

VENTURA COUNTY AIR POLLUTION CONTROL DISTRICT

**RULE 74.24 - MARINE COATING OPERATIONS**

*(Adopted 3/8/94, Revised 9/10/96, 11/11/03, 9/11/12)*

A. Applicability

The provisions of this rule apply to any person who applies, specifies the use of, or supplies coatings for marine and fresh water vessels, drilling vessels, and navigational aids, and their parts or components, including any parts subjected to unprotected shipboard conditions. The provisions of this rule shall not apply to any stationary source whose sole Standard Industrial Classification (SIC) is 3732, Boat Building and Repair or 4493, Marinas.

B. Requirements

1. Except as otherwise provided in this rule, no person shall apply a marine coating with an ROC content in excess of the following general limits, expressed as grams of ROC per liter of coating applied (g/l) or pounds per gallon (lb/gal), less water and exempt organic compounds (for low-solids coatings, the ROC content is based on a gram per liter of material basis):

General Limits

<u>Coating Category</u>	<u>ROC Limit (g/l)</u>	<u>ROC Limit (lb/gal)</u>
Air Dried	340	2.8
Baked	275	2.3

2. Specialty Coating Limits: No person shall apply a marine coating with an ROC content in excess of the following limits, expressed as grams of ROC per liter of coating applied, less water and exempt organic compounds (for low-solids coatings, the ROC content is based on a gram per liter of material basis):

Specialty Coating Limits

<u>Coating Category</u>	<u>ROC Limit (g/l)</u>	<u>ROC Limit (lb/gal)</u>
Air Flask Coatings	340	2.8
Antenna Coatings	340	2.8
Antifoulants Coatings		
Aluminum Substrates	560	4.7
Other Substrates	400	3.3
Heat Resistant Coatings (Air Dried)	420	3.5
Heat Resistant Coatings (Baked)	360	3.0
High Gloss Coatings (Air Dried)	420	3.5
High Gloss Coatings (Baked)	360	3.0
High Temperature	500	4.2
Low Activation Interior	420	3.5
Military Exterior	340	2.8
Navigational Aids	340	2.8
Pretreatment Wash Primer	780	6.5

### Specialty Coating Limits

<u>Coating Category</u>	<u>ROC Limit (g/l)</u>	<u>ROC Limit (lb/gal)</u>
Repair and Maintenance Thermoplastic	340	2.8
Rubber Camouflage Coatings	340	2.8
Sealant for Wire-Sprayed Aluminum	610	5.1
Special Marking	420	3.5
Specialty Interior	340	2.8
Tack Coat	610	5.1
Undersea Weapons Systems Coatings	340	2.8
Wood Sealer	340	2.8
Zinc-Rich	340	2.8

3. Add-on Control Equipment Option: In lieu of complying with the provisions of Subsections B.1 or B.2, air pollution control equipment may be used provided that:
  - a. The combined control and capture efficiency reduces emissions by at least 85 percent, by weight, and
  - b. Written approval for such equipment, in the form of an Authority to Construct and a Permit to Operate, is received from the Air Pollution Control Officer (APCO).
  
4. Surface Preparation and Cleanup Solvent:
  - a. Until December 1, 2012, no person shall use ROC-containing materials for cleanup unless:
    - 1) An enclosed gun washer or "low emission spray gun cleaner," which has been approved in writing by the APCO, is properly used for spray equipment cleaning, and
    - 2) The ROC composite partial pressure of the solvent used for cleanup, including spray equipment cleanup, is less than 45 mm Hg at 20°C.

Effective December 1, 2012, no person shall use ROC-containing materials for cleanup or for spray equipment cleaning unless the ROC content is 25 grams per liter of material or less.
  - b. Until December 1, 2012, no person shall use ROC-containing materials which have more than 200 grams of ROC per liter of material for substrate surface preparation prior to coating.

