upstream and downstream samples using (a) sequential upstream-downstream sampling with a single OPC, (b) simultaneous upstream and downstream sampling with two OPC's, or (c) sequential upstream-downstream sampling with two OPC's.

6.5.2 When two particle counters are used to acquire the upstream and downstream counts, they must be closely matched in flowrate and optical design.

6.6 Airflow Monitor. The volumetric airflow through the system shall be measured with a calibrated orifice plate, flow nozzle, or laminar flow element. The measurement device must have an accuracy of 5 percent or better.

7.0 Reagents and Standards.

7.1 The liquid test aerosol is reagent grade, 98 percent pure, oleic acid (Table 319–2). The solid test aerosol is KCl aerosolized from a solution of KCl in water. In addition to the test aerosol, a calibration aerosol of monodisperse polystyrene latex (PSL) spheres is used to verify the calibration of the OPC.

TABLE 319–2—PROPERTIES OF THE TEST AND CALIBRATION AEROSOLS

	Refractive index	Density, g/cm ^{3}	Shape
Oleic Acid (liquid-phase challenge aerosol).	1.46 nonabsorbing	0.89	Spherical.
KCl (solid-phase challenge aerosol).	1.49	1.98	Cubic or agglomerated cubes.
PSL (calibration aerosol)	1.59 nonabsorbing	1.05	Spherical.

8.0 Sample Collection, Preservation, and Storage.

8.1 In this test, all sampling occurs in real-time, thus no samples are collected that require preservation or storage during the test. The paint arrestors are shipped and stored to avoid structural damage or soiling. Each arrestor may be shipped in its original box from the manufacturer or similar cardboard box. Arrestors are stored at the test site in a location that keeps them clean and dry. Each arrestor is clearly labeled for tracking purposes.

9.0 Quality Control.

9.1 Table 319–1 lists the QC control limits.

9.2 The standard deviation (σ) of the penetration (P) for a given test at each of the 15 OPC sizing channels is computed from the coefficient of variation (CV, the standard deviation divided by the mean) of the upstream and downstream measurements as:

$$\sigma_P = P\sqrt{\left(CV_{upstream}^2 + CV_{downstream}^2\right)} \qquad \text{(Eq. 319-1)}$$

For a properly operating system, the standard deviation of the penetration is < 0.10 at particle diameters from 0.3 to 3 μm and less than 0.30 at diameters > 3 μm.

9.3 Data Quality Objectives (DQO).

9.3.1 Fractional Penetration. From the triplicate tests of each paint arrestor model, the standard deviation for the penetration measurements at each particle size (i.e., for each sizing channel of the OPC) is computed as:

$$s = \left[\sum \left(P_i - \overline{P} \right)^2 / (n-1) \right]^{\frac{1}{2}} \qquad \text{(Eq. 319-2)}$$

where P_i represents an individual penetration measurement, and P the average of the 3 (n = 3) individual measurements.

9.3.2 Bias of the fractional penetration values is determined from triplicate no-filter and HEPA filter tests. These tests determine the measurement bias at 100 percent penetration and 0 percent penetration, respectively.

9.3.3 PSL-Equivalent Light Scattering Diameter. The precision and bias of the OPC sizing determination are based on sampling a known diameter of PSL and noting whether the particle counts peak in the correct channel of the OPC. This is a pass/fail measurement with no calculations involved.

9.3.4 Airflow. The precision of the measurement must be within 5 percent of the set point.

10.0 Calibration and Standardization.

10.1 Optical Particle Counter. The OPC must have an up-to-date factory calibration. Check the OPC zero at the beginning and end of each test by sampling HEPA-filtered air. Verify the sizing accuracy on a daily basis (for days when tests are performed) with 1-size PSL spheres.

10.2 Airflow Measurement. Airflow measurement devices must have an accuracy of 5 percent or better. Manometers used in conjunction with the orifice plate must be inspected prior to use for proper level, zero, and mechanical integrity. Tubing connections to the manometer must be free from kinks and have secure connections.

10.3 Pressure Drop. Measure pressure drop across the paint arrestor with an inclined manometer readable to within 0.01 in. H_2O. Prior to use, the level and zero of the manometer, and all tubing connections, must be inspected and adjusted as needed.

11.0 Procedure.

11.1 Filtration Efficiency. For both the oleic acid and KCl challenges, this procedure is performed in triplicate using a new arrestor for each test.

11.1.1 General Information and Test Duct Preparation

11.1.1.1 Use the ‘‘Test Run Sheet’’ form (Figure 319–2) to record the test information.

RUN SHEET

Part 1. General Information

Date and Time: ______________________________

Test Operator: ______________________________

Test #: ______________________________________

Paint Arrestor:

Brand/Model ________________________________

Arrestor Assigned ID # ____________________

Condition of arrestor (i.e., is there any damage? Must be new condition to proceed):

____

Manometer zero and level confirmed?

____

Part 2. Clean Efficiency Test

Date and Time: ______________________________

Optical Particle Counter:

20 min. warm up ____________________________

Zero count (< 50 counts/min) ______________

Daily PSL check ____________________________

PSL Diam: _____ µm

File name for OPC data: ___________________

Test Conditions:

Air Flow: _____

Temp & RH: Temp _____ °F RH _____ %

Atm. Pressure: _____in. Hg

(From mercury barometer)

Aerosol Generator: (record all operating parameters)

____

____

____

____

Test Aerosol:

(Oleic acid or KCl) _______________________

Arrestor:

Pressure drop: at start _____ in. H_2O

at end _____ in. H_2O

Condition of arrestor at end of test (note any physical deterioration):

____

____

FIGURE 319–2. TEST RUN SHEET

Other report formats which contain the same information are acceptable.

11.1.1.2 Record the date, time, test operator, Test #, paint arrestor brand/model and its assigned ID number. For tests with no arrestor, record none.

11.1.1.3 Ensure that the arrestor is undamaged and is in ‘‘new’’ condition.

11.1.1.4 Mount the arrestor in the appropriate frame. Inspect for any airflow leak paths.

11.1.1.5 Install frame-mounted arrestor in the test duct. Examine the installed arrestor to verify that it is sealed in the duct. For tests with no arrestor, install the empty frame.

11.1.1.6 Visually confirm the manometer zero and level. Adjust as needed.

11.1.2 Clean Efficiency Test.

11.1.2.1 Record the date and time upon beginning this section.

11.1.2.2 Optical Particle Counter.

11.1.2.2.1 General: Operate the OPC per the manufacturer's instructions allowing a minimum of 20 minutes warm up before making any measurements.

11.1.2.2.2 Overload: The OPC will yield inaccurate data if the aerosol concentration it is attempting to measure exceeds its operating limit. To ensure reliable measurements, the maximum aerosol concentration will not exceed 10 percent of the manufacturer's claimed upper concentration limit corresponding to a 10 percent count error. If this value is exceeded, reduce the aerosol concentration until the acceptable conditions are met.

11.1.2.2.3 Zero Count: Connect a HEPA capsule to the inlet of the OPC and obtain printouts for three samples (each a minimum of 1-minute each). Record maximum cumulative zero count. If the count rate exceeds 50 counts per minute, the OPC requires servicing before continuing.

11.1.2.2.4 PSL Check of OPC Calibration: Confirm the calibration of the OPC by sampling a known size PSL aerosol. Aerosolize the PSL using an appropriate nebulizer. Record whether the peak count is observed in the proper channel. If the peak is not seen in the appropriate channel, have the OPC recalibrated.

11.1.2.3 Test Conditions:

11.1.2.3.1 Airflow: The test airflow corresponds to a nominal face velocity of 120 FPM through the arrestor. For arrestors having nominal 20 in.×20 in. face dimensions, this measurement corresponds to an airflow of 333 cfm. For arrestors having nominal face dimensions of 24 in.×24 in., this measurement corresponds to an airflow of 480 cfm.

11.1.2.3.2 Temperature and Relative Humidity: The temperature and relative humidity of the challenge air stream will be measured to within an accuracy of ±2 °F and ±10 percent RH. To protect the probe from fouling, it may be removed during periods of aerosol generation.

11.1.2.3.3 Barometric Pressure: Use a mercury barometer. Record the atmospheric pressure.

11.1.2.4 Upstream and Downstream Background Counts.

11.1.2.4.1 With the arrestor installed in the test duct and the airflow set at the proper value, turn on the data acquisition computer and bring up the data acquisition program.

11.1.2.4.2 Set the OPC settings for the appropriate test sample duration with output for both printer and computer data collection.

11.1.2.4.3 Obtain one set of upstream-downstream background measurements.

11.1.2.4.4 After obtaining the upstream-downstream measurements, stop data acquisition.

11.1.2.5 Efficiency Measurements:

11.1.2.5.1 Record the arrestor pressure drop.

11.1.2.5.2 Turn on the Aerosol Generator. Begin aerosol generation and record the operating parameters.

11.1.2.5.3 Monitor the particle counts. Allow a minimum of 5 minutes for the generator to stabilize.

11.1.2.5.4 Confirm that the total particle count does not exceed the predetermined upper limit. Adjust generator as needed.

11.1.2.5.5 Confirm that a minimum of 50 particle counts are measured in the upstream sample in each of the OPC channels per sample. (A minimum of 50 counts per channel per sample will yield the required minimum 500 counts per channel total for the 10 upstream samples as specified in Table 319–1.) Adjust generator or sample time as needed.

11.1.2.5.6 If you are unable to obtain a stable concentration within the concentration limit and with the 50 count minimum per channel, adjust the aerosol generator.

11.1.2.5.7 When the counts are stable, perform repeated upstream-downstream sampling until 10 upstream-downstream measurements are obtained.

11.1.2.5.8 After collection of the 10 upstream-downstream samples, stop data acquisition and allow 2 more minutes for final purging of generator.

11.1.2.5.9 Obtain one additional set of upstream-downstream background samples.

11.1.2.5.10 After obtaining the upstream-downstream background samples, stop data acquisition.

11.1.2.5.11 Record the arrestor pressure drop.

11.1.2.5.12 Turn off blower.

11.1.2.5.13 Remove the paint arrestor assembly from the test duct. Note any signs of physical deterioration.

11.1.2.5.14 Remove the arrestor from the frame and place the arrestor in an appropriate storage bag.

11.2 Control Test: 100 Percent Penetration Test. A 100 percent penetration test must be performed immediately before each individual paint arrestor test using the same challenge aerosol substance (i.e., oleic acid or KCl) as to be used in the arrestor test. These tests are performed with no arrestor installed in the test housing. This test is a relatively stringent test of the adequacy of the overall duct, sampling, measurement, and aerosol generation system. The test is performed as a normal penetration test except the paint arrestor is not used. A perfect system would yield a measured penetration of 1 at all particle sizes. Deviations from 1 can occur due to particle losses in the duct, differences in the degree of aerosol uniformity (i.e., mixing) at the upstream and downstream probes, and differences in particle transport efficiency in the upstream and downstream sampling lines.

11.3 Control Test: 0 Percent Penetration. One 0 percent penetration test must be performed at least monthly during testing. The test is performed by using a HEPA filter rather than a paint arrestor. This test assesses the adequacy of the instrument response time and sample line lag.

12.0 Data Analysis and Calculations.

12.1 Analysis. The analytical procedures for the fractional penetration and flow velocity measurements are described in Section 11. Note that the primary measurements, those of the upstream and downstream aerosol concentrations, are performed with the OPC which acquires the sample and analyzes it in real time. Because all the test data are collected in real time, there are no analytical procedures performed subsequent to the actual test, only data analysis.

12.2 Calculations.

12.2.1 Penetration.

Nomenclature

U = Upstream particle count

D = Downstream particle count

U_b = Upstream background count

D_b = Downstream background count

P_{100} = 100 percent penetration value determined immediately prior to the arrestor test computed for each channel as:

$$P_{100} = \frac{\left(\overline{D} - \overline{D_b}\right)}{\left(\overline{U} - \overline{U_b}\right)}$$

P = Penetration of the arrestor corrected for P_{100}

ρ= sample standard deviation

CV = coefficient of variation = ρ/mean

E = Efficiency.

Overbar denotes arithmetic mean of quantity.

Analysis of each test involves the following quantities:

- P_{100} value for each sizing channel from the 100 percent penetration control test,
- 2 upstream background values,
- 2 downstream background values,
- 10 upstream values with aerosol generator on, and
- 10 downstream values with aerosol generator on.

Using the values associated with each sizing channel, the penetration associated with each particle-sizing channel is calculated as:

$$P = \left\{\frac{\left(\overline{D} - \overline{D}_b\right)}{\left(\overline{U} - \overline{U}_b\right)}\right\} / P_{100} \qquad \text{(Eq. 319-3)}$$

$$E = 1 - P \qquad \text{(Eq. 319-4)}$$

Most often, the background levels are small compared to the values when the aerosol generator is on.

12.3 The relationship between the physical diameter ($D_{Physical}$) as measured by the OPC to the aerodynamic diameter (D_{Aero}) is given by:

$$D_{Aero} = D_{Physical}\sqrt{\frac{\rho_{Particle}}{\rho_o}\,\frac{CCF_{Physical}}{CCF_{Aero}}} \qquad \text{(Eq. 319-5)}$$

Where:

p_O = unit density of 1 g/cm^3.

$p_{Particle}$ = the density of the particle, 0.89 g/cm^3 for oleic acid.

$CCF_{Physical}$ = the Cunningham Correction Factor at $D_{Physical}$.

CCF_{Aero} = the Cunningham Correction Factor at D^{Aero}.

12.4 Presentation of Results. For a given arrestor, results will be presented for:

- Triplicate arrestor tests with the liquid-phase challenge aerosol,

sbull; Triplicate arrestor tests with the solid-phase challenge aerosol,

sbull; Triplicate 100 percent penetration tests with the liquid-phase challenge aerosol,

sbull; Triplicate 100 percent penetration tests with the solid-phase challenge aerosol, and

sbull; One 0 percent filter test (using either the liquid-phase or solid-phase aerosol and performed at least monthly).

12.4.1 Results for the paint arrestor test must be presented in both graphical and tabular form. The X-axis of the graph will be a logarithmic scale of aerodynamic diameter from 0.1 to 100 µm. The Y-axis will be efficiency (%) on a linear scale from 0 to 100. Plots for each individual run and a plot of the average of triplicate solid-phase and of the average triplicate liquid-phase tests must be prepared. All plots are to be based on point-to-point plotting (i.e., no curve fitting is to be used). The data are to be plotted based on the geometric mean diameter of each of the OPC's sizing channels.

12.4.2 Tabulated data from each test must be provided. The data must include the upper and lower diameter bound and geometric mean diameter of each of the OPC sizing channels, the background particle counts for each channel for each sample, the upstream particle counts for each channel for each sample, the downstream particle counts for each channel for each sample, the 100 percent penetration values computed for each channel, and the 0 percent penetration values computed for each channel.

13.0 Pollution Prevention.

13.1 The quantities of materials to be aerosolized should be prepared in accord with the amount needed for the current tests so as to prevent wasteful excess.

14.0 Waste Management.

14.1 Paint arrestors may be returned to originator, if requested, or disposed of with regular laboratory waste.

15.0 References.

1. Hanley, J.T., D.D. Smith and L. Cox. ''Fractional Penetration of Paint Overspray Arrestors, Draft Final Report,'' EPA Cooperative Agreement CR–817083–01–0, January 1994.

2. Hanley, J.T., D.D. Smith, and D.S. Ensor. ''Define a Fractional Efficiency Test Method that is Compatible with Particulate Removal Air Cleaners Used in General Ventilation,'' Final Report, 671–RP, American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc., December 1993.

3. ''Project Work and Quality Assurance Plan: Fractional Penetration of Paint Overspray Arrestors, Category II,'' EPA Cooperative Agreement No. CR–817083, July 1994.

TEST METHOD 320—MEASUREMENT OF VAPOR PHASE ORGANIC AND INORGANIC EMISSIONS BY EXTRACTIVE FOURIER TRANSFORM INFRARED (FTIR) SPECTROSCOPY

1.0 Introduction.

Persons unfamiliar with basic elements of FTIR spectroscopy should not attempt to use this method. This method describes sampling and analytical procedures for extractive emission measurements using Fourier transform infrared (FTIR) spectroscopy. Detailed analytical procedures for interpreting infrared spectra are described in the ''Protocol for the Use of Extractive Fourier Transform Infrared (FTIR) Spectrometry in Analyses of Gaseous Emissions from Stationary Sources,'' hereafter referred to as the ''Protocol.'' Definitions not given in this method are given in appendix A of the Protocol. References to specific sections in the Protocol are made throughout this Method. For additional information refer to references 1 and 2, and other EPA reports, which describe the use of FTIR spectrometry in specific field measurement applications and validation tests. The sampling procedure described here is extractive. Flue gas is extracted through a heated gas transport and handling system. For some sources, sample conditioning systems may be applicable. Some examples are given in this method.

NOTE: sample conditioning systems may be used providing the method validation requirements in Sections 9.2 and 13.0 of this method are met.

1.1 Scope and Applicability.

1.1.1 *Analytes.* Analytes include hazardous air pollutants (HAPs) for which EPA reference spectra have been developed. Other compounds can also be measured with this method if reference spectra are prepared according to section 4.6 of the protocol.

1.1.2 *Applicability.* This method applies to the analysis of vapor phase organic or inorganic compounds which absorb energy in the mid-infrared spectral region, about 400 to 4000 cm^{-1} (25 to 2.5 μm). This method is used to determine compound-specific concentrations in a multi-component vapor phase sample, which is contained in a closed-path gas cell. Spectra of samples are collected using double beam infrared absorption spectroscopy. A computer program is used to analyze spectra and report compound concentrations.

1.2 *Method Range and Sensitivity.* Analytical range and sensitivity depend on the frequency-dependent analyte absorptivity, instrument configuration, data collection parameters, and gas stream composition. Instrument factors include: (a) spectral resolution, (b) interferometer signal averaging time, (c) detector sensitivity and response, and (d) absorption path length.

1.2.1 For any optical configuration the analytical range is between the absorbance values of about .01 (infrared transmittance relative to the background = 0.98) and 1.0 (T = 0.1). (For absorbance > 1.0 the relation between absorbance and concentration may not be linear.)

1.2.2 The concentrations associated with this absorbance range depend primarily on the cell path length and the sample temperature. An analyte absorbance greater than 1.0, can be lowered by decreasing the optical path length. Analyte absorbance increases with a longer path length. Analyte detection also depends on the presence of other species exhibiting absorbance in the same analytical

region. Additionally, the estimated lower absorbance (A) limit
(A = 0.01) depends on the root mean square deviation (RMSD) noise in the analytical region.

1.2.3 The concentration range of this method is determined by the choice of optical configuration.

1.2.3.1 The absorbance for a given concentration can be decreased by decreasing the path length or by diluting the sample. There is no practical upper limit to the measurement range.

1.2.3.2 The analyte absorbance for a given concentration may be increased by increasing the cell path length or (to some extent) using a higher resolution. Both modifications also cause a corresponding increased absorbance for all compounds in the sample, and a decrease in the signal throughput. For this reason the practical lower detection range (quantitation limit) usually depends on sample characteristics such as moisture content of the gas, the presence of other interferants, and losses in the sampling system.

1.3 *Sensitivity*. The limit of sensitivity for an optical configuration and integration time is determined using appendix D of the Protocol: Minimum Analyte Uncertainty, (MAU). The MAU depends on the RMSD noise in an analytical region, and on the absorptivity of the analyte in the same region.

1.4 *Data Quality*. Data quality shall be determined by executing Protocol pre-test procedures in appendices B to H of the protocol and post-test procedures in appendices I and J of the protocol.

1.4.1 Measurement objectives shall be established by the choice of detection limit (DL_i) and analytical uncertainty (AU_i) for each analyte.

1.4.2 An instrumental configuration shall be selected. An estimate of gas composition shall be made based on previous test data, data from a similar source or information gathered in a pre-test site survey. Spectral interferants shall be identified using the selected DL_i and AU_i and band areas from reference spectra and interferant spectra. The baseline noise of the system shall be measured in each analytical region to determine the MAU of the instrument configuration for each analyte and interferant (MIU_i).

1.4.3 Data quality for the application shall be determined, in part, by measuring the RMS (root mean square) noise level in each analytical spectral region (appendix C of the Protocol). The RMS noise is defined as the RMSD of the absorbance values in an analytical region from the mean absorbance value in the region.

1.4.4 The MAU is the minimum analyte concentration for which the AU_i can be maintained; if the measured analyte concentration is less than MAU_i then data quality are unacceptable.

2.0 *Summary of Method*

2.1 *Principle.* References 4 through 7 provide background material on infrared spectroscopy and quantitative analysis. A summary is given in this section.

2.1.1 Infrared absorption spectroscopy is performed by directing an infrared beam through a sample to a detector. The frequency-dependent infrared absorbance of the sample is measured by comparing this detector signal (single beam spectrum) to a signal obtained without a sample in the beam path (background).

2.1.2 Most molecules absorb infrared radiation and the absorbance occurs in a characteristic and reproducible pattern. The infrared spectrum measures fundamental molecular properties and a compound can be identified from its infrared spectrum alone.

2.1.3 Within constraints, there is a linear relationship between infrared absorption and compound concentration. If this frequency dependent relationship (absorptivity) is known (measured), it can be used to determine compound concentration in a sample mixture.

2.1.4 Absorptivity is measured by preparing, in the laboratory, standard samples of compounds at known concentrations and measuring the FTIR ‘‘reference spectra’’ of these standard samples. These ‘‘reference spectra’’ are then used in sample analysis: (1) Compounds are detected by matching sample absorbance bands with bands in reference spectra, and (2) concentrations are measured by comparing sample band intensities with reference band intensities.

2.1.5 This method is self-validating provided that the results meet the performance requirement of the QA spike in sections 8.6.2 and 9.0 of this method, and results from a previous method validation study support the use of this method in the application.

2.2 *Sampling and Analysis.* In extractive sampling a probe assembly and pump are used to extract gas from the exhaust of the affected source and transport the sample to the FTIR gas cell. Typically, the sampling apparatus is similar to that used for single-component continuous emission monitor (CEM) measurements.

2.2.1 The digitized infrared spectrum of the sample in the FTIR gas cell is measured and stored on a computer. Absorbance band intensities in the spectrum are related to sample concentrations by what is commonly referred to as Beer's Law.

$$A_i = a_i b c_i \qquad (1)$$

Where:

A_i = absorbance at a given frequency of the ith sample component.

a_i = absorption coefficient (absorptivity) of the ith sample component.

b = path length of the cell.

c_i = concentration of the ith sample component.

2.2.2 Analyte spiking is used for quality assurance (QA). In this procedure (section 8.6.2 of this method) an analyte is spiked into the gas stream at the back end of the sample probe. Analyte concentrations in the spiked samples are compared to analyte concentrations in unspiked samples. Since the concentration of the spike is known, this procedure can be used to determine if the sampling system is removing the spiked analyte(s) from the sample stream.

2.3 *Reference Spectra Availability*. Reference spectra of over 100 HAPs are available in the EPA FTIR spectral library on the EMTIC (Emission Measurement Technical Information Center) computer bulletin board service and at internet address http://info.arnold.af.mil/epa/welcome.htm. Reference spectra for HAPs, or other analytes, may also be prepared according to section 4.6 of the Protocol.

2.4 *Operator Requirements.* The FTIR analyst shall be trained in setting up the instrumentation, verifying the instrument is functioning properly, and performing routine maintenance. The analyst must evaluate the initial sample spectra to determine if the sample matrix is consistent with pre-test assumptions and if the instrument configuration is suitable. The analyst must be able to modify the instrument configuration, if necessary.

2.4.1 The spectral analysis shall be supervised by someone familiar with EPA FTIR Protocol procedures.

2.4.2 A technician trained in instrumental test methods is qualified to install and operate the sampling system. This includes installing the probe and heated line assembly, operating the analyte spike system, and performing moisture and flow measurements.

3.0 Definitions

See appendix A of the Protocol for definitions relating to infrared spectroscopy. Additional definitions are given in sections 3.1 through 3.29.

3.1 *Analyte.* A compound that this method is used to measure. The term ‘‘target analyte’’ is also used. This method is multicomponent and a number of analytes can be targeted for a test.

3.2 *Reference Spectrum.* Infrared spectrum of an analyte prepared under controlled, documented, and reproducible laboratory conditions according to procedures in section 4.6 of the Protocol. A library of reference spectra is used to measure analytes in gas samples.

3.3 *Standard Spectrum.* A spectrum that has been prepared from a reference spectrum through a (documented) mathematical operation. A common example is de-resolving of reference spectra to lower-resolution standard spectra (Protocol, appendix K to the addendum of this method). Standard spectra, prepared by approved, and documented, procedures can be used as reference spectra for analysis.

3.4 *Concentration.* In this method concentration is expressed as a molar concentration, in ppm-meters, or in (ppm-meters)/K, where K is the absolute temperature (Kelvin). The latter units allow the direct comparison of concentrations from systems using different optical configurations or sampling temperatures.

3.5 *Interferant.* A compound in the sample matrix whose infrared spectrum overlaps with part of an analyte spectrum. The most accurate analyte measurements are achieved when reference spectra of interferants are used in the quantitative analysis with the analyte reference spectra. The presence of an interferant can increase the analytical uncertainty in the measured analyte concentration.

3.6 *Gas Cell.* A gas containment cell that can be evacuated. It is equipped with the optical components to pass the infrared beam through the sample to the detector. Important cell features include: path length (or range if variable), temperature range, materials of construction, and total gas volume.

3.7 *Sampling System.* Equipment used to extract the sample from the test location and transport the sample gas to the FTIR analyzer. This includes sample conditioning systems.

3.8 *Sample Analysis.* The process of interpreting the infrared spectra to obtain sample analyte concentrations. This process is usually automated using a software routine employing a classical least squares (cls), partial least squares (pls), or K- or P-matrix method.

3.9 *One hundred percent line.* A double beam transmittance spectrum obtained by combining two background single beam spectra. Ideally, this line is equal to 100 percent transmittance (or zero absorbance) at every frequency in the spectrum. Practically, a zero absorbance line is used to measure the baseline noise in the spectrum.

3.10 *Background Deviation.* A deviation from 100 percent transmittance in any region of the 100 percent line. Deviations greater than ±5 percent in an analytical region are unacceptable (absorbance of 0.021 to -0.022). Such deviations indicate a change in the instrument throughput relative to the background single beam.

3.11 *Batch Sampling.* A procedure where spectra of discreet, static samples are collected. The gas cell is filled with sample and the cell is isolated. The spectrum is collected. Finally, the cell is evacuated to prepare for the next sample.

3.12 *Continuous Sampling.* A procedure where spectra are collected while sample gas is flowing through the cell at a measured rate.

3.13 *Sampling resolution.* The spectral resolution used to collect sample spectra.

3.14 *Truncation.* Limiting the number of interferogram data points by deleting points farthest from the center burst (zero path difference, ZPD).

3.15 *Zero filling.* The addition of points to the interferogram. The position of each added point is interpolated from neighboring real data points. Zero filling adds no information to the interferogram, but affects line shapes in the absorbance spectrum (and possibly analytical results).

3.16 *Reference CTS.* Calibration Transfer Standard spectra that were collected with reference spectra.

3.17 *CTS Standard.* CTS spectrum produced by applying a de-resolution procedure to a reference CTS.

3.18 *Test CTS.* CTS spectra collected at the sampling resolution using the same optical configuration as for sample spectra. Test spectra help verify the resolution, temperature and path length of the FTIR system.

3.19 *RMSD.* Root Mean Square Difference, defined in EPA FTIR Protocol, appendix A.

3.20 *Sensitivity.* The noise-limited compound-dependent detection limit for the FTIR system configuration. This is estimated by the MAU. It depends on the RMSD in an analytical region of a zero absorbance line.

3.21 *Quantitation Limit.* The lower limit of detection for the FTIR system configuration in the sample spectra. This is estimated by mathematically subtracting scaled reference spectra of analytes and interferences from sample spectra, then measuring the RMSD in an analytical region of the subtracted spectrum. Since the noise in subtracted sample spectra may be much greater than in a zero absorbance spectrum, the quantitation limit is generally much higher than the sensitivity. Removing spectral interferences from the sample or improving the spectral subtraction can lower the quantitation limit toward (but not below) the sensitivity.

3.22 *Independent Sample.* A unique volume of sample gas; there is no mixing of gas between two consecutive independent samples. In continuous sampling two independent samples are separated by at least 5 cell volumes. The interval between independent measurements depends on the cell volume and the sample flow rate (through the cell).

3.23 *Measurement.* A single spectrum of flue gas contained in the FTIR cell.

3.24 *Run.* A run consists of a series of measurements. At a minimum a run includes 8 independent measurements spaced over 1 hour.

3.25 *Validation.* Validation of FTIR measurements is described in sections 13.0 through 13.4 of this method. Validation is used to verify the test procedures for measuring specific analytes at a source. Validation provides proof that the method works under certain test conditions.

3.26 *Validation Run.* A validation run consists of at least 24 measurements of independent samples. Half of the samples are spiked and half are not spiked. The length of the run is determined by the interval between independent samples.

3.27 *ning.* Screening is used when there is little or no available information about a source. The purpose of screening is to determine what analytes are emitted and to obtain information about important sample characteristics such as moisture, temperature, and interferences. Screening results are semi-quantitative (estimated concentrations) or qualitative (identification only). Various optical and sampling configurations may be used. Sample conditioning systems may be evaluated for their effectiveness in removing interferences. It is unnecessary to perform a complete run under any set of sampling conditions. Spiking is not necessary, but spiking can be a useful screening tool for evaluating the sampling system, especially if a reactive or soluble analyte is used for the spike.

3.28 *Emissions Test.* An FTIR emissions test is performed according specific sampling and analytical procedures. These procedures, for the target analytes and the source, are based on previous screening and validation results. Emission results are quantitative. A QA spike (sections 8.6.2 and 9.2 of this method) is performed under each set of sampling conditions using a representative analyte. Flow, gas temperature and diluent data are recorded concurrently with the FTIR measurements to provide mass emission rates for detected compounds.

3.29 *Surrogate.* A surrogate is a compound that is used in a QA spike procedure (section 8.6.2 of this method) to represent other compounds. The chemical and physical properties of a surrogate shall be similar to the compounds it is chosen to represent. Under given sampling conditions, usually a single sampling factor is of primary concern for measuring the target analytes: for example, the surrogate spike results can be representative for analytes that are more reactive, more soluble, have a lower absorptivity, or have a lower vapor pressure than the surrogate itself.

4.0 Interferences

Interferences are divided into two classifications: analytical and sampling.

4.1 *Analytical Interferences.* An analytical interference is a spectral feature that complicates (in extreme cases may prevent) the analysis of an analyte. Analytical interferences are classified as background or spectral interference.

4.1.1 *Background Interference.* This results from a change in throughput relative to the single beam background. It is corrected by collecting a new background and proceeding with the test. In severe instances the cause must be identified and corrected. Potential causes include: (1) Deposits on reflective surfaces or transmitting windows, (2) changes in detector sensitivity, (3) a change in the infrared source output, or (4) failure in the instrument electronics. In routine sampling throughput may degrade over several hours. Periodically a new background must be collected, but no other corrective action will be required.

4.1.2 *Spectral Interference.* This results from the presence of interfering compound(s) (interferant) in the sample. Interferant spectral features overlap analyte spectral features. Any compound with an infrared spectrum, including analytes, can potentially be an interferant. The Protocol measures absorbance band overlap in each analytical region to determine if potential interferants shall be classified as known interferants (FTIR Protocol, section 4.9 and appendix B). Water vapor and CO_2 are common spectral interferants. Both of these compounds have strong infrared spectra and are present in many sample matrices at high concentrations relative to analytes. The extent of interference depends on the (1) interferant concentration, (2) analyte concentration, and (3) the degree of band overlap. Choosing an alternate analytical region can minimize or avoid the spectral interference. For example, CO_2 interferes with the analysis of the 670 cm_{-1} benzene band. However, benzene can also be measured near 3000 cm^{-1} (with less sensitivity).

4.2 *Sampling System Interferences.* These prevent analytes from reaching the instrument. The analyte spike procedure is designed to measure sampling system interference, if any.

4.2.1 *Temperature.* A temperature that is too low causes condensation of analytes or water vapor. The materials of the sampling system and the FTIR gas cell usually set the upper limit of temperature.

4.2.2 *Reactive Species.* Anything that reacts with analytes. Some analytes, like formaldehyde, polymerize at lower temperatures.

4.2.3 *Materials.* Poor choice of material for probe, or sampling line may remove some analytes. For example, HF reacts with glass components.

4.2.4 *Moisture.* In addition to being a spectral interferant, condensed moisture removes soluble compounds.

5.0 Safety

The hazards of performing this method are those associated with any stack sampling method and the same precautions shall be followed. Many HAPs are suspected carcinogens or present other serious health risks. Exposure to these compounds should be avoided in all circumstances. For instructions on the safe handling of any particular compound, refer to its material safety data sheet. When using analyte standards, always ensure that gases are properly vented and that the gas handling system is leak free. (Always perform a leak check with the system under maximum vacuum and, again, with the system at greater than ambient pressure.) Refer to section 8.2 of this method for leak check procedures. This method does not address all of the potential safety risks associated with its use. Anyone performing this method must follow safety and health practices consistent with applicable legal requirements and with prudent practice for each application.

6.0 Equipment and Supplies

NOTE: Mention of trade names or specific products does not constitute endorsement by the Environmental Protection Agency.

The equipment and supplies are based on the schematic of a sampling system shown in Figure 1. Either the batch or continuous sampling procedures may be used with this sampling system. Alternative sampling configurations may also be used, provided that the data quality objectives are met as determined in the post-analysis evaluation. Other equipment or supplies may be necessary, depending on the design of the sampling system or the specific target analytes.

6.1 *Sampling Probe.* Glass, stainless steel, or other appropriate material of sufficient length and physical integrity to sustain heating, prevent adsorption of analytes, and to transport analytes to the infrared gas cell. Special materials or configurations may be required in some applications. For instance, high stack sample temperatures may require special steel or cooling the probe. For very high moisture sources it may be desirable to use a dilution probe.

6.2 *Particulate Filters.* A glass wool plug (optional) inserted at the probe tip (for large particulate removal) and a filter (required) rated for 99 percent removal efficiency at 1-micron (e.g., Balston'') connected at the outlet of the heated probe.

6.3 *Sampling Line/Heating System.* Heated (sufficient to prevent condensation) stainless steel, polytetrafluoroethane, or other material inert to the analytes.

6.4 *Gas Distribution Manifold.* A heated manifold allowing the operator to control flows of gas standards and samples directly to the FTIR system or through sample conditioning systems. Usually includes heated flow meter, heated valve for selecting and sending sample to the analyzer, and a bypass vent. This is typically constructed of stainless steel tubing and fittings, and high-temperature valves.

6.5 *Stainless Steel Tubing.* Type 316, appropriate diameter (e.g., 3/8 in.) and length for heated connections. Higher grade stainless may be desirable in some applications.

6.6 *Calibration/Analyte Spike Assembly.* A three way valve assembly (or equivalent) to introduce analyte or surrogate spikes into the sampling system at the outlet of the probe upstream of the out-of-stack particulate filter and the FTIR analytical system.

6.7 *Mass Flow Meter (MFM).* These are used for measuring analyte spike flow. The MFM shall be calibrated in the range of 0 to 5 L/min and be accurate to ± 2 percent (or better) of the flow meter span.

6.8 *Gas Regulators.* Appropriate for individual gas standards.

6.9 *Polytetrafluoroethane Tubing.* Diameter (e.g., ⅜ in.) and length suitable to connect cylinder regulators to gas standard manifold.

6.10 *Sample Pump.* A leak-free pump (e.g., KNF™), with by-pass valve, capable of producing a sample flow rate of at least 10 L/min through 100 ft of sample line. If the pump is positioned upstream of the distribution manifold and FTIR system, use a heated pump that is constructed from materials non-reactive to the analytes. If the pump is located downstream of the FTIR system, the gas cell sample pressure will be lower than ambient pressure and it must be recorded at regular intervals.

6.11 *Gas Sample Manifold.* Secondary manifold to control sample flow at the inlet to the FTIR manifold. This is optional, but includes a by-pass vent and heated rotameter.

6.12 *Rotameter.* A 0 to 20 L/min rotameter. This meter need not be calibrated.

6.13 *FTIR Analytical System.* Spectrometer and detector, capable of measuring the analytes to the chosen detection limit. The system shall include a personal computer with compatible software allowing automated collection of spectra.

6.14 *FTIR Cell Pump.* Required for the batch sampling technique, capable of evacuating the FTIR cell volume within 2 minutes. The pumping speed shall allow the operator to obtain 8 sample spectra in 1 hour.

6.15 *Absolute Pressure Gauge.* Capable of measuring pressure from 0 to 1000 mmHg to within±2.5 mmHg (e.g., Baratron™).

6.16 *Temperature Gauge.* Capable of measuring the cell temperature to within ±2 °C.

