

**Air pollutants, hazardous; national emission standards: Surface coating operations from new or existing shipbuilding and ship repair facilities, 44050**

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1/733

ENVIRONMENTAL PROTECTION AGENCY

[AD-FRL-5559-5]

Control Techniques Guidelines for Shipbuilding and Ship Repair Operations (Surface Coating)

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of release of control techniques guidelines (CTG).

SUMMARY: The CTG for control of volatile organic compound (VOC) emissions from surface coating operations in the shipbuilding and ship repair industry is available to assist States in analyzing and determining reasonably available control technology (RACT) for shipbuilding and ship repair operations located within ozone national ambient air quality standards (NAAQS) nonattainment areas. The CTG also sets forth the adoption and implementation dates for RACT. The CTG for Shipbuilding and Ship Repair Operations (Surface Coating) is not being issued as a stand-alone document. Rather, it is a combination of the information contained in this notice and in the EPA's previously published alternative control techniques (ACT) document for this emission source category.

EFFECTIVE DATE: Any State that has not adopted an approvable RACT regulation for the source category addressed by this CTG must submit a RACT regulation for these sources within one year from the date of publication of this action in the Federal Register. For any State that has adopted an approvable RACT regulation for the source category addressed by this CTG, Section 182(b)(2) of the Clean Air Act (CAA) requires these States to submit a revision to the applicable implementation plan, to include provisions that require the implementation of RACT. This revision shall be submitted to the EPA not later than August 27, 1997. Furthermore, all States must require sources to implement the required limitations and work practices under these adopted RACT regulations not later than August 27, 1998.

ADDRESSES: Alternative Control Techniques (ACT) Document. The EPA published the ACT document for surface coating operations at shipbuilding and ship repair facilities in April

1994. A copy of the ACT document may be obtained from the National Technical Information Services (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161, telephone number (800) 553-NTIS. Specify the following title when ordering: "Alternative Control Techniques Document: Surface Coating Operations at Shipbuilding and Ship Repair Facilities" (EPA 453/R-94-032).

Docket: Following publication of the ACT document, the recommended RACT was developed concurrently with maximum achievable control technology (MACT), on which standards issued under Section 112 of the CAA were based. The rulemaking docket, No. A-92-11, is available for inspection and copying from 8 a.m. to 5:30 p.m., Monday through Friday, at the EPA's Air and Radiation Docket and Information Center, Waterside Mall, Room M-1500, Ground Floor, 401 M Street, SW, Washington, DC 20460; telephone number (202) 260-7548, FAX (202) 260-4400. A reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: Dr. Mohamed Serageldin at (919) 541-2379, Coatings and Consumer Products Group, Emission Standards Division (MD-13), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711.

SUPPLEMENTARY INFORMATION: Potentially Affected Entities. Entities potentially affected by this action are those shipbuilding and ship repair operations which are (or have the potential to become) major sources of VOC emissions and are located in nonattainment areas of ozone.

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Category	Examples of potentially affected entities
Industry	Any building or repairing, repainting, converting, or alteration of ships. The term ship means any marine or fresh-water vessel, including self-propelled by other craft (barges), and navigational aids (buoys). Note: Offshore oil and gas drilling platforms and vessels used by individuals for noncommercial, nonmilitary, and recreational purposes that are less than 20 meters in length are not considered ships.
Federal Govt	Federal Agencies which undertake shipbuilding or ship repair operations (see above) such as the Navy and Coast Guard.

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This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities which are the focus of this action. This table lists the types of entities that the EPA is now aware could potentially be affected by this action. Other types of entities not listed in the table could also be affected (see definition of ship in Appendix B). If you have questions regarding the focus or applicability of this action, consult the person listed in the preceding FOR FURTHER INFORMATION CONTACT section of this notice.

The substantive presumptive RACT determination set out in this action is intended solely as guidance, does not represent final EPA action, and is not fully developed for judicial review. It is not intended, nor can it be relied upon, to create any rights enforceable by any party in litigation with the United States. The EPA officials may decide to follow the guidance provided in this action, or to act at variance with the guidance, based on an analysis of specific circumstances. The EPA also may change this guidance at any time without public notice.