Effective December 1, 2012, no person shall use ROC-containing materials which have more than 25 grams of ROC per liter of material for substrate surface cleaning prior to coating.

5. Storage of ROC-Containing Materials: All ROC-containing materials, including but not limited to, surface coatings, cleanup solvents, or surface preparation materials shall be stored in closed containers, which are nonabsorbent and do not leak.
6. Prohibition of Specification: No person shall solicit, require for use, or specify the application of any coating, if such use or application results in a violation of the provisions of this Rule. This prohibition shall apply to all written or oral contracts.
7. Compliance Statement Requirement: The manufacturer of any marine coating subject to this rule shall designate on the coating container or on separate data sheets the maximum volatile organic compound (VOC) content of the coating, as supplied. The VOC content shall be expressed as grams per liter of coating (less water and less exempt organic compounds). For zinc-rich coatings, in addition to the VOC content, the weight of total zinc per gallon of coating shall also be provided. For low-solids coatings, the VOC content shall be expressed as gram per liter of material basis.
8. Liquid Cleaning Material Compliance Statement: The manufacturer of liquid cleaning materials subject to this rule shall designate on product labels or data sheets the ROC or VOC content and ROC or VOC Composite Partial Pressure of cleaning materials as supplied. This designation shall include recommendations regarding mixing with any other ROC containing materials, and express the cleaning material ROC content when used in accordance with the manufacturer's recommendations. All letters and numbers used to designate ROC or VOC content on product labels shall be visible and legible.

C. Exemptions

1. The provisions of this rule shall not apply to:
  - a. Solid-film lubricants
  - b. The coating of stationary structures that are subject to Rule 74.2, Architectural Coatings, including, but not limited to bridges, piers, pontoons and installed offshore platforms.
  - c. The coating of metal parts that are subject to Rule 74.12, Surface Coating of Metal Parts and Products. Any marine coating applied to a vessel or to a component exposed to shipboard conditions shall be subject to Rule 74.24.

- d. Aerosol coating products.
- 2. Section B of this rule, shall not apply to any stationary source that emits less than 200 pounds of ROC in every rolling period of 12 consecutive calendar months from marine coating operations. Emissions from aerosol products, cold cleaners and vapor degreasers shall not be included in this determination. Any person claiming this exemption shall maintain monthly operational records to substantiate this claim.
  - 3. Subsections B.1 and B.2 of this rule do not apply to any one coating provided:
    - a. No complying coating is available, and
    - b. Total usage of all non-complying coatings has not exceeded 55 gallons in any calendar year.

Any person claiming this exemption shall demonstrate the lack of available coatings to the APCO on an annual basis.

- 4. The provisions of this rule shall not apply to any stationary source whose sole Standard Industrial Classification (SIC Code), as identified by the APCO, is 3732, Boat Building and Repairing, or 4493, Marinas.

#### D. Recordkeeping

- 1. Any person subject to this rule shall:
  - a. Maintain a current list of all coatings that provides all information necessary to evaluate compliance, including the following, as applicable:
    - 1) The name and manufacturer of each coating and any catalysts and reducers used with each coating
    - 2) Mix ratio of components used in coatings
    - 3) ROC Content (less water and exempt organic compounds except for low-solids coatings, which are expressed as grams per liter of material basis), as applied
    - 4) Category from Section B of each coating used
  - b. Maintain records which show the following for each ROC-containing material used for cleanup, including equipment cleaning, and each ROC-containing material used for substrate surface cleaning:
    - 1) Type
    - 2) ROC content in grams per liter of material
    - 3) Composite ROC partial pressure of organic solvent (where applicable)

- c. Maintain records of the monthly volume of each complying coating and ROC-containing liquid used for equipment cleanup and surface preparation, and daily volume of each noncompliant coating used. Any person claiming the coating small-use exemption in Subsection C.3 shall maintain records of each exempt coating used on a monthly basis.
  - d. Any person using an emission control system as a means of complying with this rule shall maintain daily records of key system operating and maintenance procedures which will demonstrate continuous operation and compliance of the emission control device during periods of emission producing activities.
2. All records shall be retained for at least two (2) years from the date of each entry and shall be available to District personnel upon request.

