RULE 67.12. POLYESTER RESIN OPERATIONS (Effective 3/14/89: Rev. Effective 4/6/93)

(a) APPLICABILITY

Except as otherwise provided in Section (b), this rule is applicable to polyester resin operations.

Polyester resin operations subject to this rule shall not be subject to Rule 66.

(b) EXEMPTIONS

(1) Except for marine vessel repair operations, the provisions of this rule shall not apply to any polyester resin operations where the combined consumption of polyester resins, including corrosion resistant resin, fire retardant resin, gel coat, and cleaning materials is less than 1 gallon for each operating day.

(2) The provisions of this rule shall not apply to any marine vessel repair operation using polyester resin materials where the combined consumption of polyester resins, including corrosion resistant resin, fire retardant resin, gel coat, and cleaning materials is less than 0.5 gallon for each operating day.

It shall be the responsibility of any person claiming either of the exemptions specified in Subsections (b)(1) or (b)(2) to maintain daily records necessary for the District to determine the applicability of such an exemption. The records shall be maintained on site for at least three years and shall be made available to the District upon request.

(3) The provisions of this rule shall not apply to coatings subject to Rules 67.3, 67.0 or 67.11.

(c) DEFINITIONS

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

(1) **"Catalyst"** means a substance added to the resin to accelerate the rate of curing.

(2) **"Cleaning Materials"** means materials containing volatile organic compounds (VOC's) used for the cleaning of hands, tools, molds and spray equipment associated with polyester resin operations.

(3) **"Closed Mold Operation"** means a method of forming objects from polyester resins by placing the material in a confining mold cavity and applying pressure and/or heat.

(4) **"Controlled Enclosure"** means a structure having at least three sides and a roof and which is designed to capture process emissions to meet the requirements of all District prohibitory standards (e.g., Rules 50, 51, 52, 71, etc.).

(5) **"Controlled Process"** means a modification to a dry sanding, grinding or cutting operation which uses water sprays, vacuum devices or other techniques to control the emission of particulates to the atmosphere to meet the requirements of all District prohibitory standards (e.g., Rules 50, 51, 52, 71, etc.).

(6) **"Corrosion Resistant Resin"** means a halogenated, furan, bisphenol A, vinyl ester, or isophthalic resin which is used to make products for exposure to corrosive, caustic and/or acidic agents.

(7) **"Cross-Linking"** means the process of joining two or more polymer chains together.

(8) **"Cure"** means the polymerization, i.e. the transformation from a liquid to a solid state, to achieve desired product physical properties, including hardness.

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

(10) **"Fiberglass"** means a fiber similar in appearance to wool or cotton fiber but made from glass.

(11) **"Fire Retardant Resin"** means a resin designed for the purpose of delaying the spread of combustion.

(12) **"Gel Coat"** means a polyester resin surface coat, either colored or clear, providing a cosmetic enhancement and improvement to exposure resistance.

(13) **"High-Volume Low-Pressure (HVLP) Spray"** means a coating application method using pressurized air at a permanent pressure between 0.1 and 10.0 psig, not to exceed 10.0 psig, measured at the air cap of the coating application system, and a permanent liquid coating pressure of not more than 50 psig.

(14) **"Inhibitor"** means a substance designed to slow down or prevent a chemical reaction.

(15) **"Monomer"** means an organic compound that combines with itself or other similar compounds by a cross-linking reaction to become a part of a cured thermosetting resin.

(16) **"Polyester"** means a complex polymeric ester, derived from difunctional acids and alcohols, which is dissolved in a monomer.

(17) **"Polyester Resin Operation"** means any of the following: mixing, pouring, hand lay-up, injection, forming, spraying, and curing of polyester resin materials excluding injection molding.

(18) **"Polyester Resin Materials"** means unsaturated polyesters, cross-linking agents, catalysts, gel coats, inhibitors, and any other material containing VOC used in a polyester resin operation.

(19) **"Polymer"** means a large chemical chain composed of identical cross-linked groups, such as polystyrene.

(20) **"Reclamation System"** means equipment capable of reclaiming spent cleaning materials for reuse. Reclamation may be done onsite or by using an offsite commercial reclamation facility.

(21) **"Repair"** means the addition of polyester resin to portions of a previously fabricated product in order to mend mechanical damage which occurs after the normal fabrication process.

(22) **"Resin"** means any of a class of organic polymers of natural or synthetic origin used in reinforced products to surround and hold fibers, and is solid or semi-solid in the cured state.

(23) **"Touch-up"** means that portion of the polyester resin operation that is necessary to cover minor imperfections.

(24) **"Vapor Suppressed Resin"** means a resin which has been modified to minimize the weight loss from VOC emissions during polymerization.

(25) **"Volatile Organic Compound (VOC)"** means any compound of carbon, which may be emitted to the atmosphere during polyester resin operations, except methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and exempt compounds. For purposes of calculating VOC content of polyester resin material to determine compliance with this rule, any water or any exempt compounds shall not be considered to be part of the polyester resin material. VOC content of cleaning materials is expressed in grams of VOC per liter of material.

(26) **"Waste Material"** means any waste material containing VOC including, but not limited to, any paper or cloth used for cleaning operations, waste resins, and any spent cleaning materials containing VOC.

