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**RULE 1145. PLASTIC, RUBBER, LEATHER, AND GLASS COATINGS**

(a) Purpose and Applicability

The purpose of Rule 1145 is to reduce volatile organic compounds (VOC) emissions from the application of coatings to any plastic, rubber, leather, or glass products.

(b) Definitions

For the purposes of this rule, the following definitions shall apply:

- (1) AEROSOL COATING PRODUCT is 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.
- (2) AIR BRUSH OPERATIONS are conducted with a type of coating application equipment that operates at air pressures between 25 psi and 116 psi and an air volume of 0.7 cfm and 1.75 cfm respectively. These operations apply a very thin film of coating to a substrate from a paint reservoir of eight ounces or less.
- (3) CLEAR COATING is a colorless coating which contains binders, but no pigment, and is formulated to form a transparent film.
- (4) COATING means a layer of material applied on a substrate that forms a decorative and/or protective film.
- (5) COATING APPLICATION EQUIPMENT is any equipment used to apply coating to a substrate. Coating application equipment includes coating distribution lines, coating hoses, pressure-pots, spray guns, and hand-application equipment.
- (6) DIP COATER is a type of application equipment that coats an object by submerging the object in a vat of coating, and subsequently withdrawing the object and draining off the excess coating.
- (7) ELECTRIC DISSIPATING COATING is a coating that rapidly dissipates a high-voltage electric charge.

- (8) ELECTROSTATIC APPLICATION is a method of applying coating whereby atomized paint droplets are charged and subsequently deposited on the substrate by electrostatic attraction.
- (9) EXTREME PERFORMANCE COATING is a coating applied to plastic, rubber, leather, or glass where the coated surface is, in its intended use, subject to the following: (A) Chronic exposure to corrosive, caustic or acidic agents, chemicals, chemical fumes, chemical mixtures or solutions; or, (B) Repeated exposure to temperatures in excess of 250°F; or, (C) Repeated heavy abrasion including mechanical wear and repeated scrubblings with industrial grade solvents, cleaners or scouring agents.
- (10) EMI/RFI SHIELDING is a coating used on electrical or electronic equipment to provide shielding against electromagnetic interference, radio frequency interference, or static discharge.
- (11) EXEMPT COMPOUNDS (See Rule 102-Definition of Terms).
- (12) FLOW COATER is a type of coating application equipment that coats an object by flowing a stream of coating over the object and draining off any excess coating.
- (13) GRAMS OF VOC PER LITER OF COATING, LESS WATER AND LESS EXEMPT COMPOUNDS, is the weight of VOC per combined volume of VOC and coating solids and can be calculated by the following equation:

Grams of VOC per Liter of Coating, Less Water and

$$\text{Less Exempt Compounds} = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

Where:

$W_s$  = 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

- (14) GRAMS OF VOC PER LITER OF MATERIAL is the weight of VOC per volume of material and can be calculated by the following equation:

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

Where:

$W_s$  = 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

- (15) HAND-APPLICATION METHODS are the methods used to apply coating to substrate by manually held, non-mechanically operated equipment. Such equipment includes paint brushes, hand rollers, caulking guns, trowels, spatulas, syringe daubers, rags, and sponges.
- (16) HIGH-VOLUME, LOW-PRESSURE (HVLP) SPRAY is a coating application system which is operated at air pressures between 0.1 and 10 pounds per square inch gauge (psig) measured dynamically at the center of the air cap and at the air horns.
- (17) HIGHWAY CONES are cones used to regulate traffic.
- (18) INK is a fluid that contains dyes and/or colorants, and is used to make markings but not to protect surfaces.
- (19) LEATHER ANTIQUE COATING is a coating applied to a leather substrate over a leather sealer coating and before a leather top coating to create an antique leather appearance.
- (20) LEATHER COLOR COATING is a coating applied to a leather substrate over a leather sealer coating and before a leather top coating to provide color to the leather substrate.
- (21) LEATHER SEALER COATING is a coating applied directly to a leather substrate to seal the porous leather substrate.
- (22) LEATHER STAIN COATING is an opaque or semi-transparent coating which is formulated to change the color but not to conceal the grain pattern or texture of the leather substrate. Leather stain coatings may be applied as a single coating to the leather substrate or followed by a leather top coating.
- (23) LEATHER TOP COATING is a two-component clear coating that is applied to a leather substrate following the application of a leather sealer, leather stain or antique or color coatings.
- (24) MASK COATING is thin film coating applied through a template to coat a small portion of a substrate.
- (25) METALLIC COATING is a coating which contains more than 5 grams of metal particles per liter of coating as applied.