E. Test Methods

1. The ROC and solids content of all coatings and cleaning solvents shall be determined using EPA Reference Method 24 (40 CFR Part 60, Appendix A), "Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings."
2. Exempt organic compounds shall be determined using ASTM D4457-91, "Test Method for Determination of Dichloromethane and 1,1,1-Trichloroethane in Paints and Coatings by Direct Injection into a Gas Chromatograph."
3. Capture efficiency shall be determined according to EPA "Guidelines for Determining Capture Efficiency," dated January 9, 1995, and 40 CFR 51, Appendix M, Methods 204-204F, as applicable.  
 Methods 204, Criteria for and Verification of a Permanent or Temporary Total Enclosure  
 Method 204A, VOC content in Liquid Input Stream  
 Method 204B, VOC Emissions in Captured Stream  
 Method 204C, VOC Emissions in Captured Stream (Dilution Technique)  
 Method 204D, VOC Emissions in Un-captured Stream from Temporary Total Enclosure  
 Method 204E, VOC Emissions in Un-captured Stream from Building Enclosure, and  
 Method 204F, VOC Content in Liquid Input Streams (Distillation Approach)  
  
 Control system efficiency shall be determined by 40 CFR 60, Appendix A, Method 18, "Measurement of Gaseous Organic Compound Emissions by Gas Chromatography", Method 25, "Determination of Total Gaseous Nonmethane Organic Emissions as Carbon" or Method 25A, "Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer."
4. ROC composite pressure of a solvent shall be calculated using a widely accepted published source such as: Boublik, T., V. Fried and E. Hala, "The Vapor Pressure

of Pure Substances," Elsevier Scientific Publishing Co., New York (1973), Perry's Chemical Engineer's Handbook, McGraw-Hill Book Company, CRC Handbook of Chemistry and Physics, Chemical Rubber Publishing Company (1986-87), and Lange's Handbook of Chemistry, John A. Dean, editor, McGraw-Hill Book Company (1985). The true vapor pressure of a component in a solvent mix may be determined by ASTM Method D2879-97, "Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isotenoscope." The ROC composite pressure of a solvent mix consisting entirely of ROC may be determined by ASTM Method D2879-97.

5. The active and passive solvent losses from spray gun cleaning systems shall be determined using SCAQMD's "General Test Method for Determining Solvent Losses from Spray Gun Cleaning Systems" dated October 3, 1989. The test solvent for this determination shall be any lacquer thinner with a minimum ROC composite partial pressure of 105 mm of Hg at 20 °C, and the minimum test temperature shall be 15 °C.
6. The measurement of acid content and solid content of pretreatment wash primers shall be done in accordance with ASTM Method D 1613-96, "ASTM Standard Test Method for Acidity in Volatile Solvents and Chemical Intermediates Used in Paint, Lacquer, and Related Products," and ASTM Method D 2369-95, "Standard Test Method for Volatile Content of Coatings," respectively.
7. The measurement of the zinc content of a coating shall be determined in accordance with South Coast Air Quality Management District Method 311, "Determination of Percent Metal in Metallic Coatings by Spectrographic Method."

#### F. Violations

Failure to comply with any provision of this rule, including the requirement to maintain records or supply VOC or ROC information, shall constitute a violation of this rule.

#### G. Definitions:

1. "Active Solvent Losses": The active solvent losses are the emissions during all steps of a spray gun equipment cleaning operation and are expressed in units of grams of solvent loss per cleaning cycle.
2. "Aerosol Coating Product": A pressurized coating product containing pigments or resins that dispenses product ingredients by means of a propellant, and is packaged in a disposable can for hand held application, or for use in specialized equipment for ground traffic/marketing applications.
3. "Air Dried Coating": Any coating that is cured at a temperature below 90°C (194°F).

