

RULE 4612 MOTOR VEHICLE AND MOBILE EQUIPMENT COATING OPERATIONS
– PHASE II (Adopted September 21, 2006; Amended September 20, 2007)

1.0 Purpose

The purpose of this rule is to limit volatile organic compound (VOC) emissions from coatings associated with the coatings of motor vehicles, mobile equipment, and associated parts and components. It also limits the VOC emissions from the organic solvent cleaning, storage, and disposal associated with such operations.

2.0 Applicability

This rule is applicable to any person who supplies, sells, offers for sale, manufactures, or distributes any automotive coating for use within the District, as well as any person who uses, applies, or solicits the use or application of any automotive coating within the District.

3.0 Definitions

3.1 Adhesion Promoter: a coating, which is labeled and formulated to be applied to uncoated plastic surfaces to facilitate bonding of subsequent coatings, and on which, a subsequent coating is applied.

3.2 Aerosol Coating Product: a pressurized coating product containing pigments or resins that dispenses product ingredients by means of a propellant, and is packaged in a disposable can for hand-held applications.

3.3 APCO: as defined in Rule 1020 (Definitions).

3.4 ARB: California Air Resources Board.

3.5 Assembly Line: an arrangement of industrial equipment and workers in which the product passes, by either automatic or manual means, from one specialized operation to another until complete.

3.6 ASTM: American Society for Testing and Materials.

3.7 Associated Parts and Components: structures, devices, pieces, modules, sections, assemblies, subassemblies, or elements of motor vehicles or mobile equipment that are designed to be a part of motor vehicles or mobile equipment but which are not attached to motor vehicles or mobile equipment, at the time of coating the structure, device, piece, module, section, assembly, subassembly, or element. Associated parts and components do not include circuit boards.

- 3.8 Automotive Coating: any coating or coating component used or recommended for use in motor vehicle or mobile equipment refinishing, service, maintenance, repair, restoration, or modification, except metal plating activities. Any reference to automotive refinishing or automotive coating made by a person on the container or in product literature constitutes a recommendation for use in motor vehicle and mobile equipment refinishing.
- 3.9 Automotive Coating Component: any portion of a coating, including, but not limited to, a reducer or thinner, toner, hardener, and additive, which is recommended the manufacturer for use in an automotive coating, or which is supplied for or used in an automotive coating. The raw materials used to produce the components are not considered automotive coating components.
- 3.10 Automotive Refinishing Facility: any shop, business, location, or parcel of land where motor vehicles or mobile equipment or their associated parts and components are coated, including autobody collisions repair shops. Automotive refinishing facility does not include the original equipment manufacturing plant where the motor vehicle or mobile equipment is completely assembled.
- 3.11 CFR: Code of Federal Regulations.
- 3.12 Cleaning Operations: the removal of loosely held uncured adhesives, inks, coatings, or contaminants, including, but not limited to, dirt, soil, or grease from motor vehicles, mobile equipment, associated parts and components, substrates, parts, products, tools, machinery, equipment, or general work areas.
- 3.13 Clear Coating: any coating that contains no pigments and is labeled and formulated for application over a color coating or clear coating.
- 3.14 Coating: a material which is applied to a surface and forms a film in order to beautify, preserve, repair, or protect such a surface.
- 3.15 Color Coating: any pigmented coating, excluding adhesion promoters, primers, and multi-color coatings, that requires a subsequent clear coating and which is applied over a primer, adhesion promoter, or color coating. Color coatings include metallic/iridescent color coatings.
- 3.16 Electrostatic Spray Application: any method of spray application of coatings where an electrostatic attraction is created between the part to be coated and the paint particles.
- 3.17 Emission Control System: any combination of capture systems and control devices used to reduce volatile organic compound (VOC) emissions from automotive coating operations.

