2.113 Flat Wood Paneling

2.113.1 Applicability and Designation of Affected Facility

The provisions of this source category apply to any facility subject to Section 1.1 of this text which performs the surface coating of flat wood paneling.

2.113.2 Definitions and Symbols

All symbols used in this source category not defined below are given the meaning in the Clean Air Act of 1970 (as amended) or the Georgia Air Quality Act (as amended) or in published regulations pertaining thereto.

A = the total area to which VOC coatings are applied during the averaging period, including the total area of panels which are recoated (ft^2)

B_w = the proportion of the coating which is water (fraction by volume)

C_a = the VOC concentration in each gas stream leaving the control device and entering the atmosphere (parts per million by volume, as carbon)

C_b = the VOC concentration in each gas stream entering the control device (parts per million by volume, as carbon)

C_f = the VOC concentration in each gas stream emitted directly to the atmosphere (parts per million by volume, as carbon)

D_c = density of each coating, as received (pounds per gallon)

D_d = density of each VOC-solvent added to coatings (pounds per gallon)

D_r = density of VOC-solvent recovered by an emission control device (pounds per gallon)

E = VOC destruction efficiency of the control device (fraction)

F = the proportion of total VOCs emitted by an affected facility that enters the control device (fraction)

L_c = the volume of each coating consumed, as received (gallons)

L_d = the volume of VOC-solvent added to coatings (gallons)

L_r = the volume of VOC-solvent recovered by an emission control device (gallons)

L_s = the volume of coating solids consumed (gallons)

M_d = the mass of VOC-solvent added to coatings (pounds)

M_o = the mass of VOCs in coatings consumed, as received (pounds)

M_r = the mass of VOCs recovered by an emission control device (pounds)

N = the volume-weighted average mass of VOC emissions to the atmosphere per unit area of

paneling

Q_a = the volumetric flow rate of each gas stream leaving the control device and entering the atmosphere (dry standard cubic feet per hour)

Q_b = the volumetric flow rate of each gas stream entering the control device (dry standard cubic feet per hour)

Q_f = the volumetric flow rate of each gas stream emitted directly to the atmosphere (dry standard cubic feet per hour)

R = the overall VOC emission reduction achieved for an affected facility (fraction)

V_s = the proportion of solids in each coating (or input stream), as received (fraction by volume)

W_o = the proportion of VOCs in each coating (or input stream), as received (fraction by weight)

2.113.3 Performance Tests and Compliance Provisions

(a) The provisions of paragraph d and f of Section 1.2 of this text do not apply to the required periodic (e.g., monthly, daily) compliance tests, but do apply to the tests required in §2.113.3(c)(2) and (3).

(b) The owner or operator of an affected facility shall conduct an initial performance test as required under Section 1.2 according to procedures in this section; and, thereafter, procedures in this section shall be used to conduct the required periodic (e.g., daily, monthly, etc.) performance tests to demonstrate compliance with the applicable Georgia Regulations for Air Quality Control or Federal New Source Performance Standards.

(c) The owner or operator shall use the following procedures for determining volume-weighted average emissions of VOCs in pounds per square foot of surface area (lbs./ft^2).

(1) An owner or operator shall use the following procedures for any affected facility that does not use a capture system and control device to comply with the applicable emission limit. The owner or operator shall determine the composition of the coatings by formulation data supplied by the manufacturer of the coating or by an analysis of each coating, as received, using Reference Method 24. The Director may require the owner or operator who uses formulation data supplied by the manufacturer of the coating to determine the VOC content of coatings using Reference Method 24 or an equivalent or alternate method. The owner or operator shall determine the volume of coating and the mass of VOC-solvent added to the coatings from company records on a frequency equal to the averaging period. If a common coating distribution system serves more than one affected facility, the owner or operator shall estimate the volume of coating used at each affected facility by using the average dry weight of coating and the surface area coated by each affected facility or by other procedures acceptable to the Director.

(i) Calculate the volume-weighted average of the total mass of VOCs consumed per unit volume of coating solids applied (G) during each averaging period for each affected facility. The weighted average of the total mass of VOCs consumed per unit volume of coating solids applied each averaging period is

determined by the following procedures.

(A) Calculate the mass of VOCs used (M_o+M_d) during each averaging period for each affected facility by the following equation:

$$M_o + M_d = \sum_{i=1}^{n} L_{ci} D_{ci} W_{oi} + \sum_{i=1}^{m} L_{dj} D_{dj} \quad (1)$$

($L_{dj}D_{dj}$) will be 0 if no VOC solvent is added to the coatings, as received.)

Where: **n** is the number of different coatings used during the averaging period and **m** is the number of different VOC-solvents added to coatings used during the averaging period.

(ii) Calculate the weighted average of VOC emissions to the atmosphere (N) during the averaging period for each affected facility by the following equation:

$$N = \frac{M_o + M_d}{A} \quad (2)$$

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

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

(A) Determine the fraction (F) of total VOCs emitted by an affected facility that enters the control device using the following equation or as provided in Appendix G of this text:

$$F = \frac{\sum_{i=1}^{k} C_{bi} Q_{bi}}{\sum_{i=1}^{k} C_{bi} Q_{bi} + \sum_{i=1}^{k} C_{fi} Q_{fi}} \quad (3)$$

Where: **k** is the number of gas streams entering the control device and **p** is the number of gas streams emitted directly to the

atmosphere.

