

**23.0 Coating of Flat Wood Paneling**  
**(2010 revision, draft 1)**

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23.1 Applicability

23.1.1 The provisions of 23.0 of this regulation apply to any flat wood paneling coating line, except as specified in 23.1.2 of this regulation.

23.1.2 The provisions of 23.0 of this regulation do not apply to: ~~23.1.2.1 Any~~ any flat wood paneling coating line within any facility whose actual emissions without control devices from all flat wood paneling coating lines within the facility are less than 6.8 kilograms (kg) (15 pounds [lb]) of volatile organic compounds (VOCs) per day.

~~23.1.2.2 Class I hardboard paneling finishes, particle board used in furniture, insulation board, exterior siding, tileboard, and softwood plywood coating lines.~~

23.1.3 An owner or operator of a facility whose emissions are below the applicability threshold in 23.1.2.1 of this regulation shall comply with the certification, recordkeeping, and reporting requirements of 23.7.1 of this regulation.

23.1.4 Any facility that becomes or is currently subject to the provisions of 23.0 of this regulation by exceeding the applicability threshold in 23.1.2.1 of this regulation will remain subject to these provisions even if its emissions later fall below the applicability threshold.

23.1.5 Any facility that is currently subject to a state or federal rule promulgated pursuant to the Clean Air Act Amendments of 1977 by exceeding an applicability threshold is and will remain subject to these provisions, even if its throughput or emissions have fallen or later fall below the applicability threshold.

23.2 Definitions. As used in 23.0 of this regulation, all terms not defined herein shall have the meaning given them in the November 15, 1990 Clean Air Act Amendments (CAAA), or in 2.0 of this regulation.

**“Class I hardboard paneling finish”** means finishes that meet the specifications for Class I of Voluntary Product Standard PS-59-73 as approved by the American National Standards Institute.

**“Class II hardboard paneling finish”** means finishes that meet the specifications for Class II of Voluntary Product Standard PS-59-73 as approved by the American National Standards Institute.

**“Flat wood paneling coating line”** means a coating line used to apply and dry or cure coatings applied to one of the following flat wood paneling product categories: printed interior panels made of hardwood plywood and thin particle board (i.e., less than or equal to 0.64 centimeter (cm) (0.25 inch [in.]) in thickness); natural finish hardwood plywood panels; and hardwood paneling with Class II finishes.

**“Hardboard”** is a panel manufactured primarily from inter-felted ligno-cellulosic fibers that are consolidated under heat and pressure in a hot press.

“**Hardwood plywood**” is plywood whose surface layer is a veneer of hardwood.

“**Natural finish hardwood plywood panels**” means panels whose original grain pattern is enhanced by essentially transparent finishes frequently supplemented by fillers and toners.

“**Printed interior panels**” means panels whose grain or natural surface is obscured by fillers and basecoats upon which a simulated grain or decorative pattern is printed.

“**Thin particleboard**” is a manufactured board that is 0.64 cm (0.25 in.) or less in thickness made of individual wood particles that have been coated with a binder and formed into flat sheets by pressure.

“**Tileboard**” means paneling that has a colored, waterproof surface coating.

23.3 Standards

23.3.1 No owner or operator of a flat wood paneling coating line subject to 23.0 of this regulation shall cause or allow, on any day, VOC emissions from the coating of any one of the following flat wood paneling categories in excess of the emission limits in Table 23-1 23.3.1.1 through 23.3.1.2 of this regulation:

Table 23-1. VOC Emission Limits from Flat Wood Paneling Coatings.

Flat Wood Paneling Product Category	VOC Content Limits in Coatings, Inks, or Adhesives Being Applied	
	lb/gal	g/L
Printed interior panels made of hardwood, plywood, or thin particleboard	2.1*	250
Natural finish hardwood plywood panels	2.1	250
Class II finishes on hardboard panels	2.1	250
Tileboard	2.1	250
Exterior siding	2.1	250

\*This limit of 2.1 lb/gal is equivalent to 5.0 lb VOC per 1,000 ft<sup>2</sup> coating area.

Flat wood paneling product category	kg/100m <sup>2a</sup>	lb/1,000ft <sup>2a</sup>
23.3.1.1 Printed interior panels	2.9	6.0
23.3.1.2 Natural finish hardwood plywood panels	5.8	12.0
23.3.1.3 Class I finish on hardboard panels	4.8	10.0

<sup>a</sup> VOC content values are expressed in units of mass of VOC (kg, lb) per area of coated finished product (100 square meters [m<sup>2</sup>], 1,000 square feet [ft<sup>2</sup>])

23.3.2 As an alternative to compliance with the emission limits in 23.3.1 of this regulation, an owner or operator of a flat wood paneling coating line may meet the requirements of 23.5 of this regulation.