- 3.18 EPA: United States Environmental Protection Agency.
- 3.19 Exempt Compounds: an organic compound not classified as a VOC, as listed in the definition of volatile organic compound in Rule 1020 (Definitions).
- 3.20 Graphic Arts Operation: the application of logos, letters, numbers, or graphics to a painted surface by brush, roller, or airbrush.
- 3.21 High-Volume, Low-Pressure (HVLV): spray equipment permanently labeled as such and which is designed and operated between 0.1 and 10 pounds per square inch, gauge, (psig) air atomizing pressure, measured dynamically at the center of the air cap and at the air horns.
- 3.22 Metallic/Iridescent Color Coating: any coating that contains more than 0.042 pounds per gallon (5 grams per liter) of metal or iridescent particles as applied, where such particles are visible in the dried film.
- 3.23 Mobile Equipment: any device that may be drawn and/or driven on rails or a road way including, but not limited to, trains, railcars, truck trailers, mobile cranes, bulldozers, street cleaners, and implements of husbandry or agriculture.
- 3.24 Motor Vehicle: any self-propelled vehicle, including, but not limited to, cars, trucks, buses, golf carts, vans, motorcycles, tanks, and armored personnel carriers.
- 3.25 Multi-Color Coating: any coating that exhibits more than one color in the dried film after a single application, is packaged in a single container, hides surface defects on areas of heavy use, and is applied over a primer or adhesion promoter.
- 3.26 Normal Business Hours: Monday through Friday, 8:00 am to 5:00 pm.
- 3.27 Person: as defined in the California Health and Safety Code Section 39047.
- 3.28 Pretreatment Coating: any coating, that contains a minimum of one-half (0.5) percent acid by weight and not more than 16 percent solids by weight, necessary to provide surface etching and is labeled and formulated for application directly to bare metal surfaces to provide corrosion resistance and adhesion.
- 3.29 Primer: any coating, which is labeled and formulated for application to a substrate to provide a bond between the substrate and subsequent coats, corrosion resistance, a smooth substrate surface, or resistance to penetration of

subsequent coats, and on which a subsequent coating is applied. Primers may be pigmented.

- 3.30 Primer Sealer: any coating which is labeled and formulated for application prior to the application of a color coating for the purpose of color uniformity, or to promote the ability of the underlying coating to resist penetration by the color coating.
- 3.31 San Joaquin Valley Air Basin (SJVAB): as defined in Rule 1020 (Definitions).
- 3.32 SCAQMD: South Coast Air Quality Management District.
- 3.33 Single-Stage Coating: any pigmented coating, excluding primers and multi-color coatings, labeled and formulated for application without a subsequent clear coat. Single-stage coatings include single-stage metallic/iridescent coatings.
- 3.34 Solvent: as defined in Rule 4663 (Organic Solvent Cleaning, Storage, and Disposal).
- 3.35 Spot Repair: repair of an area of less than one (1.0) square foot (929 square centimeters) on a motor vehicle, piece of mobile equipment, or associated parts or components.
- 3.36 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.
- 3.37 Temporary Protective Coating: any coating, which is labeled and formulated for the purpose of temporarily protecting areas from overspray or mechanical damage.
- 3.38 Transfer Efficiency: the amount of coating solids adhering to the object being coated divided by the total amount of coating solids sprayed, expressed as a percentage.
- 3.39 Truck Bed Liner Coating: any coating, excluding clear, color, multi-color, and single stage coatings, labeled and formulated for application to a truck bed to protect it from surface abrasion.
- 3.40 Underbody Coating: any coating labeled and formulated for application to wheel wells, the inside of door panels or fenders, the underside of a trunk or hood, or the underside of the motor vehicle.

- 3.41 Uniform Finish Coating: any coating labeled and formulated for application to the area around a spot repair for the purpose of blending a repaired area's color or clear coat to match the appearance of an adjacent area's existing coating.
- 3.42 Volatile Organic Compound (VOC): as defined in Rule 1020 (Definitions). For the purpose of this rule, tertiary butyl acetate (TBAC) will not be considered a VOC when used as an automotive coating component.
- 3.43 VOC Content

3.43.1 VOC Regulatory for Coatings: VOC in grams per liter of coating, excluding water and exempt compounds, and shall be calculated by the following equation:

$$\text{VOC regulatory content} = \frac{W_v - W_w - W_{ec}}{V_m - V_w - V_{ec}}$$