6.17 *Sample Conditioning.* One option is a condenser system, which is used for moisture removal. This can be helpful in the measurement of some analytes. Other sample conditioning procedures may be devised for the removal of moisture or other interfering species.

6.17.1 The analyte spike procedure of section 9.2 of this method, the QA spike procedure of section 8.6.2 of this method, and the validation procedure of section 13 of this method demonstrate whether the sample conditioning affects analyte concentrations. Alternatively, measurements can be made with two parallel FTIR systems; one measuring conditioned sample, the other measuring unconditioned sample.

6.17.2 Another option is sample dilution. The dilution factor measurement must be documented and accounted for in the reported concentrations. An alternative to dilution is to lower the sensitivity of the FTIR system by decreasing the cell path length, or to use a short-path cell in conjunction with a long path cell to measure more than one concentration range.

7.0 Reagents and Standards

7.1 *Analyte(s) and Tracer Gas.* Obtain a certified gas cylinder mixture containing all of the analyte(s) at concentrations within±2 percent of the emission source levels (expressed in ppm-meter/K). If practical, the analyte standard cylinder shall also contain the tracer gas at a concentration which gives a measurable absorbance at a dilution factor of at least 10:1. Two ppm SF_6 is sufficient for a path length of 22 meters at 250 °F.

7.2 *Calibration Transfer Standard(s).* Select the calibration transfer standards (CTS) according to section 4.5 of the FTIR Protocol. Obtain a National Institute of Standards and Technology (NIST) traceable gravimetric standard of the CTS (±2 percent).

7.3 *Reference Spectra.* Obtain reference spectra for each analyte, interferant, surrogate, CTS, and tracer. If EPA reference spectra are not available, use reference spectra prepared according to procedures in section 4.6 of the EPA FTIR Protocol.

8.0 Sampling and Analysis Procedure

Three types of testing can be performed: (1) Screening, (2) emissions test, and (3) validation. Each is defined in section 3 of this method. Determine the purpose(s) of the FTIR test. Test requirements include: (a) AU_i, DL_i, overall fractional uncertainty, OFU_i, maximum expected concentration ($CMAX_i$), and t_{AN} for each, (b) potential interferants, (c) sampling system factors, e.g., minimum absolute cell pressure, (P_{min}), FTIR cell volume (V_{SS}), estimated sample absorption pathlength, L_S', estimated sample pressure, P_S', T_S', signal integration time (t_{SS}), minimum instrumental linewidth, MIL, fractional error, and (d) analytical regions, e.g., $m = 1$ to M, lower wavenumber position, FLm, center wavenumber position, FC_m, and upper wavenumber position, FU_m, plus interferants, upper wavenumber position of the CTS absorption band, FFU_m, lower wavenumber position of the CTS absorption band, FFL_m, wavenumber range FNU to FNL. If necessary, sample and acquire an initial spectrum. From analysis of this preliminary spectrum determine a suitable operational path length. Set up the sampling train as shown in Figure 1 or use an appropriate alternative configuration. Sections 8.1 through 8.11 of this method provide guidance on pretest calculations in the EPA protocol, sampling and analytical procedures, and post-test protocol calculations.

8.1 *Pretest Preparations and Evaluations.* Using the procedure in section 4.0 of the FTIR Protocol, determine the optimum sampling system configuration for measuring the target analytes. Use available information to make reasonable assumptions about moisture content and other interferences.

8.1.1 *Analytes.* Select the required detection limit (DL_i) and the maximum permissible analytical uncertainty (AU_i) for each analyte (labeled from 1 to i). Estimate, if possible, the maximum expected concentration for each analyte, $CMAX_{i.}$ The expected measurement range is fixed by DL_i and $CMAX_i$ for each analyte (i).

8.1.2 *Potential Interferants.* List the potential interferants. This usually includes water vapor and CO_2, but may also include some analytes and other compounds.

8.1.3. *Optical Configuration*. Choose an optical configuration that can measure all of the analytes within the absorbance range of .01 to 1.0 (this may require more than one path length). Use Protocol sections 4.3 to 4.8 for guidance in choosing a configuration and measuring CTS.

8.1.4 *Fractional Reproducibility Uncertainty (FRU*$_i$). The FRU is determined for each analyte by comparing CTS spectra taken before and after the reference spectra were measured. The EPA para-xylene reference spectra were collected on 10/31/91 and 11/01/91 with corresponding CTS spectra ‘‘cts1031a,’’ and ‘‘cts1101b.’’ The CTS spectra are used to estimate the reproducibility (FRU) in the system that was used to collect the references. The FRU must be $<$ AU. Appendix E of the protocol is used to calculate the FRU from CTS spectra. Figure 2 plots results for 0.25 cm^{-1} CTS spectra in EPA reference library: S_3 (cts1101b − cts1031a), and S_4 [(cts1101b+cts1031a)/2]. The RMSD (SRMS) is calculated in the subtracted baseline, S_3, in the corresponding CTS region from 850 to 1065 cm$^{-1.}$ The area (BAV) is calculated in the same region of the averaged CTS spectrum, S_4.

8.1.5 *Known Interferants.* Use appendix B of the EPA FTIR Protocol.

8.1.6 Calculate the Minimum Analyte Uncertainty, MAU (section 1.3 of this method discusses MAU and protocol appendix D gives the MAU procedure). The MAU for each analyte, i, and each analytical region, m, depends on the RMS noise.

8.1.7 *Analytical Program*. See FTIR Protocol, section 4.10. Prepare computer program based on the chosen analytical technique. Use as input reference spectra of all target analytes and expected interferants. Reference spectra of additional compounds shall also be included in the program if their presence (even if transient) in the samples is considered possible. The program output shall be in ppm (or ppb) and shall be corrected for differences between the reference path length, L_R, temperature, T_R, and pressure, P_R, and the conditions used for collecting the sample spectra. If sampling is performed at ambient pressure, then any pressure correction is usually small relative to corrections for path length and temperature, and may be neglected.

8.2 Leak-Check

8.2.1 *Sampling System*. A typical FTIR extractive sampling train is shown in Figure 1. Leak check from the probe tip to pump outlet as follows: Connect a 0-to 250-mL/min rate meter (rotameter or bubble meter) to the outlet of the pump. Close off the inlet to the probe, and record the leak rate. The leak rate shall be ≤200 mL/min.

8.2.2 *Analytical System Leak check*. Leak check the FTIR cell under vacuum and under pressure (greater than ambient). Leak check connecting tubing and inlet manifold under pressure.

8.2.2.1 For the evacuated sample technique, close the valve to the FTIR cell, and evacuate the absorption cell to the minimum absolute pressure $P_{min.}$ Close the valve to the pump, and determine the change in pressure ΔP_v after 2 minutes.

8.2.2.2 For both the evacuated sample and purging techniques, pressurize the system to about 100 mmHg above atmospheric pressure. Isolate the pump and determine the change in pressure ΔP_p after 2 minutes.

8.2.2.3 Measure the barometric pressure, P_b in mmHg.

8.2.2.4 Determine the percent leak volume $\%V_L$ for the signal integration time t_{SS} and for ΔP_{max}, i.e., the larger of ΔP_v or ΔP_p, as follows:

$$\%V_L = 50 t_{SS} \frac{\Delta P_{max}}{P_{SS}} \qquad (2)$$

where 50 = 100% divided by the leak-check time of 2 minutes. 8.2.2.5 Leak volumes in excess of 4 percent of the FTIR system volume V_{SS} are unacceptable.

8.3 *Detector Linearity*. Once an optical configuration is chosen, use one of the procedures of sections 8.3.1 through 8.3.3 to verify that the detector response is linear. If the detector response is not linear, decrease the aperture, or attenuate the infrared beam. After a change in the instrument configuration perform a linearity check until it is demonstrated that the detector response is linear.

8.3.1 Vary the power incident on the detector by modifying the aperture setting. Measure the background and CTS at three instrument aperture settings: (1) at the aperture setting to be used in the testing, (2) at one half this aperture and (3) at twice the proposed testing aperture. Compare the three CTS spectra. CTS band areas shall agree to within the uncertainty of the cylinder standard and the RMSD noise in the system. If test aperture is the maximum aperture, collect CTS spectrum at maximum aperture, then close the aperture to reduce the IR throughput by half. Collect a second background and CTS at the smaller aperture setting and compare the spectra again.

8.3.2 Use neutral density filters to attenuate the infrared beam. Set up the FTIR system as it will be used in the test measurements. Collect a CTS spectrum. Use a neutral density filter to attenuate the infrared beam (either immediately after the source or the interferometer) to approximately ½ its original intensity. Collect a second CTS spectrum. Use another filter to attenuate the infrared beam to approximately ¼ its original intensity. Collect a third background and CTS spectrum. Compare the CTS spectra. CTS band areas shall agree to within the uncertainty of the cylinder standard and the RMSD noise in the system.

8.3.3 Observe the single beam instrument response in a frequency region where the detector response is known to be zero. Verify that the detector response is ‘‘flat’’ and equal to zero in these regions.

8.4 *Data Storage Requirements.* All field test spectra shall be stored on a computer disk and a second backup copy must stored on a separate disk. The stored information includes sample interferograms, processed absorbance spectra, background interferograms, CTS sample interferograms and CTS absorbance spectra. Additionally, documentation of all sample conditions, instrument settings, and test records must be recorded on hard copy or on computer medium. Table 1 gives a sample presentation of documentation.

8.5 *Background Spectrum.* Evacuate the gas cell to ≤5 mmHg, and fill with dry nitrogen gas to ambient pressure (or purge the cell with 10 volumes of dry nitrogen). Verify that no significant amounts of absorbing species (for example water vapor and CO_2) are present. Collect a background spectrum, using a signal averaging period equal to or greater than the averaging period for the sample spectra. Assign a unique file name to the background spectrum. Store two copies of the background interferogram and processed single-beam spectrum on separate computer disks (one copy is the back-up).

8.5.1 *Interference Spectra.* If possible, collect spectra of known and suspected major interferences using the same optical system that will be used in the field measurements. This can be done on-site or earlier. A number of gases, e.g. CO_2, SO_2, CO, NH_3, are readily available from cylinder gas suppliers.

8.5.2 Water vapor spectra can be prepared by the following procedure. Fill a sample tube with distilled water. Evacuate above the sample and remove dissolved gasses by alternately freezing and thawing the water while evacuating. Allow water vapor into the FTIR cell, then dilute to atmospheric pressure with nitrogen or dry air. If quantitative water spectra are required, follow the reference spectrum procedure for neat samples (protocol, section 4.6). Often, interference spectra need not be quantitative, but for best results the absorbance must be comparable to the interference absorbance in the sample spectra.

8.6 Pre-Test Calibrations

8.6.1 *Calibration Transfer Standard.* Evacuate the gas cell to≤5 mmHg absolute pressure, and fill the FTIR cell to atmospheric pressure with the CTS gas. Alternatively, purge the cell with 10 cell volumes of CTS gas. (If purge is used, verify that the CTS concentration in the cell is stable by collecting two spectra 2 minutes apart as the CTS gas continues to flow. If the absorbance in the second spectrum is no greater than in the first, within the uncertainty of the gas standard, then this can be used as the CTS spectrum.) Record the spectrum.

8.6.2 *QA Spike.* This procedure assumes that the method has been validated for at least some of the target analytes at the source. For emissions testing perform a QA spike. Use a certified standard, if possible, of an analyte, which has been validated at the source. One analyte standard can serve as a QA surrogate for other analytes which are less reactive or less soluble than the standard. Perform the spike procedure of section 9.2 of this method. Record spectra of at least three independent (section 3.22 of this method) spiked samples. Calculate the spiked component of the analyte concentration. If the average spiked concentration is within 0.7 to 1.3 times the expected concentration, then proceed with the testing. If applicable, apply the correction factor from the Method 301 of this appendix validation test (not the result from the QA spike).

8.7 *Sampling.* If analyte concentrations vary rapidly with time, continuous sampling is preferable using the smallest cell volume, fastest sampling rate and fastest spectra collection rate possible. Continuous sampling requires the least operator intervention even without an automated sampling system. For continuous monitoring at one location over long periods, Continuous sampling is preferred. Batch sampling and continuous static sampling are used for screening and performing test runs of finite duration. Either technique is preferred for sampling several locations in a matter of days. Batch sampling gives reasonably good time resolution and ensures that each spectrum measures a discreet (and unique) sample volume. Continuous static (and continuous) sampling provide a very stable background over long periods. Like batch sampling, continuous static sampling also ensures that each spectrum measures a unique sample volume. It is essential that the leak check procedure under vacuum (section 8.2 of this method) is passed if the batch sampling procedure is used. It is essential that the leak check procedure under positive pressure is passed if the continuous static or continuous sampling procedures are used. The sampling techniques are described in sections 8.7.1 through 8.7.2 of this method.

8.7.1 *Batch Sampling.* Evacuate the absorbance cell to ≤5 mmHg absolute pressure. Fill the cell with exhaust gas to ambient pressure, isolate the cell, and record the spectrum. Before taking the next sample, evacuate the cell until no spectral evidence of sample absorption remains. Repeat this procedure to collect eight spectra of separate samples in 1 hour.

8.7.2 *Continuous Static Sampling.* Purge the FTIR cell with 10 cell volumes of sample gas. Isolate the cell, collect the spectrum of the static sample and record the pressure. Before measuring the next sample, purge the cell with 10 more cell volumes of sample gas.

8.8 Sampling QA and Reporting

8.8.1 Sample integration times shall be sufficient to achieve the required signal-to-noise ratio. Obtain an absorbance spectrum by filling the cell with N2. Measure the RMSD in each analytical region in this absorbance spectrum. Verify that the number of scans used is sufficient to achieve the target MAU.

8.8.2 Assign a unique file name to each spectrum.

8.8.3 Store two copies of sample interferograms and processed spectra on separate computer disks.

8.8.4 For each sample spectrum, document the sampling conditions, the sampling time (while the cell was being filled), the time the spectrum was recorded, the instrumental conditions (path length, temperature, pressure, resolution, signal integration time), and the spectral file name. Keep a hard copy of these data sheets.

8.9 *Signal Transmittance.* While sampling, monitor the signal transmittance. If signal transmittance (relative to the background) changes by 5 percent or more (absorbance = -.02 to .02) in any analytical spectral region, obtain a new background spectrum.

8.10 *Post-test CTS.* After the sampling run, record another CTS spectrum.

8.11 *Post-test QA*

8.11.1 Inspect the sample spectra immediately after the run to verify that the gas matrix composition was close to the expected (assumed) gas matrix.

8.11.2 Verify that the sampling and instrumental parameters were appropriate for the conditions encountered. For example, if the moisture is much greater than anticipated, it may be necessary to use a shorter path length or dilute the sample.

8.11.3 Compare the pre- and post-test CTS spectra. The peak absorbance in pre- and post-test CTS must be ±5 percent of the mean value. See appendix E of the FTIR Protocol.

9.0 Quality Control

Use analyte spiking (sections 8.6.2, 9.2 and 13.0 of this method) to verify that the sampling system can transport the analytes from the probe to the FTIR system.

9.1 *Spike Materials.* Use a certified standard (accurate to ±2 percent) of the target analyte, if one can be obtained. If a certified standard cannot be obtained, follow the procedures in section 4.6.2.2 of the FTIR Protocol.

9.2 *Spiking Procedure.* QA spiking (section 8.6.2 of this method) is a calibration procedure used before testing. QA spiking involves following the spike procedure of sections 9.2.1 through 9.2.3 of this method to obtain at least three spiked samples. The analyte concentrations in the spiked samples shall be compared to the expected spike concentration to verify that the sampling/analytical system is working properly. Usually, when QA spiking is used, the method has already been validated at a similar source for the analyte in question. The QA spike demonstrates that the validated sampling/analytical conditions are being duplicated. If the QA spike fails then the sampling/analytical system shall be repaired before testing proceeds. The method validation procedure (section 13.0 of this method) involves a more extensive use of the analyte spike procedure of sections 9.2.1 through 9.2.3 of this method. Spectra of at least 12 independent spiked and 12 independent unspiked samples are recorded. The concentration results are analyzed statistically to determine if there is a systematic bias in the method for measuring a particular analyte. If there is a systematic bias, within the limits allowed by Method 301 of this appendix, then a correction factor shall be applied to the analytical results. If the systematic bias is greater than the allowed limits, this method is not valid and cannot be used.

9.2.1 Introduce the spike/tracer gas at a constant flow rate of ≤10 percent of the total sample flow, when possible.

NOTE: Use the rotameter at the end of the sampling train to estimate the required spike/tracer gas flow rate.

Use a flow device, e.g., mass flow meter ($^{\#}$ 2 percent), to monitor the spike flow rate. Record the spike flow rate every 10 minutes.

9.2.2 Determine the response time (RT) of the system by continuously collecting spectra of the spiked effluent until the spectrum of the spiked component is constant for 5 minutes. The RT is the interval from the first measurement until the spike becomes constant. Wait for twice the duration of the RT, then collect spectra of two independent spiked gas samples. Duplicate analyses of the spiked concentration shall be within 5 percent of the mean of the two measurements.

9.2.3 Calculate the dilution ratio using the tracer gas as follows: where:

$$DF = \frac{SF_{6(spk)}}{SF_{6(dir)}} \qquad (3)$$

Where:

$$CS = DF*Spike_{dir} + Unspike\,(1 - DF) \qquad (4)$$

DF=Dilution factor of the spike gas; this value shall be ≥10.

$SF_{6(dir)}$=SF_6 (or tracer gas) concentration measured directly in undiluted spike gas.

$SF_{6(spk)}$=Diluted SF_6 (or tracer gas) concentration measured in a spiked sample.

$Spike^{dir}$=Concentration of the analyte in the spike standard measured by filling the FTIR cell directly.

CS=Expected concentration of the spiked samples.

Unspike=Native concentration of analytes in unspiked samples.

10.0 Calibration and Standardization

10.1 *Signal-to-Noise Ratio (S/N).* The RMSD in the noise must be less than one tenth of the minimum analyte peak absorbance in each analytical region. For example if the minimum peak absorbance is 0.01 at the required DL, then RMSD measured over the entire analytical region must be ≤0.001.

10.2 *Absorbance Path length.* Verify the absorbance path length by comparing reference CTS spectra to test CTS spectra. See appendix E of the FTIR Protocol.

10.3 *Instrument Resolution.* Measure the line width of appropriate test CTS band(s) to verify instrument resolution. Alternatively, compare CTS spectra to a reference CTS spectrum, if available, measured at the nominal resolution.

10.4 *Apodization Function.*In transforming the sample interferograms to absorbance spectra use the same apodization function that was used in transforming the reference spectra.

10.5 *FTIR Cell Volume.* Evacuate the cell to ≤5 mmHg. Measure the initial absolute temperature (T_i) and absolute pressure (P_i). Connect a wet test meter (or a calibrated dry gas meter), and slowly draw room air into the cell. Measure the meter volume (V_m), meter absolute temperature (T_m), and meter absolute pressure (P_m); and the cell final absolute temperature (T_f) and absolute pressure (P_f). Calculate the FTIR cell volume VSS, including that of the connecting tubing, as follows:

$$V_{SS} = \frac{V_m \dfrac{P_m}{T_m}}{\left[\dfrac{P_f}{T_f} - \dfrac{P_i}{T_i}\right]} \qquad (5)$$

11.0 Data Analysis and Calculations

Analyte concentrations shall be measured using reference spectra from the EPA FTIR spectral library. When EPA library spectra are not available, the procedures in section 4.6 of the Protocol shall be followed to prepare reference spectra of all the target analytes.

11.1 *Spectral De-resolution.* Reference spectra can be converted to lower resolution standard spectra (section 3.3 of this method) by truncating the original reference sample and background interferograms. Appendix K of the FTIR Protocol gives specific deresolution procedures. Deresolved spectra shall be transformed using the same apodization function and level of zero filling as the sample spectra. Additionally, pre-test FTIR protocol calculations (e.g., FRU, MAU, FCU) shall be performed using the de-resolved standard spectra.

11.2 *Data Analysis.* Various analytical programs are available for relating sample absorbance to a concentration standard. Calculated concentrations shall be verified by analyzing residual baselines after mathematically subtracting scaled reference spectra from the sample spectra. A full description of the data analysis and calculations is contained in the FTIR Protocol (sections 4.0, 5.0, 6.0 and appendices). Correct the calculated concentrations in the sample spectra for differences in absorption path length and temperature between the reference and sample spectra using equation 6,

$$C_{corr} = \left(\frac{L_r}{L_s}\right)\left(\frac{T_s}{T_r}\right)\left(\frac{P_r}{P_s}\right)C_{calc} \qquad (6)$$

Where:

C_{corr}=Concentration, corrected for path length.

C_{calc}=Concentration, initial calculation (output of the analytical program designed for the compound).

L_r=Reference spectra path length.

L_s=Sample spectra path length.

T_s=Absolute temperature of the sample gas, K.

T_r=Absolute gas temperature of reference spectra, K.

P_s=Sample cell pressure.

P_r=Reference spectrum sample pressure.

12.0 Method Performance

12.1 *Spectral Quality.* Refer to the FTIR Protocol appendices for analytical requirements, evaluation of data quality, and analysis of uncertainty.

12.2 *Sampling QA/QC.* The analyte spike procedure of section 9 of this method, the QA spike of section 8.6.2 of this method, and the validation procedure of section 13 of this method are used to evaluate the performance of the sampling system and to quantify sampling system effects, if any, on the measured concentrations. This method is self-validating provided that the results meet the performance requirement of the QA spike in sections 9.0 and 8.6.2 of this method and results from a previous method validation study support the use of this method in the application. Several factors can contribute to uncertainty in the measurement of spiked samples. Factors which can be controlled to provide better accuracy in the spiking procedure are listed in sections 12.2.1 through 12.2.4 of this method.

12.2.1 *Flow meter.* An accurate mass flow meter is accurate to ±1 percent of its span. If a flow of 1 L/min is monitored with such a MFM, which is calibrated in the range of 0–5 L/min, the flow measurement has an uncertainty of 5 percent. This may be improved by re-calibrating the meter at the specific flow rate to be used.

12.2.2 *Calibration gas.* Usually the calibration standard is certified to within ± 2 percent. With reactive analytes, such as HCl, the certified accuracy in a commercially available standard may be no better than ± 5 percent.

12.2.3 *Temperature.* Temperature measurements of the cell shall be quite accurate. If practical, it is preferable to measure sample temperature directly, by inserting a thermocouple into the cell chamber instead of monitoring the cell outer wall temperature.

12.2.4 *Pressure.* Accuracy depends on the accuracy of the barometer, but fluctuations in pressure throughout a day may be as much as 2.5 percent due to weather variations.

13.0 Method Validation Procedure

This validation procedure, which is based on EPA Method 301 (40 CFR part 63, appendix (A), may be used to validate this method for the analytes in a gas matrix. Validation at one source may also apply to another type of source, if it can be shown that the exhaust gas characteristics are similar at both sources.

13.1 Section 5.3 of Method 301 (40 CFR part 63, appendix A), the Analyte Spike procedure, is used with these modifications. The statistical analysis of the results follows section 6.3 of EPA Method 301. Section 3 of this method defines terms that are not defined in Method 301.

13.1.1 The analyte spike is performed dynamically. This means the spike flow is continuous and constant as spiked samples are measured.

13.1.2 The spike gas is introduced at the back of the sample probe.

13.1.3 Spiked effluent is carried through all sampling components downstream of the probe.

13.1.4 A single FTIR system (or more) may be used to collect and analyze spectra (not quadruplicate integrated sampling trains).

13.1.5 All of the validation measurements are performed sequentially in a single ‘‘run’’ (section 3.26 of this method).

13.1.6 The measurements analyzed statistically are each independent (section 3.22 of this method).

13.1.7 A validation data set can consist of more than 12 spiked and 12 unspiked measurements.

13.2 *Batch Sampling.* The procedure in sections 13.2.1 through 13.2.2 may be used for stable processes. If process emissions are highly variable, the procedure in section 13.2.3 shall be used.

13.2.1 With a single FTIR instrument and sampling system, begin by collecting spectra of two unspiked samples. Introduce the spike flow into the sampling system and allow 10 cell volumes to purge the sampling system and FTIR cell. Collect spectra of two spiked samples. Turn off the spike and allow 10 cell volumes of unspiked sample to purge the FTIR cell. Repeat this procedure until the 24 (or more) samples are collected.

13.2.2 In batch sampling, collect spectra of 24 distinct samples. (Each distinct sample consists of filling the cell to ambient pressure after the cell has been evacuated.)

13.2.3 Alternatively, a separate probe assembly, line, and sample pump can be used for spiked sample. Verify and document that sampling conditions are the same in both the spiked and the unspiked sampling systems. This can be done by wrapping both sample lines in the same heated bundle. Keep the same flow rate in both sample lines. Measure samples in sequence in pairs. After two spiked samples are measured, evacuate the FTIR cell, and turn the manifold valve so that spiked sample flows to the FTIR cell. Allow the connecting line from the manifold to the FTIR cell to purge thoroughly (the time depends on the line length and flow rate). Collect a pair of spiked samples. Repeat the procedure until at least 24 measurements are completed.

13.3 Simultaneous Measurements With Two FTIR Systems. If unspiked effluent concentrations of the target analyte(s) vary significantly with time, it may be desirable to perform synchronized measurements of spiked and unspiked sample. Use two FTIR systems, each with its own cell and sampling system to perform simultaneous spiked and unspiked measurements. The optical configurations shall be similar, if possible. The sampling configurations shall be the same. One sampling system and FTIR analyzer shall be used to measure spiked effluent. The other sampling system and FTIR analyzer shall be used to measure unspiked flue gas. Both systems shall use the same sampling procedure (i.e., batch or continuous).

13.3.1 If batch sampling is used, synchronize the cell evacuation, cell filling, and collection of spectra. Fill both cells at the same rate (in cell volumes per unit time).

13.3.2 If continuous sampling is used, adjust the sample flow through each gas cell so that the same number of cell volumes pass through each cell in a given time (i.e. $TC_1 = TC_2$).

13.4 *Statistical Treatment.* The statistical procedure of EPA Method 301 of this appendix, section 6.3 is used to evaluate the bias and precision. For FTIR testing a validation ‘‘run’’ is defined as spectra of 24 independent samples, 12 of which are spiked with the analyte(s) and 12 of which are not spiked.

13.4.1 *Bias.* Determine the bias (defined by EPA Method 301 of this appendix, section 6.3.2) using equation 7:

$$B = S_m - CS \qquad (7)$$

Where:

B = Bias at spike level.

S_m = Mean concentration of the analyte spiked samples.

CS = Expected concentration of the spiked samples.

13.4.2 *Correction Factor.* Use section 6.3.2.2 of Method 301 of this appendix to evaluate the statistical significance of the bias. If it is determined that the bias is significant, then use section 6.3.3 of Method 301 to calculate a correction factor (CF). Analytical results of the test method are multiplied by the correction factor, if $0.7 \leq CF \leq 1.3$. If is determined that the bias is significant and CF >±30 percent, then the test method is considered to ‘‘not valid.’’

13.4.3 If measurements do not pass validation, evaluate the sampling system, instrument configuration, and analytical system to determine if improper set-up or a malfunction was the cause. If so, repair the system and repeat the validation.

14.0 *Pollution Prevention.*

The extracted sample gas is vented outside the enclosure containing the FTIR system and gas manifold after the analysis. In typical method applications the vented sample volume is a small fraction of the source volumetric flow and its composition is identical to that emitted from the source. When analyte spiking is used, spiked pollutants are vented with the extracted sample gas. Approximately 1.6×10^{-4} to 3.2×10^{-4} lbs of a single HAP may be vented to the atmosphere in a typical validation run of 3 hours. (This assumes a molar mass of 50 to 100 g, spike rate of 1.0 L/min, and a standard concentration of 100 ppm). Minimize emissions by keeping the spike flow off when not in use.

15.0 *Waste Management.*

Small volumes of laboratory gas standards can be vented through a laboratory hood. Neat samples must be packed and disposed according to applicable regulations. Surplus materials may be returned to supplier for disposal.

16.0 *References.*

1. ‘‘Field Validation Test Using Fourier Transform Infrared (FTIR) Spectrometry To Measure Formaldehyde, Phenol and Methanol at a Wool Fiberglass Production Facility.’’ Draft. U.S. Environmental Protection Agency Report, EPA Contract No. 68D20163, Work Assignment I–32, September 1994.

2. ‘‘FTIR Method Validation at a Coal-Fired Boiler’’. Prepared for U.S. Environmental Protection Agency, Research Triangle Park, NC. Publication No.: EPA–454/R95–004, NTIS No.: PB95–193199. July, 1993.

3. ‘‘Method 301—Field Validation of Pollutant Measurement Methods from Various Waste Media,’’ 40 CFR part 63, appendix A.

4. ‘‘Molecular Vibrations; The Theory of Infrared and Raman Vibrational Spectra,’’ E. Bright Wilson, J.C. Decius, and P.C. Cross, Dover Publications, Inc., 1980. For a less intensive treatment of molecular rotational-vibrational spectra see, for example, ‘‘Physical Chemistry,’’ G.M. Barrow, chapters 12, 13, and 14, McGraw Hill, Inc., 1979.

5. ‘‘Fourier Transform Infrared Spectrometry,’’ Peter R. Griffiths and James de Haseth, Chemical Analysis, 83, 16–25,(1986), P.J. Elving, J.D. Winefordner and I.M. Kolthoff (ed.), John Wiley and Sons.

6. ‘‘Computer-Assisted Quantitative Infrared Spectroscopy,’’ Gregory L. McClure (ed.), ASTM Special Publication 934 (ASTM), 1987.

7. ‘‘Multivariate Least-Squares Methods Applied to the Quantitative Spectral Analysis of Multicomponent Mixtures,’’ Applied Spectroscopy, 39(10), 73–84, 1985.

TABLE 1—EXAMPLE PRESENTATION OF SAMPLING DOCUMENTATION

Sample time	Spectrum file name	Background file name	Sample conditioning	Process condition

Sample time	Spectrum file	Interferogram	Resolution	Scans	Apodization	Gain	CTS Spectrum

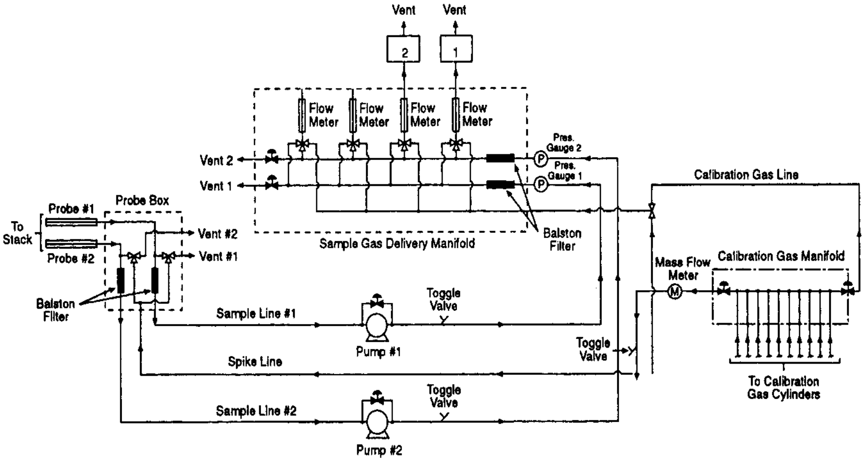


Figure 1. Extractive FTIR sampling system.

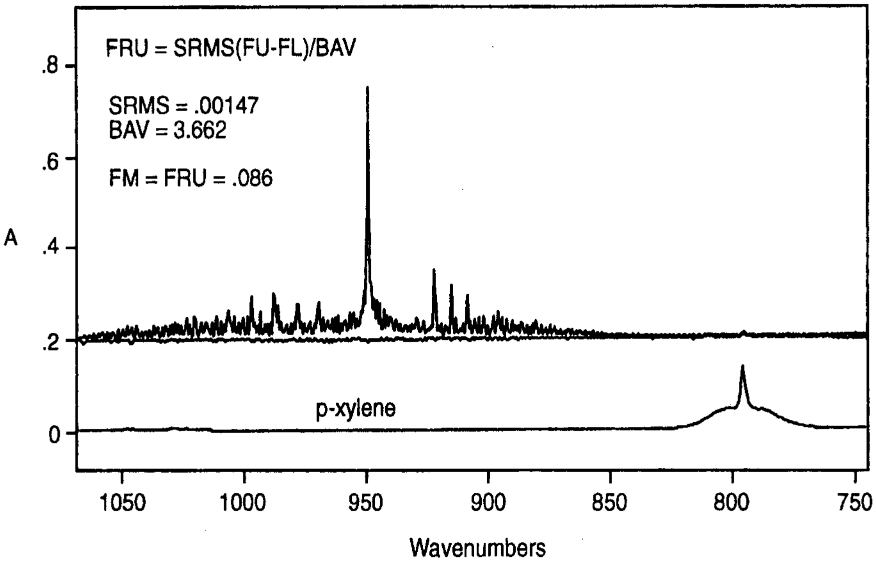


Figure 2. Fractional Reproducibility. Top: average of cts1031a and cts1101b. Bottom: Reference spectrum of p-xylene.

ADDENDUM TO TEST METHOD 320—PROTOCOL FOR THE USE OF EXTRACTIVE FOURIER TRANSFORM INFRARED (FTIR) SPECTROMETRY FOR THE ANALYSES OF GASEOUS EMISSIONS FROM STATIONARY SOURCES

1.0 Introduction

The purpose of this addendum is to set general guidelines for the use of modern FTIR spectroscopic methods for the analysis of gas samples extracted from the effluent of stationary emission sources. This addendum outlines techniques for developing and evaluating such methods and sets basic requirements for reporting and quality assurance procedures.

1.1 Nomenclature

1.1.1 Appendix A to this addendum lists definitions of the symbols and terms used in this Protocol, many of which have been taken directly from American Society for Testing and Materials (ASTM) publication E 131–90a, entitled "Terminology Relating to Molecular Spectroscopy."

1.1.2 Except in the case of background spectra or where otherwise noted, the term "spectrum" refers to a double-beam spectrum in units of absorbance vs. wavenumber (cm^{-1}).

1.1.3 The term "Study" in this addendum refers to a publication that has been subjected to EPA- or peer-review.

2.0 Applicability and Analytical Principle

2.1 *Applicability.* This Protocol applies to the determination of compound-specific concentrations in single- and multiple-component gas phase samples using double-beam absorption spectroscopy in the mid-infrared band. It does not specifically address other FTIR applications, such as single-beam spectroscopy, analysis of open-path (non-enclosed) samples, and continuous measurement techniques. If multiple spectrometers, absorption cells, or instrumental linewidths are used in such analyses, each distinct operational configuration of the system must be evaluated separately according to this Protocol.

2.2 Analytical Principle

2.2.1 In the mid-infrared band, most molecules exhibit characteristic gas phase absorption spectra that may be recorded by FTIR systems. Such systems consist of a source of mid-infrared radiation, an interferometer, an enclosed sample cell of known absorption pathlength, an infrared detector, optical elements for the transfer of infrared radiation between components, and gas flow control and measurement components. Adjunct and integral computer systems are used for controlling the instrument, processing the signal, and for performing both Fourier transforms and quantitative analyses of spectral data.

2.2.2 The absorption spectra of pure gases and of mixtures of gases are described by a linear absorbance theory referred to as Beer's Law. Using this law, modern FTIR systems use computerized analytical programs to quantify compounds by comparing the absorption spectra of known (reference) gas samples to the absorption spectrum of the sample gas. Some standard mathematical techniques used for comparisons are classical least squares, inverse least squares, cross-correlation, factor analysis, and partial least squares. Reference A describes several of these techniques, as well as additional techniques, such as differentiation methods, linear baseline corrections, and non-linear absorbance corrections.

3.0 General Principles of Protocol Requirements

The characteristics that distinguish FTIR systems from gas analyzers used in instrumental gas analysis methods (e.g., Methods 6C and 7E of appendix A to part 60 of this chapter) are: (1) Computers are necessary to obtain and analyze data; (2) chemical concentrations can be quantified using previously recorded infrared reference spectra; and (3) analytical assumptions and results, including possible effects of interfering compounds, can be evaluated after the quantitative analysis. The following general principles and requirements of this Protocol are based on these characteristics.

3.1 *Verifiability and Reproducibility of Results.* Store all data and document data analysis techniques sufficient to allow an independent agent to reproduce the analytical results from the raw interferometric data.

3.2 *Transfer of Reference Spectra.* To determine whether reference spectra recorded under one set of conditions (e.g., optical bench, instrumental linewidth, absorption pathlength, detector performance, pressure, and temperature) can be used to analyze sample spectra taken under a different set of conditions, quantitatively compare "calibration transfer standards" (CTS) and reference spectra as described in this Protocol.

NOTE: The CTS may, but need not, include analytes of interest). To effect this, record the absorption spectra of the CTS (a) immediately before and immediately after recording reference spectra and (b) immediately after recording sample spectra.

