Air Pollution Control District
County of San Diego
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RULE 67.18 MARINE COATING OPERATIONS

(Effective 7/3/90: Rev. Effective 12/13/94)

(a) APPLICABILITY

(1) Except as otherwise provided in Section (b), this rule is applicable to marine coating operations including the coating of marine and fresh water vessels, oil drilling platforms, navigational aids and component parts; and structures intended for exposure to a marine environment.

(2) Rule 66 shall not apply to any marine coating operation which is subject to this rule.

(b) EXEMPTIONS

The provisions of this rule shall not apply to:

(1) Coating operations employing non-refillable hand held aerosol cans.

(2) Solid film lubricants.

(3) Polyester resin materials used in operations subject to or specifically exempt from Rule 67.12.

(4) Touch-up operations of thermoplastic coatings on marine and fresh water vessels.

(5) Antifoulant coatings applied to aluminum hulls, outboard motors, lower drive shafts, and aluminum running gear below waterline provided records are maintained to substantiate that the antifoulant coatings are applied to aluminum hull, outboard motors, lower drive shafts, and aluminum running gear, and provided the recordkeeping requirements of Section (f) are met.

(6) Architectural coatings subject to Rule 67.0, applied to installed bridges, piers or other stationary structures.

(7) Noncommercial marine coating operations performed by individuals at their personal residence for the purpose of coating their own pleasure craft(s).

(8) Marine coatings used at a permitted stationary source in volumes of less than 20 gallons per year, provided not more than 20 gallons per year of all such non-compliant coatings are used and provided records are maintained to substantiate the total annual usage of such coatings. These records shall be retained on site for at least three years and shall be made available to the District upon request.

(9) Solvent cleaning equipment subject to Rule 67.6 and used for surface preparation.

(c) DEFINITIONS

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

(1) **"Air Dried Coating"** means any coating which is not heated above 90°C (194°F) for the purpose of curing or drying.

(2) **"Air Flask Coating"** means a special composition coating applied to interior surfaces of high pressure breathing air flasks to provide corrosion resistance and which is certified safe for use with breathing air supplies.

(3) **"Antenna Coatings"** means any coating applied to equipment on a vessel exterior which is used to receive or transmit electromagnetic signals.

(4) **"Antifoulant Coating"** means any coating which is applied to the underwater portion of a vessel to prevent or reduce the attachment of biological organisms and which is registered with the Environmental Protection Agency (EPA) as a pesticide.

(5) **"Baked Coating"** means any coating which is cured or dried in an oven where the oven air temperature exceeds 90°C (194°F).

(6) **"Coating"** means a material containing more than 20 grams per liter of VOC as applied, less water and exempt compounds, which can be applied as a thin layer to a substrate and which dries or cures to form a continuous solid film, including but not limited to any paint, primer, varnish, stain, lacquer, enamel, shellac, sealant, or maskant, and excluding adhesives.

(7) **"Coating Operation"** means all steps involved in the application, drying and/or curing of surface coatings, and associated equipment cleaning and surface preparation.

(8) **"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), 1,1,1,2-tetrafluoroethane (HFC-134a), 1,1,2,2-tetrafluoroethane (HFC-134), chlorodifluoroethane (HCFC-142b), 2-chloro-1,1,1,2-chlorotetrafluoroethane (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.

(9) **"Finish Primer"** means any coating up to 5 mils thick (dry) applied prior to the application of a pleasure craft topcoat for the purpose of corrosion resistance, adhesion of the topcoat, and which promotes a uniform surface by filling in surface imperfections.

(10) **"Heat Resistant Coating"** means any coating which during normal use must withstand temperatures of at least 204°C (400°F).

(11) **"High Gloss Coating"** means any coating which achieves at least 85% reflectance on a 60° meter.

(12) **"High Solids Epoxy Coating"** means an epoxy coating which is applied over a preconstruction zinc primer, or to a metal surface from which preconstruction zinc primer has been removed, or over earlier coats of high solids epoxy coating, in ship structural modification or initial ship construction.

