

**RULE 4603 -- SURFACE COATING OF METAL PARTS AND PRODUCTS**

*(Adopted April 11, 1991; Amended September 19, 1991; Amended May 21, 1992; Amended December 17, 1992; Amended May 20, 1993; Amended September 21, 2000; Amended December 20, 2001)*

1.0 Purpose

The purpose of this rule is to limit the emissions of volatile organic compounds (VOCs) from the coating of metal parts and products, and from the organic solvent cleaning and storage and disposal of solvents and waste solvent materials associated with such coating. This rule also specifies the administrative and recordkeeping requirements and the test methods for determining the VOC content, the VOC emissions, the VOC capture efficiency, the acid content, the metallic or iridescent quality of coatings, and the VOC emissions from spray gun cleaning systems.

2.0 Applicability

The provisions of this rule shall apply to the surface coating of metal parts or products, and to the organic solvent cleaning, and the storage and disposal of all solvents and waste solvent materials associated with such coating.

3.0 Definitions

- 3.1 Aerospace Vehicles: the completed unit of any aircraft, helicopter, missile or space vehicle.
- 3.2 Air Dried: a process whereby the coated object is cured or dried at ambient temperature or at a temperature up to a maximum of 194°F.
- 3.3 Application Equipment: a device, including, but not limited to, a spray gun, brush, and roller, used to apply adhesives, coatings, or inks.
- 3.4 Baked: a process whereby the coated object is heated above ambient temperature to a temperature above 194°F for the purpose of curing or drying.
- 3.5 Brush Coating: the manual application of coatings using brushes or rollers.
- 3.6 Camouflage Coating: a coating applied on military equipment to conceal such equipment from detection.
- 3.7 Coating: a material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealers, and stains.
- 3.8 Coils: metal sheets or strips which are rolled into coils for further industrial or commercial use.

- 3.9 Composite Partial Pressure: the sum of the partial pressures of the VOC compounds in a solvent. The VOC composite partial pressure is calculated as follows:

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

Where:

- $W_i$  = Weight of the “i”th VOC compound, in grams  
 $W_w$  = Weight of water, in grams  
 $W_e$  = Weight of exempt compound, in grams  
 $MW_i$  = Molecular weight of the “i”th VOC compound, in grams per gram-mole  
 $MW_w$  = Molecular weight of water, in grams per gram-mole  
 $MW_e$  = Molecular weight of the “e”th exempt compound, in grams per gram-mole  
 $PP_c$  = VOC composite partial pressure at 20°C (68°F), in mm Hg  
 $VP_i$  = Vapor pressure of the “i”th VOC compound at 20°C (68°F), in mm Hg

- 3.10 Continuous Coating: an enclosed coating system where spray nozzles coat metal parts and products as they are conveyed through the enclosure. Water wash zones control the inlet and outlet of the enclosure. Excess coating drains into a recirculation system.
- 3.11 Cured Adhesive, Cured Coating, or Cured Ink: an adhesive, coating, or ink that is dry to the touch.
- 3.12 Degreaser: a tank, tray, drum or other container in which objects to be cleaned are exposed to a solvent or solvent vapor in order to remove contaminants. The objects to be cleaned include, but are not limited to, parts, products, tools, machinery, and equipment. An enclosed spray application equipment cleaning system is not a degreaser.
- 3.13 Dip Coating: the process in which a substrate is immersed in a solution (or dispersion) containing the coating material, and then withdrawn.
- 3.14 Dissolver: an organic solvent that is added to an adhesive, coating, or ink in order to melt or to liquefy solid particles.
- 3.15 Electrodeposition: a dip coating application method where the paint solids are given an electrical charge which is then attracted to a substrate.
- 3.16 Electrostatic Application: a method of spray application of coatings where an electrostatic potential is created between the parts to be coated and the paint particles.