4. "Air Flask Coating": A coating applied to the interior surfaces of high pressure breathing air flasks to provide corrosion resistance and which is certified safe for use with breathing air supplies.
5. "Antenna Coating": Any coating applied to equipment and associated structural appurtenances that are used to receive or transmit electromagnetic signals.
6. "Antifoulant Coating": Any coating applied to the underwater portion of a vessel to prevent or reduce the attachment of biological organisms and registered with the Environmental Protection Agency (EPA) as a pesticide.
7. "Baked Coating": Any coating that is cured at a temperature at or above 90°C (194°F).
8. "Capture Efficiency": The percentage of ROC used, emitted, evolved, or generated by the operation, that are collected and directed to an air pollution control device.
9. "Cleanup": The removal of uncured coating from any surface.
10. "Coating": A material that is applied to a surface and forms a film in order to beautify and/or protect such surface.
11. "Exempt Organic Compounds": As defined in Rule 2, Definitions, of these Rules.
12. "Grams of ROC per liter of Coating, less water and exempt organic compounds": The weight of ROC per combined volume of ROC and coating solids calculated using the following equation:

$$\begin{array}{l} \text{Grams of ROC per Liter of Coating} \\ \text{Less Water and Exempt Organic Compound} = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}} \end{array}$$

where  $W_s$  = Weight of volatile compounds (grams)  
 $W_w$  = Weight of water (grams)  
 $W_{es}$  = Weight of exempt organic compounds (grams)  
 $V_m$  = Volume of material (liters)  
 $V_w$  = Volume of water (liters)  
 $V_{es}$  = Volume of exempt organic compounds (liters)

13. "Grams of ROC per Liter of Material": The weight of ROC per volume of material shall be calculated using the following equation:

$$\begin{array}{l} \text{Grams of ROC per Liter of Material} \\ = \frac{W_s - W_w - W_{es}}{V_m} \end{array}$$

Where  $W_s$  = Weight of volatile compounds (grams)  
 $W_w$  = Weight of water (grams)  
 $W_{es}$  = Weight of exempt organic compounds (grams)  
 $V_m$  = Volume of material (liters)

14. "Gun Washer": Electrically or pneumatically operated system that is designed to clean spray application equipment while enclosed. A gun washer may also be considered a gun cleaning system that consists of spraying solvent into an enclosed container using a snug fitting.
15. "Heat Resistant Coating": Any coating which during normal use must withstand temperatures of at least 204°C (400°F).
16. "High Gloss Coating": Any coating which achieves at least 85 percent reflectance on a 60° meter when tested in accordance with ASTM D-523.
17. "High Temperature Coating": Any coating which must withstand temperatures of at least 426°C (800°F).
18. "Low-Activation Interior Coating": A coating used on interior surfaces aboard ships to minimize the activation of pigments on painted surfaces within a radiation environment.
19. "Low emission spray gun cleaner": Any properly used spray equipment cleanup device which has passive solvent losses of no more than 0.6 grams per hour and has active solvent losses of no more than 15 grams per operating cycle as defined by the test method in Subsection E.5.
20. "Low-Solids Coatings": Any product that has less than one pound of solids per gallon of material (120 grams or less of solids per liter of material). Such solids are the non-volatiles remaining after a sample is heated at 110°C for one hour.
21. "Marine Coating": Any coating, except unsaturated polyester resin (fiberglass) coatings, intended by the manufacturer to be applied to marine or fresh water vessels, and their appurtenances, and to navigational aids.
22. "Military Exterior": Any exterior topcoat intended by the manufacturer to be applied to military vessels (including US Coast Guard) that are subject to specified chemical, biological, and radiological washdown requirements.
23. "Navigational Aids Coating": Any coating that is used to recoat in-use buoys or other Coast Guard waterway markers.
24. "Operating Cycle": An operating cycle consists of all steps carried out during a cleaning operation.

