

REGULATION 6.29 Standard of Performance for Existing Graphic Arts Facilities Using Rotogravure and Flexography

**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 volatile organic compound emissions from existing graphic arts facilities which use rotogravure and/or flexography.

SECTION 1 Applicability

This regulation applies to each affected facility commenced before February 4, 1981. 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 them in Regulation 1.02.

- 2.1 "Affected facility" means a printing line for packaging rotogravure, publication rotogravure, specialty rotogravure, and/or flexographic printing.
- 2.2 "Applicator" means the mechanism or device used to apply the ink.
- 2.3 "Coating" means the application of a uniform layer of material across the entire width of a web.
- 2.4 "Flashoff area" means the space between the applicator and the oven.
- 2.5 "Flexographic printing" means the application of words, designs and pictures to a substrate by means of a roll printing technique in which the pattern to be applied is raised above the printing roll and the image carrier is made of rubber or other elastomeric materials.
- 2.6 "Packaging rotogravure printing" means rotogravure printing upon paper, paper board, metal foil, plastic film, and other substrates that are, in subsequent operations, formed into packaging products and labels for articles to be sold.
- 2.7 "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.
- 2.8 "Printing line" means a series of equipment and/or operations used to apply, dry, or cure, any inks containing volatile organic compounds. It is not necessary to have an oven or flashoff area in order to be included in this definition. This shall include, but is not limited to:

- 2.8.1 Mixing operations,
- 2.8.2 Process storage,
- 2.8.3 Applicators,
- 2.8.4 Drying operations including, but not limited to, flashoff area evaporation, oven drying, baking, curing, and polymerization,
- 2.8.5 Clean up operations,
- 2.8.6 Leaks, spills and disposal of volatile organic compounds,
- 2.8.7 Processing and handling of recovered organic compounds,
- 2.8.8 For the purposes of determining compliance with this regulation, if any equipment or operation could be considered to be a part of more than one printing line, its VOC emissions shall be assigned to each printing line of which it is a part proportionally to the throughput of VOCs it receives from or distributes to each printing line,
- 2.8.9 If any portion of the series of equipment and/or operations qualify for an exemption according to Section 5, then that portion shall be considered to be a separate printing line,
- 2.8.10 All units in a machine that has both coating and printing units will be considered as performing a printing operation.
- 2.9 "Process storage" means mixing tanks, holding tanks, and other tanks, drums, or other containers that contain inks, VOCs, or recovered VOCs but does not mean storage tanks that are subject to Regulation 6.13.
- 2.10 "Publication rotogravure printing" means rotogravure printing upon paper that is subsequently formed into books, magazines, catalogues, brochures, directories, newspaper supplements, and other types of printed materials.
- 2.11 "Roll Printing" means the application of words, designs and pictures to a substrate usually by means of a series of hard rubber or steel rolls each with only partial coverage.
- 2.12 "Rotogravure printing" means the application of words, designs, and pictures to a substrate by means of a roll printing technique that involves intaglio or recessed image areas in the form of cells.
- 2.13 "Specialty rotogravure printing" means all rotogravure printing except packaging rotogravure and publication rotogravure printing. It includes, but is not limited to, rotogravure printing on paper cups and plates, patterned gift wrap, wallpaper, and floor coverings.
- 2.14 "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 VOCs 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 emissions shall apply.

SECTION 3 Standard for Volatile Organic Compounds

- 3.1 No person shall cause, allow, or permit an affected facility for publication rotogravure printing to discharge into the atmosphere more than 25% by weight of the VOCs net input into the affected facility.
- 3.2 No person shall cause, allow, or permit an affected facility for packaging rotogravure printing or specialty rotogravure printing to discharge into the atmosphere more than 35% by weight of the VOCs net input into the affected facility.
- 3.3 No person shall cause, allow, or permit an affected facility for flexographic printing to discharge into the atmosphere more than 40% by weight of the VOCs net input into the affected facility.

SECTION 4 Compliance

- 4.1 In all cases, the design of any control system is subject to approval by the District.
- 4.2 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 shall be conducted in order to determine the efficiency of the control device. The control system capture efficiency shall be measured according to methods specified in Regulation 1.05.
- 4.3 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.
- 4.4 Whenever deemed necessary by the District, the District shall obtain samples of the inks used at an affected facility to verify that the inks meet the requirements in Section 5.
 - 4.4.1 The VOC content and density of rotogravure publication inks shall be determined by EPA Method 24A.

SECTION 5 Exemption

Any affected facility shall be exempt from Section 3 if the printing systems:

- 5.1 Utilize a water-borne ink whose volatile portion consists of 75% by volume water or more, and 25% by volume organic solvent or less in all printing units,
- 5.2 Utilize inks with an emission limit of 0.5 lb VOC/lb solids as delivered to the applicator, or
- 5.3 Utilize inks which, excluding water and exempt solvents, contain 60% by volume or more non-volatile material as applied to the substrate.

SECTION 6 Deviations

Deviation with the standard and limitations contained in this regulation, when supported by adequate technical information, will be considered by the District on a case-by-case basis to allow for

technological or economic circumstances that are unique to a source. However, these deviations will require federal approval pursuant to Regulation 1.08.

SECTION 7 Recordkeeping

- 7.1 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, the Cabinet, or EPA upon request. The records shall include, but not be limited to, the following:
- 7.1.1 The rule number applicable to the operation for which the records are being maintained,
 - 7.1.2 The application method and substrate type (metal, plastic, paper, etc.),
 - 7.1.3 The amount and type of adhesive, coatings (including catalyst and reducer for multicomponent coatings), solvent, and/or graphic arts materials used at each point of application, including exempt compounds,
 - 7.1.4 The VOC content as applied in each adhesive, coating, solvent, and/or graphic arts material,
 - 7.1.5 The date for each application of adhesive, coating, solvent, and/or graphic arts material, and
 - 7.1.6 Oven temperature (where applicable).
- 7.2 VOC content shall be calculated using a percent solids basis, less water and exempt solids, for adhesives, coatings, and inks; using EPA Method 24.
- 7.3 VOC content and density of rotogravure publication inks shall be determined by EPA Method 24A.
- 7.4 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:
- 7.4.1 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,
 - 7.4.2 Catalytic incinerator - exhaust gas temperature, change in temperature across catalyst bed, date of last change of catalyst bed, inlet and outlet VOC concentration from emission tests, how and when these concentrations were determined, destruction or removal efficiency, and manufacturer data,
 - 7.4.3 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
 - 7.4.4 When a source utilizes add-on controls, compliance shall be determined by using EPA Method 25.

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