(d) **STANDARDS**

(1) Any person operating a polyester resin operation subject to this rule shall:

(i) Use polyester resin material which contains no more than 35 percent by weight of monomer, as applied and as indicated in the manufacturer's specifications for application, or use a vapor suppressed resin such that the weight loss from VOC emissions does not exceed 60 grams per square meter of exposed surface area during resin polymerization, or use a closed mold system. The provisions of this subsection shall not apply to the use of gel coats, corrosion resistant resins or fire retardant resins; and,

(ii) Use gel coats with a monomer content of not more than 45 percent by weight for pigmented gel coats or 50 percent by weight for clear gel coats, as applied and as indicated in the manufacturer's specifications for application; and,

(iii) Use a corrosion-resistant or fire retardant resin with a monomer content of no more than 50 percent by weight, as applied and as indicated in the manufacturer's specifications for application; and,

(iv) Use self-closing containers for storing, except during the transfer of resin or solvent, all polyester resin, VOC containing cleaning materials and solvent-laden rags, including waste materials; and,

(v) Conduct all dry sanding, grinding and cutting operations of polyester resin which contains fiberglass either inside a controlled enclosure or using a controlled process. For marine vessel repair operations this requirement shall apply only for sanding, grinding or cutting operations conducted on the exterior of a vessel hull. This requirement shall not apply to any portable drilling operations; and,

(vi) Use a VOC reclamation system for cleaning materials, unless

(A) the materials contain less than 200 grams of VOC per liter (1.7 lb/gal);

or

(B) the materials have initial boiling points greater than 190° C (374° F);

or

(C) the combined usage of materials not complying with (A) or (B) above, is less than 0.5 gallons average per operating day, calculated from monthly records maintained in accordance with Section (f).

The solvent residue from the reclamation system shall not contain more than 20 percent VOC by weight; and,

(vii) Use only airless, air-assisted airless, high-volume low-pressure spray equipment or electrostatic spray equipment for spray operations except for touch-up and repair operations using a hand held air atomized spray gun which has a container for the resin as part of the gun; and,

(viii) Not use a polyester resin or cleaning material subject to this rule that, after December 4, 1990, 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).

(2) A person shall not sell or, offer for sale, a polyester resin or cleaning material subject to this rule that, after December 4, 1990, 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).

(3) A person shall not manufacture, sell, offer for sale, or supply any coating or cleaning materials for use in polyester resin operations unless polyester resin 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) **RESERVED**

(f) **RECORDKEEPING**

Any person subject to the requirements of Subsections (d)(1) of this rule shall maintain records of VOC-containing materials in accordance with the following:

(1) Maintain a current records of polyester resin materials and gel coats used, which provide the manufacturer identification, material specifications, monomer content, content of any catalysts, fillers, and/or diluents, including thinners, and type of each resin (i.e. regular, vapor-suppressed, corrosion-resistant, or fire retardant) or gel coat (i.e. pigmented or clear). For vapor suppressed resins, also maintain records showing manufacturer's information on the weight loss during resin polymerization.

(2) Maintain current records of the manufacturer's identification and VOC content of the cleaning materials used.

(3) Maintain records on a daily or monthly basis showing the manufacturer's identification and amount of each polyester resin material and cleaning material used.

(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) contained in any polyester resin material or cleaning material used.

Such 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) Measurement of the monomer content of resins subject to Subsections (d)(1)(i), (d)(1)(ii), or (d)(1)(iii) of this rule shall be conducted and reported in accordance with SCAQMD Method 312-91 for determination of percent monomer in polyester resin.

(2) Measurement of the polyester resin material weight loss per square meter subject to Subsection (d)(1)(i) of this rule shall be conducted and reported in accordance with SCAQMD Method 309-91 for determination of static volatile emissions.

(3) Measurement of the VOC content of cleaning materials subject to Subsection (d)(1)(vi)(A) of this rule shall be conducted and reported in accordance with EPA Method 24 (40 CFR 60, Appendix A) as it exists on April 6, 1993.

(4) Measurement of the initial boiling point of cleaning materials subject to Subsection (d)(1)(vi)(B) of this rule shall be conducted and reported in accordance with ASTM test method D1078-86 (Distillation Range of Volatile Organic Liquids).

(5) Measurement of the VOC content in solvent residue subject to Subsection (d)(1)(vi) of this rule shall be conducted and reported in accordance with EPA Method 25D as referenced in 56FR 33494.

(6) Perfluorocarbon compound(s) shall be recognized as exempt compounds pursuant to Subsection (c)(9) only if the presence of such compounds is claimed by the manufacturer of the material containing the compound, and if the manufacturer identifies a test method for quantifying the identified compounds which has been approved by the Air Pollution Control Officer, the Air Resources Board, and the Environmental Protection Agency.

MONTHLY CLEANING MATERIAL USAGE RECORD

Facility Name: _____ Worker: _____

Month/ Year	Manufactuer	Cleaning Material I.D. #	VOC Content (lb/gal)	Boiling Point (°C)	Volume Fresh Cleaning Material Added [A] (gal)	Volume of Cleaning Material Disposed/ Reclaimed Offsite [D] (gal)	Net Amount Emitted Material Disposed [A] - [D] (gal)

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MONTHLY POLYESTER RESIN MATERIAL USAGE RECORD

Facility Name: _____ Worker: _____

Month/ Year	Manufacturer Name	Poly Resin/Gel Coat I.D. # (P)	Catalyst I.D. # (C)	Thinner/ Diluent I.D. # (T)	Filler I.D. # (F)	Actual Mix Ratio				Amount of Poly Resin Used (pints)
						P:	C:	T:	F:	

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CURRENT IN-HOUSE LIST OF POLYESTER RESIN MATERIALS AND CLEANING MATERIALS

Facility Name: _____ Date: _____

Manufacturer Name	Cleaning Material I.D. #	Poly Resin/Gel Coat Material I.D. #	Catalyst I.D. #	Thinner/Diluent I.D. #	Filler I.D. #	Poly Resin/ Gel Coat Type

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