

RULE 1115

Metal Parts & Products Coating Operations

(A) General

(1) Purpose

- (a) The purpose of this Rule is to limit the emission of Volatile Organic Compounds from the coating of Metal Parts and Products.

(2) Applicability

- (a) This Rule shall apply to all metal coating operations, except those performed on Aircraft or Aerospace Vehicles; Magnet Wire; Metal Containers, Closures and Coils; marine vessel exteriors; Motor Vehicles; Motor Vehicle Assembly Lines; Mobile Equipment; or those operations subject to the coating provisions of any other source-specific rule of the District.
- (b) Any Coating, coating operation or Facility which is exempt from all or a portion of the VOC limits of this Rule shall comply with the provisions of Rule 442.

(B) Definitions

The definitions contained in District Rule 102 – *Definition of Terms* shall apply unless the term is otherwise defined herein:

- (1) “Adhesive” – Any substance that is used to bond surfaces together by adhesion.
- (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 application, or for use in specialized Equipment for ground traffic/marketing applications.
- (3) “Aircraft or Aerospace Vehicle” – Any fabricated part, assembly of parts or completed unit of any aircraft, helicopter, missile or space vehicle.
- (4) “Assembly Line” – An arrangement of industrial Equipment and workers in which the product passes from one specialized operation to another until complete, either by automatic or manual means.
- (5) “Camouflage Coating” – A Coating used, principally by the military, to conceal Equipment from detection.
- (6) “Chemical Agent Resistant Coating” (CARC) – A Coating applied to military tactical Equipment in order to protect the Equipment from chemical warfare agents.

- (7) “Clear Coating” – A Coating that either lacks color and opacity, or is transparent, and uses the surface to which it is applied as a reflective base or undertone color.
- (8) “Closure” – Any component which is used to close or seal a filled can, jar or bottle.
- (9) “Coil” – Any flat metal sheet or strip that is rolled or wound in concentric rings.
- (10) “Combined Efficiency” – The capture efficiency multiplied by the Control Equipment efficiency, expressed as an overall weight percent.
- (11) “Contract Painter” – A non-manufacturer of Metal Parts and Products who applies Coatings to such products at his Facility exclusively under contract with one or more parties that operate under separate ownership and control.
- (12) “Drum” – Any cylindrical metal shipping container of 13 to 110 gallon capacity.
- (13) “Electric-Insulating and Thermal-Conducting Coating” – A Coating that displays an electrical insulation of at least 1000 volts DC per mil on a flat test plate and an average thermal conductivity of at least 0.27 BTU per hour-foot-degree-Fahrenheit.
- (14) “Electric-Insulating Varnish” – A non-convertible-type Coating applied to electrical motors, components of electrical motors, or power transformers, to provide electrical, mechanical, and environmental protection or resistance.
- (15) “Electrocoating (Electrodeposition)” – A process that uses Coating concentrates or pastes added to a water bath. The Coating is applied using either an electric current in either an anodic or cathodic bath.
- (16) “Electrostatic Spray” – A Coating application method accomplished by charging atomized paint particles for deposition by electrostatic attraction on a metal part or product.
- (17) “Etching Filler” – A Coating that contains less than 23 percent solids by weight and at least 1/2 percent acid by weight, and is used instead of applying a pretreatment Coating followed by a primer.
- (18) “Extreme High-Gloss Coating” – A Coating which, when tested by the American Society for Testing Material (ASTM) Method D-523-1980, shows a reflectance of 75 percent or more on a 60° meter.
- (19) “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:
 - (a) Repeated heavy abrasion, including mechanical wear and repeated scrubbing with industrial-grade Solvents, detergents, cleaners, or abrasive scouring agents;

- (b) Frequent or chronic exposure to salt water, corrosives, caustics, acids, oxidizing agents, chemicals, chemical fumes, chemical mixtures or solutions;
- (c) Repeated exposure to temperatures in excess of 250 °F.

Extreme performance Coatings include, but are not limited to, Coatings applied to locomotives, railroad cars, farm machinery, and heavy duty trucks.