- 3.17 Exempt Organic Compounds: all organic compounds not classified as volatile organic compounds (VOCs), as listed in Rule 1020 (Definitions).
- 3.18 Extreme Performance Coating: a coating used on a metal surface where the coated surface is, in its intended use, exposed to any of the following:
- 3.18.1 Industrial grade detergents, cleaners, or abrasive scouring agents.
- 3.18.2 Unprotected shipboard conditions.
- 3.18.3 Temperatures consistently in excess of 203°F or continuous exposure to corrosive environmental conditions.
- 3.19 Flow Coating: a coating application system where paint flows over the part and the excess coating drains back into the collection system.
- 3.20 Grams of VOC per Liter of Coating Applied, Excluding Water and Exempt Compounds: the weight of VOC per combined volume of VOC and coating solids and can be calculated by the following equation:

$$\begin{array}{l} \text{Grams of VOC per Liter of} \\ \text{Coating Applied Excluding} \\ \text{Water and Exempt Compounds} \end{array} = \frac{W_s - W_w - W_{ec}}{V_m - V_w - V_{ec}}$$

Where:

- W<sub>s</sub> = weight of volatile compounds, in grams
- W<sub>w</sub> = weight of water, in grams
- W<sub>ec</sub> = weight of exempt compounds, in grams
- V<sub>m</sub> = volume of material, in liters
- V<sub>w</sub> = volume of water, in liters
- V<sub>ec</sub> = volume of exempt compounds, in liters

- 3.21 Grams of VOC per liter of Material: the weight of VOC per volume of material and can be calculated by the following equation:

$$\text{Grams of VOC per Liter of Material} = \frac{W_s - W_w - W_{ec}}{V_m}$$

Where:

- W<sub>s</sub> = weight of volatile compounds, in grams
- W<sub>w</sub> = weight of water, in grams
- W<sub>ec</sub> = weight of exempt compounds, in grams
- V<sub>m</sub> = volume of material, in liters

- 3.22 High Performance Architectural Coating: a coating used to protect architectural subsections and which meets the requirements of the Architectural Aluminum Manufacturers Association publication number AAMA 605.2-1980.

- 3.23 Heat Resistant Coating: any coating which during normal use must withstand temperatures of at least 400°F.
- 3.24 High Gloss Coating: any coating which achieves at least 85% reflectance on a 600 meter when tested by ASTM Method D-523-89.
- 3.25 High Temperature: any coating applied to a substrate which during normal use must withstand temperatures of at least 1000°F.
- 3.26 High-Volume, Low-Pressure (HVLP) Spray Equipment: equipment used to apply materials by means of a spray gun which is designed and intended to be operated, and which is operated, between 0.1 and 10.0 psig of air atomizing pressure.
- 3.27 Light-Duty Truck: any truck having a manufacturer's maximum gross vehicle weight rating of under 6,001 pounds.
- 3.28 Liquid Leak: a visible solvent leak from a container at a rate of more than three drops per minute, or a visible liquid mist.
- 3.29 Magnet Wire: wire used in electromagnetic field application in electrical machinery and equipment such as transformers, motors, generators, and magnetic tape recorders.
- 3.30 Maintenance Cleaning: the cleaning of tools, forms, molds, jigs, machinery, and equipment, and the cleaning of work areas where maintenance or manufacturing occurs.
- 3.31 Manufacturing Process: the process of making goods or articles by hand or by machine.
- 3.32 Marine Vessel: any tugboat, tanker, freighter, passenger ship, barge, or other boat, ship, or watercraft. This includes both salt water and fresh water vessels.
- 3.33 Metal Containers or Closures: the interior or the exterior of formed metal cans, drums, pails, or crowns; or flat metal sheets which are intended to be formed into cans, drums, pails, lids, or crowns.
- 3.34 Metallic/iridescent Topcoat: any coating which contains more than 0.042 lb/gal of metal or iridescent particles, as applied, where such particles are visible in the dried film.
- 3.35 Metal Parts and Products: any component or complete unit fabricated from metal, except those subject to the coating provisions of other source specific rules.
- 3.36 Motor Vehicle: a vehicle which is self-propelled and is a device by which any person or property may be propelled, moved or drawn upon a highway, excepting a device moved by human power or used exclusively upon stationary rails or tracks.

