

**RULE 410.7 Graphic Arts** - Adopted 6/29/81, Renumbered 5/89, Amended 5/6/91, 3/7/96

**I. Applicability**

This Rule is applicable to all graphic arts printing operations as defined in Section II. of this Rule.

**II. Definitions**

- A. Coating: The application of a uniform layer of material across the entire width of a substrate. Those machines which have both coating and printing units should be considered as performing a printing operation.
- B. Control Device: Equipment such as an incinerator or adsorber, or cooler/condenser filtration used to prevent air pollutants from being emitted into the atmosphere.
- C. Converting Operation: Coating, waxing, laminating, extrusion coating, or printing, to fabricate base materials which are then used to produce wraps, bags, and other preformed packages.
- D. Doctor Blade: A steel blade used to scrape excess ink from a printing plate or inking cylinder.
- E. Dryer: A hot air, high velocity system used to dry inks on printed or coated substrate.
- F. Flexible Packaging Industry: Establishments that convert materials consisting of light gauge papers, plastic films, cellulosic films such as cellophane, thin gauge metal sheets such as aluminum foil or steel foil, and combinations thereof into a variety of product packages.
- G. Flexographic Printing: The application of words, designs or pictures to a substrate by means of a roll printing technique in which the pattern is applied to an image carrier made of rubber or other elastomeric materials. As compared to gravure (intaglio) printing, the image to be printed via flexography is raised above the carrier surface, while in the gravure process the image to be printed is sunk below the surface.
- H. Fountain Solution: Solution composed mainly of water, gum arabic, and other additives which is applied to the lithographic plate to maintain the hydrophilic properties of the non-image areas.
- I. Fugitive Emissions: Emissions of VOC from any portion of the printing, coating, or laminating operation other than from the dryer.

- J. Graphic Arts Industry: Those operations employing gravure, flexography, letterpress, lithography, screen, or any coating of laminating process to produce published products and packages.
- K. Gravure Printing: An intaglio printing operation in which the ink is transferred from minute etched wells on a cylinder to the substrate which is supported by an impression roller with excess ink removed from the cylinder by a doctor blade.
- L. Intaglio Printing: Printing done from a plate or cylinder in which the image is sunk below (etched or engraved into) the surface.
- M. Letterpress Printing: A method where the image area is raised relative to the non-image area and the ink is transferred to the paper directly from the image.
- N. Line: The minimum equipment which is required for the application and/or drying of inks and/or curing of ultraviolet coatings of inks, or coatings on a substrate, including ink the and/or coating applicators and drying systems, and associated ink and coating agitation and delivery systems.
- O. Non-Heatset Inks: An ink which dries by oxidation and is absorbed into the substrate without use of heat from dryers or ovens.
- P. Nonporous Substrate: Any substance other than paper or paperboard, including but not limited to foil, polyethylene, polypropylene, cellophane, metallized polyester, nylon, and polyethylene terephthalate (mylar), but not including wood, metal, or ceramic materials.
- Q. Offset Lithographic Printing: A plane-o-graphic method in which the image and non-image areas are on the same plane and the ink is offset from a plate to a rubber blanket, and then from the blanket to the substrate.
- R. Packaging Gravure: Gravure printing on paper, paperboard, foil, film, or other substrates which are to be used to produce containers or packages.
- S. Porous Substrate: Paper or paperboard.
- T. Publication Gravure: Gravure printing on paper which is subsequently formed into books, magazines, catalogs, brochures, directories, newspaper supplements or other types of printed material.
- U. Screen Printing: A commercial and industrial printing technique where which involves passage of a printing medium, such as ink, through a taut fabric to which a refined form of stencil has been applied. The stencil openings determine the form and dimension of the imprint.

- V. Specialty Gravure Printing: Printing that uses the gravure process for production of wall and floor covering, decorated household paper products such as towels and tissues, cigarette filter tips, vinyl upholstery, woodgrains, and a wide variety of other products.
- W. Web: A continuous sheet of substrate.
- X. Web Feed: An automatic system which supplies substrates from a web.
- Y. Volatile Organic Compound (VOC): Any compound containing at least one atom of carbon except for compounds exempted by Rule 102, Subsection L.

### III. Exemptions

The requirements of this Rule, except for Subsection V.A, shall not apply to any printing, coating, or laminating facility which emits less than 75 pounds per day of volatile organic compounds. Once a facility exceeds this exemption threshold it shall become subject to the requirements of this Rule.

### IV. Requirements

- A. Any person operating a publication gravure printing line shall comply with one of the following:
  - 1. Use only low VOC inks and coatings as specified in Subsection IV.C; or
  - 2. Install and operate on the line, an emission control system as defined in Subsection IV.D, with a control device efficiency of 95 percent on a mass basis; or
  - 3. The VOC emissions from the line have been reduced by at least 85 percent overall on each day from the baseline daily emissions, as determined by Section VII.
- B. Any person operating any graphic arts printing line for packaging gravure, specialty gravure, screen printing, flexographic printing, offset lithography, letterpress printing or related coating or laminating process, printing or coating on porous or non-porous substrate, shall comply with one of the following:
  - 1. Use only low VOC inks, coatings, and adhesives as specified in Subsection IV.C; or
  - 2. Install and operate on the line, an emission control system as defined in Subsection IV.D, with a control device efficiency of 95 percent on a mass basis; or

3. The VOC emissions from the line have been reduced by at least 75 percent overall on each day from the baseline daily emissions, as determined by Section VII.