- (20) “Hand Application Methods” – The application of Coatings by manually held, non-mechanically operated Equipment. Such Equipment includes paint brushes, hand rollers, caulking guns, trowels, spatulas, syringe daubers, rags and sponges.
- (21) “Heat-Resistant Coating” – A Coating that must withstand a temperature of at least 400 °F (204°C) during normal use.
- (22) “High-Gloss Coating” – A Coating which, when tested in accordance with ASTM Method D-523-89, shows a reflectance of 85 percent or more on a 60° meter.
- (23) “High-Performance Architectural Coating” – A Coating used to protect architectural subsections and which meets the requirements of the Architectural Aluminum Manufacturer Association's publication number AAMA 2604-05 (Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels) or 2605-05 (Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels).
- (24) “High-Temperature Coating” – A Coating that is certified to withstand a temperature of 1000 °F for 24 hours.
- (25) “Ink” – A fluid that contains dyes and/or colorants and is used to make markings but not to protect surfaces.
- (26) “Magnetic Data Storage Disk Coating” – A Coating used on a metal disk which stores data magnetically.
- (27) “Magnet Wire” – Wire used in electro-magnetic field application in electrical Equipment, such as transformers, motors, generators, and magnetic tape recorders.
- (28) “Metal Container, Closure and Coil Coating Operations” – The application of any VOC-containing Coating to the surfaces of metal cans, Drums, Pails, lids, Closures, or to the surface of flat metal sheets, strips, rolls, or Coils during the manufacturing and/or reconditioning process.
- (29) “Metallic Coating” – A Coating which contains more than five (5) grams of metal particles per liter of Coating, as applied. Metal Particles are pieces of a pure elemental metal or a combination of elemental metals.

- (30) “Metal Parts and Products” – Any components or complete units fabricated from metal, excluding Aircraft or Aerospace Vehicles, Magnet Wire, Metal Containers, Closures and Coils, marine vessel exteriors, Motor Vehicles, Motor Vehicle Assembly Lines, Mobile Equipment or those subject to the coating provisions of any other source-specific rule of the District.
- (31) “Military Specification Coating” – A Coating applied to Metal Parts and Products and which has a paint formulation approved by a United States Military Agency for use on military Equipment.
- (32) “Mobile Equipment” – Any Equipment which may be drawn or is capable of being driven on a roadway, including, but not limited to, truck bodies, truck trailers, camper shells, mobile cranes, bulldozers, street cleaners, golf carts and implements of husbandry.
- (33) “Mold-Seal Coating” – The initial Coating applied to a new mold or repaired mold to provide a smooth surface which, when coated with a mold release Coating, prevents products from sticking to the mold.
- (34) “Motor Vehicle Rework” – The reconditioning of Motor Vehicles.
- (35) “Multi-Component Coating” – A Coating requiring the addition of a separate reactive resin, commonly known as a catalyst or hardener, before application to form an acceptable dry film.
- (36) “One-Component Coating” – A Coating that is ready for application as it comes out of its container to form an acceptable dry film. A thinner, necessary to reduce the viscosity, is not considered a component.
- (37) “Pail” – Any cylindrical metal shipping container of at least 1 but less than 13 gallon capacity and constructed of 29 gauge or heavier material.
- (38) “Pan-backing Coating” – A Coating applied to the surface of pots, pans, or other cooking implements that are exposed directly to a flame or other heating elements.
- (39) “Performance Test” – A test conducted primarily for the purpose of researching and developing new processes and products, that is conducted under the close supervision of technically trained personnel, and that is not involved in the manufacture of final or intermediate products for commercial purposes, except in a de minimis manner.
- (40) “Prefabricated Architectural Component Coatings” – Coatings applied to Metal Parts and Products which are to be used as an architectural structure.
- (41) “Pretreatment Wash Primer” – Any Coating which contains no more than 12 percent solids by weight, and a minimum of 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, and ease of Stripping.