(13) **"High Temperature Coating"** means any coating which during normal use must withstand temperatures of at least 426°C (800°F).

(14) **"Impregnating Sealer"** means a coating formulated for and applied to wood and fiberglass surfaces to impregnate these surfaces to prevent further deterioration of these surfaces prior to applying subsequent coatings.

(15) **"Inorganic Zinc Coating"** means a coating derived from zinc dust incorporated into an inorganic silicate binder, which contains more than eight pounds of elemental zinc per gallon of coating, as applied, and which is used for the express purpose of providing corrosion protection.

(16) **"Low Activation Interior Coating"** means a special composition coating used on interior surfaces aboard marine vessels to minimize the activation of pigments on painted surfaces within a nuclear radiation environment.

(17) **"Military Exterior Topcoat"** means an exterior topcoat applied to military vessels, including U.S. Coast Guard vessels subject to specified chemical, biological, and radiological washdown requirements.

(18) **"Mist Coating"** means a thin film epoxy coating up to 2 mils thick (dry) applied to an inorganic or organic zinc primer to promote adhesion of subsequent coatings.

(19) **"Navigational Aids Specialty Coating"** means a coating applied to Coast Guard buoys or other Coast Guard waterway markers when they are recoated at their usage site and immediately returned to the water.

(20) **"Organic Zinc Coating"** means a coating derived from zinc dust incorporated into an organic binder, which contains more than eight pounds of elemental zinc per gallon of coating, as applied, and which is used for the express purpose of providing corrosion protection.

(21) **"Pleasure Craft"** means a privately owned vessels used for non-commercial purposes. Vessels rented exclusively to individuals for non-commercial, recreational purposes shall be considered pleasure craft.

(22) **"Pleasure Craft Topcoat"** means any coating applied to a pleasure craft exterior above the waterline and below the waterline when stored out of water, and which achieves at least 95% reflectance on a 60° meter.

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

(24) **"Preconstruction Zinc Primer"** means a coating which contains more than one pound of elemental zinc per gallon of coating as applied, and is applied in a thin layer

to metal surfaces prior to use in ship structural modification or initial ship construction, for the purposes of providing initial corrosion protection and compatibility with the welding process.

(25) **"Pretreatment Wash Primer"** means any coating which contains a minimum of 0.5 percent acid by weight and which is applied directly to fiberglass and bare metal surfaces and is necessary to provide surface etching and required adhesion for subsequent coatings.

(26) **"Primer Surfacer"** means any coating between 5 and 10 mils thick (dry) applied prior to the application of a pleasure craft topcoat for the purpose of corrosion resistance, adhesion of the topcoat, and which promotes a uniform surface by filling in surface imperfections.

(27) **"Radar Exterior Topcoat"** means a polyurethane topcoat with no electrically or magnetically conductive pigmentation, which is used on an isoprene rubber substrate aboard U.S. military vessels on radar equipment and meeting retention requirements for flexibility and color.

(28) **"Repair and Maintenance Coating Operation"** means the partial recoating of marine and fresh water vessels with thermoplastic coatings, applied over the same type of existing coatings.

(29) **"Rubber Camouflage Coating "** means a specially formulated epoxy coating, used as a camouflage topcoat for exterior submarine hulls and sonar domes lined with elastomeric material, which provides resistance to chipping and cracking of the rubber substrate.

(30) **"Sealant Coat for Thermal Spray Aluminum"** means an epoxy coating, thinned at a ratio of not greater than one for one with appropriate solvent, and applied to thermal spray aluminum surfaces at approximately a one mil thickness.

(31) **"Solid Film Lubricant"** means a thin film coating of an organic binder system, containing as its chief pigment material, one or more of the following: molybdenum disulfide, graphite, polytetrafluoroethylene, or other solids that act as a dry lubricant between meeting surfaces.

(32) **"Specialty Interior Coating"** means a coating used on interior surfaces aboard U.S. military vessels, pursuant to a coating specification which requires that the coating have fire retardant properties and a toxicity index of less than 0.03, in addition to existing military physical and performance requirements.

