

**REGULATION 8
ORGANIC COMPOUNDS
RULE 50
POLYESTER RESIN OPERATIONS**

INDEX

8-50-100 GENERAL

- 8-50-101 Description
- 8-50-110 Limited Exemption, Touch-up and Repair

8-50-200 DEFINITIONS

- 8-50-201 Catalyst
- 8-50-202 Cleaning Materials
- 8-50-203 Close-mold System
- 8-50-204 Control System
- 8-50-205 Corrosion-resistant Materials
- 8-50-206 Cross-linking
- 8-50-207 Fiberglass
- 8-50-208 Gel Coat
- 8-50-209 Inhibitor
- 8-50-210 Low-VOC Emission Resin System
- 8-50-211 Monomer
- 8-50-212 Polyester
- 8-50-213 Polyester Resin Material
- 8-50-214 Polyester Resin Operations
- 8-50-215 Polymer
- 8-50-216 Polymerize
- 8-50-217 Repair
- 8-50-218 Resin
- 8-50-219 Touch-up
- 8-50-220 Volatile Organic Compound (VOC)
- 8-50-221 Vapor Suppressant
- 8-50-222 Waste Materials
- 8-50-223 Airless Spray
- 8-50-224 Air-assisted Airless Spray
- 8-50-225 Electrostatic Spray
- 8-50-226 High-volume, Low-pressure Spray
- 8-50-227 Approved Emission Control System
- 8-50-228 Key System Operating Parameter

8-50-300 STANDARDS

- 8-50-301 Process Requirements
- 8-50-302 Spraying Operations
- 8-50-303 Emission Control Requirement
- 8-50-304 Corrosion-resistant Materials
- 8-50-305 Surface Preparation and Clean-up Solvent
- 8-50-306 Equipment Requirements
- 8-50-307 Gel Coat Requirement

8-50-400 ADMINISTRATIVE REQUIREMENTS

8-50-500 MONITORING AND RECORDS

8-50-501 Records

8-50-600 MANUAL OF PROCEDURES

8-50-601 Analysis of Samples

8-50-602 Determination of Emissions

REGULATION 8
ORGANIC COMPOUNDS
RULE 50
POLYESTER RESIN OPERATIONS

(Adopted December 5, 1990)

8-50-100 GENERAL

8-50-101 Description: The purpose of this Rule is to limit organic compound emissions from the manufacturing of products using polyester resins.

8-50-110 Limited Exemption, Touch-up and Repair: The requirements of Sections 8-50-301 shall not apply to touch-up and repair.

8-50-200 DEFINITIONS

8-50-201 Catalyst: A substance added to the resin to initiate polymerization.

8-50-202 Cleaning Materials: Materials used to clean hands, tools, molds, application equipment, work area, and other process related equipment.

8-50-203 Closed-mold System: A system of forming objects from polyester resins by placing the material in a confining cavity and applying pressure and/or heat.

8-50-204 Control System: A control device and collection system designed in accordance with good engineering practices.

8-50-205 Corrosion-resistant Materials: Halogenated, furan, bisphenol-A, Vinyl-ester, or isophthalic resins used to make products for corrosive or fire retardant services.

8-50-206 Cross-linking: The chemical process of joining two or more polymer chains together.

8-50-207 Fiberglass: A fiber similar in appearance to wool or cotton fiber but made from glass.

8-50-208 Gel Coat: A polyester resin surface coating that provides a cosmetic enhancement and improves resistance to degradation from exposure to the environment.

8-50-209 Inhibitor: A substance used to slow down or prevent a chemical reaction.

8-50-210 Low-VOC Emission Resin System: A polyester resin material which contains additives to reduce monomer evaporation loss.

8-50-211 Monomer: A relatively low molecular weight organic compound that combines with itself or other similar compounds to become a polymerized thermosetting resin.

8-50-212 Polyester: A complex polymeric ester containing difunctional acids.

8-50-213 Polyester Resin Material: Any VOC containing materials used in polyester resin operations which include, but are not limited, to unsaturated polyester resins such as isophthalic, orthophthalic, halogenated, bisphenol-A, vinyl-ester, or furan resins; cross-linking agents; catalysts, gel coats, inhibitors, accelerators, promoters, and any other VOC containing materials.