3.43.2 VOC Actual for Coatings: VOC in grams per liter of material, and shall be calculated using the following equation:

$$\text{VOC actual content} = \frac{W_v - W_w - W_{ec}}{V_m}$$

3.43.3 VOC Content for Solvents or Solvent Blends: VOC in grams per liter of material, and shall be calculated using the following equation:

$$\text{VOC}_{\text{solvent}} = \frac{W_v - W_w - W_{ec}}{V_m}$$

Where:

VOC content = amount of volatile organic compounds in gram/liter

W_v = weight of volatiles in grams

W_w = weight of water in grams

W_{ec} = weight of exempt compounds in grams

V_m = volume of material (coating) in liters

V_w = volume of water in liters

V_{ec} = volume of exempt compounds in liters

4.0 Exemptions

4.1 This rule does not apply to:

4.1.1 Automotive coatings that are offered for sale, sold, or manufactured for use outside the SJVAB or for shipment to other manufacturers for reformulation or repackaging.

4.1.2 Aerosol coating products.

4.1.3 Automotive coatings that are sold, supplied, or offered for sale in 0.5 fluid ounce or smaller containers intended to be used by the general public to repair tiny surface imperfections.

4.1.4 Any coating applied to motor vehicles or mobile equipment, or their associated parts and components, during manufacture on an assembly line.

4.2 The provisions of Section 5.9 shall not apply to the stripping of cured coatings, except the stripping of such materials from spray application equipment.

5.0 Requirements

5.1 Coating Limits

No person shall apply to any motor vehicle, mobile equipment, or associated parts and components, any coating with a VOC regulatory content, as calculated pursuant to Section 3.43.1, in excess of the applicable limits in Table 1, except as provided in Section 5.3.

Table 1 - VOC Content Limits for Coatings

Coating Category	VOC Regulatory Limit, as applied, in grams/liter (pounds per gallon)	
	Effective on and after 1/1/2009 *	Effective on and after 1/1/2010
Adhesion Promoter	840 (7.0)	540 (4.5)
Clear Coating	250 (2.1)	
Color Coating	420 (3.5)	
Multi-Color Coating	680 (5.7)	
Pretreatment Coating	660 (5.5)	
Primer	250 (2.1)	
Primer Sealer	420 (3.5)	250 (2.1)
Single-Stage Coating	420 (3.5)	340 (2.8)
Temporary Protective Coating	60 (0.5)	
Truck Bed Liner Coating	310 (2.6)	
Underbody Coating	430 (3.6)	
Uniform Finish Coating	540 (4.5)	
Any other coating type	250 (2.1)	

* The specified limits remain in effect unless revised limits are listed in the subsequent column.

5.2 Most Restrictive VOC Limit

If anywhere on the container of any automotive coating, or any label or sticker affixed to the container, or in any sales, advertising, or technical literature, any representation is made that indicates that the coating meets the definition of or is recommended for use for more than one of the coating categories listed in Section 5.1, then the lowest applicable VOC content limit in Table 1 shall apply.

5.3 In lieu of complying with the VOC content limits of Section 5.1, an operator may control VOC emissions from coating operations with a VOC emission control system that meets the requirements of Section 5.4.

5.4 VOC Emission Control System

In lieu of complying with the applicable requirements of Section 5.1, 5.8, or 5.9, a person may use a VOC emission control system that meets all of the following requirements:

5.4.1 The VOC emission control system shall be approved, in writing, by the APCO.

5.4.2 The VOC emission control system shall comply with the requirements of Sections 5.4.3 and 5.4.4 during periods of emission-producing activities.

5.4.3 The VOC emission control system shall achieve an overall capture and control efficiency of at least 85 percent by weight.

5.4.4 In no case shall compliance through the use of a VOC emission control system result in VOC emissions in excess of the VOC emissions which would result from compliance with applicable requirements of Section 5.1, 5.8, or 5.9.

5.5 Prohibition of Possession

No person shall possess at any automotive refinishing facility, any automotive coating that is not in compliance with Section 5.1 or 5.4, as applicable.

5.6 Prohibition of Sale or Manufacture

5.6.1 No person shall manufacture, blend, repackage for sale, supply, sell, offer for sale, or distribute within the SJVAB any coating with a VOC content in excess of the limits specified in Section 5.1.

