

**RULE 410.4A Motor Vehicle and Mobile Equipment Refinishing Operations - Adopted 5/6/91, Amended 4/6/95, 3/7/96**

**I. Applicability**

Provisions of this Rule shall apply to coating and refinishing of Group I Vehicles, Group II Vehicles, and Mobile Equipment, and such vehicle and equipment parts and components as defined in Section II of this Rule.

**II. Definitions**

A. Antiglare Coating: coating not reflecting light.

B. Basecoat/Clearcoat System: topcoat system composed of pigmented basecoat followed by transparent clearcoat. A basecoat/clearcoat system's Volatile Organic Compound (VOC) content shall be calculated using the following formula:

$$\text{VOC bc/cc} = \frac{\text{VOC bc} + 2 \text{VOC cc}}{3}$$

Where:

VOC bc/cc = sum of VOC content as applied in basecoat (bc) and clearcoat (cc) system.

VOC bc = VOC content as applied of any given basecoat.

2 VOC cc = two times VOC content as applied of any given clearcoat.

C. Camouflage Coating: coating applied on military vehicle or mobile equipment intended to conceal such equipment from detection.

D. Catalyst: substance enhancing a reaction between chemical compounds.

E. Color Match: ability of a repair coating to blend into an existing coating so color differences are not visible.

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

G. Electrostatic Application: spraying an electrically-charged coating onto an object.

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

I. Extreme Performance Coating: coating used on surface of Group II Vehicle, Mobile Equipment, or their parts or components, intended, during use, to be exposed to any of the following during use:

1. Industrial grade detergents, cleaners, or abrasive scouring agents,
2. Unprotected shipboard conditions, or
3. Corrosive environmental conditions.

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

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

Where:  $W_s$  = weight of VOC in grams  
 $W_w$  = weight of water in grams  
 $W_{ec}$  = weight of exempt compounds in grams  
 $V_c$  = volume of coating in liters  
 $V_w$  = volume of water in liters  
 $V_{ec}$  = volume of exempt compounds in liters

K. Grams of VOC per liter of Material: weight of VOC per volume of material using the following equation:

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

Where:  $W_s$  = weight of VOC in grams  
 $W_w$  = weight of water in grams  
 $W_{ec}$  = weight of exempt compounds in grams  
 $V_m$  = volume of material in liters

L. Graphic Arts Operation: application of logos, letters, numbers or graphics to painted surface with or without use of a template.

M. Group I Vehicle: passenger car, large/heavy duty truck cab and chassis, light and medium duty truck or van, or motorcycle.

N. Group II Vehicle: bus.

O. High-Volume, Low-Pressure (HVL) Spray: applying coating using a gun operating between 0.1 and 10 psig air pressure and with liquid supply pressure less than 50 psig

- P. Large/Heavy Duty Truck: truck having a manufacturer's gross vehicle weight rating of over 10,000 pounds.
- Q. Light and Medium Duty Truck or Van: truck or van having a manufacturer's gross vehicle weight rating of 10,000 pounds or less.
- R. Metallic/Iridescent Topcoat: coating as applied containing more than 5 g/l (0.042 lb/gal) of visible metal or iridescent particles.
- S. Mobile Equipment: equipment drawn or capable of being driven on a roadway, including, but not limited to a: truck body, truck trailer, utility body, camper shell, mobile crane, bulldozer, street cleaner, golf cart, military tank or other tracked military vehicle.
- T. Multistage Topcoat: topcoat system consisting of basecoat/clearcoat system (two-stage) or basecoat/midcoat/clearcoat system (three-stage).
- U. Precoat: coating applied to bare metal primarily to deactivate metal surface for corrosion resistance and adhesion. For compliance with this Rule, any precoat shall be followed by a water-based primer coat.
- V. 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.
- W. Primer: coating applied prior to application of a topcoat for the purpose of corrosion resistance and adhesion of the topcoat.
- X. Primer Sealer: coating applied prior to application of a topcoat for the purpose of corrosion resistance, adhesion of the topcoat, color uniformity, and to promote the ability of an undercoat to resist penetration by the topcoat.
- Y. Primer Surfacer: coating applied prior to application of a topcoat for the purpose of corrosion resistance, adhesion of the topcoat, and promoting a uniform surface by filling in surface imperfections.
- Z. Reducer/Thinner: solvent used to thin coating.
- AA. Refinish: coating of vehicles, their parts and components, or mobile equipment, including partial body collision repairs, for the purpose of protection or beautification and subsequent to the original coating applied at an Original Equipment Manufacturing (OEM) plant coating assembly line.