23.4 ~~[Reserved]~~ Work Practice Standards. No owner or operator of a flat wood paneling coating line subject to 23.0 of this regulation shall perform coating operation of any flat wood paneling category in Table 23-1 of this regulation unless the owner or operator meets the work practice requirements of 8.0 of this regulation.

23.5 Control Devices

23.5.1 An owner or operator of a flat wood paneling coating line subject to 23.0 of this regulation may comply with 23.0 of this regulation by:

23.5.1.1 Installing and operating a capture system on that line.

23.5.1.2 Installing and operating a control device on that line.

23.5.1.3 Determining for each day the overall emission reduction efficiency needed to demonstrate compliance. The overall emission reduction needed for a day is the lesser of the value calculated according to the procedure in 23.6.2 of this regulation for that day or 95%. If the calculated efficiency is less than 90%, use 90% as the needed efficiency.

23.5.1.4 Demonstrating each day that the overall emission reduction efficiency achieved for that day, as determined in 5.0 of Appendix D of this regulation, is greater than or equal to the overall emission reduction efficiency ~~required~~ needed for that day as determined in 23.5.1.3 of this regulation.

23.5.2 An owner or operator of a flat wood paneling coating line subject to 23.0 of this regulation shall ensure that:

23.5.2.1 A capture system and control device are operated at all times that the line is in operation, and the owner or operator demonstrates compliance with 23.0 of this regulation through the applicable coating analysis and capture system and control device efficiency test methods specified in Appendix B, Appendix D and Appendix E of this regulation and in accordance with the capture efficiency test methods in Appendix D of this regulation.

23.5.2.2 The control device is equipped with the applicable monitoring equipment specified in 2.0 of Appendix D of this regulation, and the monitoring equipment is installed, calibrated, operated, and maintained according to the vendor's specifications at all times the control device is in use.

## 23.6 Test Methods and Efficiency of Control System

23.6.1 ~~Test methods.~~ The test methods ~~found~~ specified in 23.6, ~~of this regulation and in~~ **Appendix A, Appendix B and Appendix D** of this regulation shall be used to determine compliance.

23.6.2 ~~Overall emission reduction efficiency for control systems.~~ The required overall emission reduction efficiency of the control system for the day shall be calculated according to the following equation:

$$E = \left[ \frac{(\text{VOC}_a - S)}{\text{VOC}_a} \right] \times 100 \quad (23-1)$$

where:

E = The required overall emission reduction efficiency of the control system for the day.

VOC<sub>a</sub> = The maximum VOC content of the coatings, as applied, used each day on a coating line in units of lb VOC/gal of coating material applied (or kg VOC/L of coating material applied), kg VOC/100 m<sup>2</sup> of coated finished product (lb VOC/1,000 ft<sup>2</sup>), as determined by the applicable test methods and procedures specified in Appendix B of this regulation.

S = applicable VOC emission limitation in Table 23-1 of this regulation in terms of lb VOC/gal of coating material applied (or kg VOC/L of coating material applied) kg VOC/100 m<sup>2</sup> of coated finished product (lb VOC/1,000 ft<sup>2</sup>).

## 23.7 Recordkeeping and reporting

23.7.1 Requirements for coating sources exempt from emission limitations. An owner or operator of a flat wood paneling coating line that is exempt from the emission limitations of 23.3 of this regulation because combined VOC emissions on any day from all flat wood paneling coating lines at the facility are below the applicability threshold specified in 23.1.2.4 of this regulation, before the application of capture systems and control devices, shall comply with the following:

23.7.1.1 Certification. ~~By November 15, 1993,~~ Within six months after [insert the effective date of this revision of 23.0], the owner or operator of a facility ~~referenced specified~~ in 23.7.1 of this regulation shall certify to the Department that the facility is exempt by providing the following:

23.7.1.1.1 The name and location of the facility.

23.7.1.1.2 The address and telephone number of the person responsible for the facility.

23.7.1.1.3 A declaration that the facility is exempt from the emission limitations of 23.3 of this regulation because combined VOC emissions on any day from all flat wood paneling coating lines at the facility are below the applicability threshold before the application of capture systems and control devices. The following equation shall be used to calculate total VOC emissions for that day:

$$T = \sum_{i=1}^n C_i D_i a \quad (23-2)$$

where:

T = Total VOC emissions from coating lines at the facility for each category of flat wood paneling (as specified in 23.3.1 of this regulation) before the application of capture systems and control devices in units of kg VOC/day (lb VOC/day).

n = Number of different coatings applied on each coating line at the facility.

i = Subscript denoting an individual coating.

C = Mass of VOC per area of coated finished product in units of kg VOC/100 m<sup>2</sup> (lb VOC/1,000 ft<sup>2</sup>).