- (42) “Repair Coating” – A Coating used to recoat portions of a product which has sustained mechanical damage to the original Coating following normal painting operations.
- (43) “Safety-Indicating Coating” – A Coating which changes physical characteristics, such as color, to indicate unsafe conditions.
- (44) “Silicone-Release Coating” – Any Coating which contains silicone resin and is intended to prevent food from sticking to metal surfaces such as baking pans.
- (45) “Solar-Absorbent Coating” – A Coating which has as its primary purpose the absorption of solar radiation.
- (46) “Solid-Film Lubricant” – Any very thin Coating consisting of a binder system, containing primarily one or more of molybdenum disulfide, graphite, polytetrafluoroethylene (PTFE) or other solids which act as dry lubricants between faying surfaces.
- (47) “Stencil Coating” – An Ink or a pigmented Coating which is rolled or brushed onto a template or stamp for the purpose of adding identifying letters, numbers and/or other markings to Metal Parts and Products.
- (48) “Stripper” – A material applied to the surface of any metal part of product to completely remove maskants, Coatings or Coating residues. A Stripper is not a surface preparation material or cleanup material. Material used for removal of overspray is not a Stripper.
- (49) “Surface Preparation” – The removal of contaminants, including dust, oil and grease, prior to Coating applications.
- (50) “Textured Finish” – Any rough surface produced by spraying large drops of Coating onto a previously coated surface.
- (51) “Theoretical Potential Emissions” – The maximum capacity of a stationary source to emit a regulated air pollutant, based on the greater of design capacity or maximum production (based on 8760 hours/year), before add on controls.
- (52) “Touch-Up Coating” – A Coating applied by brush or hand-held, non-refillable aerosol cans to repair minor surface damage and imperfections after the main coating operation.
- (53) “Vacuum-Metalizing Coating” – The undercoat applied to the substrate on which the metal is deposited or the overcoat applied directly to the metal film.

(C) Requirements

(1) Transfer Efficiency

(a) A Person shall not apply any Coatings to Metal Parts and Products subject to the provisions of this Rule, unless the Coating is applied with Equipment properly operated according to manufacturer's suggested guidelines, and using one of the following application methods:

- (i) Electrostatic Spray;
- (ii) High Volume Low Pressure (HVLP) Spray Equipment;
- (iii) Dip coat (including electrodeposition);
- (iv) Flow coat;
- (v) Roller Coat;
- (vi) Airless spray;
- (vii) Air-assisted airless spray;
- (viii) Hand Application Methods;
- (ix) Other coating application methods as are demonstrated to have a Transfer Efficiency at least equal to or better than achieved by HVLP spraying; or
- (x) Equipment as approved by the APCO, CARB and USEPA, provided that the Owner/Operator submits an application and demonstrates that the use of HVLP spray Equipment would result in greater emissions than the proposed system Equipment. The approval shall be limited to only those Coatings listed in the application plan.

(2) VOC Content of Coatings

(a) A Person shall not apply any Coating to Metal Parts and Products, including any VOC-containing materials added to the original Coating supplied by the manufacturer, which contains VOC in excess of the limits specified in subsection (C)(2)(a)(i) below:

(i) COATING LIMITS

(Grams of VOC Per Liter of Coating, Less Water and Less Exempt Compounds)

Coating Category	Air-Dried		Baked	
	g/L	lb/gal	g/L	lb/gal
General One-Component*	340	(2.8)	275	(2.3)
General Multi-Component*	340	(2.8)	275	(2.3)
Military Specification	340	(2.8)	275	(2.3)
Etching Filler	420	(3.5)	420	(3.5)
Solar-Absorbent	420	(3.5)	360	3.0)
Heat-Resistant	420	(3.5)	360	(3.0)
High-Gloss	420	(3.5)	360	(3.0)
Extreme High-Gloss	420	(3.5)	360	(3.0)

