RULE 410.4 Surface Coating of Metal Parts and Products - Adopted 6/26/79, Amended 4/11/91, 7/12/93, 4/6/95, 3/7/96

I. Applicability

Provisions of this Rule shall apply to surface coating of metal parts or products.

II. Definitions

A. Aerospace Vehicle - complete aircraft, helicopter, missile or space vehicle.

B. Air Dried - curing or drying a coating by heating the coated object above ambient temperature, but below a maximum of 90 C (194 F).

C. Baked - curing or drying a coating by heating the coated object above ambient temperature to a temperature at, or above 90 C (194 F).

D. Brush Coating - manually applying a coating to metal parts or products using a brush or roller.

E. Camouflage Coating - coating applied on military equipment intended to conceal such equipment from detection.

F. Coating - material applied to a metal part or product and intended to provide decorative or protective properties.

G. Coils - metal sheets or strips rolled into coils for further industrial or commercial use.

H. Continuous Coating - spraying a coating onto metal parts and products as they are conveyed through an enclosure equipped with water wash zones controlling overspray at the inlet and outlet and with excess coating draining into a recirculation system.

I. Dip Coating - applying a coating to metal parts or products by immersing the part in a solution (or dispersion) containing the coating material, and then withdrawing the part.

J. Electrodeposition - applying an electrically-charged dip coating onto an object to be coated.

K. Electrostatic Application - spraying an electrically-charged coating onto an object.

L. Exempt Compounds- compounds identified as exempt under the definition of volatile organic compounds, Rule 102, Subsection L.

M. Extreme Performance Coating - coating used on surface of metal parts or products, intended, during use, to be exposed to any of the following:

1. Industrial grade detergents, cleaners, or abrasive scouring agents,

2. Unprotected shipboard conditions, or

3. Corrosive environmental conditions.

N. Flow Coating - applying a coating to metal parts or products by flowing liquid over the part and draining excess coating into a collection system.

O. Grams of VOC per Liter of Coating Applied, Excluding Water and Exempt Compounds - weight of VOC per combined volume of VOC and coating solids calculated using the following equation:

$$\text{Grams of VOC per Liter of Coating Applied, Excluding Water and Exempt Compounds} = \frac{Ws - Ww - Wec}{Vc - Vw - Vec}$$

Where:
- Ws = weight of VOC in grams
- Ww = weight of water in grams
- Wec = weight of exempt compounds in grams
- Vc = volume of coating as applied in liters
- Vw = volume of water in liters
- Vec = volume of exempt compounds in liters

P. Grams of VOC per Liter of Material - weight of VOC per volume of material calculated using the following equation:

$$\text{Grams of VOC per Liter of Material} = \frac{Ws - Ww - Wec}{Vm}$$

Where:
- Ws = weight of VOC in grams
- Ww = weight of water in grams
- Wec = weight of exempt compounds in grams
- Vm = volume of material in liters

Q. Heat Resistant Coating - coating designed during normal use to withstand temperatures of at least 204 C (400 F).

R. High Gloss Coating - coating achieving at least 85% reflectance on a 60 meter when tested by ASTM Method D-523/89.

S. High Performance Architectural Coating - coating used to protect architectural subsections meeting requirements of Architectural Aluminum Manufacturers Association publication number AAMA 605.2-1980.

T. High Temperature Coating - coating designed during normal use to withstand temperatures of at least 538 C (1000 F).

U. High Volume, Low Pressure Spray - applying coating to metal parts or products using a gun operating between 0.1 and 10.0 psig air pressure and with liquid supply pressure less than 50 psig.

V. Light-Duty Truck - truck having a manufacturer's gross vehicle weight rating of under 6,001 pounds.

W. Magnet Wire - wire used in establishing electromagnetic field in equipment such as transformers, motors, generators, and magnetic tape recorders.

X. Marine Vessel - tugboat, tanker, freighter, passenger ship, barge, or other boat, ship, or watercraft, including both salt water and fresh water vessels.

