MEMORANDUM

Date: April 29, 2022

TO: Docket ID: EPA-HQ-OAR-2021-0664

FROM: Paula Hirtz, US EPA/OAQPS/SPPD/MMG


The attachments to this memorandum, for the convenience of interested parties, present the redline/strikeout (RLSO) version of subpart MM and new subpart MMa. Subpart MM applies to sources that were new, modified, and reconstructed after October 5, 1979, and before the Federal Register publication date of this proposed action. Subpart MMa applies to sources that are new, modified, and reconstructed on or after the Federal Register publication date of this proposed action. These amendments are associated with the proposed action titled Review of Standards of Performance for Automobile and Light Duty Truck Surface Coating Operations.

Attachments
40 CFR 60 subpart MM RLSO
40 CFR 60 subpart MMa
Subpart MM—Standards of Performance for Automobile and Light Duty Truck Surface Coating Operations 
after October 5, 1979, and before [DATE OF PUBLICATION OF THE PROPOSED RULE IN THE FEDERAL REGISTER]

§60.390 Applicability and designation of affected facility.

(a) The provisions of this subpart apply to the following affected facilities in an automobile or light-duty truck assembly plant: each prime coat operation, each guide coat operation, and each topcoat operation.

(b) Exempted from the provisions of this subpart are operations used to coat plastic body components or all-plastic automobile or light-duty truck bodies on separate coating lines. The attachment of plastic body parts to a metal body before the body is coated does not cause the metal body coating operation to be exempted.

(c) The provisions of this subpart apply to any affected facility identified in paragraph (a) of this section that begins construction, reconstruction, or modification after October 5, 1979, and before [DATE OF PUBLICATION OF THE PROPOSED RULE IN THE FEDERAL REGISTER].

§60.391 Definitions.

(a) All terms used in this subpart that are not defined below have the meaning given to them in the Act and in subpart A of this part.

Applied coating solids means the volume of dried or cured coating solids which is deposited and remains on the surface of the automobile or light-duty truck body.

Automobile means a motor vehicle capable of carrying no more than 12 passengers.

Automobile and light-duty truck body means the exterior surface of an automobile or light-duty truck including hoods, fenders, cargo boxes, doors, and grill opening panels.

Bake oven means a device that uses heat to dry or cure coatings.

Electrodeposition (EDP) means a method of applying a prime coat by which the automobile or light-duty truck body is submerged in a tank filled with coating material and an electrical field is used to effect the deposition of the coating material on the body.

Electrostatic spray application means a spray application method that uses an electrical potential to increase the transfer efficiency of the coating solids. Electrostatic spray application can be used for prime coat, guide coat, or topcoat operations.

Flash-off area means the structure on automobile and light-duty truck assembly lines between the coating application system (dip tank or spray booth) and the bake oven.
**Guide coat operation** means the guide coat spray booth, flash-off area and bake oven(s) which are used to apply and dry or cure a surface coating between the prime coat and topcoat operation on the components of automobile and light-duty truck bodies.

**Light-duty truck** means any motor vehicle rated at 3,850 kilograms gross vehicle weight or less, designed mainly to transport property.

**Plastic body** means an automobile or light-duty truck body constructed of synthetic organic material.

**Plastic body component** means any component of an automobile or light-duty truck exterior surface constructed of synthetic organic material.

**Prime coat operation** means the prime coat spray booth or dip tank, flash-off area, and bake oven(s) which are used to apply and dry or cure the initial coating on components of automobile or light-duty truck bodies.

**Purge or line purge** means the coating material expelled from the spray system when clearing it.

**Solids Turnover Ratio (R_T)** means the ratio of total volume of coating solids that is added to the EDP system in a calendar month divided by the total volume design capacity of the EDP system.

**Solvent-borne** means a coating which contains five percent or less water by weight in its volatile fraction.

**Spray application** means a method of applying coatings by atomizing the coating material and directing the atomized material toward the part to be coated. Spray applications can be used for prime coat, guide coat, and topcoat operations.

**Spray booth** means a structure housing automatic or manual spray application equipment where prime coat, guide coat, or topcoat is applied to components of automobile or light-duty truck bodies.

**Surface coating operation** means any prime coat, guide coat, or topcoat operation on an automobile or light-duty truck surface coating line.

**Topcoat operation** means the topcoat spray booth, flash-off area, and bake oven(s) which are used to apply and dry or cure the final coating(s) on components of automobile and light-duty truck bodies.

**Transfer efficiency** means the ratio of the amount of coating solids transferred onto the surface of a part or product to the total amount of coating solids used.
**VOC content** means all volatile organic compounds that are in a coating expressed as kilograms of VOC per liter of coating solids.

**Volume Design Capacity of EDP System (LE)** means the total liquid volume that is contained in the EDP system (tank, pumps, recirculating lines, filters, etc.) at its designed liquid operating level.

**Waterborne** or **water reducible** means a coating which contains more than five weight percent water in its volatile fraction.

(b) The nomenclature used in this subpart has the following meanings:

- \( C_{aj} \) = concentration of VOC (as carbon) in the effluent gas flowing through stack \((j)\) leaving the control device (parts per million by volume),
- \( C_{bi} \) = concentration of VOC (as carbon) in the effluent gas flowing through stack \((i)\) entering the control device (parts per million by volume),
- \( C_{fk} \) = concentration of VOC (as carbon) in the effluent gas flowing through exhaust stack \((k)\) not entering the control device (parts per million by volume),
- \( D_{di} \) = density of each coating \((i)\) as received (kilograms per liter),
- \( D_{dj} \) = density of each type VOC dilution solvent \((j)\) added to the coatings, as received (kilograms per liter),
- \( D_i \) = density of VOC recovered from an affected facility (kilograms per liter),
- \( E \) = VOC destruction or removal efficiency of the control device,
- \( F \) = fraction of total VOC which is emitted by an affected facility that enters the control device,
- \( G \) = volume weighted average mass of VOC per volume of applied solids (kilograms per liter),
- \( L_{ci} \) = volume of each coating \((i)\) consumed, as received (liters),
- \( L_{cil} \) = Volume of each coating \((i)\) consumed by each application method \((l)\), as received (liters),
- \( L_{dj} \) = volume of each type VOC dilution solvent \((j)\) added to the coatings, as received (liters),
- \( L_r \) = volume of VOC recovered from an affected facility (liters),
- \( L_s \) = volume of solids in coatings consumed (liters),
- \( L_E \) = the total volume of the EDP system (liters),
- \( M_d \) = total mass of VOC in dilution solvent (kilograms),
- \( M_0 \) = total mass of VOC in coatings as received (kilograms),
- \( M_r \) = total mass of VOC recovered from an affected facility (kilograms),
$N = \text{volume weighted average mass of VOC per volume of applied coating solids after the control device}$

\[
\frac{\text{kilograms of VOC}}{\text{liter of applied solids}}
\]

$Q_{dj} = \text{volumetric flow rate of the effluent gas flowing through stack (j) leaving the control device (dry standard cubic meters per hour)}$

$Q_{bi} = \text{volumetric flow rate of the effluent gas flowing through stack (i) entering the control device (dry standard cubic meters per hour)}$

$Q_{fk} = \text{volumetric flow rate of the effluent gas flowing through exhaust stack (k) not entering the control device (dry standard cubic meters per hour)}$

$T = \text{overall transfer efficiency}$

$T_l = \text{transfer efficiency for application method (l)}$

$V_{si} = \text{proportion of solids by volume in each coating (i) as received}$

\[
\frac{\text{liter solids}}{\text{liter coating}}
\]

$W_{oi} = \text{proportion of VOC by weight in each coating (i), as received}$

\[
\frac{\text{kilograms VOC}}{\text{kilograms coating}}
\]

§60.392 Standards for volatile organic compounds.

On and after the date on which the initial performance test required by §60.8 is completed, no owner or operator subject to the provisions of this subpart shall discharge or cause the discharge into the atmosphere from any affected facility VOC emissions in excess of:

(a) Prime Coat Operation. (1) For each EDP prime coat operation:

(i) 0.17 kilogram of VOC per liter of applied coating solids when $R_T$ is 0.16 or greater.

(ii) $0.17 \times 350 \times (0.160 - R_T)$ kg of VOC per liter of applied coating solids when $R_T$ is greater than or equal to 0.040 and less than 0.160.

(iii) When $R_T$ is less than 0.040, there is no emission limit.
(2) For each nonelectrodeposition prime coat operation: 0.17 kilogram of VOC per liter of applied coating solids.

(b) 1.40 kilograms of VOC per liter of applied coating solids from each guide coat operation.

(c) 1.47 kilograms of VOC per liter of applied coating solids from each topcoat operation.

§60.393 Performance test and compliance provisions.

(a) Section 60.8 (d) and (f) do not apply to the performance test procedures required by this section.

(b) The owner or operator of an affected facility shall conduct an initial performance test in accordance with §60.8(a) and thereafter for each calendar month for each affected facility according to the procedures in this section.

(c) The owner or operator shall use the following procedures for determining the monthly volume weighted average mass of VOC emitted per volume of applied coating solids.

1. The owner or operator shall use the following procedures for each affected facility which does not use a capture system and a control device to comply with the applicable emission limit specified under §60.392.

(i) Calculate the volume weighted average mass of VOC per volume of applied coating solids for each calendar month for each affected facility. The owner or operator shall determine the composition of the coatings by formulation data supplied by the manufacturer of the coating or from data determined by an analysis of each coating, as received, by Method 24. The Administrator may require the owner or operator who uses formulation data supplied by the manufacturer of the coating to determine data used in the calculation of the VOC content of coatings by Method 24 or an equivalent or alternative method. The owner or operator shall determine from company records on a monthly basis the volume of coating consumed, as received, and the mass of solvent used for thinning purposes. 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 in each calendar month for each affected facility by the following equation where “n” is the total number of coatings used and “m” is the total number of VOC solvents used:

\[ M_v = M_a + \sum_{i=1}^{n} L_{i} D_{i} W_{i} + \sum_{j=1}^{m} L_{j} D_{j} \]

[where \( L_{i}D_{i} \) will be zero if no VOC solvent is added to the coatings, as received].
(B) Calculate the total volume of coating solids used in each calendar month for each affected facility by the following equation where “n” is the total number of coatings used:

\[ \sum_{i=1}^{n} L_i \]

(C) Select the appropriate transfer efficiency (T) from the following tables for each surface coating operation:

<table>
<thead>
<tr>
<th>Application method</th>
<th>Transfer efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Atomized Spray (waterborne coating)</td>
<td>0.39</td>
</tr>
<tr>
<td>Air Atomized Spray (solvent-borne coating)</td>
<td>0.50</td>
</tr>
<tr>
<td>Manual Electrostatic Spray</td>
<td>0.75</td>
</tr>
<tr>
<td>Automatic Electrostatic Spray</td>
<td>0.95</td>
</tr>
<tr>
<td>Electrodeposition</td>
<td>1.00</td>
</tr>
</tbody>
</table>

The values in the table above represent an overall system efficiency which includes a total capture of purge. If a spray system uses line purging after each vehicle and does not collect any of the purge material, the following table shall be used:

<table>
<thead>
<tr>
<th>Application method</th>
<th>Transfer efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Atomized Spray (waterborne coating)</td>
<td>0.30</td>
</tr>
<tr>
<td>Air Atomized Spray (solvent-borne coating)</td>
<td>0.40</td>
</tr>
<tr>
<td>Manual Electrostatic Spray</td>
<td>0.62</td>
</tr>
<tr>
<td>Automatic Electrostatic Spray</td>
<td>0.75</td>
</tr>
</tbody>
</table>

If the owner or operator can justify to the Administrator's satisfaction that other values for transfer efficiencies are appropriate, the Administrator will approve their use on a case-by-case basis.

(I) When more than one application method (i) is used on an individual surface coating operation, the owner or operator shall perform an analysis to determine an average transfer efficiency by the following equation where “n” is the total number of coatings used and “p” is the total number of application methods:

\[ T = \frac{\sum_{i=1}^{n} T_i \cdot L_i}{\sum_{i=1}^{p} L_i} \]
(D) Calculate the volume weighted average mass of VOC per volume of applied coating solids (G) during each calendar month for each affected facility by the following equation:

\[ G = \frac{M_1 + M_2}{L_1 + L_2} \]

(E) For each EDP prime coat operation, calculate the turnover ratio \((R_T)\) by the following equation:

\[ R_T = \frac{L_2}{L_1}, \text{ truncated after 3 decimal places} \]

Then calculate or select the appropriate limit according to §60.392(a).

(ii) If the volume weighted average mass of VOC per volume of applied coating solids (G), calculated on a calendar month basis, is less than or equal to the applicable emission limit specified in §60.392, the affected facility is in compliance. Each monthly calculation is a performance test for the purpose of this subpart.

(2) The owner or operator shall use the following procedures for each affected facility which uses a capture system and a control device that destroys VOC (e.g., incinerator) to comply with the applicable emission limit specified under §60.392.

(i) Calculate the volume weighted average mass of VOC per volume of applied coating solids (G) during each calendar month for each affected facility as described under §60.393(c)(1)(i).

(ii) Calculate the volume weighted average mass of VOC per volume of applied solids emitted after the control device, by the following equation: \( N = G [1 - FE] \)

(A) Determine the fraction of total VOC which is emitted by an affected facility that enters the control device by using the following equation where “\( n \)” is the total number of stacks entering the control device and “\( p \)” is the total number of stacks not connected to the control device:

\[ \frac{\overline{\gamma}}{\gamma} \]
If the owner can justify to the Administrator's satisfaction that another method will give comparable results, the Administrator will approve its use on a case-by-case basis.

(1) In subsequent months, the owner or operator shall use the most recently determined capture fraction for the performance test.

(B) Determines the destruction efficiency of the control device using values of the volumetric flow rate 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 where “n” is the total number of stacks entering the control device and “m” is the total number of stacks leaving the control device:

\[
F = \frac{\sum_{i=1}^{n} Q_{bi} C_{bi}}{\sum_{i=1}^{n} Q_{bi} C_{bi} + \sum_{k=1}^{m} Q_{fk} C_{fk}}
\]

(1) In subsequent months, the owner or operator shall use the most recently determined VOC destruction efficiency for the performance test.

(C) If an emission control device controls the emissions from more than one affected facility, the owner or operator shall measure the VOC concentration \((C_{bi})\) in the effluent gas entering the control device (in parts per million by volume) and the volumetric flow rate \((Q_{bi})\) of the effluent gas (in dry standard cubic meters per hour) entering the device through each stack. The destruction or removal efficiency determined using these data shall be applied to each affected facility served by the control device.

(iii) If the volume weighted average mass of VOC per volume of applied solids emitted after the control device \((N)\) calculated on a calendar month basis is less than or equal to the applicable emission limit specified in §60.392, the affected facility is in compliance. Each monthly calculation is a performance test for the purposes of this subpart.

(3) The owner or operator shall use the following procedures for each affected facility which uses a capture system and a control device that recovers the VOC (e.g., carbon adsorber) to comply with the applicable emission limit specified under §60.392.
(i) Calculate the mass of VOC \((M_o + M_d)\) used during each calendar month for each affected facility as described under §60.393(c)(1)(i).

(ii) Calculate the total volume of coating solids \((L_o)\) used in each calendar month for each affected facility as described under §60.393(c)(1)(i).

(iii) Calculate the mass of VOC recovered \((M_r)\) each calendar month for each affected facility by the following equation: \(M_r = L_o D_r\)

(iv) Calculate the volume weighted average mass of VOC per volume of applied coating solids emitted after the control device during a calendar month by the following equation:

\[
N = \frac{M_o + M_d - M_r}{L_o T'}
\]

(v) If the volume weighted average mass of VOC per volume of applied solids emitted after the control device \((N)\) calculated on a calendar month basis is less than or equal to the applicable emission limit specified in §60.392, the affected facility is in compliance. Each monthly calculation is a performance test for the purposes of this subpart.

§60.394 Monitoring of emissions and operations.

The owner or operator of an affected facility which uses an incinerator to comply with the emission limits specified under §60.392 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, a temperature measurement device 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 accepted practice and the manufacturer's specifications. The device shall have an accuracy of the greater of ±5 percent of the temperature being measured expressed in degrees Celsius or ±2.5 °C.

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

§60.395 Reporting and recordkeeping requirements.

(a) Each owner or operator of an affected facility shall include the data outlined in paragraphs (a)(1) and (2) in the initial compliance report required by §60.8.

(1) The owner or operator shall report the volume weighted average mass of VOC per volume of applied coating solids for each affected facility.
Where compliance is achieved through the use of incineration, the owner or operator shall include the following additional data in the control device initial performance test required by §60.8(a) or subsequent performance tests at which destruction efficiency is determined: the combustion temperature (or the gas temperature upstream and downstream of the catalyst bed), the total mass of VOC per volume of applied coating solids before and after the incinerator, capture efficiency, the destruction efficiency of the incinerator used to attain compliance with the applicable emission limit specified in §60.392 and a description of the method used to establish the fraction of VOC captured and sent to the control device.

Following the initial performance test, the owner or operator of an affected facility shall identify, record, and submit a written report to the Administrator every calendar quarter of each instance in which the volume-weighted average of the total mass of VOC’s emitted to the atmosphere per volume of applied coating solids (N) is greater than the limit specified under §60.392. If no such instances have occurred during a particular quarter, a report stating this shall be submitted to the Administrator semiannually. Where compliance is achieved through the use of a capture system and control device, the volume-weighted average after the control device should be reported.

Where compliance with §60.392 is achieved through the use of incineration, the owner or operator shall continuously record the incinerator combustion temperature during coating operations for thermal incineration or the gas temperature upstream and downstream of the incinerator catalyst bed during coating operations for catalytic incineration. The owner or operator shall submit a written report at the frequency specified in §60.7(c) and as defined below.

For thermal incinerators, every three-hour period shall be reported during which the average temperature measured is more than 28 °C less than the average temperature during the most recent control device performance test at which the destruction efficiency was determined as specified under §60.393.