C. Low VOC Ink, Coating, Adhesive, and Fountain Solution:

Any ink, coating or adhesive must satisfy Subsection IV.C.1. in order to be deemed a low VOC ink, coating, or adhesive for the purposes of this Rule.

1. The ink, coating, or adhesive contains less than 300 grams of VOC per liter (2.50 pounds VOC per gallon), as applied, excluding water and exempt compounds, provided that the total volatile content does not exceed that of other inks, coatings, or adhesives previously used by the operator for the same or equivalent products.
2. Fountain solutions shall not contain more than 15% VOC (by volume), as applied.

D. Emission Control System:

An emission control system is a system for reducing emissions of VOC consisting of collection and control devices which includes the following:

1. A control device designed and operated to achieve the efficiency specified in the applicable section of this rule at all times during normal operation of the line being controlled; and
2. A collection system, with a capture efficiency of at least 90%, which vents all dryer exhaust to the control device; and
3. A collection system, with a capture efficiency of at least 90%, which has one or more inlets for collection of fugitive emissions from each line.

E. Evaporative Loss Minimization:

1. A person shall not use open containers for the storage or disposal of cloth or paper impregnated with volatile organic compounds that is used for surface preparation or cleanup.
2. A person shall not store spent or fresh volatile organic compounds to be used for surface preparation or cleanup in open containers.

## V. Administrative Requirements

### A. Record Keeping

Any person subject to the provisions of this Rule (including exempt facilities) shall comply with the following requirements:

1. The facility operator shall maintain a current list of coatings, inks and solvents in use which contains all of the data necessary to evaluate compliance, including the following information, as applicable:
  - a. Mix ratio of components used,
  - b. VOC content and specific chemical constituents of inks and coatings as applied,
  - c. VOC content and specific chemical constituents of solvents used for surface preparation and cleanup.
2. The permitted facility operator shall maintain records on a daily and monthly basis to include the following information:
  - a. Volume ink/solvent mix ratio,
  - b. VOC content of ink and/or coating (pounds/gallon),
  - c. Volume of each coating or ink used (gallons), and
  - d. VOC content and quantity of cleanup solvent used (gallons).
3. The exempt facility operator shall maintain records on an extended basis provided the records substantiate emissions are being maintained below 75 pounds for the entire extended period and include the following information:
  - a. VOC content of ink and/or coating (pounds/gallon),
  - b. Volume of each coating or ink used (gallons), and
  - c. VOC content and quantity of cleanup solvent used (gallons).
4. All records shall be retained for a period of 2 years and shall be made available for inspection by the Control Officer upon request.

### B. Test Methods

1. VOC content in samples of low VOC printing inks and coatings shall be determined by EPA Method 24 or 24A as applicable.
2. VOC content in samples of non-heatset printing inks and coatings shall be determined by Bay Area Air Quality District (BAAQMD) Manual of Procedures Method 30.

3. EPA Test Method 25 or ARB Test Method 100 shall apply for VOC control efficiency compliance determinations.
4. ARB Test Method 432 shall apply for quantification of halogenated compounds exempted by this Rule.
5. Where add-on control equipment is utilized, and capture efficiency needs to be determined, collection efficiency shall be determined by the EPA document "Model Regulatory Language for Capture Efficiency Testing" dated 8/3/90.

## VI. **Compliance Schedule**

- A. Any person subject to the requirements of this Rule due to revisions adopted May 6, 1991, shall submit a compliance plan which designates the measures and increments of progress that will be taken to achieve compliance. As a minimum, the compliance plan shall include provisions for reducing the amounts of VOC used in all inks, coatings, and adhesives applied on the line, in accordance with the following schedule:
  1. By September 1, 1991 submit to the District a plan describing the methods used to comply with the applicable Rules.
  2. By January 1, 1992 submit a completed application for Authority to Construct, if needed.
  3. Complete on site construction and achieve final compliance by July 1, 1993.
- B. Any person subject to the requirements of this rule other than described in Subsection IV.A.1. by January 1, 1987, shall be in full compliance with the requirements of the Rule.

## VII. **Calculations**

The allowable emissions necessary to comply with the overall percent reduction, shall be calculated using as a baseline the average of the actual amount of solvent used for each line on a weight by solids basis for any two years selected from the calendar years 1978, 1979, 1980, 1981. The control plan required under this section shall identify which two of the four years have been selected, and the plan shall delineate the quantity of solvent used for each line for each of the two baseline years.

Baseline daily emissions shall be the sum of VOC emissions during the baseline years divided by the number of operating days.