Y. Metal Containers or Closures - interior or exterior of formed metal cans, drums, pails, or crowns; or flat metal sheets intended to be formed into cans, drums, pails, lids, or crowns.

Z. Metallic Iridescent Topcoat - coating as applied containing more than 5g/1 (0.042 lb/gal) of visible metal or iridescent particles.

AA. Metal Parts and Products - components or complete units fabricated from metal, except those subject to coating requirements of other source-specific Rules.

BB. Motor Vehicle - self-propelled device used to propel, move, or draw upon a highway, a person or property except a device moved by human power or used exclusively upon stationary rails or tracks.

CC. Powder Coating - Coating applied without solvent or other carrier as a dry, finely divided solid, adhering to a substrate as a paint film when melted and fused.

DD. Pretreatment Wash Primer - coating containing a minimum of 0.5% acid by weight, necessary to provide surface etching, and applied directly to bare metal surfaces to provide corrosion resistance and adhesion.

EE. Repair - recoating portions of previously coated metal parts or products to cover mechanical damage to the coating following normal painting operations.

FF. Roll Coating - applying a coating to metal parts or products from a paint trough by a mechanical series of rollers.

GG. Silicone Release - coating containing silicone resin and having as its primary function the release of food products from metal surfaces such as baking pans.

HH. Solar Absorbent Coating - coating having as its primary purpose the absorption of solar radiation.

II. Specialty Coating - coating necessary due to unusual job performance requirements, including, but not limited to, adhesion promoters, uniform finish blenders elastomeric materials, gloss flatteners, bright metal trim repair, and anti-glare/safety coatings.

JJ. Touch Up Coating - coating applied by brush, airbrush, detail HVLP spray equipment or hand-held, non-refillable aerosol cans to repair minor surface damage and imperfections, after main coating process, and not exceeding nine square feet per unit.

KK. Volatile Organic Compound (VOC) - any compound containing at least one atom of carbon except for compounds exempted by Rule 102, Subsection II.L.

III. Exemptions

A. Requirements of this Rule, except for Subsection V.B. (Record keeping) shall not apply to any combination of coatings, provided total allowed facility VOC emissions from use of all coatings does not exceed 15 pounds in any one day. Once a facility exceeds this emissions threshold, it shall become subject to requirements of this Rule.

B. Requirements of Subsection IV.C. (Applications Equipment Requirements) of this Rule shall not apply to touch-up, repair, or stenciling of identification numbers and letters.

C. Any source in full compliance with provisions of this rule shall be exempt from otherwise applicable portions of Rule 410 (Organic Solvents).

D. Requirements of this Rule shall not apply to application of coatings to automobiles, light duty trucks, aircraft, aerospace vehicles, marine vessels, cans, coils, or magnetic wire or to powder coatings.

E. Requirements of this Rule shall not apply to an operation subject to requirements of Rule 410.4A (Motor Vehicle and Mobile Equipment Refinishing Operations).

IV. **Requirements**

A. VOC Content Limits: Except as provided by Subsection IV.B., no person shall apply to any metal part or product any coating with a VOC content in excess of the following limits as applied:

VOC Content Limits
(Grams of VOC per Liter Of Coating,
Less Water and Less Exempt Compounds)

Coating	Baked	Air-Dried
All coatings except those below:	275 g/l (2.3 lb/gal)	340 g/l (2.8 lb/gal)
Camouflage	360 (3.0)	420 (3.5)
Extreme Performance	360 (3.0)	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	420 (3.5)	420 (3.5)
Pretreatment Wash Primer	275 (2.3)	340 (2.8)
Silicone Release	420 (3.5)	420 (3.5)
Solar Absorbent	360 (3.0)	420 (3.5)

B. Alternate Emissions Control: In lieu of complying with VOC content limits specified in Subsection IV.A., air pollution control equipment with a capture efficiency of at least 85% and a control device efficiency of at least 90% may be used.