For catalytic incinerators, every three-hour period shall be reported during which the average temperature immediately before the catalyst bed, when the coating system is operational, is more than 28 °C less than the average temperature immediately before the catalyst bed during the most recent control device performance test at which destruction efficiency was determined as specified under §60.393. In addition, every three-hour period shall be reported each quarter during which the average temperature difference across the catalyst bed when the coating system is operational is less than 80 percent of the average temperature difference of the device during the most recent control device performance test at which destruction efficiency was determined as specified under §60.393.

For thermal and catalytic incinerators, if no such periods occur, the owner or operator shall submit a negative report.

The owner or operator shall notify the Administrator 30 days in advance of any test by Method 25.
(e) Electronic submittal of reports. The owner or operator shall submit the reports listed in paragraphs (a) through (c) of this section following the procedures specified in paragraphs (e)(1) through (3) of this section. In addition to the information required in paragraphs (a) through (c) of this section, owners or operators are required to report excess emissions and a monitoring systems performance report and a summary report to the Administrator according to §60.7(c) and (d). Owners or operators are required by §60.7(c) and (d) to report the date, time, cause, and duration of each exceedance of the applicable emission limit specified in §60.392, any malfunction of the air pollution control equipment, and any periods during which the CMS or monitoring device is inoperative. For each failure, the report must include a list of the affected sources or equipment and a description of the method used to estimate the emissions.

(1) Owners or operators must use the appropriate spreadsheet template on the Compliance and Emissions Data Reporting Interface (CEDRI) website (https://www.epa.gov/electronic-reporting-air-emissions/cedri) for this subpart. The date the reporting template for this subpart becomes available will be listed on the CEDRI website. The report must be submitted by the deadline specified in this subpart, regardless of the method by which the report is submitted. Submit all reports to the EPA via CEDRI, which can be accessed through the EPA’s Central Data Exchange (CDX) (https://cdx.epa.gov/). The EPA will make all the information submitted through CEDRI available to the public without further notice to the owner or operator. Do not use CEDRI to submit information you claim as confidential business information (CBI). Any information submitted using CEDRI cannot later be claimed CBI. If you claim CBI, submit the report following the procedure described in paragraph (f)(3) of this section. The same file with the CBI omitted must be submitted to CEDRI as described in paragraph (f)(3) of this section.

(2) System outage. Owners or operators that are required to submit a report electronically through CEDRI in the EPA’s CDX, may assert a claim of EPA system outage for failure to timely comply with that reporting requirement. To assert a claim of EPA system outage, owners or operators must meet the requirements outlined in paragraphs (i) through (vii) of this section.

(i) You must have been or will be precluded from accessing CEDRI and submitting a required report within the time prescribed due to an outage of either the EPA’s CEDRI or CDX systems.

(ii) The outage must have occurred within the period of time beginning five business days prior to the date that the submission is due.

(iii) The outage may be planned or unplanned.

(iv) You must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.

(v) You must provide to the Administrator a written description identifying:

(A) The date(s) and time(s) when CDX or CEDRI was accessed, and the system was unavailable;
(B) A rationale for attributing the delay in reporting beyond the regulatory deadline to EPA system outage;

(C) A description of measures taken or to be taken to minimize the delay in reporting; and

(D) The date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported.

(vi) The decision to accept the claim of EPA system outage and allow an extension to the reporting deadline is solely within the discretion of the Administrator.

(vii) In any circumstance, the report must be submitted electronically as soon as possible after the outage is resolved.

(3) Force majeure. Owner or operators that are required to submit a report electronically through CEDRI in the EPA’s CDX, may assert a claim of force majeure for failure to timely comply with that reporting requirement. To assert a claim of force majeure, an owner or operator must meet the requirements outlined in paragraphs (3)(i) through (iv) of this section.

(i) You may submit a claim if a force majeure event is about to occur, occurs, or has occurred or there are lingering effects from such an event within the period of time beginning five business days prior to the date the submission is due. For the purposes of this section, a force majeure event is defined as an event that will be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents you from complying with the requirement to submit a report electronically within the time period prescribed. Examples of such events are acts of nature (e.g., hurricanes, earthquakes, or floods), acts of war or terrorism, or equipment failure or safety hazard beyond the control of the affected facility (e.g., large scale power outage).

(ii) You must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.

(iii) You must provide to the Administrator:

(A) A written description of the force majeure event;

(B) A rationale for attributing the delay in reporting beyond the regulatory deadline to the force majeure event;

(C) A description of measures taken or to be taken to minimize the delay in reporting; and

(D) The date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported.
(iv) The decision to accept the claim of force majeure and allow an extension to the reporting deadline is solely within the discretion of the Administrator.

(f) Electronic reporting of performance test data. Where compliance is achieved through the use of incineration, the owner or operator shall submit control device performance test results at which destruction efficiency is determined for initial and subsequent performance tests according to paragraph (b) of this section within 60 days of completing each performance test following the procedures specified in paragraphs (f)(1) through (3) of this section.

(1) Data collected using test methods supported by the EPA’s Electronic Reporting Tool (ERT) as listed on the EPA’s ERT website (https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert) at the time of the test.

(i) Submit the results of the performance test to the EPA via the CEDRI, which can be accessed through the EPA’s CDX (https://cdx.epa.gov/).

(ii) The data must be submitted in a file format generated using the EPA’s ERT. Alternatively, the owner or operator may submit an electronic file consistent with the extensible markup language (XML) schema listed on the EPA’s ERT website.

(2) Data collected using test methods that are not supported by the EPA’s ERT as listed on the EPA’s ERT website at the time of the test.

(i) The results of the performance test must be included as an attachment in the ERT or an alternate electronic file consistent with the XML schema listed on the EPA’s ERT website.

(ii) Submit the ERT generated package or alternative file to the EPA via CEDRI.

(3) Confidential business information (CBI). Do not use CEDRI to submit information you claim as CBI. Any information submitted using CEDRI cannot later be claimed CBI. Under CAA section 114(c), emissions data is not entitled to confidential treatment, and the EPA is required to make emissions data available to the public. Thus, emissions data will not be protected as CBI and will be made publicly available. Owners or operators that assert a CBI claim for any information submitted under paragraph (f)(1) or (2) of this section, must submit a complete file, including information claimed to be CBI, to the EPA. The file must be generated using the EPA’s ERT or an alternate electronic file consistent with the XML schema listed on the EPA’s ERT website. Owners or operators can submit CBI according to one of the two procedures in paragraphs (i) or (ii) of this section. All CBI claims must be asserted at the time of submission.

(i) If sending CBI through the postal service, submit the file on a compact disc, flash drive, or other commonly used electronic storage medium and clearly mark the medium as CBI. Owners or operators are required to mail the electronic medium to U.S. EPA/OAQPS/CORE CBI Office, Attention: Automobile and Light Duty Truck Surface Coating Operations Sector Lead, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI
omitted must be submitted to the EPA via the EPA’s CDX as described in paragraphs (f)(1) and (2) of this section.

(ii) The EPA preferred method for CBI submittal is for it to be transmitted electronically using email attachments, File Transfer Protocol (FTP), or other online file sharing services (e.g., Dropbox, OneDrive, Google Drive). Electronic submissions must be transmitted directly to the OAQPS CBI Office at the email address oaqpscbi@epa.gov, Attention: Automobile and Light Duty Truck Surface Coating Operations Sector Lead, and as described above, should be clearly identified as CBI. If assistance is needed with submitting large electronic files that exceed the file size limit for email attachments, and if you do not have your own file sharing service, you may email oaqpscbi@epa.gov to request a file transfer link.

§60.396 Reference methods and procedures.

(a) The reference methods in appendix A to this part, except as provided in §60.8 shall be used to conduct performance tests.

(1) Method 24 or an equivalent or alternative method approved by the Administrator shall be used for the determination of the data used in the calculation of the VOC content of the coatings used for each affected facility. Manufacturers' formulation data is approved by the Administrator as an alternative method to Method 24. In the event of dispute, Method 24 shall be the referee method.

(2) Method 25 or an equivalent or alternative method approved by the Administrator shall be used for the determination of the VOC concentration in the effluent gas entering and leaving the emission control device for each stack equipped with an emission control device and in the effluent gas leaving each stack not equipped with a control device.

(3) The following methods shall be used to determine the volumetric flow rate in the effluent gas in a stack:

(i) Method 1 for sample and velocity traverses,

(ii) Method 2 for velocity and volumetric flow rate,

(iii) Method 3 for gas analysis, and

(iv) Method 4 for stack gas moisture.

(b) For Method 24, the coating sample must be a 1-liter sample taken in a 1-liter container.

(c) For Method 25, the sampling time for each of three runs must be at least one hour. The minimum sample volume must be 0.003 dscm except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by the
Administrator. The Administrator will approve the sampling of representative stacks on a case-by-case basis if the owner or operator can demonstrate to the satisfaction of the Administrator that the testing of representative stacks would yield results comparable to those that would be obtained by testing all stacks.

§60.397 Modifications.

The following physical or operational changes are not, by themselves, considered modifications of existing facilities:

(a) Changes as a result of model year changeovers or switches to larger cars.

(b) Changes in the application of the coatings to increase coating film thickness.

§60.398 Innovative technology waivers.

(a) General Motors Corporation, Wentzville, Missouri, automobile assembly plant. (1) Pursuant to section 111(j) of the Clean Air Act, 42 U.S.C. 7411(j), each topcoat operation at General Motors Corporation automobile assembly plant located in Wentzville, Missouri, shall comply with the following conditions:

(i) The General Motors Corporation shall obtain the necessary permits as required by section 173 of the Clean Air Act, as amended August 1977, to operate the Wentzville assembly plant.

(ii) Commencing on February 4, 1983, and continuing to December 31, 1986, or until the base coat/clear coat topcoat system that can achieve the standard specified in 40 CFR 60.392(c) (Dec. 24, 1980) is demonstrated to the Administrator's satisfaction the General Motors Corporation shall limit the discharge of VOC emissions to the atmosphere from each topcoat operation at the Wentzville, Missouri, assembly plant, to either:

(A) 1.9 kilograms of VOC per liter of applied coating solids from base coat/clear coat topcoats, and 1.47 kilograms of VOC per liter of applied coating solids from all other topcoat coatings; or

(B) 1.47 kilograms of VOC per liter of applied coating solids from all topcoat coatings.

(iii) Commencing on the day after the expiration of the period described in paragraph (a)(1)(ii) of this section, and continuing thereafter, emissions of VOC from each topcoat operation shall not exceed 1.47 kilograms of VOC per liter of applied coating solids as specified in 40 CFR 60.392(c) (Dec. 24, 1980).

(iv) Each topcoat operation shall comply with the provisions of §§60.393, 60.394, 60.395, 60.396, and 60.397. Separate calculations shall be made for base coat/clear coat coatings and all other topcoat coatings when necessary to demonstrate compliance with the emission limits in paragraph (a)(1)(ii)(A) of this section.
(v) A technology development report shall be sent to EPA Region VII, 324 East 11th Street, Kansas City, MO 64106, postmarked before 60 days after the promulgation of this waiver and annually thereafter while this waiver is in effect. The technology development report shall summarize the base coat/clear coat development work including the results of exposure and endurance tests of the various coatings being evaluated. The report shall include an updated schedule of attainment of 40 CFR 60.392(c) (Dec. 24, 1980) based on the most current information.

(2) This waiver shall be a federally promulgated standard of performance. As such, it shall be unlawful for General Motors Corporation to operate a topcoat operation in violation of the requirements established in this waiver. Violation of the terms and conditions of this waiver shall subject the General Motors Corporation to enforcement under section 113 (b) and (c), 42 U.S.C. 7412 (b) and (c), and section 120, 42 U.S.C. 7420, of the Act as well as possible citizen enforcement under section 304 of the Act, 42 U.S.C. 7604.

(b) General Motors Corporation, Detroit, Michigan, Automobile Assembly plant. (1) Pursuant to section 111(j) of the Clean Air Act, 42 U.S.C. 7411(j), each topcoat operation at General Motors Corporation's automobile assembly plant located in Detroit, MI, shall comply with the following conditions:

(i) The General Motors Corporation shall obtain the necessary permits as required by section 173 of the Clean Air Act, as amended August 1977, to operate the Detroit assembly plant.

(ii) Commencing on February 4, 1983, and continuing to December 31, 1986, or until the base coat/clear coat topcoat system that can achieve the standard specified in 40 CFR 60.392(c) (Dec. 24, 1980), is demonstrated to the Administrator's satisfaction, the General Motors Corporation shall limit the discharge of VOC emissions to the atmosphere from each topcoat operation at the Detroit, MI, assembly plant, to either:

(A) 1.9 kilograms of VOC per liter of applied coating solids from base coat/clear coat topcoats, and 1.47 kilograms of VOC per liter of applied coating solids from all other topcoat coatings; or

(B) 1.47 kilograms of VOC per liter of applied coating solids from all topcoat coatings.

(iii) Commencing on the day after the expiration of the period described in paragraph (b)(ii) of this section, and continuing thereafter, emissions of VOC from each topcoat operation shall not exceed 1.47 kilograms of VOC per liter of applied coating solids as specified in 40 CFR 60.392(c) (December 24, 1980).

(iv) Each topcoat operation shall comply with the provisions of §§60.393, 60.394, 60.395, 60.396, and 60.397. Separate calculations shall be made for base coat/clear coat coatings and all other topcoat coatings when necessary to demonstrate compliance with the emission limits in paragraph (b)(1)(ii)(A) of this section.
(v) A technology development report shall be sent to EPA Region V, 230 South Dearborn Street, Chicago, IL 60604, postmarked before 60 days after the promulgation of this waiver and annually thereafter while this waiver is in effect. The technology development report shall summarize the base coat/clear coat development work including the results of exposure and endurance tests of the various coatings being evaluated. The report shall include an updated schedule of attainment of 40 CFR 60.392(c) (Dec. 24, 1980) based on the most current information.

(2) This waiver shall be a federally promulgated standard of performance. As such, it shall be unlawful for General Motors Corporation to operate a topcoat operation in violation of the requirements established in this waiver. Violation of the terms and conditions of this waiver shall subject the General Motors Corporation to enforcement under section 113 (b) and (c), 42 U.S.C. 7412 (b) and (c), and section 120, 42 U.S.C. 7420, of the Act as well as possible citizen enforcement under section 304 of the Act, 42 U.S.C. 7604.

(c) General Motors Corporation, Orion Township, MI, automobile assembly plant. (1) Pursuant to section 111(j) of the Clean Air Act, 42 U.S.C. 7411(j), each topcoat operation at General Motors Corporation automobile assembly plant located in Orion Township, MI, shall comply with the following conditions:

(i) The General Motors Corporation shall obtain the necessary permits as required by section 173 of the Clean Air Act, as amended August 1977, to operate the Orion Township assembly plant.

(ii) Commencing on February 4, 1983, and continuing to December 31, 1986, or until the base coat/clear coat topcoat system that can achieve the standard specified in 40 CFR 60.392(c) (Dec. 24, 1980) is demonstrated to the Administrator's satisfaction, the General Motors Corporation shall limit the discharge of VOC emissions to the atmosphere from each topcoat operation at the Orion Township, MI, assembly plant, to either:

(A) 1.9 kilograms of VOC per liter of applied coating solids from base coat/clear coat topcoats, and 1.47 kilograms of VOC per liter of applied coating solids from all other topcoat coatings; or

(B) 1.47 kilograms of VOC per liter of applied coating solids from all topcoat coatings.

(iii) Commencing on the day after the expiration of the period described in paragraph (c)(i)(ii) of this section and continuing thereafter, emissions of VOC from each topcoat operation shall not exceed 1.47 kilograms of VOC per liter of applied coating solids as specified in 40 CFR 60.392(c) (Dec. 24, 1980).

(iv) Each topcoat operation shall comply with the provisions of §§60.393, 60.394, 60.395, 60.396, and 60.397. Separate calculations shall be made for base coat/clear coat coatings and all other topcoat coatings when necessary to demonstrate compliance with the emission limits in paragraph (c)(i) (ii)(A) of this section.
A technology development report shall be sent to EPA Region V, 230 South Dearborn Street, Chicago, IL 60604, postmarked before 60 days after the promulgation of this waiver and annually thereafter while this waiver is in effect. The technology development report shall summarize the base coat/clear coat development work including the results of exposure and endurance tests of the various coatings being evaluated. The report shall include an updated schedule of attainment of 40 CFR 60.392(c) (December 24, 1980) based on the most current information.

(2) This waiver shall be a federally promulgated standard of performance. As such, it shall be unlawful for General Motors Corporation to operate a topcoat operation in violation of the requirements established in this waiver. Violation of the terms and conditions of this waiver shall subject the General Motors Corporation to enforcement under section 113 (b) and (c), 42 U.S.C. 7412 (b) and (c), and section 120, 42 U.S.C. 7420, of the Act as well as possible citizen enforcement under section 304 of the Act, 42 U.S.C. 7604.

(d) Honda of America Manufacturing, Incorporated (Honda), Marysville, Ohio, automobile assembly plant. (i) Pursuant to section 111(j) of the Clean Air Act, 42 U.S.C. 7411(j), each topcoat operation at Honda's automobile assembly plant located in Marysville, OH, shall comply with the following conditions:

(ii) Commencing on February 4, 1983, and continuing for 4 years or to December 31, 1986, whichever is sooner, or until the base coat/clear coat topcoat system that can achieve the standard specified in 40 CFR 60.392(c) (Dec. 24, 1980) is demonstrated to the Administrator's satisfaction, Honda shall limit the discharge of VOC emissions to the atmosphere from each topcoat operation at Marysville, OH, assembly plant, to either:

(A) 3.1 kilograms of VOC per liter of applied coating solids from base coat/clear coat topcoats, and 1.47 kilograms of VOC per liter of applied coating solids from all other topcoat coatings; or

(B) 1.47 kilograms of VOC per liter of applied coating solids from all topcoat coatings.

