

**AIR POLLUTION CONTROL DISTRICT
SAN DIEGO COUNTY**

**RULE 67.16 - GRAPHIC ARTS OPERATIONS
WORKSHOP REPORT**

A workshop notice was mailed to each company known to be involved in Graphic Arts Operations in San Diego County. Notices were also mailed to all Economic Development Corporations and Chambers of Commerce in San Diego County, the U.S. Environmental Protection Agency (EPA), the California Air Resources Board (ARB), and other interested parties.

The workshop was held on June 14, 1994 and was attended by seven people. The comments and District responses are as follows:

1. WORKSHOP COMMENT:

Subsection (b)(1) provides an exemption for stationary sources which emit less than an average of 15 pounds VOC per day. Does this limit apply to each source at a facility or to all sources combined?

DISTRICT RESPONSE:

A stationary source, as defined in District Rule 20.1, is an emission unit or aggregation of units located on the same or contiguous properties. The exemption in Subsection (b)(1) of Rule 67.16 applies to the total amount of VOC emissions from all graphic arts operation units at a stationary source.

2. WORKSHOP COMMENT:

EPA comments refer to "compliant substances". How are these defined?

DISTRICT RESPONSE:

"Compliant substances" are the VOC containing materials which meet the limits specified in Section (d) of the rule.

3. WRITTEN COMMENT

Section (f) - Recordkeeping now gives the option of monthly or daily records for graphic arts materials usage. Previously, the District has allowed "grouping" of similar inks and recording a total amount of ink usage for a category of inks rather than individually. Will this option be permitted now with monthly records?

DISTRICT RESPONSE

Yes. The District will accept the same methods of grouping inks as it did with daily recordkeeping. However, a list of all the graphic arts materials and solvents must still be kept in accordance with Subsection (f)(1).

4. WRITTEN COMMENT

Rule 67.16 requires the use of EPA Test Method 24A for non-heatset inks. Method 24A is appropriate for flexographic and rotogravure inks, but EPA Method 24 should be used for heatset and non-heatset lithographic inks.

DISTRICT RESPONSE

As specified in Subsection (g)(2), EPA Method 24A should be used only for determination of the VOC content of rotogravure inks. The VOC content of all other inks subject to Section (d), including heatset and non-heatset lithographic inks, should be measured by EPA Method 24 as required by Subsection (g)(1).

5. EPA COMMENT:

Subsection (f)(2) allows for monthly records of graphic arts materials usage. Monthly recordkeeping is acceptable only when compliant substances are used. Daily recordkeeping is necessary when non-compliant substances are used.

DISTRICT RESPONSE:

The rule has been revised to clarify that facilities using add-on control equipment shall keep daily usage records of materials not complying with the requirements of Subsection (d)(1).

6. EPA COMMENT:

The addition of the words "if applicable" in Subsection (f)(3) is misleading. This should be rephrased to establish that all sources which use air pollution control equipment to comply with the standards are required to keep daily records of their operating parameters.

DISTRICT RESPONSE:

The District agrees. Subsection (f)(3) has been revised as suggested.

RS:jo
07/20/94

**AIR POLLUTION CONTROL DISTRICT
COUNTY OF SAN DIEGO**

PROPOSED AMENDMENTS TO RULE 67.16

Amendments to Rule 67.16 are to read as follows:

RULE 67.16. GRAPHIC ARTS OPERATIONS

(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) 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) on each day from all graphic arts operations per day of operation for each calendar month. It is the responsibility of any person claiming an exemption pursuant to Subsection (b)(1) 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), (e), and (f) of this rule shall not apply to:

(2)(i) All proofing systems.

(3)(ii) Manufacture of:

(i)(A) Solar control window film,

(ii)(B) Heat applied transfer decals,

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

(iv)(D) Water slide decals.

(4)(iii) Printing on ceramic or circuit boards.

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

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

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

(8)(vii) Blanket repair material applied from non-refillable aerosol containers of 4 four 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).

(2) **"Exempt Compound"** means any of the following compounds or classes of compounds: 1,1,1-trichloroethane, methylene chloride, trichlorofluoromethane (CFC-11), dichlorodifluoromethane (CFC-12), trifluoromethane (HFC-23), trichlorotrifluoroethane (CFC-113), dichlorotetrafluoroethane (CFC-114), chloropentafluoroethane (CFC-115), chlorodifluoromethane (HCFC-22), dichlorotrifluoroethane (HCFC-123), dichlorofluoroethane (HCFC-141b), 1,1,1,2-tetrafluoroethane (HFC-134a), 1,1,2,2-tetrafluoroethane (HFC-134), chlorodifluoroethane (HCFC-142b), 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124), pentafluoroethane (HFC-125), 1,1,1-trifluoroethane (HFC-143a), 1,1-difluoroethane (HFC-152a), and the following four classes of perfluorocarbon (PFC) compounds:

(i) cyclic, branched, or linear, completely fluorinated alkanes;

(ii) cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;

(iii) cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and

(iv) sulfur-containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.

(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 pollutant 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. the same as is defined in Rule 20.1.~~

(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~~ 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) ~~In lieu of complying Any person subject to this rule can comply with the provisions of Subsection (d)(1), a person may use an by using air pollution control equipment system 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.~~

~~(i) Has been installed in accordance with an Authority to Construct; and~~

~~(ii) Includes an emission collection system which captures and transports organic gaseous emissions 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) 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.~~

~~(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 (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 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**

Effective May 21, 1991, any ~~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 and/or vapor pressure of each graphic arts material and cleaning material, as applied.

(2) Maintain ~~daily or monthly~~ records showing ~~the~~ amount of each graphic arts material ~~used~~ 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, if applicable.~~

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

(i) For all graphic arts materials not in compliance with Subsection (d)(1) 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), such as records of key system operating parameters as approved in the Operation and Maintenance plan.

~~(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 (*date of adoption*), 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 (*date of adoption*), 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 (*date of adoption*).~~ Test procedures shall be performed in accordance with a protocol approved by the Air Pollution Control Officer.

(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 (*date of adoption*). 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.~~