- BB. 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.
- CC. Spot/Panel Repair: non-assembly line process of repairing and restoring a portion of a motor vehicle to predamaged condition.
- DD. Three-Stage Coating System: topcoat system composed of pigmented basecoat, semi-transparent midcoat, and transparent clearcoat. A three-stage coating system's VOC content shall be calculated using the following formula:

$$\text{VOC 3-stage} = \frac{\text{VOC bc} + \text{VOC mc} + 2 \text{ VOC cc}}{4}$$

Where:

VOC 3-stage = average VOC content as applied in a three-stage coating system.

VOC bc = VOC content as applied of any given basecoat.

VOC mc = VOC content as applied of any given midcoat.

2 VOC cc = two times VOC content as applied of any given clearcoat.

- EE. Topcoat: coating applied over a primer or an original equipment manufacturer finish for the purpose of protection or appearance.
- FF. 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 vehicle.
- GG. Utility Body: special purpose service compartment or unit to be bolted, welded, or affixed onto an existing cab and chassis. Such compartment may serve as storage for equipment or parts.
- HH. Volatile Organic Compound (VOC): any compound containing at least one atom of carbon except for exempt compounds (see Subsection II.H.).

### III. **Exemptions**

A. Requirements of this Rule shall not apply to the following operations:

1. Graphic Arts Operations as defined in Subsection II.L.
2. Coating operations employing hand-held non-refillable aerosol cans, 18 oz. or less, provided the area to be covered does not exceed nine square feet per vehicle to repair minor surface damage and imperfections.

B. Requirements of Section IV.D. (spraybooth) shall not apply to:

1. Touch-up coating operations as defined in Section II.FF., not exceeding nine square feet per vehicle.
2. Coating of motor vehicle engine compartments, engine components, and suspension components, provided such components are replaced in the vehicle.
3. Application of primers, primer surfacers and precoats not exceeding nine square feet per vehicle, provided VOC content does not exceed 250 g/l and coatings contain no lead or chromium compounds.
4. Application of coatings to a vehicle, due to shape or size, not reasonably contained in a spray booth. To qualify for this exemption a person shall comply with the following requirements:
  - a. Submit a written request on a case by case basis to the Control Officer describing vehicle(s) to be coated, size of spray booth, physical size of vehicle(s) (length, width, and height), number of vehicle(s) to be coated, time required to paint vehicle(s), estimated volume of coating(s) to be used, date when vehicle(s) or mobile equipment is to be coated, and VOC content of each coating used;
  - b. Such request shall be submitted ten calendar days prior to surface coating a motor vehicle or mobile equipment outside a spray booth. The Control Officer shall provide a written determination to the requester within five calendar days of proposed surface coating of the motor vehicle or mobile equipment; and
  - c. The Control Officer may grant written approval for a specified time period, not to exceed one year.

C. Coating operations and/or facilities exempt from this Rule shall comply with all other applicable District prohibitory Rules.

- D. Provisions of Subsections IV.C. through G. and Section V. shall not apply to coating of one vehicle per twelve month period, by the registered owner of the vehicle being painted, provided the surface coating does not contain lead or chromium compounds.