(iii) Commencing on the day after the expiration of the period described in paragraph (d)(1)(ii) of this section and continuing thereafter, emissions of VOC from each topcoat operation shall not exceed 1.47 kilograms of VOC per liter of applied coating solids as specified in 40 CFR 60.392(c) (December 24, 1980).

(iv) Each topcoat operation shall comply with the provisions of §§60.393, 60.394, 60.395, 60.396, and 60.397. Separate calculations shall be made for base coat/clear coat coatings and all other topcoat coatings when necessary to demonstrate compliance with the emission limits in paragraph (d)(1)(ii)(A) of this section.
(v) A technology development report shall be sent to EPA Region V, 230 South Dearborn Street, Chicago, IL 60604, postmarked before 60 days after the promulgation of this waiver and annually thereafter while this waiver is in effect. The technology development report shall summarize the base coat/clear coat development work including the results of exposure and endurance tests of the various coatings being evaluated. The report shall include an updated schedule of attainment of 40 CFR 60.392(c) (Dec. 24, 1980) based on the most current information.

(2) This waiver shall be a federally promulgated standard of performance. As such, it shall be unlawful for Honda to operate a topcoat operation in violation of the requirements established in this waiver. Violation of the terms and conditions of this waiver shall subject Honda to enforcement under section 113(b) and (c), 42 U.S.C. 7412(b) and (c), and section 120, 42 U.S.C. 7420, of the Act as well as possible citizen enforcement under section 304 of the Act, 42 U.S.C. 7604.

(e) Nissan Motor Manufacturing Corporation, U.S.A. (Nissan), Smyrna, TN, light-duty truck assembly plant. (1) Pursuant to section 111(j) of the Clean Air Act, 42 U.S.C. 7411(j), each topcoat operation at Nissan's light-duty truck assembly plant located in Smyrna, Tennessee, shall comply with the following conditions:

(i) Nissan shall obtain the necessary permits as required by section 173 of the Clean Air Act, as amended August 1977, to operate the Smyrna assembly plant.

(ii) Commencing on February 4, 1983, and continuing for 4 years or to December 31, 1986, whichever is sooner, or until the base coat/clear coat topcoat system that can achieve the standard specified in 40 CFR 60.392(c) (Dec. 24, 1980), is demonstrated to the Administrator's satisfaction, Nissan shall limit the discharge of VOC emissions to the atmosphere from each topcoat operation at the Smyrna, TN, assembly plant, to either:

(A) 2.3 kilograms of VOC per liter of applied coating solids from base coat/clear coat topcoats, and 1.47 kilograms of VOC per liter of applied coating solids from all other topcoat coatings; or

(B) 1.47 kilograms of VOC per liter of applied coating solids from all topcoat coatings.

(iii) Commencing on the day after the expiration of the period described in paragraph (e)(1)(ii) of this section and continuing thereafter, emissions of VOC from each topcoat operation shall not exceed 1.47 kilograms of VOC per liter of applied coating solids as specified in 40 CFR 60.392(c) (Dec. 24, 1980).

Each topcoat operation shall comply with the provisions of §§60.393, 60.394, 60.395, 60.396, and 60.397. Separate calculations shall be made for base coat/clear coat coatings and all other topcoat coatings when necessary to demonstrate compliance with the emission limits in paragraph (e)(1)(ii)(A) of this section.
(f) Chrysler Corporation, Sterling Heights, MI, automobile assembly plant. (1) Pursuant to section 111(j) of the Clean Air Act, 42 U.S.C. 7411(j), each topcoat operation at Chrysler Corporation's automobile assembly plant located in Sterling Heights, MI, shall comply with the following conditions:

(i) The Chrysler Corporation shall obtain the necessary permits as required under Parts C and D of the Clean Air Act, as amended August 1977, to operate the Sterling Heights assembly plant.

(ii) Commencing on September 9, 1985, and continuing to December 31, 1986, or until the basecoat/clearcoat (BC/CC) topcoat system that can achieve the standard specified under §60.392(c) of this subpart is demonstrated to the Administrator's satisfaction, whichever is sooner, the Chrysler Corporation shall limit the discharge of VOC emissions to the atmosphere from each topcoat operation at the Sterling Heights, MI assembly plant, to either:

(A) 1.7 kilograms of VOC per liter of applied coating solids from BC/CC topcoats, and 1.47 kilograms of VOC per liter of applied coating solids from all other topcoat coatings; or

(B) 1.47 kilograms of VOC per liter of applied coating solids from all topcoat coatings.

(iii) Commencing on the day after the expiration of the period described in paragraph (f)(1)(ii) and continuing thereafter, emissions of VOC's from each topcoat operation shall not exceed 1.47 kilograms of VOC per liter of applied coating solids as specified under §60.392(c) of this subpart.

(iv) Each topcoat operation shall comply with the provisions of §§60.393, 60.394, 60.395, 60.396, and 60.397. Separate calculations shall be made for BC/CC coatings and all other topcoat coatings when necessary to demonstrate compliance with the emission limits specified under paragraph (f)(1)(ii)(A) of this section.

(v) A technology development report shall be sent to EPA Region V, 230 South Dearborn Street, Chicago, IL 60604, postmarked before 60 days after the promulgation of this waiver and annually thereafter while this waiver is in effect. A copy of this report shall be sent to Director, Emission Standards and Engineering Division, U.S. Environmental Protection Agency, MD-13, Research Triangle Park, NC 27711. The technology development report shall summarize the BC/CC development work including the results of exposure and endurance tests of the various coatings being evaluated. The report shall include an updated schedule of attainment of §60.392(c) of this subpart, based on the most current information.

(2) This waiver shall be a federally promulgated standard of performance. As such, it shall be unlawful for the Chrysler Corporation to operate a topcoat operation in violation of the requirements established in this waiver. Violation of the terms and conditions of this waiver shall subject the Chrysler Corporation to enforcement under sections 113 (b) and (c) of the Act (42 U.S.C. 7412 (b) and (c)) and under section 120 of the Act (42 U.S.C. 7420), as well as possible citizen enforcement under section 304 of the Act (42 U.S.C. 7604).
(3) This waiver shall not be construed to constrain the State of Michigan from imposing upon the Chrysler Corporation any emission reduction requirement at Chrysler's Sterling Heights automobile assembly plant necessary for the maintenance of reasonable further progress or the attainment of the national ambient air quality standard for ozone or the maintenance of the national ambient air quality standard for ozone. Furthermore, this waiver shall not be construed as granting any exemptions from the applicability, enforcement, or other provisions of any other standards that apply or may apply to topcoat operations or any other operations at this automobile assembly plant.

(g) Ford Motor Company, Hapeville, GA, automotive assembly plant. (1) Pursuant to section 111(j) of the Clean Air Act, 42 U.S.C. 7411(j), each topcoat operation at Ford Motor Company's automobile assembly plant located in Hapeville, GA, shall comply with the following conditions:

(i) The Ford Motor Company shall obtain the necessary permits as required under parts C and D of the Clean Air Act, as amended August 1977, to operate the Hapeville assembly plant.

(ii) Commencing on September 9, 1985, and continuing to December 31, 1986, or until the basecoat/clearcoat (BC/CC) topcoat system that can achieve the standard specified under §60.392(c) of this subpart is demonstrated to the Administrator's satisfaction, whichever is sooner, the Ford Motor Company shall limit the discharge of VOC emissions to the atmosphere from each topcoat operation at the Hapeville, GA, assembly plant, to either:

(A) 2.6 kilograms of VOC per liter of applied coating solids from BC/CC topcoats, and 1.47 kilograms of VOC per liter of applied coating solids from all other topcoat coatings; or

(B) 1.47 kilograms of VOC per liter of applied coating solids from all topcoat coatings.

(iii) Commencing on the day after the expiration of the period described in paragraph (g)(1)(ii) and continuing thereafter, emissions of VOC's from each topcoat operation shall not exceed 1.47 kilograms of VOC per liter of applied coating solids as specified under §60.392(c) of this subpart.

(iv) Each topcoat operation shall comply with the provisions of §§60.393, 60.394, 60.395, 60.396, and 60.397. Separate calculations shall be made for BC/CC coatings and all other topcoat coatings when necessary to demonstrate compliance with the emission limits specified under paragraph (g)(1)(ii)(A) of this section.

(v) A technology development report shall be sent to EPA Region IV, 345 Courtland Street, NE., Atlanta, GA 30365, postmarked before 60 days after the promulgation of this waiver and annually thereafter while this waiver is in effect. A copy of this report shall be sent to Director, Emission Standards and Engineering Division, U.S. Environmental Protection Agency, MD-13, Research Triangle Park, NC 27711. The technology development report shall summarize the BC/CC development work including the results of exposure and endurance tests of the various coatings being evaluated. The report shall include an updated schedule of attainment of §60.392(c) of this subpart, based on the most current information.
(2) This waiver shall be a federally promulgated standard of performance. As such, it shall be unlawful for the Ford Motor Company to operate a topcoat operation in violation of the requirements established in this waiver. Violation of the terms and conditions of this waiver shall subject the Ford Motor Company to enforcement under section 113 (b) and (c) and the Act (42 U.S.C. 7412 (b) and (c)) and under section 120 of the Act (42 U.S.C. 7420), as well as possible citizen enforcement under section 304 of the Act (42 U.S.C. 7604).

(3) This waiver shall not be construed to constrain the State of Georgia from imposing upon the Ford Motor Corporation any emission reduction requirement at Ford's Hapeville automobile assembly plant necessary for the maintenance of reasonable further progress or the attainment of the national ambient air quality standard for ozone or the maintenance of the national ambient air quality standard for ozone. Furthermore, this waiver shall not be construed as granting any exemptions from the applicability, enforcement, or other provisions of any other standards that apply or may apply to topcoat operations or any other operations at this automobile assembly plant.

(h) Ford Motor Company, St. Paul, MN, light-duty truck assembly plant. (1) Pursuant to section 111(j) of the Clean Air Act, 42 U.S.C. 7411(j), each topcoat operation at Ford Motor Company's automobile assembly plant located in St. Paul, MN, shall comply with the following conditions:

(i) The Ford Motor Company shall obtain the necessary permits as required under parts C and D of the Clean Air Act, as amended August 1977, to operate the St. Paul assembly plant.

(ii) Commencing on September 9, 1985, and continuing to December 31, 1986, or until the basecoat/clearcoat (BC/CC) topcoat system that can achieve the standard specified under §60.392(c) of this subpart, is demonstrated to the Administrator's satisfaction, whichever is sooner, the Ford Motor Company shall limit the discharge of VOC emissions to the atmosphere from each topcoat operation at the St. Paul, MN, assembly plant, to either:

(A) 2.0 kilograms of VOC per liter of applied coating solids from BC/CC topcoats, and 1.47 kilograms of VOC per liter of applied coating solids from all other topcoat coatings; or

(B) 1.47 kilograms of VOC per liter of applied coating solids from all topcoat coatings.

(iii) Commencing on the day after the expiration of the period described in paragraph (h)(1)(ii) and continuing thereafter, emissions of VOC's from each topcoat operation shall not exceed 1.47 kilograms of VOC per liter of applied coating solids as specified under §60.392(c) of this subpart.

(iv) Each topcoat operation shall comply with the provisions of §§60.393, 60.394, 60.395, 60.396, and 60.397. Separate calculations shall be made for BC/CC coatings and all other topcoat coatings when necessary to demonstrate compliance with the emission limits specified under paragraph (h)(1)(ii)(A) of this section.
(v) A technology development report shall be sent to EPA Region V, 230 South Dearborn Street, Chicago, IL 60604, postmarked before 60 days after the promulgation of this waiver and annually thereafter while this waiver is in effect. A copy of this report shall be sent to Director, Emission Standards and Engineering Division, U.S. Environmental Protection Agency, MD-13, Research Triangle Park, NC 27711. The technology development report shall summarize the BC/CC development work including the results of exposure and endurance tests of the various coatings being evaluated. The report shall include an updated schedule of attainment of §60.392(c) of this subpart, based on the most current information.

(2) This waiver shall be a federally promulgated standard of performance. As such, it shall be unlawful for the Ford Motor Company to operate a topcoat operation in violation of the requirements established in this waiver. Violation of the terms and conditions of this waiver shall subject the Ford Motor Company to enforcement under section 113 (b) and (c) of the Act (42 U.S.C. 7412 (b) and (c)) and under section 120 of the Act (42 U.S.C. 7420), as well as possible citizen enforcement under section 304 of the Act (42 U.S.C. 7604).

(3) This waiver shall not be construed to constrain the State of Minnesota from imposing upon the Ford Motor Corporation any emission reduction requirements at Ford's St. Paul light-duty truck assembly plant necessary for the maintenance of reasonable further progress or the attainment of the national ambient air quality standard for ozone or the maintenance of the national ambient air quality standard for ozone. Furthermore, this waiver shall not be construed as granting any exemptions from the applicability, enforcement, or other provisions of any other standards that apply or may apply to topcoat operations or any other operations at this light-duty truck assembly plant.

(i) Ford Motor Company, Hazelwood, MO, passenger van assembly plant. (1) Pursuant to section 111(j) of the Clean Air Act, 42 U.S.C. 7411(j), each topcoat operation at Ford Motor Company's passenger van assembly plant located in Hazelwood, MO, shall comply with the following conditions:

(i) The Ford Motor Company shall obtain the necessary permits as required under parts C and D of the Clean Air Act, as amended August 1977, to operate the Hazelwood assembly plant.

(ii) Commencing on September 9, 1985, and continuing to December 31, 1986, or until the basecoat/clearcoat (BC/CC) topcoat system that can achieve the standard specified under §60.392(c) of this subpart is demonstrated to the Administrator's satisfaction, whichever is sooner, the Ford Motor Company shall limit the discharge of VOC emissions to the atmosphere from each topcoat operation at the Hazelwood, MO, assembly plant, to either:

(A) 2.5 kilograms of VOC per liter of applied coating solids from BC/CC topcoats, and 1.47 kilograms of VOC per liter of applied coating solids from all other topcoat coatings; or

(B) 1.47 kilograms of VOC per liter of applied coating solids from all topcoat coatings.

(iii) Commencing on the day after the expiration of the period described in paragraph (i)(1)(ii) and continuing thereafter, emissions of VOC's from each topcoat operation shall not
exceed 1.47 kilograms of VOC per liter of applied coating solids as specified under §60.392(c) of this subpart.

(iv) Each topcoat operation shall comply with the provisions of §§60.393, 60.394, 60.395, 60.396, and 60.397. Separate calculations shall be made for BC/CC coatings and all other topcoat coatings when necessary to demonstrate compliance with the emission limits specified under paragraph (i)(1)(ii)(A) of this section.

(v) A technology development report shall be sent to EPA Region VII, 726 Minnesota Avenue, Kansas City, KS 61101, postmarked before 60 days after the promulgation of this waiver and annually thereafter while this waiver is in effect. A copy of this report shall be sent to Director, Emission Standards and Engineering Division, U.S. Environmental Protection Agency, MD-13, Research Triangle Park, NC 27711. The technology development report shall summarize the BC/CC development work including the results of exposure and endurance tests of the various coatings being evaluated. The report shall include an updated schedule of attainment of §60.392(c) of this subpart, based on the most current information.

(2) This waiver shall be a federally promulgated standard of performance. As such, it shall be unlawful for the Ford Motor Company to operate a topcoat operation in violation of the requirements established in this waiver. Violation of the terms and conditions of this waiver shall subject the Ford Motor Company to enforcement under section 113 (b) and (c) of the Act (42 U.S.C. 7412 (b) and (c)) and under section 120 of the Act (42 U.S.C. 7420), as well as possible citizen enforcement under section 304 of the Act (42 U.S.C. 7604).

(3) This waiver shall not be construed to constrain the State of Missouri from imposing upon the Ford Motor Corporation any emission reduction at Ford's Hazelwood passenger van assembly plant necessary for the maintenance of reasonable further progress or the attainment of the national ambient air quality standards for ozone or the maintenance of the national ambient air quality standard for ozone. Furthermore, this waiver shall not be construed as granting any exemptions from the applicability, enforcement, or other provisions of any other standards that apply or may apply to topcoat operations or any other operations at this passenger van assembly plant.
Attachment 2
40 CFR 60 subpart MMa
Subpart MMa—Standards of Performance for Automobile and Light Duty Truck Surface Coating Operations for which Construction, Modification or Reconstruction Commenced After [DATE OF PUBLICATION OF THE PROPOSED RULE IN THE FEDERAL REGISTER]

§ 60.390a Applicability and designation of affected facility.
(a) The provisions of this subpart apply to the following affected facilities in an automobile or light-duty truck assembly plant specified in paragraphs (a)(1) through (4) of this section:

(1) Each prime coat operation, each guide coat operation, and each topcoat operation.

(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.

(4) All storage containers and all manual and automated equipment and containers used for conveying waste materials generated by a coating operation.

(b) Exempted from the provisions of this subpart are operations used to coat plastic body components on separate coating lines. The attachment of plastic body parts to a metal body before the body is coated does not cause the metal body coating operation to be exempted.

(c) The provisions of this subpart apply to any affected facility identified in paragraph (a) of this section that begins construction, reconstruction, or modification after [DATE OF PUBLICATION OF THE PROPOSED RULE IN THE FEDERAL REGISTER].
(d) The following physical or operational changes are not, by themselves, considered modifications of existing facilities:

(1) Changes as a result of model year changeovers or switches to larger vehicles.

(2) Changes in the application of the coatings to increase coating film thickness.

§ 60.391a Definitions.

(a) All terms used in this subpart that are not defined below have the meaning given to them in the Act and in subpart A of this part.

**Applied coating solids** means the volume of dried or cured coating solids which is deposited and remains on the surface of the automobile or light-duty truck body.

**Automobile** means a motor vehicle capable of carrying no more than 12 passengers.

**Automobile and light-duty truck assembly plant** means a facility that assembles automobiles or light-duty trucks, including coating facilities and processes.

**Automobile and light-duty truck body** means the exterior surface of an automobile or light-duty truck including hoods, fenders, cargo boxes, doors, and grill opening panels.