The owner or operator of the affected facility shall construct a temporary enclosure around the coating applicator and flashoff area during the performance test for the purpose of evaluating the capture efficiency of the system. The enclosure must be maintained at a negative pressure to ensure that all VOC emissions are measurable. If a permanent enclosure exists in the affected facility prior to the performance test and the Director is satisfied that the enclosure is adequately containing VOC emissions, no additional enclosure is required for the performance test. An alternate method for determining **F** pursuant to paragraph (b) of Section 1.2 may be approved by the Director if he determines that the results will be adequate for indicating whether the affected facility is in compliance.

(B) Determine the destruction efficiency of the control device (E) using values of the volumetric flow rate of each of the gas streams and the VOC content (as carbon) of each of the gas streams in and out of the device by the following equation:

$$E = \frac{\sum_{i=1}^{n} Q_{bi} C_{bi} - \sum_{j=1}^{m} Q_{aj} C_{aj}}{\sum_{i=1}^{n} Q_{bi} C_{bi}} \qquad (4)$$

Where: **n** is the number of gas streams entering the control device, and **m** is the number of gas streams leaving the control device and entering the atmosphere.

The owner or operator of the affected facility shall construct the VOC emission reduction system so that all volumetric flow rates and total VOC emissions can be accurately determined by the applicable test methods and procedures.

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

$$R = EF \qquad (5)$$

(ii) Calculate the weighted average of VOC emissions to the atmosphere (N) during each averaging period by the following equation:

$$N = \frac{M_o + M_d}{A}(1 - R) \qquad (6)$$

(3) An owner or operator shall use the following procedure for any affected facility which uses a control device that recovers the VOCs (e.g., carbon absorber) to comply with the applicable emission limit.

(i) Calculate the total mass of VOCs consumed (M_o+M_d) during each averaging period for each affected facility using equation (1).

(ii) Calculate the total mass of VOC's recovered (M_r) during each averaging period using the following equation:

$$M_r = L_r D_r \quad (7)$$

(iii) Calculate overall reduction efficiency of the control device (R) for each averaging period for each affected facility using the following equation:

$$R = \frac{M_r}{M_o + M_d} \quad (8)$$

(iv) Calculate the weighted average mass of VOCs emitted to the atmosphere (N) for each averaging period for each affected facility using equation (6).

(4) [Reserved]

2.113.4 (a) [Reserved]

(b) [Reserved]

(c) If thermal incineration is used, each owner or operator subject to the provisions of this subpart shall install, calibrate, operate, and maintain a device that continuously records the combustion temperature of any effluent gases. This device shall have an accuracy of ±2.5°C or ±0.75 percent of the temperature being measured expressed in degrees Celsius, which is greater. Each owner or operator shall also record all periods (during actual coating operations) in excess of 3 hours during which the average temperature in any thermal incinerator used to control emissions from an affected facility remains more than 28°C (50°F) below the temperature at which compliance was demonstrated during the most recent measurement of incinerator efficiency required by Section 1.2. Records shall identify each such occurrence and its duration. If catalytic incineration is used, the owner or operator shall install, calibrate, operate, and maintain a device to monitor and record continuously the gas temperature both upstream and downstream of the incinerator catalyst bed. This device shall have an accuracy of ±2.5°C or ±0.75 percent of the temperature being measured expressed in degrees Celsius, whichever is greater. During coating operations, the owner or operator shall record all periods in excess of 3 hours where the average difference between the temperature upstream and downstream of the incinerator catalyst bed remains below 80 percent of the temperature difference at which compliance was demonstrated during the most recent measurement of incinerator efficiency or when the inlet temperature falls more than 28°C (50°F) below the temperature at which compliance was demonstrated during the most recent measurement of incinerator efficiency required by Section 1.2. Records shall identify each such occurrence and its duration.

2.113.5 Test Methods and Procedures

(a) The reference methods in Appendix A of this text, except as provided under Section 1.2, shall be used to determine compliance with the applicable standards as follows:

(1) Method 24, or data provided by the formulator of the coating for determining the VOC content of each coating as applied. In the event of a dispute, Method 24 shall be the reference method. When VOC content of waterborne coatings, determined by Method 24, is used to determine compliance of affected facilities, the results of the Method 24 analysis shall be adjusted as described in Section 4.4 of Method 24;

(2) Method 25, both for measuring the VOC concentration in each gas stream entering and leaving the control device on each stack equipped with an emission control device and for measuring the VOC concentration in each gas stream emitted directly to the atmosphere;

(3) Method 1 for sample and velocity traverses;

(4) Method 2 for velocity and volumetric flow rate;

(5) Method 3 for gas analysis; and

(6) Method 4 for stack gas moisture.

(b) For Method 24, the coating sample must be at least a 1-liter sample taken at a point where the sample will be representative of the coating as applied.

(c) For Method 25, the sampling time for each of three runs is to be at least 60 minutes, and the minimum sampling volume is to be at least 0.003 dry standard cubic meter (DSCM); however, shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by the Director.

(d) The Director will approve testing of representative stacks on a case-by-case basis if the owner or operator can demonstrate to the satisfaction of the Director that testing of representative stacks yields results comparable to those that would be obtained by testing all stacks.

(e) The protocols of Appendix G shall be used to determine the capture efficiency.