3.3 *Evaluation of FTIR Analyses.* The applicability, accuracy, and precision of FTIR measurements are influenced by a number of interrelated factors, which may be divided into two classes:

3.3.1 *Sample-Independent Factors.* Examples are system configuration and performance (e.g., detector sensitivity and infrared source output), quality and applicability of reference absorption spectra, and type of mathematical analyses of the spectra. These factors define the fundamental limitations of FTIR measurements for a given system configuration. These limitations may be estimated from evaluations of the system before samples are available. For example, the detection limit for the absorbing compound under a given set of conditions may be estimated from the system noise level and the strength of a particular absorption band. Similarly, the accuracy of measurements may be estimated from the analysis of the reference spectra.

3.3.2 *Sample-Dependent Factors.* Examples are spectral interferants (e.g., water vapor and CO_2) or the overlap of spectral features of different compounds and contamination deposits on reflective surfaces or transmitting windows. To maximize the effectiveness of the mathematical techniques used in spectral analysis, identification of interferants (a standard initial step) and analysis of samples (includes effect of other analytical errors) are necessary. Thus, the Protocol requires post-analysis calculation of measurement concentration uncertainties for the detection of these potential sources of measurement error.

4.0 Pre-Test Preparations and Evaluations

Before testing, demonstrate the suitability of FTIR spectrometry for the desired application according to the procedures of this section.

4.1 *Identify Test Requirements.* Identify and record the test requirements described in sections 4.1.1 through 4.1.4 of this addendum. These values set the desired or required goals of the proposed analysis; the description of methods for determining whether these goals are actually met during the analysis comprises the majority of this Protocol.

4.1.1 Analytes (specific chemical species) of interest. Label the analytes from $i = 1$ to I.

4.1.2 Analytical uncertainty limit (AU_i). The AU_i is the maximum permissible fractional uncertainty of analysis for the i^{th} analyte concentration, expressed as a fraction of the analyte concentration in the sample.

4.1.3 Required detection limit for each analyte (DL_i, ppm). The detection limit is the lowest concentration of an analyte for which its overall fractional uncertainty (OFU_i) is required to be less than its analytical uncertainty limit (AU_i).

4.1.4 Maximum expected concentration of each analyte ($CMAX_i$, ppm).

4.2 *Identify Potential Interferants.* Considering the chemistry of the process or results of previous studies, identify potential interferants, i.e., the major effluent constituents and any relatively minor effluent constituents that possess either strong absorption characteristics or strong structural similarities to any analyte of interest. Label them 1 through N_j, where the subscript ‘‘j’’ pertains to potential interferants. Estimate the concentrations of these compounds in the effluent ($CPOT_j$, ppm).

4.3 *Select and Evaluate the Sampling System.* Considering the source, e.g., temperature and pressure profiles, moisture content, analyte characteristics, and particulate concentration), select the equipment for extracting gas samples. Recommended are a particulate filter, heating system to maintain sample temperature above the dew point for all sample constituents at all points within the sampling system (including the filter), and sample conditioning system (e.g., coolers, water-permeable membranes that remove water or other compounds from the sample, and dilution devices) to remove spectral interferants or to protect the sampling and analytical components. Determine the minimum absolute sample system pressure (P_{min}, mmHg) and the infrared absorption cell volume (V_{SS}, liter). Select the techniques and/or equipment for the measurement of sample pressures and temperatures.

4.4 *Select Spectroscopic System.* Select a spectroscopic configuration for the application. Approximate the absorption pathlength (L_S’, meter), sample pressure (P_S’, kPa), absolute sample temperature T_S’, and signal integration period (t_{SS}, seconds) for the analysis. Specify the nominal minimum instrumental linewidth (MIL) of the system. Verify that the fractional error at the approximate values P_S’ and T_S’ is less than one half the smallest value AU_i (see section 4.1.2 of this addendum).

4.5 Select Calibration Transfer Standards (CTS’s). Select CTS’s that meet the criteria listed in sections 4.5.1, 4.5.2, and 4.5.3 of this addendum.

NOTE: It may be necessary to choose preliminary analytical regions (see section 4.7 of this addendum), identify the minimum analyte linewidths, or estimate the system noise level (see section 4.12 of this addendum) before selecting the CTS. More than one compound may be needed to meet the criteria; if so, obtain separate cylinders for each compound.

4.5.1 The central wavenumber position of each analytical region shall lie within 25 percent of the wavenumber position of at least one CTS absorption band.

4.5.2 The absorption bands in section 4.5.1 of this addendum shall exhibit peak absorbances greater than ten times the value RMS_{EST} (see section 4.12 of this addendum) but less than 1.5 absorbance units.

4.5.3 At least one absorption CTS band within the operating range of the FTIR instrument shall have an instrument-independent linewidth no greater than the narrowest analyte absorption band. Perform and document measurements or cite Studies to determine analyte and CTS compound linewidths.

4.5.4 For each analytical region, specify the upper and lower wavenumber positions (FFU_m and FFL_m, respectively) that bracket the CTS absorption band or bands for the associated analytical region. Specify the wavenumber range, FNU to FNL, containing the absorption band that meets the criterion of section 4.5.3 of this addendum.

4.5.5 Associate, whenever possible, a single set of CTS gas cylinders with a set of reference spectra. Replacement CTS gas cylinders shall contain the same compounds at concentrations within 5 percent of that of the original CTS cylinders; the entire absorption spectra (not individual spectral segments) of the replacement gas shall be scaled by a factor between 0.95 and 1.05 to match the original CTS spectra.

4.6 Prepare Reference Spectra

NOTE: Reference spectra are available in a permanent soft copy from the EPA spectral library on the EMTIC (Emission Measurement Technical Information Center) computer bulletin board; they may be used if applicable.

4.6.1 Select the reference absorption pathlength (L_R) of the cell.

4.6.2 Obtain or prepare a set of chemical standards for each analyte, potential and known spectral interferants, and CTS. Select the concentrations of the chemical standards to correspond to the top of the desired range.

4.6.2.1 *Commercially-Prepared Chemical Standards.* Chemical standards for many compounds may be obtained from independent sources, such as a specialty gas manufacturer, chemical company, or commercial laboratory. These standards (accurate to within ±2 percent) shall be prepared according to EPA Traceability Protocol (see Reference D) or shall be traceable to NIST standards. Obtain from the supplier an estimate of the stability of the analyte concentration. Obtain and follow all of the supplier’s recommendations for recertifying the analyte concentration.

4.6.2.2 *Self-Prepared Chemical Standards.* Chemical standards may be prepared by diluting certified commercially prepared chemical gases or pure analytes with ultra-pure carrier (UPC) grade nitrogen according to the barometric and volumetric techniques generally described in Reference A, section A4.6.

4.6.3 Record a set of the absorption spectra of the CTS {R1□, then a set of the reference spectra at two or more concentrations in duplicate over the desired range (the top of the range must be less than 10 times that of the bottom), followed by a second set of CTS spectra {R2□. (If self-prepared standards are used, see section 4.6.5 of this addendum before disposing of any of the standards.) The maximum accepted standard concentration-pathlength product (ASCPP) for each compound shall be higher than the maximum estimated concentration-pathlength products for both analytes and known interferants in the effluent gas. For each analyte, the minimum ASCPP shall be no greater than ten times the concentration-pathlength product of that analyte at its required detection limit.

4.6.4 Permanently store the background and interferograms in digitized form. Document details of the mathematical process for generating the spectra from these interferograms. Record the sample pressure (P_R), sample temperature (T_R), reference absorption pathlength (L_R), and interferogram signal integration period (t_{SR}). Signal integration periods for the background interferograms shall be $\geq t_{SR}$. Values of P_R, L_R, and t_{SR} shall not deviate by more than ±1 percent from the time of recording [R1] to that of recording [R2].

4.6.5 If self-prepared chemical standards are employed and spectra of only two concentrations are recorded for one or more compounds, verify the accuracy of the dilution technique by analyzing the prepared standards for those compounds with a secondary (non-FTIR) technique in accordance with sections 4.6.5.1 through 4.6.5.4 of this addendum.

4.6.5.1 Record the response of the secondary technique to each of the four standards prepared.

4.6.5.2 Perform a linear regression of the response values (dependant variable) versus the accepted standard concentration (ASC) values (independent variable), with the regression constrained to pass through the zero-response, zero ASC point.

4.6.5.3 Calculate the average fractional difference between the actual response values and the regression-predicted values (those calculated from the regression line using the four ASC values as the independent variable).

4.6.5.4 If the average fractional difference value calculated in section 4.6.5.3 of this addendum is larger for any compound than the corresponding AU_i, the dilution technique is not sufficiently accurate and the reference spectra prepared are not valid for the analysis.

4.7 *Select Analytical Regions.* Using the general considerations in section 7 of Reference A and the spectral characteristics of the analytes and interferants, select the analytical regions for the application. Label them m = 1 to M. Specify the lower, center and upper wavenumber positions of each analytical region (FL_m, FC_m, and FU_m, respectively). Specify the analytes and interferants which exhibit absorption in each region.

4.8 *Determine Fractional Reproducibility Uncertainties.* Using appendix E of this addendum, calculate the fractional reproducibility uncertainty for each analyte (FRU_i) from a comparison of [R1] and [R2]. If $FRU_i > AU_i$ for any analyte, the reference spectra generated in accordance with section 4.6 of this addendum are not valid for the application.

4.9 *Identify Known Interferants.* Using appendix B of this addendum, determine which potential interferants affect the analyte concentration determinations. Relabel these potential interferant as ‘‘known’’ interferants, and designate these compounds from k = 1 to K. Appendix B to this addendum also provides criteria for determining whether the selected analytical regions are suitable.

4.10 Prepare Computerized Analytical Programs

4.10.1 Choose or devise mathematical techniques (e.g, classical least squares, inverse least squares, cross-correlation, and factor analysis) based on equation 4 of Reference A that are appropriate for analyzing spectral data by comparison with reference spectra.

4.10.2 Following the general recommendations of Reference A, prepare a computer program or set of programs that analyzes all of the analytes and known interferants, based on the selected analytical regions (section 4.7 of this addendum) and the prepared reference spectra (section 4.6 of this addendum). Specify the baseline correction technique (e.g., determining the slope and intercept of a linear baseline contribution in each analytical region) for each analytical region, including all relevant wavenumber positions.

4.10.3 Use programs that provide as output [at the reference absorption pathlength (L_R), reference gas temperature (T_R), and reference gas pressure (P_R)] the analyte concentrations, the known interferant concentrations, and the baseline slope and intercept values. If the sample absorption pathlength (L_S), sample gas temperature (T_S), or sample gas pressure (P_S) during the actual sample analyses differ from L_R, T_R, and P_R, use a program or set of programs that applies multiplicative corrections to the derived concentrations to account for these variations, and that provides as output both the corrected and uncorrected values. Include in the report of the analysis (see section 7.0 of this addendum) the details of any transformations applied to the original reference spectra (e.g., differentiation), in such a fashion that all analytical results may be verified by an independent agent from the reference spectra and data spectra alone.

4.11 *Determine the Fractional Calibration Uncertainty*. Calculate the fractional calibration uncertainty for each analyte (FCUi) according to appendix F of this addendum, and compare these values to the fractional uncertainty limits (AU_i; see section 4.1.2 of this addendum). If $FCU_i > AU_i$, either the reference spectra or analytical programs for that analyte are unsuitable.

4.12 *Verify System Configuration Suitability*. Using appendix C of this addendum, measure or obtain estimates of the noise level (RMS_{EST}, absorbance) of the FTIR system. Alternatively, construct the complete spectrometer system and determine the values RMS_{Sm} using appendix G of this addendum. Estimate the minimum measurement uncertainty for each analyte (MAU_i, ppm) and known interferant (MIU_k, ppm) using appendix D of this addendum. Verify that (a) $MAU_i < (AU_i)(DL_i)$, $FRUi < AU_i$, and $FCUi < AU_i$ for each analyte and that (b) the CTS chosen meets the requirements listed in sections 4.5.1 through 4.5.5 of this addendum.

5.0 Sampling and Analysis Procedure

5.1 *Analysis System Assembly and Leak-Test*. Assemble the analysis system. Allow sufficient time for all system components to reach the desired temperature. Then, determine the leak-rate (L_R) and leak volume (V_L), where $V_L = L_R\ t_{SS}$. Leak volumes shall be ≤4 percent of V_{SS}.

5.2 *Verify Instrumental Performance*. Measure the noise level of the system in each analytical region using the procedure of appendix G of this addendum. If any noise level is higher than that estimated for the system in section 4.12 of this addendum, repeat the calculations of appendix D of this addendum and verify that the requirements of section 4.12 of this addendum are met; if they are not, adjust or repair the instrument and repeat this section.

5.3 Determine the Sample Absorption Pathlength

Record a background spectrum. Then, fill the absorption cell with CTS at the pressure P_R and record a set of CTS spectra [R3]. Store the background and unscaled CTS single beam interferograms and spectra. Using appendix H of this addendum, calculate the sample absorption pathlength (L_S) for each analytical region. The values L_S shall not differ from the approximated sample pathlength L_S' (see section 4.4 of this addendum) by more than 5 percent.

5.4 *Record Sample Spectrum*. Connect the sample line to the source. Either evacuate the absorption cell to an absolute pressure below 5 mmHg before extracting a sample from the effluent stream into the absorption cell, or pump at least ten cell volumes of sample through the cell before obtaining a sample. Record the sample pressure P_S. Generate the absorbance spectrum of the sample. Store the background and sample single beam interferograms, and document the process by which the absorbance spectra are generated from these data. (If necessary, apply the spectral transformations developed in section 5.6.2 of this addendum). The resulting sample spectrum is referred to below as S_S.

NOTE: Multiple sample spectra may be recorded according to the procedures of section 5.4 of this addendum before performing sections 5.5 and 5.6 of this addendum.

5.5 *Quantify Analyte Concentrations*. Calculate the unscaled analyte concentrations RUA_i and unscaled interferant concentrations RUI_K using the programs developed in section 4 of this addendum. To correct for pathlength and pressure variations between the reference and sample spectra, calculate the scaling factor, R_{LPS} using equation A.1,

$$R_{LPS} = \left(L_R P_R T_S\right) / \left(L_S P_S T_R\right) \qquad (A.1)$$

Calculate the final analyte and interferant concentrations RSA_i and RSI_k using equations A.2 and A.3,

$$RSA_i = R_{LPS} RUA_i \qquad (A.2)$$

$$RSI_k = R_{LPS} RUI_k \qquad (A.3)$$

5.6 *Determine Fractional Analysis Uncertainty*. Fill the absorption cell with CTS at the pressure P_S. Record a set of CTS spectra [R4]. Store the background and CTS single beam interferograms. Using appendix H of this addendum, calculate the fractional analysis uncertainty (FAU) for each analytical region. If the FAU indicated for any analytical region is greater than the required accuracy requirements determined in sections 4.1.1 through 4.1.4 of this addendum, then comparisons to previously recorded reference spectra are invalid in that analytical region, and the analyst shall perform one or both of the procedures of sections 5.6.1 through 5.6.2 of this addendum.

5.6.1 Perform instrumental checks and adjust the instrument to restore its performance to acceptable levels. If adjustments are made, repeat sections 5.3, 5.4 (except for the recording of a sample spectrum), and 5.5 of this addendum to demonstrate that acceptable uncertainties are obtained in all analytical regions.

5.6.2 Apply appropriate mathematical transformations (e.g., frequency shifting, zero-filling, apodization, smoothing) to the spectra (or to the interferograms upon which the spectra are based) generated during the performance of the procedures of section 5.3 of this addendum. Document these transformations and their reproducibility. Do not apply multiplicative scaling of the spectra, or any set of transformations that is mathematically equivalent to multiplicative scaling. Different transformations may be applied to different analytical regions. Frequency shifts shall be less than one-half the minimum instrumental linewidth, and must be applied to all spectral data points in an analytical region. The mathematical transformations may be retained for the analysis if they are also applied to the appropriate analytical regions of all sample spectra recorded, and if all original sample spectra are digitally stored. Repeat sections 5.3, 5.4 (except the recording of a sample spectrum), and 5.5 of this addendum to demonstrate that these transformations lead to acceptable calculated concentration uncertainties in all analytical regions.

6.0 Post-Analysis Evaluations

Estimate the overall accuracy of the analyses performed in accordance with sections 5.1 through 5.6 of this addendum using the procedures of sections 6.1 through 6.3 of this addendum.

6.1 *Qualitatively Confirm the Assumed Matrix.* Examine each analytical region of the sample spectrum for spectral evidence of unexpected or unidentified interferants. If found, identify the interfering compounds (see Reference C for guidance) and add them to the list of known interferants. Repeat the procedures of section 4 of this addendum to include the interferants in the uncertainty calculations and analysis procedures. Verify that the MAU and FCU values do not increase beyond acceptable levels for the application requirements. Re-calculate the analyte concentrations (section 5.5 of this addendum) in the affected analytical regions.

6.2 *Quantitatively Evaluate Fractional Model Uncertainty (FMU).* Perform the procedures of either section 6.2.1 or 6.2.2 of this addendum:

6.2.1 Using appendix I of this addendum, determine the fractional model error (FMU) for each analyte.

6.2.2 Provide statistically determined uncertainties FMU for each analyte which are equivalent to two standard deviations at the 95 percent confidence level. Such determinations, if employed, must be based on mathematical examinations of the pertinent sample spectra (not the reference spectra alone). Include in the report of the analysis (see section 7.0 of this addendum) a complete description of the determination of the concentration uncertainties.

6.3 *Estimate Overall Concentration Uncertainty (OCU).* Using appendix J of this addendum, determine the overall concentration uncertainty (OCU) for each analyte. If the OCU is larger than the required accuracy for any analyte, repeat sections 4 and 6 of this addendum.

7.0 *Reporting Requirements*

[Documentation pertaining to virtually all the procedures of sections 4, 5, and 6 will be required. Software copies of reference spectra and sample spectra will be retained for some minimum time following the actual testing.]

8.0 References

(A) Standard Practices for General Techniques of Infrared Quantitative Analysis (American Society for Testing and Materials, Designation E 168–88).

(B) The Coblentz Society Specifications for Evaluation of Research Quality Analytical Infrared Reference Spectra (Class II); Anal. Chemistry 47, 945A (1975); Appl. Spectroscopy 444, pp. 211–215, 1990.

(C) Standard Practices for General Techniques for Qualitative Infrared Analysis, American Society for Testing and Materials, Designation E 1252–88.

(D) ''EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards,'' U.S. Environmental Protection Agency Publication No. EPA/600/R–93/224, December 1993.

APPENDIX A TO ADDENDUM TO METHOD 320—DEFINITIONS OF TERMS AND SYMBOLS

A.1 *Definitions of Terms.* All terms used in this method that are not defined below have the meaning given to them in the CAA and in subpart A of this part.

Absorption band means a contiguous wavenumber region of a spectrum (equivalently, a contiguous set of absorbance spectrum data points) in which the absorbance passes through a maximum or a series of maxima.

Absorption pathlength means the distance in a spectrophotometer, measured in the direction of propagation of the beam of radiant energy, between the surface of the specimen on which the radiant energy is incident and the surface of the specimen from which it is emergent.

Analytical region means a contiguous wavenumber region (equivalently, a contiguous set of absorbance spectrum data points) used in the quantitative analysis for one or more analytes.

NOTE: The quantitative result for a single analyte may be based on data from more than one analytical region.

Apodization means modification of the ILS function by multiplying the interferogram by a weighing function whose magnitude varies with retardation.

Background spectrum means the single beam spectrum obtained with all system components without sample present.

Baseline means any line drawn on an absorption spectrum to establish a reference point that represents a function of the radiant power incident on a sample at a given wavelength.

Beers's law means the direct proportionality of the absorbance of a compound in a homogeneous sample to its concentration.

Calibration transfer standard (CTS) gas means a gas standard of a compound used to achieve and/or demonstrate suitable quantitative agreement between sample spectra and the reference spectra; see section 4.5.1 of this addendum.

Compound means a substance possessing a distinct, unique molecular structure.

Concentration (c) means the quantity of a compound contained in a unit quantity of sample. The unit ''ppm'' (number, or mole, basis) is recommended.

Concentration-pathlength product means the mathematical product of concentration of the species and absorption pathlength. For reference spectra, this is a known quantity; for sample spectra, it is the quantity directly determined from Beer's law. The units ''centimeters-ppm'' or ''meters-ppm'' are recommended.

Derivative absorption spectrum means a plot of rate of change of absorbance or of any function of absorbance with respect to wavelength or any function of wavelength.

Double beam spectrum means a transmission or absorbance spectrum derived by dividing the sample single beam spectrum by the background spectrum.

NOTE: The term ''double-beam'' is used elsewhere to denote a spectrum in which the sample and background interferograms are collected simultaneously along physically distinct absorption paths. Here, the term denotes a spectrum in which the sample and background interferograms are collected at different times along the same absorption path.

Fast Fourier transform (FFT) means a method of speeding up the computation of a discrete FT by factoring the data into sparse matrices containing mostly zeros.

Flyback means interferometer motion during which no data are recorded.

Fourier transform (FT) means the mathematical process for converting an amplitude-time spectrum to an amplitude-frequency spectrum, or vice versa.

Fourier transform infrared (FTIR) spectrometer means an analytical system that employs a source of mid-infrared radiation, an interferometer, an enclosed sample cell of known absorption pathlength, an infrared detector, optical elements that transfer infrared radiation between components, and a computer system. The time-domain detector response (interferogram) is processed by a Fourier transform to yield a representation of the detector response vs. infrared frequency.

NOTE: When FTIR spectrometers are interfaced with other instruments, a slash should be used to denote the interface; e.g., GC/FTIR; HPCL/FTIR, and the use of FTIR should be explicit; i.e., FTIR not IR.

Frequency, v means the number of cycles per unit time.

Infrared means the portion of the electromagnetic spectrum containing wavelengths from approximately 0.78 to 800 microns.

Interferogram, $I(\sigma)$ means record of the modulated component of the interference signal measured as a function of retardation by the detector.

Interferometer means device that divides a beam of radiant energy into two or more paths, generates an optical path difference between the beams, and recombines them in order to produce repetitive interference maxima and minima as the optical retardation is varied.

Linewidth means the full width at half maximum of an absorption band in units of wavenumbers (cm^{-1}).

Mid-infrared means the region of the electromagnetic spectrum from approximately 400 to 5000 cm^{-1}.

Reference spectra means absorption spectra of gases with known chemical compositions, recorded at a known absorption pathlength, which are used in the quantitative analysis of gas samples.

Retardation, σ means optical path difference between two beams in an interferometer; also known as ''optical path difference'' or ''optical retardation.''

Scan means digital representation of the detector output obtained during one complete motion of the interferometer's moving assembly or assemblies.

Scaling means application of a multiplicative factor to the absorbance values in a spectrum.

Single beam spectrum means Fourier-transformed interferogram, representing the detector response vs. wavenumber.

NOTE: The term ''single-beam'' is used elsewhere to denote any spectrum in which the sample and background interferograms are recorded on the same physical absorption path; such usage differentiates such spectra from those generated using interferograms recorded along two physically distinct absorption paths (see ''double-beam spectrum'' above). Here, the term applies (for example) to the two spectra used directly in the calculation of transmission and absorbance spectra of a sample.

Standard reference material means a reference material, the composition or properties of which are certified by a recognized standardizing agency or group.

NOTE: The equivalent ISO term is ''certified reference material.''

Transmittance, T means the ratio of radiant power transmitted by the sample to the radiant power incident on the sample. Estimated in FTIR spectroscopy by forming the ratio of the single-beam sample and background spectra.

Wavenumber, $\bar{v}$ means the number of waves per unit length.

NOTE: The usual unit of wavenumber is the reciprocal centimeter, cm^{-1}. The wavenumber is the reciprocal of the wavelength, λ, when λ is expressed in centimeters.

Zero-filling means the addition of zero-valued points to the end of a measured interferogram.

NOTE: Performing the FT of a zero-filled interferogram results in correctly interpolated points in the computed spectrum.

A.2 *Definitions of Mathematical Symbols.* The symbols used in equations in this protocol are defined as follows:

(1) A, absorbance = the logarithm to the base 10 of the reciprocal of the transmittance (T).

$$A = \log_{10}\left(\frac{1}{T}\right) = -\log_{10} T$$

(2) AAI_{im} = band area of the i^{th} analyte in the m^{th} analytical region, at the concentration (CL_i) corresponding to the product of its required detection limit (DL_i) and analytical uncertainty limit (AU_i) .

(3) AAV_{im} = average absorbance of the i^{th} analyte in the m^{th} analytical region, at the concentration (CL_i) corresponding to the product of its required detection limit (DL_i) and analytical uncertainty limit (AU_i).

(4) ASC, accepted standard concentration = the concentration value assigned to a chemical standard.

(5) ASCPP, accepted standard concentration-pathlength product = for a chemical standard, the product of the ASC and the sample absorption pathlength. The units ‘‘centimeters-ppm’’ or ‘‘meters-ppm’’ are recommended.

(6) AU_i, analytical uncertainty limit = the maximum permissible fractional uncertainty of analysis for the i^{th} analyte concentration, expressed as a fraction of the analyte concentration determined in the analysis.

(7) AVT_m = average estimated total absorbance in the m^{th} analytical region.

(8) $CKWN_k$ = estimated concentration of the k^{th} known interferant.

(9) $CMAX_i$ = estimated maximum concentration of the i^{th} analyte.

(10) $CPOT_j$ = estimated concentration of the j^{th} potential interferant.

(11) DL_i, required detection limit = for the i^{th} analyte, the lowest concentration of the analyte for which its overall fractional uncertainty (OFU_i) is required to be less than the analytical uncertainty limit (AU_i).

(12) FC_m = center wavenumber position of the m^{th} analytical region.

(13) FAU_i, fractional analytical uncertainty = calculated uncertainty in the measured concentration of the i^{th} analyte because of errors in the mathematical comparison of reference and sample spectra.

(14) FCU_i, fractional calibration uncertainty = calculated uncertainty in the measured concentration of the i^{th} analyte because of errors in Beer’s law modeling of the reference spectra concentrations.

(15) FFL_m = lower wavenumber position of the CTS absorption band associated with the m^{th} analytical region.

(16) FFU_m = upper wavenumber position of the CTS absorption band associated with the m^{th} analytical region.

(17) FL_m = lower wavenumber position of the m^{th} analytical region.

(18) FMU_i, fractional model uncertainty = calculated uncertainty in the measured concentration of the i^{th} analyte because of errors in the absorption model employed.

(19) FN_L = lower wavenumber position of the CTS spectrum containing an absorption band at least as narrow as the analyte absorption bands.

(20) FN_U = upper wavenumber position of the CTS spectrum containing an absorption band at least as narrow as the analyte absorption bands.

(21) FRU_i, fractional reproducibility uncertainty = calculated uncertainty in the measured concentration of the i^{th} analyte because of errors in the reproducibility of spectra from the FTIR system.

(22) FU_m = upper wavenumber position of the m^{th} analytical region.

(23) IAI_{jm} = band area of the j^{th} potential interferant in the m^{th} analytical region, at its expected concentration ($CPOT_j$).

(24) IAV_{im} = average absorbance of the i^{th} analyte in the m^{th} analytical region, at its expected concentration ($CPOT_j$).

(25) $ISC_{i \text{ or } k}$, indicated standard concentration = the concentration from the computerized analytical program for a single-compound reference spectrum for the i^{th} analyte or k^{th} known interferant.

(26) kPa = kilo-Pascal (see Pascal).

(27) L_S' = estimated sample absorption pathlength.

(28) L_R = reference absorption pathlength.

(29) L_S = actual sample absorption pathlength.

(30) MAU_i = mean of the MAU_{im} over the appropriate analytical regions.

(31) MAU_{im}, minimum analyte uncertainty = the calculated minimum concentration for which the analytical uncertainty limit (AU_i) in the measurement of the i^{th} analyte, based on spectral data in the m^{th} analytical region, can be maintained.

(32) MIU_j = mean of the MIU_{jm} over the appropriate analytical regions.

(33) MIU_{jm}, minimum interferant uncertainty = the calculated minimum concentration for which the analytical uncertainty limit $CPOT_j/20$ in the measurement of the j^{th} interferant, based on spectral data in the m^{th} analytical region, can be maintained.

(34) MIL, minimum instrumental linewidth = the minimum linewidth from the FTIR system, in wavenumbers.

NOTE: The MIL of a system may be determined by observing an absorption band known (through higher resolution examinations) to be narrower than indicated by the system. The MIL is fundamentally limited by the retardation of the interferometer, but is also affected by other operational parameters (e.g., the choice of apodization).

(35) N_i = number of analytes.

(36) N_j = number of potential interferants.

(37) N_k = number of known interferants.

(38) N_{scan} = the number of scans averaged to obtain an interferogram.

(39) OFU_i = the overall fractional uncertainty in an analyte concentration determined in the analysis ($OFU_i = MAX[FRU_i, FCU_i, FAU_i, FMU_i]$).

(40) Pascal (Pa) = metric unit of static pressure, equal to one Newton per square meter; one atmosphere is equal to 101,325 Pa; 1/760 atmosphere (one Torr, or one millimeter Hg) is equal to 133.322 Pa.

(41) P_{min} = minimum pressure of the sampling system during the sampling procedure.

(42) P_S' = estimated sample pressure.

(43) P_R = reference pressure.

(44) P_S = actual sample pressure.

(45) RMS_{Sm} = measured noise level of the FTIR system in the m^{th} analytical region.

(46) RMSD, root mean square difference = a measure of accuracy determined by the following equation:

$$\mathrm{RMSD} = \sqrt{\left(\frac{1}{n}\right)\sum_{i=1}^{n} e_i^2}$$

Where:

n = the number of observations for which the accuracy is determined.

e_i = the difference between a measured value of a property and its mean value over the n observations.

NOTE: The RMSD value ‘‘between a set of n contiguous absorbance values (A_i) and the mean of the values’’ (A_M) is defined as

$$\mathrm{RMSD} = \sqrt{\left(\frac{1}{n}\right)\sum_{i-1}^{n} \left(A_i - A_M\right)^2}$$

(47) RSA_i = the (calculated) final concentration of the i^{th} analyte.

(48) RSI_k = the (calculated) final concentration of the k^{th} known interferant.

(49) t_{scan}, scan time = time used to acquire a single scan, not including flyback.

(50) t_S, signal integration period = the period of time over which an interferogram is averaged by addition and scaling of individual scans. In terms of the number of scans N_{scan} and scan time t_{scan}, $t_S = N_{scan} t_{scan}$.

(51) t_{SR} = signal integration period used in recording reference spectra.

(52) t_{SS} = signal integration period used in recording sample spectra.

(53) T_R = absolute temperature of gases used in recording reference spectra.

(54) T_S = absolute temperature of sample gas as sample spectra are recorded.

(55) TP, Throughput = manufacturer’s estimate of the fraction of the total infrared power transmitted by the absorption cell and transfer optics from the interferometer to the detector.

(56) V_{SS} = volume of the infrared absorption cell, including parts of attached tubing.

(57) W_{ik} = weight used to average over analytical regions k for quantities related to the analyte i; see appendix D of this addendum.

APPENDIX B TO ADDENDUM TO METHOD 320—IDENTIFYING SPECTRAL INTERFERANTS

B.1 General

B.1.1 Assume a fixed absorption pathlength equal to the value L_S'.

B.1.2 Use band area calculations to compare the relative absorption strengths of the analytes and potential interferants. In the m^{th} analytical region (FL_m to FU_m), use either rectangular or trapezoidal approximations to determine the band areas described below (see Reference A, sections A.3.1 through A.3.3). Document any baseline corrections applied to the spectra.

B.1.3 Use the average total absorbance of the analytes and potential interferants in each analytical region to determine whether the analytical region is suitable for analyte concentration determinations.

NOTE: The average absorbance in an analytical region is the band area divided by the width of the analytical region in wavenumbers. The average total absorbance in an analytical region is the sum of the average absorbances of all analytes and potential interferants.

B.2 Calculations

B.2.1 Prepare spectral representations of each analyte at the concentration $CL_i = (DL_i)(AU_i)$, where DL_i is the required detection limit and AU_i is the maximum permissible analytical uncertainty. For the m^{th} analytical region, calculate the band area (AAI_{im}) and average absorbance (AAV_{im}) from these scaled analyte spectra.

B.2.2 Prepare spectral representations of each potential interferant at its expected concentration ($CPOT_j$). For the m^{th} analytical region, calculate the band area (IAI_{jm}) and average absorbance (IAV_{jm}) from these scaled potential interferant spectra.

B.2.3 Repeat the calculation for each analytical region, and record the band area results in matrix form as indicated in Figure B.1.

B.2.4 If the band area of any potential interferant in an analytical region is greater than the one-half the band area of any analyte (i.e., $IAI_{jm} > 0.5\ AAI_{im}$ for any pair ij and any m), classify the potential interferant as a known interferant. Label the known interferants k = 1 to K. Record the results in matrix form as indicated in Figure B.2.

B.2.5 Calculate the average total absorbance (AVT_m) for each analytical region and record the values in the last row of the matrix described in Figure B.2. Any analytical region where $AVT_m > 2.0$ is unsuitable.

FIGURE B.1 Presentation of Potential Interferant Calculations.

	Analytical Regions		
	1	. . . .	M
	Analyte Labels		
1	AAI_{11}	. . .	AAI_{1M}
.	.		.
.	.		.
I	AAI_{I1}	. . .	AAI_{IM}
Potential Interferant Labels			
1	IAI_{11}	. . .	IAI_{1M}
.	.		.
.	.		.
J	IAI_{J1}	. . .	IAI_{JM}

FIGURE B.2 Presentation of Known Interferant Calculations

	Analytical Regions		
	1	. . . .	M
Analyte Labels			
1	AAI_{11}	. . . .	AAI_{1M}
.	.		.
.	.		.
I	AAI_{I1}	. . . .	AAI_{IM}
Known Interferant Labels			
1	IAI_{11}	. . . .	IAI_{1M}
.	.		.
.	.		.
K	IAI_{K1}	. . . .	IAI_{KM}
	323		
Total Average Absorbance	AVT_1		AVT_M

APPENDIX C TO ADDENDUM TO METHOD 320—ESTIMATING NOISE LEVELS

C.1 General

C.1.1 The root-mean-square (RMS) noise level is the standard measure of noise in this addendum. The RMS noise level of a contiguous segment of a spectrum is defined as the RMS difference (RMSD) between the absorbance values which form the segment and the mean value of that segment (see appendix A of this addendum).

C.1.2 The RMS noise value in double-beam absorbance spectra is assumed to be inversely proportional to: (a) the square root of the signal integration period of the sample single beam spectra from which it is formed, and (b) the total infrared power transmitted through the interferometer and absorption cell.

C.1.3 Practically, the assumption of C.1.2 allows the RMS noise level of a complete system to be estimated from the quantities described in sections C.1.3.1 through C.1.3.4:

C.1.3.1 RMS_{MAN}, the noise level of the system (in absorbance units), without the absorption cell and transfer optics, *under those conditions necessary to yield the specified minimum instrumental linewidth,* e.g., Jacquinot stop size.

C.1.3.2 t_{MAN}, the manufacturer's signal integration time used to determine RMS_{MAN}.

C.1.3.3 t_{SS}, the signal integration time for the analyses.

C.1.3.4 TP, the manufacturer's estimate of the fraction of the total infrared power transmitted by the absorption cell and transfer optics from the interferometer to the detector.

C.2 Calculations

C.2.1 Obtain the values of RMS_{MAN}, t_{MAN}, and TP from the manufacturers of the equipment, or determine the noise level by direct measurements with the completely constructed system proposed in section 4 of this addendum.

C.2.2 Calculate the noise value of the system (RMS_{EST}) using equation C.1.

$$RMS_{EST} = RMS_{MAN} \;\; TP\sqrt{\frac{t_{ss}}{t_{MAN}}} \qquad (C.1)$$

APPENDIX D TO ADDENDUM TO METHOD 320—ESTIMATING MINIMUM CONCENTRATION MEASUREMENT UNCERTAINTIES (MAU AND MIU)

D.1 General

Estimate the minimum concentration measurement uncertainties for the i^th^ analyte (MAU_i) and j^th^ interferant (MIU_j) based on the spectral data in the m^th^ analytical region by comparing the analyte band area in the analytical region (AAI_{im}) and estimating or measuring the noise level of the system (RMS_{EST} or RMS_{SM}).

NOTE: For a single analytical region, the MAU or MIU value is the concentration of the analyte or interferant for which the band area is equal to the product of the analytical region width (in wavenumbers) and the noise level of the system (in absorbance units). If data from more than one analytical region are used in the determination of an analyte concentration, the MAU or MIU is the mean of the separate MAU or MIU values calculated for each analytical region.