C. Application Equipment Requirements: No person shall coat any metal part or product subject to provisions of this Rule unless one of the following methods is used:

1. Brush, dip, or roll coating conducted in accordance with equipment manufacturer's recommendations,

2. Electrostatic or electrodeposition application conducted in accordance with manufacturer's recommendations,

3. High Volume Low Pressure (HVLP) spray equipment operated in accordance with equipment manufacturer's recommendations,

4. Other application method demonstrated to achieve at least 65% transfer efficiency, for example, flow or continuous coating.

D. Surface Preparation and Equipment Cleanup Requirements: No person shall conduct surface preparation or equipment cleanup for activities subject to provisions of this Rule unless the following VOC limits are met and methods are used:

1. Surface Cleaning: No material shall be used containing VOC in excess of 200 grams per liter (1.7 lb/gal) of material to remove dirt, oils, or other contaminants prior to application of surface coatings or adhesives.

2. Stripping: No material shall be used containing VOC in excess of 200 grams per liter (1.7 lb/gal) of material to strip any coating.

3. Cleaning of Coatings Application Equipment: Solvents used for cleaning of coatings application equipment shall comply with both limits specified below:

a. Solvent shall have a VOC content of 950 grams or less per liter (7.9 lb/gal) of material; and

b. Solvent shall have a VOC composite partial pressure of 35 mm Hg or less at 20 C (68 F).

4. Cleaning of Polyester Resin Application Equipment: Solvents used for cleaning polyester resin application equipment shall comply with one of the limits specified below:

a. Solvent shall have a VOC content of 200 grams or less per liter (1.7 lb/gal); or

b. Solvent shall have a VOC content of 1100 grams or less per liter (9.2 lb/gal) and a VOC composite partial pressure of 1.0 mm Hg or less at 20 C (68 F).

5. Cleaning-Devices and Methods: No person shall perform solvent cleaning operations unless one of the following cleaning devices or methods is used:

a. Wipe Cleaning;

b. Spray bottles or containers with a maximum capacity of 16 fluid ounces from which solvents are applied without a propellant induced force;

c. Cleaning equipment having a closed solvent container during cleaning operations, except when depositing and removing objects to be cleaned, and closed during nonoperation except during maintenance and repair of the cleaning equipment itself;

d. Remote reservoir cold cleaner operated in conformance with Rule 410.3;

e. System totally enclosing guns, cups, nozzles, bowls, and other parts during washing, rinsing, and draining procedures;

f. Non-atomized solvent flow method collecting cleaning solvent in a container or a collection system closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container; or

g. Solvent flushing method discharging solvent into a closed container, except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container. Discharged solvent from such equipment shall be collected in containers without atomizing into open air. Solvent may be flushed through the system by air or hydraulic pressure, or by pumping.

E. Storage and Disposal Requirements: Regardless of VOC content, all VOC-containing materials used in solvent cleaning operations, such as solvents, and cloth and paper moistened with solvents, shall be stored in non-absorbent, non-leaking containers kept closed at all times except when filling or emptying.

F. Prohibition of Sale: No person shall offer for sale or sell within the District any coating if such product is prohibited by any provisions of this Rule. This prohibition shall apply to sale of any coating to be applied at any physical location within the District.

G. Prohibition of Specification: No person shall solicit or require for use or specify application of a coating on metal parts and products if such use or application results in a violation of provisions of this Rule. This prohibition shall apply to all written or oral contracts under terms of which any coating subject to provisions of this Rule is to be applied to any metal part or product at any physical location within the District.

V. **Administrative Requirements**

A. Labeling Requirements

1. VOC Content: Each container (or accompanying data sheet) of any coating subject to this Rule and manufactured after May 6, 1992 shall display maximum VOC content of the coating as applied, including coating components, and after any thinning as recommended by the manufacturer. VOC content shall be displayed as grams of VOC per liter less water and exempt compounds. VOC content displayed shall be determined using Subsection VI.A. test methods or calculated using product formulation data if U.S. EPA approves this as equivalent to Subsection VI.A.