5.6.2 Notwithstanding the provisions of Section 5.6.1, a person may manufacture, blend, repackage for sale, supply, sell, offer for sale, or distribute a coating with a VOC content in excess of the limits specified in Section 5.1 under one of the following circumstances and provided all of the requirements of Section 6.7 are also met:

5.6.2.1 The coating is for use exclusively within a VOC emission control system as allowed in Section 5.4, or

5.6.2.2 The coating is for use outside the SJVAB.

5.7 Prohibition of Specification

No person shall solicit or require the use of, or specify the application or use of any coating on a motor vehicle or mobile equipment, or associated parts and components, if such use or application results in a violation of this rule. This prohibition shall apply to all written or oral contracts, including, but not limited to, job orders, under the terms of which any coating that is subject to the provisions of this rule is to be used or applied. This prohibition shall not apply to coatings that meet the criteria specified in Section 5.6.

5.8 Coating Application Methods

Except for underbody coatings, graphic arts operations, truck bed liner coatings, or any coating use of less than one (1.0) fluid ounce (29.6 milliliters), no person shall apply any coating to any motor vehicle, mobile equipment, or associated parts and components unless one of the following application methods is used:

5.8.1 Brush, dip, or roller.

5.8.2 Electrostatic spray.

5.8.3 High-Volume Low-Pressure (HVLV) spray equipment.

Use of a spray gun: If a spray gun is used, the end user must demonstrate that the gun meets the HVLV definition in Section 3.21 in design and use. A satisfactory demonstration must be based on the manufacturer's published technical material on the design of the gun and by a demonstration of the operation of the gun using an air pressure tip gauge from the manufacturer of the gun.

5.8.4 Any other coating application method that is capable of achieving at least 65 percent transfer efficiency, as determined per Section 6.8.8. Written approval from the APCO shall be obtained for each alternative method prior to use.

5.8.5 In lieu of complying with the applicable provisions of Sections 5.8.1 through 5.8.4, an operator may control VOC emissions from coating application with a VOC emission control system that meets the requirements of Section 5.4 around the coating operation.

5.9 Organic Solvent Cleaning Requirements

5.9.1 For solvent cleaning operations other than for bug and tar removal, a person shall not use solvents for that have VOC content greater than 25 grams VOC per liter of cleaning material, as calculated using the equation listed in Section 3.43.3.

5.9.2 For bug and tar removal, a person shall not use any material other than bug and tar remover regulated under the Consumer Products Regulation (California Code of Regulations Section 94507 et seq.).

5.9.2 In lieu of complying with Sections 5.9.1 and 5.9.2, a person may control VOC emissions from solvent cleaning with an APCO-approved VOC

emission control system for the solvent cleaning operation that meets the requirements of Section 5.4.

5.10 Organic Solvent Disposal and Storage

A person 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.

6.0 Administrative Requirements

6.1 Compliance Statement Requirement

6.1.1 For each individual automotive coating or automotive coating component, the manufacturer and repackager shall include the following information on product data sheets, or an equivalent medium:

6.1.1.1 The VOC Actual for Coatings and VOC Regulatory for Coatings, expressed in grams per liter, calculated pursuant to Section 3.43;

6.1.1.2 The weight percentage of volatiles, water, and exempt compounds;

6.1.1.3 The volume percentage of water and exempt compounds; and

6.1.1.4 The density of the material (in grams per liter).

6.1.2 For each individual ready to spray mixture (based on the manufacturer's and repackager's stated mix ratio), the manufacturer and repackager shall include the following information on product data sheets, or an equivalent medium:

6.1.2.1 The VOC Actual for Coatings and VOC Regulatory for Coatings, expressed in grams per liter, calculated pursuant to Section 3.43;

6.1.2.2 The weight percentage of volatiles, water, and exempt compounds;

6.1.2.3 The volume percentage of water and exempt compounds; and

6.1.2.4 The density of the material (in grams per liter).

6.2 Labeling Requirements

The manufacturer and repackager of automotive coatings or automotive coating components shall include on all containers the applicable use category(ies), and the VOC Actual for Coatings and VOC Regulatory for Coatings, as supplied, expressed in grams per liter.