- 3.37 Non-Absorbent Container: a container made of non-porous material that does not allow the migration of solvents through it.
- 3.38 Non-Atomized Solvent Flow: solvents in the form of a liquid stream without the introduction of any propellant.
- 3.39 Non-Leaking Container: a container without liquid leak.
- 3.40 Organic Solvent: the same as "Solvent."
- 3.41 Organic Solvent Cleaning: as defined in Rule 4663 (Organic Solvent Cleaning, Storage, and Disposal).
- 3.42 Polyester Resin Materials: materials including, but not limited to, unsaturated polyester resins such as isophthalic, orthophthalic, halogenated, biphenol-A, vinyl-ester, or furan resins, cross-linking agents, catalysts, gel coats, inhibitors, accelerators, promoters, and any other VOC containing materials in polyester resin coating operations.
- 3.43 Polyester Resin Operations: methods used for the production or rework of products by mixing, pouring, hand-layup, impregnating, injecting, forming, winding, spraying, and/or curing unsaturated polyester resin materials with fiberglass, fillers, or any other reinforcement materials and associated cleanup.
- 3.44 Pretreatment Wash Primer: any coating which contains no more than 12 percent solids by weight, and a minimum of one-half (0.5) percent acid by weight, is necessary to provide surface etching, and is applied directly to bare metal surfaces to provide corrosion resistance and adhesion.
- 3.45 Propellant: any gas, including air, in a pressure container for expelling the contents when the pressure is released.
- 3.46 Repair: recoating portions of previously coated product to cover mechanical damage to the coating following normal painting operations.
- 3.47 Repair Cleaning: a solvent cleaning operation or activity carried out during a repair process.
- 3.48 Repair Process: the process of returning a damaged object or an object not operating properly to good condition.
- 3.49 Roll Coating: the application of coatings from a paint trough to a flat surface by a mechanical series of rollers.
- 3.50 Rolling, Consecutive 365-Day Period: any given date plus the immediate, previous 364 days.
- 3.51 Scientific Instruments: instruments (including the components, assemblies, and subassemblies used in their manufacture) and associated accessories and reagents

which are used for the detection, measurement, analysis, separation, synthesis, or sequencing of various compounds.

- 3.52 Silicone Release: a coating which contains silicone resin and has as its primary function the release of food products from metal surfaces such as baking pans.
- 3.53 Solar Absorbent Coating: a coating which has as its primary purpose the absorption of solar radiation.
- 3.54 Solid Film Lubricant: a very thin coating consisting of a binder system containing as its chief pigment material one (1) or more of the following: molybdenum disulfide, graphite, polytetrafluoroethylene (PTFE) or other solids that act as a dry lubricant between closely-fitting surfaces.
- 3.55 Solvent: as defined in Rule 4663 (Organic Solvent Cleaning, Storage, and Disposal).
- 3.56 Solvent Flushing: the use of a solvent to remove uncured adhesives, uncured inks, uncured coatings, or contaminants from the internal surfaces and passages of equipment by flushing solvent, by a non-atomized solvent flow, through the equipment.
- 3.57 Stationary Source: as defined in Rule 2201 (New and Modified Stationary Source Review Rule).
- 3.58 Stripping: the use of solvent to remove material such as cured adhesives, cured inks, cured or dried paint, cured or dried paint residue or temporary protective coating.
- 3.59 Surface Preparation: the removal of contaminants from a surface prior to the application of coatings, inks, or adhesives or before proceeding to the next step of a manufacturing process.
- 3.60 Thinner: a solvent that is added to an adhesive, coating, or ink to make it more fluid.
- 3.61 Touch Up: that portion of the coating operation which is incidental to the main coating process but necessary to cover minor imperfections or to achieve coverage as required.
- 3.62 Viscosity Reducer: an organic solvent which is added to an adhesive, coating or ink to make it more fluid.
- 3.63 Volatile Organic Compounds (VOCs): as defined in Rule 1020 (Definitions).
- 3.64 Waste Solvent Material: any solvent which may contain dirt, oil, metal particles, sludge, and/or waste products, or wiping material containing VOCs including, but not limited to, paper, cloth, sponge, rag, or cotton swab used in organic solvent cleaning.

- 3.65 Wipe Cleaning: a solvent cleaning activity performed by hand rubbing an absorbent material such as a rag, paper, sponge, brush, or cotton swab containing solvent.