Electronic versions of the ACT document as well as this action are available for download from the EPA's Technology Transfer Network (TTN), a collection of the EPA's electronic bulletin boards developed and operated by the Office of Air Quality Planning and Standards. The TTN provides information and technology exchange in various areas of air pollution control. The service is free, except for the cost of a telephone call. Dial (919) 541-5742 for data transfer of up to a 14,400 bits per second. Internet access is available at [http://www.epa.gov/oar/ttn\\_bbs.htm/](http://www.epa.gov/oar/ttn_bbs.htm/). Additional information on TTN is available from the HELP line at (919)541-5384.

The information presented in this section is organized as follows:

I. Background and Purpose

II. BACM and Presumptive RACT

III. Modification to the ACT Document

IV. Model Rule

V. Summary of Impacts

VI. Administrative Designation and Regulatory Analysis

## Appendix A. Thinning Calculations

## Appendix B. Definitions

## Appendix C. Thinning Chart (Figure 1)

## Appendix D. VOC Data Sheet

### I. Background and Purpose

Section 183(b)(4) of the CAA specifically requires the EPA to issue a CTG for the shipbuilding and ship repair industry, to reduce air emissions of VOC and particulate matter from coatings (paints) and solvents used at new and existing shipbuilding and ship repair facilities. However, unlike the more general CTG requirements which require the EPA to establish a RACT level of control, Section 183(b)(4) requires the EPA to establish a CTG based on best available control measures (BACM) for emissions of VOC and particles with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM-10) from the removal or application of coatings and solvents at shipbuilding and ship repair facilities. The BACM is a broadly defined term referring to *Abest* technologies and other *A best* available measures that can be used to control pollution. A discussion of the analogy between BACM and reasonable available control measures is presented in State Implementation Plans for Serious PM-10 Nonattainment Areas, and Attainment Date Waivers for PM-10 Nonattainment Areas Generally; Addendum to the General Preamble for Implementation of Title I of the Clean Air Act Amendments of 1990 (59 FR 41998, August 16, 1994).

Pursuant to Section 183 of the CAA, the EPA is required to issue CTG for the purpose of assisting States in developing RACT level of controls for sources of VOC emissions. In turn, each State is required to submit a revision to its State implementation plan (SIP) providing RACT regulations for sources of VOC that are located in moderate or above ozone nonattainment areas. Specifically, Section 182(b)(2) of the CAA requires States to submit RACT regulations for sources of VOC that are covered by a CTG issued after enactment of the Clean Air Act of 1990, but prior to the time of attainment. The CTG also applies to those facilities in nonattainment areas located in States which already have existing shipbuilding and ship repair (or marine) coating regulations; the State limits must be at least as stringent as the CTG limits or otherwise must be determined to meet RACT (and in this case, BACM).

The CTG review current knowledge and data concerning the technology and costs of various

emissions control techniques. The CTG are intended to provide State and local air pollution authorities with an information base for proceeding with their own analyses of RACT to meet statutory requirements. States may choose to develop their own RACT requirements on a case-by-case basis, considering the emission reductions needed to attain achievement of the NAAQS and the economic and technical circumstances of the individual source.

The application of RACT and resulting VOC emissions reduction is to enhance the quality of the Nation's air resources so as to promote the public health and welfare and productive capacity of its population. The intent of this action is to protect the public health by requiring the highest degree of reduction in VOC emissions in ozone nonattainment areas, taking into consideration the cost of achieving such emission reduction, any nonair quality, health and environmental impacts, and energy requirements.

The VOC that are emitted by shipbuilding and ship repair facilities include xylene, toluene, ethyl benzene, isopropyl alcohol, butyl alcohol, ethyl alcohol, methanol, methyl ethyl ketone, methyl isobutyl ketone, ethylene glycol, and glycol ethers. All of these VOC contribute significantly to the formation of ground level ozone which can damage lung tissue and cause serious respiratory illness. Additionally, VOC can cause reversible or irreversible toxic effects following exposure. The potential toxic effects include eye, nose, throat, and skin irritation and blood cell, heart, liver, and kidney damage. The adverse health effects are associated with a wide range of ambient concentration and exposure time and are influenced by source-specific characteristics such as emission rates and local meteorological conditions. Health impacts are also dependent on the multiple factors that affect human variability such as genetics, age, health status (e.g., the presence of pre-existing disease), and lifestyle. Implementation of BACM described in the CTG will reduce VOC emissions from shipbuilding and ship repair surface coating operations by 1,250 megagrams Mg (1,370 tons per year).