- (26) METAL PARTICLES are pieces of a pure elemental metal or a combination of elemental metals.
- (27) MILITARY SPECIFICATION COATING is a coating which has a formulation approved by the United States Military Agency for use on military equipment.
- (28) MIRROR BACKING is the coating applied over the silvered surface of a mirror.
- (29) MOLD SEAL COATING is the initial coating applied to a new mold or a repaired mold to provide a smooth surface which, when coated with a mold release coating, prevents products from sticking to the mold.
- (30) MOTOR VEHICLE is a passenger car, light-duty truck, medium-duty vehicle, or heavy-duty vehicle as defined in Section 1900, Title 13, California Administrative Code.
- (31) MULTI-COLOR COATING is a coating which exhibits more than one color when applied, and which is packaged in a single container and applied in a single coat.
- (32) ONE-COMPONENT COATING is 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.
- (33) OPTICAL COATING is a coating applied to an optical lens.
- (34) REFRIGERATED GLASS DOOR COATING is a two-component coating or ink used for the manufacturing of refrigerated glass doors that forms a decorative or protective film and provides a substrate for bonding materials such as seals, spacers, and sealants.
- (35) REPAIR COATING is a coating used to re-coat portions of a previously coated product which has sustained mechanical damage to the coating following normal coating operations.
- (36) ROLL COATER is a type of coating application equipment that utilizes a series of mechanical rollers to form a thin coating film on the surface of a roller, which is then applied to a substrate by moving the substrate underneath the roller.
- (37) SHOCK-FREE COATING is a coating applied to electrical components to protect the user from electric shock. The coating has characteristics of being of low capacitance and high resistance, and having resistance to breaking down under high voltage.
- (38) STENCIL COATING is an ink or a pigmented coating which is rolled or brushed onto a template or stamp in order to add identifying letters, symbols and/or numbers.

- (39) TOUCH-UP COATING is a coating used to cover minor imperfections appearing after the main coating operation.
  - (40) TRANSFER EFFICIENCY is the ratio of the weight or volume of coating solids adhering to an object to the total weight or volume, respectively, of coating solids used in the application process, expressed as a percentage.
  - (41) TRANSLUCENT COATING is a coating which contains binders and pigment, and is formulated to form a color, but not opaque, film.
  - (42) TWO-COMPONENT COATING is a coating requiring the addition of a separate reactive resin, commonly known as a catalyst, before application to form an acceptable dry film.
  - (43) VACUUM METALIZING/PHYSICAL VAPOR DEPOSITION (PVD) is the process whereby metal is vaporized and deposited on a substrate in a vacuum chamber.
  - (44) VOLATILE ORGANIC COMPOUND (VOC) is as defined in Rule 102.
- (c) Requirements
- (1) No person shall apply on plastics, rubber, leather, or glass any coatings which are applied with a VOC content in excess of the limits listed in the Table of Standards.

**TABLE OF STANDARDS**

<b>VOC LIMITS</b>		
<b>LESS WATER AND LESS EXEMPT COMPOUNDS</b>		
COATING CATEGORIES	g/L	lbs/gal
Electrical dissipating and shock free coatings	360	3.0
Extreme performance two-component coatings	420	3.5
General one-component coatings	120	1.0
General two-component coatings	120	1.0
Leather antique coatings	156	1.3
Leather color coatings	60	0.5
Leather sealer coatings	60	0.5
Leather stain coatings	216	1.8
Leather top coatings	120	1.0
Metallic coatings	420	3.5
Military specification one-component coatings	340	2.8

