**RULE 67.16. GRAPHIC ARTS OPERATIONS** (Effective 10/18/88: Rev. Effective 5/21/91)

(a) **APPLICABILITY**

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

(2) Operations subject to this rule and in compliance with Section (d) of this rule shall not be subject to Rule 66.

(b) **EXEMPTIONS**

The provisions of Sections (d) and (e) of this rule shall not apply to:

(1) Stationary Sources which emit less than 15 lbs (6.8 kg) of volatile organic compounds (VOC) on each day from all graphic arts operations.

(2) All proofing systems.

(3) Manufacture of:

(i) Solar control window film,

(ii) Heat applied transfer decals,

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

(iv) Water slide decals.

(4) Printing on ceramic or circuit boards.

(5) Embossing and foil stamping which do not use materials containing VOC.

(6) Coating operations subject to Rule 67.5, Paper, Film and Fabric Coating Operations.

(7) Development process associated with the preparation of lithographic printing plates.

(8) Blanket repair material applied from non-refillable aerosol containers of 4 ounces or less.

It is the responsibility of any person claiming an exemption pursuant to Subsection (b)(1) to maintain daily records specified in Section (f) of this rule necessary to establish maximum daily emissions and to make this information available to the District upon request.

(c) **DEFINITIONS**

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

(1) **"Coating"** in the graphic arts means a layer of material applied to a substrate in a relatively unbroken film.

(2) **"Exempt Compound"** means any of the following compounds: 1,1,1-trichloroethane, methylene chloride, trichlorofluoromethane (CFC-11), dichlorodifluoromethane (CFC-12), trifluoromethane (FC-23), trichlorotrifluoroethane (CFC-113), dichlorotetrafluoroethane (CFC-114), chloropentafluoroethane (CFC-115), chlorodifluoromethane (CFC-22), dichlorotrifluoroethane (HCFC-123), dichlorofluoroethane (HCFC-141b), tetrafluoroethane (HFC-134a), and chlorodifluoroethane (HCFC-142b).

(3) **"Exterior Marking"** means any outdoor sign printed, coated or laminated by any of the graphic arts methods.

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

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

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

(7) **"Graphic Arts Line"** means printing application equipment, coating equipment, laminating equipment, flash-off areas, ovens, conveyors or other equipment operating in an uninterrupted series to produce graphic arts using graphic art materials.

(8) **"Graphic Arts Material"** means any inks, coatings, adhesives, fountain solutions, thinners, or retarders used in printing or related coating or laminating processes.

(9) **"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.

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

(11) **"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.

(12) **"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.

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

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

(15) **"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.

(16) **"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.

(17) **"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.

(18) **"Stationary Source"** means a unit or an aggregation of units of non-vehicular air contaminant emitting articles, machines, equipment or other contrivances, all of which are located on one property or adjoining properties under the same ownership or entitlement to use and operate. This includes any unit or aggregation of units in the California Coastal Waters off San Diego County.

(19) **"Volatile Organic Compound (VOC)"** for the purpose of this rule means any volatile compound containing at least one atom of carbon, excluding methane, carbon monoxide, carbon dioxide, carbonic acid, ammonium carbonate, metallic carbides and carbonates, and exempt compounds which may be emitted to the atmosphere during the application of and/or subsequent drying or curing of graphic arts materials or cleaning materials subject to this rule. VOC content of graphic arts material, except for thinners and cleaning materials, is expressed in grams of VOC per liter of material as applied, minus water and minus exempt compounds. VOC content of thinners and cleaning materials is expressed in grams of VOC per liter of material.

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

(d) **STANDARDS**

(1) Graphic Arts Material

A person shall not operate any printing or graphic arts process unless:

(i) Only graphic arts materials containing less than 300 grams of VOC per liter (2.5 lbs/gal) as applied, less water and exempt compounds are used; and

(ii) Only fountain solutions containing no more than 15% by volume VOC, as applied, are used.

(2) Cleanup of Equipment

Effective November 21, 1991, a person shall not use materials containing VOC's for the cleanup of equipment used in graphic arts operations unless:

(i) The cleaning solvent has a VOC content of less than 200 grams per liter of material; or

(ii) The total VOC vapor pressure of the material is 45 mm of Hg at 20°C or less; or

(iii) A system is used that totally encloses the component parts being cleaned during the washing, rinsing, and draining processes; or

(iv) The cleaning solvent is transferred through the application equipment, without exposure to air, into a container which has in place an apparatus or cover which completely covers the container and has no visible holes, breaks, openings or separations between adjoining components of the container or container cover. Containers may be equipped with vents provided such vents are necessary to comply with applicable fire and safety codes.

