

TABLE 1B—CROSS REFERENCE—Continued

Compliance provisions—§60.743	Test methods—§60.745	Category/equipment <sup>a</sup>	Monitoring requirements—§60.744	Reporting and recordkeeping requirements—§60.747
(d)—Standard for equipment servicing a coating operation that does not have concurrent construction of a control device but uses at least 130 Mg/yr of VOC or for equipment servicing a coating operation that uses <130 Mg/yr but ≥95 Mg/yr of VOC—demonstrate that covers meeting specifications are installed and used properly; procedures detailing proper use are posted; the mix equipment is vented to a control device (optional).	No other requirements apply.			

<sup>a</sup>CA=carbon adsorber; CO=condenser; TI=thermal incinerator; CI=catalytic incinerator; PE=partial enclosure; TE=total enclosure.

**§ 60.742 Standards for volatile organic compounds.**

(a) Each owner or operator of an affected facility that is subject to the requirements of this subpart shall comply with the emissions limitations set forth in this section on and after the date on which the initial performance test required by § 60.8 is completed, but not later than 60 days after achieving the maximum production rate at which the affected facility will be operated or 180 days after initial startup, whichever date comes first.

(b) For the coating operation, each owner or operator of an affected facility shall either:

(1) Reduce VOC emissions to the atmosphere from the coating operation by at least 90 percent (“emission reduction” standard); or

(2) Install, operate, and maintain a total enclosure around the coating operation and vent the captured VOC emissions from the total enclosure to a control device that is at least 95 percent efficient (alternative standard).

(c) For the onsite coating mix preparation equipment of an affected facility, the owner or operator shall comply with the following requirements, as applicable:

(1) For an affected facility that has concurrent construction of a control device and uses at least 130 Mg of VOC per 12-month period, the owner or operator shall install, operate, and maintain a cover on each piece of affected coating mix preparation equipment and

vent VOC emissions from the covered mix equipment to a 95 percent efficient control device while preparation of the coating is taking place within the vessel.

(2) For an affected facility that does not have concurrent construction of a control device but uses at least 130 Mg of VOC per 12-month period, the owner or operator shall either:

(i) Install, operate, and maintain a cover on each piece of affected coating mix preparation equipment; or

(ii) Install, operate, and maintain a cover on each piece of affected coating mix preparation equipment and vent VOC emissions to a VOC control device.

(3) For an affected facility that uses at least 95 Mg but less than 130 Mg of VOC per 12-month period, the owner or operator shall either:

(i) Install, operate, and maintain a cover on each piece of affected coating mix preparation equipment; or

(ii) Install, operate, and maintain a cover on each piece of affected coating mix preparation equipment and vent VOC emissions to a VOC control device.

**§ 60.743 Compliance provisions.**

(a) To demonstrate compliance with the emission reduction standard for coating operations specified in § 60.742(b)(1), the owner or operator of the affected facility shall use one of the following methods.

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(1) *Gaseous emission test for coating operations not using carbon adsorption beds with individual exhausts.* This method is applicable when the emissions from any affected coating operation are controlled by a control device other than a fixed-bed carbon adsorption system with individual exhaust stacks for each adsorber vessel. The owner or operator using this method shall comply with the following procedures:

(i) Construct the vapor capture system and control device so that all gaseous volumetric flow rates and total VOC emissions can be accurately determined by the applicable test methods and procedures specified in §60.745(b) through (g);

(ii) Determine capture efficiency from the coating operation by capturing, venting, and measuring all VOC emissions from the coating operation. During a performance test, the owner or operator of an affected coating operation located in an area with other sources of VOC shall isolate the coating operation emissions from all other

sources of VOC by one of the following methods:

(A) Build a temporary enclosure, as defined in §60.741(a) and conforming to the requirements of §60.743(b)(1), around the affected coating operation. The temporary enclosure must be constructed and ventilated (through stacks suitable for testing) so that it has minimal impact on performance of the capture system; or

(B) Shut down all other sources of VOC and continue to exhaust fugitive emissions from the affected coating operation through any building ventilation system and other room exhausts such as those on drying ovens. All such ventilation air must be vented through stacks suitable for testing because the VOC content in each must be determined.