Coating Category	Air-Dried		Baked	
	g/L	lb/gal	g/L	lb/gal
Metallic	420	(3.5)	420	(3.5)
Extreme-Performance	420	(3.5)	360	(3.0)
Prefabricated Architectural One-Component	420	(3.5)	275	(2.3)
Prefabricated Architectural Multi-Component	420	(3.5)	275	(2.3)
Touch-Up	420	(3.5)	360	(3.0)
Repair	420	(3.5)	360	(3.0)
Silicone-Release	420	(3.5)	420	(3.5)
High-Performance Architectural	420	(3.5)	420	(3.5)
Camouflage	420	(3.5)	420	(3.5)
Vacuum-Metalizing	420	(3.5)	420	(3.5)
Mold-Seal	420	(3.5)	420	(3.5)
High-Temperature	420	(3.5)	420	(3.5)
Electric-Insulating Varnish	420	(3.5)	420	(3.5)
Pan-Backing	420	(3.5)	420	(3.5)
Pretreatment Wash Primer	420	(3.5)	420	(3.5)
Clear	520	(4.3)	520	(4.3)
Drum (New, Exterior)	340	(2.8)	340	(2.8)
Drum (New, Interior)	420	(3.5)	420	(3.5)
Drum (Reconditioned, Exterior)	420	(3.5)	420	(3.5)
Drum (Reconditioned, Interior)	500	(4.2)	500	(4.2)
Chemical Agent Resistant	420	(3.5)	420	(3.5)

*A General Coating is a Coating that does not meet a specific Coating category definition and is assumed to be a general use Coating and subject to the VOC limit for a General Coating.

(3) Sell-Through and Use of Coatings

- (a) The provisions of subsection (C)(2)(a)(i) above shall not apply to the General or Military Specification Coating Category limits until (one year from rule amendment). Until (one year from rule amendment), the following limits shall apply:

Category	Air-Dried		Baked	
	g/L	lb/gal	g/L	lb/gal
General (One- or Multi-Component)	420	(3.5)	360	(3.0)
Military Specification	420	(3.5)	360	(3.0)

- (4) Add-On Control Alternative
 - (a) In lieu of complying with the VOC content limitations in subsection (C)(2) and (C)(3) above, air pollution Control Equipment with a capture and control system Combined Efficiency of at least 90%, as determined pursuant to subsections (G)(2)(g) and (G)(2)(h) of this Rule, may be used.
- (5) Strippers, Surface Preparation and Cleanup Solvent
 - (a) The requirements of this Section shall apply to any Person using Solvent for Surface Preparation, cleanup, stripping, and paint removal, including paint spray Equipment.
 - (b) A Person shall not use VOC-containing materials for the cleanup of application Equipment used in coating operations, unless;
 - (i) Application Equipment cleaning Equipment requirements:
 - a. The application Equipment is disassembled and cleaned in an enclosed system during the washing, rinsing and draining processes; or
 - b. The application Equipment or Equipment parts are cleaned in a container which is open only when being accessed for adding, cleaning, or removing application equipment or when cleaning material is being added, provided the cleaned Equipment or Equipment parts are drained to the container until dripping ceases; or
 - c. Other application Equipment cleaning methods that are demonstrated to be as effective as the Equipment described above in minimizing emissions of VOC to the atmosphere are used, provided that the device has been approved in writing prior to use by the APCO, CARB and USEPA.
 - (ii) Closed containers or pipes to store and convey VOC-containing cleaning and cleaning waste materials are used;
 - (iii) Spills of VOC-containing cleaning and cleaning waste materials are minimized;
 - (iv) VOC emissions are minimized during cleaning operations.
 - (c) A Person shall not use VOC-containing materials for Surface Preparation and cleanup unless:
 - (i) The material contains 25 grams or less of VOC per liter of material (0.21 pounds per gallon); or
 - (ii) The material has an initial boiling point of 190 °C (374°F) or greater; or
 - (iii) The material has a total VOC vapor pressure of 8 mm Hg or less, at 20 °C (68 °F).