(33) **"Special Marking Coating"** is a coating used specifically for items such as flight decks, ships numbers and other demarcations for safety or identification.

(34) **"Stationary Source"** means the same as defined in Rule 20.1.

(35) **"Tack Coat"** means an epoxy coat up to two mils thick (dry) applied to allow adhesion of a subsequent coating during the coating process where the existing epoxy coating has aged beyond the time limit specified by the manufacturer for the application of the next coat.

(36) **"Thermal Spray Aluminum"** means a process of applying a molten aluminum coating to a steel substrate using a thermal spray system.

(37) **"Thermoplastic Coating"** means vinyl, acrylic, chlorinated rubber or bituminous resin coatings.

(38) **"Touch-up Operation"** means that portion of the coating operation which is incidental to the main coating process but necessary to cover minor imperfections or minor mechanical damage incurred prior to intended use.

(39) **"Undersea Weapons System Coating"** means a coating applied to any component of a weapons system intended for exposure to a marine environment and intended to be launched or fired undersea.

(40) **"Volatile Organic Compound" (VOC)** means any volatile compound of carbon, which may be emitted to the atmosphere during operations or activities subject to this rule, except methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and exempt compounds.

(41) **"VOC Content Per Volume of Coating, Less Water and Exempt Compounds"** means the weight of VOC per combined volume of VOC and coating solids, and is calculated by the following equation:

$$C_c voc = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

where:

$C_c voc$ = VOC content less water and exempt compounds

W_s = weight of volatile compounds including water and exempt compounds

W_w = weight of water

W_{es} = weight of exempt compounds

V_m = volume of material including water and exempt compounds

V_w = volume of water

V_{es} = volume of exempt compounds

(42) **"VOC Content Per Volume of Material"** means the weight of VOC per volume of material, and is calculated by the following equation:

$$C_m voc = \frac{W_s - W_w - W_{es}}{V_m}$$

where:

$C_m voc$ = VOC content

W_s = weight of volatile compounds including water and exempt compounds

W_w = weight of water

W_{es} = weight of exempt compounds

V_m = volume of material including water and exempt compounds

(43) **"Wood Sealer"** means a coating formulated for and applied to wood to prevent subsequent coatings from being absorbed into the wood.

(d) **STANDARDS**

(1) VOC Limits

Except as provided in Subsection (d)(2), a person shall not apply any marine coating with a VOC content in excess of the following limits expressed as grams of VOC per liter of coating, as applied, excluding water and exempt compounds:

Air Dried Coatings	340
Baked Coatings	275

(2) VOC Limits for Specialty Coatings

A person shall not apply any marine specialty coating with a VOC content in excess of the following limits, expressed as grams of VOC per liter of coating, as applied, excluding water and exempt compounds:

	Effective December 13, 1994	
	Air Dried	Baked
Air Flask	340	
Antenna Coating	340	
Antifoulant Coating (except for pleasure craft)	400	
Antifoulant Coating (for pleasure craft)	330 (Effective June 13, 1995)	
Finish Primer	600	
Heat Resistant Coating	420	360
High Gloss Coating	420	360
High Solids Epoxy Coating	280	
High Temperature Coating	500	
Impregnating Sealer	700	
Inorganic Zinc Coating	340	
Low Activation Interior Coating	420	
Military Exterior Topcoat	340	
Mist Coating	610	
Navigational Aids Speciality Coating	550	
Organic Zinc Coating	340	
Pleasure Craft Topcoat	650	
Preconstruction Zinc Primer	650	
Pretreatment Wash Primer	420	
Primer Surfacer	340	
Radar Exterior Topcoat	340	
Rubber Camouflage Coating	340	
Sealing Coat for Thermal Spray Aluminum	610	
Special Marking Coating	420	
Specialty Interior Coating	340	
Tack Coat	610	
Thermoplastic Coatings used in a Repair and Maintenance Coating Operation	550	
Underwater Weapons System Coating	340	275
Wood Sealer	340	

The requirements of Subsections (d)(1) and (d)(2) may be met using an Alternative Emission Control Plan (AECP) that has been approved pursuant to Rule 67.1.