6.3 Maintenance of Records

Records required by this rule shall be retained on site for a period of five years, the records shall be made available on site during normal business hours to the APCO, ARB, or EPA, and the records shall be submitted to the APCO, ARB, or EPA upon request.

6.4 Recordkeeping Requirements for Coatings

Any person who uses coatings subject to this rule shall maintain and have available at all times, on site, the following:

6.4.1 A current list of all coatings used that are subject to this rule. This list shall include the following information for each coating:

6.4.1.1 Material name and manufacturer;

6.4.1.2 Application method;

6.4.1.3 Coating type (as listed in Section 5.1) and mix ratio specific to the coating; and

6.4.1.4 VOC Actual for Coatings and VOC Regulatory for Coatings, as applied, calculated pursuant to Section 3.43.

6.4.2 Current manufacturer specification sheets, material safety data sheets, technical data sheets, or air quality data sheets, which list the VOC Actual for Coatings and VOC Regulatory for Coatings of each ready-to-spray coating (based on the manufacturer's state mix ratio) and automotive coating components.

6.4.3 Purchase records identifying the coating type (as listed in Section 5.1), name, and volume of coatings.

6.5 Recordkeeping Requirements for Solvents Used for Solvent Cleaning

An operator using solvents for cleaning shall keep the following records.

6.5.1 Keep a copy of the manufacturer's product data sheet or material safety data sheet of the solvents used for organic solvent cleaning activities.

6.5.2 Maintain a current list of solvents that are being used for organic solvent cleaning activities. The list shall include the following information:

6.5.2.1 The name of the solvent and its manufacturer's name.

6.5.2.2 The VOC content of the solvent expressed in grams/liter or lb/gallon.

6.5.2.3 When the solvent is a mixture of different materials that are blended by the person, the mix ratio of the batch shall be recorded and the VOC content of the batch shall be calculated and recorded in order to determine compliance with the specified limits of VOC content.

6.5.3 The quantity of solvent used for solvent cleaning activities.

6.6 VOC Emission Control System Records

An operator using a VOC emission control system pursuant to Section 5.4 as a means of complying with this rule shall maintain daily records of key system operating parameters, which will demonstrate continuous operation and compliance of the emission control system during periods of VOC emission-producing activities. Key system operating parameters are those parameters necessary to ensure or document compliance with Section 5.4, including but not limited to, temperatures, pressure drops, and airflow rates.

6.7 Recordkeeping Requirements for Prohibition of Sale

Any person claiming an exemption specified in Section 5.6.2 shall keep a detailed log of each automotive coating component and automotive coating manufactured, blended, repackaged for sale, supplied, sold, offered for sale, or distributed showing:

6.7.1 The quantity manufactured, blended, repackaged for sale, supplied, sold, offered for sale, or distributed, including size and number of containers;

6.7.2 The VOC Regulatory for Coatings;

6.7.3 The VOC Actual for Coatings;

6.7.4 To whom they were supplied, sold, offered for sale, or distributed, or for whom they were manufactured, blended, or repackaged for sale including the name, address, phone number, retail tax license number, and valid District permit number, if applicable; and

6.7.5 The specific exemption being utilized under Section 5.6.2.

6.8 Test Methods

The following test methods are incorporated by reference herein, and shall be used to test coatings subject to the provision of this rule. A source is in violation of this rule if any measurement by any of the listed applicable test methods exceeds the standards of this rule.

6.8.1 Acid Content: Measurement of acid content (as specified in Section 3.28) shall be determined by using American Standards for Testing and Materials (ASTM) D1613-03 "Standard Test Method for Acidity in Volatile Solvents and Chemical Intermediates used in Paint, Varnish, Lacquer, and Related Products," October 2003.

6.8.2 Alternative Test Methods: The use of other test methods which are determined to be equivalent or better and approved, in writing, by the APCO, ARB, and EPA may be used in place of the test methods specified in this rule.