**TABLE OF STANDARDS (cont.)**

<b>VOC LIMITS</b>		
LESS WATER AND LESS EXEMPT COMPOUNDS		
COATING CATEGORIES	g/L	lbs/gal
Military specification two-component coatings	420	3.5
Mirror backing curtain coated coatings	500	4.2
Mirror backing rolled coated coatings	312	2.6
Mold seal coatings	750	6.3
Multi-color coatings	680	5.7
Refrigerated glass door coatings	480	4.0
Optical coatings	50	0.4
Vacuum metalizing coatings	800	6.7

- (2) Solvent cleaning operations and the storage and disposal of VOC-containing materials are subject to the provisions of Rule 1171 - Solvent Cleaning Operations.
- (3) Transfer Efficiency  
 A person shall not apply coatings unless the coating is applied with equipment operated according to the manufacturer's specifications, and by the use of one of the following methods:
- (A) Electrostatic application; or
  - (B) Flow coater; or
  - (C) Roll coater; or
  - (D) Dip coater; or
  - (E) Hand application methods; or
  - (F) High-volume, low-pressure (HVLV) spray; or
  - (G) Such other coating application methods as are demonstrated to the Executive Officer to be capable of achieving at least equivalent or better transfer efficiency to the method listed in subparagraph (c)(3)(F), using District approved procedures and for which written approval of the Executive Officer has been obtained.
- (4) Air Pollution Control Equipment  
 A person may comply with the provisions of paragraph (c)(1), (c)(2), or (c)(3) by using air pollution control equipment, provided that the VOC emissions from

such operations or materials are reduced in accordance with provisions of (A) and (B) below:

- (A) The control device shall reduce VOC emissions from an emission collection system by at least 95 percent, by weight, or the concentration of VOC in the output of the air pollution control device shall be less than 50 PPM calculated as carbon with no dilution.
- (B) The owner/operator demonstrates that the system collects at least 90 percent, by weight, of the VOC emissions generated by the sources of emissions.

(5) **Qualification for Classification as Extreme Performance Coating**

A coating may be classified as an extreme performance coating provided that the applicator requests and receives written approval of such classification from the Executive Officer prior to application of such coating and provided the applicator demonstrates that the intended use of each coated object would require coatings with an extreme performance coating.

(d) **Recordkeeping Requirements**

Records shall be maintained pursuant to Rule 109.

(e) **Compliance Test Methods**

The following test methods and procedures shall be used to determine compliance with this rule. Alternative test methods may be used if they are determined to be equivalent and approved in writing by the Executive Officer, the California Air Resources Board (CARB) and the United States Environmental Protection Agency (USEPA).

- (1) The VOC content of materials subject to the provisions of this rule shall be determined by:

- (A) The USEPA Reference Method 24 (Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings, Code of Federal Regulations Title 40, Part 60, Appendix A). The exempt compounds' content shall be determined by SCAQMD Laboratory Methods 302 (Distillation of Solvents from Paints, Coatings and Inks) and 303 (Determination of Exempt Compounds) contained in the SCAQMD "Laboratory Methods of Analysis for Enforcement Samples" manual or,

- (B) SCAQMD Method 304 [Determination of Volatile Organic Compounds (VOC's) in Various Materials] contained in the SCAQMD "Laboratory Methods of Analysis for Enforcement Samples" manual.
  - (C) Exempt Perfluorocarbon Compounds  
The following classes of compounds: cyclic branched, or linear, completely fluorinated alkanes; cyclic, branched, or linear, completely fluorinated ethers with no unsaturations; cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and sulfur-containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine, will be analyzed as exempt compounds for compliance with subdivision (c), only at such time as manufacturers specify which individual compounds are used in the coating formulations and identify the USEPA, CARB, and the SCAQMD approved test methods, used to quantify the amount of each exempt compound.
- (2) Determination of Efficiency of Emission Control System
- (A) The capture efficiency of an emission control system shall be determined by verifying the use of a Permanent Total Enclosure (PTE) and 100 percent capture efficiency as defined by USEPA Method 204 "Criteria for and Verification of a Permanent or Temporary Total Enclosure." Alternatively, if a USEPA Method 204 defined PTE is not employed, capture efficiency shall be determined using a minimum of three sampling runs subject to data quality criteria presented in the USEPA technical guidance document "Guidelines for Determination Capture Efficiency, January 9, 1995." Individual capture efficiency test runs subject to the USEPA technical guidelines shall be determined by:
    - (i) the Temporary Total Enclosure (TTE) approach of USEPA Methods 204 through 204F; or
    - (ii) the SCAQMD "Protocol for Determination of Volatile Organic Compounds (VOC) Capture Efficiency."
  - (B) The efficiency of the control device of the emission control system as specified in paragraph (c)(4) and the VOC content in the control device exhaust gases, measured and calculated as carbon, shall be determined by the USEPA Test Method 25, 25A, or SCAQMD Method 25.1 (Determination of Total Gaseous Non-Methane Organic Emissions as