- (d) A Person shall not use a Stripper on miscellaneous metal parts and products unless:
 - (i) The material contains 200 grams or less of VOC per liter of material (1.7 pounds per gallon).
- (e) A Person shall use closed, nonabsorbent containers for the storage or disposal of cloth, paper, or any other absorbent material used for Solvent Surface Preparation and cleanup.
- (6) Prohibition of Specifications
 - (a) A Person shall not specify the use in the District of any Coating to be applied to any metal parts and products subject to the provisions of this Rule that does not meet the limits and requirements of this Rule.
- (7) Prohibition of Sale
 - (a) A Person shall not offer for sale or sell within the District any Coating, if such product is prohibited by any provisions of this Rule. The prohibition of this section shall apply to the sale of any Coating which will be applied at any physical location within the District.
- (8) Compliance Statement Requirement
 - (a) The manufacturer of Coatings subject to this Rule shall provide on Coating containers or on separate data sheets the designation of VOC content as supplied, including Coating constituents. The VOC content shall be expressed in grams per liter or pounds per gallon, excluding water and exempt Solvents.
- (9) Compliance Assurance Monitoring
 - (a) Any coating operation subject to subsection (C)(4) shall utilize Compliance Assurance Monitoring, as approved by the APCO, for any add-on Control Equipment used to meet the control requirement.
 - (b) Records of the monitoring device(s), mechanisms and/or techniques, and other data necessary to demonstrate compliance with the control requirements, shall be maintained and produced upon request of the APCO, pursuant to Section (F).
 - (c) Compliance with the add-on control requirements stipulated in subsection (C)(4) shall be determined by source testing and/or evaluating Compliance Assurance Monitoring data.
 - (d) Each monitoring device(s), mechanism and/or technique shall be calibrated/maintained in a manner approved by the APCO.

(D) Exemptions

- (1) The provisions of this Rule shall not apply to Aerosol Coating Products.
- (2) The provisions of subsection (C)(2), (C)(3) and (C)(4) of this Rule shall not apply to any Facility that does not exceed 10 tons per year Theoretical Potential Emissions of VOC, as defined in subsection (B)(51), subject to the following conditions:
 - (a) Any Person claiming exemption under this paragraph shall meet the certification requirements specified in subsection (E)(1) and the recordkeeping requirements specified in Section (F); and
 - (b) Any Facility operating under this exemption whose emissions exceed 10 tons on an annual basis shall henceforth be subject to subsections (C)(2), (C)(3) and (C)(4) of this Rule.
- (3) The provisions of subsections (C)(1), (C)(2), (C)(3) and (C)(4) of this Rule shall not apply to:
 - (a) Any Facility which has a daily usage of less than one (1) gallon of Coating, including any VOC-containing materials added to the original Coating as supplied by the manufacturer, subject to this Rule;
 - (b) Total noncompliant Coating use per Facility that does not exceed 55 gallons per year;
 - (c) Stencil Coatings;
 - (d) Safety-indicating Coatings;
 - (e) Magnetic Data Storage Disk Coatings;
 - (f) Solid-film Lubricants;
 - (g) Adhesives;
 - (h) The coating of Motor Vehicle bodies at Motor Vehicle Rework facilities;
 - (i) Electric-insulating and thermal conducting Coatings.
- (4) The provisions of subsection (C)(1) of this Rule shall not apply to Contract Painters while applying Coatings to objects on trays, provided no object has any dimension greater than 12 inches.
- (5) The provisions of subsection (C)(1) of this Rule shall not apply to the application of Touch-up Coatings, Repair Coatings, Textured Coatings, Metallic Coatings which have a metallic content of more than 30 grams per liter, Mold-seal Coatings, or to facilities that use less than three (3) gallons of such Coatings per

day, as applied, including any VOC-containing materials added to the original Coatings as supplied by the manufacturer.

- (6) The provisions of subsections (C)(1), (C)(2), (C)(3), (C)(4) and (C)(5) of this Rule shall not apply to the application of Coatings and use of cleaning Solvents while conducting Performance Tests on the Coatings at paint manufacturing facilities.
- (7) The provisions of subsection (C)(1)(a)(ix) shall not apply to metal Coatings with a viscosity of 650 centipoise or greater, as applied, so long as (C)(1)(a)(x) is complied with.

