Draft Proposed Chapter 123

- Final Format

Chapter 123: CONTROL OF VOLATILE ORGANIC COMPOUNDS FROM PAPER, FILM AND FOIL COATING OPERATIONS

SUMMARY: This regulation establishes consistent requirements for testing, evaluating and limiting volatile organic compound emissions from paper, film and foil coating operations.

1. Applicability

A. This regulation applies statewide.

B. This regulation applies to roll, knife, meyer rod or rotogravure coater(s) and drying oven(s) of paper, film and foil coating lines at stationary sources of volatile organic compounds.

C. This regulation does not apply to the following activities:

(1) Size presses and on-machine coaters on papermaking machines that apply sizing (e.g., starch) or water-based clays;

(2) Off-machine coaters used in the paper making process that use coatings with a VOC content less than 2.9 lbs VOC/gallon;

(3) The application of inks, coatings or adhesives in association with flexible package printing; or

(4) Coating performed on or in-line with any offset lithographic, screen, letterpress, flexographic, rotogravure, or digital printing press.

2. Definitions

A. Applied solids. "Applied solids" means solids which remain on the substrate being coated or painted.

B. Capture system. "Capture system" means the equipment, including hoods, ducts, fans, etc. used to contain, capture, or transport a pollutant to control device.

C. Coating. "Coating" means a material applied onto or impregnated into a substrate for decorative, protective, or functional purposes. Such materials include, but are not limited to, solvent-borne coatings, waterborne coatings, adhesives, wax coatings, wax laminations, extrusion coatings, extrusion laminations, 100 percent solid adhesives, UV cured coatings, electron beam cured coatings, hot melt coatings, and cold seal coatings. A material used to form an unsupported substrate, such as calendaring of vinyl, blown film, cast film, extruded film, and co-extruded film is not considered a coating.

D. Coating line. "Coating line" means a series of coating applicators, flash-off areas, and any associated curing/drying equipment between one or more unwind or feed stations and one or more rewind or cutting stations.

E. Knife coating. "Knife coating" means the application of a coating material to a substrate by means of drawing the substrate beneath a knife that spreads the coating evenly over the full width of the substrate.

F. **Meyer rod coating.** "Meyer rod coating" means a system for coating which meters and spreads the coating onto a substrate by means of a rod which is spirally wound with wire. The metering can be either stationary or rotating, and the size of the wire determines the amount of coating left on the substrate.

G. **Oven.** "Oven" means a chamber within which heat is used to bake, cure, polymerize, and/or dry a surface coating.

H. **Off machine coater.** "Off machine coater" means a coating operation not in the continuous line of a paper making machine.

I. **Paper, film and foil coating.** "Paper, film and foil coating" means the application of a continuous layer of coating across the width or any portion of the width of a paper, film or foil substrate to create a functional or protective layer, saturate a substrate for lamination, or provide adhesion between two substrates for lamination.

J. **Pressure sensitive adhesive.** "Pressure sensitive adhesive" means an adhesive that forms a bond when pressure is applied, without activation via solvent, water or heat.

K. **Pressure sensitive tape and label coating.** "Pressure sensitive tape and label coating" means the application of a pressure sensitive adhesive to a film carrier or face material.

L. **Roll coating.** "Roll coating" means the application of a coating material to a substrate by means of hard rubber or steel rolls.

M. **Rotogravure coating.** "Rotogravure coating" means the application of a coating material to a substrate by means of a roll coating technique in which the pattern to be applied is etched on the coating roll. The coating material is picked up in these recessed areas and is transferred to the substrate.

N. **Substrate.** "Substrate" means the surface to which a coating is applied.

3. **Emission Limits.** The owner or operator of a paper, film or foil coating line subject to this regulation must comply with one of the following limits:

A. **Low solvent content coating technology.** The owner or operator of a paper, film or foil coating line, except pressure sensitive tape and label coatings, subject to this regulation shall not cause, allow or permit the discharge into the atmosphere from any coating volatile organic compounds (VOC) in excess of 2.9 pounds of VOC per gallon of coating (excluding water and negligibly reactive VOC as defined in the definition of VOC in Definitions, 06-096 CMR 100 (last amended October 4, 2009), delivered to the coating applicator from a paper, film or foil coating line. Any averaging of emission limits to meet this emission limit must comply with EPA's Emission Trading Policy Statement published on December 4, 1986 (51 FR 43814) and must be approved by the Department and EPA.

B. **Add-On air pollution control device.** The owner or operator of a paper, film or foil coating line subject to this regulation which is controlled by an add-on air pollution control device shall operate the add-on control device at all times the paper, film or foil coating line is operating such

that the overall efficiency of the abatement equipment (the efficiency of the capture system multiplied by efficiency of the control device) reduces the VOC emissions by 95% or to a rate equal to 4.8 pounds VOC emitted per gallon of solids applied to the substrate on a continuous basis. For incineration or other types of control devices, the averaging period to determine compliance with EPA Reference Method 25 is three hours, and for carbon adsorption the averaging period to determine compliance with EPA Reference Method 25 is the length of the adsorption cycle or 24 hours, whichever is less.