8-50-214 Polyester Resin Operations: Methods used for the production or rework of product by mixing, pouring, hand laying-up, impregnating, injecting, forming, spraying, and/or curing unsaturated polyester materials with fiberglass, fillers, or any other reinforcement materials and associated clean-up.

8-50-215 Polymer: A substance consisting of a large number of chemical groups and which is formed by the chemical linking of monomers.

8-50-216 Polymerize: Transformation from a liquid to a solid or semi-solid state to achieve desired product physical properties, including hardness.

8-50-217 Repair: The part of the fabrication process that requires the addition of polyester material to portions of a previously fabricated product in order to mend minor structural damage immediately following normal fabrication operations.

8-50-218 Resin: Any 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 polymerized state.

- 8-50-219 Touch-up:** The portion of the fabrication process that is necessary to cover minor imperfections.
- 8-50-220 Volatile Organic Compound (VOC):** Any organic compound (excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates and ammonium carbonate) which would be emitted during use, application, curing or drying of a solvent or polyester resin material.
- 220.1 For purposes of calculating the VOC content of a polyester resin material, any water or any of the following non-precursor organic compounds:
acetone
parachlorobenzotrifluoride (PCBTF)
cyclic, branched or linear completely methylated siloxanes (VMS)
shall not be considered to be part of the polyester resin material.
- 220.2 For the purposes of calculating the VOC content of a solvent subject to Section 305.4, any water shall be considered part of the material. The following compounds:
acetone
parachlorobenzotrifluoride (PCBTF)
cyclic, branched or linear, completely methylated siloxanes (VMS)
shall not be considered part of the VOC content of the solvent.
(Amended December 20, 1995; November 6, 1996)
- 8-50-221 Vapor Suppressant:** A substance added to resin to minimize the outward diffusion of monomer vapor into the atmosphere.
- 8-50-222 Waste Materials:** Materials including, but not limited to, any scrap resulting from cutting and grinding operations, any paper or cloth used for cleaning operations, waste resins, non-polymerized waste resins, and any spent cleaning materials.
- 8-50-223 Airless Spray:** Equipment used to apply materials by use of fluid pressure without atomizing air, including heated airless spray.
- 8-50-224 Air Assisted Airless Spray:** Equipment used to apply materials that uses fluid pressure to atomize coating and air pressure between 0.1 and 10 psig to adjust the spray pattern.
- 8-50-225 High-Volume Low-Pressure (HVLP) Spray:** Equipment used to apply materials by means of a gun which operates between 0.1 and 10 psig air pressure.
- 8-50-226 Electrostatic Air Spray:** Equipment used to apply materials by charging atomized particles that are deposited by electrostatic attraction.
- 8-50-227 Approved Emission Control System:** A system for reducing emissions of VOC to the atmosphere, consisting of a control device and a collection system, which achieves the overall abatement efficiency specified in the applicable standards section at all times during operation of the equipment being controlled.
(Adopted June 15, 1994)
- 8-50-228 Key System Operating Parameter.** An emission control system operating parameter, such as temperature, flow rate or pressure, that ensures operation of the abatement equipment within manufacturer specifications and compliance with the standard in Section 8-50-303.
(Adopted June 15, 1994)
- 8-50-300 STANDARDS**
- 8-50-301 Process Requirements:** A polyester resin operation shall use one or more of the following emission reducing methods except as provided in Section 8-50-304:
- 301.1 Use polyester resin material with a monomer content of no greater than 35 percent by weight.
- 301.2 Use a resin containing vapor suppressant, such that weight loss from VOC emissions do not exceed 60 grams per square meter of exposed surface area during resin polymerization.
- 301.3 Use a closed-mold system.
- 8-50-302 Spraying Operations:** A polyester resin operation using spray application equipment shall use one or more of the following spray equipment:
- 302.1 Airless Spray
- 302.2 Air-assisted Airless Spray

- 302.3 Electrostatic Spray
- 302.4 High-volume, Low-pressure Spray

8-50-303 Emission Control Requirement: The requirements of Sections 8-50-301 and 302 shall not apply to polyester resin operations which install and properly operate an approved emission control system that meets the requirements of Regulation 2, Rule 1 and reduces organic compound emissions by at least 85 percent overall.