6.8.3 Determination of Overall Capture and Control Efficiency of VOC Emission Control Systems

6.8.3.1 The capture efficiency of a VOC emission control system's VOC collection device shall be determined according to EPA's "Guidelines for Determining Capture Efficiency," January 9, 1995 and 40 CFR 51, Appendix M, Methods 204-204F, as applicable, or any other method approved by EPA, ARB, and the APCO.

6.8.3.2 The control efficiency of a VOC emission control system's VOC control device shall be determined using the following test methods:

6.8.3.2.1 EPA Methods 2, 2A, or 2D for measuring flow rates and

6.8.3.2.2 EPA Methods 25, 25A, or 25B for measuring total gaseous organic concentrations at the inlet and outlet of the control device.

6.8.3.2.3 EPA Method 18 or ARB Method 422 shall be used to determine the emissions of exempt compounds.

6.8.3.2.4 For VOC emission control systems serving coating operations using TBAC-containing coatings, the TBAC emissions shall be determined in accordance with Section 6.8.7.

6.8.3.3 For VOC emission control systems that consist of a single VOC emission collection device connected to a single VOC emission control device, the overall capture and control efficiency shall be calculated by using the following equation:

$$CE_{\text{Capture and Control}} = [CE_{\text{Capture}} \times CE_{\text{Control}}] / 100$$

Where:

$CE_{\text{Capture and Control}}$ = Overall Capture and Control Efficiency, in percent

CE_{Capture} = Capture Efficiency of the collection device, in percent, as determined in Section 6.8.3.1

CE_{Control} = Control Efficiency of the control device, in percent, as determined in Section 6.8.3.2.

6.8.4 Exempt Compound Content: Exempt compound content shall be determined by using ARB Method 432, "Determination of Dichloromethane and 1,1,1-Trichlorethane in Paints and Coatings," September 12, 1998; ARB Method 422 "Determination of Volatile Organic Compounds in Emission from Stationary Sources," January 22, 1987; or, SCAQMD Method 303-91 "Determination of Exempt Compounds," February 1993. The tert-butyl acetate (TBAC) content in a coating shall be determined in accordance with Section 6.8.7. TBAC is considered an exempt compound for the purposes of complying with Table 1 of this rule.

- 6.8.5 HVLP Equivalency: Spray equipment HVLP equivalency (as specified in Section 5.8.3), shall be determined by using SCAQMD “Guidelines for Demonstrating Equivalency with District Approved Transfer Efficient Spray Guns,” September 26, 2002.
- 6.8.6 Metallic Content: The metallic content of a coating (as specified in Section 3.18) shall be determined by SCAQMD Method 318-95, “Determination of Weight Percent Elemental Metal in Coatings by X-ray,” July 1996.
- 6.8.7 Methyl Acetate, Acetone, t-Butyl Acetate, and PCBTF Content: The quantity of methyl acetate, acetone, t-butyl acetate, and parachlorobenzotrifluoride, as specified in Sections 3.19, 3.42, and 3.43, shall be determined by using ASTM Method D6133-02 “Standard Test Method for Acetone, p-Chlorobenzotrifluoride, Methyl Acetate or t-Butyl Acetate Content of Solventborne and Waterborne Paints, Coatings, Resins, and Raw Materials by Direct Injection Into a Gas Chromatograph,” February 2003.
- 6.8.8 Transfer Efficiency: Spray equipment transfer efficiency (as specified in Section 3.38 and 5.8.4) shall be determined by using SCAQMD method “Spray Equipment Transfer Efficiency Test Procedure for Equipment User,” May 24, 1989.
- 6.8.9 VOC Content of Coatings: VOC content, as specified in Sections 3.43, and 5.1, shall be determined by EPA Method 24 as set forth in Title 40, Part 60, Appendix A, “Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings.”
- 6.8.10 VOC Content of Solvents: VOC content shall be determined by EPA Method 24 or 24A (Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings), as applicable. The VOC content of materials containing 50 g/l of VOC or less shall be determined by SCAQMD Method 313 (Determination of Volatile Organic Compounds VOC by Gas Chromatography-Mass Spectrometry).

6.9 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.

6.10 Version of Test Methods

All ASTM test methods referenced in Section 6.8 are the most recently EPA-approved version that appears in the CFR as Materials Approved for Incorporation by Reference.