2.112 Automobile and Light-Duty Truck Surface Coating Operations (All Sources)

2.112.1 Applicability and Designation of Affected Facility

The affected facility to which the provisions of this source category apply is any automobile or light-duty truck assembly plant subject to the Georgia Rules and Regulations for Air Quality Control Chapter 391-3-1-.02(2)(t).

2.112.2 Test Methods and Procedures

(a) The test methods in Appendix A to this text shall be used to conduct performance tests.

(1) Method 24 or an equivalent or alternative method approved by the Director 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. In specific cases, manufacturers' formulation data may be approved by the Director as an alternative method to Method 24. In the event of dispute, Reference Method 24 shall be the reference method.

(2) Method 25 or an equivalent or alternative method approved by the Director 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.

(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 Director. The Director 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 Director that the testing of representative stacks would yield results comparable to those that would be obtained by testing all stacks.

2.112.3 Emission and Operation Monitoring

The owner or operator of an affected facility which uses an incinerator to comply with any emission limits 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 ±0.75 percent of the temperature being measured expressed in degrees Celsius or ±2.5°C.

(c) Each temperature measurement device shall be equipped such that a continuous record of the temperature(s) is obtained.

2.112.4 Performance Test and Compliance Provisions

(a) The provisions set forth in Section 1.2 of this text are to be followed in any performance testing done under the requirements of this section.

(1) The following exceptions may be observed:

(i) It is only necessary to provide 14 days' notice of tests performed after the initial performance test, as noted in Section 2.112.5(d).

(ii) Triplicate test runs are not required under the provisions set forth in Section 2.112.4(b).

(2) The owner or operator of an affected facility will perform an initial performance test, as specified in Section 1.2 of this text, and thereafter for each affected facility according to procedures in Section 2.112.4(b).

(b) The owner or operator shall use the facility specific procedures specified below for determining emissions of VOC for each applicable operation:

(1) Topcoat operations

(i) General Motors Corporation - Doraville Assembly Plant

The owner or operator shall use the procedures contained in the Environmental Protection Agency (EPA) Document EPA 450/3-88-018 **~~Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Topcoat Operations~~**.

(ii) Ford Motor Company - Hapeville Assembly Plant

The owner or operator shall use the procedures contained in EPA 450/3-88-018 referenced in (i) above.

(2) Spray prime operation

The daily VOC emission rate for any spray prime operation shall be determined by dividing the total pounds of VOC generated that day by the total gallons of solids deposited that day in accordance with the following procedures:

- The total daily VOC generated from the application of prime coatings shall be determined in accordance with Section 5 of the document given in (1)(i).

- The total daily solids deposited shall be determined using the equation in Section 6 of the same document.

- The volume of each coating used each day shall be calculated by prorating the volume of that coating used in a month to each day in the month using the equation in Section 8 of the same document.

- The daily calculation of VOC generated per gallon of each coating used shall be determined in accordance with Section 9 of the same document.

- The analytical VOC content of an as-applied coating shall be determined in accordance with Section 10 of the same document.

- The formulation solvent content of an as-applied coating shall be determined in accordance with Section 11 of the same document.

- The formulation volume solids content of an as-applied coating shall be determined in accordance with Section 12 of the same document.

- The daily transfer efficiency for each coating shall be determined in accordance with Section 13 of the same document. For the spray prime operation of the G. M. Doraville plant, the Director will allow the plant to use a transfer efficiency of 40 percent for the application of spotter coatings using a manual air atomized spray gun and a transfer efficiency of 55 percent for the application of anti-chip coating using automatic air-atomized electrostatic spray guns.

- The monthly vehicle coating summary shall be determined in accordance with Section 15 of the above referenced document.

- The daily vehicle coating summary shall be determined in accordance with Section 16 of the same document.

- The monthly coating usage shall be determined in accordance with Section 17 of the same document.

- The transfer efficiency test procedure in Section 18 of the referenced document shall be used to determine in-plant transfer efficiency of the spray prime coating operation.

- The transfer efficiency test procedure in Section 19 of the same document shall be used to determine pilot line transfer efficiency.

- The formulation weight fraction solvent content of an as-supplied coating shall be determined in accordance with Section 31 of the same document.

- The formulation solvent content of an as-supplied coating shall be determined in accordance with Section 32 of the same document.

- The formulation volume solids content of an as-supplied coating shall be determined in accordance with Section 33 of the same document.

(3) Electrophoretic applied prime operation

The owner or operator shall use the following procedures for each electrophoretic

applied prime operation:

(i) Calculate the total pounds (lbs) of VOC added to the electrophoretic applied prime dip tank during the month using the following equation:

$$lbs\,VOC = \left[gallons\,(gal)\,resin\,added\,to\,dip\,tank \text{ x } \frac{\text{lbs VOC}}{\text{gal resin}} \right]$$

$$+ \left[\text{gal pigment added x } \frac{\text{lbs VOC}}{\text{gal pigment}} \right]$$

$$+ \left[\text{gal flow control additive (FCA) added x } \frac{\text{lbs VOC}}{\text{gal FCA}} \right]$$

Where the VOC contents for the resin, pigment and flow control additive are taken from coating formulation data (showing density and % VOC by weight) provided by the supplier of the materials.

(ii) Calculate the total gallons of coating excluding water added to the electrophoretic applied prime dip tank during the month using the following equation:

$$gallons\,of\,coating\,excluding\,water =$$

$$(gal\,resin\,added)(1 - B_{wr})$$

$$+ (gal\,\,pigment\,added)(1 - B_{wp})$$

$$+ (gal\,FCA\,added)(1 - B_{wf})$$

Where B_{wr}, B_{wp} and B_{wf} represent the volume fraction of water for the resin, pigment and flow control additive, respectively, and are taken from coating formulation data provided by the supplier of the materials.