#### 4.0 Exemptions

- 4.1 Until November 14, 2002, the requirements of this rule, except for Section 6.2, shall not apply to coatings which emit or may emit VOCs in excess of the specified limits provided that the total stationary source emissions from the use of such coatings do not exceed 15 pounds in any one (1) day. Once a stationary source exceeds this exemption threshold it shall become subject to the requirements of this rule.
- 4.2 Effective on and after November 15, 2002, an owner or operator may use up to 55 gallons of coatings that exceed the VOC content limits, as applied, of Sections 5.1 and 5.2, at a stationary source, in all source operations, in each rolling, consecutive 365-day period. All other provisions of the rule, including application methods and administrative requirements, shall apply to the use of such exempt coatings.
- 4.3 The requirements of this rule shall not apply to touch-up and repair.
- 4.4 Any source which is in full compliance with the provisions of this rule shall be exempt from otherwise applicable portions of Rule 4661 (Organic Solvents).
- 4.5 The requirements of this rule shall not apply to the application of coatings to aircraft, aerospace vehicles, marine vessels, can, coils, and magnetic wire.
- 4.6 The provisions of this rule shall not apply to an operation subject to the requirements of Rule 4602 (Motor Vehicle and Mobile Equipment Coating Operations).
- 4.7 For existing stationary sources, if an incineration device is added or modified for the sole purpose of complying with the requirements of this rule, such a device shall be exempt from the Best Available Control Technology and the Offset requirements of Rule 2201 (New and Modified Stationary Source Review Rule).
- 4.8 The provisions of this rule shall not apply to polyester resin operations and the application of polyester resin materials to metal parts and products.
- 4.9 The provisions of this rule shall not apply to stripping of cured coatings, cured adhesives, and cured inks, except the stripping of such materials from spray application equipment.

#### 5.0 Requirements

- 5.1 General Limits: Except as otherwise provided by this rule, no person shall apply to any metal part or product any coating with a VOC content in excess of the

following limits, expressed as grams of VOC per liter (or pounds per gallon) of coating applied, (less water and exempt compounds):

5.1.1 Baked Coating 275 g/l (2.3 lb/gal)

5.1.2 Air-Dried Coating 340 g/l (2.8 lb/gal)

5.1.3 Dip coating of steel joists (SIC 3441), air-dried.

5.1.3.1 340 g/l (2.8 lb/gal) for coatings with a viscosity, as applied, of more than 45.6 centistokes at 78°F or an average dry-film thickness of greater than 2.0 mils;

5.1.3.2 400 g/l (3.32 lb/gal) for coatings with a viscosity, as applied, of less than or equal to 45.6 centistokes at 78°F and an average dry-film thickness of less than or equal to 2.0 mils.

5.2 Specialty Coating Limitations: A person shall not apply to any metal part or product any specialty coating with a VOC content in excess of the limits, expressed as grams of VOC per liter (or pounds per gallon) of coating applied, (less water and exempt compounds):

Table 1 – VOC Content Limits for Specialty Coatings

Coating	September 21, 2000 VOC Limit g/l (lb/gal)	
	Baked	Air-Dried
Camouflage	360 (3.0)	420 (3.5)
Extreme Performance	420 (3.5)	420 (3.5)
Heat Resistant	360 (3.0)	420 (3.5)
High Gloss	360 (3.0)	420 (3.5)
High Performance Architectural	420 (3.5)	420 (3.5)
High Temperature	420 (3.5)	420 (3.5)
Metallic Topcoat	360 (3.0)	420 (3.5)
Pretreatment Wash Primer	420 (3.5)	420 (3.5)
Silicone Release	420 (3.5)	420 (3.5)
Solar Absorbant	360 (3.5)	420 (3.5)
Solid Film Lubricant	880 (7.3)	880 (7.3)

5.3 Control Requirements: In lieu of complying with the requirements in Sections 5.1 and 5.2, an owner or operator may operate a VOC emission collection and control system that controls the emissions from the source operation and that meets the requirements of Section 5.3.1.

5.3.1 The air pollution control equipment shall be operated with a minimum overall capture and control efficiency of 90 percent or more on a mass basis as determined in Section 6.3. The control equipment shall be under District permit. In no case shall compliance through the use of this section

result in VOC emissions in excess of the VOC emissions which would result from compliance with Sections 5.1 and 5.2.