(3) Cleaning of Equipment

A person shall not use VOC-containing materials for the cleaning of equipment used in marine coating operations unless:

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

(ii) the cleaning material is flushed or rinsed through the equipment in a contained manner that will minimize evaporation into the atmosphere; or

(iii) the equipment or equipment parts are cleaned in a container which is open only when being accessed for adding, cleaning, or removing application equipment or when cleaning material is being added, provided the cleaned equipment or equipment parts are drained to the container until dripping ceases; or

(iv) other application equipment cleaning methods that are demonstrated to be as effective as any of the equipment described above in minimizing the emissions of VOC to the atmosphere, provided that the method and/or device has been approved by the Air Pollution Control Officer; or

(v) the cleaning material contains 200 grams or less of VOC per liter of material; or

(vi) the cleaning material has an initial boiling point of 190° C (374° F) or greater; or

(vii) the cleaning material has a total vapor pressure of VOC of 20 mm Hg or less, at 20° C (68° F).

(4) Surface Preparation

After June 13, 1995, a person shall not use VOC containing materials for surface preparation in marine coating operations unless:

(i) the material contains 200 grams or less of VOC per liter of material; or

(ii) the material has an initial boiling point of 190° C (374° F) or greater; or

(iii) the material has a total vapor pressure of VOC of 45 mm Hg or less, at 20° C (68° F).

(5) No person shall require for use or specify the application of a coating subject to this rule if such use or application results in a violation of any provision of this rule. This prohibition shall apply to all written or oral contracts under the terms of which any coating is applied to any marine vessel, component or structure intended for exposure to a marine environment at any physical location within San Diego County.

(6) The manufacturer shall provide on the coating container or on separate data sheets a designation of VOC expressed in grams per liter or pounds per gallon, less water and exempt compounds, for all coatings which are offered for sale in San Diego County to be used on marine vessels, components and structures intended for exposure to a marine environment.

(e) **CONTROL EQUIPMENT**

(1) In lieu of complying with provisions of Subsections (d)(1), (d)(2), (d)(3), and/or (d)(4) of this rule, 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 organic gaseous emissions, including emissions associated with applicable coating, equipment cleaning, and surface preparation operations, and transports the captured emissions to an air pollution control device; and

(iii) has a combined 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 plan for the proposed emission control device and emission collection system and receive approval prior to operation of the control equipment. Thereafter, the plan can be modified, with Air Pollution Control Officer approval, as necessary to ensure compliance. 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; and

(ii) include proposed inspection schedules and anticipated ongoing maintenance regarding the key system operating parameters.

(3) Upon approval of the Air Pollution Control Officer, a person subject to the requirements of this section shall implement the Operation and Maintenance plan, and shall comply with the provisions of the approved plan thereafter.

(f) **RECORDKEEPING**

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

(1) Any person subject to the provisions of Subsections (d)(1), (d)(2), (d)(3) and/or (d)(4) of this rule shall maintain records in accordance with the following:

(i) Maintain a current list of coatings and VOC containing materials in use which provides all of the coating, cleaning, and/or surface preparation material VOC data necessary to evaluate compliance, including but not limited to:

(A) Manufacturer name and identification of coatings or each coating component for multi-component coatings (this includes any components such as bases, catalysts, thinners or reducers, when supplied in separate containers), and each cleaning and surface preparation material;

(B) Mix ratio of components; and

(C) VOC content, initial boiling point, and/or total vapor pressure of VOC of each coating, or coating component for multi-component coatings, cleaning and surface preparation material.

(ii) Maintain current documentation to demonstrate applicability of any specialty coating category pursuant to Subsection (d)(2) of this rule.