(Amended June 15, 1994)

8-50-304 Corrosion-resistant Materials: Any polyester resin operation using corrosion-resistant materials to manufacture products for corrosive or fire retardant service shall use a polyester resin material with a monomer content of no greater than 50 percent by weight.

8-50-305 Surface Preparation and Clean-up Solvent: The requirements of this section shall apply to any polyester resin operation using organic solvent for surface preparation and clean-up.

305.1 A polyester resin operation shall use closed containers for the storage of all polyester resin materials, cleaning materials and any unused VOC-containing materials except when accessed for use.

305.2 A polyester resin operation shall use self-closing containers for the disposal of all polyester resin materials, cleaning materials, waste materials, and any unused VOC containing materials in such a manner as to effectively control VOC emissions to the atmosphere.

305.3 A polyester resin operation shall not use organic compounds for the clean-up of spray equipment including spray lines unless equipment for collecting the cleaning material and minimizing their evaporation to the atmosphere is used.

305.4 A polyester resin operation shall use cleaning materials that contain no greater than 200 grams of VOC per liter of material.

8-50-306 Equipment Requirements: All resin baths shall be covered to reduce organic compound emissions.

8-50-307 Gel Coat Requirement: A person shall not use a gel coat which contains more than 250 grams of volatile compounds per liter of coating applied.

8-50-500 MONITORING AND RECORDS

8-50-501 Records: Any polyester resin operation shall comply with the following requirements, as applicable:

501.1 Maintain a list of resin, catalyst, and cleaning material used.

501.2 Maintain a list of the weight of VOC (in percent) in the polyester resin materials and the grams of VOC per liter for the cleaning materials.

501.3 For vapor suppressed resins, maintain a list of the weight loss (grams per square meter) during resin polymerization, the monomer percentage, and the gel time for each resin.

501.4 Maintain records on a daily basis that provide the following information as applicable:

a. the amount of each of the polyester resin materials and cleaning materials used.

b. the volume of resin and cleaning materials used for touch-up and repair.

501.5 Such records shall be retained and available for inspection by the APCO for the previous 24-month period.

8-50-502 Approved Emission Control System, Recordkeeping Requirements: Any person operating an approved emission control system to comply with Section 8-50-303 shall record key system operating parameters on a daily basis.

(Adopted June 15, 1994)

8-50-600 MANUAL OF PROCEDURES

8-50-601 Analysis of Samples: Samples from polyester resin operations shall be analyzed as follows:

- 601.1 Samples of gel coat as specified in Sections 8-50-307 shall be analyzed as prescribed in the Manual of Procedures, Volume III, Method 26.
- 601.2 Samples of cleaning materials as specified in Section 8-50-305.4 shall be analyzed as prescribed in the Manual of Procedures, Volume III, Method 31.
- 601.3 Samples of polyester resin material as specified in Sections 8-50-301 and 304 shall be analyzed as prescribed in the Manual of Procedures, Volume III, Method 23.
- 601.4 Samples containing parachlorobenzotrifluorides shall be analyzed as prescribed in the Manual of Procedures (MOP), Vol. III, Method 41. Samples containing volatile methylsiloxanes shall be analyzed as prescribed in the MOP, Vol. III, Method 43. (Amended November 6, 1996)

8-50-602 Determination of Emissions: Emissions from polyester resin operations as specified in Section 8-50-303 shall be analyzed as prescribed by any of the following methods: 1) BAAQMD Manual of Procedures, Volume IV, ST-7, 2) EPA Method 25 or 25A. For the purpose of determining abatement device efficiency, any acetone, PCBTF or VMS shall be included as volatile organic compounds. A source shall be considered in violation if the VOC emissions measured by any of the referenced test methods exceed the standards of this rule.

(Amended June 15, 1994; November 6, 1996)