## II. BACM and Presumptive RACT

In developing the CTG for this industry, the EPA reviewed current knowledge and data concerning the technology and costs of various emission control techniques. The type and level of VOC control identified as BACM is based on the marine coating VOC limits being used in California (with some exceptions and modifications). Table 1 presents the various paint categories with the maximum as-applied VOC content allowed for each under BACM. These same limits were similarly used in the development of national emission standards for hazardous air pollutants (NESHAP) for this same industry and serve as the basis for MACT. The VOC coating limits have not changed from what was proposed and promulgated in the NESHAP. Also included in BACM are work practice guidelines that state: (1) all handling and

transfers of VOC-containing materials to and from containers, tanks, vats, drums, and piping systems are conducted in a manner that minimizes spills, and (2) all containers, tanks, vats, drums, and piping systems are free of cracks, holes, and other defects and remain closed unless materials are being added to or removed from them.

With regard to PM-10 emissions, the EPA determined BACM to be no control. At proposal, the EPA found no sufficiently demonstrated technology to recommend for quantifiably controlling PM-10 emissions. The technologies in use and under development were discussed in the ACT document. There has been no new information received since the proposal that would lead the EPA to change that position.

Based on the EPA's work on the MACT standard and the ACT, the EPA has determined that the use of lower-VOC paints is the only technologically and economically feasible level of control for these sources that the EPA can establish on a category-wide basis. The EPA is recommending BACM, which was published for comment along with the NESHAP (59 FR 62681, December 6, 1994), be selected. Final BACM was identified in this action and was considered the presumptive norm or presumptive RACT for the source category. However, BACM, the presumptive norm, is only a recommendation. Individual sources may have alternative BACM requirements imposed by making an adequate infeasibility demonstration (44 FR 53761, September 17, 1979). States and sources may elect to establish alternative types of control for submittal to the EPA in a SIP revision. The EPA would make a final determination of whether such controls meet the RACT requirement of Section 182(b)(2) and BACM requirement of Section 183(b)(4), through notice-and-comment rulemaking action on the SIP submittal.

The EPA believes that RACT, BACM, and MACT are identical in this instance on a category-wide basis. While typically MACT (Amaximum) implies more stringent control than BACM (Abest), which in turn implies more stringent control than RACT (Areasonable), the EPA recognizes that there may be isolated instances when there is such a limited range of controls for a specified industry or industry process that two or all three of these levels of control may be identical. For a general discussion of these terms, refer to AState Implementation Plans for Serious PM-10 Nonattainment Areas, and Attainment Date Waivers for PM-10 Nonattainment Areas Generally; Addendum to the General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990(59 FR 41998, August 16, 1994).

The cost-effectiveness of add-on controls of VOC emissions for spray booth painting and tank painting operations was determined to be low. However, the variability and size of tanks

inside a ship that may be painted, at any one time, in a shipyard makes evaluation of add-on controls on a category-wide basis difficult. Controls have to be evaluated on a case-by-case basis. It should be noted that automated, high-use paint operations may be feasibly controlled and would have to be evaluated on a case-by-case basis.

### III. Modifications to the ACT Document

There have been some substantive technical changes since the ACT document for this industry was published in April 1994. Most notable of those changes is the inclusion of cold weather coating limits and the incorporation of both mass VOC per volume (g VOC/L) of coating less water and exempt solvents emission limits and the equivalent mass VOC per volume of solids (nonvolatiles) emission limits (see Table 1 in this notice). The solids based units should be used to determine compliance whenever thinning solvent is added to a coating. This change was made to provide a uniform basis for all calculations related to emission reductions (i.e., associated with thinning additions or add-on control devices). The procedure for calculating the VOC content of a given coating to which thinning solvent is added is provided in Appendix A to this notice. Information in Appendix C and Appendix D may also be used to calculate VOC content.