D = The surface area coated at the facility each day in units of m<sup>2</sup>/day (ft<sup>2</sup>/day).

a = Constant = 100 m<sup>2</sup> if using metric units.  
= 1,000 ft<sup>2</sup> if using English units.

- 23.7.1.2 Recordkeeping. On and after ~~November 15, 1993~~ [insert the effective date of this revision of 23.0], the owner or operator of a facility ~~referenced~~ specified in 23.7.1 of this regulation shall collect and record all of the following information each day and maintain the information at the facility for a period of five years:
- 23.7.1.2.1 The name and identification number of each coating, as applied, used to coat each type of flat wood paneling product.
  - 23.7.1.2.2 The volume of coating (i) (excluding water and exempt compounds), as applied, used each day to coat each type of flat wood paneling product (specified in 23.3.1 of this regulation), and the surface area coated each day of each type of flat wood paneling product.
  - 23.7.1.2.3 The total VOC emissions at the facility, as calculated using the equation under 23.7.1.1.3 of this regulation.
- 23.7.1.3 Reporting. On and after ~~November 15, 1993~~ [insert the effective date of this revision of 23.0], the owner or operator of a facility ~~referenced~~ specified in 23.7.1 of this regulation shall notify the Department of any record showing that combined VOC emissions from all coating lines at the coating facility exceed 6.8 kg (15 lb) on any day, before the application of capture systems and control devices. A copy of such record shall be sent to the Department within 45 calendar days after the exceedance occurs. This requirement is in addition to any other exceedance reporting requirements mandated by the State of Delaware.
- 23.7.2 Requirements for coating sources using complying coatings. An owner or operator of a flat wood paneling coating line subject to 23.0 of this regulation and complying with 23.3 of this regulation by means of the use of complying coatings shall comply with the following:
- 23.7.2.1 Certification. ~~By November 15, 1993,~~ Within six months after [insert the effective date of this revision of 23.0], or upon startup of a new coating line, or upon changing the method of compliance for an existing coating line from control devices to the use of complying coatings, the owner or operator of a coating line ~~referenced~~ specified in 23.7.2 of this regulation shall certify to the Department that the coating line is or will be in compliance with the requirements of the applicable section of this regulation on and after ~~November 15, 1993,~~ [insert the effective date of this revision of 23.0], or on and after the initial startup date. Such certification shall include:
- 23.7.2.1.1 The name and location of the facility.
  - 23.7.2.1.2 The address and telephone number of the person responsible for the facility.
  - 23.7.2.1.3 Identification of subject sources.
  - 23.7.2.1.4 The name and identification number of each coating, as applied, used to coat each type of flat wood paneling product.
  - 23.7.2.1.5 The VOC content of each coating ~~The mass of VOC per area of coated finished product~~ for each type of flat wood paneling product (specified in 23.3.1 of this regulation) in terms of lb VOC/gal of coating material applied

~~(or kg VOC/L of coating material applied) kg VOC/100 m<sup>2</sup> (lb VOC/1,000 ft<sup>2</sup>) and the volume of each coating (in terms of gal or L) surface area coated each day of each type of flat wood paneling product.~~

- 23.7.2.2 Recordkeeping. On and after ~~November 15, 1993~~ [insert the effective date of this revision of 23.0], or on and after the initial startup date, the owner or operator of a coating line referenced in 23.7.2 of this regulation and complying by the use of complying coatings shall collect and record all of the following information each day for each coating line and maintain the information at the facility for a period of five years:
- 23.7.2.2.1 The name and identification number of each coating, as applied, used to coat each type of flat wood paneling product.
  - 23.7.2.2.2 ~~The VOC content of each coating~~ ~~The mass of VOC per area of coated finished product~~ for each type of flat wood paneling product (specified in 23.3.1 of this regulation) in terms of lb VOC/gal of coating material applied (or kg VOC/L of coating material applied) kg VOC/100 m<sup>2</sup> (lb VOC/1,000 ft<sup>2</sup>) and the volume of each coating (in terms of gal or L) surface area coated each day of each type of flat wood paneling product.
- 23.7.2.3 Reporting. On and after ~~November 15, 1993~~ [insert the effective date of this revision of 23.0], the owner or operator of a flat wood paneling coating line referenced in 23.7.2 of this regulation shall notify the Department in either of the following instances:
- 23.7.2.3.1 Any record showing use of any non-complying coatings shall be reported by sending a copy of such record to the Department within 45 calendar days following that use. This reporting requirement is in addition to any other exceedance reporting mandated by the State of Delaware.
  - 23.7.2.3.2 At least 30 calendar days before changing the method of compliance from the use of complying coatings to control devices, the owner or operator shall comply with all requirements of 23.7.3.1 of this regulation, as well as 7 **DE Admin. Code** 1102. Upon changing the method of compliance from the use of complying coatings to control devices, the owner or operator shall comply with all requirements of the section applicable to the coating line referenced in 23.7.3 of this regulation.
- 23.7.3 Requirements for coating sources using control devices. Any owner or operator of a flat wood paneling coating line subject to 23.0 of this regulation and complying with 23.3 of this regulation by the use of control devices shall comply with the following:
- 23.7.3.1 Testing of control equipment. ~~By November 15, 1993,~~ Within six months after [insert the effective date of this revision of 23.0], or upon startup of a new coating line, or upon changing the method of compliance for an existing coating line from the use of complying coatings to control devices, the owner or operator of the subject coating line shall perform a compliance test. Testing shall be performed within 90 days of startup, and pursuant to the procedures in **Appendix A**, **Appendix B** and **Appendix D** of this regulation and 23.6 of this regulation. The owner or operator of the subject coating line shall submit to the Department the results of all tests and calculations necessary to demonstrate that the subject coating line is or will be in compliance with the applicable section of this

