

REGULATION 7.52 Standard of Performance for New Fabric, Vinyl and Paper Surface Coating Operations

Air Pollution Control District of Jefferson County Jefferson County, Kentucky

Relates To: KRS Chapter 77 Air Pollution Control

Pursuant To: KRS Chapter 77 Air Pollution Control

Necessity and Function: KRS 77.180 provides that the Air Pollution Control Board may make and enforce all needful orders, rules, and regulations necessary or proper to accomplish the purposes of KRS Chapter 77. This regulation provides for the control of emissions from new fabric, vinyl and paper surface coating operations.

SECTION 1 Applicability

This regulation applies to each affected facility commenced on or after June 13, 1979. Any source that is ever subject to this regulation will always be subject to it unless the source changes its process to one not covered by this regulation.

SECTION 2 Definitions

Terms used in this regulation not defined herein shall have the meaning given to them in Regulation 1.02.

- 2.1 "Affected facility" means a coating line for fabric, vinyl, or paper.
- 2.2 "Applicator" means the mechanism or device used to apply the coating including, but not limited to, roll, knife, or rotogravure coater.
- 2.3 "Coating line" means a series of one or more coating applicators and any associated flashoff area, drying area, and/or oven wherein a coating is applied, dried, and/or cured. A coating line ends with the end of the drying or curing area or prior to the beginning of the application of the next coating. It is not necessary to have an oven or a flashoff area in order to be included in this definition. This shall include, but is not limited to:
 - 2.3.1 Mixing operations;
 - 2.3.2 Process storage;
 - 2.3.3 Applicators;
 - 2.3.4 Drying operation including, but not limited to, flashoff area evaporation, oven drying, baking, curing, and polymerization;
 - 2.3.5 Clean up operations;
 - 2.3.6 Leaks, spills and disposal of VOCs;
 - 2.3.7 Processing and handling of recovered VOCs; and
 - 2.3.8 An affected facility which is capable of performing both paper coating and paper printing will be considered as performing a paper printing operation subject to Regulation 6.29.
- 2.4 "Fabric coating" means the coating of a textile substrate to impart properties that are not initially present, such as strength, stability, water or acid repellency, or appearance.
- 2.5 "Flashoff area" means the space between the applicator and the oven.
- 2.6 "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.

- 2.7 "Paper coating" means the application of a uniform layer of material across the entire width of a web of paper, pressure sensitive tapes regardless of substrate, related web coating processes on plastic film such as typewriter ribbons, photographic film, magnetic tape, and decorative coatings on metal foil such as gift wrap and packaging, but does not include the printing of paper.
- 2.8 "Printing" means the formation of words, designs and pictures, usually by a series of application rolls each with only partial coverage. It applies to flexographic and rotogravure processes as applied to publication, specialty, and packaging printing as defined in Regulation 6.29.
- 2.9 "Process storage" means mixing tanks, holding tanks, and other tanks, drums, or other containers which contain surface coatings, volatile organic compounds, or recovered volatile organic compounds; but does not mean storage tanks which are subject to Regulation 6.13 or 7.12.
- 2.10 "Roll coating" means the application of a coating material to a substrate by means of hard rubber or steel rolls.
- 2.11 "Rotogravure coating" means the application of a uniform layer of material across a substrate by means of a roll coating technique in which the entire coating roll is uniformly etched with recessed cells and no pattern or design is present. The coating material is picked up in these recessed cells and is transferred to the substrate.
- 2.12 "Vinyl coating" means the coating of vinyl coated fabric or vinyl sheets which includes decorative or protective topcoats or printing. Vinyl coating does not include the application of vinyl plastisol to fabric to form the substrate that is subsequently coated (VOC emissions from the application of plastisol are near zero).
- 2.13 "Volatile organic compounds net input" means the total amount of VOCs input to the affected facility minus the amount of VOCs that are not emitted into the atmosphere. Volatile organic compounds that are prevented from being emitted to the atmosphere by the use of control devices shall not be subtracted from the total for the purposes of determining VOC net input. When the nature of any operation or design of equipment is such as to permit more than one interpretation of this definition, the interpretation that results in the minimum value for allowable emission shall apply.

SECTION 3 Standard for Volatile Organic Compounds

No person shall cause, allow, or permit an affected facility to discharge into the atmosphere more than 15% by weight of the VOCs net input into the affected facility.