The promulgated NESHAP for this industry (60 FR 64330, December 15, 1995) also reflects technical changes made as a result of public comments and provides information for air quality management agencies to consider in the development of an enforceable regulation limiting VOC emissions from shipbuilding and ship repair surface coating operations. Additional information related to the promulgated NESHAP is presented in the [Background Information for Final Standards](#) (EPA/453-R-96-003B).

### IV. Model Rule

In effect, the NESHAP can be used as a [model rule](#) providing an organizational framework and regulatory language specifically tailored for surface coating operations at shipyards. Information is provided on applicability, definitions, format of standards, compliance determinations (calculations), and reporting and recordkeeping. Many of the definitions used in the ACT were modified/clarified for the NESHAP; therefore, Appendix B to this notice has been included to provide the updated terminology and definitions, including technical amendments to the NESHAP.

The various compliance options are described and illustrated (in a flow diagram) in the

NESHAP as well. The State or other implementing agency can exercise its prerogative to consider other options provided they meet the objectives prescribed in this action. This guidance is for instructional purposes only and, as such, is not binding. The State or other enforcement agency should consider all information presented in the ACT document, the promulgated NESHAP, and this final action along with additional information about specific sources to which the regulation will apply.

## V. Summary of Impacts

The EPA estimates the State and local regulations developed pursuant to this CTG could affect about 100 facilities, reduce emissions of VOCs by approximately 1,250 Mg per year, and result in nationwide costs of approximately \$1.1 million. These costs are in addition to the \$2.0 million assigned to the NESHAP for controlling volatile organic hazardous air pollutants (VOHAP) (and VOC) emissions from the 35 major source shipyards. Further information on costs and controls is presented in the Shipbuilding and Ship Repair ACT guideline document (EPA 453/R-94-032; NTIS PB94-181694) published in April 1994.

## VI. Administrative Designation and Regulatory Analysis

Under Executive Order 12866 (58 FR 51735, October 4, 1993), the EPA must determine whether the regulatory action is *significant* and therefore subject to Office of Management and Budget review and the requirements of the Executive Order. The Order defines *significant regulatory action* as one that is likely to result in a rule that may:

- (1) Have an annual effect on the economy of \$100 million or more, or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities.
- (2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency.
- (3) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs, or the rights and obligations of recipients thereof.
- (4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

It has been determined that this CTG document is not a *significant regulatory action* under



the terms of Executive Order 12866 and is therefore not subject to OMB review. This CTG document is not a rulemaking, rather it provides information to States to aid them in developing rules.

Table 1.--VOC Limits for Marine Coatings

Coating Category	Grams/liter coating (minus water and exempt compounds)	VOC limits <sup>a,b</sup>	
		Grams/liter solids <sup>c</sup> t ; 4.5 C <sup>o</sup> C <sup>d</sup>	t < 4.5 C <sup>d</sup>
General use	340	571	728
Specialty:			
Air flask	340	571	728
Antenna	530	1,439	
Antifoulant	400	765	971
Heat resistant	420	841	1,069
High-gloss	420	841	1,069
High-temperature	500	1,237	1,597
Inorganic zinc high-build	340	571	728
Military exterior	340	571	728
Mist	610	2,235	
Navigational aids	550	1,597	

Nonskid	340	571	728
Nuclear	420	841	1,069
Organic zinc	360	630	802
Pretreatment wash primer	780		11,095
Repair and maint. of thermoplastics	550	1,597	
Rubber camouflage	340	571	728
Sealant for thermal spray aluminum	610	2,235	
Special marking	490	1,178	
Speciality interior	340	571	728
Tack coat	610	2,235	
Undersea weapons systems	340	571	728
Weld-through precon. primer	650	2,885	

<sup>a</sup>The limits are expressed in two sets of equivalent units. Either set of limits may be used to demonstrate compliance.

<sup>b</sup>To convert from g/L to lb/gal, multiply by (3,785 L/gal)(1/453.6 lb/g) or 1/120. For compliance purposes, metric units define the standards.

<sup>c</sup>VOC limits expressed in units of mass of VOC per volume of solids were derived from the VOC limits expressed in units of mass of VOC per volume of coating assuming the coatings contain no water or exempt compounds and that the volumes of all components within a coating are additive.