(iii) At a minimum, maintain records on a monthly basis showing:

(A) the amount of each coating, or each coating component for multi-component coatings, used; and

(B) the maximum operating temperature of any ovens used to bake marine coatings, if applicable; and

(C) the type and amount of each cleaning and surface preparation material used; and

(D) material additions to dip tanks used for dip coating operations.

(2) A person using control equipment in accordance with Section (e) of this rule shall:

(i) maintain records in accordance with Subsection (f)(1); and

(ii) for all coating, cleaning, and/or surface preparation materials not in compliance with Subsections (d)(1), (d)(2), (d)(3), or (d)(4) of this rule, maintain daily records of the amount of each coating or each coating component for multi-component coatings, surface preparation and cleaning material used; and

(iii) maintain daily records of key system operating parameters as approved in the Operation and Maintenance plan. Such records shall be sufficient to document continuous compliance with Subsection (e)(1)(iii) during periods of emission producing activities.

(g) TEST METHODS

(1) Measurement of VOC content of the marine coatings, cleaning and surface preparation materials subject to Subsections (d)(1), (d)(2), (d)(3)(v) or (d)(4)(i) of this rule shall be conducted in accordance with EPA Test Method 24 (40 CFR 60, Appendix A) as it exists on December 13, 1994.

(2) Perfluorocarbon (PFC) compounds shall be assumed to be absent from a coating, cleaning, or surface preparation material subject to this rule unless a manufacturer of the material or a facility operator identifies the specific individual compound(s) and the amount(s) present in the material and provides an EPA and ARB approved test method which can be used to quantify the specific compounds.

(3) Measurement of coating reflectance referenced in Subsections (c)(11) or (c)(22) of this rule shall be conducted in accordance with ASTM Standard Test Method D523-89.

(4) Measurement of pretreatment wash primer acid content referenced in Subsection (c)(25) of this rule shall be conducted in accordance with ASTM Standard Test Method D1613-91.

(5) Measurement of the initial boiling point of cleaning and surface preparation materials subject to Subsection (d)(3)(vi) and/or (d)(4)(ii) of this rule shall be conducted in accordance with ASTM Standard Test Method D1078-86.

(6) Measurement of control device efficiency subject to Subsection (e)(1) of this rule shall be conducted in accordance with EPA Methods 18 and/or 25A (40 CFR 60) as they exist on December 13, 1994 and in accordance with a protocol approved by the Air Pollution Control Officer.

(7) Measurement of elemental zinc content referenced in Subsections (c)(15), (c)(20) and (c)(24) of this rule shall be conducted and reported in accordance with the South Coast Air Quality Management District Spectrographic Method 311-91.

(8) Calculation of total vapor pressure of VOC in materials subject to Subsection (d)(3)(vii) and/or (d)(4)(iii) of this rule shall be conducted in accordance with the District's "Procedures for Estimating the Vapor Pressure of VOC Mixtures" as it exists on December 13, 1994. If the vapor pressure of the liquid mixture exceeds the limits specified in Subsection (d)(3)(vii) and/or (d)(4)(iii), the vapor pressure shall be determined in accordance with ASTM Standard Test Method D2879-86, Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope. The fraction of water and exempt compounds in the liquid phase shall be determined by using ASTM Standard Test Methods D3792-91 and D4457-85 and shall be used to calculate the partial pressure of water and exempt compounds. The results of vapor pressure measurements obtained using ASTM Test Method D2879-86 shall be corrected for partial pressure of water and exempt compounds.

(9) Measurement of the emission collection system capture efficiency subject to Subsection (e)(1) of this rule shall be conducted using a protocol approved by the Air Pollution Control Officer. Subsequent to the initial compliance demonstration period, applicable key system operating parameters, as approved by the Air Pollution Control Officer, can be used as indirect verification that capture efficiency performance has not diminished.

(10) Measurement of solvent losses from alternative application cleanup equipment subject to Subsection (d)(3)(iv) shall be conducted and reported in accordance with the South Coast Air Quality Management District's "General Test Method for Determining Solvent Losses from Spray Gun Cleaning Systems" as it exists on December 13, 1994.