25. "Passive Solvent Losses": The passive solvent losses are the emissions from spray gun cleaning equipment when the equipment sits idle between cleaning cycles and are a result of natural evaporation from the equipment.
26. "Pretreatment Wash Primer": Any coating which contains at least 1/2-percent acids, by weight, to provide surface etching and contains no more than 12 percent solids, by weight.
27. "Reactive Organic Compounds (ROC)": As defined in Rule 2, Definitions, of these Rules. The term "volatile organic compound"(VOC) is equivalent to ROC.
28. "Repair and Maintenance Thermoplastic Coating": Any vinyl, chlorinated rubber, or bituminous resin coating used for partial recoating over the same coating system.
29. ROC Composite Partial Pressure": The sum of the partial pressures of the compounds defined as ROCs. ROC composite partial pressure is calculated as follows:

$$PP_c = \frac{\sum_{i=1}^n \left( \frac{W_i}{MW_i} \right) (VP_i)}{\left( \frac{W_w}{MW_w} \right) + \sum_{e=1}^n \left( \frac{W_e}{MW_e} \right) + \sum_{i=1}^n \left( \frac{W_i}{MW_i} \right)}$$

Where:

$W_i$  = Weight of the "i"th ROC compound, in grams

$W_w$  = Weight of water, in grams

$W_e$  = Weight of the "e"th exempt organic compound, in grams

$MW_i$  = Molecular weight of the "i"th ROC compound, in g/(g-mole)

$MW_w$  = Molecular weight of water, in g/(g-mole)

$MW_e$  = Molecular weight of the "e"th exempt organic compound, in g/(g-mole)

$PP_c$  = ROC composite partial pressure at 20 C, in mm Hg

$VP_i$  = Vapor pressure of the "i"th ROC compound at 20 C, in mm Hg.

30. "Rubber Camouflage Topcoat": 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.
31. "Sealant for Wire-Sprayed Aluminum": A coating of up to one mil (0.001 inch) in thickness of an epoxy material which is reduced for application with an equal part of an appropriate solvent (naphtha or ethylene glycol monoethyl ether), for use on wire-sprayed aluminum surfaces.
32. "Solid Film Lubricant": A very thin coating consisting of a binder system containing as its chief pigment material one or more of the following:

molybdenum disulfide, graphite, polytetrafluoroethylene (PTFE) or other solids that act as a dry lubricant between faying surfaces.

33. "Specialty Interior Coating": An extreme performance coating used on interior surfaces aboard ships. This coating has fire retardant properties in addition to military physical performance requirements.
34. "Special Marking Coating": Any coating used for items such as flight decks, ships' numbers, and other safety or identification applications.
35. "Substrate Surface Cleaning": Cleaning of a substrate to remove dirt, oils, and other contaminants. Substrate surface cleaning is typically done prior to the application of surface coatings, adhesive bonding materials, or sealants. Stripping of cured paints or adhesives is not considered to be substrate surface cleaning.
36. "Tack Coat": An epoxy coating of up to two mils thick applied to an existing epoxy coating that has aged beyond the time limit specified by the manufacturer for application of the next coat.
37. "Undersea Weapons Coating": 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.
38. "Volatile Organic Compound" (VOC): Shall have the same meaning as Reactive Organic Compounds (ROC) as defined in Rule 2 of these Rules.
39. "Wired-Sprayed Aluminum": A molten aluminum coating applied to a steel substrate using oxygen fueled combustion spray methods.
40. "Wood Sealer": A coating formulated for and intended by the manufacturer to be applied to wood in order to prevent subsequent coatings from being absorbed into the wood.
41. "Zinc-Rich Coating": A coating that contains more than 8 pounds of zinc per gallon of coating (as applied), used for the express purpose of providing corrosion protection.