<sup>d</sup>These limits apply during cold-weather time periods (i.e., temperatures below 4.5 deg.C). Cold-weather allowances are not given to coatings in categories that permit less than 40

percent solids (nonvolatiles) content by volume. Such coatings are subject to the same limits regardless of weather conditions.

#### Appendix A. Procedure to Determine VOC Contents of Coatings to Which Thinning Solvent Will Be Added

For a coating to which thinning solvent is routinely or sometimes added, the owner or operator shall determine the VOC content as follows:

(1) Prior to the first application of each batch, designate a single thinner for the coating and calculate the maximum allowable thinning ratio (or ratios, if the affected source complies with the cold-weather limits in addition to the other limits specified in Table 1 for each batch as follows:

$$R = \frac{(V_s)(\text{VOC limit}) - m_{\text{voc}}}{D_{\text{th}}} \quad \text{Eqn.}$$

Where:

R = Maximum allowable thinning ratio for a given batch (L thinner/L coating as supplied);

V<sub>s</sub> = Volume fraction of solids in the batch as supplied (L solids/L coating as supplied);

VOC limit = Maximum allowable as-applied VOC content of the coating (g VOC/L solids);

m<sub>VOC</sub> = VOC content of the batch as supplied (g VOC/L coating as supplied);

D<sub>th</sub> = Density of the thinner (g/L).

If V<sub>s</sub> is not supplied directly by the coating manufacturer, the owner or operator shall determine V<sub>s</sub> as follows:

$$V_s = \frac{1 - m_{\text{volatiles}}}{D_{\text{avg}}} \quad \text{Eqn. 2}$$

Where:

$m_{\text{volatiles}}$  = Total volatiles in the batch, including VOC, water, and exempt compounds (g/L coating); and

$D_{\text{avg}}$  = Average density of volatiles in the batch (g/L).

In addition, the owner or operator may choose to construct nomographs, based on Equation 1, similar or identical to the one provided in Appendix C (Figure 1) as a means of easily estimating the maximum allowable thinning ratio. The VOC Data Sheet included as Appendix D also provides useful information in determining compliance with the applicable VOC coating limit.

## Appendix B. Definitions

Terms used in this CTG are defined in the CAA or in this section as follows:

Add-on control system means an air pollution control device such as a carbon absorber or incinerator that reduces pollution in an air stream by destruction or removal prior to discharge to the atmosphere.

Affected source means any shipbuilding or ship repair facility having surface coating operations with a minimum 1,000 liters (L) (264 gallons (gal)) annual marine coating usage.

Air flask specialty coating means any special composition coating applied to interior surfaces of high pressure breathing air flasks to provide corrosion resistance and that is certified safe for use with breathing air supplies.

Antenna specialty coating means any coating applied to equipment through which electromagnetic signals must pass for reception or transmission.

Antifoulant specialty coating means any coating that is applied to the underwater portion of a vessel to prevent or reduce the attachment of biological organisms and that is registered with the EPA as a pesticide under the Federal Insecticide, Fungicide, and Rodenticide Act.

As applied means the condition of a coating at the time of application to the substrate, including any thinning solvent.

As supplied means the condition of a coating before any thinning, as sold and delivered by the

coating manufacturer to the user.

Batch means the product of an individual production run of a coating manufacturer's process. (A batch may vary in composition from other batches of the same product.)

Bitumens mean black or brown materials that are soluble in carbon disulfide, which consist mainly of hydrocarbons.

Bituminous resin coating means any coating that incorporates bitumens as a principal

51.100(s).

Facility means all contiguous or adjoining property that is under common ownership or control, including properties that are separated only by a road or other public right-of-way.

General use coating means any coating that is not a specialty coating.

Heat resistant specialty coating means any coating that during normal use must withstand a temperature of at least 204 deg.C (400 deg.F).

High-gloss specialty coating means any coating that achieves at least 85 percent reflectance on a 60 degree meter when tested by the American Society for Testing and Materials (ASTM) Method D-523.

High-temperature specialty coating means any coating that during normal use must withstand a temperature of at least 426 deg.C (800 deg.F).

Inorganic zinc (high-build) specialty coating means a coating that contains 960 grams per liter (eight pounds per gallon) or more elemental zinc incorporated into an inorganic silicate binder that is applied to steel to provide galvanic corrosion resistance. (These coatings are typically applied at more than two mil dry film thickness.)