**Bake oven** means a device that uses heat to dry or cure coatings.

**Electrodeposition (EDP)** means a method of applying a prime coat by which the automobile or light-duty truck body is submerged in a tank filled with coating material and an electrical field is used to effect the deposition of the coating material on the body.

**Electrostatic spray application** means a spray application method that uses an electrical potential to increase the transfer efficiency of the coating solids. Electrostatic spray application can be used for prime coat, guide coat, or topcoat operations.

**Flash-off area** means the structure on automobile and light-duty truck assembly lines between the coating application system (dip tank or spray booth) and the bake oven.

**Guide coat operation** means the guide coat spray booth, flash-off area and bake oven(s) which are used to apply and dry or cure a surface coating between the prime coat and topcoat operation on the components of automobile and light-duty truck bodies.

**Light-duty truck** means any motor vehicle rated at 3,850 kilograms gross vehicle weight or less, designed mainly to transport property.

**Plastic body** means an automobile or light-duty truck body constructed of synthetic organic material.

**Plastic body component** means any component of an automobile or light-duty truck exterior surface constructed of synthetic organic material.
Prime coat operation means the prime coat spray booth or dip tank, flash-off area, and bake oven(s) which are used to apply and dry or cure the initial coating on components of automobile or light-duty truck bodies.

Purge or line purge means the coating material expelled from the spray system when clearing it.

Solvent-borne means a coating which contains five percent or less water by weight in its volatile fraction.

Spray application means a method of applying coatings by atomizing the coating material and directing the atomized material toward the part to be coated. Spray applications can be used for prime coat, guide coat, and topcoat operations.

Spray booth means a structure housing automatic or manual spray application equipment where prime coat, guide coat, or topcoat is applied to components of automobile or light-duty truck bodies.

Surface coating operation means any prime coat, guide coat, or topcoat operation on an automobile or light-duty truck surface coating line.

Topcoat operation means the topcoat spray booth, flash-off area, and bake oven(s) which are used to apply and dry or cure the final coating(s) on components of automobile and light-duty truck bodies.

Transfer efficiency means the ratio of the amount of coating solids transferred onto the surface of a part or product to the total amount of coating solids used.

VOC content means all volatile organic compounds that are in a coating expressed as kilograms of VOC per liter of coating solids.

Waterborne or water reducible means a coating which contains more than five weight percent water in its volatile fraction.

§ 60.392a Standards for volatile organic compounds.

You must comply with the requirements in paragraphs (a) through (h) of this section.

(a) Emission limitations. On and after the date on which the initial performance test required by § 60.8 is completed, you must not discharge or cause the discharge into the atmosphere from any affected facility VOC emissions in excess of the limits in paragraph (a)(1) through (4) of this section. The emission limitations listed in this paragraph (a) of this section shall apply at all times, including periods of startup, shutdown and malfunction. As provided in § 60.11(f), this provision supersedes the exemptions for periods of startup, shutdown and malfunction in the Part 60 General Provisions in Subpart A.

(1) 0.040 kilograms of VOC per liter of applied coating solids (0.33 pounds per gallon of applied coating solids) from each EDP prime coat operation:
(2) 0.040 kilograms of VOC per liter of applied coating solids (0.33 pounds per gallon of applied coating solids) from each non-EDP prime coat operation:

(3) 0.35 kilograms of VOC per liter of applied coating solids (2.92 pounds per gallon of applied coating solids) from each guide coat operation.

(4) 0.42 kilograms of VOC per liter of applied coating solids (3.53 pounds per gallon of applied coating solids) from each topcoat operation.

(b) Work practices for storage, mixing, and conveying. You must develop and implement a work practice plan to minimize VOC emissions from the storage, mixing, and conveying of coatings, thinners, and cleaning materials used in, and waste materials generated by, all coating operations for which emission limits are established under § 60.392a(a). 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 VOC-containing coatings, thinners, cleaning materials, and waste materials must be stored in closed containers.

(2) The risk of spills of VOC-containing coatings, thinners, cleaning materials, and waste materials must be minimized.

(3) VOC-containing coatings, thinners, cleaning materials, and waste materials must be conveyed from one location to another in closed containers or pipes.

(4) Mixing vessels, other than day tanks equipped with continuous agitation systems, which contain VOC-containing coatings and other materials must be closed except when adding to, removing, or mixing the contents.

(5) Emissions of VOC must be minimized during cleaning of storage, mixing, and conveying equipment.

(c) Work practices for cleaning and purging. You must develop and implement a work practice plan to minimize VOC emissions from cleaning and from purging of equipment associated with all coating operations for which emission limits are established under § 60.392a(a).

(1) The plan shall, at a minimum, address each of the operations listed in paragraphs (c)(1)(i) through (viii) of this section in which you use VOC-containing materials or in which there is a potential for emission of VOC.

(i) The plan must address vehicle body wipe emissions through one or more of the techniques listed in paragraphs (c)(1)(i)(A) through (D) of this section, or an approved alternative.

(A) Use of solvent-moistened wipes.

(B) Keeping solvent containers closed when not in use.
(C) Keeping wipe disposal/recovery containers closed when not in use.

(D) Use of tack-wipes.

(ii) The plan must address coating line purging emissions through one or more of the techniques listed in paragraphs (c)(1)(ii)(A) through (D) of this section, or an approved alternative.

(A) Air/solvent push-out.

(B) Capture and reclaim or recovery of purge materials (excluding applicator nozzles/tips).

(C) Block painting to the maximum extent feasible.

(D) Use of low-VOC or no-VOC solvents for purge.

(iii) The plan must address emissions from flushing of coating systems through one or more of the techniques listed in paragraphs (c)(1)(iii)(A) through (D) of this section, or an approved alternative.

(A) Keeping solvent tanks closed.

(B) Recovering and recycling solvents.

(C) Keeping recovered/recycled solvent tanks closed.

(D) Use of low-VOC or no-VOC solvents.

(iv) The plan must address emissions from cleaning of spray booth grates through one or more of the techniques listed in paragraphs (c)(1)(iv)(A) through (E) of this section, or an approved alternative.

(A) Controlled burn-off.

(B) Rinsing with high-pressure water (in place).

(C) Rinsing with high-pressure water (off line).

(D) Use of spray-on masking or other type of liquid masking.

(E) Use of low-VOC or no-VOC content cleaners.

(v) The plan must address emissions from cleaning of spray booth walls through one or more of the techniques listed in paragraphs (c)(1)(v)(A) through (E) of this section, or an approved alternative.

(A) Use of masking materials (contact paper, plastic sheet, or other similar type of material).
(B) Use of spray-on masking.

(C) Use of rags and manual wipes instead of spray application when cleaning walls.

(D) Use of low-VOC or no-VOC content cleaners.

(E) Controlled access to cleaning solvents.

(vi) The plan must address emissions from cleaning of spray booth equipment through one or more of the techniques listed in paragraphs (c)(1)(vi)(A) through (E) of this section, or an approved alternative.

(A) Use of covers on equipment (disposable or reusable).

(B) Use of parts cleaners (off-line submersion cleaning).

(C) Use of spray-on masking or other protective coatings.

(D) Use of low-VOC or no-VOC content cleaners.

(E) Controlled access to cleaning solvents.

(vii) The plan must address emissions from cleaning of external spray booth areas through one or more of the techniques listed in paragraphs (c)(1)(vii)(A) through (F) of this section, or an approved alternative.

(A) Use of removable floor coverings (paper, foil, plastic, or similar type of material).

(B) Use of manual and/or mechanical scrubbers, rags, or wipes instead of spray application.

(C) Use of shoe cleaners to eliminate coating track-out from spray booths.

(D) Use of booties or shoe wraps.

(E) Use of low-VOC or no-VOC content cleaners.

(F) Controlled access to cleaning solvents.

(viii) The plan must address emissions from housekeeping measures not addressed in paragraphs (c)(1)(i) through (vii) of this section through one or more of the techniques listed in paragraphs (c)(1)(viii)(A) through (C) of this section, or an approved alternative.

(A) Keeping solvent-laden articles (cloths, paper, plastic, rags, wipes, and similar items) in covered containers when not in use.

(B) Storing new and used solvents in closed containers.
(C) Transferring of solvents in a manner to minimize the risk of spills.

(2) Notwithstanding the requirements of paragraphs (c)(1)(i) through (vii) of this section, if the type of coatings used in any facility with surface coating operations subject to the requirements of this section are of such a nature that the need for one or more of the practices specified under paragraphs (c)(1)(i) through (vii) is eliminated, then the plan may include approved alternative or equivalent measures that are applicable or necessary during cleaning of storage, conveying, and application equipment.

(d) The work practice plans developed in accordance with paragraphs (b) and (c) of this section are not required to be incorporated in your title V permit. Any revisions to the work practice plans developed in accordance with paragraphs (b) and (c) of this section do not constitute revisions to your title V permit.

(e) Copies of the current work practice plans developed in accordance with paragraphs (b) and (c) of this section, as well as plans developed within the preceding 5 years must be available on-site for inspection and copying by the permitting authority.

(f) Operating Limits. You are not required to meet any operating limits for any coating operation(s) without add-on controls, nor are you required to meet operating limits for any coating operation(s) that do not utilize emission capture systems and add-on controls to comply with the emission limits in §60.392a(a).

(g) Except as provided in paragraph (h) of this section, for any controlled coating operation(s), you must meet the operating limits specified in Table 1 to this subpart. These operating limits apply to the emission capture and add-on control systems for affected sources in §60.390a(a)(1), and you must establish the operating limits during performance tests according to the requirements in §60.394a. You must meet the operating limits at all times after you establish them.

(h) 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 §60.13(i).

§ 60.393a Performance test and compliance provisions.

(a) You must conduct performance tests under representative conditions for the affected coating operation according to §60.8(c) and under the conditions in this section unless you obtain a waiver of the performance test according to the provisions in §60.8(b)(4).

(1) Operations during periods of startup, shutdown, or nonoperation do not constitute conditions representative of normal operation for purposes of conducting a performance test. You may not conduct performance tests during periods of malfunction. Emissions in excess of the applicable emission limit during periods of startup, shutdown, and malfunction will be considered a violation of the applicable emission limit.
(2) You must record the process information that is necessary to document operating conditions during the performance test and explain why the conditions represent normal operation. Upon request, you must make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

(3) Sections 60.8(d) and (f) do not apply to the performance test procedures required by this section.

(b) You must conduct an initial performance test in accordance with § 60.8(a) and thereafter for each calendar month for each affected facility according to the procedures in this section. You must also conduct periodic performance tests of add-on controls, except for solvent recovery systems for which liquid-liquid material balances are conducted according to paragraph (l) of this section, to reestablish the operating limits required by § 60.392a within 5 years following the previous performance test. You must meet all the requirements of this section to demonstrate initial and continuous compliance.

(1) To demonstrate initial compliance, the VOC emissions from affected source must meet the applicable emission limitation in § 60.392a and the work practice standards in § 60.392a and the applicable operating limits in § 60.392a established during the initial performance test using the procedures in § 60.394a and Table 1 to this subpart.

(A) You must complete the initial compliance demonstration for the initial compliance period according to the requirements of § (this section). The initial compliance period begins on the applicable compliance date specified in § 60.8 and ends on the last day of the 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 month.

(B) You must determine the mass of VOC emissions and volume of coating solids deposited in the initial compliance period. The initial compliance demonstration includes the results of emission capture system and add-on control device performance tests conducted according to §§ 60.396a and 60.397a; supporting documentation showing that during the initial compliance period the VOC emission rate was equal to or less than the emission limit in § 60.392a; the operating limits established during the performance tests and the results of the continuous parameter monitoring required by § 60.394a; and documentation of whether you developed and implemented the work practice plans required by § 60.392(b) and (c).

(2) To demonstrate continuous compliance with the applicable emission limit in § 60.392a, the VOC emission rate for each compliance period, determined according to the procedures in § (this section), must be equal to or less than the applicable emission limit in § 60.392a. A compliance period consists of 1 month. Each month after the end of the initial compliance period described in § 60.393a(b)(1)(A) is a compliance period consisting of that month. You must perform the calculations in § (this section) on a monthly basis.
(3) If the VOC emission rate for any 1-month compliance period exceeded the applicable emission limit in § 60.392a, this is a deviation from the emission limitation for that compliance period and must be reported as specified in § 60.395a(h).

(c) Compliance with operating limits. Except as provided in paragraph (c)(1) of this section, you must establish and demonstrate continuous compliance during the initial compliance period with the operating limits required by § 60.392a, using the procedures specified in §60.394a.

(1) You do not need to comply with the operating limits for the emission capture system and add-on control device required by § 60.394a until after you have completed the initial performance test specified in paragraph (b) of this section. During the period between the startup date of the affected source and the initial performance test required by § 60.8 you must maintain a log detailing the operation and maintenance of the emission capture system, the add-on control device, and the continuous monitoring system (CMS).

(2) You must demonstrate continuous compliance with each operating limit required by § 60.392a that applies to you, as specified in Table 1 to this subpart, and you must conduct performance tests as specified in paragraph (c)(4) of this section.

(3) 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 § 60.395a(h).

(4) 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 except as provided in § 60.393a(m).

(5) Except for solvent recovery systems for which you conduct liquid-liquid material balances according to paragraph (l) of this section for controlled coating operations, you must conduct periodic performance tests of add-on controls and reestablish the operating limits required by § 60.392a within 5 years following the previous performance test. You must conduct the first periodic performance test within 5 years following the initial performance test required by § 60.8. Thereafter, you must conduct a performance test no later than 5 years following the previous performance test. Operating limits must be confirmed or reestablished during each performance test. If you are using the alternative monitoring option for a catalytic oxidizer according to § 60.394a(b)(3) and following the catalyst maintenance procedures in § 60.394a(b)(4), you are not required to conduct periodic control device performance testing as specified by this paragraph. For any control device for which instruments are used to continuously measure organic compound emissions, you are not required to conduct periodic control device performance testing as specified by this paragraph. The requirements of this paragraph do not apply to measuring emission capture system efficiency.

(6) You must meet the requirements for bypass lines in § 60.394a(h) for control devices other than solvent recovery systems for which you 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 §60.395a(h). For the purposes of
completing the compliance calculations specified in § 60.393a(j), you must assume that the emission capture system and add-on control device were achieving zero efficiency during the time period of the deviation.

(d) **Compliance with work practice requirements.** You must develop, implement, and document implementation of the work practice plans required by § 60.392a(b) and (c) during the initial compliance period, as specified in § 60.395a.

(1) You must demonstrate continuous compliance with the work practice standards in § 60.392a(b) and (c). If you did not develop a work practice plan, if you did not implement the plan, or if you did not keep the records required by § 60.395a(k)(11), this is a deviation from the work practice standards that must be reported as specified in § 60.395a(k)(4).

(e) **Compliance with emission limits.** You must use the following procedures in paragraphs (f) through (m) of this section to determine the monthly volume weighted average mass of VOC emitted per volume of applied coating solids for each affected facility to demonstrate compliance with the applicable emission limitation in § 60.392a. You may also use the guidelines presented in “Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Primer-Surfacer and Topcoat” EPA-453/R-08-002 (incorporated by reference, see § 60.17) in making this demonstration.

(f) **Determine the mass fraction of VOC, density, and volume for each material used.** You must follow the procedures specified in paragraphs (f)(1) through (3) of this section to determine the mass fraction of VOC, the density, and volume for each coating and thinner used during each month. For the electrodeposition primer operation, the mass fraction of VOC, density, and volume used must be determined for each material added to the tank or system during each month.

(1) **Determine the mass fraction of VOC for each material used.** You must determine the mass fraction of VOC for each material used during the compliance period by using one of the options in paragraphs (i) through (iii) of this section.

(i) **EPA Method 24 (appendix A-7 to 40 CFR part 60).** For coatings, you may use EPA Method 24 to determine the mass fraction of nonaqueous volatile matter and use that value as a substitute for the mass fraction of VOC. As an alternative to using EPA Method 24, you may use ASTM D2369-10 (Reapproved 2015) (incorporated by reference, see § 60.17). For Method 24, the coating sample must be a 1-liter sample taken in a 1-liter container.

(ii) **Alternative method.** You may use an alternative test method for determining the mass fraction of VOC once the Administrator has approved it. You must follow the procedure in § 60.8(b)(3) to submit an alternative test method for approval.

(iii) **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 (f)(1)(i) through (iii) of this section, such as manufacturer's formulation data. If there is a disagreement between such information and results of a test conducted according to paragraphs (f)(1)(i)
through (iii) of this section, then the test method results will take precedence, unless after consultation, you demonstrate to the satisfaction of the enforcement authority that the facility's data are correct.

(2) Determine the density of each material used. Determine the density of each material used during the compliance period from test results using ASTM D1475-13 (incorporated by reference, see § 60.17) or for powder coatings, test method A or test method B of ASTM D5965-02 (Reapproved 2013) (incorporated by reference, see § 60.17), or information from the supplier or manufacturer of the material. If there is disagreement between ASTM D1475-13 test results or ASTM D5965-02 (Reapproved 2013), test method A or test method B test results and the supplier's or manufacturer's information, the test results will take precedence unless after consultation, the facility demonstrates to the satisfaction of the enforcement authority that the supplier's or manufacturer's data are correct.

(3) Determine the volume of each material used. You must determine from company records on a monthly basis the volume of coating consumed, as received, and the mass of solvent used for thinning purposes.

(g) 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 by a test or by information provided by the supplier or the manufacturer of the material, as specified in paragraphs (g)(1) and (2) of this section. For electrodeposition primer operations, the volume fraction of solids must be determined for each material added to the tank or system during each month. If test results obtained according to paragraph (g)(1) of this section do not agree with the information obtained under paragraph (g)(2) of this section, the test results will take precedence unless, after consultation, the facility demonstrates to the satisfaction of the enforcement authority that the facility's data are correct.

(1) ASTM Method D2697-03 (Reapproved 2014) or ASTM Method D6093-97 (Reapproved 2016). You may use ASTM D2697-03 (Reapproved 2014) (incorporated by reference, see § 60.17), or ASTM D6093-97 (Reapproved 2016) (incorporated by reference, see § 60.17), 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.