D.2 Calculations

D.2.1 For each analytical region, set RMS = RMS_{SM} if measured (appendix G of this addendum), or set RMS = RMS_{EST} if estimated (appendix C of this addendum).

D.2.2 For each analyte associated with the analytical region, calculate MAU_{im} using equation D.1,

$$MAU_{im} = (RMS)\left(DL_i\right)\left(AU_i\right)\frac{\left(FU_m - FL_m\right)}{AAI_{im}} \qquad (D.1)$$

D.2.3 If only the m^th^ analytical region is used to calculate the concentration of the i^th^ analyte, set $MAU_i = MAU_{im}$.

D.2.4 If more than one analytical region is used to calculate the concentration of the i^th^ analyte, set MAU_i equal to the weighted mean of the appropriate MAU_{im} values calculated above; the weight for each term in the mean is equal to the fraction of the total wavenumber range used for the calculation represented by each analytical region. Mathematically, if the set of analytical regions employed is [m′], then the MAU for each analytical region is given by equation D.2.

$$\mathrm{MAU}_i = \sum_{k \in \{m'\}} W_k \mathrm{MAU}_{ik} \qquad (D.2)$$

where the weight W_{ik} is defined for each term in the sum as

$$W_{ik} = \left(\mathrm{FM}_k - \mathrm{FL}_k\right)\left(\sum_{p \in \{m'\}} \left[\mathrm{FM}_p - \mathrm{FL}_p\right]\right)^{-1} \qquad (D.3)$$

D.2.5 Repeat sections D.2.1 through D.2.4 of this appendix to calculate the analogous values MIU_j for the interferants j = 1 to J. Replace the value (AU_i) (DL_i) in equation D.1 with $\mathrm{CPOT}_j/20$; replace the value AAI_{im} in equation D.1 with IAI_{jm}.

APPENDIX E TO ADDENDUM TO METHOD 320—DETERMINING FRACTIONAL REPRODUCIBILITY UNCERTAINTIES (FRU)

E.1 *General*

To estimate the reproducibility of the spectroscopic results of the system, compare the CTS spectra recorded before and after preparing the reference spectra. Compare the difference between the spectra to their average band area. Perform the calculation for each analytical region on the portions of the CTS spectra associated with that analytical region.

E.2 Calculations

E.2.1 The CTS spectra {R1□ consist of N spectra, denoted by S_{1i}, i=1, N. Similarly, the CTS spectra {R2□ consist of N spectra, denoted by S_{2i}, i=1, N. Each S_{ki} is the spectrum of a single compound, where i denotes the compound and k denotes the set {□ of which S_{ki} is a member. Form the spectra S_3 according to $S_{3i} = S_{2i} - S_{1i}$ for each i. Form the spectra S_4 according to $S_{4i} = [S_{2i}+S_{1i}]/2$ for each i.

E.2.2 Each analytical region m is associated with a portion of the CTS spectra S_{2i} and S_{1i}, for a particular i, with lower and upper wavenumber limits FFL_m and FFU_m, respectively.

E.2.3 For each m and the associated i, calculate the band area of S_{4i} in the wavenumber range FFU_m to FFL_m. Follow the guidelines of section B.1.2 of this addendum for this band area calculation. Denote the result by BAV_m.

E.2.4 For each m and the associated i, calculate the RMSD of S_{3i} between the absorbance values and their mean in the wavenumber range FFU_m to FFL_m. Denote the result by SRMS_m.

E.2.5 For each analytical region m, calculate FM_m using equation E.1,

$$\mathrm{FM}_m = \mathrm{SRMS}_m\left(\mathrm{FFU}_m - \mathrm{FFL}_m\right)/\mathrm{BAV}_m \qquad (E.1)$$

E.2.6 If only the m^th analytical region is used to calculate the concentration of the i^th analyte, set $\mathrm{FRU}_i = \mathrm{FM}_m$.

E.2.7 If a number p_i of analytical regions are used to calculate the concentration of the i^th analyte, set FRU_i equal to the weighted mean of the appropriate FM_m values calculated according to section E.2.5. Mathematically, if the set of analytical regions employed is {m′□, then FRU_i is given by equation E.2,

$$\mathrm{FRU}_i = \sum_{k \in \{m'\}} W_{ik} \mathrm{FM}_k \qquad (E.2)$$

where the W_{ik} are calculated as described in appendix D of this addendum.

APPENDIX F OF ADDENDUM TO METHOD 320—DETERMINING FRACTIONAL CALIBRATION UNCERTAINTIES (FCU)

F.1 General

F.1.1 The concentrations yielded by the computerized analytical program applied to each single-compound reference spectrum are defined as the indicated standard concentrations (ISC's). The ISC values for a single compound spectrum should ideally equal the accepted standard concentration (ASC) for one analyte or interferant, and should ideally be zero for all other compounds. Variations from these results are caused by errors in the ASC values, variations from the Beer's law (or modified Beer's law) model used to determine the concentrations, and noise in the spectra. When the first two effects dominate, the systematic nature of the errors is often apparent and the analyst shall take steps to correct them.

F.1.2 When the calibration error appears non-systematic, apply the procedures of sections F.2.1 through F.2.3 of this appendix to estimate the fractional calibration uncertainty (FCU) for each compound. The FCU is defined as the mean fractional error between the ASC and the ISC for all reference spectra with non-zero ASC for that compound. The FCU for each compound shall be less than the required fractional uncertainty specified in section 4.1 of this addendum.

F.1.3 The computerized analytical programs shall also be required to yield acceptably low concentrations for compounds with ISC = 0 when applied to the reference spectra. The ISC of each reference spectrum for each analyte or interferant shall not exceed that compound's minimum measurement uncertainty (MAU or MIU).

F.2 Calculations

F.2.1 Apply each analytical program to each reference spectrum. Prepare a similar table to that in Figure F.1 to present the ISC and ASC values for each analyte and interferant in each reference spectrum. Maintain the order of reference file names and compounds employed in preparing Figure F.1.

F.2.2 For all reference spectra in Figure F.1, verify that the absolute values of the ISC's are less than the compound's MAU (for analytes) or MIU (for interferants).

F.2.3 For each analyte reference spectrum, calculate the quantity (ASC–ISC)/ASC. For each analyte, calculate the mean of these values (the FCU_i for the i^{th} analyte) over all reference spectra. Prepare a similar table to that in Figure F.2 to present the FCU_i and analytical uncertainty limit (AU_i) for each analyte.

FIGURE F.1—PRESENTATION OF ACCEPTED STANDARD CONCENTRATIONS (ASC'S) AND INDICATED STANDARD CONCENTRATIONS (ISC'S)

Compound name	Reference spectrum file name	ASC (ppm)	ISC (ppm)					
					Analytes i=1 j=1	Interferants I J		

FIGURE F.2—PRESENTATION OF FRACTIONAL CALIBRATION UNCERTAINTIES (FCU'S) AND ANALYTICAL UNCERTAINTIES (AU'S)

Analyte name	FCU (%)	AU (%)

APPENDIX G TO ADDENDUM TO METHOD 320—MEASURING NOISE LEVELS

G.1 General

The root-mean-square (RMS) noise level is the standard measure of noise. The RMS noise level of a contiguous segment of a spectrum is the RMSD between the absorbance values that form the segment and the mean value of the segment (see appendix A of this addendum).

G.2 Calculations

G.2.1 Evacuate the absorption cell or fill it with UPC grade nitrogen at approximately one atmosphere total pressure.

G.2.2 Record two single beam spectra of signal integration period t_{SS}.

G.2.3 Form the double beam absorption spectrum from these two single beam spectra, and calculate the noise level RMS_{Sm} in the M analytical regions.

APPENDIX H OF ADDENDUM TO METHOD 320—DETERMINING SAMPLE ABSORPTION PATHLENGTH (L_S) AND FRACTIONAL ANALYTICAL UNCERTAINTY (FAU)

H.1 *General*

Reference spectra recorded at absorption pathlength (L_R), gas pressure (P_R), and gas absolute temperature (T_R) may be used to determine analyte concentrations in samples whose spectra are recorded at conditions different from that of the reference spectra, i.e., at absorption pathlength (L_S), absolute temperature (T_S), and pressure (P_S). This appendix describes the calculations for estimating the fractional uncertainty (FAU) of this practice. It also describes the calculations for determining the sample absorption pathlength from comparison of CTS spectra, and for preparing spectra for further instrumental and procedural checks.

H.1.1 Before sampling, determine the sample absorption pathlength using least squares analysis. Determine the ratio L_S/L_R by comparing the spectral sets {R1□ and {R3□, which are recorded using the same CTS at L_S and L_R, and T_S and T_R, but both at P_R.

H.1.2 Determine the fractional analysis uncertainty (FAU) for each analyte by comparing a scaled CTS spectral set, recorded at L_S, T_S, and P_S, to the CTS reference spectra of the same gas, recorded at L_R, T_R, and P_R. Perform the quantitative comparison after recording the sample spectra, based on band areas of the spectra in the CTS absorbance band associated with each analyte.

H.2 Calculations

H.2.1 *Absorption Pathlength Determination*. Perform and document separate linear baseline corrections to each analytical region in the spectral sets {R1□ and {R3□. Form a one-dimensional array A_R containing the absorbance values from all segments of {R1□ that are associated with the analytical regions; the members of the array are A_{Ri}, i = 1, n. Form a similar one-dimensional array A_S from the absorbance values in the spectral set {R3□; the members of the array are A_{Si}, i = 1, n. Based on the model $A_S = rA_R + E$, determine the least-squares estimate of r, the value of r which minimizes the square error E^2. Calculate the sample absorption pathlength, L_S, using equation H.1,

$$L_s = r'\left(T_s/T_R\right)L_R \qquad \text{(H.1)}$$

H.2.2 *Fractional Analysis Uncertainty*. Perform and document separate linear baseline corrections to each analytical region in the spectral sets {R1□ and {R4□. Form the arrays A_S and A_R as described in section H.2.1 of this appendix, using values from {R1□ to form A_R, and values from {R4□ to form A_S. Calculate $NRMS_E$ and IA_{AV} using equations H.2 and H.3,

$$NRMS_E = \sqrt{\sum_{i=1}^{n}\left[A_{Si} - \left(\frac{T_R}{T_S}\right)\left(\frac{L_S}{L_R}\right)\left(\frac{P_S}{P_R}\right)A_{Ri}\right]} \qquad \text{(H.2)}$$

$$IA_{AV} = \frac{1}{2}\sum_{i=1}^{n}\left[A_{Si} + \left(\frac{T_R}{T_S}\right)\left(\frac{L_S}{L_R}\right)\left(\frac{P_S}{P_R}\right)A_{Ri}\right] \qquad \text{(H.3)}$$

The fractional analytical uncertainty, FAU, is given by equation H.4,

$$FAU = \frac{NRMS_E}{IA_{AV}} \qquad \text{(H.4)}$$

APPENDIX I TO ADDENDUM TO METHOD 320—DETERMINING FRACTIONAL MODEL UNCERTAINTIES (FMU)

I.1 General

To prepare analytical programs for FTIR analyses, the sample constituents must first be assumed. The calculations in this appendix, based upon a simulation of the sample spectrum, shall be used to verify the appropriateness of these assumptions. The simulated spectra consist of the sum of single compound reference spectra scaled to represent their contributions to the sample absorbance spectrum; scaling factors are based on the indicated standard concentrations (ISC) and measured (sample) analyte and interferant concentrations, the sample and reference absorption pathlengths, and the sample and reference gas pressures. No band-shape correction for differences in the temperature of the sample and reference spectra gases is made; such errors are included in the FMU estimate. The actual and simulated sample spectra are quantitatively compared to determine the fractional model uncertainty; this comparison uses the reference spectra band areas and residuals in the difference spectrum formed from the actual and simulated sample spectra.

I.2 Calculations

I.2.1 For each analyte (with scaled concentration RSA_i), select a reference spectrum SA_i with indicated standard concentration ISC_i. Calculate the scaling factors, RA_i, using equation I.1,

$$RA_i = \frac{T_R\, L_S\, P_S\ RSA_i}{T_S\, L_R\, P_R\ ISC_i} \qquad (I.1)$$

Form the spectra SAC_i by scaling each SA_i by the factor RA_i.

I.2.2 For each interferant, select a reference spectrum SI_k with indicated standard concentration ISC_k. Calculate the scaling factors, RI_k, using equation I.2,

$$RI_k = \frac{T_R\, L_S\, P_S\, RSI_k}{T_S\, L_R\, P_R\, ISC_k} \qquad (I.2)$$

Form the spectra SIC_k by scaling each SI_k by the factor RI_k.

I.2.3 For each analytical region, determine by visual inspection which of the spectra SAC_i and SIC_k exhibit absorbance bands within the analytical region. Subtract each spectrum SAC_i and SIC_k exhibiting absorbance from the sample spectrum S_S to form the spectrum SUB_S. To save analysis time and to avoid the introduction of unwanted noise into the subtracted spectrum, it is recommended that the calculation be made (1) only for those spectral data points within the analytical regions, and (2) for each analytical region separately using the original spectrum S_S.

I.2.4 For each analytical region m, calculate the RMSD of SUB_S between the absorbance values and their mean in the region FFU_m to FFL_m. Denote the result by $RMSS_m$.

I.2.5 For each analyte i, calculate FM_m, using equation I.3,

$$FM_m = \frac{RMSS_m\left(FFU_m - FFL_m\right)AU_i\,DL_i}{AAI_i\,RSA_i} \qquad (I.3)$$

for each analytical region associated with the analyte.

I.2.6 If only the m^{th} analytical region is used to calculate the concentration of the i^{th} analyte, set $FMU_i=FM_m$.

I.2.7 If a number of analytical regions are used to calculate the concentration of the i^{th} analyte, set FM_i equal to the weighted mean of the appropriate FM_m values calculated using equation I–3. Mathematically, if the set of analytical regions employed is $\{m'\}$, then the fractional model uncertainty, FMU, is given by equation I.4,

$$FMU_i = \sum_{k\in\{m'\}} W_{ik}\,FM_k \qquad (I.4)$$

where W_{ik} is calculated as described in appendix D of this addendum.

APPENDIX J OF ADDENDUM TO METHOD 320—DETERMINING OVERALL CONCENTRATION UNCERTAINTIES (OCU)

The calculations in this addendum estimate the measurement uncertainties for various FTIR measurements. The lowest possible overall concentration uncertainty (OCU) for an analyte is its MAU value, which is an estimate of the absolute concentration uncertainty when spectral noise dominates the measurement error. However, if the product of the largest fractional concentration uncertainty (FRU, FCU, FAU, or FMU) and the measured concentration of an analyte exceeds the MAU for the analyte, then the OCU is this product. In mathematical terms, set $OFU_i = MAX\{FRU_i, FCU_i, FAU_i, FMU_i\}$ and $OCU_i = MAX\{RSA_i{*}OFU_i, MAU_i\}$.

TEST METHOD 321—MEASUREMENT OF GASEOUS HYDROGEN CHLORIDE EMISSIONS AT PORTLAND CEMENT KILNS BY FOURIER TRANSFORM INFRARED (FTIR) SPECTROSCOPY

1.0 Introduction

This method should be performed by those persons familiar with the operation of Fourier Transform Infrared (FTIR) instrumentation in the application to source sampling. This document describes the sampling procedures for use in the application of FTIR spectrometry for the determination of vapor phase hydrogen chloride (HCl) concentrations both before and after particulate matter control devices installed at portland cement kilns. A procedure for analyte spiking is included for quality assurance. This method is considered to be self validating provided that the requirements listed in section 9 of this method are followed. The analytical procedures for interpreting infrared spectra from emission measurements are described in the ‘‘Protocol For The Use of Extractive

Fourier Transform Infrared (FTIR) Spectrometry in Analyses of Gaseous Emissions From Stationary Industrial Sources'', included as an addendum to proposed Method 320 of this appendix (hereafter referred to as the ''FTIR Protocol)''. References 1 and 2 describe the use of FTIR spectrometry in field measurements. Sample transport presents the principal difficulty in directly measuring HCl emissions. This identical problem must be overcome by any extractive measurement method. HCl is reactive and water soluble. The sampling system must be adequately designed to prevent sample condensation in the system.

1.1 Scope and Application

This method is specifically designed for the application of FTIR Spectrometry in extractive measurements of gaseous HCl concentrations in portland cement kiln emissions.

1.2 Applicability

This method applies to the measurement of HCl [CAS No. 7647–01–0]. This method can be applied to the determination of HCl concentrations both before and after particulate matter control devices installed at portland cement manufacturing facilities. This method applies to either continuous flow through measurement (with isolated sample analysis) or grab sampling (batch analysis). HCl is measured using the mid-infrared spectral region for analysis (about 400 to 4000 cm^{-1} or 25 to 2.5 μm). Table 1 lists the suggested analytical region for quantification of HCl taking the interference from water vapor into consideration.

TABLE 1—EXAMPLE ANALYTICAL REGION FOR HCL

Compound	Analytical region (cm^{-1})	Potential interferants
Hydrogen chloride	2679–2840	Water.

1.3 Method Range and Sensitivity

1.3.1 The analytical range is determined by the instrumental design and the composition of the gas stream. For practical purposes there is no upper limit to the range because the pathlength may be reduced or the sample may be diluted. The lower detection range depends on (1) the absorption coefficient of the compound in the analytical frequency region, (2) the spectral resolution, (3) the interferometer sampling time, (4) the detector sensitivity and response, and (5) the absorption pathlength.

1.3.2 The practical lower quantification range is usually higher than the instrument sensitivity allows and is dependent upon (1) the presence of interfering species in the exhaust gas including H_2O, CO_2, and SO_2, (2) analyte losses in the sampling system, (3) the optical alignment of the gas cell and transfer optics, and (4) the quality of the reflective surfaces in the cell (cell throughput). Under typical test conditions (moisture content of up to 30% and CO_2 concentrations from 1 to 15 percent), a 22 meter path length cell with a suitable sampling system may achieve a lower quantification range of from 1 to 5 ppm for HCl.

1.4 Data Quality Objectives

1.4.1 In designing or configuring the analytical system, data quality is determined by measuring of the root mean square deviation (RMSD) of the absorbance values within a chosen spectral (analytical) region. The RMSD provides an indication of the signal-to-noise ratio (S/N) of the spectral baseline. Appendix D of the FTIR Protocol (the addendum to Method 320 of this appendix) presents a discussion of the relationship between the RMSD, lower detection limit, DL_i, and analytical uncertainty, $AU_{i.}$ It is important to consider the target analyte quantification limit when performing testing with FTIR instrumentation, and to optimize the system to achieve the desired detection limit.

1.4.2 Data quality is determined by measuring the root mean square (RMS) noise level in each analytical spectral region (appendix C of the FTIR Protocol). The RMS noise is defined as the root mean square deviation (RMSD) of the absorbance values in an analytical region from the mean absorbance value in the same region. Appendix D of the *FTIR Protocol* defines the minimum analyte uncertainty (MAU), and how the RMSD is used to calculate the MAU. The MAU_{im} is the minimum concentration of the ith analyte in the mth analytical region for which the analytical uncertainty limit can be maintained. Table 2 presents example values of AU and MAU using the analytical region presented in Table 1.

TABLE 2—EXAMPLE PRE-TEST PROTOCOL CALCULATIONS FOR HYDROGEN CHLORIDE

	HCl
Reference concentration (ppm-meters)/K	11.2
Reference Band area	2.881
DL (ppm-meters)/K	0.1117
AU	0.2
CL (DL × AU)	0.02234

TABLE 2—EXAMPLE PRE-TEST PROTOCOL CALCULATIONS FOR HYDROGEN CHLORIDE—Continued

	HCl
FL (cm^{-1})	2679.83
FU (cm^{-1})	2840.93
FC (cm^{-1})	2760.38
AAI (ppm-meters)/K	0.06435
RMSD	2.28E–03
MAU (ppm-meters)/K	1.28E–01
MAU ppm at 22 meters and 250 °F	.0.2284

2.0 Summary of Method

2.1 Principle

See Method 320 of this appendix. HCl can also undergo rotation transitions by absorbing energy in the far-infrared spectral region. The rotational transitions are superimposed on the vibrational fundamental to give a series of lines centered at the fundamental vibrational frequency, 2885 cm^{-1}. The frequencies of absorbance and the pattern of rotational/vibrational lines are unique to HCl. When this distinct pattern is observed in an infrared spectrum of an unknown sample, it unequivocally identifies HCl as a component of the mixture. The infrared spectrum of HCl is very distinctive and cannot be confused with the spectrum of any other compound. See Reference 6.

2.2 *Sampling and Analysis.* See Method 320 of this appendix.

2.3 *Operator Requirements.* The analyst must have knowledge of spectral patterns to choose an appropriate absorption path length or determine if sample dilution is necessary. The analyst should also understand FTIR instrument operation well enough to choose instrument settings that are consistent with the objectives of the analysis.

3.0 Definitions

See appendix A of the FTIR Protocol.

4.0 Interferences

This method will not measure HCl under conditions: (1) where the sample gas stream can condense in the sampling system or the instrumentation, or (2) where a high moisture content sample relative to the analyte concentrations imparts spectral interference due to the water vapor absorbance bands. For measuring HCl the first (sampling) consideration is more critical. Spectral interference from water vapor is not a significant problem except at very high moisture levels and low HCl concentrations.

4.1 *Analytical Interferences.* See Method 320 of this appendix.

4.1.1 *Background Interferences.* See Method 320 of this appendix.

4.1.2 *Spectral interferences.* Water vapor can present spectral interference for FTIR gas analysis of HCl. Therefore, the water vapor in the spectra of kiln gas samples must be accounted for. This means preparing at least one spectrum of a water vapor sample where the moisture concentration is close to that in the kiln gas.

4.2 *Sampling System Interferences.* The principal sampling system interferant for measuring HCl is water vapor. Steps must be taken to ensure that no condensation forms anywhere in the probe assembly, sample lines, or analytical instrumentation. Cold spots anywhere in the sampling system must be avoided. The extent of sampling system bias in the FTIR analysis of HCl depends on concentrations of potential interferants, moisture content of the gas stream, temperature of the gas stream, temperature of sampling system components, sample flow rate, and reactivity of HCl with other species in the gas stream (e.g., ammonia). For measuring HCl in a wet gas stream the temperatures of the gas stream, sampling components, and the sample flow rate are of primary importance. Analyte spiking with HCl is performed to demonstrate the integrity of the sampling system for transporting HCl vapor in the flue gas to the FTIR instrument. See section 9 of this method for a complete description of analyte spiking.

5.0 Safety

5.1 Hydrogen chloride vapor is corrosive and can cause irritation or severe damage to respiratory system, eyes and skin. Exposure to this compound should be avoided.

5.2 This method may involve sampling at locations having high positive or negative pressures, or high concentrations of hazardous or toxic pollutants, and can not address all safety problems encountered under these diverse sampling conditions. It is the responsibility of the tester(s) to ensure proper safety and health practices, and to determine the applicability of regulatory limitations before performing this test method. Leak-check procedures are outlined in section 8.2 of Method 320 of this appendix.

6.0 Equipment and Supplies

NOTE: Mention of trade names or specific products does not constitute endorsement by the Environmental Protection Agency.

6.1 *FTIR Spectrometer and Detector.* An FTIR Spectrometer system (interferometer, transfer optics, gas cell and detector) having the capability of measuring HCl to the predetermined minimum detectable level required (see section 4.1.3 of the FTIR Protocol). The system must also include an accurate means to control and/or measure the temperature of the FTIR gas analysis cell, and a personal computer with compatible software that provides real-time updates of the spectral profile during sample and spectral collection.

6.2 *Pump.* Capable of evacuating the FTIR cell volume to 1 Torr (133.3 Pascals) within two minutes (for batch sample analysis).

6.3 *Mass Flow Meters/Controllers.* To accurately measure analyte spike flow rate, having the appropriate calibrated range and a stated accuracy of ±2 percent of the absolute measurement value. This device must be calibrated with the major component of the calibration/spike gas (e.g., nitrogen) using an NIST traceable bubble meter or equivalent. Single point calibration checks should be performed daily in the field. When spiking HCl, the mass flow meter/controller should be thoroughly purged before and after introduction of the gas to prevent corrosion of the interior parts.

6.4 *Polytetrafluoroethane tubing.* Diameter and length suitable to connect cylinder regulators.

6.5 *Stainless Steel tubing.* Type 316 of appropriate length and diameter for heated connections.

6.6 *Gas Regulators.* Purgeable HCl regulator.

6.7 *Pressure Gauge.* Capable of measuring pressure from 0 to 1000 Torr (133.3 Pa=1 Torr) within ±5 percent.

6.8 *Sampling Probe.* Glass, stainless steel or other appropriate material of sufficient length and physical integrity to sustain heating, prevent adsorption of analytes and capable of reaching gas sampling point.

6.9 *Sampling Line.* Heated 180 °C (360 °F) and fabricated of either stainless steel, polytetrafluoroethane or other material that prevents adsorption of HCl and transports effluent to analytical instrumentation. The extractive sample line must have the capability to transport sample gas to the analytical components as well as direct heated calibration spike gas to the calibration assembly located at the sample probe. It is important to minimize the length of heated sample line.

6.10 *Particulate Filters.* A sintered stainless steel filter rated at 20 microns or greater may be placed at the inlet of the probe (for removal of large particulate matter). A heated filter (Balston or equivalent) rated at 1 micron is necessary for primary particulate matter removal, and shall be placed immediately after the heated probe. The filter/filter holder temperature should be maintained at 180 °C (360 °F).

6.11 *Calibration/Analyte Spike Assembly.* A heated three-way valve assembly (or equivalent) to introduce surrogate spikes into the sampling system at the outlet of the probe before the primary particulate filter.

6.12 *Sample Extraction Pump.* A leak-free heated head pump (KNF Neuberger or equivalent) capable of extracting sample effluent through entire sampling system at a rate which prevents analyte losses and minimizes analyzer response time. The pump should have a heated by-pass and may be placed either before the FTIR instrument or after. If the sample pump is located upstream of the FTIR instrument, it must be fabricated from materials non-reactive to HCl. The sampling system and FTIR measurement system shall allow the operator to obtain at least six sample spectra during a one-hour period.

6.13 *Barometer.* For measurement of barometric pressure.

6.14 *Gas Sample Manifold.* A distribution manifold having the capabilities listed in sections 6.14.1 through 6.14.4;

6.14.1 Delivery of calibration gas directly to the analytical instrumentation;

6.14.2 Delivery of calibration gas to the sample probe (system calibration or analyte spike) via a heated traced sample line;

6.14.3 Delivery of sample gas (kiln gas, spiked kiln gas, or system calibrations) to the analytical instrumentation;

6.14.4 Delivery (optional) of a humidified nitrogen sample stream.

6.15 *Flow Measurement Device.* Type S Pitot tube (or equivalent) and Magnahelic set for measurement of volumetric flow rate.

7.0 Reagents and Standards

HCl can be purchased in a standard compressed gas cylinder. The most stable HCl cylinder mixture available has a concentration certified at ±5 percent. Such a cylinder is suitable for performing analyte spiking because it will provide reproducible samples. The stability of the cylinder can be monitored over time by periodically performing direct FTIR analysis of cylinder samples. It is recommended that a 10–50 ppm cylinder of HCl be prepared having from 2–5 ppm SF6 as a tracer compound. (See sections 7.1 through 7.3 of Method 320 of this appendix for a complete description of the use of existing HCl reference spectra. See section 9.1 of Method 320 of this appendix for a complete discussion of standard concentration selection.)

8.0 Sample Collection, Preservation and Storage

See also Method 320 of this appendix.

8.1 *Pretest.* A screening test is ideal for obtaining proper data that can be used for preparing analytical program files. Information from literature surveys and source personnel is also acceptable. Information about the sampling location and gas stream composition is required to determine the optimum sampling system configuration for measuring HCl. Determine the percent moisture of the kiln gas by Method 4 of appendix A to part 60 of this chapter or by performing a wet bulb/dry bulb measurement. Perform a preliminary traverse of the sample duct or stack and select the sampling point(s). Acquire an initial spectrum and determine the optimum operational pathlength of the instrument.

8.2 *Leak-Check.* See Method 320 of this appendix, section 8.2 for direction on performing leak-checks.

8.3 *Background Spectrum.* See Method 320 of this appendix, section 8.5 for direction in background spectral acquisition.

8.4 *Pre-Test Calibration Transfer Standard (Direct Instrument Calibration).* See Method 320 of this appendix, section 8.3 for direction in CTS spectral acquisition.

8.5 *Pre-Test System Calibration.* See Method 320 of this appendix, sections 8.6.1 through 8.6.2 for direction in performing system calibration.

8.6 Sampling

8.6.1 *Extractive System.* An extractive system maintained at 180 °C (360 °F) or higher which is capable of directing a total flow of at least 12 L/min to the sample cell is required (References 1 and 2). Insert the probe into the duct or stack at a point representing the average volumetric flow rate and 25 percent of the cross sectional area. Co-locate an appropriate flow monitoring device with the sample probe so that the flow rate is recorded at specified time intervals during emission testing (e.g., differential pressure measurements taken every 10 minutes during each run).

8.6.2 *Batch Samples.* Evacuate the absorbance cell to 5 Torr (or less) absolute pressure before taking first sample. Fill the cell with kiln gas to ambient pressure and record the infrared spectrum, then evacuate the cell until there is no further evidence of infrared absorption. Repeat this procedure, collecting a total of six separate sample spectra within a 1-hour period.

8.6.3 *Continuous Flow Through Sampling.* Purge the FTIR cell with kiln gas for a time period sufficient to equilibrate the entire sampling system and FTIR gas cell. The time required is a function of the mechanical response time of the system (determined by performing the system calibration with the CTS gas or equivalent), and by the chemical reactivity of the target analytes. If the effluent target analyte concentration is not variable, observation of the spectral up-date of the flowing gas sample should be performed until equilibration of the sample is achieved. Isolate the gas cell from the sample flow by directing the purge flow to vent. Record the spectrum and pressure of the sample gas. After spectral acquisition, allow the sample gas to purge the cell with at least three volumes of kiln gas. The time required to adequately purge the cell with the required volume of gas is a function of (1) cell volume, (2) flow rate through the cell, and (3) cell design. It is important that the gas introduction and vent for the FTIR cell provides a complete purge through the cell.

8.6.4 *Continuous Sampling.* In some cases it is possible to collect spectra continuously while the FTIR cell is purged with sample gas. The sample integration time, t_{ss}, the sample flow rate through the gas cell, and the sample integration time must be chosen so that the collected data consist of at least 10 spectra with each spectrum being of a separate cell volume of flue gas. Sampling in this manner may only be performed if the native source analyte concentrations do not affect the test results.

8.7 Sample Conditioning

8.7.1 *High Moisture Sampling.* Kiln gas emitted from wet process cement kilns may contain 3- to 40 percent moisture. Zinc selenide windows or the equivalent should be used when attempting to analyze hot/wet kiln gas under these conditions to prevent dissolution of water soluble window materials (e.g., KBr).

8.7.2 *Sample Dilution.* The sample may be diluted using an in-stack dilution probe, or an external dilution device provided that the sample is not diluted below the instrument's quantification range. As an alternative to using a dilution probe, nitrogen may be dynamically spiked into the effluent stream in the same manner as analyte spiking. A constant dilution rate shall be maintained throughout the measurement process. It is critical to measure and verify the exact dilution ratio when using a dilution probe or the nitrogen spiking approach. Calibrating the system with a calibration gas containing an appropriate tracer compound will allow determination of the dilution ratio for most measurement systems. The tester shall specify the procedures used to determine the dilution ratio, and include these calibration results in the report.

8.8 *Sampling QA, Data Storage and Reporting.* See the FTIR Protocol. Sample integration times shall be sufficient to achieve the required signal-to-noise ratio, and all sample spectra should have unique file names. Two copies of sample interferograms and processed spectra will be stored on separate computer media. For each sample spectrum the analyst must document the sampling conditions, the sampling time (while the cell was being filled), the time the spectrum was recorded, the instrumental conditions (path length, temperature, pressure, resolution, integration time), and the spectral file name. A hard copy of these data must be maintained until the test results are accepted.

8.9 *Signal Transmittance.* Monitor the signal transmittance through the instrumental system. If signal transmittance (relative to the background) drops below 95 percent in any spectral region where the sample does not absorb infrared energy, then a new background spectrum must be obtained.

8.10 *Post-test CTS.* After the sampling run completion, record the CTS spectrum. Analysis of the spectral band area used for quantification from pre- and post-test CTS spectra should agree to within ±5 percent or corrective action must be taken.

8.11 *Post-test QA.* The sample spectra shall be inspected immediately after the run to verify that the gas matrix composition was close to the assumed gas matrix, (this is necessary to account for the concentrations of the interferants for use in the analytical analysis programs), and to confirm that the sampling and instrumental parameters were appropriate for the conditions encountered.

9.0 Quality Control

Use analyte spiking to verify the effectiveness of the sampling system for the target compounds in the actual kiln gas matrix. QA spiking shall be performed before and after each sample run. QA spiking shall be performed after the pre- and post-test CTS direct and system calibrations. The system biases calculated from the pre- and post-test dynamic analyte spiking shall be within ±30 percent for the spiked surrogate analytes for the measurements to be considered valid. See sections 9.3.1 through 9.3.2 for the requisite calculations. Measurement of the undiluted spike (direct-to-cell measurement) involves sending dry, spike gas to the FTIR cell, filling the cell to 1 atmosphere and obtaining the spectrum of this sample. The direct-to-cell measurement should be performed before each analyte spike so that the recovery of the dynamically spiked analytes may be calculated. Analyte spiking is only effective for assessing the integrity of the sampling system when the concentration of HCl in the source does not vary substantially. Any attempt to quantify an analyte recovery in a variable concentration matrix will result in errors in the expected concentration of the spiked sample. If the kiln gas target analyte concentrations vary by more than ±5 percent (or 5 ppm, whichever is greater) in the time required to acquire a sample spectrum, it may be necessary to: (1) Use a dual sample probe approach, (2) use two independent FTIR measurement systems, (3) use alternate QA/QC procedures, or (4) postpone testing until stable emission concentrations are achieved. (See section 9.2.3 of this method). It is recommended that a laboratory evaluation be performed before attempting to employ this method under actual field conditions. The laboratory evaluation shall include (1) performance of all applicable calculations in section 4 of the FTIR Protocol; (2) simulated analyte spiking experiments in dry (ambient) and humidified sample matrices using HCl; and (3) performance of bias (recovery) calculations from analyte spiking experiments. It is not necessary to perform a laboratory evaluation before every field test. The purpose of the laboratory study is to demonstrate that the actual instrument and sampling system configuration used in field testing meets the requirements set forth in this method.

9.1 *Spike Materials.* Perform analyte spiking with an HCl standard to demonstrate the integrity of the sampling system.

9.1.1 An HCl standard of approximately 50 ppm in a balance of ultra pure nitrogen is recommended. The SF_6 (tracer) concentration shall be 2 to 5 ppm depending upon the measurement pathlength. The spike ratio (spike flow/total flow) shall be no greater than 1:10, and an ideal spike concentration should approximate the native effluent concentration.

9.1.2 The ideal spike concentration may not be achieved because the target concentration cannot be accurately predicted prior to the field test, and limited calibration standards will be available during testing. Therefore, practical constraints must be applied that allow the tester to spike at an anticipated concentration. For these tests, the analyte concentration contributed by the HCl standard spike should be 1 to 5 ppm or should more closely approximate the native concentration if it is greater.

9.2 Spike Procedure

9.2.1 A spiking/sampling apparatus is shown in Figure 2. Introduce the spike/tracer gas mixture at a constant flow (±2 percent) rate at approximately 10 percent of the total sample flow. (For example, introduce the surrogate spike at 1 L/min 20 cc/min, into a total sample flow rate of 10 L/min). The spike must be pre-heated before introduction into the sample matrix to prevent a localized condensation of the gas stream at the spike introduction point. A heated sample transport line(s) containing multiple transport tubes within the heated bundle may be used to spike gas up through the sampling system to the spike introduction point. Use a calibrated flow device (e.g., mass flow meter/controller), to monitor the spike flow as indicated by a calibrated flow meter or controller, or alternately, the SF_6 tracer ratio may be calculated from the direct measurement and the diluted measurement. It is often desirable to use the tracer approach in calculating the spike/total flow ratio because of the difficulty in accurately measuring hot/wet total flow. The tracer technique has been successfully used in past validation efforts (Reference 1).

9.2.2 Perform a direct-to-cell measurement of the dry, undiluted spike gas. Introduce the spike directly to the FTIR cell, bypassing the sampling system. Fill cell to 1 atmosphere and collect the spectrum of this sample. Ensure that the spike gas has equilibrated to the temperature of the measurement cell before acquisition of the spectra. Inspect the spectrum and verify that the gas is dry and contains negligible CO_2. Repeat the process to obtain a second direct-to-cell measurement. Analysis of spectral band areas for HCl from these duplicate measurements should agree to within ±5 percent of the mean.