C. Pressure sensitive tape and label coatings. The owner or operator of a pressure sensitive tape and label coating line subject to this regulation shall not cause, allow or permit the discharge into the atmosphere from the coating line volatile organic compounds (VOC) in excess of 0.20 lb VOC/lb of coating solids applied.

4. Work practices. By January 1, 2011, each owner or operator of a paper, film or foil coating line subject to this regulation shall use the following work practices:

A. New and used coating or cleaning solvent containing greater than 2.9 lbs VOC/gallon, including a coating mixed on the premises, shall be stored in a nonabsorbent, non-leaking container. Such container shall be kept closed at all times except when the container is being filled, emptied or is otherwise actively in use;

B. Spills and leaks of VOC-containing coating or cleaning solvent shall be minimized. Any leaked or spilled VOC-containing coating or cleaning solvent shall be immediately absorbed and removed or disposed of in accordance with an approved air emission license;

C. Absorbent applicators, such as cloth and paper, which are moistened with coating or cleaning solvent containing greater than 2.9 lbs VOC/gallon, shall be stored in a closed, nonabsorbent, non-leaking container for disposal or recycling;

D. Coating or cleaning solvent containing greater than 2.9 lbs VOC/gallon shall be conveyed from one location to another in a closed container or pipe; and

E. Cleaning shall be performed to minimize associated VOC emissions.

5. Test Methods

A. The owner or operator of any paper, film or foil coating line subject to this regulation shall, at his own expense, demonstrate compliance using the methods in 5(C) and 5(D) below. All tests shall be made by, or under the direction of a person qualified by training and/or experience in the field of air pollution testing.

B. No results from volatile organic compound emissions compliance testing will be accepted as a compliance demonstration, nor the results accepted, unless prior notification has been supplied to the Department and the Department has granted approval. Any person proposing to conduct a volatile organic compound emissions test shall notify the Department of the intent to test not less than 30 days before the proposed initiation of the tests so the Department may at its option observe the test.

C. For determining the volatile content of surface coatings, the applicant shall use EPA Reference Method 24, or any other method approved by the Department and EPA. When determining the volatile fraction of a coating using EPA Reference Method 24, or any other method approved by the Department and EPA; the bake time must be one hour. For determining the percent solids by volume of a coating, until an applicable EPA Reference Method is promulgated, the source shall use the manufacturer's formulation data.

D. For determining the volatile organic compound emission control system efficiency, the applicant shall determine the removal efficiency of the control device using EPA Reference Method 18, 25, 25A, or 25B or any other method approved by the Department and EPA. For incineration or other types of control devices, the averaging period to determine compliance with EPA Reference Method 25 is three hours, and for carbon adsorption the averaging period to determine compliance with EPA Reference Method 25 is the length of the adsorption cycle or 24 hours, whichever is less. The applicant shall determine the capture efficiency using any method approved by the Department and EPA.

E. Alternative test methods. Other test methods demonstrated to provide results that are acceptable for the purposes of determining compliance with Section 3(A) and 3(C), after review and approval in writing by the Department and EPA, also may be used.

6. Recordkeeping and Reporting

A. Within 60 days from the date upon which this regulation becomes applicable to a source, that source shall submit the following information to the Department for each coating line subject to this regulation:

(1) Coating line number;

(2) Hours of operation per day and per year;

(3) Method of application;

(4) Number and types of coats applied to substrate;

(5) Drying method; and

(6) Substrate type.

The source shall submit revised information to the Department whenever it makes changes to the coating line.

B. Within 60 days from the date upon which this regulation becomes applicable to a source, that source shall begin keeping the following information for each coating and make it available to the Department upon request:

(1) Supplier name;

(2) Name of coating;

(3) Identification number for coating;

(4) Coating density (lb/gal);

(5) Total volatiles content of coating as supplied (wt %);

(6) Water content of coating as supplied (wt %);

(7) Exempt solvent content** of coating as supplied (wt %);

(8) Solids content of coating as supplied (vol %);

(9) Name of diluent, if any;

(10) Identification number of diluent;

(11) Diluent solvent density (lb/gal);

(12) VOC content of diluent (wt %);

(13) Exempt solvent content** of diluent (wt %); and

(14) Diluent/solvent ratio (gal diluent solvent/gal coating).

**(solvents considered negligibly reactive as contained in the definition of VOC in Definitions, 06-096 CMR 100 (as amended October 4, 2009)

The source shall also record the information in numbers 10 through 14 above for any diluents and solvents used for clean-up operations.

The source shall keep revised information on site whenever it purchases a new coating, diluent, or solvent.

C. Sources shall keep the following records on site for each coating line on a daily basis, except for sources which certify that all of the coatings used at the source comply with the VOC limits in Section 3(A) and 3(C) of this Chapter:

(1) Coating line number;

(2) Time period;

(3) Coating identification number;

(4) Amount of coating used;

(5) Diluent identification number; and

(6) Amount of diluent used.

The source shall also record the information in numbers 5 and 6 above for any diluents and solvents used for clean-up operations.