Maximum allowable thinning ratio means the maximum volume of thinner that can be added per volume of coating without violating the applicable VOC limit (see Table 1).

Military exterior specialty coating or Chemical Agent Resistant Coatings means any exterior topcoat applied to military or U.S. Coast Guard vessels that are subject to specific chemical, biological, and radiological washdown requirements.

Mist specialty coating means any low viscosity, thin film, epoxy coating applied to an inorganic zinc primer that penetrates the porous zinc primer and allows the occluded air to escape through the paint film prior to curing.

Navigational aids specialty coating means any coating applied to Coast Guard buoys or other Coast Guard waterway markers when they are recoated aboard ship at their usage site and immediately returned to the water.

Nonskid specialty coating means any coating applied to the horizontal surfaces of a marine

vessel for the specific purpose of providing slip resistance for personnel, vehicles, or aircraft.

Nonvolatiles (or volume solids) means substances that do not evaporate readily. This term refers to the film-forming material of a coating.

Normally closed means a container or piping system is closed unless an operator is actively engaged in adding or removing material.

Nuclear specialty coating means any protective coating used to seal porous surfaces such as steel (or concrete) that otherwise would be subject to intrusion by radioactive materials. These coatings must be resistant to long-term (service life) cumulative radiation exposure (ASTM D4082-83), relatively easy to decontaminate (ASTM D4256-83), and resistant to various chemicals to which the coatings are likely to be exposed (ASTM 3912-80). (For nuclear coatings, see the general protective requirements outlined by the U.S. Atomic Energy Commission in a report entitled *U.S. Atomic Energy Commission Regulatory Guide 1.54* dated June 1973, available through the Government Printing Office at (202) 512-2249 as document number A74062-00001.)

Operating parameter value means a minimum or maximum value established for a control device or process parameter that, if achieved by itself or in combination with one or more other operating parameter values, determines that an owner or operator has complied with an applicable emission limitation or standard.

Organic zinc specialty coating means any coating derived from zinc dust incorporated into an organic binder that contains more than 960 grams of elemental zinc per liter (eight pounds per gallon) of coating, as applied, and that is used for the expressed purpose of corrosion protection.

Pleasure craft means any marine or fresh-water vessel used by individuals for noncommercial, nonmilitary, and recreational purposes that is less than 20 meters in length. A vessel rented exclusively to, or chartered for, individuals for such purposes shall be considered a pleasure craft.

Pretreatment wash primer specialty coating means any coating that contains a minimum of 0.5 percent acid, by mass, and is applied only to bare metal to etch the surface and enhance adhesion of subsequent coatings.

Repair and maintenance of thermoplastic coating of commercial vessels (specialty coating) means any vinyl, chlorinated rubber, or bituminous resin coating that is applied over the same

type of existing coating to perform the partial recoating of any in-use commercial vessel. (This definition does not include coal tar epoxy coatings, which are considered general use coatings.)

Rubber camouflage specialty coating means any specially formulated epoxy coating used as a camouflage topcoat for exterior submarine hulls and sonar domes.

Sealant for thermal spray aluminum means any epoxy coating applied to thermal spray aluminum surfaces at a maximum thickness of one dry mil.

Ship means any marine or fresh-water vessel used for military or commercial operations, including self-propelled vessels, those propelled by other craft (barges), and navigational aids (buoys). This definition includes, but is not limited to, all military and Coast Guard vessels, commercial cargo and passenger (cruise) ships, ferries, barges, tankers, container ships, patrol and pilot boats, and dredges. Pleasure craft and offshore oil and gas drilling platforms are not considered ships.

Shipbuilding and ship repair operations means any building, repair, repainting, converting, or alteration of ships.

Special marking specialty coating means any coating that is used for safety or identification applications, such as ship numbers and markings on flight decks.

Specialty coating means any coating that is manufactured and used for one of the specialized applications described within this list of definitions.

Specialty interior coating means any coating used on interior surfaces aboard U.S. military vessels pursuant to a coating specification that requires the coating to meet specified fire retardant and low toxicity requirements, in addition to the other applicable military physical and performance requirements.

