

Chapter 154: CONTROL OF VOLATILE ORGANIC COMPOUNDS FROM FLEXIBLE PACKAGE PRINTING

SUMMARY: This regulation limits emissions of volatile organic compounds from flexible package printers.

1. Applicability

- A. This regulation applies to any flexible package printing press that has the potential to emit from the dryer, prior to controls, of at least 25 tons per year of VOC from the use of inks, coatings and adhesives combined.
- B. Facilities with flexible package printing presses with a potential to emit of less than 25 tons per year of VOC from the use of inks, coatings and adhesives combined, are required to meet only the work practice requirements in Section 4 and the recordkeeping requirements in Section 5 of this Chapter.
- C. Facilities with flexible package printing presses with a potential to emit of less than 25 tons per year of VOC from the use of inks, coatings and adhesives combined that are used solely for quality control /quality assurance and for research and development purposes are required to meet only the recordkeeping requirements in Section 5 of this Chapter.

2. Definitions

- A. **Air pollution control equipment efficiency.** “Air pollution control equipment efficiency” means the ratio of VOC emissions recovered or destroyed by the air pollution control equipment to the total VOC emissions that are introduced into the air pollution control equipment, expressed as a percentage.
- B. **Capture efficiency.** “Capture efficiency” the ratio of VOC emissions delivered to the air pollution control equipment to the total VOC emissions resulting from flexible package printing activities, expressed as a percentage.
- C. **Cleaning.** “Cleaning” means, with respect to a flexible package printing press or presses, cleaning of a press or press parts or the removal of dried ink from areas around the press. “Cleaning” does not include cleaning of electronic components, cleaning in platemaking or binding operations, housekeeping activity near a press or the use of a parts washer or cold cleaner.
- D. **Flexible package.** “Flexible package” means any package or part of a package the shape of which may be readily changed. A “flexible package” may be in the form of a bag, pouch, liner or wrap made of paper, plastic, film, aluminum foil, or metalized or coated film or paper, alone or in combination. None of the following are considered a “flexible package”: a folding carton, self-adhesive labels, gift wrap, wall covering, vinyl products, decorative laminates, floor coverings or tissue products.
- E. **Flexographic print station.** “Flexographic print station” means a work station on which a flexographic printing operation is conducted. A flexographic print station includes a

flexographic printing plate, which is an image made of rubber or other elastomeric material. The image to be printed is raised above the printing plate.

- F. **Installation date.** “Installation date” means the first date on which a piece of equipment is in place and prepared to operate. The “installation date” does not change if the equipment is moved to a new location at the same premises.
 - G. **Overall control efficiency.** “Overall control efficiency” means the product of the capture efficiency and the air pollution control equipment efficiency.
 - H. **Press.** “Press” means a printing production assembly that is composed of one or more work stations, one or more of which is a flexographic or rotogravure print station, that produces a printed product.
 - I. **Quality control /quality assurance and research and development.** “Quality control/quality assurance” means the testing of products to ensure that they meet performance requirements and that the product and/or service is reproducible. “Research and development” means a process intended to create new or improved products or technology. The products produced as a result of quality control/quality assurance and/or research and development activities are not directly sold or marketed as a product.
 - J. **Rotogravure print station.** “Rotogravure print station” means a work station on which a rotogravure printing operation is conducted. A rotogravure print station includes a rotogravure cylinder and ink supply. The image to be printed is etched or engraved below the surface of the rotogravure cylinder.
 - K. **Work station.** “Work station” means a unit on a press where material is deposited onto a substrate.
3. **Requirements.** Beginning January 1, 2011, flexible package printing presses that have the potential to emit from the dryer, prior to controls, of at least 25 tons per year of VOC from the use of inks, coatings and adhesives combined must use one of the following methods to control VOC emissions:
- A. Use only inks, coatings and adhesives with an as applied VOC content that does not exceed 0.8 kg VOC/kg of solids (0.8 lb VOC/lb of solids) or 0.16 kg VOC/kg of materials (0.16 lb VOC/lb of materials). The VOC content limits may be met by averaging the VOC content of materials used on a single printing line in a single day; or
 - B. Install, operate and maintain in accordance with the manufacturer’s recommendations, an emissions control system, consisting of a capture and a control device, which meets the following overall control efficiency levels:

<i>Installation date of press</i>	<i>Installation date of air pollution control device</i>	<i>Overall control efficiency (%)</i>
Prior to March 14, 1995	Prior to January 1, 2011	65
Prior to March 14, 1995	On or after January 1, 2011	70
On or after March 14, 1995	Prior to January 1, 2011	75
On or after March 14, 1995	On or after January 1, 2011	80