(iii) Operate the emission control device with all emission sources connected and operating.

(iv) Determine the efficiency (E) of the control device by Equation 1:

$$E = \frac{\sum_{i=1}^n Q_{bi}C_{bi} - \sum_{j=1}^n Q_{aj}C_{aj}}{\sum_{i=1}^n Q_{bi}C_{bi}} \quad \text{(Equation 1)}$$

(v) Determine the efficiency (F) of the vapor capture system by Equation 2:

$$F = \frac{\sum_{i=1}^n Q_{di}C_{di}}{\sum_{i=1}^n Q_{di}C_{di} + \sum_{k=1}^p Q_{fk}C_{fk}} \quad \text{(Equation 2)}$$

(vi) For each affected coating operation subject to §60.742(b)(1) (emission reduction standard for coating oper-

ations), compliance is demonstrated if the product of (E)x(F) is equal to or greater than 0.90.

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(2) *Gaseous emission test for coating operations using carbon adsorption beds with individual exhausts.* This method is applicable when emissions from any affected coating operation are controlled by a fixed-bed carbon adsorption system with individual exhaust stacks for each adsorber vessel. The owner or operator using this method shall comply with the following procedures:

(i) Construct the vapor capture system and control device so that each volumetric flow rate and the total VOC emissions can be accurately determined by the applicable test methods

and procedures specified in §60.745 (b) through (g);

(ii) Assure that all VOC emissions from the coating operation are segregated from other VOC sources and that the emissions can be captured for measurement, as described in §60.743(a)(1)(ii) (A) and (B);

(iii) Operate the emission control device with all emission sources connected and operating;

(iv) Determine the efficiency ( $H_v$ ) of each individual adsorber vessel ( $v$ ) using Equation 3:

$$H_v = \frac{Q_{qv}C_{qv} - Q_{hv}C_{hv}}{Q_{gv}C_{gv}}$$

**(Equation 3)**

(v) Determine the efficiency of the carbon adsorption system ( $H_{sys}$ ) by computing the average efficiency of the adsorber vessels as weighted by the

volumetric flow rate ( $Q_{hv}$ ) of each individual adsorber vessel ( $v$ ) using Equation 4:

$$H_{sys} = \frac{\sum_{v=1}^g H_v Q_{hv}}{\sum_{v=1}^g Q_{hv}}$$

**(Equation 4)**

(vi) Determine the efficiency ( $F$ ) of the vapor capture system using Equation (2).

(vii) For each affected coating operation subject to §60.742(b)(1) (emission reduction standard for coating operations), compliance is demonstrated if the product of ( $H_{sys}$ )x( $F$ ) is equal to or greater than 0.90.

(3) *Monthly liquid material balance.* This method can be used only when a VOC recovery device controls only those emissions from one affected coating operation. It may not be used if the VOC recovery device controls emissions from any other VOC emission sources. When demonstrating compliance by this method, §60.8(f) (Perform-

ance Tests) of this part does not apply. The owner or operator using this method shall comply with the following procedures to determine the VOC emission reduction for each nominal 1-month period:

(i) Measure the amount of coating applied at the coating applicator. This quantity shall be determined at a time and location in the process after all ingredients (including any dilution solvent) have been added to the coating, or appropriate adjustments shall be made to account for any ingredients added after the amount of coating has been determined;

(ii) Determine the VOC content of all coatings applied using the test method

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specified in § 60.745(a). This value shall be determined at a time and location in the process after all ingredients (including any dilution solvent) have been added to the coating, or appropriate adjustments shall be made to account for any ingredients added after the VOC content in the coating has been determined;

(iii) Install, calibrate, maintain, and operate, according to the manufacturer's specifications, a device that indicates the cumulative amount of VOC recovered by the control device over

each nominal 1-month period. The device shall be certified by the manufacturer to be accurate to within ±2.0 percent;

(iv) Measure the amount of VOC recovered; and

(v) Calculate the overall VOC emission reduction (R) for each and every nominal 1-month period using Equation 5. Emissions during startups and shutdowns are to be included when determining R because startups and shutdowns are part of normal operation for this source category.

$$R = \frac{M_r}{\sum_{i=1}^n [W_{oi} M_{ci} - RS_i]} \quad \text{(Equation 5)}$$

If the value of R is equal to or greater than 0.90, compliance with § 60.742(b)(1) is demonstrated.