D. Sources which certify that all of the coatings used at the source comply with the VOC limits in Section 3(A) and 3(C) of this Chapter shall keep the following records on site for all coatings used at the facility on a monthly basis:

(1) Time period;

(2) Coating identification number and amount of VOC containing constituents used;

(3) Diluent identification number and amount of diluent used (excluding water and exempt compounds);

(4) Mass of VOC per volume of each coating, excluding water and exempt compounds, as applied;

(5) Total VOC emitted; and

(6) Certification stating all compounds used at the source comply with the VOC emission limits in Section 3(A) and 3(C) of this Chapter.

E. Copies of all records and reports required by this regulation must be kept at the source for a minimum period of two years. These records shall be available during normal business hours and copies provided to the Department upon request.

7. Additional Recordkeeping and Reporting for Sources with Add-on Air Pollution Control Device

A. Within 60 days from the date upon which this regulation becomes applicable to a source, that source shall submit the following information to the Department for each control device:

(1) Control device identification number and model number;

(2) Manufacturer;

(3) Installation date;

(4) Coating line(s) controlled;

(5) Whether or not the control device always is in operation when the line(s) it is serving is in operation;

(6) Type of control device;

(7) Destruction or removal efficiency;

(8) Date tested (If not tested, method of determining destruction efficiency);

(9) For thermal incinerators - design combustion temperature (^{o}F);

(10)For catalytic incinerators - design exhaust gas temperature (^{o}F), design temperature rise across catalyst bed (^{o}F), anticipated frequency of catalyst change;

(11)For a condenser - design inlet temperature of cooling medium (^{o}F), design exhaust gas temperature (^{o}F);

(12)For a carbon adsorber - design pressure drop across the adsorber, VOC concentration at breakthrough;

(13)Emission test results - inlet VOC concentration (ppm), outlet VOC concentration (ppm), method of concentration determination, date of determination;

(14)Type and location of capture system;

(15)Capture efficiency (%); and

(16)Method of determining capture efficiency.

B. The source shall continuously monitor and record the following parameters:

(1) For thermal incinerators - exhaust gas temperature (^{o}F);

(2) For catalytic incinerators - exhaust gas temperature (^{o}F), temperature rise across catalyst bed (^{o}F);

(3) For condensers - inlet temperature of cooling medium (^{o}F), exhaust gas temperature (^{o}F); and

(4) For carbon adsorbers - pressure drop across the adsorber, VOC concentration for breakthrough.

C. For catalytic incinerators, the source shall record the date of last change of catalyst in the bed.

D. Copies of all records and reports required by this regulation must be kept at the source for a minimum period of two years. These records shall be available during normal business hours and copies provided to the Department upon request.

8. Compliance. Except as otherwise specifically noted, the owner or operator of any paper coating line subject to this regulation shall comply with this regulation as of the effective of the regulation. The owner of any film and foil coating line subject to this regulation shall comply with this regulation by January 1, 2011. The compliance deadline for Section 4, Work Practices, for all paper, film and foil coating lines is January 1, 2011.

AUTHORITY: 38 M.R.S.A. 585-A

EFFECTIVE DATE: October 3, 1989
Amended: October 2, 2000

BASIS STATEMENT

Portions of the State of Maine exceed both the state and federal ambient air quality standard for ozone. Volatile organic compounds (VOC) are a precursor in the formation of ozone. As part of Maine's State Implementation Plan for Air Quality the state reduced VOC emissions from paper coater sources through their air emission license. This regulation ensures that all paper coater sources are treated consistently and will codify paper coater requirements for future sources. Comments from the U.S. Environmental Protection Agency suggested minor changes to ensure consistency with EPA's model regulation.

BASIS STATEMENT FOR AMENDMENT OF AUGUST 17, 2000

This amendment reduces the recordkeeping requirements for sources utilizing low solvent coating technology from a daily to a monthly basis, thereby clarifying and simplifying recordkeeping and compliance efforts. In addition to reducing recordkeeping requirements, this regulation was also amended to incorporate an alternative emission limit of a 95 percent control efficiency for coating units utilizing add-on controls.

In addition to the Basis Statement above, the Department has filed with the Secretary of State response to representative comments received during the comment period.

BASIS STATEMENT FOR AMENDMENT OF APRIL 15, 2010

Section 184 of the Clean Air Act requires states to implement or update reasonably available control technology (RACT) controls on all major VOC and NOx emission sources and on source categories covered by a Control Technique Guideline (CTG) document. EPA defines RACT as the lowest emission limit that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility. In May 1977, EPA published a CTG for controlling VOC emissions from surface coating of paper, which it updated in September 2007.

The paper, film and foil coatings include coatings that are applied to paper, film and foil surfaces in the manufacturing of several major product types including pressure sensitive tape and labels, industrial and decorative laminates, and photographic film. This category also includes coatings applied during miscellaneous coating operations of corrugated and solid fiber boxes and folding paperboard boxes.

These amendments add control requirements for the surface coating of film and foil substrates and incorporate work practices.

In addition to the Basis Statement above, the Department has filed with the Secretary of State response to representative comments received during the comment period.