9.2.3 *Analyte Spiking.* Determine whether the kiln gas contains native concentrations of HCl by examination of preliminary spectra. Determine whether the concentration varies significantly with time by observing a continuously up-dated spectrum of sample gas in the flow-through sampling mode. If the concentration varies by more than ±5 percent during the period of time required to acquire a spectra, then an alternate approach should be used. One alternate approach uses two sampling lines to convey sample to the gas distribution manifold. One of the sample lines is used to continuously extract unspiked kiln gas from the source. The other sample line serves as the analyte spike line. One FTIR system can be used in this arrangement. Spiked or unspiked sample gas may be directed to the FTIR system from the gas distribution manifold, with the need to purge only the components between the manifold and the FTIR system. This approach minimizes the time required to acquire an equilibrated sample of spiked or unspiked kiln gas. If the source varies by more than ±5 percent (or 5 ppm, whichever is greater) in the time it takes to switch from the unspiked sample line to the spiked sample line, then analyte spiking may not be a feasible means to determine the effectiveness of the sampling system for the HCl in the sample matrix. A second alternative is to use two completely independent FTIR measurement systems. One system would measure unspiked samples while the other system would measure the spiked samples. As a last option, (where no other alternatives can be used) a humidified nitrogen stream may be generated in the field which approximates the moisture content of the kiln gas. Analyte spiking into this humidified stream can be employed to assure that the sampling system is adequate for transporting the HCl to the FTIR instrumentation.

9.2.3.1 Adjust the spike flow rate to approximately 10 percent of the total flow by metering spike gas through a calibrated mass flowmeter or controller. Allow spike flow to equilibrate within the sampling system before analyzing the first spiked kiln gas samples. A minimum of two consecutive spikes are required. Analysis of the spectral band area used for quantification should agree to within ±5 percent or corrective action must be taken.

9.2.3.2 After QA spiking is completed, the sampling system components shall be purged with nitrogen or dry air to eliminate traces of the HCl compound from the sampling system components. Acquire a sample spectra of the nitrogen purge to verify the absence of the calibration mixture.

9.2.3.3 Analyte spiking procedures must be carefully executed to ensure that meaningful measurements are achieved. The requirements of sections 9.2.3.3.1 through 9.2.3.3.4 shall be met.

9.2.3.3.1 The spike must be in the vapor phase, dry, and heated to (or above) the kiln gas temperature before it is introduced to the kiln gas stream.

9.2.3.3.2 The spike flow rate must be constant and accurately measured.

9.2.3.3.3 The total flow must also be measured continuously and reliably or the dilution ratio must otherwise be verified before and after a run by introducing a spike of a non-reactive, stable compound (i.e., tracer).

9.2.3.3.4 The tracer must be inert to the sampling system components, not contained in the effluent gas, and readily detected by the analytical instrumentation. Sulfur hexafluoride (SF_6) has been used successfully (References 1 and 2) for this purpose.

9.3 Calculations

9.3.1 *Recovery*. Calculate the percent recovery of the spiked analytes using equations 1 and 2.

$$\%R = 100 \times \frac{S_m - S_u(1 - DF)}{DF \times C_s} \qquad (1)$$

S_m = Mean concentration of the analyte spiked effluent samples (observed).

$$C_e = DF \times C_s + S_u(1 - DF) \qquad (2)$$

C_e = Expected concentration of the spiked samples (theoretical).

D_f = dilution Factor (Total flow/Spike flow). total flow = spike flow plus effluent flow.

C_s = cylinder concentration of spike gas.

S_u = native concentration of analytes in unspiked samples.

The spike dilution factor may be confirmed by measuring the total flow and the spike flow directly. Alternately, the spike dilution can be verified by comparing the concentration of the tracer compound in the spiked samples (diluted) to the tracer concentration in the direct (undiluted) measurement of the spike gas.

If SF_6 is the tracer gas, then

$$D_f = [SF_6]_{spike} / [SF_6]_{direct} \qquad (3)$$

$[SF_6]_{spike}$ = the diluted SF_6 concentration measured in a spiked sample.

$[SF_6]_{direct}$ = the SF_6 concentration measured directly.

9.3.2 Bias. The bias may be determined by the difference between the observed spike value and the expected response (i.e., the equivalent concentration of the spiked material plus the analyte concentration adjusted for spike dilution). Bias is defined by section 6.3.1 of EPA Method 301 of this appendix (Reference 8) as,

$$B = S_m - C_e \qquad (4)$$

Where:

B = Bias at spike level.

S_m = Mean concentration of the analyte spiked samples.

C_e = Expected concentration of the analyte in spiked samples.

Acceptable recoveries for analyte spiking are ±30 percent. Application of correction factors to the data based upon bias and recovery calculations is subject to the approval of the Administrator.

10.0 Calibration and Standardization

10.1 *Calibration transfer standards (CTS).* The EPA Traceability Protocol gases or NIST traceable standards, with a minimum accuracy of ±2 percent shall be used. For other requirements of the CTS, see the FTIR Protocol section 4.5.

10.2 *Signal-to-Noise Ratio (S/N).* The S/N shall be less than the minimum acceptable measurement uncertainty in the analytical regions to be used for measuring HCl.

10.3 *Absorbance Pathlength.* Verify the absorbance path length by comparing CTS spectra to reference spectra of the calibration gas(es).

10.4 *Instrument Resolution.* Measure the line width of appropriate CTS band(s) to verify instrumental resolution.

10.5 *Apodization Function.* Choose the appropriate apodization function. Determine any appropriate mathematical transformations that are required to correct instrumental errors by measuring the CTS. Any mathematical transformations must be documented and reproducible. Reference 9 provides additional information about FTIR instrumentation.

11.0 Analytical Procedure

A full description of the analytical procedures is given in sections 4.6–4.11, sections 5, 6, and 7, and the appendices of the FTIR Protocol. Additional description of quantitative spectral analysis is provided in References 10 and 11.

12.0 Data Analysis and Calculations

Data analysis is performed using appropriate reference spectra whose concentrations can be verified using CTS spectra. Various analytical programs (References 10 and 11) are available to relate sample absorbance to a concentration standard. Calculated concentrations should be verified by analyzing spectral baselines after mathematically subtracting scaled reference spectra from the sample spectra. A full description of the data analysis and calculations may be found in the FTIR Protocol (sections 4.0, 5.0, 6.0 and appendices).

12.1 Calculated concentrations in sample spectra are corrected for differences in absorption pathlength between the reference and sample spectra by

$$C_{corr} = \left(L_r / L_s\right) \times \left(T_s / T_r\right) \times \left(C_{calc}\right) \qquad (5)$$

Where:

C_{corr} = The pathlength corrected concentration.

C_{calc} = The initial calculated concentration (output of the multicomponent analysis program designed for the compound).

L_r = The pathlength associated with the reference spectra.

L_s = The pathlength associated with the sample spectra.

T_s = The absolute temperature (K) of the sample gas.

T_r = The absolute temperature (K) at which reference spectra were recorded.

12.2 The temperature correction in equation 5 is a volumetric correction. It does not account for temperature dependence of rotational-vibrational relative line intensities. Whenever possible, the reference spectra used in the analysis should be collected at a temperature near the temperature of the FTIR cell used in the test to minimize the calculated error in the measurement (FTIR Protocol, appendix D). Additionally, the analytical region chosen for the analysis should be sufficiently broad to minimize errors caused by small differences in relative line intensities between reference spectra and the sample spectra.

13.0 Method Performance

A description of the method performance may be found in the FTIR Protocol. This method is self validating provided the results meet the performance specification of the QA spike in sections 9.0 through 9.3 of this method.

14.0 Pollution Prevention

This is a gas phase measurement. Gas is extracted from the source, analyzed by the instrumentation, and discharged through the instrument vent.

15.0 Waste Management

Gas standards of HCl are handled according to the instructions enclosed with the material safety data sheet.

16.0 References

1. ''Laboratory and Field Evaluation of a Methodology for Determination of Hydrogen Chloride Emissions From Municipal and Hazardous Waste Incinerators,'' S.C. Steinsberger and J.H. Margeson. Prepared for U.S. Environmental Protection Agency, Research Triangle Park, NC. NTIS Report No. PB89–220586. (1989).

2. ''Evaluation of HCl Measurement Techniques at Municipal and Hazardous Waste Incinerators,'' S.A. Shanklin, S.C. Steinsberger, and L. Cone, Entropy, Inc. Prepared for U.S. Environmental Protection Agency, Research Triangle Park, NC. NTIS Report No. PB90–221896. (1989).

3. ''Fourier Transform Infrared (FTIR) Method Validation at a Coal Fired-Boiler,'' Entropy, Inc. Prepared for U.S. Environmental Protection Agency, Research Triangle Park, NC. EPA Publication No. EPA–454/R95–004. NTIS Report No. PB95–193199. (1993).

4. ''Field Validation Test Using Fourier Transform Infrared (FTIR) Spectrometry To Measure Formaldehyde, Phenol and Methanol at a Wool Fiberglass Production Facility.'' Draft. U.S. Environmental Protection Agency Report, Entropy, Inc., EPA Contract No. 68D20163, Work Assignment I–32.

5. Kinner, L.L., Geyer, T.G., Plummer, G.W., Dunder, T.A., Entropy, Inc. ''Application of FTIR as a Continuous Emission Monitoring System.'' Presentation at 1994 International Incineration Conference, Houston, TX. May 10, 1994.

6. ''Molecular Vibrations; The Theory of Infrared and Raman Vibrational Spectra,'' E. Bright Wilson, J.C. Decius, and P.C. Cross, Dover Publications, Inc., 1980. For a less intensive treatment of molecular rotational-vibrational spectra see, for example, ''Physical Chemistry,'' G.M. Barrow, chapters 12, 13, and 14, McGraw Hill, Inc., 1979.

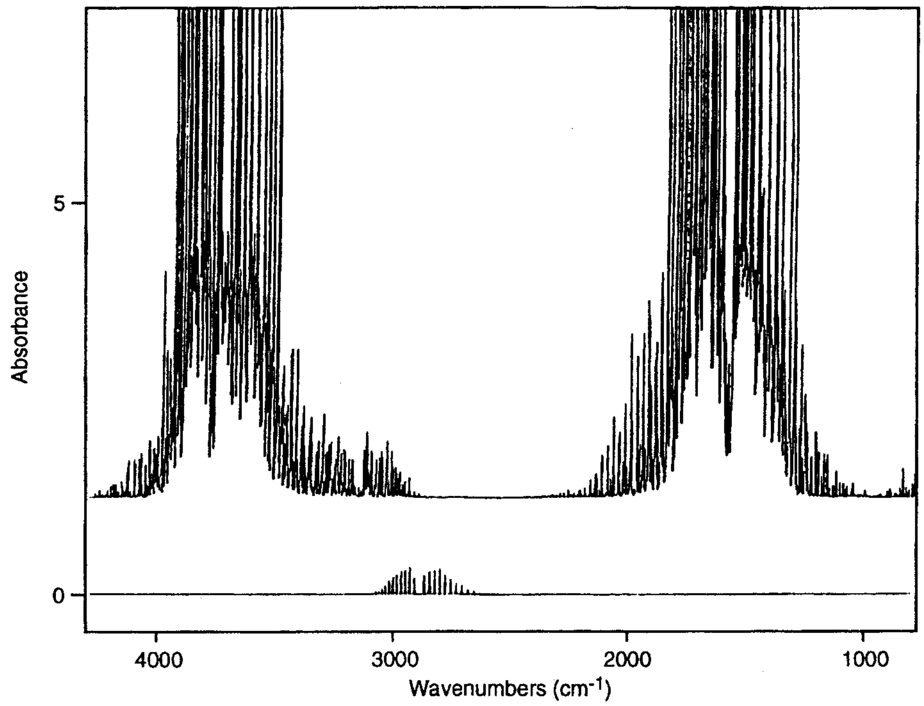
7. ''Laboratory and Field Evaluations of Ammonium Chloride Interference in Method 26,'' U.S. Environmental Protection Agency Report, Entropy, Inc., EPA Contract No. 68D20163, Work Assignment No. I–45.

8. 40 CFR 63, appendix A. Method 301—Field Validation of Pollutant Measurement Methods from Various Waste Media.

9. ''Fourier Transform Infrared Spectrometry,'' Peter R. Griffiths and James de Haseth, Chemical Analysis, 83, 16–25, (1986), P.J. Elving, J.D. Winefordner and I.M. Kolthoff (ed.), John Wiley and Sons.

10. ''Computer-Assisted Quantitative Infrared Spectroscopy,'' Gregory L. McClure (ed.), ASTM Special Publication 934 (ASTM), 1987.

11. ''Multivariate Least-Squares Methods Applied to the Quantitative Spectral Analysis of Multicomponent Mixtures,'' Applied Spectroscopy, 39(10), 73–84, 1985.



Top, water vapor (194hsub); Bottom, HCl at 11.4 (ppm-M)/K.

Figure 1. FTIR Spectra of HCl and Water.

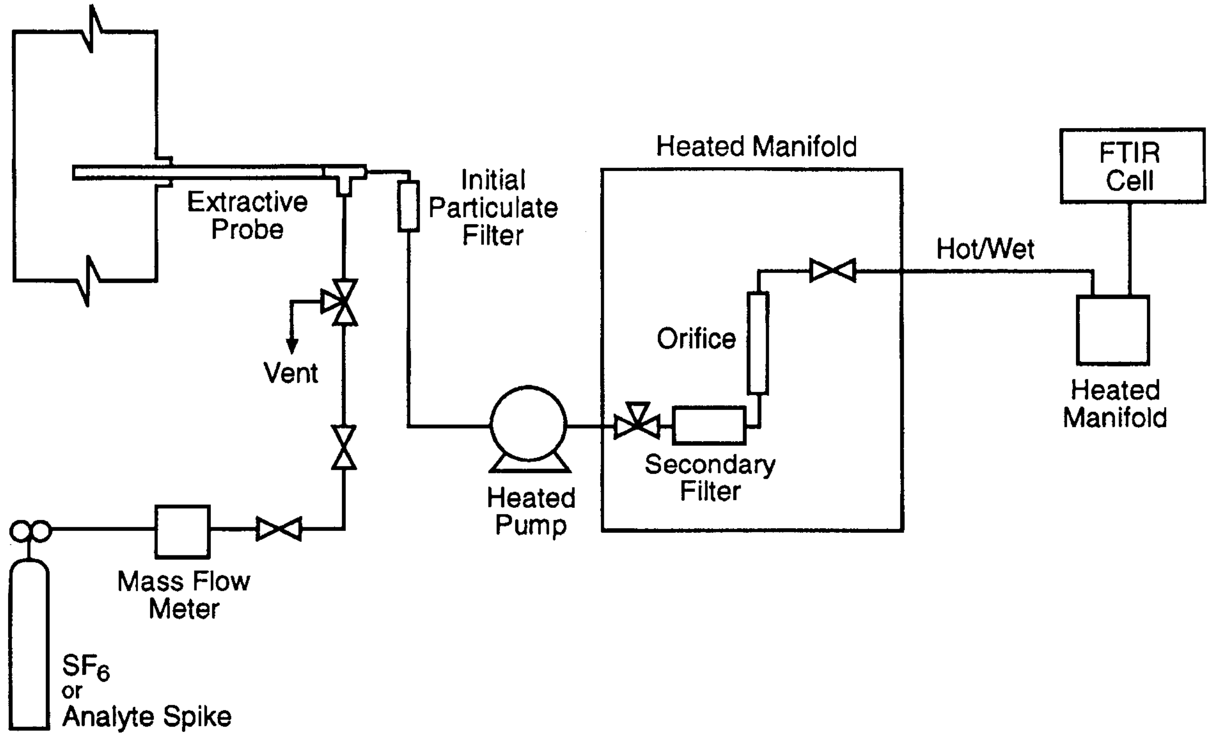


Figure 2. FTIR Sampling/Spiking System.

[57 FR 61992, Dec. 29, 1992]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting appendix A to part 63, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and on GPO Access.

APPENDIX B TO PART 63—SOURCES DEFINED FOR EARLY REDUCTION PROVISIONS

Source	Location of definition
1. Organic Process Equipment in Volatile Hazardous Air Pollutant Service at Chemical Plants and Other Designated Facilities.	56 FR 9315, March 6, 1991, Announcement of Negotiated Rulemaking
a. All valves in gas or light liquid service within a process unit	
b. All pumps in light liquid service within a process unit	
c. All connectors in gas or light liquid service within a process unit	
d. Each compressor	
e. Each product accumulator vessel	
f. Each agitator	
g. Each pressure relief device	
h. Each open-ended valve or line	
i. Each sampling connection system	
j. Each instrumentation system	
k. Each pump, valve, or connector in heavy liquid service	
l. Each closed vent system and control device	

APPENDIX C TO PART 63—DETERMINATION OF THE FRACTION BIODEGRADED (F_{bio}) IN A BIOLOGICAL TREATMENT UNIT

I. Purpose

The purpose of this appendix is to define the procedures for an owner or operator to use to calculate the site specific fraction of organic compounds biodegraded (F_{bio}) in a biological treatment unit. If an acceptable level of organic compounds is destroyed rather than emitted to the air or remaining in the effluent, the biological treatment unit may be used to comply with the applicable treatment requirements without the unit being covered and vented through a closed vent system to an air pollution control device.

The determination of F_{bio} shall be made on a system as it would exist under the rule. The owner or operator should anticipate changes that would occur to the wastewater flow and concentration of organics, to be treated by the biological treatment unit, as a result of enclosing the collection and treatment system as required by the rule.

Unless otherwise specified, the procedures presented in this appendix are designed to be applied to thoroughly mixed treatment units. A thoroughly mixed treatment unit is a unit that is designed and operated to approach or achieve uniform biomass distribution and organic compound concentration throughout the aeration unit by quickly dispersing the recycled biomass and the wastewater entering the unit. Detailed discussion on how to determine if a biological treatment unit is thoroughly mixed can be found in reference 7. Systems that are not thoroughly mixed treatment units should be subdivided into a series of zones that have uniform characteristics within each zone. The number of zones required to characterize a biological treatment system will depend on the design and operation of the treatment system. Detailed discussion on how to determine the number of zones in a biological treatment unit and examples of determination of f_{bio} can be found in reference 8. Each zone should then be modeled as a separate unit. The amount of air emissions and biodegradation from the modeling of these separate zones can then be added to reflect the entire system.

II. Definitions

Biological treatment unit = wastewater treatment unit designed and operated to promote the growth of bacteria to destroy organic materials in wastewater.

f_{bio} = The fraction of individual applicable organic compounds in the wastewater biodegraded in a biological treatment unit.

F_{bio} = The fraction of total applicable organic compounds in the wastewater biodegraded in a biological treatment unit.

Fe = The fraction of applicable organic compounds emitted from the wastewater to the atmosphere.

K1 = First order biodegradation rate constant, L/g MLVSS-hr

KL = liquid-phase mass transfer coefficient, m/s

M = compound specific mass flow weighted average of organic compounds in the wastewater, Mg/Yr

III. Procedures for Determination of f_{bio}

The first step in the analysis to determine if a biological treatment unit may be used without being covered and vented through a closed-vent system to an air pollution control device is to determine the compound-specific $f_{bio.}$ The following procedures may be used to determine f_{bio}:

(1) The EPA Test Method 304A or 304B (appendix A, part 63)—Method for the Determination of Biodegradation Rates of Organic Compounds,

(2) Performance data with and without biodegradation,

(3) Inlet and outlet concentration measurements,

(4) Batch tests,

(5) Multiple zone concentration measurements.

All procedures must be executed so that the resulting f_{bio} is based on the collection system and waste management units being in compliance with the rule. If the collection system and waste management units meet the suppression requirements at the time of the test, any of the procedures may be chosen. If the collection system and waste management units are not in compliance at the time of the performance test, then only Method 304A, B, or the batch test shall be chosen. If Method 304A, B, or the batch test is used, any anticipated changes to the influent of the full-scale biological treatment unit that will occur after the facility has enclosed the collection system must be represented in the influent feed to the benchtop bioreactor unit, or test unit.

Select one or more appropriate procedures from the five listed above based on the availability of site specific data and the type of mixing that occurs in the unit (thoroughly mixed or multiple mixing zone). If the facility does not have site-specific data on the removal efficiency of its biological treatment unit, then Procedure 1 or Procedure 4 may be used. Procedure 1 allows the use of a benchtop bioreactor to determine the first-order biodegradation rate constant. An owner or operator may elect to assume the first order biodegradation rate constant is zero for any regulated compound(s) present in the wastewater. Procedure 4 explains two types of batch tests which may be used to estimate the first order biodegradation rate constant. An owner or operator may elect to assume the first order biodegradation rate constant is zero for any regulated compound(s) present in the wastewater. Procedure 3 would be used if the facility has, or measures to determine, data on the inlet and outlet individual organic compound concentration for the biological treatment unit. Procedure 3 may only be used on a thoroughly mixed treatment unit. Procedure 5 is the concentration measurement test that can be used for units with multiple mixing zones. Procedure 2 is used if a facility has or obtains performance data on a biotreatment unit prior to and after addition of the microbial mass. An example where Procedure 2 could be used is an activated sludge unit where measurements have been taken on inlet and exit concentration of organic compounds in the wastewater prior to seeding with the microbial mass and startup of the unit. The flow chart in figure 1 outlines the steps to use for each of the procedures.

A. Method 304A or 304B (Procedure 1)

If the first procedure is selected, follow the instructions in appendix A of part 63 Method 304A ‘‘Method for the Determination of Biodegradation Rates of Organic Compounds (Vented Option)’’ or Method 304B ‘‘Method for the Determination of Biodegradation Rates of Organic Compounds (Scrubber Option).’’ Method 304A or 304B provides instruction on setting up and operating a self-contained benchtop bioreactor system which is operated under conditions representative of the target full-scale system. Method 304A uses a benchtop bioreactor system with a vent, and uses modeling to estimate any air emissions. Method 304B uses a benchtop bioreactor system which is equipped with a scrubber and is not vented.

There are some restrictions on which method a source may use. If the facility is measuring the rate of biodegradation of compounds that may tend to react or hydrolyze in the scrubber of Method 304B, this method shall not be used and Method 304A is the required method. If a Henry's law value is not available to use with Form V, then Method 304A shall not be used and Method 304B is the required method. When using either method, the feed flow to the benchtop bioreactor shall be representative of the flow and concentration of the wastewater that will be treated by the full-scale biological treatment unit after the collection and treatment system has been enclosed as required under the applicable subpart.

The conditions under which the full-scale biological treatment unit is run establish the operating parameters of Method 304A or 304B. If the biological treatment unit is operated under abnormal operating conditions (conditions outside the range of critical parameters examined and confirmed in the laboratory), the EPA believes this will adversely affect the biodegradation rate and is an unacceptable treatment option. The facility would be making multiple runs of the test method to simulate the operating range for its biological treatment unit. For wide ranges of variation in operating parameters, the facility shall demonstrate the biological treatment unit is achieving an acceptable level of control, as required by the regulation, across the ranges and not only at the endpoints.

If Method 304A is used, complete Form V initially. Form V is used to calculate K1 from the Method 304A results. Form V uses the Henry's law constant to estimate the fraction lost from the benchtop reactor vent. The owner or operator shall use the Henry's law values in Table I. Form V also gives direction for calculating an equivalent KL. Note on Form V if the calculated number for line 11 is greater than the calculated value for line 13, this procedure shall not be used to demonstrate the compound is biodegradable. If line 11 is greater than line 13, this is an indication the fraction emitted from the vent is greater than the fraction biodegraded. The equivalent KL determined on Form V is used in Form II (line 6). Estimation of the Fe and f_{bio} must be done following the steps in Form III. Form III uses the previously calculated values of K1 and KL (equivalent KL), and site-specific parameters of the full-scale bioreactor as input to the calculations. Forms II, III, and V must be completed for each organic compound in the wastewater to determine Fe and $f_{bio.}$

If Method 304B is used, perform the method and use the measurements to determine K1, which is the first-order biodegradation rate constant. Form I lists the sequence of steps in the procedure for calculating K1 from the Method 304B results. Once K1 is determined, KL must be calculated by use of mass transfer equations. Form II outlines the procedure to follow for use of mass transfer equations to determine KL. A computer program which incorporates these mass transfer equations may be used. Water7 is a program that incorporates these mass transfer equations and may be used to determine KL. Refer to Form II–A to determine KL, if Water7 or the most recent update to this model is used. In addition, the Bay Area Sewage Toxics Emission (BASTE) model version 3.0 or equivalent upgrade and the TOXCHEM (Environment Canada's Wastewater Technology Centre and Environmega, Ltd.) model version 1.10 or equivalent upgrade may also be used to determine KL for the biological treatment unit with several stipulations. The programs must be altered to output a KL value which is based on the site-specific parameters of the unit modeled, and the Henry's law values listed in Table I must be substituted for the existing Henry's law values in the programs. Input values used in the model and corresponding output values shall become documentation of the f_{bio} determination. The owner or operator should be aware these programs do not allow modeling of certain units. To model these units, the owner or operator shall use one of the other appropriate procedures as outlined in this appendix. The owner or operator shall not use a default value for KL. The KL value determined by use of these models shall be based on the site-specific parameters of the specific unit. This KL value shall be inserted in Form II (line 6). Estimation of the Fe and f_{bio} must be done following the steps in Form III. Form III uses the previously calculated values of K1 and KL, and site-specific parameters of the full-scale bioreactor as input to the calculations. Forms I, II, and III must be completed for each organic compound in the wastewater to determine Fe and $f_{bio.}$

B. Performance Data With and Without Biodegradation (Procedure 2)

Procedure 2 uses site-specific performance data that represents or characterizes operation of the unit both with and without biodegradation. As previously mentioned, proper determination of f_{bio} must be made on a system as it would exist under the rule. Using Form IV, calculate KL and K1. After KL and K1 are determined, Form III is used to calculate Fe and f_{bio} for each organic compound present in the wastewater.

C. Inlet and Outlet Concentration Measurements (Procedure 3)

Procedure 3 uses measured inlet and outlet organic compound concentrations for the unit. This procedure may only be used on a thoroughly mixed treatment unit. Again, proper determination of f_{bio} must be made on a system as it would exist under the rule. The first step in using this procedure is to calculate KL using Form II. A computer model may be used. If the Water7 model or the most recent update to this model is used, then use Form II–A to calculate KL. After KL is determined using field data, complete Form VI to calculate K1. The TOXCHEM or BASTE model may also be used to calculate KL for the biological treatment unit, with the stipulations listed in procedure 304B. After KL and K1 are determined, Form III is used to calculate Fe and f_{bio} for each organic compound.

D. Batch Tests (Procedure 4)

Two types of batch tests which may be used to determine kinetic parameters are: (1) The aerated reactor test and (2) the sealed reactor test. The aerated reactor test is also known as the BOX test (batch test with oxygen addition). The sealed reactor test is also known as the serum bottle test. These batch tests should be conducted only by persons familiar with procedures for determining biodegradation kinetics. Detailed discussions of batch procedures for determining biodegradation kinetic parameters can be found in references 1–4.

For both batch test approaches, a biomass sample from the activated sludge unit of interest is collected, aerated, and stored for no more than 4 hours prior to testing. To collect sufficient data when biodegradation is rapid, it may be necessary to dilute the biomass sample. If the sample is to be diluted, the biomass sample shall be diluted using treated effluent from the activated sludge unit of interest to a concentration such that the biodegradation test will last long enough to make at least six concentration measurements. It is recommended that the tests not be terminated until the compound concentration falls below the limit of quantitation (LOQ). Measurements that are below the LOQ should not be used in the data analysis. Biomass concentrations shall be determined using standard methods for measurement of mixed liquor volatile suspended solids (MLVSS) (reference 5).

The change in concentration of a test compound may be monitored by either measuring the concentration in the liquid or in the reactor headspace. The analytical technique chosen for the test should be as sensitive as possible. For the batch test procedures described in this section, equilibrium conditions must exist between the liquid and gas phases of the experiments because the data analysis procedures are based on this premise. To use the headspace sampling approach, the reactor headspace must be in equilibrium with the liquid so that the headspace concentrations can be correlated with the liquid concentrations. Before the biodegradation testing is conducted, the equilibrium assumption must be verified. A discussion of the equilibrium assumption verification is given below in sections D.1 and D.2 since different approaches are required for the two types of batch tests.

To determine biodegradation kinetic parameters in a batch test, it is important to choose an appropriate initial substrate (compound(s) of interest) concentration for the test. The outcome of the batch experiment may be influenced by the initial substrate (S_O) to biomass (X_O) ratio (see references 3, 4, and 6). This ratio is typically measured in chemical oxygen demand (COD) units. When the S_O/X_O ratio is low, cell multiplication and growth in the batch test is negligible and the kinetics measured by the test are representative of the kinetics in the activated sludge unit of interest. The S_O/X_O ratio for a batch test is determined with the following equation:

$$\frac{S_0}{X_0} = \frac{S_i}{1.42\ X} \left(\text{Eqn App. C} - 1\right)$$

Where:

S_O/X_O=initial substrate to biomass ratio on a COD basis

S_i=initial substrate concentration in COD units (g COD/L)

X=biomass concentration in the batch test (g MLVSS/L)

1.42 = Conversion factor to convert to COD units

For the batch tests described in this section, the S_O/X_O ratio (on a COD basis) must be initially less than 0.5.

1. *Aerated Reactor Test.* An aerated draft tube reactor may be used for the biokinetics testing (as an example see Figure 2 of appendix C). Other aerated reactor configurations may also be used. Air is bubbled through a porous frit at a rate sufficient to aerate and keep the reactor uniformly mixed. Aeration rates typically vary from 50 to 200 ml/min for a 1 liter system. A mass flow rate controller is used to carefully control the air flow rate because it is important to have an accurate measure of this rate. The dissolved oxygen (DO) concentration in the system must not fall below 2 mg/liter so that the biodegradation observed will not be DO-limited. Once the air flow rate is established, the test mixture (or compound) of interest is then injected into the reactor and the concentration of the compound(s) is monitored over time. Concentrations may be monitored in the liquid or in the headspace. A minimum of six samples shall be taken over the period of the test. However, it is necessary to collect samples until the compound concentration falls below the LOQ. If liquid samples are collected, they must be small enough such that the liquid volume in the batch reactor does not change by more than 10%.

Before conducting experiments with biomass, it is necessary to verify the equilibrium assumption. The equilibrium assumption can be verified by conducting a stripping experiment using the effluent (no biomass) from the activated sludge unit of interest. Effluent is filtered with a 0.45 um or smaller filter and placed in the draft tube reactor. Air is sparged into the system and the compound concentration in the liquid or headspace is monitored over time. This test with no biomass may provide an estimate of the Henry's law constant. If the system is at equilibrium, the Henry's law constant may be estimated with the following equation:

$$-\ln\left(C / C_0\right) = \left(GK_{eq} / V\right)t \qquad \left(\text{Eqn App. C} - 2\right)$$

Where:

C=cencentration at time, t (min)

C_O=concentration at t=0

G=volumetric gas flow rate (ml/min)

V=liquid volume in the batch reactor (ml)

K_{eq}=Henry's law constant (mg/L-gas)/(mg/L-liquid)

t=time (min)

A plot of—ln(C/C_o) as a function of t will have a slope equal to GK_{eq}/V. The equilibrium assumption can be verified by comparing the experimentally determined K_{eq} for the system to literature values of the Henry's Law constant (including those listed in this appendix). If K_{eq} does not match the Henry's law constant, K_{eq} shall be determined from analysis of the headspace and liquid concentration in a batch system.

The concentration of a compound decreases in the bioreactor due to both biodegradation and stripping. Biodegradation processes are typically described with a Monod model. This model and a stripping expression are combined to give a mass balance for the aerated draft tube reactor):

$$-\frac{ds}{dt}=\left(\frac{GK_{eq}}{V}\right)s+\left(\frac{Q_mX}{K_s+s}\right)s \qquad (\text{Eqn App. C}-3)$$

Where:

s=test compound concentration, mg/liter

G=volumetric gas flow rate, liters/hr

K_{eq}=Henry's Law constant measured in the system, (mg/liter gas)/(mg/liter liquid)

V=volume of liquid in the reactor, liters

X=biomass concentration (g MLVSS/liter)

Q_m=maximum rate of substrate removal, mg/g MLVSS/hr

K_S=Monod biorate constant at half the maximum rate, mg/liter

Equation App. C–3 can be integrated to obtain the following equation:

$$-t=\frac{VK_s}{A}\ln\left(\frac{s}{s_0}\right)+\frac{Q_mXV^2}{AB}\ln\left(\frac{A+Bs}{A+Bs_0}\right) \qquad (\text{Eqn App. C-4})$$

Where:

A=GK $_{eq}$K$_s$ + Q$_m$VX

B=GK$_{eq}$

S$_o$=test compound concentration at t=0

This equation is used along with the substrate concentration versus time data to determine the best fit parameters (Q_m and K_S) to describe the biodegradation process in the aerated reactor. If the aerated reactor test is used, the following procedure is used to analyze the data. Evaluate K_{eq} for the compound of interest with Form XI. The concentration in the vented headspace or liquid is measured as a function of time and the data is entered on Form XI. A plot is made from the data and attached to the Form XI. K_{eq} is calculated on Form XI and the results are contrasted with the expected value of Henry's law obtained from Form IX. If the comparison is satisfactory, the stripping constant is calculated from K_{eq}, completing Form XI. The values of K_{eq} may differ because the theoretical value of K_{eq} may not be applicable to the system of interest. If the comparison of the calculated K_{eq} from the form and the expected value of Henry's law is unsatisfactory, Form X can alternatively be used to validate $K_{eq.}$ If the aerated reactor is demonstrated to not be at equilibrium, either modify the reactor design and/or operation, or use another type of batch test.

The compound-specific biorate constants are then measured using Form XII. The stripping constant that was determined from Form XI and a headspace correction factor of 1 are entered on Form XII. The aerated reactor biotest may then be run, measuring concentrations of each compound of interest as a function of time. If headspace concentrations are measured instead of liquid concentrations, then the corresponding liquid concentrations are calculated from the headspace measurements using the K_{eq} determined on Form XI and entered on Form XII.

The concentration data on Form XII may contain scatter that can adversely influence the data interpretation. It is possible to curve fit the concentration data and enter the concentrations on the fitted curve instead of the actual data. If curve fitting is used, the curve-fitting procedure must be based upon the Equation App. C–4. When curve fitting is used, it is necessary to attach a plot of the actual data and the fitted curve to Form XII.

If the stripping rate constant is relatively large when compared to the biorate at low concentrations, it may be difficult to obtain accurate evaluations of the first-order biorate constant. In these cases, either reducing the stripping rate constant by lowering the aeration rate, or increasing the biomass concentrations should be considered.

The final result of the batch testing is the measurement of a biorate that can be used to estimate the fraction biodegraded, $f_{bio.}$ The number transferred to Form III is obtained from Form XII, line 9.

2. *Sealed Reactor Test.* This test uses a closed system to prevent losses of the test compound by volatilization. This test may be conducted using a serum bottle or a sealed draft tube reactor (for an example see Figure 3 of appendix C). Since no air is supplied, it is necessary to ensure that sufficient oxygen is present in the system. The DO concentration in the system must not fall below 2 mg/liter so that the biodegradation observed will not be DO-limited. As an alternative, oxygen may be supplied by electrolysis as needed to maintain the DO concentration above 2 mg/liter. The reactor contents must be uniformly mixed, by stirring

or agitation using a shaker or similar apparatus. The test mixture (or compound) of interest is injected into the reactor and the concentration is monitored over time. A minimum of six samples shall be taken over the period of the test. However, it is necessary to monitor the concentration until it falls below the LOQ.

The equilibrium assumption must be verified for the batch reactor system. In this case, K_{eq} may be determined by simultaneously measuring gas and liquid phase concentrations at different times within a given experiment. A constant ratio of gas/liquid concentrations indicates that equilibrium conditions are present and K_{eq} is not a function of concentration. This ratio is then taken as the K_{eq} for the specific compound in the test. It is not necessary to measure K_{eq} for each experiment. If the ratio is not constant, the equilibrium assumption is not valid and it is necessary to (1) increase mixing energy for the system and retest for the equilibrium assumption, or (2) use a different type of test (for example, a collapsible volume reactor).

The concentration of a compound decreases in the bioreactor due to biodegradation according to Equation App. C–5:

$$\frac{ds}{dt} = \left[\frac{-V_1}{V_g K_{eq} + V_1}\right]\left[\left(\frac{Q_m X}{K_s + s}\right) s\right] \qquad (\text{Eqn App. C} - 5)$$

Where:

s=test compound concentration (mg/liters)

V_l=the average liquid volume in the reactor (liters)

V_g=the average gas volume in the reactor (liters)

Q_m=maximum rate of substrate removal (mg/g *ML* VSS/hr)

K_{eq}=Henry's Law constant determined for the test, (mg/liter gas)/(mg/liter liquid)

K_s=Monod biorate constant at one-half the maximum rate (mg/liter)

t=time (hours)

X=biomass concentration (g *ML* VSS/liter)

s_o=test compound concentration at time t=0

Equation App. C–5 can be solved analytically to give:

$$t = \frac{-\left(V_g K_{eq} + V_1\right)}{V_1 Q_m X}\left[\left(s - s_0\right) + K_s \ln\left(\frac{s}{s_0}\right)\right] \qquad (\text{Eqn App. C-6})$$

This equation is used along with the substrate concentration versus time data to determine the best fit parameters (Q_m and K_s) to describe the biodegradation process in the sealed reactor.