(iii) Divide the pounds of VOC, as calculated in (i) above, by the gallons of coating excluding water, as calculated in (ii) above, to obtain the VOC emissions level in pounds VOC per gallon of coating excluding water, as a monthly weighted average.

(4) Final repair operation

(i) General Motors Corporation - Doraville Assembly Plant

(A) Calculate an approximate VOC content for each final repair coating, as-applied, utilizing data including topcoat pour records and batch

analysis records and additions of thinners and catalysts. If all such VOC contents are less than 4.8 pounds per gallon of coating, the final repair operation is in compliance.

(B) If the approximate VOC content of any final repair coating, as-applied, exceeds 4.8 pounds per gallon of coating, then determine the daily weighted average VOC emission rate from the final repair operation, in pounds of VOC per gallon of coating solids sprayed, utilizing material usage records and data showing the VOC and formula volume solids contents of the final repair materials.

(ii) Ford Motor Company - Hapeville Assembly Plant

(A) Calculate an approximate VOC content for each final repair paint, as-applied, utilizing data including topcoat pour records and batch analysis records and additions of thinners and catalysts. If all such VOC contents are less than 4.8 pounds per gallon of coating, the final repair operation is in compliance.

(B) If the approximate VOC content of any final repair paint, as-applied, exceeds 4.8 pounds per gallon of coating, then determine the daily weighted average VOC emission rate from the final repair operation, in pounds of VOC per gallon of coating solids sprayed, utilizing material usage records and data showing the VOC and formula volume solids contents of the final repair materials.

(5) Other operations

For any other operation the owner or operator shall use the procedures in section 2.111(d) of this text for determining volume-weighted average emissions of VOCs in units of pounds VOC per gallon containing material excluding water.

(c) The results of the initial control device efficiency test shall be used with the procedures of 2.112.4(b) to calculate emissions of VOC from each applicable operation until or unless the Director specifies or approves the use of other results obtained from subsequent tests.

2.112.5 Reporting and Recordkeeping Requirements

(a) Each owner or operator of an affected facility shall include the data outlined in subparagraphs (1) and (2) in the initial performance test reports.

(1) The owner or operator shall report the emissions of VOC for each operation in the units of the applicable standards. All support data needed for this calculation shall be included.

(2) Where abatement is achieved through the use of incineration, the owner or operator shall include in the control device initial performance test or subsequent performance tests at which destruction efficiency is determined, a record of combustion temperature (or the gas temperature upstream and downstream of the catalyst bed) for the test period.

(3) Where abatement is achieved through the use of a device to recover VOC emissions (e.g., carbon adsorption), the owner or operator shall include in the control device

initial performance test or subsequent performance tests at which the removal efficiency is determined (i) the duration of each adsorption vessel on line operation prior to desorption, and (ii) the concentration of VOC and gas flow rate, if available, for each gas stream exiting the control device. The performance test shall not include times during which the affected facility is not operative.

(b) Following the initial performance test report, each owner or operator shall report for each calendar month within 30 days of the end of that month the emissions of VOC for each operation in the units of the applicable standards during each test period in which the affected operation exceeds the applicable emission limit. The report shall include the nature and cause of any malfunction (if known) which may have attributed to the excess and the corrective action taken or preventive measures adopted. If no excess emissions have occurred for the reporting period, the owner or operator shall submit a report stating such for each calendar quarter.

(c) Where abatement 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 report quarterly within 30 days of the end of the quarter as defined below.

(1) 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.

(2) 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. 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.

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

(d) The owner or operator shall notify the Director 14 days in advance of any test by Reference Method 25.

(e) Each owner or operator shall maintain records as follows to enable computation of VOC emissions from the facility by the procedures of 2.112.4(b). This data shall be maintained on file at the facility for a minimum of two years.

(1) Pour records showing daily additions of resin, pigment and flow control additive to the electrophoretic applied prime dip tank.

(2) Coating formulation data sheets, supplied by the manufacturer of the coating, showing the density and the VOC, water and solids contents, in present weight and percent by volume, of the resin, pigment and flow control additive added to the electrophoretic applied prime dip tank.

(3) Batch analysis sheets on all batches of spray prime coating received at the plant showing the coating density, percent VOC by weight and the theoretical percent volume solids, except as follows: for very low usage spray prime coatings, coating formulation data sheet, showing the density, percent VOC by weight and theoretical percent volume solids of the coatings.

(4) Monthly pour records showing the daily additions of spray prime coatings and thinners for the supply tanks or for very low usage coatings, monthly inventory records showing the monthly usages of the coatings and thinners used to reduce the coatings.

(5) Material safety data sheets on all thinners used to reduce spray prime coatings and topcoat coatings and all catalysts added to final repair topcoat coatings.

(6) Batch analysis sheets on all batches of topcoat coating received at the plant showing the coating density, analytical percent VOC by weight (and formula percent by weight if desired) and the theoretical percent volume solids.

(7) Monthly pour records showing the daily additions of topcoat coatings and thinners to (and withdrawals from) the supply tanks, including beginning-of-the-month and end-of-the-month tank level measurements.

(8) Strip or circular charts showing the measured combustion temperature of all topcoat oven incinerators.

(9) Records showing the number of cars and/or trucks produced per day by color and by model.

(10) Reports of the initial performance test and subsequent performance tests required by Section 2.112.4 for the electrophoretic applied prime operation, spray prime operation, topcoat operation and final repair operation.

(11) Records of all malfunctions or breakdowns of the topcoat oven incinerators to include the amount of incinerator downtime, the cause of the downtime, the corrective actions taken and the preventive measures implemented.

(12) Records of any calibration of the temperature monitoring and recording system on a topcoat oven incinerator.