(A) The value of  $RS_i$  is zero unless the owner or operator submits the following information to the Administrator for approval of a measured value of  $RS_i$  that is greater than zero but less than or equal to 6 percent by weight of the liquid VOC applied:

(1) Measurement techniques; and

(2) Documentation that the measured value of  $RS_i$  exceeds zero but is less than or equal to 6 percent by weight of the liquid VOC applied.

(B) For those facilities not subject to paragraph (a)(3)(v)(A) of this section, the value of  $RS_i$  is zero unless the owner or operator submits the following information to the Administrator for approval of a measured value of  $RS_i$  that is greater than 6 percent by weight of the liquid VOC applied.

(1) Measurement techniques;

(2) Documentation that the measured value of  $RS_i$  exceeds 6 percent by weight of the liquid VOC applied; and

(3) Either documentation of customer specifications requiring higher values or documentation that the desired properties of the product make it necessary for  $RS_i$  to exceed 6 percent by weight of the liquid VOC applied and

that such properties cannot be achieved by other means.

(C) The measurement techniques of paragraphs (a)(3)(v)(A)(I) and (a)(3)(v)(B)(I) of this section shall be submitted to the Administrator for approval with the notification of anticipated startup required under § 60.7(a)(2).

(vi) The point at which  $M_r$  is to be measured shall be established when the compliance procedures are approved. The presumptive point of measurement shall be prior to separation/purification; a point after separation/purification may be adopted for enhanced convenience or accuracy.

(4) *Short-term liquid material balance.* This method may be used as an alternative to the monthly liquid material balance described in paragraph (a)(3) of this section. The owner or operator using this method shall comply with the following procedures to determine VOC emission reduction for a 3- to 7-day period and shall continuously monitor VOC emissions as specified in § 60.744.

(i) Use the procedures described in paragraphs (a)(3) (i) through (vi) of this section to determine the overall emission reduction, R. Compliance is demonstrated if the value of R is equal to or greater than 0.90.

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(ii) The number of days for the performance test (3 to 7) is to be based on the affected facility's representative performance consistent with the requirements of §60.8(c). Data demonstrating that the chosen test period is representative shall be submitted to the Administrator for approval with the notification of anticipated startup required under §60.7(a)(2).

(b) Each owner or operator of an affected coating operation subject to the standard specified in §60.742(b)(2) (alternative standard for coating operations) shall:

(1) Demonstrate that a total enclosure is installed. The total enclosure shall either be approved by the Administrator in accordance with the provisions of §60.746, or meet the requirements in paragraphs (b)(1) (i) through (vi) of this section, as follows:

(i) The only openings in the enclosure are forced makeup air and exhaust ducts and natural draft openings such as those through which raw materials enter and exist the coating operation;

(ii) Total area of all natural draft openings does not exceed 5 percent of the total surface area of the total enclosure's walls, floor, and ceiling;

(iii) All access doors and windows are closed during normal operation of the enclosed coating operation, except for brief, occasional openings to accommodate process equipment adjustments. If such openings are frequent, or if the access door or window remains open for a significant amount of time during the process operation, it must be considered a natural draft opening. Access doors used routinely by workers to enter and exit the enclosed area shall be equipped with automatic closure devices;

(iv) Average inward face velocity (FV) across all natural draft openings is a minimum of 3,600 meters per hour as determined by the following procedures:

(A) Construct all forced makeup air ducts and all exhaust ducts so that the volumetric flow rate in each can be accurately determined by the test methods and procedures specified in §60.745 (c) and (d). Volumetric flow rates shall be calculated without the adjustment normally made for moisture content; and

(B) Determine FV by Equation 6:

$$FV = \frac{\sum_{j=1}^n Q_{out\ j} - \sum_{i=1}^p Q_{in\ i}}{\sum_{k=1}^q A_k} \quad \text{(Equation 6)}$$

(v) The air passing through all natural draft openings flows into the enclosure continuously. If FV is less than or equal to 9,000 meters per hour, the continuous inward airflow shall be verified by continuous observation using smoke tubes, streamers, tracer gases, or other means approved by the Administrator over the period that the volumetric flow rate tests required to determine FV are carried out. If FV is greater than 9,000 meters per hour, the direction of airflow through the natural draft openings shall be presumed

to be inward at all times without verification.

