Subpart WW—Standards of Performance for the Beverage Can Surface Coating Industry

§ 60.490 Applicability and designation of affected facility.

(a) The provisions of this subpart apply to the following affected facilities in beverage can surface coating lines: each exterior base coat operation, each overvarnish coating operation, and each inside spray coating operation.

(b) The provisions of this subpart apply to each affected facility which is identified in paragraph (a) of this section and commences construction, modification, or reconstruction after November 26, 1980.

§ 60.491 Definitions.

(a) All terms which are used in this subpart and are not defined below are given the same meaning as in the Act and subpart A of this part.

(1) Beverage can means any two-piece steel or aluminum container in which soft drinks or beer, including malt liquor, are packaged. The definition does not include containers in which fruit or vegetable juices are packaged.

(2) Exterior base coating operation means the system on each beverage can surface coating line used to apply a coating to the exterior of a two-piece beverage can body. The exterior base coat provides corrosion resistance and a background for lithography or printing operations. The exterior base coat operation consists of the coating application station, flashoff area, and curing oven. The exterior base coat may be pigmented or clear (unpigmented).

(3) Inside spray coating operation means the system on each beverage can surface coating line used to apply a coating to the interior of a two-piece beverage can body. This coating provides a protective film between the contents of the beverage can and the metal can body. The inside spray coating operation consists of the coating application station, flashoff area, and curing oven. Multiple applications of an inside spray coating are considered to be a single coating operation.

(4) Overvarnish coating operation means the system on each beverage can surface coating line used to apply a coating over ink which reduces friction for automated beverage can filling equipment, provides gloss, and protects the finished beverage can body from abrasion and corrosion. The overvarnish coating is applied to two-piece beverage can bodies. The overvarnish coating operation consists of the coating application station, flashoff area, and curing oven.

(5) Two-piece can means any beverage can that consists of a body manufactured from a single piece of steel or aluminum and a top. Coatings for a two-piece can are usually applied after fabrication of the can body.

(6) VOC content means all volatile organic compounds (VOC) that are in a coating. VOC content is expressed in terms of kilograms of VOC per liter of coating solids.

(b) Notations used under §60.493 of this subpart are defined below:

\[ C_a = \text{the VOC concentration in each gas stream leaving the control device and entering the atmosphere (parts per million as carbon)} \]

\[ C_b = \text{the VOC concentration in each gas stream entering the control device (parts per million as carbon)} \]

\[ D_c = \text{density of each coating, as received (kilograms per liter)} \]

\[ D_d = \text{density of each VOC-solvent added to coatings (kilograms per liter)} \]

\[ D_r = \text{density of VOC-solvent recovered by an emission control device (kilograms per liter)} \]

\[ E = \text{VOC destruction efficiency of the control device (fraction)} \]

\[ F = \text{the proportion of total VOC emitted by an affected facility which enters the control device to total emissions (fraction)} \]

\[ G = \text{the volume-weighted average of VOC in coatings consumed in a calendar month per volume of coating solids applied (kilograms per liter of coating solids)} \]

\[ H_e = \text{the fraction of VOC emitted at the coater and flashoff areas captured by a collection system} \]

\[ H_h = \text{the fraction of VOC emitted at the cure oven captured by a collection system} \]

\[ L_c = \text{the volume of each coating consumed, as received (liters)} \]

\[ L_d = \text{the volume of each VOC-solvent added to coatings (liters)} \]

\[ L_r = \text{the volume of VOC-solvent recovered by an emission control device (liters)} \]
§ 60.493 Performance test and compliance provisions.

(a) Section 60.8(d) does not apply to monthly performance tests and §60.8(f) does not apply to the performance test procedures required by this subpart.

(b) The owner or operator of an affected facility shall conduct an initial performance test as required under §60.8(a) and thereafter a performance test each calendar month for each affected facility.

(1) The owner or operator shall use the following procedures for each affected facility that does not use a capture system and a control device to comply with the emission limit specified under §60.492. The owner or operator shall determine the VOC-content of the coatings from formulation data supplied by the manufacturer of the coating or by an analysis of each coating, as received, using Method 24. The Administrator may require the owner or operator who uses formulation data supplied by the manufacturer of the coating to determine the VOC content of coatings using Method 24 or an equivalent or alternative method. The owner or operator shall determine from company records the volume of coating and the mass of VOC-solvent added to coatings. If a common coating distribution system serves more than one affected facility or serves both affected and exiting facilities, the owner or operator shall estimate the volume of coating used at each facility by using the average dry weight of coating, number of cans, and size of cans being processed by each affected and existing facility or by other procedures acceptable to the Administrator.

(i) Calculate the volume-weighted average of the total mass of VOC per volume of coating solids used during the calendar month for each affected facility, except as provided under paragraph (b)(1)(iv) of this section. The volume-weighted average of the total mass of VOC per volume of coating solids used each calendar month will be determined by the following procedures.