If the sealed reactor test is used, Form X is used to determine the headspace correction factor. The disappearance of a compound in the sealed reactor test is slowed because a fraction of the compound is not available for biodegradation because it is present in the headspace. If the compound is almost entirely in the liquid phase, the headspace correction factor is approximately one. If the headspace correction factor is substantially less than one, improved mass transfer or reduced headspace may improve the accuracy of the sealed reactor test. A preliminary sealed reactor test must be conducted to test the equilibrium assumption. As the compound of interest is degraded, simultaneous headspace and liquid samples should be collected and Form X should be used to evaluate $K_{eq.}$ The ratio of headspace to liquid concentrations must be constant in order to confirm that equilibrium conditions exist. If equilibrium conditions are not present, additional mixing or an alternate reactor configuration may be required.

The compound-specific biorate constants are then calculated using Form XII. For the sealed reactor test, a stripping rate constant of zero and the headspace correction factor that was determined from Form X are entered on Form XII. The sealed reactor test may then be run, measuring the concentrations of each compound of interest as a function of time. If headspace concentrations are measured instead of liquid concentrations, then the corresponding liquid concentrations are calculated from the headspace measurements using K_{eq} from Form X and entered on Form XII.

The concentration data on Form XII may contain scatter that can adversely influence the data interpretation. It is possible to curve fit the concentration data and enter the concentrations on the fitted curve instead of the actual data. If curve fitting is used, the curve-fitting procedure must be based upon Equation App. C–6. When curve fitting is used, it is necessary to attach a plot of the actual data and the fitted curve to Form XII.

If a sealed collapsible reactor is used that has no headspace, the headspace correction factor will equal 1, but the stripping rate constant may not equal 0 due to diffusion losses through the reactor wall. The ratio of the rate of loss of compound to the concentration of the compound in the reactor (units of per hour) must be evaluated. This loss ratio has the same units as the stripping rate constant and may be entered as the stripping rate constant on line 1 of Form XII.

If the loss due to diffusion through the walls of the collapsible reactor is relatively large when compared to the biorate at low concentrations, it may be difficult to obtain accurate evaluations of the first-order biorate constant. In these cases, either replacing the materials used to construct the reactor with materials of low permeability or increasing the biomass concentration should be considered.

The final result of the batch testing is the measurement of a biorate that can be used to estimate the fraction biodegraded, f_{bio}. The number transferred to Form III is obtained from Form XII, line 9.

The number on Form XII line 9 will equal the Monod first-order biorate constant if the full-scale system is operated in the first-order range. If the full-scale system is operated at concentrations above that of the Monod first-order range, the value of the number on line 9 will be somewhat lower than the Monod first-order biorate constant. With supporting biorate data, the Monod model used in Form XII may be used to estimate the effective biorate constant K1 for use in Form III.

If a reactor with headspace is used, analysis of the data using equation App. C–6 is valid only if V_l and V_g do not change more than 10% (i.e., they can be approximated as constant for the duration of the test). Since biodegradation is occurring only in the liquid, as the liquid concentration decreases it is necessary for mass to transfer from the gas to the liquid phase. This may require vigorous mixing and/or reducing the volume in the headspace of the reactor.

If there is no headspace (e.g., a collapsible reactor), equation App. C–6 is independent of V_1 and there are no restrictions on the liquid volume. If a membrane or bag is used as the collapsible-volume reactor, it may be important to monitor for diffusion losses in the system. To determine if there are losses, the bag should be used without biomass and spiked with the compound(s) of interest. The concentration of the compound(s) in the reactor should be monitored over time. The data are analyzed as described above for the sealed reactor test.

3. *Quality Control/Quality Assurance (QA/QC).* A QA/QC plan outlining the procedures used to determine the biodegradation rate constants shall be prepared and a copy maintained at the source. The plan should include, but may not be limited to:

1. A description of the apparatus used (e.g., size, volume, method of supplying air or oxygen, mixing, and sampling procedures) including a simplified schematic drawing.
2. A description of how biomass was sampled from the activated sludge unit.
3. A description of how biomass was held prior to testing (age, etc.).
4. A description of what conditions (DO, gas-liquid equilibrium, temperature, etc.) are important, what the target values are, how the factors were controlled, and how well they were controlled.
5. A description of how the experiment was conducted, including preparation of solutions, dilution procedures, sampling procedures, monitoring of conditions, etc.
6. A description of the analytical instrumentation used, how the instruments were calibrated, and a summary of the precision for that equipment.
7. A description of the analytical procedures used. If appropriate, reference to an ASTM, EPA or other procedure may be used. Otherwise, describe how the procedure is done, what is done to measure precision, accuracy, recovery, etc., as appropriate.
8. A description of how data are captured, recorded, and stored.
9. A description of the equations used and their solutions, including a reference to any software used for calculations and/or curve-fitting.

E. Multiple Zone Concentration Measurements (Procedure 5)

Procedure 5 is the concentration measurement method that can be used to determine the f_{bio} for units that are not thoroughly mixed and thus have multiple zones of mixing. As with the other procedures, proper determination of f_{bio} must be made on a system as it would exist under the rule. For purposes of this calculation, the biological unit must be divided[1] into zones with uniform characteristics within each zone. The number of zones that is used depends on the complexity of the unit. Reference 8, ‘‘Technical Support

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[1] This is a mathematical division of the actual unit; not addition of physical barriers.

Document for the Evaluation of Aerobic Biological Treatment Units with Multiple Mixing Zones,'' is a source for further information concerning how to determine the number of zones that should be used for evaluating your unit. The following information on the biological unit must be available to use this procedure: basic unit variables such as inlet and recycle wastewater flow rates, type of agitation, and operating conditions; measured representative organic compound concentrations in each zone and the inlet and outlet; and estimated mass transfer coefficients for each zone.

Reference 8 ''Technical Support Document for the Evaluation of Aerobic Biological Treatment Units with Multiple Mixing Zones,'' is a source for further information concerning how to interpolate the biorates for multiple zones. In units with well-characterized concentration measurements obtained in an initial evaluation of the unit, it may be possible to demonstrate that there is a good correlation of the component concentrations with the locations in the multiple-zone unit. With this good correlation, it may be possible to accurately predict the concentrations in selected zones without actually testing each selected zone. This correlation method may be used for units that have many zones (greater than 5) or where one of the interior zones is not readily accessible for sampling. To use this correlation method of estimating zone concentrations, it is necessary to measure the concentrations in the inlet unit, the exit unit, and sufficient interior units to obtain a correlation of component concentrations with the locations. You cannot use this correlation method of estimating selected zone concentrations if monitoring of each zone is required, or if the accuracy and precision of the correlation is inferior to actual individual sampling error. The accuracy and precision of the correlation may be improved by increasing the number of locations tested. Because the correlation is based on many samples, it should provide an accurate representation of a stable operating system.

The estimated mass transfer coefficient for each compound in each zone is obtained from Form II using the characteristics of each zone. A computer model may be used. If the Water7 model or the most recent update to this model is used, then use Form II–A to calculate KL. The TOXCHEM or BASTE model may also be used to calculate KL for the biological treatment unit, with the stipulations listed in Procedure 304B. Compound concentration measurements for each zone are used in Form XIII to calculate the $f_{bio.}$ A copy of Form XIII is completed for each of the compounds of concern treated in the biological unit.

IV. Calculation of F_{bio}

At this point, the individual f_{bios} determined by the previously explained procedures must be summed to obtain the total $F_{bio.}$ To determine the F_{bio} multiply each compound specific f_{bio} by the compound-specific average mass flow rate of the organic compound in the wastewater stream (see regulation for instruction on calculation of average mass flow rate). Sum these products and divide by the total wastewater stream average mass flow rate of organic compounds.

$$F_{bio} = \frac{\sum_{i=1}^{N}\left(f_{bio}i \times M_i\right)}{\sum_{i=1}^{n} M_i} \qquad \left(\text{Eqn App. C} - 7\right)$$

M=compound specific average mass flow rate of the organic compounds in the wastewater (Mg/Yr)

n=number of organic compounds in the wastewater

The F_{bio} is then used in the applicable compliance equations in the regulation to determine if biodegradation may be used to comply with the treatment standard without covering and venting to an air pollution control device.

References

1. Rajagopalan, S. et al. ''Comparison of Methods for Determining Biodegradation Kinetics of Volatile Organic Compounds.'' Proceedings of Water Environment Federation. 67th Annual Conference, October 15–19, 1994.

2. Ellis, T.G. et al. ''Determination of Toxic Organic Chemical Biodegradation Kinetics Using Novel Respirometric Technique''. Proceedings Water Environment Federation, 67th Annual Conference, October 15–19, 1994.

3. Pitter, P. and J. Chudoba. Biodegradability of Organic Substances in

the Aquatic Environment. CRC Press, Boca Raton, FL. 1990.

4. Grady, C.P.L., B. Smets, and D. Barbeau. Variability in kinetic parameter estimates: A review of possible causes and a proposed terminology. Wat. Res. 30 (3), 742–748, 1996.

5. Eaton, A.D., et al. eds., Standard Methods for the Examination of Water and Wastewater, 19th Edition, American Public Health Association, Washington, DC, 1995.

6. Chudoba P., B. Capdeville, and J. Chudoba. Explanation of biological meaning of the So/Xo ratio in batch cultivation. Wat. Sci. Tech. 26 (3/4), 743–751, 1992.

7. Technical Support Document for Evaluation of Thoroughly Mixed Biological Treatment Units. November 1998.

8. Technical Support Document for the Evaluation of Aerobic Biological Treatment Units with Multiple Mixing Zones. July 1999.

TABLE I

Compound	H_L @ 25 °C (atm/mole frac)	H_L @ 100 °C (atm/mole frac)
1 Acetaldehyde	4.87e+00	5.64e+01
3 Acetonitrile	1.11e+00	1.78e+01
4 Acetophenone	5.09e−01	2.25e+01
5 Acrolein	4.57e+00	6.61e+01
8 Acrylonitrile	5.45e+00	6.67e+01
9 Allyl chloride	5.15e+02	2.26e+03
10 Aniline	9.78e−02	1.42e+00
12 Benzene	3.08e+02	1.93e+03
14 Benzyl chloride	1.77e+01	2.88e+02
15 Biphenyl	2.27e+01	1.27e+03
17 Bromoform	2.96e+01	3.98e+02
18 1,3-Butadiene	3.96e+03	1.56e+04
20 Carbon disulfide	1.06e+03	3.60e+03
21 Carbon tetrachloride	1.68e+03	1.69e+04
23 2-Chloroacetophenone	4.84e−02	1.43e+01
24 Chlorobenzene	2.09e+02	3.12e+03
25 Chloroform	2.21e+02	1.34e+03
26 Chloroprene	5.16e+01	1.74e+02
29 o-Cresol	9.12e−02	2.44e+01
31 Cumene	7.28e+02	7.15e+03
32 1,4-Dichlorobenzene(p)	1.76e+02	1.95e+03
33 Dichloroethyl ether	1.14e+00	3.57e+01
34 1,3-Dichloropropene	1.97e+02	1.44e+03
36 N,N-Dimethylaniline	7.70e−01	5.67e+02
37 Diethyl sulfate	3.41e−01	4.22e+01
38 3,3'-Dimethylbenzidine	7.51e−05	5.09e−01
40 1,1-Dimethylhydrazine	9.11e−02	1.57e+01
42 Dimethyl sulfate	2.23e−01	1.43e+01
43 2,4-Dinitrophenol	2.84e−01	1.50e+02
44 2,4-Dinitrotoluene	4.00e−01	9.62e+00
45 1,4-Dioxane	3.08e−01	9.53e+00
47 Epichlorohydrin	1.86e+00	4.34e+01
48 Ethyl acrylate	1.41e+01	3.01e+02
49 Ethylbenzene	4.38e+02	4.27e+03
50 Ethyl chloride (chloroethane)	6.72e+02	3.10e+03
51 Ethylene dibromide	3.61e+01	5.15e+02
52 Ethylene dichloride (1,2-Dichloroethane)	6.54e+01	5.06e+02
54 Ethylene oxide	1.32e+01	9.09e+01
55 Ethylidene dichloride (1,1-Dichloroethane)	3.12e+02	2.92e+03
57 Ethylene glycol dimethyl ether	1.95e+00	4.12e+01
60 Ethylene glycol monoethyl ether acetate	9.86e−02	6.03e+00
62 Ethylene glycol monomethyl ether acetate	1.22e−01	6.93e+00
64 Diethylene glycol dimethyl ether	8.38e−02	4.69e+00
69 Diethylene glycol diethyl ether	1.19e−01	7.71e+00
72 Ethylene glycol monobutyl ether acetate	2.75e−01	2.50e+01
73 Hexachlorobenzene	9.45e+01	2.57e+04
74 Hexachlorobutadiene	5.72e+02	6.92e+03
75 Hexachloroethane	4.64e+02	7.49e+04
76 Hexane	4.27e+04	9.44e+04
78 Isophorone	3.68e−01	1.68e+01
80 Methanol	2.89e−01	7.73e+00
81 Methyl bromide (Bromomethane)	3.81e+02	2.12e+03
82 Methyl chloride (Chloromethane)	4.90e+02	2.84e+03
83 Methyl chloroform (1,1,1-Trichloroethane)	9.67e+02	5.73e+03
84 Methyl ethyl ketone (2-Butanone)	7.22e+00	5.92e+01
86 Methyl isobutyl ketone (Hexone)	2.17e+01	3.72e+02
88 Methyl methacrylate	7.83e+00	9.15e+01
89 Methyl tert-butyl ether	3.08e+01	2.67e+02

TABLE I—Continued

Compound	H_L @ 25 °C (atm/mole frac)	H_L @ 100 °C (atm/mole frac)
90 Methylene chloride (Dichloromethane)	1.64e+02	9.15e+02
93 Naphthalene	2.68e+01	7.10e+02
94 Nitrobenzene	1.33e+00	2.80e+01
96 2-Nitropropane	6.61e+00	8.76e+01
99 Phosgene	7.80e+02	3.51e+03
102 Propionaldehyde	3.32e+00	1.42e+02
103 Propylene dichloride	1.59e+02	1.27e+03
104 Propylene oxide	1.98e+01	1.84e+02
106 Styrene	1.45e+02	1.72e+03
107 1,1,2,2-Tetrachloroethane	1.39e+01	1.99e+02
108 Tetrachloroethylene (Perchloroethylene)	9.83e+02	1.84e+04
109 Toluene	3.57e+02	2.10e+03
112 o-Toluidine	1.34e−01	1.15e+01
113 1,2,4-Trichlorobenzene	1.07e+02	1.04e+03
114 1,1,2-Trichloroethane	4.58e+01	5.86e+02
115 Trichloroethylene	5.67e+02	7.66e+03
116 2,4,5-Trichlorophenol	4.84e−01	6.27e+01
117 Triethylamine	6.94e+00	2.57e+02
118 2,2,4-Trimethylpentane	1.85e+05	9.74e+05
119 Vinyl acetate	2.82e+01	2.80e+02
120 Vinyl chloride	1.47e+03	6.45e+03
121 Vinylidene chloride (1,1-Dichloroethylene)	1.44e+03	1.40e+04
123 m-Xylene	4.13e+02	3.25e+03
124 o-Xylene	2.71e+02	2.55e+03
125 p-Xylene	4.13e+02	3.20e+03

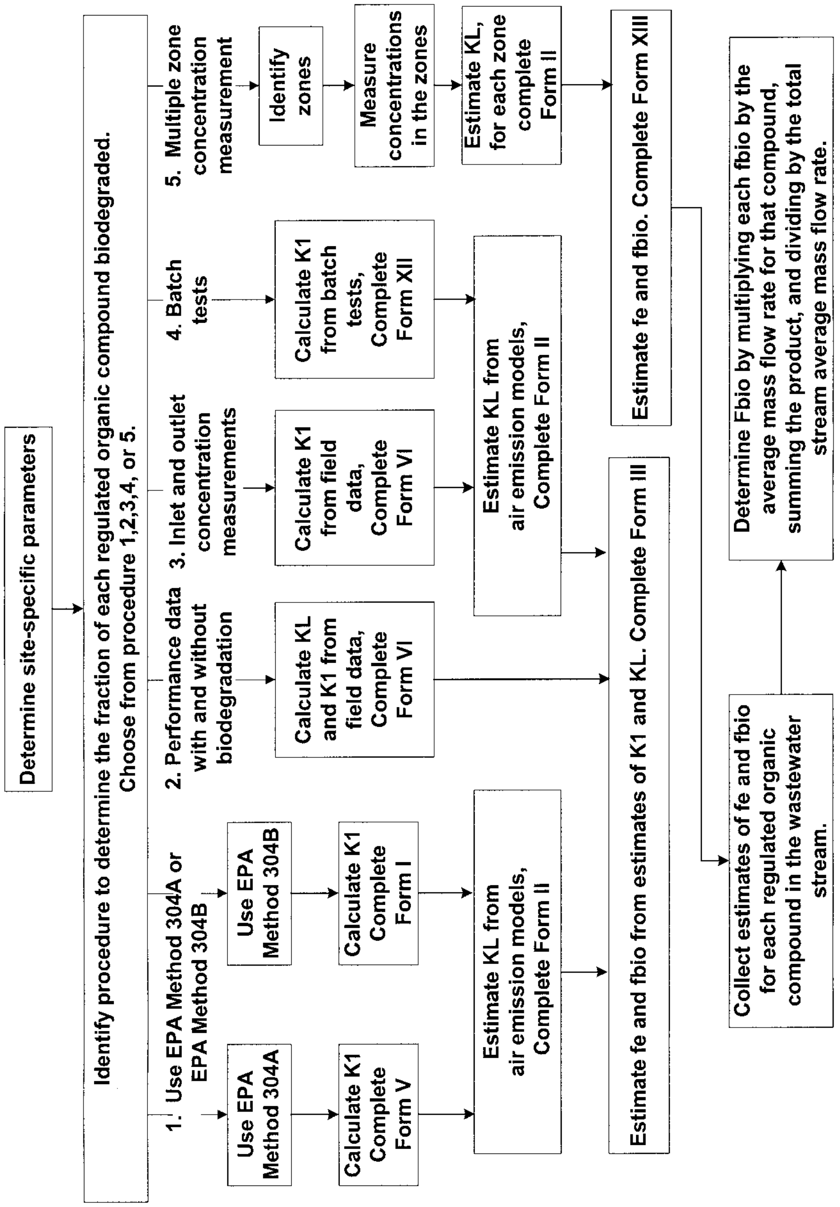


Figure 1. ALTERNATIVE EXPERIMENTAL METHODS FOR DETERMINING THE FRACTION OF ORGANIC COMPOUND BIODEGRADED (Fbio) IN A BIOLOGICAL TREATMENT UNIT

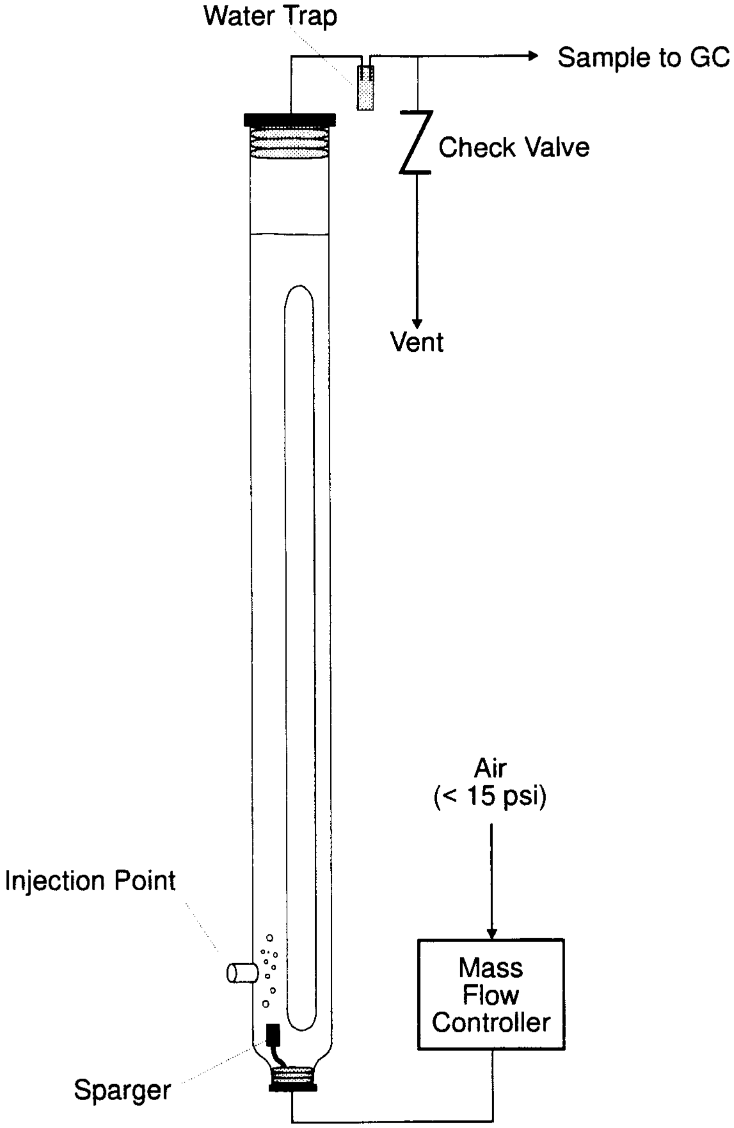


Figure 2. Example Aerated Draft Tube Reactor

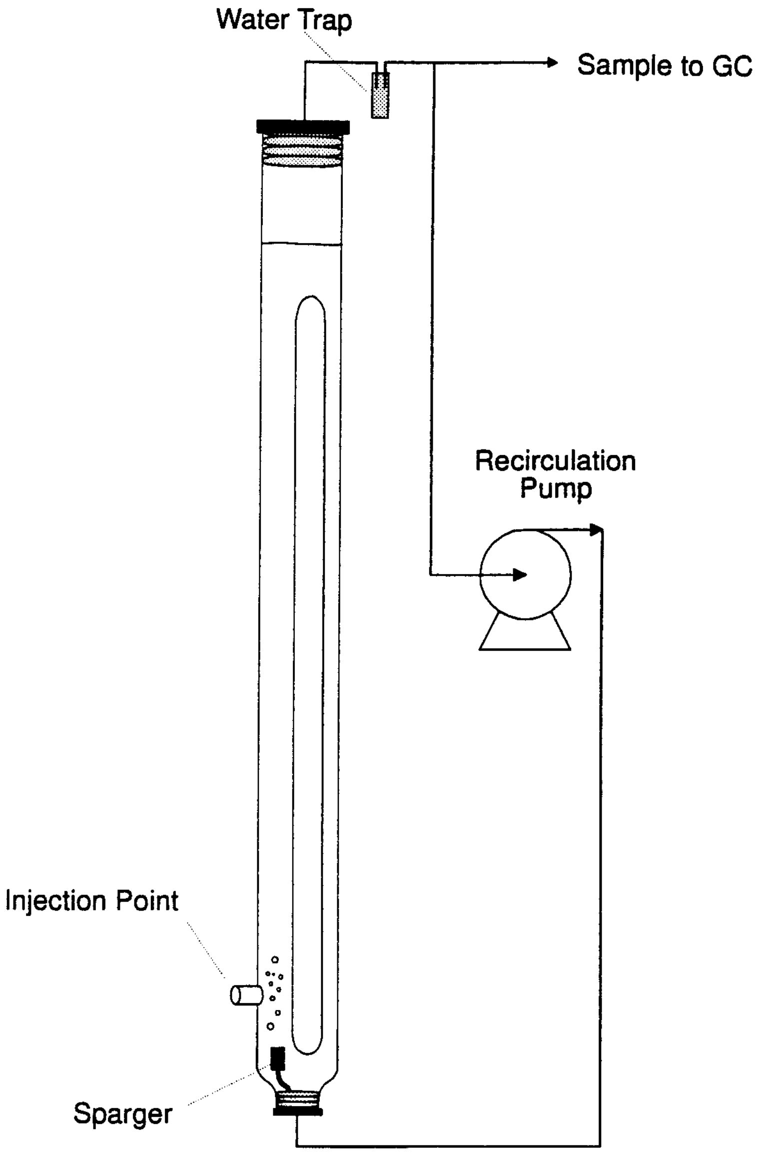


Figure 3. Example Sealed Draft Tube Reactor

Form I DATA FORM FOR THE

ESTIMATION OF THE EPA METHOD 304B FIRST ORDER BIORATE CONSTANT

NAME OF THE FACILITY for site specific biorate determination			Example
COMPOUND for site specific biorate determination			*METHANOL*
INLET CONCENTRATION used in EPA METHOD 304B	1		78
EXIT CONCENTRATION measured by EPA METHOD 304B	2		6
BIOMASS (g/L) This is the dried solids that are obtained from the mixed liquor suspended solids in the bench scale bioreactor.	3		0.075
TEMPERATURE OF BIOREACTOR (deg. C)	4		35
VOLUME of EPA METHOD 304B bench scale bioreactor (L)	5		6
FLOW RATE of waste treated in the bench scale bioreactor (L/hr)	6		0.146
CALCULATIONS FROM EPA METHOD 304B DATA MEASUREMENTS			
RESIDENCE TIME (hr) Divide the number on line 5 by the number on line 6 and enter the results here.	7		41.10
Concentration Decrease (g/m^3). Subtract the number on line 2 from the number on line 1 and enter the results here.	8		72.00
BIORATE (g/m^3-hr). Divide the number on line 8 by the number on line 7 and enter the results here.	9		1.75
Product of concentration and biomass. Multiply the number on line 2 by the number on line 3 and enter the results here.	10		0.45
BIORATE K1 (L/g bio-hr) Divide the number on line 9 by the number on line 10 and enter the results here.	11		3.89
Temperature adjustment. Subtract 25 deg. C from the number on line 4 and enter the results here.	12		10
Temperature adjustment factor. 1.046 is the default temperature adjustment factor. Enter the temperature adjustment factor here.	13		1.046
Biorate temperature ratio. Raise the number on line 13 to the power of the number on line 12.	14		1.567
BIORATE K1 at 25 deg. C (L/g MLVSS-hr) Divide the number on line 11 by the number on line 14 and enter the results here.	15		2.48

Note: With Monod kinetics, use Kmax=1000 to convert the Monod kinetics to first order. If a different temperature adjustment factor than the default is entered on line 13, make sure that the adjustment factor used in the calculations agrees with the value entered on line 13.

Form II

PROCEDURES FORM FOR THE ESTIMATION OF THE KL FROM UNIT SPECIFICATIONS

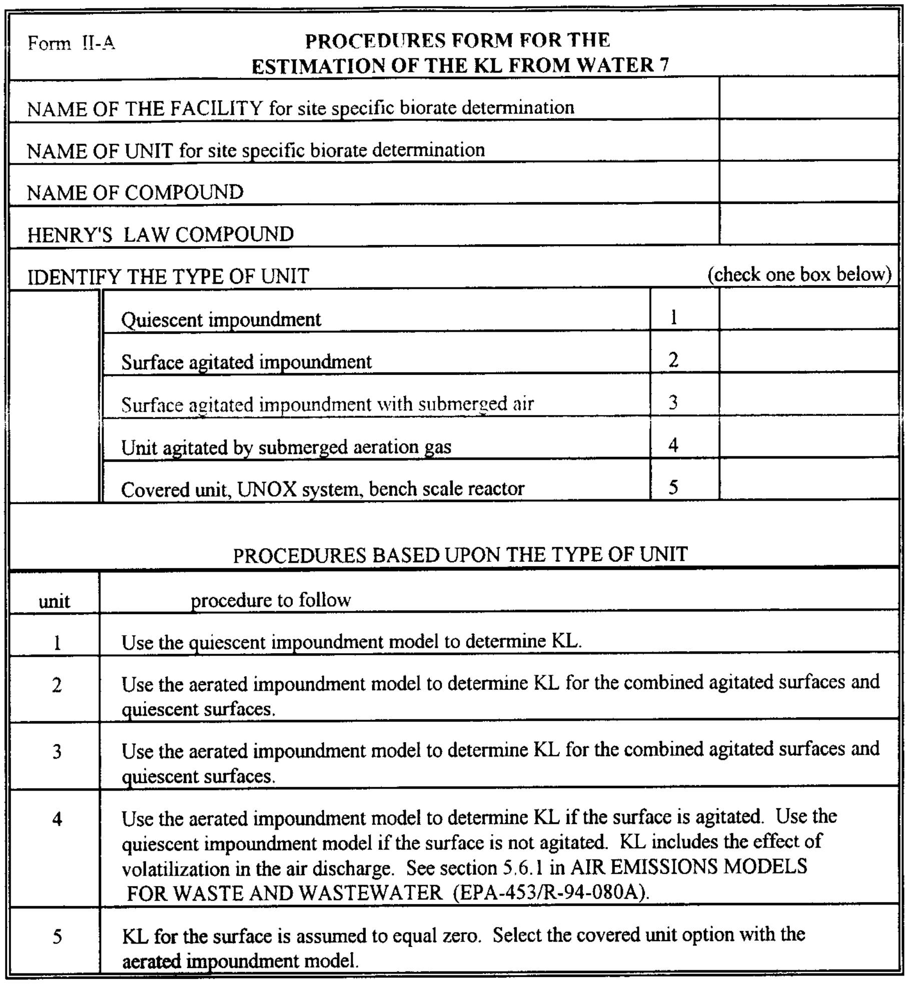
NAME OF THE FACILITY for site specific biorate determination	
NAME OF UNIT for site specific biorate determination	
NAME OF COMPOUND	
HENRY'S LAW constant for the compound (mole fraction in gas per mole fraction in water at 25 degrees Celsius)	

IDENTIFY THE TYPE OF UNIT			(check one box below)
	Quiescent impoundment	1	
	Surface agitated impoundment	2	
	Surface agitated impoundment with submerged air	3	
	Unit agitated by submerged aeration gas	4	
	EPA Method 304A, Covered unit, UNOX system, or bench scale reactor	5	

PROCEDURES BASED UPON THE TYPE OF UNIT

UNIT	PROCEDURE TO FOLLOW
1	Use the quiescent impoundment model to determine KL. Use Kq as KL as determined from Form VII.
2	Use the quiescent impoundment model to determine KL for the quiescent zone, Form VII. Use the aerated impoundment model to determine KL for the agitated surface, Form VIII.
3	Use the quiescent impoundment model to determine Kq for the quiescent zone, Form VII. Use the aerated impoundment model to determine KL for the agitated surface, Form VIII. The total system KL is the sum of the KL from Form VIII and the equivalent KL from Form V. Use the submerged air rate as the vent rate in form V.
4	Use the aerated impoundment model to determine KL if the surface is agitated. Use the quiescent impoundment model if the surface is not agitated. KL includes the effect of volatilization in the air discharge. See section 5.6.1 in AIR EMISSIONS MODELS FOR WASTE AND WASTEWATER (EPA-453/R-94-080A). The total system KL is the sum of the KL from Form VIII and the equivalent KL from Form V. Use the submerged air rate as the vent rate in Form V.
5	KL for the surface is assumed to be equal zero. Determine equivalent KL based upon air discharge. Use Form V for EPA Method 304A or if the concentration in the vent is not measured. Use Form V-A if the concentration in the vent is measured.

Estimate of KL obtained from above procedures (m/s)	6	



Form II-A

PROCEDURES FORM FOR THE ESTIMATION OF THE KL FROM WATER 7

NAME OF THE FACILITY for site specific biorate determination	
NAME OF UNIT for site specific biorate determination	
NAME OF COMPOUND	
HENRY'S LAW COMPOUND	

IDENTIFY THE TYPE OF UNIT (check one box below)

Quiescent impoundment	1	
Surface agitated impoundment	2	
Surface agitated impoundment with submerged air	3	
Unit agitated by submerged aeration gas	4	
Covered unit, UNOX system, bench scale reactor	5	

PROCEDURES BASED UPON THE TYPE OF UNIT

unit	procedure to follow
1	Use the quiescent impoundment model to determine KL.
2	Use the aerated impoundment model to determine KL for the combined agitated surfaces and quiescent surfaces.
3	Use the aerated impoundment model to determine KL for the combined agitated surfaces and quiescent surfaces.
4	Use the aerated impoundment model to determine KL if the surface is agitated. Use the quiescent impoundment model if the surface is not agitated. KL includes the effect of volatilization in the air discharge. See section 5.6.1 in AIR EMISSIONS MODELS FOR WASTE AND WASTEWATER (EPA-453/R-94-080A).
5	KL for the surface is assumed to equal zero. Select the covered unit option with the aerated impoundment model.

Form III

DATA FORM FOR THE ESTIMATION OF THE COMPOUND FRACTION BIODEGRADED AND AIR EMISSIONS

NAME OF THE FACILITY for site specific biorate determination			example
COMPOUND for site specific biorate determination			*methanol*
ESTIMATE OF K1 from Form I line 11, Form V line 15, Form V-A line 15, Form IV line 14, Form VI line 13, or Form XII line 9. (L/g MLVSS-hr)	1		3.89
BIOMASS (g/L) This is the dried solids that are obtained from the mixed liquor suspended solids in the full-scale bioreactor.	2		2.4
VOLUME of full-scale system (cubic meters)	3		2700
AREA of the liquid surface of the full-scale system (square meters)	4		1500
ESTIMATE OF KL from Form II, II-A, IV, V, V-A, or V-B (m/s)	5		0.0000036
FLOW RATE of waste treated in full-scale bioreactor (m^3/s)	6		0.1565
CALCULATIONS FROM ESTIMATES OF K1 AND KL			
BIORATE (m^3/s) Multiply the numbers on lines 1, 2, and 3 together and divide the results by 3600. Enter the results here.	7		7.0020000
AIR STRIPPING (m^3/s). Multiply the numbers on lines 4 and 5 together. Enter the results here.	8		0.0054000
EFFLUENT DISCHARGE (m^3/s). Enter the number on line 6 here.	9		0.1565000
TOTAL of the three loss mechanisms. Add the numbers on lines 7, 8, and 9. Enter the results here.	10		7.1639000
Fraction biodegraded: Divide the number on line 7 by the number on line 10 and enter the results here.	11		0.9774006
Fraction air emissions: Divide the number on line 8 by the number on line 10 and enter the results here.	12		0.0007538
Fraction remaining in unit effluent: Divide the number on line 9 by the number on line 10 and enter the results here.	13		0.0218456
Total: add the numbers on lines 11, 12, and 13. The sum should equal 1.0	14		1.0000000

Form IV

DATA FORM FOR THE ESTIMATION OF K1 AND KL FROM FULL SCALE UNIT DATA WITH AND WITHOUT BIODEGRADATION

For a general discussion of this approach, see Air Emissions Models for Waste and Wastewater, EPA-453/R-94-080A, Chapter 5, November 1994.