- 4. Work Practice Requirements.** Beginning January 1, 2011, the owner or operator of any flexible package printing press must use the following work practices:
- A. New and used VOC-containing ink, adhesives, coating or cleaning solvent, including ink or coating mixed on the premises, shall be stored in a nonabsorbent, non-leaking, vapor-tight container. Such a 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 ink, adhesives, coating or cleaning solvent shall be minimized. Any leaked or spilled VOC-containing ink, coating or cleaning solvent shall be absorbed and removed immediately;
 - C. Absorbent applicators, such as cloth and paper, which are moistened with VOC containing ink, adhesives, coating or solvent, shall be stored in a closed, nonabsorbent, nonleaking container for disposal or recycling;
 - D. VOC-containing ink, adhesives, coating and cleaning solvent 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.

NOTE: The handling, storage and disposal of hazardous wastes, including waste VOCs and cloth or paper impregnated with such waste are subject to hazardous waste management standards as set forth in Maine's Hazardous Waste Management Rules, 06-096 CMR Chapters 850-857.

5. Recordkeeping Requirements

- A. By January 1, 2011, or upon initial startup of a new flexible package printing press, or upon changing the method of compliance for an existing flexible package printing press from use of complying coatings or daily-weighted averaging to control devices, the owner or operator of the subject printing press shall perform all tests and submit to the Department the results of all tests and calculations necessary to demonstrate that the subject flexible package printing press will be in compliance with the emissions reductions required by Section 3 of this Chapter on and after January 1, 2011, or on and after the initial startup date. Testing shall be performed according to Procedures A, B, C, E, and F as specified in Appendix A to Chapter 132 of the Department's regulations.
- B. Beginning January 1, 2011, the owner or operator of any flexible package printing press must maintain records of the information necessary to demonstrate compliance with the applicable requirements of this Chapter, including but not limited to:
 - (1) Name and quantity of any ink, adhesives, coating or cleaning solvent used;
 - (2) VOC content of each ink, adhesives, coating or cleaning solvent used, as applied;
 - (3) A catalog of Material Safety Data Sheets for all inks, adhesives, coatings and cleaning solvents used;

- (4) Documentation of air pollution control equipment efficiency or capture efficiency, if applicable;
- (5) Date and type of maintenance performed on air pollution control or capture equipment, if applicable; and
- (6) Calculations demonstrating that the potential emissions of VOC from all flexible package printing presses at the facility are and will be less than 25 tons per calendar year before the application of capture systems and control devices. Total potential emissions of VOC for a flexible package printing facility is the sum of potential emissions of VOC from each flexible package printing press at the facility. The following equation shall be used to calculate total potential emissions of VOC per calendar year before the application of capture systems and control devices for each flexible package printing press at the facility:

$$E_p = A \times B$$

where:

E_p =Total potential emissions of VOC from one flexible package printing press in units of pounds per year (lb/yr).

A =Weight of VOC per volume of solids of the coating or ink with the highest VOC content, as applied, each year on the printing press in units of pounds of VOC per gallon (lb VOC/gal) of coating or ink solids.

B =Total volume of solids for all coatings and inks that can potentially be applied each year on the printing press in units of gallons per year (gal/yr.). The instrument and/or method by which the owner or operator accurately measured or calculated the volume of coating and ink solids applied and the amount that can potentially be applied each year on the printing press.

- (7) The actual overall emission reduction efficiency achieved for each day for each flexible package printing press as determined using Procedure E of Appendix A.
- (8) Control device monitoring data;
- (9) A log of operating time for the capture system, control device, monitoring equipment and the associated flexible package printing press; and
- (10) 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.
- (11) For thermal incinerators, all continuous 3-hour periods of operation in which the average combustion temperature was more than 28 degrees C (50 degrees F) below the average combustion temperature during the most recent performance test that demonstrated that the facility was in compliance;

- (12) For catalytic incinerators, all continuous 3-hour periods of operation in which the average temperature of the process vent stream immediately before the catalyst bed is more than 28 degrees C (50 degrees F) below the average temperature recorded during the most recent performance test that demonstrated that the facility was in compliance; and
- (13) For carbon adsorbers, all continuous 3-hour periods of operation during which either the average VOC concentration or the reading of organics in the exhaust gases is more than 20 percent 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.
- C. All required records shall be maintained for a period of at least six (6) years and made available to the Department or US EPA to inspect and copy upon request.
-

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

EFFECTIVE DATE: July 20, 2010