- 5.4 Evaporative Loss Minimization: Effective November 1, 1991, a person shall:
  - 5.4.1 Only use solvents with a VOC content of less than 200 grams VOC per liter of material (1.67 lb/gal) for cleanup surface preparation, excluding cleaning of coating application equipment;
  - 5.4.2 Use closed containers for the storage or disposal of solvent-laden cloth or paper used for surface preparation and cleanup. Containers shall be nonabsorbent;
  - 5.4.3 Store fresh or spent solvent, coating, adhesive, catalyst, or thinner in closed containers; and
  - 5.4.4 Not use VOC-containing materials for spray equipment cleanup unless an enclosed system or equipment proven to be equally effective is used for cleaning. An enclosed system must totally enclose spray guns, cups, nozzles, bowls, and other parts during washing, rinsing and draining procedures.
  - 5.4.5 Section 5.4 shall remain in effect until November 14, 2002.
- 5.5 Organic Solvent Cleaning, Storage and Disposal Requirements
  - 5.5.1 Section 5.5 shall be effective on and after November 15, 2002, unless otherwise indicated.
  - 5.5.2 Effective November 15, 2002, through November 14, 2003, an owner or operator shall not use organic solvents for cleaning operations that exceed the VOC content limits and composite partial pressure limits specified as being "Effective November 15, 2002 through November 14, 2003" in Table 2.

Table 2 – VOC Limits for Organic Solvents Used in Cleaning Operations

Type of Solvent Cleaning Operation	Effective November 15, 2002 through November 14, 2003		Effective November 15, 2003
	VOC Content Limit Grams of VOC/liter of material (lb/gal)	VOC Composite Partial Pressure Limit, mm Hg at 20°C (68°F)	VOC Content Limit Grams of VOC/liter of material (lb/gal)
A. Product Cleaning During Manufacturing Process or Surface Preparation for Coating Application	70 (0.58)	no limit	50 (0.42)
B. Repair and Maintenance Cleaning	50 (0.42)	no limit	50 (0.42)
C. Cleaning of Coating Application Equipment	950 (7.9)	35	550 (4.6)

5.5.3 Effective on and after November 15, 2003, an owner or operator shall not use organic solvents for cleaning operations that exceed the VOC content limits specified as being “Effective November 15, 2003” in Table 2. On and after November 15, 2003, the composite partial pressure of solvents used for cleaning operations will not be regulated.

5.5.4 The provisions of Table 2 shall not apply to the following applications:

- 5.5.4.1 Cleaning of solar cells, laser hardware, scientific instruments, or high precision optics.
- 5.5.4.2 Cleaning in laboratory tests and analyses, or bench scale or research and development projects.
- 5.5.4.3 Cleaning of paper-based gaskets, and clutch assemblies where rubber is bonded to metal by means of an adhesive.
- 5.5.4.4 Until June 30, 2005, the cleaning of ultraviolet lamps used for the curing of ultraviolet coatings.

- 5.5.5 The provisions of Table 2, subsection C, shall not apply to the cleaning of application equipment used to apply coatings on satellites and radiation effect coatings.
- 5.5.6 The provisions of Sections 5.5.7 through 5.5.9 of this rule shall only apply to an owner or operator that uses any solvent containing more than 50 grams of VOC per liter of material for organic solvent cleaning.
- 5.5.7 Cleaning activities that use solvents shall be performed by one or more of the following methods:
  - 5.5.7.1 Wipe cleaning; or
  - 5.5.7.2 Application of solvent from hand-held spray bottles from which solvents are dispensed without a propellant-induced force; or
  - 5.5.7.3 Non-atomized solvent flow method in which the cleaning solvent is collected in a container or a collection system which is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container; or
  - 5.5.7.4 Solvent flushing method in which the cleaning solvent is discharged into a container that is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container. The discharged solvent from the equipment must be collected into containers without atomizing into the open air. The solvent may be flushed through the system by air or hydraulic pressure, or by pumping.
- 5.5.8 Solvent shall not be atomized into the open air unless it is vented to a VOC emission control system that complies with Section 5.3.1. This provision shall not apply to the cleaning of nozzle tips of automated spray equipment systems, except for robotic systems, and cleaning with spray bottles or containers described in Section 5.5.7.2.
- 5.5.9 An owner or operator shall not use VOC-containing materials to clean spray equipment used for the application of coatings, adhesives, or ink, unless an enclosed system or equipment that is proven to be equally effective at controlling emissions is used for cleaning. If an enclosed system is used, it must totally enclose spray guns, cups, nozzles, bowls, and other parts during washing, rinsing and draining procedures, and it must be used according to the manufacturer's recommendations and must be closed when not in use.
- 5.5.10 An owner or operator shall store or dispose of fresh or spent solvents, waste solvent cleaning materials such as cloth, paper, etc., coatings, adhesives, catalysts, and thinners in closed, non-absorbent and non-leaking containers. The containers shall remain closed at all times except

when depositing or removing the contents of the containers or when the container is empty.