(A) Calculate the mass of VOC used (M₀+Mₚ) during the calendar month for the affected facility by the following equation:

\[
L_a = \text{the volume of coating solids consumed (liters)}
\]

\[
M_s = \text{the mass of VOC-solvent added to coatings (kilograms)}
\]

\[
M_o = \text{the mass of VOC-solvent in coatings consumed, as received (kilograms)}
\]

\[
M_r = \text{the mass of VOC-solvent recovered by emission control device (kilograms)}
\]

\[
N = \text{the volume-weighted average mass of VOC emissions to atmosphere per unit volume of coating solids applied (kilograms per liter of coating solids)}
\]

\[
Q_a = \text{the volumetric flow rate of each gas stream leaving the control device and entering the atmosphere (dry standard cubic meters per hour)}
\]

\[
Q_b = \text{the volumetric flow of each gas stream entering the control device (dry standard cubic meters per hour)}
\]

\[
R = \text{the overall emission reduction efficiency for an affected facility (fraction)}
\]

\[
S_e = \text{the fraction of VOC in coating and diluent VOC-solvent emitted at the coater and flashoff area for a coating operation (fraction by volume)}
\]

\[
S_h = \text{the fraction of VOC in coating and diluent solvent emitted at the cure oven for a coating operation (fraction by volume)}
\]

\[
V_s = \text{the proportion of solids in each coating, as received (fraction by volume)}
\]

\[
W_o = \text{the proportion of VOC in each coating, as received (fraction by weight)}
\]

$M_o + M_d = \sum_{i=1}^{n} L_{ci} D_{ci} W_{ai} + \sum_{j=1}^{m} L_{dj} D_{dj}$, \hspace{1cm} (1) \\

\[\text{If no VOC solvent is added to the coatings, as received,} \]

(B) Calculate the total volume of coating solids used ($L_s$) in the calendar month for the affected facility by the following equation:

$$L_s = \sum_{i=1}^{n} L_{ci} V_{si}, \hspace{1cm} (2)$$

where $n$ is the number of different coatings used during the calendar month.

(C) Calculate the volume-weighted average mass of VOC per volume of solids used ($G$) during the calendar month for the affected facility by the following equation:

$$G = \frac{M_o + M_d}{L_s} \hspace{1cm} (3)$$

(ii) Calculate the volume-weighted average of VOC emissions discharged to the atmosphere ($N$) during the calendar month for the affected facility by the following equation:

$$N = G \hspace{1cm} (4)$$

(iii) Where the value of the volume-weighted average mass of VOC per volume of solids discharged to the atmosphere (N) is equal to or less than the applicable emission limit specified under §60.492, the affected facility is in compliance.

(iv) If each individual coating used by an affected facility has a VOC content equal to or less than the limit specified under §60.492, the affected facility is in compliance provided no VOC-solvents are added to the coating during distribution or application.

(2) An owner or operator shall use the following procedures for each affected facility that uses a capture system and a control device that destroys VOC (e.g., incinerator) to comply with the emission limit specified under §60.492.

(i) Determine the overall reduction efficiency ($R$) for the capture system and control device.

For the initial performance test, the overall reduction efficiency ($R$) shall be determined as prescribed in paragraphs (b)(2)(i) (A), (B), and (C) of this section. In subsequent months, the owner or operator may use the most recently determined overall reduction efficiency for the performance test providing control device and capture system operating conditions have not changed. The procedure in paragraphs (b)(2)(i), (A), (B), and (C) of this section, shall be repeated when directed by the Administrator or when the owner or operator elects to operate the control device or capture system at conditions different from the initial performance test.

(A) Determine the fraction ($F$) of total VOC used by the affected facility that enters the control device using the following equation:

$$F = S_e H_e + S_h H_h \hspace{1cm} (5)$$

where $H_e$ and $H_h$ shall be determined by a method that has been previously approved by the Administrator. The owner or operator may use the values of $S_e$ and $S_h$ specified in table 1 or other values determined by a method that has been previously approved by the Administrator.

**TABLE 1—DISTRIBUTION OF VOC EMISSIONS**

<table>
<thead>
<tr>
<th>Coating operation</th>
<th>Emission distribution</th>
<th>Coater/flashoff ($S_e$)</th>
<th>Curing oven ($S_h$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-piece aluminum or steel can:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior base coat operation</td>
<td>0.75</td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td>Overvarnish coating operation</td>
<td>0.75</td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td>Inside spray coating operation</td>
<td>0.80</td>
<td>0.20</td>
<td></td>
</tr>
</tbody>
</table>

(B) Determine the destruction efficiency of the control device ($E$) using values of the volumetric flow rate of each of the gas streams and the VOC content (as carbon) of each of the gas streams in and out of the device by the following equation:
\[
E = \frac{\sum_{i=1}^{n} Q_{bi} C_{bi} - \sum_{j=1}^{m} Q_{aj} C_{aj}}{\sum_{i=1}^{n} Q_{bi} C_{bi}}, \quad (6)
\]

where \( n \) is the number of vents before the control device, and \( m \) is the number of vents after the control device.