NAME OF THE FACILITY for site specific biorate determination			example
COMPOUND for site specific biorate determination			*methanol*
BIOMASS (g/L) This is the dried solids that are obtained from the mixed liquor suspended solids in the full-scale bioreactor.	1		2.4
VOLUME of full-scale system (cubic meters)	2		2700
AREA of the liquid surface of the full-scale system (square meters)	3		1500
INLET CONCENTRATION of compound (g/m^3 or ppmw)	4		133.5
EXIT CONCENTRATION of compound (g/m^3 or ppmw)	5		10.57
EXIT CONCENTRATION (NO BIODEGRADATION) of compound (g/m^3 or ppmw)	6		133
FLOW RATE of waste treated in the full-scale bioreactor (m^3/s)	7		0.1565
ESTIMATES OF K1 AND KL FROM FIELD DATA WITH AND WITHOUT BIODEGRADATION			
REMOVAL WITH BIODEGRADATION (g/s) Subtract the number on line 5 from the number on line 4 and multiply the results by the number on line 7. Enter the results here.	8		19.238545
REMOVAL WITHOUT BIODEGRADATION (g/s) Subtract the number on line 6 from the number on line 4 and multiply the results by the number on line 7. Enter the results here.	9		0.078250
KL A ESTIMATE (m^3/s) Divide the number on line 9 by the number on line 6. Enter the results here.	10		0.000588
K1 B V + KL A ESTIMATE (m^3/s) . Divide the number on line 8 by the number on line 5. Enter the results here.	11		1.820108
K1 B V ESTIMATE (m^3/s) Subtract the number on line 10 from the number on line 11. Enter the results here.	12		1.819520
Product of B and V. Multiply the number on line 1 by the number on line 2 and enter the results here.	13		6480
K1 ESTIMATE (L/gMLVSS-hr) Divide the number on line 12 by the number on line 13 and multiply by 3600 s/hr. Enter the results here.	14		1.010844
KL ESTIMATE (m/s) Divide the number on line 10 by the number on line 3. Enter the results here.	15		0.0000004

Form V **DATA FORM FOR THE ESTIMATION OF K1 FOR EPA METHOD 304A OR FROM A COVERED, VENTED BIODEGRADATION UNIT.**			
For a general discussion of this approach, see Air Emissions Models for Waste and Wastewater, EPA-453/R-94-080A, Chapter 5, November 1994			
NAME OF THE FACILITY for site specific biorate determination			example
COMPOUND for site specific biorate determination			*methanol*
BIOMASS (g/L) This is the dried solids that are obtained from the mixed liquor suspended solids in the unit.	1		0.075
VENT RATE of total gas leaving the unit (G, m^3/s)	2		1
TEMPERATURE of the liquid in the unit (deg. C)	3		25
INLET CONCENTRATION of compound (g/m^3 or ppmw)	4		100
EXIT CONCENTRATION of compound (g/m^3 or ppmw)	5		5
ESTIMATE OF Henry's law constant (H, g/m^3 in gas / g/m^3 in liquid). Obtained from Form IX	6		0.00021
AREA OF REACTOR (m^2)	7		3400
VOLUME OF REACTOR (m^3)	8		10000
FLOW RATE of waste treated in the unit (m^3/s)	9		0.146
CALCULATION OF THE ESTIMATE OF K1			
TOTAL REMOVAL (g/s) Subtract the number on line 5 from the number on line 4 and multiply the result by the number on line 9. Enter the results here.	10		13.870000
[H G] ESTIMATE (m^3/s) Multiply the number on line 2 by the number on line 6. Enter the results here.	11		0.000021
[K1 B V + H G] (m^3/s) Divide the number on line 10 by the number on line 5. Enter the results here.	12		2.774000
[K1 B V] ESTIMATE (m^3/s) Subtract the number on line 11 from the number on line 12. Enter the results here.	13		2.773979
If the number on line 11 is greater than the number on line 13, this procedure cannot be used to demonstrate that the compound is biodegradable. Do not complete lines 14 and 15.			
Product of B and V. Multiply the number on line 1 by the number on line 8 and enter the results here.	14		750.000000
K1 ESTIMATE (L/g MLVSS-hr) Divide the number on line 13 by the number on line 14 and multiply by 3600 s/hr. Enter the results here.	15		13.315099
EQUIVALENT KL. Divide the number on line 11 by the number on line 7. Enter the results on line 16.	16		6.18e-09

This form may be used to estimate the Equivalent KL with input data for lines 2, 6, and 7.

Form V-A DATA FORM FOR THE CALCULATION OF K1 FROM A COVERED, VENTED BIODEGRADATIN UNIT. THE VENT CONCENTRATION IS MEASURED.			
For a general discussion of this approach, see Air Emissions Models for Waste and Wastewater, EPA-453/R-94-080A, Chapter 5, November 1994.			
NAME OF THE FACILITY for site specific biorate determination			example
COMPOUND for site specific biorate determination			*methanol*
BIOMASS (g/L) This is the dried solids that are obtained from the mixed liquor suspended solids in the unit.	1		0.075
VENT RATE of total gas leaving the unit (G, m^3/s)	2		.1
TEMPERATURE of the liquid in the unit (deg. C)	3		25
INLET CONCENTRATION of compound (Ci, g/m^3 or ppmw)	4		100
EXIT CONCENTRATION of compound (Ce, g/m^3 or ppmw)	5		5
VENT CONCENTRATION of compound (Cv, g/m^3)	6		0.001
AREA OF REACTOR SURFACE (m^2)	7		3400
VOLUME OF REACTOR (m^3)	8		10000
FLOW RATE of waste treated in the unit (m^3/s)	9		0.146
CALCULATION OF THE ESTIMATE OF K1			
TOTAL REMOVAL (g/s) Subtract the number on line 5 from the number on line 4 and multiply the results by the number on line 9. Enter the results here.	10		13.87
[G Cv/Ce] ESTIMATE (m^3/s) Multiply the number on line 2 by the number on line 6 and divide by the number on line 5. Enter the results here.	11		0.000020
[K1 B V + G Cv/Ce] (m^3/s) Divide the number on line 10 by the number on line 5. Enter the results here.	12		2.77
[K1 B V] ESTIMATE (m^3/s) Subtract the number on line 11 from the number on line 12. Enter the results here.	13		2.77
If the number on line 11 is greater than the number on line 13, this procedure cannot be used to demonstrate that the compound is biodegradable. Do not complete lines 14 and 15.			
Product of B and V. Multiply the number on line 1 by the number on line 8 and enter the results here.	14		750.00
K1 ESTIMATE (L/g MLVSS-hr) Divide the number on line 13 by the number on line 14 and multiply by 3600 s/hr. Enter the results here.	15		13.30
EQUIVALENT KL. Divide the number on line 11 by the number on line 7. Enter the results here.	16		5.9e-09

This form may be used to calculate the Equivalent KL with input data for lines 2, 5, 6, and 7.

Form V-B DATA FORM FOR THE CALCULATION OF EQUIVALENT KL
FROM A VENTED BIODEGRADATIN UNIT WITH AN AIR SUPPORTED COVER.
THE VENT CONCENTRATION IS MEASURED.

NAME OF THE FACILITY for site specific biorate determination			example
COMPOUND for site specific biorate determination			*methanol*
Vent rate of total gas entering the cover (m^3/s)	1		120
Vent rate of total gas leaving the cover transferred to a control device (m^3/s)	2		100
TEMPERATURE of the liquid in the unit (deg. C)	3		25
Area of air supported cover (m^2)	4		1950
Permeability through the cover (cm/s)	5		5E-6
VENT CONCENTRATION of compound (g/m^3)	6		0.0022
EXIT CONCENTRATION of compound (g/m^3 or ppmw)	7		10.57
AREA OF REACTOR SURFACE (m^2)	8		1500
Performance of vent control device (% control)	9		95
CALCULATION OF THE ESTIMATE OF EQUIVALENT KL			
Loss of forced air in the cover due to leakage. (m^3/s) Subtract the number on line 2 from the number on line 1. Enter the results here.	10		20
Loss of compound in forced air (g/s) Multiply the number on line 10 by the number on line 6. Enter the results here.	11		0.044
Loss of compound by permeation through cover (g/s). Line 4 times line 5, line 6, and divide by 100. Enter the results here.	12		0
Loss of compound by permeation through vent (g/s). Line 2 times line 6. Enter the results here.	13		0.22
Treatment of compound in control device (g/s). Line 13 times line 9, divided by 100. Enter the results here.	14		0.209
Total removal from air phase (g/s). Sum of 11, 12, and 13.	15		0.264
Total treatment effectiveness (%) Line 14 divided by 15 times 100.	16		79.1666
[G Cv/Ce] ESTIMATE (m^3/s) Divide line 15 by line 7.	17		0.025
EQUIVALENT KL. Divide the number on line 17 by line 8.	18		1.67e-05

The permeability is the ratio of the flux (g/cm^2) to the gas concentration (g/cm^3).

If the gas is generated by the unit, the gas entering the cover may be estimated from an estimate of the cover leak rate and the total gas transferred to the control device.

Form VI **DATA FORM FOR THE ESTIMATION OF K1**
FROM FULL SCALE UNIT DATA WITH BIODEGRADATION

NAME OF THE FACILITY for site specific biorate determination			example
COMPOUND for site specific biorate determination			*methanol*
BIOMASS (g/L) This is the dried solids that are obtained from the mixed liquor suspended solids in the full-scale bioreactor.	1		0.075
VOLUME of full-scale system (cubic meters)	2		100000
AREA of the liquid surface of the full-scale system (square meters)	3		10000
INLET CONCENTRATION of compound (g/m^3 or ppmw)	4		100
EXIT CONCENTRATION of compound (g/m^3 or ppmw)	5		5
ESTIMATE OF KL from Form II (m/s)	6		0.00001
FLOW RATE of waste treated in the full-scale bioreactor (m^3/s)	7		0.146
CALCULATION OF THE ESTIMATE OF K1 FROM FIELD DATA			
REMOVAL WITH BIODEGRADATION (g/s) Subtract the number on line 5 from the number on line 4 and multiply the results by the number on line 7. Enter the results here.	8		13.87
[KL A] ESTIMATE (m^3/s) Multiply the number on line 3 by the number on line 6. Enter the results here.	9		0.10
[K1 B V + KL A] (m^3/s) Divide the number on line 8 by the number on line 5. Enter the results here.	10		2.774
[K1 B V] ESTIMATE (m^3/s) Subtract the number on line 9 from the number on line 10. Enter the results here.	11		2.674
Product of B and V. Multiply the number on line 1 by the number on line 2 and enter the results here.	12		7500
K1 ESTIMATE (L/g MLVSS-hr) Divide the number on line 11 by the number on line 12 and multiply by 3600 s/hr. Enter the results here.	13		1.28352

FORM VII

DATA FORM FOR CALCULATING THE MASS TRANSFER COEFFICIENT FOR A QUIESCENT SURFACE IMPOUNDMENT

Facility Name: ________________________________

Waste Stream Compound: ______________________

Enter the following:

F - Impoundment fetch (m) __________
D - Impoundment depth (m) __________
U_{10} - Windspeed 10 m above liquid surface (m/s) __________
D_w - Diffusivity of compound in water (cm^2/s) __________
D_{ether} - Diffusivity of ether in water (cm^2/s) __________
μ_G - Viscosity of air, (g/cm-s) __________
ρ_G - Density of air, (g/cm^3) __________
D_a - Diffusivity of compound in air, (cm^2/s) __________
A - Area of impoundment, (m^2) __________
H - Henry's law constant, (atm-m^3/g mol) __________
R - Universal gas constant, (atm-m^3/g mol.°K) __________
μ_L - Viscosity of water, (g/cm-s) __________
ρ_L - Density of liquid, (g/cm^3) __________
T - Impoundment temperature, (°C) __________

Calculate the following:

Calculate F/D: __________

A. Calculate the liquid phase mass transfer coefficient, k_L, using one of the following procedures, (m/s)

1. Where $F/D < 14$ and $U_{10} > 3.25$ m/s, use the following procedure from MacKay and Yeun:

Calculate the Schmidt number on the liquid side, Sc_L, as follows:
$Sc_L = \mu_L/\rho_L D_w$ __________

Calculate the friction velocity, U^*, as follows, (m/s):
$U^* = 0.01 \times U_{10}(6.1 + 0.63\ U_{10})^{0.5}$ __________

Where U^* is > 0.3, calculate k_L as follows:
$k_L = (1.0 \times 10^{-6}) + (34.1 \times 10^{-4})U^* \times Sc_L^{-0.5}$ __________

Where U^* is < 0.3, calculate k_L as follows:
$k_L = (1.0 \times 10^{-6}) + (144 \times 10^{-4})(U^*)^{2.2} \times Sc_L^{-0.5}$ __________

2. For all other values of F/D and U_{10}, calculate k_L using the following procedure from Springer:[1]

---

[1] Springer, C., P. D. Lunney, and K. T. Valsaraj. Emission of Hazardous Chemicals from Surface and Near Surface Impoundments to Air. U.S. Environmental Protection Agency, Solid and Hazardous Waste Research Division. Cincinnati, OH. Project Number 808161-02. December 1984.

Where U_{10} is < 3.25 m/s, calculate k_L as follows:
$k_L = 2.78 \times 10^{-6}(D_w/D_{ether})^{2/3}$ __________

Where U_{10} is > 3.25 and 14 < F/D < 51.2, Calculate k_L as follows:
$k_L = [2.605 \times 10^{-9}(F/D) + 1.277 \times 10^{-7}]\ U_{10}^{2}\ (D_w/D_{ether})^{2/3}$ __________

Where U_{10} > 3.25 m/s and F/D > 51.2, calculate k_L as follows:
$k_L = (2.611 \times 10^{-7})U_{10}^{2}\ (D_w/D_{ether})^{2/3}$ __________

B. Calculate the gas phase mass transfer coefficient, k_G, using the following procedure from MacKay and Matsasugu, (m/s):[2]

Calculate the Schmidt number on the gas side, Sc_G, as follows: $Sc_G = \mu_G/\rho_G D_a$ __________

Calculate the effective diameter of the impoundment, d_e, as follows, (m):
$d_e = (4A/\pi)^{0.5}$ __________

Calculate k_G as follows, (m/s): $k_G = 4.82 \times 10^{-3}\ U_{10}^{0.78}\ Sc_G^{-0.67}\ d_e^{-0.11}$ __________

C. Calculate the partition coefficient, Keq, as follows: Keq = H/[R(T+273)] __________

D. Calculate the overall mass transfer coefficient, K_q, as follows, (m/s):
$1/K_q = 1/k_L + 1/Keq\text{-}k_G$ __________

Where the total impoundment surface is quiescent:
$KL = K_q$

Where a portion of the impoundment surface is turbulent, continue with Form VIII.

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[2] Hwang, S. T. Toxic Emissions from Land Disposal Facilities. Environmental Progress. 1:46-52. February 1982.

FORM VIII

DATA FORM FOR CALCULATING THE MASS TRANSFER COEFFICIENT FOR AN AERATED SURFACE IMPOUNDMENT

Facility Name: ____________________

Waste Stream Compound: ____________________

Enter the following:

J - Oxygen transfer rating of surface aerator, (lb O_2/hr-hp) ________
POWR - Total power to aerators, (hp) ________
T - Water temperature, (°C) ________
O_t - Oxygen transfer correction factor ________
MW_L - Molecular weight of liquid ________
A_t - Turbulent surface area of impoundment, (ft^2) ________
(If unknown, use values from Table 1)
A - Total surface area of impoundment, (ft^2) ________
ρ_L - Density of liquid, (lb/ft^3) ________
D_w - Diffusivity of constituent in water, (cm^2/s) ________
$D_{O_2,w}$ - Diffusivity of oxygen in water, (cm^2/s) ________
d - Impeller diameter, (cm) ________
w - Rotational speed of impeller, (rad/s) ________
ρ_a - Density of air, (gm/cm^3) ________
N - Number of aerators ________
g_c - Gravitation constant, (lb_m-$ft/s^2/lb_f$) ________
d^* - Impeller diameter, (ft) ________
D_a - Diffusivity of constituent in air, (cm^2/s) ________
MW_a - Molecular weight of air ________
R - Universal gas constant, (atm-m^3/g mol.°C) ________
H = Henry's law constant, (atm-m^3/g mol) ________

Calculate the following:

A. Calculate the liquid phase mass transfer coefficient, k_L, using the following Equation from Thibodeaux:[3],[4]

$$k_L = [8.22 \times 10^{-9} J (POWR)(1.024)^{T-20} O_t 10^6 MW_L/(Va_v \rho_L)] (D_w/ D_{O_2,w})^{0.5}, (m/s)$$

____

---

[3] GCA Corporation. Emissions Data and Model Review for Wastewater Treatment Operations. Draft Technical Note. Prepared for U.S. Environmental Protection Agency. Contract No. 68-01-6871, Assignment 49. August 1985. p. 4-2.

[4] Hwang, S. T. Toxic Emissions from Land Disposal Facilities. Environmental Progress. 1:46-52. February 1982.

B. Calculate the gas phase mass transfer coefficient, k_G, using the following procedure from Reinhardt:[5],[6]

Calculate the viscosity of air, μ_a, as follows, (g/cm.s):
$\mu_a = 4.568 \times 10^{-7}\ T + 1.7209 \times 10^{-4}$ ____________

Calculate the Reynold's number as follows:
$R_e = d^2 w \rho_a / \mu_a$ ____________

Calculate power to impeller, P_I, as follows, (ft.lb$_f$/s):
$P_I = 0.85\ (POWR)\ 550/N$ ____________

Calculate the power number, p, as follows:
$p = P_I\ g_c / (\rho_L d^{5}\ w^3)$ ____________

Calculate the Schmidt number, Sc_G, as follows:
$Sc_G = \mu_a / \rho_a D_a$ ____________

Calculate the Fronde number, F_r, as follows:
$F_r = d\ w^2 / g_c$ ____________

Calculate k_G as follows:
$k_G = 1.35 \times 10^{-7}\ R_e^{1.42}\ p^{0.4}\ Sc_G^{0.5}\ F_r^{-0.21}\ D_a MW_a / d$, (m/s) ____________

C. Calculate the partition coefficient, Keq, as follows:
$Keq = H/[R(T+273)]$ ____________

D. Calculate the overall turbulent mass transfer coefficient, K_t, as follows, (m/s):
$1/K_t = 1/k_L + 1/Keq.k_G$ ____________

E. Calculate the quiescent mass transfer coefficient, K_q, for the impoundment using Form VII.

____

F. Calculate the overall mass transfer coefficient, KL, for the impoundment as follows:

$$KL = \frac{K_q(A-A_t) + K_t A_t}{A}$$ ____________

---

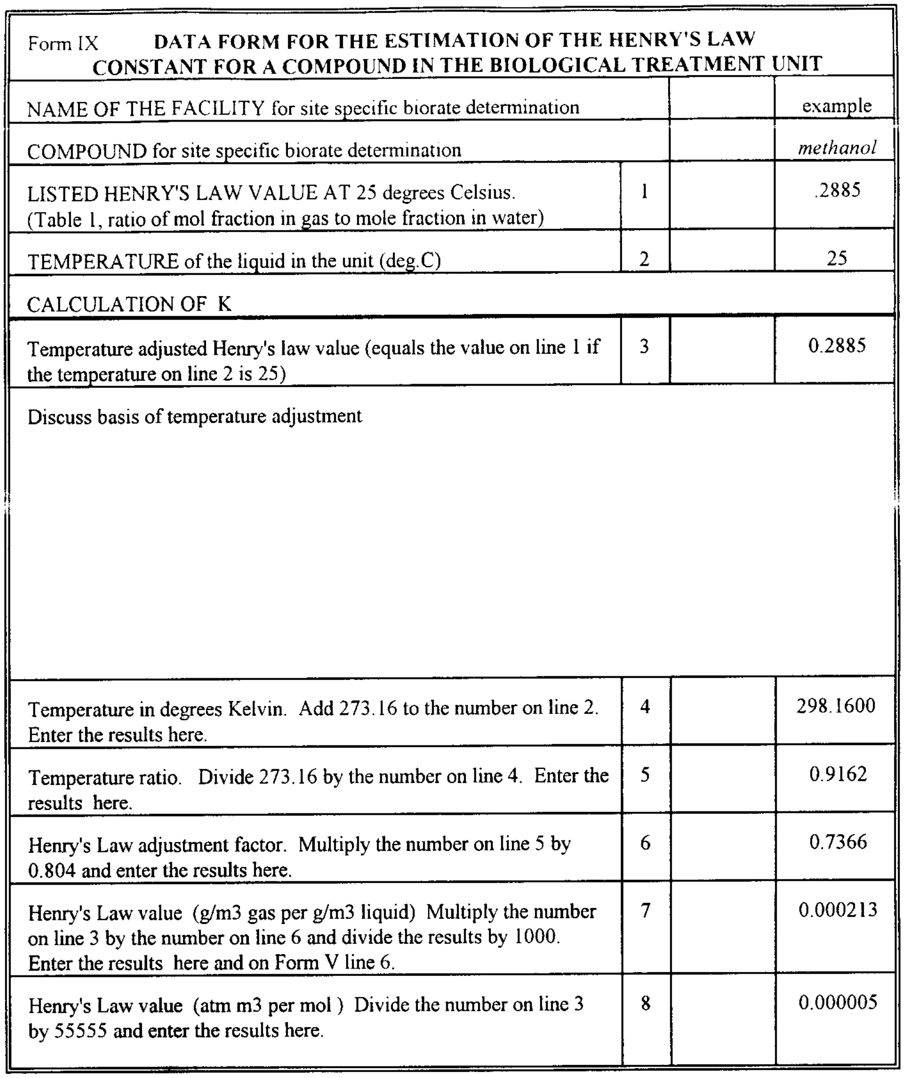
[5] GCA Corporation. Emissions Data and Model Review for Wastewater Treatment Operations. Draft Technical Note. Prepared for U.S. Environmental Protection Agency. Contract No. 68-01-6871, Assignment 49. August 1985. p. 4-3.

[6] Reinhardt, J. R. Gas-Side Mass-Transfer Coefficient and Interfacial Phenomena of Flat-Bladed Surface Agitators. Ph.D. dissertation, University of Arkansas, Fayetteville, Ar. 1977. p. 48.

Table 1. Turbulent Areas and Volumes for Surface Agitators[a]

ω, Motor horsepower, hp	A_t, Turbulent area,		Effective depth, ft	V, Agitated volume, ft^3	a_V, Area per volume ft^2/ft^3
	ft^2	m^2			
5	177	16.4	10	1,767	0.100
7.5	201	18.7	10	2,010	0.100
10	227	21	10.5	2,383	0.0952
15	284	26.4	11	3,119	0.0909
20	346	32.1	11.5	3,983	0.0870
25	415	38.6	12	4,986	0.0833
30	491	45.7	12	5,890	0.0833
40	661	61.4	13	8,587	0.0769
50	855	79.5	14	11,970	0.0714
60	1,075	100	15	16,130	0.0666
75	1,452	135	16	23,240	0.0625
100	2,206	205	18	39,710	0.0555

[a] Data for a high speed (1,200) rpm) aerator with 60 cm propeller diameter (d).



Form IX **DATA FORM FOR THE ESTIMATION OF THE HENRY'S LAW CONSTANT FOR A COMPOUND IN THE BIOLOGICAL TREATMENT UNIT**

NAME OF THE FACILITY for site specific biorate determination			example
COMPOUND for site specific biorate determination			*methanol*
LISTED HENRY'S LAW VALUE AT 25 degrees Celsius. (Table 1, ratio of mol fraction in gas to mole fraction in water)	1		.2885
TEMPERATURE of the liquid in the unit (deg.C)	2		25
CALCULATION OF K			
Temperature adjusted Henry's law value (equals the value on line 1 if the temperature on line 2 is 25)	3		0.2885
Discuss basis of temperature adjustment			
Temperature in degrees Kelvin. Add 273.16 to the number on line 2. Enter the results here.	4		298.1600
Temperature ratio. Divide 273.16 by the number on line 4. Enter the results here.	5		0.9162
Henry's Law adjustment factor. Multiply the number on line 5 by 0.804 and enter the results here.	6		0.7366
Henry's Law value (g/m3 gas per g/m3 liquid) Multiply the number on line 3 by the number on line 6 and divide the results by 1000. Enter the results here and on Form V line 6.	7		0.000213
Henry's Law value (atm m3 per mol) Divide the number on line 3 by 55555 and enter the results here.	8		0.000005

Form X

DATA FORM FOR THE CALCULATION OF THE HENRY'S LAW CONSTANT FOR A COMPOUND IN A SEALED BATCH TEST

NAME OF THE FACILITY for site specific biorate determination			example
COMPOUND for site specific biorate determination			*methanol*
REACTOR HEADSPACE VOLUME, (L)	1		1
REACTOR LIQUID VOLUME (L)	2		10
TEMPERATURE of the liquid in the unit (deg.C)	3		25

Wastewater compounds are biodegraded by biomass in a sealed batch test. For the compound listed above, a data set of liquid and gas concentrations is measured at four different times during the sealed batch test. The data are entered below, and the ratio of the concentrations for each data set is entered in column E.

A	B	C	D	E	
Data set	Time (hr)	Liquid Conc. (mg/L)	Gas Conc. (mg/L)	K_{eq} D/C	.0002108
1					
2					
3					
4					

Temperature in degrees Kelvin. Add 273.16 to the number on line 3. Enter the results here	4		298.16
Molar ratio. Multiply the number on line 4 by 4.555. Enter the results on line 5.	5		1,358.12
Henry's law value (mg/L gas per mg/L liquid). Enter the average value in column E above on line 6.	6		0.000211
Henry's law value (mole fraction gas per mole fraction liquid) Multiply the number on line 6 by the number on line 5. Enter the results on line 7.	7		0.286563
Expected Henry's law value. Enter the number from Form IX line 3.	8		0.288500

Precision: Discuss any variability of the numbers in column E.
Accuracy: Discuss any difference between the numbers on line 7 and line 8. Identify which value will be used for evaluating the biodegradation rate data. Divide the Henry's law value by the number on line 5 and enter the results on line 9.

K_{eq} value (mg/L gas per mg/L liquid)	9		0.000211
HEADSPACE CORRECTION FACTOR. Divide the number on line 2 by the sum of the number on line 2 and the product of the numbers on line 9 and line 1. Enter the result on line 10.	10		0.999979

The headspace correction factor should equal approximately 1 if the headspace is relatively small. Reducing the headspace volume may improve the test data quality if the headspace correction factor is substantially less than one.

Form XI

DATA FORM FOR THE CALCULATION OF THE HENRY'S LAW CONSTANT AND THE STRIPPING CONSTANT FOR A COMPOUND IN AN AERATED BATCH TEST

NAME OF THE FACILITY for site specific biorate determination			example
COMPOUND for site specific biorate determination			*methanol*
Concentration basis (liquid or gas)			gas
TEMPERATURE of the liquid in the unit (deg.C)	1		25
GAS FLOW RATE (L/hr)	2		1
LIQUID VOLUME (L)	3		10
Co concentration measurement at time=0 (mg/L)	4		

A	B	C	D	E
data point	time (hr)	Concentration, C (mg/L)	C/Co	-ln(C/Co)
1				
2				
3				
4				
5				

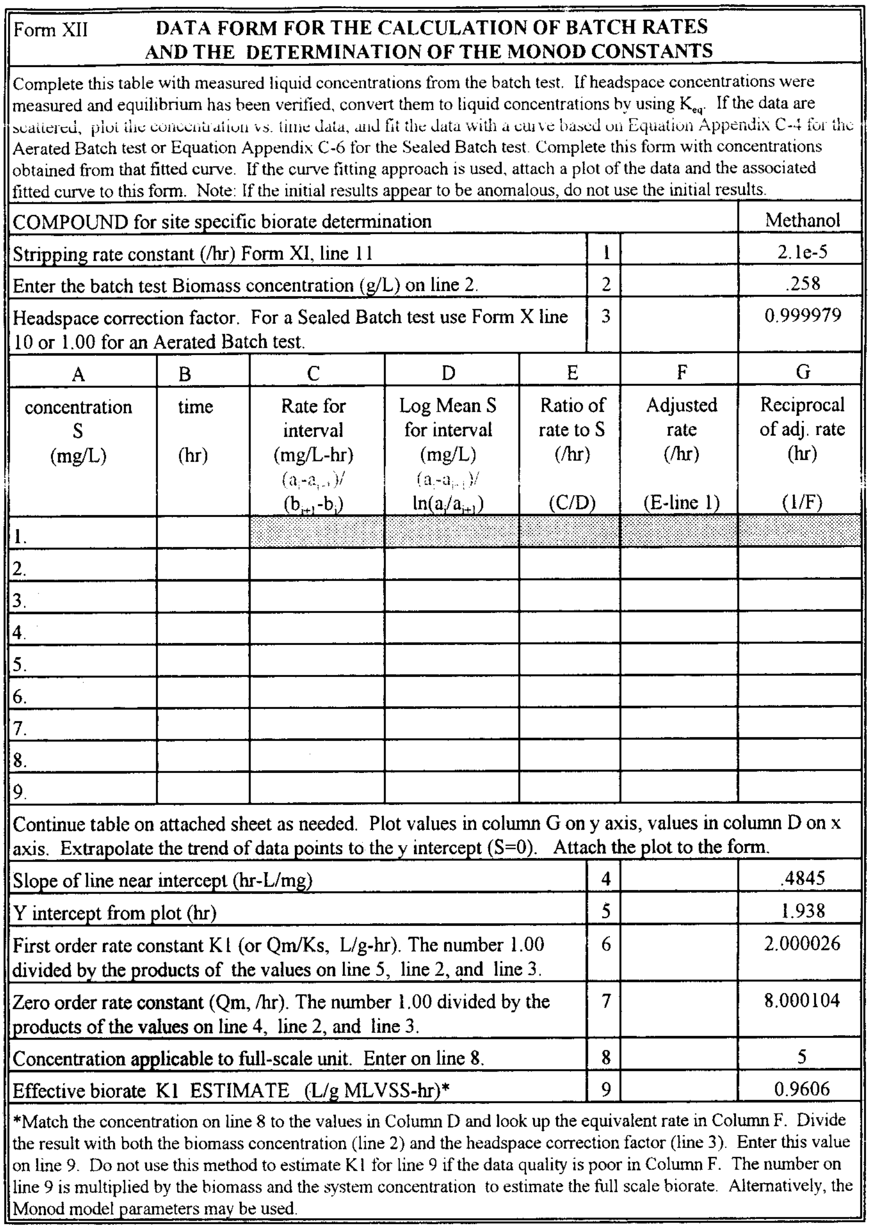
CALCULATIONS. Use additional lines as needed in an expansion of the above table. Plot the values in column E (y axis) vs the data in column B (x axis). Reject outliers. Curve fit with a straight line. Calculate the slope and enter the slope on line 7. Attach the plot and table to this form.

Temperature in degrees Kelvin. Add 273.16 to the number on line 1. Enter the results here	5		298.16
MOLAR RATIO. Multiply the number on line 5 by 4.555. Enter the results on line 6.	6		1,358.12
Slope of the plot of -ln(C/Co) vs time (per hour)	7		2.10e-05
Calculated K_{eq} value (mg/L gas per mg/L liquid). Divide the number on line 7 by the number on line 2 and multiply the results by the number on line 3. Enter the results on line 8.	8		0.000210
Expected K_{eq} value. Divide the number from Form IX line 3 by the number on line 6 and enter the results on line 9.	9		0.000212

Discuss any differences between the numbers on line 8 and line 9. Identify which value will be used for the evaluation of the stripping constant (line 10). Problems can sometimes be resolved by system redesign, changing the bubble size, or confirming the experimental value of K_{eq} by using Form X.

K_{eq} value (mg/L gas per mg/L liquid)	10		0.000210
STRIPPING CONSTANT(per hour). Divide the number on line 10 by number on line 3 and multiply by the number on line 2. Enter the final result on line 11.	11		0.000021

The headspace correction factor equals one for an aerated batch test.



Form XII **DATA FORM FOR THE CALCULATION OF BATCH RATES AND THE DETERMINATION OF THE MONOD CONSTANTS**

Complete this table with measured liquid concentrations from the batch test. If headspace concentrations were measured and equilibrium has been verified, convert them to liquid concentrations by using K_{eq}. If the data are scattered, plot the concentration vs. time data, and fit the data with a curve based on Equation Appendix C-4 for the Aerated Batch test or Equation Appendix C-6 for the Sealed Batch test. Complete this form with concentrations obtained from that fitted curve. If the curve fitting approach is used, attach a plot of the data and the associated fitted curve to this form. Note: If the initial results appear to be anomalous, do not use the initial results.

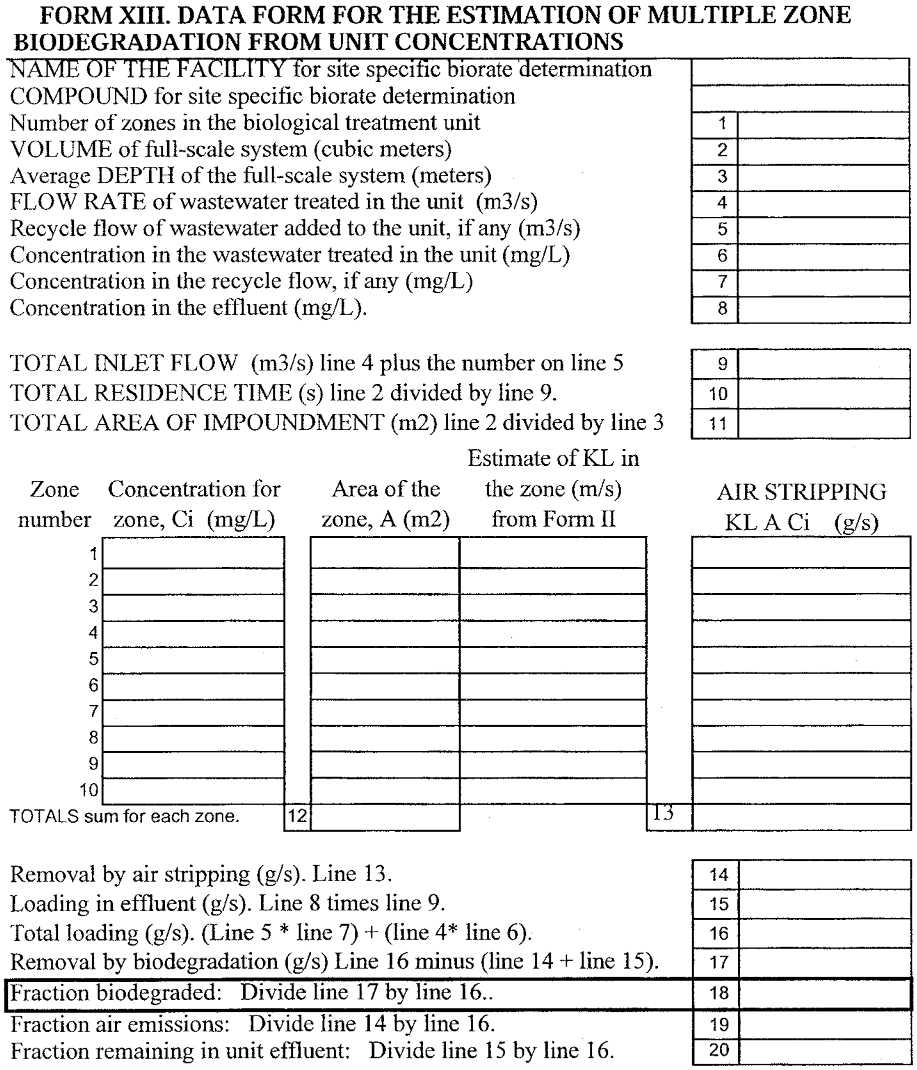
COMPOUND for site specific biorate determination			Methanol
Stripping rate constant (/hr) Form XI, line 11	1		2.1e-5
Enter the batch test Biomass concentration (g/L) on line 2.	2		.258
Headspace correction factor. For a Sealed Batch test use Form X line 10 or 1.00 for an Aerated Batch test.	3		0.999979

A	B	C	D	E	F	G
concentration S (mg/L)	time (hr)	Rate for interval (mg/L-hr) $(a_i-a_{i+1})/(b_{i+1}-b_i)$	Log Mean S for interval (mg/L) $(a_i-a_{i+1})/\ln(a_i/a_{i+1})$	Ratio of rate to S (/hr) (C/D)	Adjusted rate (/hr) (E-line 1)	Reciprocal of adj. rate (hr) (1/F)
1.		▨	▨	▨	▨	▨
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						

Continue table on attached sheet as needed. Plot values in column G on y axis, values in column D on x axis. Extrapolate the trend of data points to the y intercept (S=0). Attach the plot to the form.

Slope of line near intercept (hr-L/mg)	4		.4845
Y intercept from plot (hr)	5		1.938
First order rate constant K1 (or Qm/Ks, L/g-hr). The number 1.00 divided by the products of the values on line 5, line 2, and line 3.	6		2.000026
Zero order rate constant (Qm, /hr). The number 1.00 divided by the products of the values on line 4, line 2, and line 3.	7		8.000104
Concentration applicable to full-scale unit. Enter on line 8.	8		5
Effective biorate K1 ESTIMATE (L/g MLVSS-hr)*	9		0.9606

*Match the concentration on line 8 to the values in Column D and look up the equivalent rate in Column F. Divide the result with both the biomass concentration (line 2) and the headspace correction factor (line 3). Enter this value on line 9. Do not use this method to estimate K1 for line 9 if the data quality is poor in Column F. The number on line 9 is multiplied by the biomass and the system concentration to estimate the full scale biorate. Alternatively, the Monod model parameters may be used.