5.6 Application Equipment Requirements: A person shall not use or operate any coating application equipment on any metal parts and products subject to the provisions of this rule unless one of the following methods is used:

5.6.1 Electrostatic application;

5.6.2 Electrodeposition;

5.6.3 High-Volume, Low-Pressure (HVLP) spray,

5.6.3.1 High-Volume, Low-Pressure (HVLP) spray equipment shall be operated in accordance with the manufacturer's recommendations.

5.6.3.2 For HVLP spray guns manufactured prior to January 1, 1996, the end user shall demonstrate that the gun meets HVLP spray equipment standards. Satisfactory proof will be either in the form of manufacturer's published technical material or by a demonstration using a certified air pressure tip gauge, measuring the air atomizing pressure dynamically at the center of the air cap and at the air horns.

5.6.3.3 A person shall not sell or offer for sale for use within the District any HVLP spray gun without a permanent marking denoting the maximum inlet air pressure in psig at which the gun will operate within the parameters specified in section 3.0.

5.6.3.4 Sections 5.6.3.1, 5.6.3.2, and 5.6.3.3 shall be effective on and after November 15, 2002;

5.6.4 Flow coating;

5.6.5 Roll coating;

5.6.6 Dip coating;

5.6.7 Brush coating; or

5.6.8 Continuous coating.

5.7 Prohibition of Specification: No person shall solicit or 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 of the provisions of this rule. The prohibition of this Section shall apply to all written or oral contracts under the terms of which any coating is to be applied to any metal part or product at any physical location within the District.

## 6.0 Administrative Requirements

### 6.1 Labeling Requirements

#### 6.1.1 Coating VOC Content

Each container or accompanying data sheet of any coating subject to this rule and manufactured after April 11, 1992, shall display the maximum VOC content of the coating, as applied, and after any thinning as recommended by the manufacturer. VOC content shall be displayed as grams of VOC per liter of coating (less water and exempt compounds). VOC content displayed may be calculated using product formulation data, or may be determined using the test method in Section 6.3. For determination of compliance and enforcement of the limits specified in Section 5.0 of this rule, the VOC content of any coating determined to exceed its applicable limit through the use of either product formulation data or the test method in Section 6.3.1 shall constitute a violation of this rule.

#### 6.1.2 Thinning Recommendations

Each container or accompanying data sheet of any coating subject to this rule and manufactured after April 11, 1992, shall display a statement of the manufacturer's recommendation regarding thinning of the coating. This requirement shall not apply to the thinning of coatings with water.

#### 6.1.3 Solvent Compliance Statement Requirements

Effective on and after November 15, 2002, manufacturers of any solvents subject to this rule shall indicate on the solvent container, or on a separate product data sheet or material safety data sheet, the name of the solvent, manufacturer's name, the VOC content, density, and VOC composite partial vapor pressure, as defined in the rule, of the solvent, as supplied. The VOC content and VOC composite vapor pressure shall be expressed in units of gm/liter or lb/gallon and mm Hg at 20°C (68°F), respectively.

### 6.2 Recordkeeping

6.2.1 Any person subject to Section 5.0 or exempt by Section 4.1 and/or 4.2 shall comply with the following requirements:

6.2.2 Maintain a current list of coatings and solvents in use which contains all of the coating data necessary to evaluate compliance, including the following information, as applicable:

6.2.2.1 mix ratio of components used,

6.2.2.2 VOC content and specific chemical constituents of coatings as applied, and

6.2.2.3 VOC content and specific chemical constituents of solvents used for surface preparation and cleanup.

6.2.3 Maintain records which include the following information:

6.2.3.1 volume coating/solvent mix ratio,

6.2.3.2 VOC content(lb/gal) and, for dip coating operations, viscosity (cSt) of coating,

6.2.3.3 volume of each coating used (gallons), and

6.2.3.4 quantity of cleanup solvent used (gallons).

6.2.4 Recordkeeping for Emission Control Systems

Any person using an emission control system as a means of complying with the provisions in Section 5.3 shall maintain records of key system operating parameters which will demonstrate continuous operation and compliance of the emission control system during periods of emission producing activities. Key system operating parameters are those necessary to ensure compliance with VOC limits. The parameters include, but are not limited to, temperatures, pressures, and flowrates.