(C) Determine overall reduction efficiency (R) using the following equation:

\[
R = \frac{M_r}{M_o + M_d} \quad (10)
\]

(iv) Calculate the volume-weighted average mass of VOC discharged to the atmosphere (N) for the calendar month for the affected facility using equation (8).

(v) If the weighted average of VOC emitted to the atmosphere for the calendar month (N) is equal to or less than the applicable emission limit specified under §60.492, the affected facility is in compliance.


§ 60.494 Monitoring of emissions and operations.

The owner or operator of an affected facility that uses a capture system and an incinerator to comply with the emission limits specified under §60.492 shall install, calibrate, maintain, and operate temperature measurement devices as prescribed below.

(a) Where thermal incineration is used, a temperature measurement device shall be installed in the firebox. Where catalytic incineration is used, temperature measurement devices shall be installed in the gas stream immediately before and after the catalyst bed.

(b) Each temperature measurement device shall be installed, calibrated, and maintained according to the manufacturer’s specifications. The device shall have an accuracy of 0.75 percent of the temperature being measured, expressed in degrees Celsius, or \( \pm 2.5 \) °C, whichever is greater.

(c) Each temperature measurement device shall be equipped with a recording device so that a permanent continuous record is produced.


§ 60.495 Reporting and recordkeeping requirements.

(a) The owner or operator of an affected facility shall include the following data in the initial compliance report required under §60.8(a).

(i) Where only coatings which individually have a VOC content equal to or less than the limits specified under...
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§ 60.492 are used, and no VOC is added to the coating during the application or distribution process, the owner or operator shall provide a list of the coatings used for each affected facility and the VOC content of each coating calculated from data determined using Method 24 or supplied by the manufacturers of the coatings.

(2) Where one or more coatings which individually have a VOC content greater than the limits specified under § 60.492 are used or where VOC are added or used in the coating process, the owner or operator shall report for each affected facility the volume-weighted average of the total mass of VOC per volume of coating solids.

(3) Where compliance is achieved through the use of incineration, the owner or operator shall include in the initial performance test required under § 60.8(a) the combustion temperature (or the gas temperature upstream and downstream of the catalyst bed), the total mass of VOC per volume of coating solids before and after the incinerator, capture efficiency, and the destruction efficiency of the incinerator used to attain compliance with the applicable emission limit specified under § 60.492. The owner or operator shall also include a description of the method used to establish the amount of VOC captured by the capture system and sent to the control device.

(b) Following the initial performance test, each owner or operator shall identify, record, and submit quarterly reports to the Administrator of each instance in which the volume-weighted average of the total mass of VOC per volume of coating solids, after the control device, if capture devices and control systems are used, is greater than the limit specified under § 60.492. If no such instances occur during a particular quarter, a report stating this shall be submitted to the Administrator semiannually.

(c)(1) Where compliance with § 60.492 is achieved through the use of thermal incineration, each 3-hour period when cans are processed, during which the average temperature of the device was more than 28 °C below the average temperature of the device during the most recent performance test at which destruction efficiency was determined as specified under § 60.493.

(2) Where compliance with § 60.492 is achieved through the use of catalytic incineration, each 3-hour period when cans are being processed, during which the average temperature of the device immediately before the catalyst bed is more than 28 °C below the average temperature of the device immediately before the catalyst bed during the most recent performance test at which destruction efficiency was determined as specified under § 60.493 and all 3-hour periods, when cans are being processed, during which the average temperature difference across the catalyst bed is less than 80 percent of the average temperature difference across the catalyst bed during the most recent performance test at which destruction efficiency was determined as specified under § 60.494.

(3) For thermal and catalytic incinerators, if no such periods as described in paragraphs (c)(1) and (c)(2) of this section occur, the owner or operator shall state this in the report.

(d) Each owner or operator subject to the provisions of this subpart shall maintain at the source, for a period of at least 2 years, records of all data and calculations used to determine VOC emissions from each affected facility in the initial and monthly performance tests. Where compliance is achieved through the use of thermal incineration, each owner or operator shall maintain, at the source, daily records of the incinerator combustion chamber temperature. If catalytic incineration is used, the owner or operator shall maintain at the source daily records of the gas temperature, both upstream and downstream of the incinerator catalyst bed. Where compliance is achieved through the use of a solvent recovery system, the owner or operator shall maintain at the source daily records of the amount of solvent recovered by the system for each affected facility.

(e) The requirements of this section remain in force until and unless EPA, in delegating enforcement authority to
§ 60.501 Definitions.

The terms used in this subpart are defined in the Clean Air Act, in §60.2 of this part, or in this section as follows:

Bulk gasoline terminal means any gasoline facility which receives gasoline by pipeline, ship or barge, and has a gasoline throughput greater than 75,700