SECTION 4 Compliance

- 4.1 A new affected facility shall comply with the requirements of this regulation on start-up.
- 4.2 In all cases, the design of any control system is subject to approval by the District.
- 4.3 Compliance with the standard in Section 3 shall be demonstrated by a material balance except in those cases where the District determines that a material balance is not possible. For those cases where a material balance is not possible, compliance will be determined based upon an engineering analysis by the District of the control system design, control device efficiency, control system capture efficiency, and any other factors that could influence the performance of the system. If so requested by the District, performance tests as specified by the District shall be conducted in order to determine the efficiency of the control device. The control

system capture efficiency shall be measured according to the methods specified in Regulation 1.05.

- 4.4 With the prior approval of the District, the owner or operator may elect to effect such changes in the affected facility as are necessary to qualify for an exemption under Section 5.
- 4.5 Whenever deemed necessary by the District, the District shall obtain samples of the coatings used at an affected facility to verify that the coatings meet the requirements in Section 5.
- 4.5.1 EPA Method 24 shall be used to determine the VOC content of coatings.

SECTION 5 Exemptions

- 5.1 Any affected facility coating fabric or paper shall be exempt from the provisions of Section 3 if the VOC content of the coating is less than 0.35 kg/l of coating (2.9 lb/gal) excluding water and exempt solvents, delivered to the applicators associated with the coating line.
- 5.2 Any affected facility coating vinyl shall be exempt from the provisions of Section 3 if the VOC content of the coating is less than 0.45 kg/l of coating (3.8 lb/gal) excluding water and exempt solvents, delivered to the applicators associated with the coating line.
- 5.3 No owner or operator of a fabric or vinyl coating line subject to this section shall apply coating on any such line during any day whose daily-weighted average VOC content, calculated in accordance with the procedure specified in section 5.3.1, exceeds the emission limit in this section. Equivalency calculations must be done on a solids applied basis. Volatile organic compound emission reduction credit is not allowed when plastisols are used in emission averaging schemes involving vinyl printing and topcoating.
- 5.3.1 The daily weighted average VOC content, which means the VOC content of two or more coatings as applied on a coating line during any day and weighted according to the fraction of the total coating volume that each coating represents, shall be calculated using the following equation:

$$VOC_w = \sum_{i=1}^n \frac{V_i C_i}{VT}$$

where:

- VOC_w = The average VOC content of two or more coatings as applied each day on a coating line in units of kg VOC/l of coating (lb/gal), minus water and exempt solvents.
- V_i = The volume of each coating as applied each day on a coating line in units of liters (gallons) minus water and exempt solvents.
- C_i = The VOC content of each coating as applied each day on a coating line in units of kg VOC/l of coating (lb/gal) minus water and exempt solvents.
- VT = The total volume of all coatings as applied each day on a coating line in units of liters (gallons) minus water and exempt solvents.
- n = The number of different coatings as applied each day on a coating line.

SECTION 6 Recordkeeping

- 6.1 An owner or operator of a stationary source using adhesives, coatings, solvents, and/or

graphic arts materials and subject to this regulation shall maintain daily records of operations for the most recent two year period. The records shall be made available to the District, Cabinet, or EPA upon request. The records shall include, but not be limited to, the following:

- 6.1.1 The rule number applicable to the operation for which the records are being maintained;
- 6.1.2 The application method and substrate type (metal, plastic, paper, etc.);
- 6.1.3 The amount and type of adhesive, coatings, (including catalyst and reducer for multicomponent coatings), solvent, and/or exempt compounds;
- 6.1.4 The VOC content as applied in each adhesive, coating, solvent, and/or graphic arts material;
- 6.1.5 The date for each application of adhesive, coating, solvent, and/or graphic arts material;
- 6.1.6 The amount of surface preparation, clean-up, wash-up of solvent (including exempt compounds) used and the VOC content of each; and
- 6.1.7 Oven temperature, where applicable.
- 6.2 The VOC content shall be calculated using a percent solids basis (less water and exempt solvents) for adhesives, coating, and inks; using EPA Method 24.
- 6.3 When a source utilizes add-on controls to achieve compliance, documentation will be necessary to assure proper operation. Examples of some controls and related information are:
 - 6.3.1 Thermal incineration - combustion temperature, inlet and outlet VOC concentration from emission tests, how and when these concentrations were determined, destruction or removal efficiency and manufacturer data;
 - 6.3.2 Catalytic incineration - exhaust gas temperature, change in temperature across catalyst bed, date of last change of catalyst bed, inlet and outlet VOC concentration from emission test, how and when these concentrations were determined, destruction or removal efficiency, and manufacturer data;
 - 6.3.3 Condenser - inlet temperature of cooling medium, outlet temperature of cooling medium, inlet and outlet VOC concentration from emission tests, how and when these concentrations were determined, removal efficiency, and manufacturer data; and
 - 6.3.4 When a source utilizes add-on controls, compliance shall be determined by using EPA Method 25.

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