

**RULE 67.16. GRAPHIC ARTS OPERATIONS** (Effective 10/18/88; Rev. Adopted & Effective 5/15/96; Rev. Adopted 11/09/11 & Effective 05/09/12)

(a) **APPLICABILITY**

(1) This rule is applicable to all continuous web or single sheet fed graphic arts printing, processing, laminating or drying operations and digital printing operations.

(2) This rule is not applicable to printing operations on ceramic or circuit boards. These operations are subject to Rule 66.1.

(3) Graphic arts operations subject to or exempt from this rule shall not be subject to Rule 66.1 or Rule 67.5.

(b) **EXEMPTIONS**

(1) The provisions of Sections (d) and (e) of this rule shall not apply to stationary sources which emit less than an average of 15 lbs (6.8 kg) of volatile organic compounds (VOCs) from all graphic arts operations per day of operation, excluding digital printing operations, for each calendar month. It is the responsibility of any person claiming this exemption to maintain daily or monthly records as specified in Section (f) of this rule necessary to establish average daily emissions and to make this information available to the District upon request. The average daily emission levels shall be determined by recording and taking into account the number of operational days per given month.

(2) The provisions of Sections (d) and (e) shall not apply to large digital printing operations provided that any facility claiming this exemption maintains applicable records as specified in Subsection (f)(4).

(3) The provisions of this rule shall not apply to:

(i) All proofing systems.

(ii) Manufacture of:

(A) Solar control window film,

(B) Heat applied transfer decals,

(C) Ceramic decals manufactured for firing above 800°F, or

(D) Water slide decals.

(iii) Embossing and foil stamping which do not use materials containing VOCs.

- (iv) Development process associated with the preparation of lithographic printing plates.
- (v) Blanket repair material applied from non-refillable aerosol containers of four ounces or less.
- (vi) Digital printing operations that are not large operations as defined in Subsection (c)(13).
- (vii) Stripping of cured inks, coatings and adhesives.
- (viii) Research and development operations.
- (ix) Preservative oils application using hand-held non-refillable aerosol containers.
- (x) Cleaning of ultraviolet lamps and reflectors and electron beam processors.

(c) **DEFINITIONS**

For the purpose of this rule the following definitions shall apply:

- (1) **“Adhesive”** means a substance that is used to bond one surface to another by attachment.
- (2) **“Cleaning Material”** means a VOC containing material used for cleaning hands, tools, printing presses, ink or coating application equipment and work area.
- (3) **"Coating"** in the graphic arts operation means a layer of material applied to a substrate in a relatively unbroken film.
- (4) **“Digital Printing Operation”** means an operation that uses a printing device guided by a computer-driven machine to transfer an electronic image to a substrate through the use of inks, toners, or other graphic arts materials. Digital printing operation also includes associated surface preparation, solvent cleaning, and the cleaning of application equipment.
- (5) **“Precision Electro-optical Component”** is an optical element used in an electro-optical device and is designed to sense, detect, or transmit light energy, including specific wavelengths of light energy and changes in light energy levels.
- (6) **"Exempt Compound"** means the same as defined in Rule 2.
- (7) **"Exterior Marking"** means any outdoor sign printed, coated or laminated by any of the graphic arts methods.

(8) "**Flexographic Printing**" means a letterpress method utilizing flexible rubber or other elastomeric plate.

(9) "**Fountain Solution**" means the solution which is applied to the image plate to maintain the hydrophilic properties of the non-image areas.

(10) "**Graphic Arts Operations**" means all screen, gravure, letterpress, flexographic, lithographic and digital printing operations, or related coating, or laminating processes including coating of flexible packaging materials for food or health care products and laboratory or experimental processes.

(11) "**Graphic Arts Material**" means any ink, coating, adhesive or thinner used in printing or related coating or laminating processes.

(12) "**Gravure Printing**" means an intaglio process in which the ink is carried in minute etched or engraved wells on a roll or cylinder, with excess ink being removed from the surface by doctor blade.

(13) "**Large Commercial Digital Printing Operation**" means a commercial digital printing operation where a print capacity of any individual printer that uses solvent based inks is 1,000 ft<sup>2</sup>/hr or higher; or an operation where a print capacity of any individual printer that uses water based or UV inks is 10,000 ft<sup>2</sup>/hr or higher.

(14) "**Lamination**" means a process of composing two or more layers of material to form a single multiple layer sheet by using adhesive.