(h) Determine the transfer efficiency for each coating. You must determine the transfer efficiency for each non-electrodeposition prime coat coating, each guide coat coating and each topcoat coating using ASTM Method D5066-91 (Reapproved 2017), “Standard Test Method for Determination of the Transfer Efficiency Under Production Conditions for Spray Application of Automotive Paints-Weight Basis” (incorporated by reference, see § 60.17), or the guidelines presented in “Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Primer-Surfacer and Topcoat” EPA-453/R-08-002 (incorporated by reference, see § 60.17). You may conduct transfer efficiency testing on representative coatings and for representative spray booths as described in “Protocol for
Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Primer-Surfacer and Topcoat” EPA-453/R-08-002 (incorporated by reference, see § 60.17). You may assume 100 percent transfer efficiency for electrodeposition primer coatings.

(i) Calculate the volume weighted average mass of VOC emitted per volume of applied coating solids before add-on controls.

(1) Calculate the mass of VOC used in each calendar month for each affected facility using Equation 1 of this section, where “n” is the total number of coatings used and “m” is the total number of VOC solvents used:

\[ M_o + M_d = \sum_{i=1}^{n} L_{ci} D_{ci} W_{oi} + \sum_{j=1}^{m} L_{dj} D_{dj} \]  

(Eq. 1)

Where:

- \( M_o \) = total mass of VOC in coatings as received (kilograms).
- \( M_d \) = total mass of VOC in dilution solvent (kilograms).
- \( L_{ci} \) = volume of each coating (i) consumed, as received (liters).
- \( D_{ci} \) = density of each coating (i) as received (kilograms per liter).
- \( W_{oi} \) = proportion of VOC by weight in each coating (i), as received.
- \( L_{dj} \) = volume of each type VOC dilution solvent (j) added to the coatings, as received (liters).
- \( D_{dj} \) = density of each type VOC dilution solvent (j) added to the coatings, as received (kilograms per liter).

[\( \sum_{j=1}^{m} L_{dj} D_{dj} \) will be zero if no VOC solvent is added to the coatings, as received.]

(2) Calculate the total volume of coating solids used in each calendar month for each affected facility using Equation 2 of this section, where “n” is the total number of coatings used:

\[ L_s = \sum_{i=1}^{n} L_{ci} V_{si} \]  

(Eq. 2)

Where:

- \( L_s \) = volume of solids in coatings consumed (liters).
- \( L_{ci} \) = volume of each coating (i) consumed, as received (liters).
- \( V_{si} \) = proportion of solids by volume in each coating (i) as received.

(3) Calculate the transfer efficiency (T) for each surface coating operation according to paragraph (h) of this section.

(A) When more than one application method (l) is used on an individual surface coating operation, you must perform an analysis to determine an average transfer efficiency using...
Equation 3 of this section, where “n” is the total number of coatings used and “p” is the total number of application methods:

\[ T = \frac{\sum_{l=1}^{n} T_l V_{i} L_{cil}}{\sum_{l=1}^{p} L_{s}} \]  

(Eq. 3)

Where:

- \( T \) = overall transfer efficiency.
- \( T_l \) = transfer efficiency for application method (l).
- \( V_{si} \) = proportion of solids by volume in each coating (i) as received
- \( L_{cil} \) = Volume of each coating (i) consumed by each application method (l), as received (liters).
- \( L_s \) = volume of solids in coatings consumed (liters).

(4) Calculate the volume weighted average mass of VOC per volume of applied coating solids (G) during each calendar month for each affected facility using Equation 4 of this section:

\[ G = \frac{M_o + M_d}{L_s T} \]  

(Eq. 4)

Where:

- \( G \) = volume weighted average mass of VOC per volume of applied solids (kilograms per liter).
- \( M_o \) = total mass of VOC in coatings as received (kilograms).
- \( M_d \) = total mass of VOC in dilution solvent (kilograms).
- \( L_s \) = volume of solids in coatings consumed (liters).
- \( T \) = overall transfer efficiency.

(5) Select the appropriate limit according to § 60.392a. If the volume weighted average mass of VOC per volume of applied coating solids (G), calculated on a calendar month basis, is less than or equal to the applicable emission limit specified in § 60.392a, the affected facility is in compliance. Each monthly calculation is a performance test for the purpose of this subpart.

(j) Calculate the volume weighted average mass of VOC emitted per volume of applied coating solids after add-on controls. You use the following procedures for each affected facility which uses a capture system and a control device that destroys VOC (e.g., incinerator) to comply with...
the applicable emission limit specified under § 60.392a. Use the procedures in paragraph (j)(1) through (5) of this section to calculate volume weighted average mass of VOC per volume of applied coating solids 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, you must use the procedures in paragraph (l) of this section.

(1) Calculate the volume weighted average mass of VOC per volume of applied coating solids (G) during each calendar month for each affected facility as described under § 60.393a(i)(4).

(2) Calculate the volume weighted average mass of VOC per volume of applied coating solids (N) emitted after the control device using Equation 5 of this section:

\[
N = G \left[ 1 - CE \times DRE \right] \quad \text{(Eq. 5)}
\]

Where:
N = volume weighted average mass of VOC per volume of applied coating solids after the control device in units of kilograms of VOC per liter of applied coating solids.

G = volume weighted average mass of VOC per volume of applied coating solids (kilograms per liter).

CE = fraction of total VOC that is emitted by an affected facility that enters the control device.

DRE = VOC destruction or removal efficiency of the control device.

(3) Emission capture system efficiency. You must use the procedures and test methods in section 60.397a to determine the emission capture system efficiency (CE) as part of the initial performance test.

(A) If you can justify to the Administrator's satisfaction that another method will give comparable results, the Administrator will approve its use on a case-by-case basis.

(B) In subsequent months, you must use the most recently determined capture efficiency for the performance test.

(4) Add-on control device destruction efficiency. You must use the procedures and test methods in section 60.396a to determine the add-on control device emission destruction or removal efficiency as part of the initial performance test.

(A) In subsequent months, you must use the most recently determined VOC destruction efficiency for the performance test.

(B) If two or more add-on control devices are used for the same emission stream, you must measure emissions at the outlet of each device in accordance with § 60.396a(c). 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 for each inlet and each outlet and then total all of the inlet emissions and total all of the outlet emissions in accordance with § 60.396a(d). The emission destruction or removal efficiency of the add-on control device is the average of the efficiencies determined in the three test runs. The destruction or removal efficiency determined using these data shall be applied to each affected facility served by the control device.

(5) Calculate the mass of VOC for each affected facility each calendar month for each period of time in which a deviation, including a deviation during a period of startup, shutdown, or malfunction, from an emission limitation, an operating limit or any CMS requirement for the capture system or control device serving the controlled coating operation occurred. Except as provided in paragraph (m) of this section, for any period of time in which a deviation, including a deviation during a period of startup, shutdown, or malfunction, from an emission limitation or operating limit or from any CMS requirement of the capture system or control device serving the controlled coating operation occurred, you must assume zero efficiency for the emission capture system and add-on control device. During such a deviation you must assume the affected source was uncontrolled for the duration of the deviation using the equation in paragraph (i)(4) of this section.

(6) Adjust the volume weighted average mass of VOC per volume of applied coating solids emitted after the control device for each affected facility (N) during a calendar month for periods of deviation by adding the mass of VOC for the uncontrolled period of time according to paragraph (i)(5) of this section.

(7) If the adjusted volume weighted average mass of VOC per volume of applied solids emitted after the control device (N) calculated on a calendar month basis is less than or equal to the applicable emission limit specified in § 60.392a, the affected facility is in compliance. Each monthly calculation is a performance test for the purposes of this subpart.

(k) Calculate the volume weighted average mass of VOC emitted per volume of applied coating solids after add-on recovery devices. You must use the following procedures for each affected facility which uses a capture system and a control device that recovers the VOC (e.g., carbon adsorber) other than a solvent recovery system for which you conduct a liquid-liquid material balance to comply with the applicable emission limit specified under § 60.392a.

(1) Calculate the mass of VOC (Mo + Md) used during each calendar month for each affected facility as described under paragraph (i) of this section.

(2) Calculate the total volume of coating solids (Ls) used in each calendar month for each affected facility as described under paragraph (i) of this section.

(3) Calculate the mass of VOC recovered (Mr) each calendar month for each affected facility by the following equation:

\[ Mr = Lr \times Dr \]

Where:
Mr = total mass of VOC recovered from an affected facility (kilograms).

Lr = volume of VOC recovered from an affected facility (liters).

Dr = density of VOC recovered from an affected facility (kilograms per liter).

(4) Calculate the volume weighted average mass of VOC per volume of applied coating solids emitted after the control device (N) during a calendar month using Equation 6 of this section:

\[ N = \frac{M_o + M_d - M_r}{L_S T} \]  

(Eq. 6)

Where:

N = volume weighted average mass of VOC per volume of applied coating solids after the control device in units of kilograms of VOC per liter of applied coating solids.

M_o = total mass of VOC in coatings as received (kilograms).

M_d = total mass of VOC in dilution solvent (kilograms).

M_r = total mass of VOC recovered from an affected facility (kilograms).

L_s = volume of solids in coatings consumed (liters).

T = overall transfer efficiency.

(5) Adjust the volume weighted average mass of VOC per volume of applied coating solids emitted after the recovery device for each affected facility (N) during a calendar month for periods of deviation by adding the mass of VOC for the uncontrolled periods of time according to paragraph (i)(6) of this section.

(6) If the adjusted volume weighted average mass of VOC per volume of applied solids emitted after the control device (N) calculated on a calendar month basis is less than or equal to the applicable emission limit specified in § 60.392a, the affected facility is in compliance. Each monthly calculation is a performance test for the purposes of this subpart.

(1) Calculate the collection and recovery efficiency for solvent recovery systems using liquid-liquid material balances. You must use the following procedures for each affected facility which uses a solvent recovery system for which you conduct liquid-liquid material balances to comply with the applicable emission limit specified under § 60.392a.

(1) Calculate the mass of VOC emission reduction for the coating operation controlled by the solvent recovery system using a liquid-liquid material balance for each affected facility by applying the volatile organic matter collection and recovery efficiency to the mass of VOC contained in the coatings and thinners 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 (I)(1) through (6) of this section.

(2) 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.

(3) For each solvent recovery system, determine the mass of volatile organic matter recovered for the month based on measurement with the device required in paragraphs (I) and (2) of this section.

(4) For each affected facility, determine the mass of VOC (Mo + Md) of each coating and thinner controlled by the solvent recovery system for each calendar month using the equation in paragraph (i)(1) of this section.

(5) Calculate the solvent recovery system's volatile organic matter collection and recovery efficiency ($R_v$) for each affected facility using Equation 7 of this section:

$$R_v = 100 \left( \frac{M_{VR}}{\sum_{i=1}^{m} Vol_i D_i WV_{c,i} + \sum_{j=1}^{n} Vol_j D_j WV_{t,j}} \right)$$

(Eq. 7)

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, kg.

$Vol_i$ = Volume of coating, $i$, used in the coating operation controlled by the solvent recovery system during the month, liters.

$D_i$ = Density of coating, $i$, 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 month, liters.

$D_j$ = Density of thinner, $j$, kg per liter.
$W_{V,t,j} =$ Mass fraction of volatile organic matter for thinner, $j$, kg volatile organic matter per kg thinner.

$m =$ 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.

(6) For each affected facility, you may apply the solvent recovery system’s volatile organic matter collection and recovery efficiency to the mass of VOC for the coating operation controlled by the solvent recovery system for each calendar month.

(m) You may request approval from the Administrator to use non-zero capture efficiencies and add-on control device efficiencies for any period of time in which a deviation, including a deviation during a period of startup, shutdown, or malfunction, from an emission limitation, operating limit or any CMS requirement for the capture system or add-on control device serving a controlled coating operation occurred.

(1) If you have manually collected parameter data indicating that a capture system or add-on control device was operating normally during a CMS malfunction, a CMS out-of-control period, or associated repair, then these data may be used to support and document your request to use the normal capture efficiency or add-on control device efficiency for that period of deviation.

(2) If you have data indicating the actual performance of a capture system or add-on control device (e.g., capture efficiency measured at a reduced flow rate or add-on control device efficiency measured at a reduced thermal oxidizer temperature) during a deviation, including a deviation during a period of startup, shutdown, or malfunction, from an emission limitation or operating limit or from any CMS requirement for the capture system or add-on control device serving a controlled coating operation, then these data may be used to support and document your request to use these values for that period of deviation.

(3) You may recalculate the adjusted volume weighted average mass of VOC emitted per volume of applied coating solids after add-on controls in paragraph (j)(6) of this section, and the adjusted volume weighted average mass of VOC per volume of applied coating solids emitted after the recovery device in paragraph (k)(4) of this section, based on Administrator approval of the non-zero capture efficiency and add-on control device efficiency values based on data provided in accordance with paragraphs (m)(1) and (2) of this section.

(n) If there were no deviations from the emission limitations, submit a statement as part of the compliance report that you were in compliance with the emission limitations during the reporting period because the VOC emission rate for each compliance period was less than or equal to the applicable emission limit in §60.392a, you achieved the operating limits required by § 60.394a, and you achieved the work practice standards required by § 60.392a during each compliance period.
(o) You must maintain records as specified in §60.395a.

§ 60.394a Add-on control device operating limits and monitoring requirements.
During the performance tests required by § 60.393a, if you use an add-on control device(s) to comply with the emission limits specified under § 60.392a(a) through (c), you must establish add-on control device operating limits required by § 60.392a(h) according to this section, unless approval has been received for alternative monitoring under § 60.13(i) as specified in § 60.392a(h).

(a) Thermal oxidizers. If your add-on control device is a thermal oxidizer, establish the operating limit 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 all valid 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 3-hour average 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 all valid 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. The minimum 3-hour average operating limits for your catalytic oxidizer are the average temperature just before the catalyst bed maintained during the performance test of that catalytic oxidizer and 80 percent of the average temperature difference across the catalyst bed maintained during the performance test of that catalytic oxidizer, except during periods of low production, the latter minimum operating limit is to maintain a positive temperature gradient across the catalyst bed. A low production period is when production is less than 80 percent of production rate during the performance test of that 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 all valid 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. If problems are found during the catalyst activity test, you must replace the catalyst bed or take other corrective action consistent with the manufacturer's recommendations.

(ii) Monthly external inspection of the catalytic 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 inspection of the catalyst bed to check for channeling, abrasion, and settling. If problems are found during the annual internal inspection of the catalyst, you must replace the catalyst bed or take other corrective action consistent with the manufacturer's recommendations. If the catalyst bed is replaced and is not of like or better kind and quality as the old catalyst, and is not consistent with the manufacturer's recommendations, then you must conduct a new performance test to determine destruction efficiency according to § 60.396a. If a catalyst bed is replaced and the replacement catalyst is of like or better kind and quality as the old catalyst, and is consistent with the manufacturer's recommendations, then a new performance test to determine destruction efficiency is not required and you may continue to use the previously established operating limits for that catalytic oxidizer.

(c) Regenerative carbon adsorbers. If your add-on control device is a regenerative 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 all valid 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 3-hour average 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) and (2) of this section.

(1) During the performance test, you must monitor and record the desorption gas inlet temperature at least once every 15 minutes during each of the three runs of the performance test.

(2) Use all valid data collected during the performance test to calculate and record the average desorption gas inlet temperature. The minimum operating limit for the concentrator is 8 degrees Celsius (15 degrees Fahrenheit) below the average desorption gas inlet temperature maintained during the performance test for that concentrator. You must keep the set point for the desorption gas inlet temperature no lower than 6 degrees Celsius (10 degrees Fahrenheit) below the lower of that set point during the performance test for that concentrator and the average desorption gas inlet temperature maintained during the performance test for that concentrator.

(f) **Emission capture systems.** For each capture device that is not part of a permanent total enclosure (PTE) that meets the criteria of § 60.397a and that is not capturing emissions from a downdraft spray booth or from a flash-off area or bake oven associated with a downdraft spray booth, 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 § 60.393a and described in § 60.397a, 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 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, using all valid data. This average gas volumetric flow rate or duct static pressure is the minimum operating limit for that specific capture device.

(g) **Monitoring requirements.** If you use an add-on control device(s) to comply with the emission limits specified under § 60.392a(a) through (c), you must install, operate, and maintain each CMS specified in paragraphs (e), (f), and (g) of this section according to paragraphs (g)(1) through (6) of this section. You must install, operate, and maintain each CMS specified in paragraphs (h) and (i) of this section according to paragraphs (g)(3) through (5) of this section.

(1) The CMS 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 CMS 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 CMS.

(4) You must maintain the CMS at all times in accordance with § 60.11(d) and have readily
available necessary parts for routine repairs of the monitoring equipment.

(5) You must operate the CMS and collect emission capture system and add-on control device
parameter data at all times that a controlled coating operation is operating in accordance with §
60.11(d).

(6) Startups and shutdowns are normal operation for this source category. Emissions from these
activities are to be included when determining if the standards specified in § 60.392a(a) through
(c) are being attained. 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
CMS 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 CMS fails to operate and record data continuously
as required by paragraph (g)(1) of this section or generates data that cannot be included in
calculating averages as specified in this paragraph (g)(7) constitutes a deviation from the
monitoring requirements.

(h) Capture system bypass line. You must meet the requirements of paragraphs (h)(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 (h)(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 § 60.395a.

(i) **Thermal oxidizers and catalytic oxidizers.** If you are using a thermal oxidizer or catalytic oxidizer as an add-on control device (including those used to treat desorbed concentrate streams from concentrators or carbon adsorbers), you must comply with the requirements in paragraphs (i)(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 upstream of the catalyst bed. If you establish the operating parameters for a catalytic oxidizer under § 60.394a(b)(1) through (3), you must also install a gas temperature monitor 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. If you establish the operating parameters for a catalytic oxidizer under § 60.394a(b)(4) through (6), you need not install a gas temperature monitor downstream of the catalyst bed.