Tack specialty coating means any thin film epoxy coating applied at a maximum thickness of two dry mils to prepare an epoxy coating that has dried beyond the time limit specified by the manufacturer for the application of the next coat.

Thinner means a liquid that is used to reduce the viscosity of a coating and that evaporates before or during the cure of a film.



Thinning ratio means the volumetric ratio of thinner to coating, as supplied.

Thinning solvent: see Thinner.

Undersea weapons systems specialty coating means any coating applied to any component of a weapons system intended to be launched or fired from under the sea.

Volatile organic compounds (VOC) means any organic compound that participates in atmospheric photochemical reactions; that is, any organic compound other than those that the Administrator designates as having negligible photochemical reactivity. The VOC is measured by a reference method, an equivalent method, an alternative method, or by procedures specified under any rule. A reference method, an equivalent method, or an alternative method, however, may also measure nonreactive organic compounds. In such cases, any owner or operator may exclude the nonreactive organic compounds when determining compliance with a standard. For a list of compounds that the Administrator has designated as having negligible photochemical reactivity, refer to 40 CFR Sec. 51.00.

Volatile organic hazardous air pollutant (VOHAP) means any compound listed in or pursuant to Section 112(b) of the CAA that contains carbon, excluding metallic carbides and carbonates. This definition includes VOC listed as hazardous air pollutant (HAP) and exempt compounds listed as HAP.

Weld-through preconstruction primer (specialty coating) means a coating that provides corrosion protection for steel during inventory, is typically applied at less than one mil dry film thickness, does not require removal prior to welding, is temperature resistant (burn back from a weld is less than 1.25 centimeters (0.5 inches)), and does not normally require removal before applying film-building coatings, including inorganic zinc high-build coatings. When constructing new vessels, there may be a need to remove areas of weld-through preconstruction primer due to surface damage or contamination prior to application of film-building coatings.

>>>>>>> 44056\_01 See the accompanying hardcopy volume for non- machine-readable data that appears at this point. <<<<

Appendix D

VOC Data Sheet:<sup>1</sup>Properties of the Coating AAs Supplied@by the Manufacturer<sup>2</sup>  
Coating Manufacturer:

Coating Identification:

Batch Identification:

Supplied To:

Properties of the coating as supplied<sup>1</sup> to the customer:

A. Coating Density: ( $D_c$ )s \_\_\_\_\_ g/L  
[ ] ASTM D1475-90\* [ ] Other<sup>3</sup>

B. Total Volatiles: ( $m_v$ )s \_\_\_\_\_ Mass Percent  
[ ] ASTM D2369-93\* [ ] Other<sup>3</sup>

C. Water Content: 1. ( $m_w$ )s \_\_\_\_\_ Mass Percent  
[ ] ASTM D3792-91\* [ ] ASTM D4017-90\* [ ] Other<sup>3</sup>

2. ( $v_w$ )s \_\_\_\_\_ Volume Percent  
[ ] Calculated [ ] Other<sup>3</sup>

D. Organic Volatiles: ( $m_o$ )s \_\_\_\_\_ Mass Percent

E. Nonvolatiles: ( $v_n$ )s \_\_\_\_\_ Volume Percent  
[ ] Calculated [ ] Other<sup>3</sup>

F. VOC Content (VOC)s:

1. \_\_\_\_\_g/L solids (nonvolatiles)
2. \_\_\_\_\_g/L coating (less water and exempt compounds)

G. Thinner Density:  $D_{th}$  \_\_\_\_\_g/L  
ASTM \_\_\_\_\_ [ ] Other<sup>3</sup>

Remarks: (use reverse side)

Signed:

Date:

\* Incorporation by reference--see Sec. 63.14.

<sup>1</sup>Adapted from EPA-340/1-86-016 (July 1986), p. II-2.

<sup>2</sup>The subscript *A*<sub>s</sub> denotes each value is for the coating *A*<sub>s</sub> supplied by the manufacturer.

<sup>3</sup>Explain the other method used under *A*Remarks.

Dated: August 15, 1996.

Mary D. Nichols,  
Assistant Administrator for Air and Radiation.  
[FR Doc. 96-21827 Filed 8-26-96; 8:45 am]  
BILLING CODE 6560-50-P