(15) "**Letterpress Printing**" means 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 surface.

(16) "**Lithographic Printing**" means 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.

(17) "**Preservative Oil**" means any liquid material which does not contain any solids, and is applied to rollers or ink wells to prevent them from drying when the graphic arts equipment is stopped for an extended time or to provide lubrication, or both.

(18) "**Printing**" means any operation that imparts color, design, alphabet or numerals on a substrate.

(19) "**Printing Ink**" means any fluid or viscous composition used in printing, impressing or transferring an image onto a substrate.

(20) "**Proofing System**" means a system used only to check the quality or print color reproduction and editorial content and includes proof presses and/or off-press proofing lines.

(21) "**Publication Gravure**" means a gravure printing on paper substrate which is subsequently used to form books, magazines, catalogues, brochures, directories, and newspaper supplements or other printed material.

(22) "**Screen Printing**" means a process where the printing ink passes through a web or a fabric to which a refined form of stencil has been applied. The stencil openings determine the form and dimensions of imprint.

(23) "**Stationary Source**" means the same as defined in Rule 2.

(24) "**Thinner**" means a solvent used to reduce viscosity of printing inks.

(25) "**Volatile Organic Compound (VOC)**" means the same as defined in Rule 2.

(26) "**VOC Content per Volume of Graphic Arts Materials, Less Water and Exempt Compounds**" (excluding thinners) means the same as defined in Rule 2, "VOC Content per Volume of Coatings, Less Water and Exempt Compounds."

(27) "**VOC Content per Volume of Thinner or Cleaning Material**" means the same as defined in Rule 2, "VOC Content per Volume of Material."

(28) "**Web-fed**" means an automatic system which supplies substrate from a continuous roll or from an extrusion process.

(d) **STANDARDS**

(1) Graphic Arts Materials and Fountain Solutions.

A person shall not conduct any printing or graphic arts operation unless the following materials are used:

(i) Graphic arts materials, except adhesives, containing less than 300 grams of VOC per liter (2.5 lbs/gal) as applied, less water and exempt compounds.

(ii) Adhesives containing not more than 150 grams of VOC per liter (1.25 lb/gal), as applied, less water and less exempt compounds.

(iii) Fountain solutions containing not more than 5% VOC by volume; or

(iv) Fountain solutions containing not more than 8.5% VOC by volume refrigerated to a temperature below 60°F.

(2) Cleanup of Equipment

A person shall not use materials containing VOCs for the cleanup of equipment used in graphic arts operations unless:

- (i) The cleaning material has a VOC content of less than 100 grams per liter;
- or
- (ii) The total VOC vapor pressure of the cleaning material is 5 mm of Hg at 20°C or less.

(e) **CONTROL EQUIPMENT**

(1) In lieu of complying with the provisions of Subsection (d)(1) or (d)(2), a person may use an air pollution control system which:

- (i) Has been installed in accordance with an Authority to Construct; and
- (ii) Includes an emission collection system which captures and transports emissions generated by an applicable graphic arts operation to an air pollution control device; and
- (iii) Has a combined VOC emissions capture and control device efficiency of at least 85 percent by weight.

(2) A person subject to the requirements of this section shall submit to the Air Pollution Control Officer for approval an Operation and Maintenance (O&M) plan for the proposed emission control device and emission collection system. Such plan shall:

- (i) Identify all key system operating parameters. Key system operating parameters are those necessary to ensure compliance with Subsection (e)(1)(iii), such as temperature, pressure, and/or flow rate.
- (ii) Include proposed inspection schedules, anticipated ongoing maintenance, and proposed recordkeeping practices regarding the key system operating parameters.

(3) The Operation and Maintenance plan must be submitted to the Air Pollution Control Officer and receive written approval prior to operation of the air pollution control equipment. A person subject to the requirements of this section shall implement the plan on approval of the Air Pollution Control Officer.

(f) **RECORDKEEPING**

Any person conducting a graphic arts operation subject to this rule shall maintain records in accordance with the following requirements:

(1) Maintain a current list of graphic arts materials, fountain solutions and cleaning materials used containing VOCs which provides data necessary to evaluate compliance, including, but not limited to:

(i) Type of graphic arts materials, fountain solutions or cleaning materials used;

(ii) Dilution ratio of mixed components, if applicable;

(iii) VOC content, less water and exempt compounds of each graphic arts material (excluding thinner), as applied; volume percent of VOC in fountain solution; and VOC content of each thinner and cleaning material and/or total VOC vapor pressure, as used.