(3) For all thermal oxidizers and catalytic oxidizers, you must meet the requirements in paragraphs (g)(1) through (6) and (i)(3)(i) through (vii) of this section for each gas temperature monitoring device, unless approval has been received for alternative monitoring under § 60.13(i) as specified in §60.392a(h). For the purposes of this paragraph (i)(3), a thermocouple is part of the temperature sensor.

(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) The gas temperature sensor must be capable of recording the temperature continuously. 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 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.

(j) **Regenerative carbon adsorbers.** If you are using a regenerative 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 (g)(3) through (5) and (j)(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 (as expressed in degrees Fahrenheit) 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.

(k) **Condensers.** If you are using a condenser, you must monitor the condenser outlet (product side) gas temperature and comply with paragraphs (g)(1) through (6) and (k)(1) and (2) of this section.

(1) The gas temperature monitor must have a measurement sensitivity of 1 percent of the temperature (expressed in degrees Fahrenheit) recorded or 1 degree Fahrenheit, whichever is greater.

(2) The temperature monitor must provide a gas temperature record at least once every 15 minutes.
(l) **Concentrators.** If you are using a concentrator, such as a zeolite wheel or rotary carbon bed concentrator, you must install a temperature monitor in the desorption gas stream. The temperature monitor must meet the requirements in paragraphs (g)(1) through (6) and (i)(3) of this section.

(m) **Emission capture systems.** The capture system monitoring system must comply with the applicable requirements in paragraphs (m)(1) and (2) of this section.

(1) For each flow measurement device, you must meet the requirements in paragraphs (g)(1) through (6) and (m)(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 (g)(1) through (6) and (m)(2)(i) through (vi) of this section.

   (i) Locate the pressure tap(s) in 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 for plugging daily.

   (iv) Using an inclined manometer with a measurement sensitivity of 0.0002 inches of 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.

§ 60.395a Notifications, Reports and Records

(a) Notifications. You must submit all notifications in §§ 60.7, 60.8, 60.13 that apply to you by the dates specified in those sections and in paragraphs (a)(1) through (a)(5) of this section.
(1) A notification of the date construction (or reconstruction as defined under § 60.15) of an affected facility is commenced no later than 30 days after such date.

(2) A notification of the actual date of initial startup of an affected facility within 15 days after such date.

(3) A notification of any physical or operational change to an existing facility which may increase the VOC emission rate within 60 days or as soon as practicable before the change is commenced.

(4) A notification of the date upon which demonstration of the CMS performance commences in accordance with § 60.13(c) not less than 30 days prior to such date.

(5) A notification of any performance test at least 30 days prior to afford the Administrator the opportunity to have an observer present.

(b) Initial performance test report. If you use add-on control devices you must submit reports of performance test results for emission capture systems and add-on control devices. Within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of such facility, you are required to conduct performance test(s) and furnish the Administrator a report of the results of such performance test(s) in accordance with § 60.8(a). You are also required to conduct transfer efficiency test(s) and submit reports of the results of transfer efficiency tests and furnish the Administrator a report of the results of such transfer efficiency tests. The initial performance test report must include the information specified in § 60.8.

(c) Subsequent performance test reports. You must conduct periodic performance tests of add-on control devices in accordance with § 60.393a(b) within five years of the previous performance test and at such other times as may be required by the Administrator under section 114 of the Act in accordance with § 60.8(a). You must furnish the Administrator a written report of the results of such performance test(s) within 60 days of completing the performance test. Periodic testing of transfer efficiency and capture efficiency are not required.

(d) Compliance reports. Following the initial performance test, you must submit a quarterly or semiannual compliance report for each affected source required by § 60.8 according to the requirements of paragraphs (e) and (f) of this section. You must identify, record, and submit a report to the Administrator every calendar quarter each instance a deviation occurred from the emission limits, operating limits, or work practices in §§ 60.392a, 60.393a, 60.394a, that apply to you. If no such instances have occurred during a particular quarter, a report stating this shall be submitted to the Administrator semiannually.

(e) Initial compliance report. You must include the data outlined in paragraphs (e)(1) and (2) of this section in the initial compliance report required by § 60.8 and the information required by § 60.395a (f) through (h).

(1) The volume weighted average mass of VOC per volume of applied coating solids for each affected facility.
Where compliance is achieved through the use of a capture or control device, include the following additional data in the initial performance test report required by § 60.8(a) specified in paragraphs (e)(2)(i) through (v) of this section:

(i) The data collected to establish the operating limits for the appropriate capture or control device required as by § 60.394a and Table 1;

(ii) The total mass of VOC per volume of applied coating solids before and after the control device as required by §60.396a;

(iii) The destruction efficiency of the control device used to attain compliance with the applicable emission limit specified in § 60.392a(a);

(iv) The capture efficiency as required by §60.397a and a description of the method used to establish the capture efficiency for the affected facility; and

(v) The transfer efficiency test results and a description of the method used to establish the transfer efficiency for the affected facility.

(f) Compliance report content. Compliance reports must contain the information specified in paragraphs (f)(1) through (4) of this section and paragraph (g) that are 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.

(4) Identification of the affected source.

(g) No deviations. If there were no deviations from the emission limits, work practices, or operating limits in §§ 60.392a and 60.394a, that apply to you, the compliance report must include a statement that there were no deviations from the applicable emission limitations during the reporting period. If you used control devices to comply with the emission limits, and there were no periods during which the CMS were out of control as specified in § 60.394a(g) the compliance report must include a statement that there were no periods during which the CMS were out of control during the reporting period.

(h) Deviations. If there was a deviation from the applicable emission limits in § 60.392a or the applicable operating limit(s) in Table 1 to this subpart or the work practice standards in § 60.392a, the compliance report must contain the information in paragraphs (h)(1) through (15) of this section.

(1) The beginning and ending dates of each month during which the volume-weighted average of the total mass of VOC emitted to the atmosphere per volume of applied coating solids (N) for the affected source exceeded the applicable emission limit in § 60.392a.
The calculation used to determine the volume-weighted average of the total mass of VOC emitted to the atmosphere per volume of applied coating solids (N) in accordance with § 60.395a. You do not need to submit the background data supporting these calculations, for example information provided by materials suppliers or manufacturers, or test reports.

The date and time that each malfunction of the capture system or add-on control devices used to control emissions from these operations started and stopped.

A brief description of the CMS.

The date of the latest CMS certification or audit.

For each instance that the CMS was inoperative, except for zero (low-level) and high-level checks, the date, time, and duration that the CMS was inoperative; the cause (including unknown cause) for the CMS being inoperative; and descriptions of corrective actions taken.

For each instance that the CMS was malfunctioning or out-of-control, as specified in § 60.394a(g)(6) or (7), the date, time, and duration that the CMS was malfunctioning or out-of-control; the cause (including unknown cause) for the CMS malfunctioning or being out-of-control; and descriptions of corrective actions taken.

The date, time, and duration of each deviation from an operating limit in Table 1 to this subpart; and the date, time, and duration of each bypass of an add-on control device.

A summary of the total duration and the percent of the total source operating time of the deviations from each operating limit in Table 1 to this subpart and the bypass of each add-on control device during the semiannual reporting period.

A breakdown of the total duration of the deviations from each operating limit in Table 1 to this subpart and bypasses of each add-on control device during the semiannual reporting period into those that were due to control equipment problems, process problems, other known causes, and other unknown causes.

A summary of the total duration and the percent of the total source operating time of the downtime for each CMS during the semiannual reporting period.

A description of any changes in the CMS, coating operation, emission capture system, or add-on control devices since the last semiannual reporting period.

For deviations from the work practice standards, the number of deviations, and, for each deviation, the information in paragraphs (13)(i) and (ii) of this section.

A description of the deviation, the date, time, and duration of the deviation; and the actions you took to minimize emissions in accordance with § 60.11(d).

A list of the affected sources or equipment for which a deviation occurred, the cause of the deviation (including unknown cause, if applicable), and any corrective actions taken to return the affected unit to its normal or usual manner of operation.
(14) For deviations from an emission limitation in § 60.392a or operating limit in Table 1 of this subpart, a statement of the cause of each deviation (including unknown cause, if applicable).

(15) For each deviation from an emission limitation in § 60.392a, or operating limit in Table 1 to this subpart, a list of the affected sources or equipment for which a deviation occurred, an estimate of the quantity of VOC emitted over any emission limit in § 60.392a, and a description of the method used to estimate the emissions.

(i) Electronic reporting of performance test data. Where compliance is achieved through the use of add-on control devices, the owner or operator shall submit control device performance test results for initial and subsequent performance tests according to paragraphs (b) and (c) of this section within 60 days of completing each performance test following the procedures specified in paragraphs (i)(1) through (3) of this section.

(1) Data collected using test methods supported by the EPA’s Electronic Reporting Tool (ERT) as listed on the EPA’s ERT website (https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert) at the time of the test.

(i) Submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI), which can be accessed through the EPA’s Central Data Exchange (CDX) (https://cdx.epa.gov/).

(ii) The data must be submitted in a file format generated using the EPA’s ERT. Alternatively, the owner or operator may submit an electronic file consistent with the extensible markup language (XML) schema listed on the EPA’s ERT website.

(2) Data collected using test methods that are not supported by the EPA’s ERT as listed on the EPA’s ERT website at the time of the test.

(i) The results of the performance test must be included as an attachment in the ERT or an alternate electronic file consistent with the XML schema listed on the EPA’s ERT website.

(ii) Submit the ERT generated package or alternative file to the EPA via CEDRI.

(3) Confidential business information (CBI). Do not use CEDRI to submit information you claim as CBI. Any information submitted using CEDRI cannot later be claimed CBI. Under CAA section 114(c), emissions data are not entitled to confidential treatment, and the EPA is required to make emissions data available to the public. Thus, emissions data will not be protected as CBI and will be made publicly available. Owners or operators that assert a CBI claim for any information submitted under paragraph (i)(1) or (2) of this section, must submit a complete file, including information claimed to be CBI, to the EPA. The file must be generated using the EPA’s ERT or an alternate electronic file consistent with the XML schema listed on the EPA’s ERT website. Owners or operators can submit CBI according to one of the two procedures in paragraphs (i)(3)(i) or (ii) of this section. All CBI claims must be asserted at the time of submission.

(i) If sending CBI through the postal service, submit the file on a compact disc, flash drive, or other commonly used electronic storage medium and clearly mark the medium as CBI. Owners
or operators are required to mail the electronic medium to U.S. EPA/OAQPS/CORE CBI Office, Attention: Automobile and Light Duty Truck Surface Coating Operations Sector Lead, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via the EPA’s CDX as described in paragraphs (i)(1) and (2) of this section.

(ii) The EPA preferred method for CBI submittal is for it to be transmitted electronically using email attachments, File Transfer Protocol (FTP), or other online file sharing services (e.g., Dropbox, OneDrive, Google Drive). Electronic submissions must be transmitted directly to the OAQPS CBI Office at the email address oaqpscbi@epa.gov, and as described above, should be clearly identified as CBI and note Attention: Automobile and Light Duty Truck Surface Coating Operations Sector Lead. If assistance is needed with submitting large electronic files that exceed the file size limit for email attachments, and if you do not have your own file sharing service, you can email oaqpscbi@epa.gov to request a file transfer link.

(j) Electronic submittal of reports. The owner or operator shall submit the reports listed in paragraphs (b) through (e) of this section following the procedures specified in paragraphs (j)(1) through (3) of this section. In addition to the information required in paragraphs (b) through (h) of this section, owners or operators are required to report excess emissions and a monitoring systems performance report and a summary report to the Administrator according to § 60.7(c) and (d). Owners or operators are required by § 60.7(c) and (d) to report the date, time, cause, and duration of each exceedance of the applicable emission limit specified in § 60.392a (a), any malfunction of the air pollution control equipment, and any periods during which the CMS or monitoring device is inoperative, malfunctioning, or out-of-control. For each failure, the report must include a list of the affected sources or equipment and a description of the method used to estimate the emissions.

(1) Owners or operators must use the appropriate spreadsheet template on the CEDRI website (https://www.epa.gov/electronic-reporting-air-emissions/cedri) for this subpart. The date the reporting template for this subpart becomes available will be listed on the CEDRI website. The report must be submitted by the deadline specified in this subpart, regardless of the method by which the report is submitted. Submit all reports to the EPA via CEDRI, which can be accessed through the EPA’s CDX (https://cdx.epa.gov/). The EPA will make all the information submitted through CEDRI available to the public without further notice to the owner or operator. Do not use CEDRI to submit information you claim as CBI. Any information submitted using CEDRI cannot later be claimed CBI. If you claim CBI, submit the report following the procedure described in paragraph (i)(3) of this section. The same file with the CBI omitted must be submitted to CEDRI as described in this paragraph.

(2) System outage. Owner or operators that are required to submit a report electronically through CEDRI in the EPA’s CDX, may assert a claim of EPA system outage for failure to timely comply with that reporting requirement. To assert a claim of EPA system outage, owners or operators must meet the requirements outlined in paragraphs (e)(2)(i) through (vii) of this section.
(i) You must have been or will be precluded from accessing CEDRI and submitting a required report within the time prescribed due to an outage of either the EPA’s CEDRI or CDX systems.

(ii) The outage must have occurred within the period of time beginning five business days prior to the date that the submission is due.

(iii) The outage may be planned or unplanned.

(iv) You must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.

(v) You must provide to the Administrator a written description identifying:

(A) The date(s) and time(s) when CDX or CEDRI was accessed, and the system was unavailable;

(B) A rationale for attributing the delay in reporting beyond the regulatory deadline to EPA system outage;

(C) A description of measures taken or to be taken to minimize the delay in reporting; and

(D) The date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported.

(vi) The decision to accept the claim of EPA system outage and allow an extension to the reporting deadline is solely within the discretion of the Administrator.

(vii) In any circumstance, the report must be submitted electronically as soon as possible after the outage is resolved.

(3) Force majeure. Owner or operators that are required to submit a report electronically through CEDRI in the EPA’s CDX, may assert a claim of force majeure for failure to timely comply with that reporting requirement. To assert a claim of force majeure, you must meet the requirements outlined in paragraphs (j)(3)(i) through (iv) of this section.

(i) You may submit a claim if a force majeure event is about to occur, occurs, or has occurred or there are lingering effects from such an event within the period of time beginning five business days prior to the date the submission is due. For the purposes of this section, a force majeure event is defined as an event that will be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents you from complying with the requirement to submit a report electronically within the time period prescribed. Examples of such events are acts of nature (e.g., hurricanes, earthquakes, or floods), acts of war or terrorism, or equipment failure or safety hazard beyond the control of the affected facility (e.g., large scale power outage).

(ii) You must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.

(iii) You must provide to the Administrator:
(A) A written description of the force majeure event;
(B) A rationale for attributing the delay in reporting beyond the regulatory deadline to the force majeure event;
(C) A description of measures taken or to be taken to minimize the delay in reporting; and
(D) The date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported.

(iv) The decision to accept the claim of force majeure and allow an extension to the reporting deadline is solely within the discretion of the Administrator.

(k) Recordkeeping. You must collect and keep records of the data and information specified in paragraphs (k)(1) through (13) of this section. Failure to collect and keep these records is a deviation from the applicable standard.

(1) A copy of each notification and report that you submitted to comply with this subpart, and the documentation supporting each notification and report.

(2) 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 VOC, the density and the volume fraction of coating solids for each coating, and the mass fraction of VOC and the density for each thinner. If you conducted testing to determine mass fraction of VOC, 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. If you use the results of an analysis conducted by an outside testing lab, you must keep a copy of the test report. You are not required to obtain the test report or other supporting documentation from the manufacturer or supplier.

(3) For each month, the records specified in paragraphs (3)(i) through (iii) of this section.

(i) For each coating used for the affected source, a record of the volume used in each month, the mass fraction VOC content, the density, and the volume fraction of solids.

(ii) For each thinner used in coating operations for the affected source, a record of the volume used in each month, the mass fraction VOC content, and the density.

(iii) A record of the calculation of the VOC emission rate for the affected source for each month. This record must include all raw data, algorithms, and intermediate calculations. If the guidelines presented in the “Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Primer-Surfacer and Topcoat” EPA-453/R-08-002 (incorporated by reference, see § 60.17), are used, you must keep records of all data input to this protocol. If these data are maintained as electronic files, the electronic files, as well as any paper copies must be maintained. These data must be provided to the permitting authority on request on paper, and in (if calculations are done electronically) electronic form.
(4) For each deviation from an emission limitation, operating limit, or work practice plan reported under paragraph (h) of this section, a record of the information specified in paragraphs (4)(i) through (4) of this section, as applicable.

(i) The date, time, and duration of the deviation, and for each deviation, the information as reported under paragraph (h) of this section.

(ii) A list of the affected sources or equipment for which the deviation occurred and the cause of the deviation, as reported under paragraph (h) of this section.

(iii) An estimate of the quantity of VOC emitted over any applicable emission limit in § 60.392a or any applicable operating limit in Table 1 to this subpart, and a description of the method used to calculate the estimate, as reported under paragraph (h) of this section.

(iv) A record of actions taken to minimize emissions in accordance with § 60.11(d) and any corrective actions taken to return the affected unit to its normal or usual manner of operation.

(5) The records required by § 60.7(b) and (c) related to SSM.

(6) 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 § 60.397a(a).

(7) 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 § 60.397a(b) through (g), including the records specified in paragraphs (7)(i) through (iv) 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 VOC, 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 VOC for all materials used during each capture efficiency test run, including a copy of the test report. Records of the mass of VOC 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 VOC 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 VOC 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 panel tests. Records needed to document a capture efficiency determination using a panel test as described in § 60.397a(e) and (g), including a copy of the test report and calculations performed to convert the panel test results to percent capture efficiency values.

(iv) Records for an alternative protocol. Records needed to document a capture efficiency determination using an alternative method or protocol, as specified in § 60.397a(f), if applicable.

(8) The records specified in paragraphs (8)(i) and (ii) of this section for each add-on control device VOC destruction or removal efficiency determination as specified in § 60.393a.