6.2.5 Consistent records may be kept in grams/liter and liters instead of pounds/gallon and gallons. Stationary sources subject to the requirements of Section 5.0 shall maintain such records on a daily basis.

6.2.6 Stationary sources which are exempt by Section 4.1 may maintain such records on an extended basis provided the records substantiate emissions are less than 15 pounds per day for the entire extended period.

6.2.7 Sections 6.2.5 and 6.2.6 shall remain in effect until November 14, 2002.

6.2.8 Effective on and after November 15, 2002, consistent records may be kept in grams/liter and liters instead of pounds/gallon and gallons. An owner or operator of a stationary source subject to this rule shall maintain such records on a daily basis. An owner or operator that is subject to the exemption of Section 4.2 may maintain usage records of non-compliant coatings on the days that such non-compliant coatings are used.

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

6.2.10 Effective on and after November 15, 2002, such records shall be retained for the previous five years and made available for inspection by the APCO.

### 6.3 Test Methods

- 6.3.1 Analysis of Samples: Samples of VOC as specified in this rule shall be analyzed by EPA Method 24 and analysis of halogenated exempt compounds shall be analyzed by ARB Method 432.
- 6.3.2 Determination of Emissions: Emissions of VOC shall be measured by EPA Method 25, 25a, or 25b, as applicable, and analysis of halogenated exempt compounds shall be analyzed by ARB Method 422.
- 6.3.3 Capture efficiency of the VOC control system shall be determined according to EPA's technical document "Guidelines for Determining Capture Efficiency," dated January 9, 1995, and 40 CFR 51 Appendix M, Methods 204-204F as applicable.
- 6.3.4 The viscosity of coatings used for dip coating of steel joists as specified in Section 5.1.3 of this rule, shall be determined by using ASTM D5478-98 or ASTM D5125-97.
- 6.3.5 The destruction efficiency of a VOC control system shall be measured and calculated as carbon according to 40 CFR 60, Appendix A EPA Methods 25 or 25A. Exempt compounds shall be analyzed by EPA Method 18.
- 6.3.6 The quantification of coating as a metallic/iridescent topcoat shall be determined by South Coast Air Quality Management District "Spectrographic Method for the Analysis of Carbon Dust and Carbon Laminates," December 1985.
- 6.3.7 Acid Content: Measurement of acid content of pre-treatment wash primers shall be conducted and reported in accordance with South Coast Air Quality Management District "Laboratory Methods of Analysis for Enforcement Samples, ASTM D1613-85 Standard Test Method for Acidity in Volatile Solvents and Chemical Intermediates used in Paint, Varnish, Lacquer, and Related Products," December, 1986.
- 6.3.8 Determination of emissions of VOC from spray gun cleaning systems shall be made using South Coast Air Quality Management District "General Method for Determining Solvent Losses from Spray Gun Cleaning Systems," dated October 3, 1989.

### 6.3.9 Determination of Vapor Pressure

The composite partial pressure of solvents shall be determined:

- 6.3.9.1 by determining the identity and quantity of each compound in a blended organic solvent by using ASTM D2306, or SCAQMD Method 308 or by using ASTM E260 for organics and ASTM D3792 for water content, if applicable, or the manufacturer's product formulation data, and
- 6.3.9.2 by determining the vapor pressure of each pure VOC component by using ASTM D2879 or from publications such as Perry's Chemical Engineer's Handbook, CRC Handbook of Chemistry and Physics, Lange's Handbook of Chemistry, or other District approved sources; and
- 6.3.9.3 by calculating the composite partial pressure of the solvent by using the formula for "Composite Partial Pressure" in Section 3.0. For the purpose of this calculation, the blended solvent shall be assumed to be an ideal solution where Raoult's Law applies. The partial pressures of each compound at 20° C (68° F) shall be used in the formula.

### 6.4 Multiple Test Methods

When more than one test method or set of test methods is specified for any testing, a violation of any requirement of this rule established by any one of the specified test methods or set of test methods shall constitute a violation of this rule.

### 6.5 Version of Test Methods

All ASTM test methods referenced in Section 6.0 are the most recently EPA-approved version that appears in the Code of Federal Regulations as Materials Approved for Incorporation by Reference.