FORM XIII. DATA FORM FOR THE ESTIMATION OF MULTIPLE ZONE BIODEGRADATION FROM UNIT CONCENTRATIONS

NAME OF THE FACILITY for site specific biorate determination		
COMPOUND for site specific biorate determination		
Number of zones in the biological treatment unit	1	
VOLUME of full-scale system (cubic meters)	2	
Average DEPTH of the full-scale system (meters)	3	
FLOW RATE of wastewater treated in the unit (m3/s)	4	
Recycle flow of wastewater added to the unit, if any (m3/s)	5	
Concentration in the wastewater treated in the unit (mg/L)	6	
Concentration in the recycle flow, if any (mg/L)	7	
Concentration in the effluent (mg/L).	8	

TOTAL INLET FLOW (m3/s) line 4 plus the number on line 5	9	
TOTAL RESIDENCE TIME (s) line 2 divided by line 9.	10	
TOTAL AREA OF IMPOUNDMENT (m2) line 2 divided by line 3	11	

Zone number	Concentration for zone, Ci (mg/L)	Area of the zone, A (m2)	Estimate of KL in the zone (m/s) from Form II	AIR STRIPPING KL A Ci (g/s)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
TOTALS sum for each zone.	12		13	

Removal by air stripping (g/s). Line 13.	14	
Loading in effluent (g/s). Line 8 times line 9.	15	
Total loading (g/s). (Line 5 * line 7) + (line 4* line 6).	16	
Removal by biodegradation (g/s) Line 16 minus (line 14 + line 15).	17	
Fraction biodegraded: Divide line 17 by line 16..	18	
Fraction air emissions: Divide line 14 by line 16.	19	
Fraction remaining in unit effluent: Divide line 15 by line 16.	20	

[62 FR 2801, Jan. 17, 1997, as amended at 63 FR 67794, Dec. 9, 1998; 66 FR 6935, Jan. 22, 2001]

APPENDIX D TO PART 63—ALTERNATIVE VALIDATION PROCEDURE FOR EPA WASTE AND WASTEWATER METHODS

1. Applicability

This procedure is to be applied exclusively to Environmental Protection Agency methods developed by the Office of Water and the Office of Solid Waste. Alternative methods developed by any other group or agency shall be validated according to the procedures in Sections 5.1 and 5.3 of Test Method 301, 40 CFR Part 63, Appendix A. For the purposes of this appendix, "waste" means waste and wastewater.

2. Procedure

This procedure shall be applied once for each waste matrix. Waste matrix in the context of this procedure refers to the target compound mixture in the waste as well as the formulation of the medium in which the target compounds are suspended. The owner or operator shall prepare a sampling plan. Wastewater samples shall be collected using sampling procedures which minimize loss of organic compounds during sample collection and analysis and maintain sample integrity. The sample plan shall include procedures for determining recovery efficiency of the relevant compounds regulated in the applicable subpart. An example of an acceptable sampling plan would be one that incorporates similar sampling and sample handling requirements to those of Method 25D of 40 CFR part 60, appendix A.

2.1. Sampling and Analysis

2.1.1. For each waste matrix, collect twice the number of samples required by the applicable regulation. Designate and label half the sample vials the ‘‘spiked’’ sample set, and the other half the ‘‘unspiked’’ sample set. Immediately before or immediately after sampling (immediately after in the context of this procedure means after placing the sample into the sample vial, but before the sample is capped, cooled, and shipped to the laboratory for analysis), inject, either individually or as a solution, all the target compounds into each spiked sample.

2.1.2. The mass of each spiked compound shall be 40 to 60 percent of the mass expected to be present in the waste matrix. If the concentration of the target compounds in the waste are not known, the mass of each spiked compound shall be 40 to 60 percent of the limit allowed in the applicable regulation. Analyze both sets of samples (spiked and unspiked) with the chosen method.

3. Calculations

For each pair of spiked and unspiked samples, determine the fraction of spiked compound recovered (R) using the following equations.

where:

m_r = mass spiked compound measured (μg).

m_s = total mass of compound measured in spiked sample (μg).

m_u = total mass of compound measured in unspiked sample (μg).

where:

S = theoretical mass of compound spiked into spiked sample (μg).

3.1. Method Evaluation

In order for the chosen method to be acceptable for a compound, $0.70 \leq R \leq 1.30$ (R in this case is an average value of all the spiked and unspiked sample set R values). If the average R value does not meet this criterion for a target compound, the chosen method is not acceptable for that compound, and therefore another method shall be evaluated for acceptance (by repeating the procedures outlined above with another method).

3.2. Records and Reports

Report the average R value in the test report and correct all reported measurements made with the method with the calculated R value for that compound by using the following equation:

$$\text{Reported Result} = \frac{\text{Measured Mass of Compound}}{\text{R for that compound}}$$

3.3. Optional Correction Step

If the applicable regulation allows for correction of the mass of the compound in the waste by a published f_m value, multiply the reported result calculated above with the appropriate f_m value for that compound.

[61 FR 34200, July 1, 1996]

APPENDIX E TO PART 63—MONITORING PROCEDURE FOR NONTHOROUGHLY MIXED OPEN BIOLOGICAL TREATMENT SYSTEMS AT KRAFT PULP MILLS UNDER UNSAFE SAMPLING CONDITIONS

I. Purpose

This procedure is required to be performed in subpart S of this part, entitled National Emission Standards for Hazardous Air Pollutants from the Pulp and Paper Industry. Subpart S requires this procedure in §63.453(p)(3) to be followed during unsafe sampling conditions when it is not practicable to obtain representative samples of hazardous air pollutants (HAP) concentrations from an open biological treatment unit. It is assumed that inlet and outlet HAP concentrations from the open biological treatment unit may be obtained during the unsafe sampling conditions. The purpose of this procedure is to estimate the concentration of HAP within the open biological treatment unit based on information obtained at inlet and outlet sampling locations in units that are not thoroughly mixed and, therefore, have different concentrations of HAP at different locations within the unit.

II. Definitions

Biological treatment unit = wastewater treatment unit designed and operated to promote the growth of bacteria to destroy organic materials in wastewater.

f_{bio} =The fraction of organic compounds in the wastewater biodegraded in a biological treatment unit.

Fe=The fraction of applicable organic compounds emitted from the wastewater to the atmosphere.

K1=First-order biodegradation rate constant, L/g mixed liquor volatile suspended solids (MLVSS)-hr

KL=Liquid-phase mass transfer coefficient, m/s

Ks=Monod biorate constant at half the maximum rate, g/m³

III. Test Procedure for Determination of f_{bio} for Nonthoroughly Mixed Open Biological Treatment Units Under Unsafe Sampling Conditions

This test procedure is used under unsafe sampling conditions that do not permit practicable sampling of open biological treatment units within the unit itself, but rather relies on sampling at the inlet and outlet locations of the unit. This procedure may be used only under unsafe sampling conditions to estimate $f_{bio.}$ Once the unsafe conditions have passed, then the formal compliance demonstration procedures of f_{bio} based upon measurements within the open biological treatment unit must be completed.

A. Overview of Estimation Procedure

The steps in the estimation procedure include data collection, the estimation of concentrations within the unit, and the use of Form 1 to estimate $f_{bio.}$ The data collection procedure consists of two separate components. The first data collection component demonstrates that the open biological treatment unit can be represented by Monod kinetics and characterizes the effectiveness of the open biological treatment unit as part of the initial performance test, and the second data collection component is used when there are unsafe sampling conditions. These two data collection components are used together in a data calculation procedure based on a Monod kinetic model to estimate the concentrations in each zone of the open biological treatment unit. After the first two components of data collection are completed, the calculation procedures are used to back estimate the zone concentrations, starting with the last zone in the series and ending with the first zone.

B. Data Collection Requirements

This method is based upon modeling the nonthoroughly mixed open biological treatment unit as a series of well-mixed zones with internal recycling between the units and assuming that two Monod biological kinetic parameters can be used to characterize the biological removal rates in each unit. The data collection procedure consists of two separate components. The first data collection component is part of the initial performance test, and the second data collection component is used during unsafe sampling conditions.

1. Initial Performance Test

The objective of the first data collection component is to demonstrate that the open biological treatment unit can be represented by Monod kinetics and to characterize the performance of the open biological treatment unit. An appropriate value of the biorate constant, Ks, is determined using actual sampling data from the open biological treatment unit. This is done during the initial performance test when the open biological treatment unit is operating under normal conditions. This specific Ks value obtained during the initial performance test is used in the calculation procedure to characterize the open biological treatment unit during unsafe sampling conditions. The following open biological treatment unit characterization information is obtained from the first component of the data collection procedure:

(1) The value of the biorate constant, Ks;

(2) The number and characteristics of each zone in the open biological treatment unit (depth, area, characterization parameters for surface aeration, submerged aeration rates, biomass concentration, concentrations of organic compounds, dissolved oxygen (DO), dissolved solids, temperature, and other relevant variables); and

(3) The recycle ratio of internal recirculation between the zones. The number of zones and the above characterization of the zones are also used to determine the performance of the unit under the unsafe sampling conditions of concern.

2. Data Collected Under Unsafe Sampling Conditions

In the second data collection component obtained under unsafe sampling conditions, the measured inlet and outlet HAP concentrations and the biomass concentration are obtained for the open biological treatment unit. After the site specific data collection is completed on the day a parameter excursion occurs, the inlet and outlet concentrations are used with the prior open biological treatment unit characterization to estimate the concentrations of HAP in each zone. The following information on the open biological treatment unit must be available in the second data collection component:

(1) Basic unit variables such as inlet and recycle wastewater flow rates, type of agitation, and operating conditions;

(2) The value of the inlet and outlet HAP concentrations; and

(3) The biomass concentration in the open biological treatment unit.

C. One Time Determination of a Single Value of Ks (Initial Performance Test)

A single value of Ks is calculated using Form 3 for each data set that is collected during the initial performance test. A single composite value of Ks, deemed to be representative of the biological unit, is subsequently selected so that the f_{bio} values calculated by the procedures in this appendix (using this single value of Ks) for the data sets collected during the initial performance test are within 10 percent of the f_{bio} value determined by using Form 1 with these same data sets. The value of Ks meeting these criteria is obtained by the following steps:

(1) Determine the median of the Ks values calculated for each data set;

(2) Estimate f_{bio} for each data set using the selected Ks value (Form 1 and Form 2);

(3) Calculate f_{bio} for each data set using Form 1; and

(4) Compare the f_{bio} values obtained in steps (2) and (3); if the f_{bio} value calculated using step (2) differs from that calculated using step (3) by more than 10 percent, adjust Ks (decrease Ks if the f_{bio} value is lower than that calculated by Form 1 and vice versa) and repeat this procedure starting at step (2). If a negative value is obtained for the values of Ks, then this negative kinetic constant may not be used with the Monod model. If a negative value of Ks is obtained, this test procedure cannot be used for evaluating the performance of the open biological treatment unit.

D. Confirmation of Monod Kinetics (Initial Performance Test)

(1) Confirmation that the unit can be represented by Monod kinetics is made by identifying the following two items:

(i) The zone methanol concentrations measured during the initial performance test; and

(ii) The zone methanol concentrations estimated by the Multiple Zone Concentrations Calculations Procedure based on inlet and outlet concentrations (Column A of Form 2). For each zone, the concentration in item 1 is compared to the concentration in item 2.

(2) For each zone, the estimated value of item 2 must be:

(i) Within 25 percent of item 1 when item 1 exceeds 8 mg/L; or

(ii) Within 2 mg/L of item 1 when item 1 is 8 mg/L or less.

(3) Successful demonstration that the calculated zone concentrations meet these criteria must be achieved for 80 percent of the performance test data sets.

(4) If negative values are obtained for the values of K1 and Ks, then these negative kinetic constants may not be used with the Monod model, even if the criteria are met. If negative values are obtained, this test procedure cannot be used for evaluating the performance of the open biological treatment unit.

E. Determination of KL for Each Zone (Unsafe Sampling Conditions)

(1) A site-specific liquid-phase mass transfer coefficient (KL) must be obtained for each zone during the unsafe sampling conditions. Do not use a default value for KL. The KL value for each zone must be based on the site-specific parameters of the specific unit. The first step in using this procedure is to calculate KL for each zone in the unit using Form 4. Form 4 outlines the procedure to follow for using mass transfer equations to determine KL. Form 4 identifies the appropriate form to use for providing the detailed calculations to support the estimate of the value of KL. Forms 5 and 6 are used to provide individual compound estimates of KL for quiescent and aerated impoundments, respectively. A computer model may be used to perform the calculations. If the WATER8 model or the most recent update to this model is used, then report the computer model input parameters that you used as an attachment to Form 4. In addition, the Bay Area Sewage Toxics Emission (BASTE) model, version 3.0, or equivalent upgrade and the TOXCHEM (Environment Canada's Wastewater Technology Centre and Environmega, Ltd.) model, version 1.10, or equivalent upgrade may also be used to determine KL for the open biological treatment unit with the following stipulations:

(i) The programs must be altered to output a KL value that is based on the site-specific parameters of the unit modeled; and

(ii) The Henry's law value listed in Form 4 must be substituted for the existing Henry's law values in the models.

(2) The Henry's law value listed in Form 4 may be obtained from the following sources:

(i) Values listed by EPA with temperature adjustment if needed;

(ii) Measured values for the system of concern with temperature adjustment; or

(iii) Literature values of Henry's law values for methanol, adjusted for temperature if needed.

(3) Input values used in the model and corresponding output values shall become part of the documentation of the f_{bio} determination. The owner or operator should be aware that these models may not provide equivalent KL values for some types of units. To obtain an equivalent KL value in this situation, the owner or operator shall either use the appropriate procedure on Form 4 or adjust the KL value from the model to the equivalent KL value as described on Form 4.

(4) Report the input parameters that you used in the computer model on Forms 5, 6, and 7 as an attachment to Form 4. If you have submerged air flow in your unit, you must add the value of KL estimated on Form 7 to the value of KL obtained with Forms 5 and 6 before using the value of KL with Form 2.

F. Estimation of Zone Concentrations (Unsafe Sampling Conditions)

Form 2 is used to estimate the zone concentrations of HAP based on the inlet and outlet data. The value of Ks entered on the form is that single composite value of Ks discussed in section III.C of this appendix. This value of Ks is calculated during the Initial Performance Test (and subsequently updated, if necessary). A unique value of the biorate K1 is entered on line 5 of Form 2, and the inlet concentration is estimated in Column A of Form 2. The inlet concentration is located in the row of Form 2 corresponding to zone 0. If there are three zones in the system, n–3 equals 0 for the inlet concentration row. These estimated zone concentrations are then used in Form 1 to estimate f bio for the treatment unit.

G. Quality Control/Quality Assurance (QA/QC)

A QA/QC plan outlining the procedures used to determine the measured inlet and outlet concentrations during unsafe conditions and how the zone characterization data were obtained during the initial performance test shall be prepared and submitted with the initial performance test report. The plan should include, but may not be limited to:

(1) A description of each of the sampling methods that were used (method, procedures, time, method to avoid losses during sampling and holding, and sampling procedures) including simplified schematic drawings;

(2) A description of how that biomass was sampled from the biotreatment unit, including methods, locations, and times;

(3) A description of what conditions (DO, temperature, etc.) are important, what the target values are in the zones, how the factors were controlled, and how they were monitored. These conditions are primarily used to establish that the conditions of the initial performance test correspond to the conditions of the day in question;

(4) A description of how each analytical measurement was conducted, including preparation of solutions, dilution procedures, sampling procedures, monitoring of conditions, etc;

(5) A description of the analytical instrumentation used, how the instruments were calibrated, and a summary of the accuracy and precision for each instrument;

(6) A description of the test methods used to determine HAP concentrations and other measurements. Section 63.457(c)(3) specifies the test methods that must be used to determine HAP concentrations. During unsafe sampling conditions, you do not have to sample over an extended period of time or obtain more than one sample at each sample point.

(7) A description of how data are captured, recorded, and stored; and

(8) A description of the equations used and their solutions for sampling and analysis, including a reference to any software used for calculations and/or curve-fitting.

IV. Calculation of Individual f_{bio} (Unsafe Sampling Conditions)

Use Form 1 with your zone concentration information to estimate the value of f bio under unsafe sampling conditions. Form 1 uses measured concentrations of HAP in the unit inlet and outlet, and Form 1 also uses the estimated concentrations in each zone of the unit obtained from Form 2. This procedure may be used on an open biological treatment unit that has defined zones within the unit. Use Form 1 to determine f_{bio} for each open biological treatment unit as it exists under subpart S of part 63. The first step in using Form 1 is to calculate KL for each zone in the unit using Form 4. Form 7 must also be used if submerged aeration is used. After KL is determined using field data, obtain the concentrations of the HAP in each zone. In this alternative procedure for unsafe sampling conditions, the actual measured concentrations of the HAP in each zone are replaced with the zone concentrations that are estimated with Form 2. After KL and the zone concentrations are determined, Form 1 is used to estimate the overall unit Fe and f_{bio} for methanol.

Form 1

DATA FORM FOR THE ESTIMATION OF MULTIPLE ZONE BIODEGRADATION FROM UNIT CONCENTRATIONS

NAME OF THE FACILITY for site specific biorate determination		
COMPOUND for site specific biorate determination		Methanol
Number of zones in the biological treatment unit	1	
VOLUME of full-scale system (cubic meters)	2	
Average DEPTH of the full-scale system (meters)	3	
FLOW RATE of wastewater treated in the unit (m3/s)	4	
Recycle flow of wastewater added to the unit, if any (m3/s)	5	
Concentration in the wastewater treated in the unit (mg/L)	6	
Concentration in the recycle flow, if any (mg/L)	7	
Concentration in the effluent (mg/L).	8	

TOTAL INLET FLOW (m3/s) line 4 plus the number on line 5	9	
TOTAL RESIDENCE TIME (s) line 2 divided by line 9.	10	
TOTAL AREA OF IMPOUNDMENT (m2) line 2 divided by line 3	11	

Zone number	Concentration for zone, Ci (mg/L)		Area of the zone, A (m2)	Estimate of KL in the zone (m/s) from Form 4		AIR STRIPPING KL A Ci (g/s)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
TOTALS sum for each zone.		12			13	

Removal by air stripping (g/s). Line 13.	14	
Loading in effluent (g/s). Line 8 times line 9.	15	
Total loading (g/s). (Line 5 * line 7) + (line 4* line 6).	16	
Removal by biodegradation (g/s) Line 16 minus (line 14 + line 15).	17	
Fraction biodegraded: Divide line 17 by line 16.	18	
Fraction air emissions: Divide line 14 by line 16.	19	
Fraction remaining in unit effluent: Divide line 15 by line 16.	20	

Form 2

DATA FORM FOR THE DETERMINATION OF ZONE CONCENTRATIONS FROM KS AND INLET/OUTLET DATA

COMPOUND for site specific biorates determination	Methanol	
Influent Flow (m^3/s)	1	
Inlet Concentration (g/m^3)	2	
Outlet Concentration (g/m3) - Use value from line 3 as Ci value in column A for final Zone (zone n) in table below	3	
Saturation Coefficient, Ks (g/m3) From Form 3	4	
Biorate K1 (1/s) - Estimate	5	
Number of Zones	6	

Adjust K1 value (line 5) until Column A, Row (n - line 6) is within +/- 5% of line 2.

Instructions for completion of table: (1) Transfer value from line 3 into row n, column A. (2) Enter data for all zones into columns B, D, E, G, H, & K. (3) Beginning with row n, perform calculations for columns F, I, J, L, M, N, & O for that zone only. (4) Calculate row n-1, column A using results from previous row (i.e., J_{i-1} ,M_{i-1} , N_{i-1}) . (5) Repeat steps (3) and (4) until a row of calculations has been completed for each zone. (6) row n - line 6, column A is the calculated inlet concentration.

	A	B	C	D	E	F	G	H
Zone Number	Ci $(J_{i-1} + N_{i-1})/O_{i-1}$ g/m^3	Temp C	(1.045)^(B-25)	biomass g/m^3	Volume m^3	line 5 * A*C*D *E/(line 4+ A) g/s	KL m/s	Area m^2
n								
n-1								
n-2								
n-3								
n-4								

	I	J	K	L	M	N	O
Zone Number	A*G*H g/s	Reaction F+I g/s	Backmix BM_i	$(1+BM_i+BM_{i+1})$ $*C_i*$line 1 g/s	$BM_{i+1} * C_{i+1}$ *line1 g/s	Flux L-M g/s	$(1+BM_i)$ * line1 g/s
n							
n-1							
n-2							
n-3							
n-4							

The backmix ratio, Bmi, is the ratio of (the return flow from the zone back to the upstream zone) to (the total inlet flow into the unit). This approach assumes that the flow is sequential through the different zones.

Form 3

DATA FORM FOR THE DETERMINATION OF MONOD CONSTANTS FROM ZONE CONCENTRATIONS WITH BACKMIXING

COMPOUND for site specific biorates determination	Methanol	
Total Inlet Flow (m3/s)	1	
Inlet Concentration (g/m3) - Use value from line 2 as Ci-1 value in column D for Zone 1 in table below	2	

	A	B	C	D	E	F	G	H
Zone Number	Ci g/m^3	Backmix (BM_i)	$(1+BM_i+BM_{i+1})*C_i$ g/m^3	$(1+BM_i)*C_{i-1}$	$BM_{i+1}*C_{i+1}$ g/m^3	KL m/s	Area m^2	A*F*G g/s
1								
2								
3								
4								
5								

	I	J	K	L	M	N	O
Zone Number	Volume m3	Temp C	(1.045)^(J-25)	biomass g/m^3	I*K*L gm	M/[line 1*(D+E-C)-H] s	1/A m^3/g
1							
2							
3							
4							
5							

Plot values in column N on y axis, and values in column O on x axis, up to, and including first row where Ci is equal to MDL or to last zone.

Y intercept from plot. (g-s/m3)	3	
K1 (1/s). 1/line 3	4	
Slope of line	5	
Ks (g/m3). Line 5 times line 4	6	

The backmix ratio, Bmi, is the ratio of (the return flow from the zone back to the upstream zone) to (the total inlet flow into the unit). This approach assumes that the flow is sequential through the different zones.

Form 4

PROCEDURES FORM FOR THE ESTIMATION OF THE KL FROM UNIT SPECIFICATIONS

NAME OF THE FACILITY for site specific biorate determination	
NAME OF UNIT for site specific biorate determination	
NAME OF COMPOUND	Methanol
HENRY'S LAW constant for the compound (mole fraction in gas per mole fraction in water at 25 degrees Celsius)	

IDENTIFY THE TYPE OF UNIT (check one box below)

Quiescent impoundment	1	
Surface agitated impoundment	2	
Surface agitated impoundment with submerged air present	3	
Unit with submerged aeration gas	4	

PROCEDURES BASED UPON THE TYPE OF UNIT

1. Use Form 5 to determine KL for the surface of the quiescent impoundment.
2. Use Form 5 to determine KL for the surface of the quiescent part of the impoundment. Use Form 6 to determine KL for the part of the surface that is agitated, then complete Form 6 with Kq as determined from Form 5.
3. Use Form 5 to determine KL for the surface of the quiescent part of the impoundment. Use Form 6 to determine KL for the part of the surface that is agitated, then complete Form 6 with Kq as determined from Form 5. The total system KL is the sum of the KL from the completed Form 6 and the equivalent KL from Form 7.
4. Evaluate the fraction of the surface that is agitated and the extent of the aeration. Use Form 5 to determine KL for the quiescent part of the surface of the impoundment. Use Form 6 to determine KL for the part of the surface that is agitated, then complete Form 6 with Kq as determined from Form 5. The total system KL is the sum of the KL from the completed Form 6 and the equivalent KL from Form 7. See section 5.6.1 in the document Air Emission Models for Waste and Wastewater.

Estimate of surface KL obtained from above procedures (m/s)	5	
If the submerged aeration is present, the equivalent KL from Form 7	6	
The total KL is the sum of line 5 and line 6.	7	

Form 5

FORM FOR CALCULATING THE MASS TRANSFER COEFFICIENT FOR A QUIESCENT SURFACE IMPOUNDMENT

FACILITY NAME for site specific biorate determination
COMPOUND for site specific biorate determination Methanol

Input values

Enter the following:
F - Impoundment fetch (m)
D - Impoundment depth (m)
U10 - Windspeed 10 m above liquid surface (m/s)
Dw - Diffusivity of compound in water (cm2/s)
Dether - Diffusivity of ether in water (cm2/s)
μG - Viscosity of air, (g/cm-s)
G - Density of air, (g/cm3)
Da - Diffusivity of compound in air, (cm2/s)
A - Area of impoundment, (m2)
H - Henry's law constant, (atm-m3/g mol)
R - Universal gas constant, (atm-m3/g mol. K)
μL - Viscosity of water, (g/cm-s)
L - Density of liquid, (g/cm3)
T - Impoundment temperature, (C)

Calculate the following:

Calculate F/D:

Calculate the liquid phase mass transfer coefficient, kL, using one of the following procedures, (m/s)

Where F/D < 14 and U10 > 3.25 m/s, use the following procedure from MacKay and Yeun:

Calculate the Schmidt number on the liquid side, ScL, as follows:
ScL = μL/ LDw

Calculate the friction velocity, U*, as follows, (m/s):
U* = 0.01 x U10(6.1 + 0.63 U10)^0.5

Where U* is > 0.3, calculate kL as follows:
kL = (1.0 x 10^-6) + (34.1 x 10^-4)U* x ScL^-0.5

Where U* is < 0.3, calculate kL as follows:
kL = (1.0 x 10^-6) + (144 x 10^-4)(U*)^2.2 x ScL^-0.5

For all other values of F/D and U10, calculate kL using the following procedure from 2Springer:

Where U10 is < 3.25 m/s, calculate kL as follows:

(identical to Form VII, Appendix C to Part 63) 1 of 2

Form 5

kL = 2.78 x 10^-6(Dw/Dether)^2/3

Where U10 is > 3.25 and 14 < F/D < 51.2, Calculate kL as follows:
kL = [2.605 x 10^-9(F/D) + 1.277 x 10^-7] U10^2 (Dw/Dether)^2/3

Where U10 > 3.25 m/s and F/D > 51.2, calculate kL as follows:
kL = (2.611 x 10^-7)U10^2 (Dw/Dether)^2/3

B. Calculate the gas phase mass transfer coefficient, kG, using the following procedure from MacKay and Matsasugu, (m/s):

Calculate the Schmidt number on the gas side, ScG, as follows: ScG =µG/ GDa

Calculate the effective diameter of the impoundment, de, as follows, (m):
de = (4A/3.14)^0.5

Calculate kG as follows, (m/s): kG = 4.82 x 10^-3 U10^.78 ScG^-0.67 de^-0.11

C. Calculate the partition coefficient, Keq, as follows: Keq = H/[R(T+273)]

D. Calculate the overall mass transfer coefficient, Kq, as follows, (m/s):
1/Kq = 1/kL + 1/(Keq-kG)

Where the total impoundment surface is quiescent:
KL = Kq

Where a portion of the impoundment surface is turbulent, continue with Form 6.

Form 6

DATA FORM FOR CALCULATING THE MASS TRANSFER COEFFICIENT FOR AN AERATED SURFACE IMPOUNDMENT

Facility Name:	
Waste Stream Compound:	Methanol

Enter the following:

J - Oxygen transfer rating of surface aerator, (lb O2/hr-hp)	
POWR - Total power to aerators, (hp)	
T - Water temperature, (C)	
Ot - Oxygen transfer correction factor	
MWL - Molecular weight of liquid	
At - Turbulent surface area of impoundment, (ft2)	
(If unknown, use values from Table 1)	
A - Total surface area of impoundment, (ft2)	
rhoL - Density of liquid, (lb/ft3)	
Dw - Diffusivity of constituent in water, (cm2/s)	
Do - Diffusivity of oxygen in water, (cm2/s)	
d - Impeller diameter, (cm)	
w - Rotational speed of impeller, (rad/s)	
a - Density of air, (gm/cm3)	
N - Number of aerators	
gc - Gravitation constant, (lbm-ft/s2/lbf)	
d* - Impeller diameter, (ft)	
Da - Diffusivity of constituent in air, (cm2/s)	
MWa - Molecular weight of air	
R - Universal gas constant, (atm-m3/g mol. C)	
H = Henry's law constant, (atm-m3/g mol)	

Calculate the following:

A. Calculate the liquid phase mass transfer coefficient, kL, using the following Equation from Thibodeaux:,

kL =[8.22 x 10^-9 J (POWR)(1.024)^(T-20) Ot 10^6 MWL/(At x rhoL/62.37)] (Dw/Do)^0.5, (m/s)

B. Calculate the gas phase mass transfer coefficient, kG, using the following procedure from Reinhardt:,

Calculate the viscosity of air, μa, as follows, (g/cm.s):
μa = 4.568 x 10^-7 T + 1.7209 x 10^-4

Calculate the Reynold's number as follows:
Re = d^2 w a/μa

Calculate power to impeller, PI, as follows, (ft.lbf/s):
PI = 0.85 (POWR) 550/N

(identical to Form VIII, Appendix C to Part 63) 1 of 3

Form 6

Calculate the power number, p, as follows:
p = PI gc/(rhoL d^5 w^3)

Calculate the Schmidt number, ScG, as follows:
ScG = μa/ (a Da)

Calculate the Fronde number, Fr, as follows:
Fr = d*w^2/gc

Calculate kG as follows:
kG = 1.35 x 10^-7 Re ^1.42 p^0.4 ScG^0.5 Fr^-0.21 Da MWa/d, (m/s)

C. Calculate the partition coefficient, Keq, as follows:
Keq = H/[R(T+273)]

D. Calculate the overall turbulent mass transfer coefficient, Kt, as follows, (m/s):
1/Kt = 1/kL + 1/(Keq*kG)

E. Calculate the quiescent mass transfer coefficient, Kq, for the impoundment using Form 5.

F. Calculate the overall mass transfer coefficient, KL, for the impoundment as follows:
KL = (A-At)/A *Kq + At*Kt/A

Form 6 Table 1

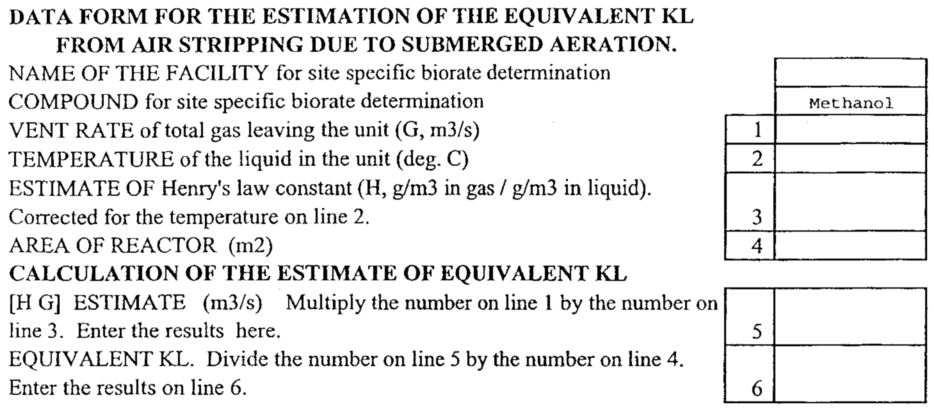
PROCEDURES FORM FOR THE ESTIMATION OF THE KL FROM WATER8 a.b

Motor horsepower	At, Turbulent area,		Effective depth	V, Agitated volume	aV, Area per volume
hp	ft2	m2	ft	ft3	ft2/ft3
5	177	16.4	10	1,767	0.1002
7.5	201	18.7	10	2,010	0.1000
10	227	21	10.5	2,383	0.0953
15	284	26.4	11	3,119	0.0911
20	346	32.1	11.5	3,983	0.0869
25	415	38.6	12	4,986	0.0832
30	491	45.7	12	5,890	0.0834
40	661	61.4	13	8,587	0.0770
50	855	79.5	14	11,970	0.0714
60	1075	100	15	16,130	0.0666
75	1452	135	16	23,240	0.0625
100	2206	205	18	39,710	0.0556

a Data for a high speed (1,200) rpm) aerator with 60 cm propeller diameter (d).

b This table provides information potentially useful for the value of At.

Form 7



DATA FORM FOR THE ESTIMATION OF THE EQUIVALENT KL FROM AIR STRIPPING DUE TO SUBMERGED AERATION.

NAME OF THE FACILITY for site specific biorate determination		
COMPOUND for site specific biorate determination		Methanol
VENT RATE of total gas leaving the unit (G, m3/s)	1	
TEMPERATURE of the liquid in the unit (deg. C)	2	
ESTIMATE OF Henry's law constant (H, g/m3 in gas / g/m3 in liquid). Corrected for the temperature on line 2.	3	
AREA OF REACTOR (m2)	4	
CALCULATION OF THE ESTIMATE OF EQUIVALENT KL		
[H G] ESTIMATE (m3/s) Multiply the number on line 1 by the number on line 3. Enter the results here.	5	
EQUIVALENT KL. Divide the number on line 5 by the number on line 4. Enter the results on line 6.	6	

[65 FR 80765, Dec. 22, 2000]

FINDING AIDS

A list of CFR titles, subtitles, chapters, subchapters and parts and an alphabetical list of agencies publishing in the CFR are included in the CFR Index and Finding Aids volume to the Code of Federal Regulations which is published separately and revised annually.

Material Approved for Incorporation by Reference
Table of CFR Titles and Chapters
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Material Approved for Incorporation by Reference

(Revised as of July 1, 2003)

The Director of the Federal Register has approved under 5 U.S.C. 552(a) and 1 CFR Part 51 the incorporation by reference of the following publications. This list contains only those incorporations by reference effective as of the revision date of this volume. Incorporations by reference found within a regulation are effective upon the effective date of that regulation. For more information on incorporation by reference, see the preliminary pages of this volume.

40 CFR (63.1440 TO END)
ENVIRONMENTAL PROTECTION AGENCY

	40 CFR
American Conference of Governmental Industrial Hygienists, Customer Service Department	
1330 Kemper Meadow Drive, Cincinnati, Ohio 45240–1634	
Industrial Ventilation: A Manual of Recommended Practice	63.1502
Industrial Ventilation: A Manual of Recommended Practice, 23rd Edition, 1998, Chapters 3 and Chapter 5.	63.1506(c); 63.2984(e); 63.3003
American Society of Mechanical Engineers	
3 Park Avenue, New York, NY 10016–5990; Order inquiries: ASME International, Orders/Inquiries, P.O. Box 2900, Fairfield, New Jersey 07007; Phone: 1-800-843-2763 Also available from Global Engineering Documents, Sales Department, 15 Inverness Way East, Englewood, CO 80112	
ANSI/ASME PTC 19.10–1981, Flue and Exhaust Gas Analyses, Part 10: Instruments and Apparatus.	63.3360(e)(1)(iii); 63.4166(a)(3); 63.4362; 63.4766(a); 63.4965(a)(3); 63.5160(d)(1)(iii); 63.9307(c); 63.9323(a)
American Society for Testing and Materials	
100 Barr Harbor Drive, West Conshohocken, PA 19428–2959; Telephone: (610) 832–9585, FAX: (610) 832–9555	
ASTM D 1193–77, Standard Specification for Reagent Water	Par. 4.1.1 and Par. 4.4.2 of Appendix A to Part 63; Method 306, Section 7.1.1 and 7.4.2 of Appendix A to Part 63
ASTM D 1331–89, Standard Test Methods for Surface and Interfacial Tension of Solutions of Surface Active Agents.	Par. 3.1 and Par. 4.2 of Appendix A to Part 63
ASTM D 1475–98, Standard Test Method for Density of Liquid Coatings, Inks, and Related Products.	63.4141(b)(3), 63.4141(c)
ASTM D 2099-00, Standard Test Method for Dynamic Water Resistance of Shoe Upper Leather by the Maeser Water Penetration Tester.	63.5350

Title 40—Protection of Environment

40 CFR (63.1440 TO END)—Continued

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ASTM D 2697–86 (Reapproved 1998), Standard Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings.	63.4141(b)(1); 63.4741(b); 63.4941(b)(1); 63.5160(c)
ASTM D 6093–97, Standard Test Method for Percent Volume Nonvolatile Matter in Clear or Pigmented Coatings Using a Helium Gas Pycnometer.	63.4141(b)(1); 63.4741(b); 63.4941(b)(1); 63.5160(c)
ASTM D 6522-00, Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers, 2000.	63.9307
Method 9071B, ‘‘n-Hexane Extractable Material (HEW) for Sludge, Sediment, and Solid Samples,’’ (Revision 2, April 1998) as published in EPA Publication SW-846: ‘‘Test Methods for Evaluating Solid Waste, Physical/Chemical Methods’’.	63.7824
U.S. Environmental Protection Agency, National Technical Information Service (NTIS) 5285 Port Royal Road, Springfield, VA	
Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo–p–Dioxins and –Dibenzofurans (CDDs and CDFs) and 1989 Update, EPA/625/3–89/016, March 1989 (NTIS No. PB 90–145756).	63.1513(d)

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Title 40 was established at 36 FR 12213, June 29, 1971. For the period before January 1, 2001, see the ‘‘List of CFR Sections Affected, 1964–1972, 1964–1972, 1973–1985, and 1986—2000’’ published in 10 separate volumes.

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63.1590 (b) amended; (c) revised 16142
63.1595 Amended 16142
63.1580—63.1585 (Subpart VVV) Table 1 amended 16142
63.1650 (b) and (e)(1) revised 16012
63.1652 (b) revised 16013
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63.2830—63.2872 (Subpart GGGG) Added 19011
63.5680—63.5779 (Subpart VVVV) Added 44232
63.5710 (c) corrected 50504
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63 Appendix C amended 6936

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