(i) Records of each add-on control device performance test conducted according to § 60.393a.

(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.

(9) Records of the data and calculations you used to establish the emission capture and add-on control device operating limits as specified in § 60.394a and to document compliance with the operating limits as specified in Table 1 to this subpart.

(10) Records of the data and calculations you used to determine the transfer efficiency for guide coat and topcoat coating operations pursuant to § 60.393a(h).

(11) A record of the work practice plans required by § 60.392a(b) and (c) and documentation that you are implementing the plans on a continuous basis. Appropriate documentation may include operational and maintenance records, records of documented inspections, and records of internal audits.

(12) For each add-on control device and for each CMS, a copy of the equipment operating instructions must be maintained on-site for the life of the equipment in a location readily available to plant operators and inspectors. You may prepare your own equipment operating instructions, or they may be provided to you by the equipment supplier or other third party.

(l) Record Form and Retention Time

(1) Any records required to be maintained by this subpart that are submitted electronically via the EPA's CEDRI may be maintained in electronic format. This ability to maintain electronic copies does not affect the requirement for facilities to make records, data, and reports available upon request to a delegated air agency or the EPA as part of an on-site compliance evaluation.

(2) Except as provided in paragraph (k)(12) of this section, you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(3) Except as provided in paragraph (k)(12) of this section, 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. You may keep the records off site for the remaining 3 years.
§ 60.396a Add-on Control Device Destruction 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 § 60.393a(j)(4), except as provided in § 60.8. You must conduct three test runs as specified in §§ 60.8(f) and 60.394a, 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 EPA Method 1 or 1A of appendix A-1 to 40 CFR part 60, as appropriate, to select sampling sites and velocity traverse points.

(2) Use EPA Method 2, 2A, 2C, 2D, or 2F of appendix A-1, or 2G of appendix A-2 to 40 CFR part 60, as appropriate, to measure gas volumetric flow rate.

(3) Use EPA Method 3, 3A, or 3B of appendix A-2 to 40 CFR part 60, as appropriate, for gas analysis to determine dry molecular weight. The ANSI/ASME PTC 19.10-1981 (incorporated by reference, see § 60.17), may be used as an alternative to EPA Method 3B.

(4) Use EPA Method 4 of appendix A-3 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 in the effluent gas leaving each stack not equipped with a control device and at the inlet and outlet of the add-on control device simultaneously, using either EPA Method 25 or 25A of appendix A-7 to 40 CFR part 60, as specified in paragraphs (b)(1) through (4) 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 by volume (ppmv) 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 ppmv or less at the control device outlet.

(3) Use Method 25A if the add-control device is not an oxidizer.

(4) You may use EPA Method 18 of appendix A-6 to 40 CFR part 60 to subtract methane emissions from measured total gaseous organic mass emissions as carbon.

(5) For Method 25 and 25A, the sampling time for each of three runs must be at least one hour. The minimum sample volume must be 0.003 dscm except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by the Administrator. The Administrator will approve the sampling of representative stacks on a case-
by-case basis if you can demonstrate to the satisfaction of the Administrator that the testing of representative stacks would yield results comparable to those that would be obtained by testing all stacks.

(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 ($M_f$) 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.

$$M_f = Q_{sd}C_c(12)(0.0416)(10^{-6})$$  \hspace{1cm} \text{(Eq. 1)}

Where:

$M_f$ = Total gaseous organic emissions mass flow rate, kg per hour (kg/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 per 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)).

(e) For each test run, determine the add-on control device organic emissions destruction or removal efficiency using Equation 2 of this section:

$$DRE = \frac{M_{fi} - M_{fo}}{M_{fi}} (100)$$  \hspace{1cm} \text{(Eq. 2)}

Where:

DRE = Organic emissions destruction or removal efficiency of the add-on control device, percent.
\( M_0 \) = 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.

\( M_{0f} \) = 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.

§ 60.397a 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 § 60.393a. For purposes of this subpart, a spray booth air seal is not considered a natural draft opening in a PTE or a temporary total enclosure provided you demonstrate that the direction of air movement across the interface between the spray booth air seal and the spray booth is into the spray booth. For purposes of this subpart, a bake oven air seal is not considered a natural draft opening in a PTE or a temporary total enclosure provided you demonstrate that the direction of air movement across the interface between the bake oven air seal and the bake oven is into the bake oven. You may use lightweight strips of fabric or paper, or smoke tubes to make such demonstrations as part of showing that your capture system is a PTE or conducting a capture efficiency test using a temporary total enclosure. You cannot count air flowing from a spray booth air seal into a spray booth as air flowing through a natural draft opening into a PTE or into a temporary total enclosure unless you elect to treat that spray booth air seal as a natural draft opening. You cannot count air flowing from a bake oven air seal into a bake oven as air flowing through a natural draft opening into a PTE or into a temporary total enclosure unless you elect to treat that bake oven air seal as a natural draft opening.

(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 and thinners used in the coating operation are applied within the capture system, and coating solvent flash-off and coating curing and drying 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 five procedures described in paragraphs (c) through (g) of this section to measure 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 VOC in materials used in the coating operation to the mass of VOC 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 and thinners are applied, and all areas where emissions from these applied coatings and thinners 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 F of appendix M to 40 CFR part 51 to determine the mass fraction of VOC liquid input from each coating and thinner used in the coating operation during each capture efficiency test run.

(3) Use Equation 1 of this section to calculate the total mass of VOC liquid input (VOC_{\text{used}}) from all the coatings and thinners used in the coating operation during each capture efficiency test run.

\[
VOC_{\text{used}} = \sum_{i=1}^{n} (VOC_i)(Vol_i)(D_i) \quad \text{(Eq. 1)}
\]

Where:

- VOC\_i = Mass fraction of VOC in coating or thinner, i, used in the coating operation during the capture efficiency test run, kg VOC per kg material.
- Vol\_i = Total volume of coating or thinner, i, used in the coating operation during the capture efficiency test run, liters.
- D\_i = Density of coating or thinner, i, kg material per liter material.

n = Number of different coatings and thinners 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 VOC 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.

(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:

\[
CE = \left(\frac{VOC_{\text{used}} - VOC_{\text{uncaptured}}}{VOC_{\text{used}}}\right) \times 100
\]  

(Eq. 2)

Where:

\( CE \) = Capture efficiency of the emission capture system vented to the add-on control device, percent.

\( VOC_{\text{used}} \) = Total mass of VOC liquid input used in the coating operation during the capture efficiency test run, kg.

\( VOC_{\text{uncaptured}} \) = Total mass of VOC 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 VOC emissions captured by the emission capture system to the mass of VOC 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 and thinners are applied, and all areas where emissions from these applied coatings and thinners 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 C of appendix M to 40 CFR part 51 to measure the total mass, kg, of VOC emissions captured by the emission capture system during each capture efficiency test run as measured at the inlet to the add-on control device.
(i) The sampling points for the Method 204B or C 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 or sequentially measured in each duct, and the total emissions entering the add-on control device must be determined.

(3) Use Method 204D or E of appendix M to 40 CFR part 51 to measure the total mass, kg, of VOC 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 VOC 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:

\[ CE = \frac{VOC_{captured}}{(VOC_{captured} + VOC_{uncaptured})} \times 100 \]  

(Eq. 3)

Where:

CE = Capture efficiency of the emission capture system vented to the add-on control device, percent.

VOC\text{captured} = Total mass of VOC 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.

VOC\text{uncaptured} = Total mass of VOC 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) Panel testing to determine the capture efficiency of flash-off or bake oven emissions. You may conduct panel testing to determine the capture efficiency of flash-off or bake oven

(1) Calculate the volume of coating solids deposited per volume of coating used for coating, i, or the composite volume of coating solids deposited per volume of coating used for the group of coatings including coating, i, used during the month in the spray booth(s) preceding the flash-off area or bake oven for which the panel test is conducted using Equation 4 of this section:

\[ V_{s \text{dep},i} = (V_{s,i})(TE_{c,i}) \]  

(Eq. 4)

Where:

\( V_{s \text{dep},i} \) = Volume of coating solids deposited per volume of coating used for coating, i, or composite volume of coating solids deposited per volume of coating used for the group of coatings including coating, i, in the spray booth(s) preceding the flash-off area or bake oven for which the panel test is conducted, liter of coating solids deposited per liter of coating used.

\( V_{s,i} \) = Volume fraction of coating solids for coating, i, or average volume fraction of coating solids for the group of coatings including coating, i, liter coating solids per liter coating, determined according to § 60.393a(g).

\( TE_{c,i} \) = Transfer efficiency of coating, i, or average transfer efficiency for the group of coatings including coating, i, in the spray booth(s) for the flash-off area or bake oven for which the panel test is conducted determined according to § 60.393a(h), expressed as a decimal, for example 60 percent must be expressed as 0.60. (Transfer efficiency also may be determined by testing representative coatings. The same coating groupings may be appropriate for both transfer efficiency testing and panel testing. In this case, all of the coatings in a panel test grouping would have the same transfer efficiency.)

(2) Calculate the mass of VOC per volume of coating for coating, i, or the composite mass of VOC per volume of coating for the group of coatings including coating, i, used during the month in the spray booth(s) preceding the flash-off area or bake oven for which the panel test is conducted, kg, using Equation 5 of this section:
\[ \text{VOC}_i = (D_{c,i})(W_{voc_{c,i}}) \]  \hspace{1cm} (Eq. 5)

Where:

\( \text{VOC}_i \) = Mass of VOC per volume of coating for coating, \( i \), or composite mass of VOC per volume of coating for the group of coatings including coating, \( i \), used during the month in the spray booth(s) preceding the flash-off area or bake oven for which the panel test is conducted, kg VOC per liter coating.

\( D_{c,i} \) = Density of coating, \( i \), or average density of the group of coatings, including coating, \( i \), kg coating per liter coating, density determined according to § 60.393a(f)(2).

\( W_{voc_{c,i}} \) = Mass fraction of VOC in coating, \( i \), or average mass fraction of VOC for the group of coatings, including coating, \( i \), kg VOC per kg coating, determined by EPA Method 24 (appendix A-7 to 40 CFR part 60) or the guidelines for combining analytical VOC content and formulation solvent content presented in Section 9 of “Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Primer-Surfacer and Topcoat, EPA-453/R-08-002” (incorporated by reference, see § 60.17).

(3) As an alternative, you may choose to express the results of your panel tests in units of mass of VOC per mass of coating solids deposited and convert such results to a percent using Equation 7 of this section. If you panel test representative coatings, then you may convert the panel test result for each representative coating either to a unique percent capture efficiency for each coating grouped with that representative coating by using coating specific values for the mass of coating solids deposited per mass of coating used, mass fraction VOC, transfer efficiency, and mass fraction solids in Equations 7 and 8 of this section; or to a composite percent capture efficiency for the group of coatings by using composite values for the group of coatings for the mass of coating solids deposited per mass of coating used and average values for the mass of VOC per volume of coating, average values for the group of coatings for mass fraction VOC, transfer efficiency, and mass fraction solids in Equations 7 and 8 of this section. If you panel test each coating, then you must convert the panel test result for each coating to a unique percent capture efficiency for that coating by using coating specific values for the mass of coating solids deposited per mass of coating used, mass fraction VOC, transfer efficiency, and mass fraction solids in Equations 7 and 8 of this section. Panel test results expressed in units of mass of VOC per mass of coating solids deposited must be converted to percent capture efficiency using Equation 6 of this section:

\[ CE_i = (P_{m,i})(W_{sdep,i})(100)/(W_{voc_{c,i}}) \]  \hspace{1cm} (Eq.6)

Where:
CE\(_i\) = Capture efficiency for coating, \(i\), or for the group of coatings including coating, \(i\), for the flash-off area or bake oven for which the panel test is conducted, percent.

P\(_{m,i}\) = Panel test result for coating, \(i\), or for the coating representing coating, \(i\), in the panel test, kg of VOC per kg of coating solids deposited.

\(W_{\text{dep},i}\) = Mass of coating solids deposited per mass of coating used for coating, \(i\), or composite mass of coating solids deposited per mass of coating used for the group of coatings, including coating, \(i\), in the spray booth(s) preceding the flash-off area or bake oven for which the panel test is conducted, kg of solids deposited per kg of coating used, from Equation 8 of this section.

\(W_{\text{VOC},i}\) = Mass fraction of VOC in coating, \(i\), or average mass fraction of VOC for the group of coatings, including coating, \(i\), kg VOC per kg coating, determined by EPA Method 24 (appendix A-7 to 40 CFR part 60) or the guidelines for combining analytical VOC content and formulation solvent content presented in Section 9 of “Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Primer-Surfacer and Topcoat, EPA-453/R-08-002” (incorporated by reference, see § 60.17).

(4) Calculate the mass of coating solids deposited per mass of coating used for each coating or the composite mass of coating solids deposited per mass of coating used for each group of coatings used during the month in the spray booth(s) preceding the flash-off area or bake oven for which the panel test is conducted using Equation 7 of this section:

\[
W_{\text{dep},i} = (W_{s,i})(T_{E_{c,i}}) \quad \text{(Eq. 7)}
\]

Where:

\(W_{\text{dep},i}\) = Mass of coating solids deposited per mass of coating used for coating, \(i\), or composite mass of coating solids deposited per mass of coating used for the group of coatings including coating, \(i\), in the spray booth(s) preceding the flash-off area or bake oven for which the panel test is conducted, kg coating solids deposited per kg coating used.

\(W_{s,i}\) = Mass fraction of coating solids for coating, \(i\), or average mass fraction of coating solids for the group of coatings including coating, \(i\), kg coating solids per kg coating, determined by EPA Method 24 (appendix A-7 to 40 CFR part 60) or the guidelines for combining analytical VOC content and formulation solvent content presented in “Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Primer-Surfacer and Topcoat, EPA-453/R-08-002” (incorporated by reference, see § 60.17).

\(T_{E_{c,i}}\) = Transfer efficiency of coating, \(i\), or average transfer efficiency for the group of coatings including coating, \(i\), in the spray booth(s) for the flash-off area or bake oven for which the panel test is conducted determined according to § 60.393a(h), expressed as a decimal, for example 60 percent must be expressed as 0.60. (Transfer efficiency also may be determined by testing representative coatings. The same coating groupings may be appropriate used for both transfer
efficiency testing and panel testing. In this case, all of the coatings in a panel test grouping would have the same transfer efficiency.)

(f) **Alternative capture efficiency procedure.** As an alternative to the procedures specified in paragraphs (c) through (e) and (g) 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 (DQO) or Lower Confidence Limit (LCL) approach as described in appendix A to subpart KK of 40 CFR part 63.

(g) **Panel testing to determine the capture efficiency of spray booth emissions from solvent-borne coatings.** You may conduct panel testing to determine the capture efficiency of spray booth emissions from solvent-borne coatings using the procedure in appendix A to this subpart.

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**Table 1 to Subpart MMa of Part 60 - Operating Limits for Capture Systems and Add-On Control Devices**

If you are required to comply with operating limits by § 60.392a(g), you must comply with the applicable operating limits in the following table.

<table>
<thead>
<tr>
<th>For the following device ...</th>
<th>You must meet the following operating limit ...</th>
<th>And you must demonstrate continuous compliance with the operating limit by</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Thermal oxidizer</td>
<td>a. The average combustion temperature in any 3-hour period must not fall below the combustion temperature limit established according to § 60.394a(a)</td>
<td>i. Collecting the combustion temperature data according to § 60.394a(i); ii. Reducing the data to 3-hour block averages; and iii. Maintaining the 3-hour average combustion temperature at or above the temperature limit.</td>
</tr>
<tr>
<td>2. Catalytic oxidizer</td>
<td>a. The average temperature measured just before the catalyst bed in any 3-hour period must not fall below the limit established according to § 60.394a(b); and either</td>
<td>i. Collecting the temperature data temperature according to § 60.394a(i)); 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.</td>
</tr>
<tr>
<td></td>
<td>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 § 60.394a(b)(2); or</td>
<td>i. Collecting the temperature data according to § 60.394a(i); ii. Reducing the data to 3-hour block averages; and iii. Maintaining the 3-hour average</td>
</tr>
<tr>
<td>For the following device ...</td>
<td>You must meet the following operating limit ...</td>
<td>And you must demonstrate continuous compliance with the operating limit by</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------------------------------------------------</td>
<td>---------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>temperature difference at or above the temperature difference limit; or</td>
<td>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 § 60.394a(b)(4), you must take corrective action as soon as practicable consistent with the manufacturer's recommendations.</td>
</tr>
<tr>
<td>3. Regenerative carbon adsorber</td>
<td>c. Develop and implement an inspection and maintenance plan according to § 60.394a(b)(4)</td>
<td>i. Measuring the total regeneration desorbing gas mass flow for each regeneration cycle according to § 60.394a(j); and ii. Maintaining the total regeneration desorbing gas mass flow at or above the mass flow limit.</td>
</tr>
<tr>
<td></td>
<td>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 § 60.394a(c)</td>
<td>i. Measuring the temperature of the carbon bed after completing each regeneration and any cooling cycle according to § 60.394a(j); 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.</td>
</tr>
<tr>
<td></td>
<td>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 § 60.394a(c)</td>
<td>i. Collecting the condenser outlet (product side) gas temperature according to § 60.394a(k); 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.</td>
</tr>
<tr>
<td>4. Condenser</td>
<td>a. The average condenser outlet (product side) gas temperature in any 3-hour period must not exceed the temperature limit established according to § 60.394a(d)</td>
<td></td>
</tr>
<tr>
<td>For the following device ...</td>
<td>You must meet the following operating limit ...</td>
<td>And you must demonstrate continuous compliance with the operating limit by</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| 5. Concentrators, including zeolite wheels and rotary carbon adsorbers | a. The average desorption gas inlet temperature in any 3-hour period must not fall below the limit established according to § 60.394a(e) | i. Collecting the temperature data according to § 60.394a(l);  
ii. Reducing the data to 3-hour block averages; and  
iii. maintaining the 3-hour average temperature at or above the temperature limit. |
| 6. Emission capture system that is a PTE | a. The direction of the air flow at all times must be into the enclosure; and either  
b. 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 water, 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 § 60.394a(m)(1) or the pressure drop across the enclosure according to § 60.394a(m)(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. |
| 7. Emission capture system that is not a PTE | 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 § 60.394a(f). This applies only to capture devices that are not part of a PTE that meets the criteria of § 60.397a(a) and that are not capturing emissions from a downdraft spray booth or from a flashoff area or bake oven associated with a downdraft spray booth | i. Collecting the gas volumetric flow rate or duct static pressure for each capture device according to § 60.394a(m);  
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. |
Appendix A to Subpart MMa of Part 60 - Determination of Capture Efficiency of Automobile and Light-Duty Truck Spray Booth Emissions from Solvent-borne Coatings Using Panel Testing

1.0 Applicability, Principle, and Summary of Procedure.

1.1 Applicability.

This procedure applies to the determination of capture efficiency of automobile and light-duty truck spray booth emissions from solvent-borne coatings using panel testing. This procedure can be used to determine capture efficiency for partially controlled spray booths (e.g., automated spray zones controlled and manual spray zones not controlled) and for fully controlled spray booths.