(2) Maintain daily or monthly records showing the amount of each graphic arts material, and each fountain solution and cleaning material used.

(3) Any person using control equipment pursuant to Section (e) of this rule shall:

(i) For all graphic arts materials, fountain solutions and cleaning materials not in compliance with Subsection (d)(1) or (d)(2) of this rule, maintain daily records of the amount of each material used; and

(ii) Maintain daily records sufficient to document continuous compliance with Subsection (e)(1)(iii), including records of key system operating parameters as approved in the Operation and Maintenance plan.

(4) Any person claiming an exemption pursuant to Subsection (b)(2) for large commercial digital printing operations shall:

(i) Maintain a current list of graphic arts materials and cleaning materials used;

(ii) Provide documentation containing the VOC content, less water and exempt compounds of each graphic arts material (excluding thinner), as applied and the VOC content of each thinner and cleaning material and/or total VOC vapor pressure, as used;

(iii) Keep monthly records of the type and amount of each graphic arts material and cleaning material used.

All records shall be retained on site for at least three years and shall be made available to the District upon request.

(g) **TEST METHODS**

When more than one test method or set of test methods are specified in this Section, a violation of any requirement of this rule established by any one of the specified test methods or set of test methods shall constitute a violation of this rule.

(1) Measurements of VOC content of graphic arts materials subject to Section (d) of this rule shall be conducted and reported in accordance with the Environmental Protection Agency (EPA) Test Method 24 (40 CFR 60, Appendix A), dated 9/11/1995, or by the South Coast Air Quality Management District (SCAQMD) Method 304, dated 2/1/1996, as applicable.

(2) Measurements of VOC content of rotogravure publication inks subject to Section (d) of this rule shall be conducted and reported in accordance with EPA Test Method 24A (40 CFR 60, Appendix A), dated 8/6/1993.

(3) The VOC content of cleaning materials shall be determined by the SCAQMD Method 313-91 (Determination of Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry), dated 2/1/1993, or SCAQMD Method 308-91 (Quantification of Compounds by Gas Chromatography), dated 2/1/1993.

(4) Calculations of total VOC vapor pressures of cleaning materials pursuant to Subsection (d)(2)(ii) of this rule shall be calculated using the District's "SD1-Procedure for Estimating the Vapor Pressure of VOC Mixtures", dated 6/20/1990. If the vapor pressure of the liquid mixture is in excess of the limit specified in Subsection (d)(2)(ii), the vapor pressure shall be determined in accordance with ASTM Test Method D 2879-10, "Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope".

(5) The content of methyl acetate, acetone and parachlorobenzotrifluoride shall be determined in accordance with the ASTM Test Method D6133-02 (2008) (Standard Test Method for Acetone, p-Chlorobenzotrifluoride, Methyl Acetate or t-Butyl Acetate Content of Solventborne and Waterborne Paints, Coatings, Resins, and Raw Materials by Direct Injection Into a Gas Chromatograph).

(6) Measurements of exempt compounds content, except for those determined in accordance with Subsection (g)(5), shall be conducted in accordance with the SCAQMD Test Method 303-91 (Determination of Exempt Compounds), dated 8/1/1996.

(7) The overall control efficiency of air pollution control equipment operated pursuant to Subsection (e)(1)(iii) shall be determined by multiplying the capture efficiency of the emission collection system by the control efficiency of the air pollution control device. The control efficiency of the air pollution control device shall be determined using EPA Test Methods 25A and/or 18 (40 CFR Part 60, Appendix A), both dated 9/25/1996, and in accordance with a protocol approved by the Air Pollution Control Officer. Capture efficiency of an emission collection system pursuant to Subsection (e)(1)(iii) shall be

determined according to EPA Test Methods 204 and 204A through 204 F (51 CFR Appendix M), dated 6/4/97, as applicable, and technical document, "Guidelines for Determining Capture Efficiency," dated January 9, 1995. Subsequent to the initial compliance demonstration period, appropriate key system operating parameters as approved by the Air Pollution Control Officer may be used as indicators of the performance of the emission control system.

(8) Other test methods which are determined to be equivalent to the test methods specified in this rule and approved, in writing, by the Air Pollution Control Officer, California Air Resources Board, and EPA may be used in place of the test methods specified in this rule.