regulation on and after ~~November 15, 1993~~, [insert the effective date of this revision of 23.0], or on and after the initial startup date.

23.7.3.2 Recordkeeping. On and after ~~November 15, 1993~~ [insert the effective date of this revision of 23.0], or on and after the initial startup date, the owner or operator of a coating line referenced in 23.7.3 of this regulation shall collect and record all of the following information each day for each coating line and maintain the information at the facility for a period of five years:

23.7.3.2.1 The name and identification number of each coating used on each coating line, as applied, used to coat each type of flat wood paneling product.

23.7.3.2.2 ~~The VOC content of each coating~~ ~~The mass of VOC per area of coated finished product~~ for each type of flat wood paneling product (specified in 23.3.1 of this regulation) in terms of lb VOC/gal of coating material applied (or kg VOC/L of coating material applied) ~~kg VOC/100 m<sup>2</sup> (lb VOC/1,000 ft<sup>2</sup>)~~ and the volume of each coating (in terms of gal or L) ~~surface area coated~~ each day of each type of flat wood paneling product.

23.7.3.2.3 The maximum VOC content of the coatings, as applied, used each day (in terms of lb VOC/gal of coating material applied [or kg VOC/L of coating material applied]~~mass of VOC per area of coated finished product in terms of kg VOC/100 m<sup>2</sup> [lb VOC/1,000 ft<sup>2</sup>]~~).

23.7.3.2.4 The required overall emission reduction efficiency for each day for each coating line as determined in 23.6.2 of this regulation.

23.7.3.2.5 The actual overall emission reduction efficiency achieved for each day for each coating line as determined in 3.0 of **Appendix D** of this regulation.

23.7.3.2.6 Control device monitoring data.

23.7.3.2.7 A log of operating time for the capture system, control device, monitoring equipment, and the associated coating line.

23.7.3.2.8 A maintenance log for the capture system, control device, and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages.

23.7.3.2.9 For thermal incinerators, all 3-hour periods of operation in which the average combustion temperature was more than 28°C (50°F) below the average combustion temperature during the most recent performance test that demonstrated that the facility was in compliance. The combustion chamber set-point shall be no less than that during the most recent performance test that demonstrated that the facility was in compliance.

23.7.3.2.10 For catalytic incinerators, all three-hour periods of operation in which the average temperature of the process vent stream immediately before the catalyst bed is more than 28°C (50°F) below the average temperature of the process vent stream immediately before the catalyst bed during the most recent performance test that demonstrated that the facility was in compliance. The set-point for the process vent stream immediately before

the catalyst bed shall be no less than that during the most recent performance test that demonstrated that the facility was in compliance.

23.7.3.2.11 For carbon adsorbers, all three-hour periods of operation during which either the average VOC concentration or the reading of organics in the exhaust gases is more than 20% greater than the average exhaust gas concentration or reading measured by the organics monitoring device during the most recent determination of the recovery efficiency of the carbon adsorber that demonstrated that the facility was in compliance.

23.7.3.3 Reporting. On and after ~~November 15, 1993~~ [insert the effective date of this revision of 23.0], the owner or operator of a subject coating line referenced in 23.7.3 of this regulation shall notify the Department in the following instances:

23.7.3.3.1 Any record showing noncompliance with the applicable requirements for control devices shall be reported by sending a copy of the record to the Department within 45 calendar days following the occurrence. This requirement is in addition to any other exceedance reporting mandated by the State of Delaware.

23.7.3.3.2 At least 30 calendar days before changing the method of compliance from control devices to the use of complying coatings, the owner or operator shall comply with all requirements of 23.7.2.1 of this regulation, and 7 **DE Admin. Code** 1102. Upon changing the method of compliance from control devices to the use of complying coatings, the owner or operator shall comply with all requirements of the Section applicable to the coating line referenced in 23.7.2 of this regulation.