(3) A person shall not sell, offer for sale, or supply any coating or cleaning material for use in graphic arts operations that, after May 21, 1991, was newly formulated to contain or reformulated to increase the content of methylene chloride, trichlorofluoromethane (CFC-11), dichlorodifluoromethane (CFC-12), trichlorotrifluoroethane (CFC-113), dichlorotetrafluoroethane (CFC-114), or chloropentafluoroethane (CFC-115).

(4) After May 21, 1991, a person shall not manufacture, sell, offer for sale, or supply any coating or cleaning material for use in graphic arts operations unless the coating or cleaning material container displays the content of methylene chloride, trichlorofluoromethane (CFC-11), dichlorodifluoromethane (CFC-12), trichlorotrifluoroethane (CFC-113), dichlorotetrafluoroethane (CFC-114), or chloropentafluoroethane (CFC-115).

(e) **CONTROL EQUIPMENT**

(1) Any person subject to this rule can comply with the provisions of Subsection (d)(1) by using air pollution control equipment which has been approved in writing by the Air Pollution Control Officer provided that the VOC emissions are reduced such that:

(i) The emission control system has an overall capture efficiency on a mass basis of at least 95 percent from the graphic arts processes; and

(ii) The emission control system has an emission reduction efficiency of at least 90 percent on a mass basis at all times during operation of the line being controlled.

(2) Any person complying with the provisions of Subsection (d)(1) by the use of control equipment shall provide the District with an Operation and Maintenance Plan. This plan shall, at a minimum, specify key system operating parameters, such as temperatures, pressures and/or flow rates, necessary to determine compliance with this rule, and detail maintenance procedures to be followed for the control equipment. District review and approval of this plan shall be required for compliance with this rule to be achieved.

(f) **RECORDKEEPING**

Effective May 21, 1991, any person applying graphic arts materials shall maintain records in accordance with the following requirements:

(1) Maintain a current list of graphic arts materials containing VOC's such as inks, adhesives, thinners, retarders, fountain solutions and cleaning materials in use which provides data necessary to evaluate compliance, including, but not limited to:

(i) Type of graphic arts material or cleaning material used;

(ii) Dilution ratio of mixed components;

(iii) VOC content of each graphic arts material and cleaning material, as applied.

(2) Maintain daily records showing amount of each graphic arts material including, but not limited to, inks, adhesives, thinners, retarders, fountain solutions and cleaning solutions used.

(3) Maintain daily records of key system operating parameters for emission control equipment.

(4) Maintain records of the content of methylene chloride, trichlorofluoromethane (CFC-11), dichlorodifluoromethane (CFC-12), trichlorotrifluoroethane (CFC-113), dichlorotetrafluoroethane (CFC-114), and chloropentafluoroethane (CFC-115) in any coating material or cleaning material used.

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

(g) **TEST METHODS**

(1) Measurements of VOC content subject to Section (d) of this rule shall be conducted and reported in accordance with EPA Test Method 24 (40 CFR 60, Appendix A) as it exists on May 21, 1991, and ASTM Test Method D 4457-85 for determination of dichloromethane and 1,1,1-trichloroethane in paints and coatings by direct injection into a gas chromatograph. Calculations of the VOC content less water and less exempt compounds shall be performed in accordance with ASTM Standard Practice D 3960-87 for determining VOC content of paints and related coatings.

(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) as it exists on May 21, 1991, and ASTM Test Method D 4457-85 for determination of dichloromethane and 1,1,1,-trichloroethane in paints and coatings by direct injection into a gas chromatograph.

(3) Measurements of VOC emissions subject to Section (e) of this rule shall be conducted in accordance with EPA Methods 18 and 25 or 25A (40 CFR 60, Appendix A) as applicable and with EPA Guidelines for Measurement of Capture Efficiency as they exist on May 21, 1991.

(4) Measurements of vapor pressures of VOC containing compounds pursuant to Subsection (d)(2)(ii) of this rule shall be calculated using the District's "Procedure for Estimating the Vapor Pressure of a Solvent Mixture", as it exists on May 21, 1991. 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 2879-83, "Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope."

(5) Measurements of VOC content pursuant to Subsection (d)(1)(ii) shall be conducted and reported in accordance with ASTM Standard Recommended Practices for General Gas Chromatography Procedures, E 260-85.

(6) Measurements of VOC content of non-heatset inks subject to Section (d) of this rule shall be conducted and reported in accordance with EPA Test Method 24 (40 CFR 60, Appendix A) or Bay Area Air Quality Management District Method 30, "Determination of Volatile Organic Compounds in Solvent Based Non-Heatset Inks", and ASTM Test Method D 4457-85 for determination of dichloromethane and 1,1,1,-trichloroethane in paints and coatings by direct injection into a gas chromatograph.