(vi) All sources of emissions within the enclosure shall be a minimum of four equivalent diameters away from each natural draft opening.

(2) Determine the control device efficiency using Equation (1) or Equations (3) and (4), as applicable, and the test methods and procedures specified in §60.745 (b) through (g).

(3) Compliance is demonstrated if the installation of a total enclosure is demonstrated and the value of E determined from Equation (1) or the value of

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$H_{\text{sys}}$  determined from Equations (3) and (4), as applicable, is equal to or greater than 0.95.

(c) To demonstrate compliance with § 60.742(c)(1) (standard for coating mix preparation equipment servicing a coating operation with concurrent construction of a control device that uses at least 130 Mg per year of VOC), each owner or operator of affected coating mix preparation equipment shall demonstrate that:

(1) Covers meeting the following specifications have been installed and are being used properly:

(i) Cover shall be closed at all times except when adding ingredients, withdrawing samples, transferring the contents, or making visual inspection when such activities cannot be carried out with cover in place. Such activities shall be carried out through ports of the minimum practical size;

(ii) Cover shall extend at least 2 centimeters beyond the outer rim of the opening or shall be attached to the rim;

(iii) Cover shall be of such design and construction that contact is maintained between cover and rim along the entire perimeter;

(iv) Any breach in the cover (such as a slit for insertion of a mixer shaft or port for addition of ingredients) shall be covered consistent with paragraphs (c)(1) (i), (ii), and (iii) of this section when not actively in use. An opening sufficient to allow safe clearance for a mixer shaft is acceptable during those periods when the shaft is in place; and

(v) A polyethylene or nonpermanent cover may be used provided it meets the requirements of paragraphs (c)(1) (ii), (iii), and (iv) of this section. Such a cover shall not be reused after once being removed.

(2) Procedures detailing the proper use of covers, as specified in paragraph (c)(1)(i) of this section, have been posted in all areas where affected coatings mix preparation equipment is used;

(3) The coating mix preparation equipment is vented to a control device while preparation of the coating is taking place within the vessel; and

(4) The control device efficiency ( $E$  or  $H_{\text{sys}}$ , as applicable) determined using Equation (1) or Equations (3) and (4), respectively, and the test methods and

procedures specified in § 60.745 (b) through (g) is equal to or greater than 0.95.

(d) To demonstrate compliance with § 60.742(c)(2) (standard for coating mix preparation equipment servicing a coating operation that does not have concurrent construction of a control device but uses at least 130 Mg of VOC per year) or § 60.742(c)(3) (standard for coating mix preparation equipment servicing a coating operation that uses at least 95 Mg but less than 130 Mg of VOC per year), each owner or operator of affected coating mix preparation equipment shall demonstrate upon inspection that:

(1) Covers satisfying the specifications in paragraphs (c)(1) (i) through (v) of this section have been installed and are being properly operated and maintained; and

(2) Procedures detailing the proper use of covers, as specified in paragraph (c)(1)(i) of this section, have been posted in all areas where affected coating mix preparation equipment is used.

(3) Owners or operators meeting the standard specified in § 60.742 (c)(2)(ii) or (c)(3)(ii) shall also demonstrate that the coating mix preparation equipment is vented to a control device.

(e) If a control device other than a carbon adsorber, condenser, or incinerator is used to control emissions from an affected facility, the necessary operating specifications for that device must be approved by the Administrator. An example of such a device is a flare.

### § 60.744 Monitoring requirements.

(a) Each owner or operator of an affected facility shall install and calibrate all monitoring devices required under the provisions of this section according to the manufacturer's specifications, prior to the initial performance test in locations such that representative values of the monitored parameters will be obtained. The parameters to be monitored shall be continuously measured and recorded during each performance test.

(b) Each owner or operator of an affected facility that uses less than 95 Mg of VOC per year and each owner or operator of an affected facility subject to