(E) Administrative Requirements

- (1) Certification Requirements for Facilities with Theoretical Potential Emissions of 10 Tons VOC or Less per Year:
 - (a) Any Person claiming an exemption under subsection (D)(2) of this Rule shall certify the exemption on an annual basis, by:
 - (i) Submitting a written certification to the APCO certifying that the affected Facility shall not emit VOCs in excess of 10 tons annually. At a minimum, the certification shall include the following information:
 - a. A summary of past annual usage of VOC-containing materials and related emissions; and
 - b. The Facility's Theoretical Potential Emissions of VOC, as defined in subsection (B)(51).

(F) Monitoring and Records

- (1) Coating Records
 - (a) Any Facility or Person claiming exemption pursuant to subsections (D)(2), (D)(3)(a), (D)(3)(b) or (D)(5) shall meet the recordkeeping requirements of this Rule so as to be able to certify the exemption status.
 - (b) Any Person subject to subsections (C)(1), (C)(2), (C)(3), (C)(4), (C)(5) or (F)(1)(a) shall comply with the following requirements:
 - (i) The Person shall maintain and produce a current list of Coatings in use which provides all of the Coating data necessary to evaluate compliance, including, but not limited to, the following information, as applicable:
 - a. Coating, catalyst, and reducer used.
 - b. mix ratio of components used.
 - c. VOC content of Coating as applied.

- (ii) The Person shall maintain and produce records on a daily basis, by permit unit, including:
 - a. Coating and mix ratio of components used in the Coating; and
 - b. quantity of each Coating applied.
- (iii) The Person shall maintain and produce records on a daily basis showing the type and amount of Solvent used for cleanup, Surface Preparation, or paint removal.

(c) Any Facility or Person claiming an exemption pursuant to subsection (D)(2) of this Rule shall maintain and produce records of purchase orders and invoices of VOC-containing materials which specify the name of the materials in use. The requirements of this paragraph shall be in addition to all other applicable recordkeeping requirements specified in this Section.

(2) Add-on Control Equipment Records

(a) Any Person using emission Control Equipment, pursuant to subsection (C)(4), shall maintain and produce daily records of key system operating parameters and maintenance procedures which will demonstrate continuous operation and compliance of the emissions Control Equipment during periods of emissions-producing activities. Key system operating parameters are those necessary to ensure compliance with VOC content of Coating requirements, such as temperatures, pressures and flow rates.

(3) All records for the previous five (5) year period maintained and produced pursuant to this Section shall be retained and available for inspection by the APCO upon request.

(G) Test Methods

(1) A violation of the limits contained in this Rule, as determined by any one of the test methods listed below, shall constitute a violation of this Rule.

(2) The following specified test methods shall be used to determine compliance with the provisions of this Rule:

(a) The VOC content of Coatings and Solvents, as specified in subsections (C)(2), (C)(3), (C)(5)(c)(i) and (C)(5)(d)(i), shall be analyzed as prescribed by USEPA Reference Method 24 - *Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings* for VOC content (without correction for exempt compounds) and ASTM D4457-85 - *Test Method for Determination of Dichloromethane and 1,1,1-Trichloroethane in Paints and Coatings by Direct Injection into a Gas Chromatograph*, or CARB Method 432 - *Determination of Dichloromethane and 1,1,1 - Trichloroethane in Paints and Coatings* (09/12/1989), for determination of emissions of exempt compounds. Perfluorocarbon compounds shall be assumed to be absent from a product or process unless a manufacturer or Facility Operator

identifies the specific individual compounds (from the broad classes of perfluorocarbon compounds) and the amounts present in the product or process and provides a validated test method which can be used to quantify the specific compounds.