1.2 Principle.

1.2.1 The volatile organic compounds (VOC) associated with the coating solids deposited on a part (or panel) in a controlled spray booth zone (or group of contiguous controlled spray booth zones) partition themselves between the VOC that volatilize in the controlled spray booth zone (principally between the spray gun and the part) and the VOC that remain on the part (or panel) when the part (or panel) leaves the controlled spray booth zone. For solvent-borne coatings essentially all of the VOC associated with the coating solids deposited on a part (or panel) in a controlled spray booth zone that volatilize in the controlled spray booth zone pass through the waterwash and are exhausted from the controlled spray booth zone to the control device.

1.2.2 The VOC associated with the overspray coating solids in a controlled spray booth zone partition themselves between the VOC that volatilize in the controlled spray booth zone and the VOC that are still tied to the overspray coating solids when the overspray coating solids hit the waterwash. For solvent-borne coatings almost all of the VOC associated with the overspray coating solids that volatilize in the controlled spray booth zone pass through the waterwash and are exhausted from the controlled spray booth zone to the control device. The exact fate of the VOC still tied to the overspray coating solids when the overspray coating solids hit the waterwash is unknown. This procedure assumes that none of the VOC still tied to the overspray coating solids when the overspray coating solids hit the waterwash are captured and delivered to the control device. Much of this VOC may become entrained in the water along with the overspray coating solids. Most of the VOC that become entrained in the water along with the overspray coating solids leave the water, but the point at which this VOC leave the water is unknown. Some of the VOC still tied to the overspray coating solids when the overspray coating solids hit the waterwash may pass through the waterwash and be exhausted from the controlled spray booth zone to the control device.
1.2.3 This procedure assumes that the portion of the VOC associated with the overspray coating solids in a controlled spray booth zone that volatilizes in the controlled spray booth zone, passes through the waterwash and is exhausted from the controlled spray booth zone to the control device is equal to the portion of the VOC associated with the coating solids deposited on a part (or panel) in that controlled spray booth zone that volatilizes in the controlled spray booth zone, passes through the waterwash, and is exhausted from the controlled spray booth zone to the control device. This assumption is equivalent to treating all of the coating solids sprayed in the controlled spray booth zone as if they are deposited coating solids (i.e., assuming 100 percent transfer efficiency) for purposes of using a panel test to determine spray booth capture efficiency.

1.2.4 This is a conservative (low) assumption for the portion of the VOC associated with the overspray coating solids in a controlled spray booth zone that volatilizes in the controlled spray booth zone. Thus, this assumption results in an underestimate of conservative capture efficiency. The overspray coating solids have more travel time and distance from the spray gun to the waterwash than the deposited coating solids have between the spray gun and the part (or panel). Therefore, the portion of the VOC associated with the overspray coating solids in a controlled spray booth zone that volatilizes in the controlled spray booth zone should be greater than the portion of the VOC associated with the coating solids deposited on a part (or panel) in that controlled spray booth zone that volatilizes in that controlled spray booth zone.

1.3 Summary of Procedure.

1.3.1 A panel test is performed to determine the mass of VOC that remains on the panel when the panel leaves a controlled spray booth zone. The total mass of VOC associated with the coating solids deposited on the panel is calculated.

1.3.2 The percent of the total VOC associated with the coating solids deposited on the panel in the controlled spray booth zone that remains on the panel when the panel leaves the controlled section of the spray booth is then calculated from the ratio of the two previously determined masses. The percent of the total VOC associated with the coating solids deposited on the panel in the controlled spray booth zone that is captured and delivered to the control device equals 100 minus this percentage. (The mass of VOC associated with the coating solids deposited on the panel which is volatilized and captured in the controlled spray booth zone equals the difference between the total mass of VOC associated with the coating solids deposited on the panel and the mass of VOC remaining with the coating solids deposited on the panel when the panel leaves the controlled spray booth zone.)

1.3.3 The percent of the total VOC associated with the coating sprayed in the controlled spray booth zone that is captured and delivered to the control device is assumed to be equal to the percent of the total VOC associated with the coating solids deposited on the panel in the controlled spray booth zone that is captured and delivered to the control device. The percent of the total VOC associated with the coating sprayed in the entire spray booth that is captured and delivered to the control device can be calculated by multiplying the percent
of the total VOC associated with the coating sprayed in the controlled spray booth zone that is captured and delivered to the control device by the fraction of coating sprayed in the spray booth that is sprayed in the controlled spray booth zone.

2.0 Procedure.

2.1 You may conduct panel testing to determine the capture efficiency of spray booth emissions. You must follow the instructions and calculations in this appendix A, and use the panel testing procedures in ASTM Method D5087-02, “Standard Test Method for Determining Amount of Volatile Organic Compound (VOC) Released from Solvent-borne Automotive Coatings and Available for Removal in a VOC Control Device (Abatement)” (incorporated by reference, see § 60.17), or the guidelines presented in “Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Primer-Surfacer and Topcoat” EPA-453/R-08-002 (incorporated by reference, see § 60.17). You must weigh panels at the points described in section 2.5 of this appendix A and perform calculations as described in sections 3 and 4 of this appendix A. You may conduct panel tests on the production paint line in your facility or in a laboratory simulation of the production paint line in your facility.

2.2 You may conduct panel testing on representative coatings as described in “Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Primer-Surfacer and Topcoat” EPA-453/R-08-002 (incorporated by reference, see § 60.17). If you panel test representative coatings, then you may calculate either a unique percent capture efficiency value for each coating grouped with that representative coating, or a composite percent capture efficiency value for the group of coatings. If you panel test each coating, then you must convert the panel test result for each coating to a unique percent capture efficiency value for that coating.

2.3 Identification of Controlled Spray Booth Zones.

You must identify each controlled spray booth zone or each group of contiguous controlled spray booth zones to be tested. (For example, a controlled bell zone immediately followed by a controlled robotic zone.) Separate panel tests are required for non-contiguous controlled spray booth zones. The flash zone between the last basecoat zone and the first clearcoat zone makes these zones non-contiguous.

2.4 Where to Apply Coating to the Panel.

If you are conducting a panel test for a single controlled spray booth zone, then you must apply coating to the panel only in that controlled spray booth zone. If you are conducting a panel test for a group of contiguous controlled spray booth zones, then you must apply coating to the panel only in that group of contiguous controlled spray booth zones.

2.5 How to Process and When to Weigh the Panel.
The instructions in this section pertain to panel testing of coating, i, or of the coating representing the group of coatings that includes coating, i.

2.5.1 You must weigh the blank panel. (Same as in bake oven panel test.) The mass of the blank panel is represented by $W_{blank,i}$ (grams).

2.5.2 Apply coating, i, or the coating representing coating, i, to the panel in the controlled spray booth zone or group of contiguous controlled spray booth zones being tested (in plant test), or in a simulation of the controlled spray booth zone or group of contiguous controlled spray booth zones being tested (laboratory test).

2.5.3 Remove and weigh the wet panel as soon as the wet panel leaves the controlled spray booth zone or group of contiguous controlled spray booth zones being tested. (Different than bake oven panel test.) This weighing must be conducted quickly to avoid further evaporation of VOC. The mass of the wet panel is represented by $W_{wet,i}$ (grams).

2.5.4 Return the wet panel to the point in the coating process or simulation of the coating process where it was removed for weighing.

2.5.5 Allow the panel to travel through the rest of the coating process in the plant or laboratory simulation of the coating process. You must not apply any more coating to the panel after it leaves the controlled spray booth zone (or group of contiguous controlled spray booth zones) being tested. The rest of the coating process or simulation of the coating process consists of:

2.5.5.1 All of the spray booth zone(s) or simulation of all of the spray booth zone(s) located after the controlled spray booth zone or group of contiguous controlled spray booth zones being tested and before the bake oven where the coating applied to the panel is cured,

2.5.5.2 All of the flash-off area(s) or simulation of all of the flash-off area(s) located after the controlled spray booth zone or group of contiguous controlled spray booth zones being tested and before the bake oven where the coating applied to the panel is cured, and

2.5.5.3 The bake oven or simulation of the bake oven where the coating applied to the panel is cured.

2.5.6 After the panel exits the bake oven, you must cool and weigh the baked panel. (Same as in bake oven panel test.) The mass of the baked panel is represented by $W_{baked,i}$ (grams).

3.0 Panel Calculations.

The instructions in this section pertain to panel testing of coating, i, or of the coating representing the group of coatings that includes coating, i.
3.1 The mass of coating solids (from coating, i, or from the coating representing coating, i, in the panel test) deposited on the panel equals the mass of the baked panel minus the mass of the blank panel as shown in Equation A-1.

\[ W_{sdep,i} = W_{baked,i} - W_{blank,i} \]  
(Eq. A-1)

Where:

\( W_{sdep,i} \) = Mass of coating solids (from coating, i, or from the coating representing coating, i, in the panel test) deposited on the panel, grams.

3.2 The mass of VOC (from coating, i, or from the coating representing coating, i, in the panel test) remaining on the wet panel when the wet panel leaves the controlled spray booth zone or group of contiguous controlled spray booth zones being tested equals the mass of the wet panel when the wet panel leaves the controlled spray booth zone or group of contiguous controlled spray booth zones being tested minus the mass of the baked panel as shown in Equation A-2.

\[ W_{rem,i} = W_{wet,i} - W_{baked,i} \]  
(Eq. A-2)

Where:

\( W_{rem,i} \) = Mass of VOC (from coating, i, or from the coating representing coating, i, in the panel test) remaining on the wet panel when the wet panel leaves the controlled spray booth zone or group of contiguous controlled spray booth zones being tested, grams.

3.3 Calculate the mass of VOC (from coating, i, or from the coating representing coating, i, in the panel test) remaining on the wet panel when the wet panel leaves the controlled spray booth zone or group of contiguous controlled spray booth zones being tested per mass of coating solids deposited on the panel as shown in Equation A-3.

\[ P_{m,i} = (W_{rem,i})/(W_{sdep,i}) \]  
(Eq. A-3)

Where:

\( P_{m,i} \) = Mass of VOC (from coating, i, or from the coating representing coating, i, in the panel test) remaining on the wet panel when the wet panel leaves the controlled spray booth zone or group of contiguous controlled spray booth zones being tested per mass of coating solids deposited on the panel, grams of VOC remaining per gram of coating solids deposited.
\( W_{\text{rem}, i} \) = Mass of VOC (from coating, i, or from the coating representing coating, i, in the panel test) remaining on the wet panel when the wet panel leaves the controlled spray booth zone or group of contiguous controlled spray booth zones being tested, grams.

\( W_{\text{sdp}, i} \) = Mass of coating solids (from coating, i, or from the coating representing coating, i, in the panel test) deposited on the panel, grams.

4.0 Converting Panel Result to Percent Capture.

The instructions in this section pertain to panel testing of for coating, i, or of the coating representing the group of coatings that includes coating, i.

4.1 If you panel test representative coatings, then you may convert the panel test result for each representative coating from section 3.3 of this appendix A either to a unique percent capture efficiency value for each coating grouped with that representative coating by using coating specific values for the mass fraction coating solids and mass fraction VOC in section 4.2 of this appendix A, or to a composite percent capture efficiency value for the group of coatings by using the average values for the group of coatings for mass fraction coating solids and mass fraction VOC in section 4.2 of this appendix A. If you panel test each coating, then you must convert the panel test result for each coating to a unique percent capture efficiency value by using coating specific values for the mass fraction coating solids and mass fraction VOC in section 4.2 of this appendix A. The mass fraction of VOC in the coating and the mass fraction of solids in the coating must be determined by Method 24 (appendix A-7 to 40 CFR part 60) or by following the guidelines for combining analytical VOC content and formulation solvent content presented in "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Primer-Surfacener and Topcoat" EPA-453/R-08-002 (incorporated by reference, see § 60.17).

4.2 The percent of VOC for coating, i, or composite percent of VOC for the group of coatings including coating, i, associated with the coating solids deposited on the panel that remains on the wet panel when the wet panel leaves the controlled spray booth zone or group of contiguous controlled spray booth zones being tested is calculated using Equation A-4.

\[
P_{\text{Voc, pan}, i} = \left( \frac{P_m, i}{W_{s, i}} \right) (100) / \left( W_{\text{Voc}, c, i} \right)
\]

(Eq. A-4)

Where:

\( P_{\text{Voc, pan}, i} \) = Percent of VOC for coating, i, or composite percent of VOC for the group of coatings including coating, i, associated with the coating solids deposited on the panel that remains on the wet panel when the wet panel leaves the controlled spray booth zone or group of contiguous controlled spray booth zones being tested, percent.

\( P_m, i \) = Mass of VOC (from coating, i, or from the coating representing coating, i, in the panel test) remaining on the wet panel when the wet panel leaves the controlled spray booth zone.
or group of contiguous controlled spray booth zones being tested per mass of coating solids deposited on the panel, grams of VOC remaining per gram of coating solids deposited.

\[ W_{s,i} = \text{Mass fraction of coating solids for coating, } i, \text{ or average mass fraction of coating solids for the group of coatings including coating, } i, \text{ grams coating solids per gram coating, determined by EPA Method 24 (appendix A-7 to 40 CFR part 60) or by following the guidelines for combining analytical VOC content and formulation solvent content presented in “Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Primer-Surfacer and Topcoat, EPA-453/R-08-002” (incorporated by reference, see § 60.17).} \]

\[ W_{\text{voc},i} = \text{Mass fraction of VOC in coating, } i, \text{ or average mass fraction of VOC for the group of coatings including coating, } i, \text{ grams VOC per grams coating, determined by EPA Method 24 (appendix A-7 to 40 CFR part 60) or the guidelines for combining analytical VOC content and formulation solvent content presented in “Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Topcoat Operations,” EPA-450/3-88-018 (incorporated by reference, see § 60.17).} \]

4.3 The percent of VOC for coating, \( i \), or composite percent of VOC for the group of coatings including coating, \( i \), associated with the coating sprayed in the controlled spray booth zone (or group of contiguous controlled spray booth zones) being tested that is captured in the controlled spray booth zone or group of contiguous controlled spray booth zones being tested, \( \text{CE}_{\text{zone},i} \) (percent), is calculated using Equation A-5.

\[
\text{CE}_{\text{zone},i} = 100 - P_{\text{voc}_{\text{pan},i}} \quad \text{(Eq. A-5)}
\]

Where:

\( \text{CE}_{\text{zone},i} \) = Capture efficiency for coating, \( i \), or for the group of coatings including coating, \( i \), in the controlled spray booth zone or group of contiguous controlled spray booth zones being tested as a percentage of the VOC in the coating, \( i \), or of the group of coatings including coating, \( i \), sprayed in the controlled spray booth zone or group of contiguous controlled spray booth zones being tested, percent.

4.4 Calculate the percent of VOC for coating, \( i \), or composite percent of VOC for the group of coatings including coating, \( i \), associated with the entire volume of coating, \( i \), or with the total volume of all of the coatings grouped with coating, \( i \), sprayed in the entire spray booth that is captured in the controlled spray booth zone or group of contiguous controlled spray booth zones being tested, using Equation A-6. The volume of coating, \( i \), or of the group of coatings including coating, \( i \), sprayed in the controlled spray booth zone or group of contiguous controlled spray booth zones being tested, and the volume of coating, \( i \), or of the group of coatings including coating, \( i \), sprayed in the entire spray booth may be determined from gun on times and fluid flow rates or from direct measurements of coating usage.

\[
\text{CE}_i = (\text{CE}_{\text{zone},i})(V_{\text{zone},i})/(V_{\text{booth},i}) \quad \text{(Eq. A-6)}
\]
Where:

\( CE_i \) = Capture efficiency for coating, \( i \), or for the group of coatings including coating, \( i \), in the controlled spray booth zone (or group of contiguous controlled spray booth zones) being tested as a percentage of the VOC in the coating, \( i \), or of the group of coatings including coating, \( i \), sprayed in the entire spray booth in which the controlled spray booth zone (or group of contiguous controlled spray booth zones) being tested, percent.

\( V_{\text{zone}, i} \) = Volume of coating, \( i \), or of the group of coatings including coating, \( i \), sprayed in the controlled spray booth zone or group of contiguous controlled spray booth zones being tested, liters.

\( V_{\text{booth}, i} \) = Volume of coating, \( i \), or of the group of coatings including coating, \( i \), sprayed in the entire spray booth containing the controlled spray booth zone (or group of contiguous controlled spray booth zones) being tested, liters.

4.5 If you conduct multiple panel tests for the same coating or same group of coatings in the same spray booth (either because the coating or group of coatings is controlled in non-contiguous zones of the spray booth, or because you choose to conduct separate panel tests for contiguous controlled spray booth zones), then you may add the result from section 4.4 for each such panel test to get the total capture efficiency for the coating or group of coatings over all of the controlled zones in the spray booth for the coating or group of coatings.