IV. **Requirements**

- A. **VOC Content Limits:** Except as provided by Subsection IV.C., effective on the dates specified, no person shall refinish, or spot/panel repair any Group I vehicle, or where color match is required, any Group II vehicle, Mobile Equipment, or parts and components of such vehicles or equipment, using a coating with 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)**

<u>Coating</u>	<u>Current</u>	<u>Effective 1/1/96</u>
Pretreatment Wash Primer	780 g/l (6.5 lb/gal)	780 g/l (6.5 lb/gal)
Primer/Primer Surfacer/Precoat	340 (2.8)	250 (2.1)
Primer Sealer	420 (3.5)	420 (3.5)
Multistage Topcoat	600 (5.0)	540 (4.5)
Singlestage Topcoat	600 (5.0)	420 (3.5)
Metallic/Iridescent Topcoat	600 (5.0)	540 (4.5)

- B. **VOC Content Limits:** Except as provided by Subsection IV.C., effective on the dates specified, where color match is not required, no person shall refinish or spot/panel repair any Group II vehicle, or Mobile Equipment, or parts and components of such vehicle or equipment using a 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)**

<u>Coating</u>	<u>Current</u>	<u>Effective 1/1/96</u>
Pretreatment Wash Primer	780 g/l (6.5 lb/gal)	780 g/l (6.5 lb/gal)
Primer/Primer Surfaces/ Primer Sealer/Precoat	340 (2.8)	250 (2.1)
Topcoat	420 (3.5)	420 (3.5)
Metallic/Iridescent Topcoat	420 (3.5)	420 (3.5)
Extreme Performance <sup>*</sup>	750 (6.2)	420 (3.5)
Camouflage	420 (3.5)	420 (3.5)

\* Any person seeking to use an extreme performance coating in any application subject to this Rule shall comply with requirements of Subsection V.A.

- C. Alternate Emission Control: In lieu of complying with VOC content limits specified in subsections IV.A. and IV.B., air pollution control equipment with a capture efficiency of at least 85% and a control efficiency of at least 90% may be used.
- D. Spraybooth: All surface coatings subject to this Rule shall be applied within a permitted, properly maintained, and operational paint spraybooth located at a site with proper city or county zoning.
- E. Application Equipment Requirements: No person shall coat any Group I or Group II Vehicle, or Mobile Equipment, or parts and components of such vehicles and equipment, unless one of the following methods is used:
1. Brush, dip, or roll coating conducted in accordance with 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 manufacturer's recommendations, or
  4. Other application method demonstrated to achieve at least 65% transfer efficiency, for example, flow or continuous coating.
- F. 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 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 Requirements: 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 spray 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 cleaning solvent into a container closed 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 into containers without atomizing into open air. Solvent may be flushed through the system by air or hydraulic pressure, or by pumping.
- G. Storage and Disposal: 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.
- H. 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.
- I. Prohibition of Specification: No person shall solicit or require for use or specify application of a coating on a Group I Vehicle or Group II Vehicle and Mobile Equipment or its parts and components, 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 vehicle, mobile equipment or part or component at any physical location within the District.

- J. Specialty Coatings: No person shall use any specialty coating with a VOC content in excess of 840 g/l (7.0 lbs/gal), excluding water and exempt compounds. Where use of specialty coatings, except antiglare/safety coatings, exceeds one gallon per day, use of such coatings shall not exceed 5.0 percent of all coatings applied on a daily basis.

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 Subsection V.B. 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, for example, "Group I single stage topcoat or precoat shall be applied to bare metal and followed with compliant primer",
  - 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 job and coating and solvent use records, including the following information:
- a. Each type of vehicle, equipment, part or component coated. Vehicle types are the following:
    - 1) Group I Vehicle,
    - 2) Group I Vehicle with lacquer,
    - 3) Group II Vehicle and Mobile Equipment with color match, or
    - 4) Group II Vehicle and Mobile Equipment with no color match;
  - b. Specific coatings used on each job, e.g. pretreatment wash primer, precoat, topcoat;
  - c. Volume in liters (or gallons) of each component and mix ratio;
  - d. VOC content in grams/liter (or pounds/gallon) as applied/used;
  - e. Specific solvents used;
  - f. Volume of each solvent used in liters (or gallons); and
  - g. Primers and primer surfacers mixed for use on multiple vehicles may be recorded as single line item including all information required in Subsections V.2.c. through V.2.f., above.
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.
4. Purchase records showing date, type, and amount of VOC containing material. All records shall be maintained for three years and made available for inspection by the Control Officer upon request.

## 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 D4457-85 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 shall be determined using South coast Air Quality Management district "General Test Method for Determining Solvent Losses from Spray Gun Cleaning Systems".