2. Thinning Recommendations: Each container (or accompanying data sheet) of any coating subject to this Rule and manufactured after May 6, 1992 shall display a statement of manufacturer's recommendation regarding thinning of the coating. This requirement shall not apply to thinning of coatings with water.

B. Record Keeping Requirements

Any person subject to Section IV. or exempt by Subsection III.A. shall maintain and have available during an inspection:

1. A current list of VOC containing products in use containing all data necessary to evaluate compliance, including the following information, as applicable:

   a. Material name and manufacturer's identification,

   b. Application method,

   c. Material type and specific use instructions,

   d. Specific mixing instructions,

   e. Maximum VOC content of coating as applied, including thinning solvents, hardeners, etc., excluding water and exempt compounds, and

f. Coating composition and density.

2. Daily coating and solvent use records, including the following information for each:

   a. Volume used of each component and mix ratio,

   b. VOC content in grams/liter (or pounds/gallon) as applied/used,

   c. Volume in liters (or gallons) applied/used.

3. Capture and control equipment operating records, if applicable, including:

   a. Periods of operation corresponding to use records kept for Subsection V.B.2. showing control equipment was used as necessary,

   b. Key system operating parameters showing operation as required to comply with this Rule and as intended by manufacturer,

   c. Date performed, and description of all control system maintenance.

Facilities exempt by Subsection III.A. may maintain records on an extended basis provided such records show emissions are less than 15 pounds for the entire extended period.

All records shall be retained and made available for inspection by the Control Officer for at least three years.

VI. Test Methods

A. Analysis of Samples - Samples of VOC as specified in this Rule shall be analyzed by U.S. EPA Method 24 and analysis of halogenated exempt compounds shall be conducted using CARB Method 432, or ASTM D-4457-85 and be consistent with provisions set forth in the Federal Register (FR. Vol. 56, No. 52, March 18, 1991).

B. Determination of Emissions - Emissions of VOC shall be measured by U.S. EPA Method 25, 25A, or 25B, as applicable.

C. Determination of Capture Efficiency - Where add-on control equipment is utilized, capture efficiency shall be determined in accordance with 40 CFR 52.741.

D. Quantification of Metallic/Iridescent Topcoat - Quantification of coating as a metallic/iridescent topcoat shall be determined by South Coast Air Quality Management District "Test Method 311-91, "Analysis of Percent Metals in Metallic Coatings by Spectrographic Method".

E. Measurement of Acid Content - Acid content of Pre-Treatment Wash Primers shall be conducted and reported in accordance with ASTM D1613-85 Standard Test Method for Acidity in Volatile Solvents and Chemical Intermediates used in Paint, Varnish, Lacquer, and Related Products.

F. Demonstration of Transfer Efficiency - Transfer efficiency shall be demonstrated using South Coast Air Quality Management District Method "Spray Equipment Transfer Efficiency Test Procedure for Equipment User".

G. Determination of VOC Composite Partial Pressures - VOC composite partial pressures shall be determined using either manufacturer's information regarding formulation or using ASTM methods E168-92, E169-93, or E260-91 for determination of mole fractions and then summing products of each VOC component's vapor pressure and its mole fraction. For materials containing no non-VOC components, VOC composite partial pressure can be measured directly by ASTM Method D2879-86.

H. Determination of VOC Emissions From Spray Gun Cleaning Systems - VOC emissions from spray gun cleaning systems shall be made using South Coast Air Quality Management District "General Test Method for Determining Solvent Losses from Spray Gun Cleaning Systems".

VII. **Compliance Schedule**

A. Any person becoming subject to requirements of this Rule by loss of exemption shall comply with the following increments of progress:

1. Within 6 months from date exemption is lost, submit a complete application for an Authority to construct control equipment, if necessary; and

2. Within 12 months from date exemption is lost, be in full compliance with requirements of this Rule.

B. Any new proposed surface coating of metal parts or products operation not exempt by Section III, shall demonstrate its ability to comply with requirements of Rule prior to issuance of Authority to Construct.