- (b) Determination of the initial boiling point of liquid containing VOC, subject to subsection (C)(5)(c)(ii), shall be conducted in accordance with ASTM D1078-86 - *Test Method for Distillation Range of Volatile Organic Liquids*.
- (c) Calculation of total VOC vapor pressure for materials subject to subsection (C)(5)(c)(iii) shall be conducted in accordance with ASTM D2879-97 - *Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope*. The fraction of water and Exempt Compounds in the liquid phase shall be determined by using ASTM D3792-91 - *Test Method for Water Content of Water-Reducible Paints by Direct Injection into a Gas Chromatograph* and D4457-85 - *Test Method for Determination of Dichloromethane and 1,1,1-Trichloroethane in Paints and Coatings by Direct Injection into a Gas Chromatograph* and shall be used to calculate the partial pressure of water and Exempt Compounds. The results of vapor pressure measurements obtained using ASTM D2879-97 shall be corrected for partial pressure of water and Exempt Compounds.
- (d) Measurement of Solvent losses from alternative application cleaning Equipment subject to (C)(5)(b)(i)c shall be conducted in accordance with the South Coast Air Quality Management District's "General Test Method for Determining Solvent Losses from Spray Gun Cleaning Systems" (10/03/1989).
- (e) Measurement of acid content of a substance shall be determined by ASTM D1613-85.
- (f) Measurement of metal content of Coatings shall be determined in accordance with South Coast Air Quality Management District's "Laboratory Methods of Analysis for Enforcement Samples" manual, Method 311-91 – *Analysis of Percent Metal in Metallic Coatings by Spectrographic Method*, (06/01/1991).
- (g) Capture Efficiency shall be determined according to USEPA's technical document, *Revised Capture Efficiency Guidance for Control of Volatile Organic Compound Emissions* (February 7, 1995).
- (h) The control efficiency of the Control Equipment shall be determined according to USEPA Test Methods 25 - *Determination of Total Gaseous Nonmethane Organic Emissions as Carbon*, 25A - *Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer* or 25B - *Determination of Total Gaseous Organic Concentration Using a Nondispersive Infrared Analyzer* for measuring the total gaseous organic

concentrations at the inlet and outlet of the emissions Control Equipment, as contained in 40 CFR Part 60, Appendix A. USEPA Test Method 18 or CARB Method 422 - *Determination of Volatile Organic Compounds in Emissions from Stationary Sources (Exempt VOCs)* shall be used to determine emissions of Exempt Compounds.

- (i) Measurement of solids content by weight of a substance shall be conducted in accordance with ASTM D1475-90 - *Test Method for Density of Paint, Varnish Lacquer, and Related Products*.
 - (j) Measurement of viscosity shall be conducted in accordance with ASTM D1200-14 – *Standard Test Method for Viscosity by Ford Viscosity Cup*.
 - (k) Alternative test methods may be used upon obtaining the approval of the APCO, CARB and USEPA.
- (3) The following calculations shall be used to determine compliance with the provisions of this Rule:
- (a) Grams of VOC Per Liter of Coating Less Water and Less Exempt Compounds (VOC Content):

$$G_v = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

Where:

- G_v = Grams of VOC Per Liter of Coating Less Water and Less Exempt Compounds
- W_s = Weight of volatile compounds in grams
- W_w = Weight of water in grams
- W_{es} = Weight of Exempt Compounds in grams
- V_m = Volume of material in liters
- V_w = Volume of water in liters
- V_{es} = Volume of Exempt Compounds in liters

- (b) Grams of VOC Per Liter of Material:

Where:

$$G_v = \frac{W_s - W_w - W_{es}}{V_m}$$

Where:

- G_v = Grams of VOC Per Liter of Coating Less Water and Less Exempt Compounds
- W_s = Weight of volatile compounds in grams
- W_w = Weight of water in grams
- W_{es} = Weight of Exempt Compounds in grams
- V_m = Volume of material in liters

- (4) The following test method is required for use in determining Transfer Efficiency of alternative application methods:
 - (a) Demonstration of Transfer Efficiency of alternative application methods subject to subsection (C)(1)(a)(x) shall be conducted in accordance with South Coast Air Quality Management District's "*Spray Equipment Transfer Efficiency Test Procedure for Equipment User*" (5/24/89).

See SIP Table at <http://www.mdaqmd.ca.gov>

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