Carbon) as applicable. USEPA Test Method 18, or CARB Method 422 shall be used to determine emissions of exempt compounds.

- (C) The overall efficiency of an emission control system shall be determined using the following equation:

$$\text{Overall Efficiency} = (\text{Capture Efficiency}) \times (\text{Control Equipment Efficiency})/100$$

(3) Multiple Test Methods

When more than one test method or set of methods are 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 the rule.

- (4) Demonstration of transfer efficiency shall be conducted in accordance with SCAQMD method "Spray Equipment Transfer Efficiency Test Procedure for Equipment User, May 24, 1989."

- (5) All test methods referenced in this section shall be the most recently approved version.

(f) Alternative Emission Control

A person may achieve compliance with paragraph (c)(1) by means of an Alternative Emission Control Plan pursuant to Rule 108.

(g) Prohibition of Specification and Sales

- (1) A person shall not specify the use, in the SCAQMD, of any coating to be applied to any plastic, rubber, leather, or glass, subject to the provisions of this rule that does not meet the limits and requirements of this rule. The requirements of this paragraph shall apply to all written and oral contracts.

- (2) Except as provided in subdivision (i), a person shall not apply, sell, or offer for sale, manufacture, formulate, or repackage any plastic, rubber, leather or glass coating materials for the use in the SCAQMD that at the time of sale exceeds the applicable VOC content specified in paragraph (c)(1).

The prohibition of specifications and sales shall not apply to plastic, rubber, leather, or glass coating materials shipped, supplied or sold to a person for use outside the SCAQMD or to coatings used exclusively in air pollution control equipment that complies with the requirements of paragraph (c)(4).

(h) Rule 442 Applicability

Any coating, coating operation, or facility which is exempt from all or a portion of this rule shall comply with the provisions of Rule 442.

(i) Exemptions

- (1) The provisions of paragraph (c)(1) shall not apply to the following:
  - (A) Touch-up and repair coatings;
  - (B) Stencil coatings applied on clear or transparent substrates;
  - (C) Clear or translucent coatings;
  - (D) Coatings applied at a paint manufacturing facility while conducting performance tests on the coatings;
  - (E) Any individual coating category used in volumes less than 50 gallons in any one year, if substitute compliant coatings are not available, provided that the total usage of all such coatings does not exceed 200 gallons per year, per facility, and for which written approval of the Executive Officer has been obtained;
  - (F) Reflective coating applied to highway cones;
  - (G) Mask coatings
    - (i) Coatings that are less than 0.5 millimeter thick (dried) and the area coated is less than 25 square inches; or
    - (ii) Coatings that are less than 0.5 millimeter thick (dried) and/or the area coated is more than 25 square inches, provided that a written petition that demonstrates compliant coatings are not available is submitted to and written approval is granted by the Executive Officer.
  - (H) EMI/RFI shielding coatings; and
  - (I) Heparin-benzalkonium chloride (HBAC)-containing coatings applied to medical devices, provided that the total usage of all such coatings does not exceed 100 gallons per year, per facility.
- (2) The provisions of this rule shall not apply to aerosol coating products.
- (3) The provisions of paragraph (c)(3) shall not apply to airbrush operations using 5 gallons or less per year.
- (4) The VOC limit for the general one-component coating category in paragraph (c)(1) shall not apply to polyurethane shoe sole coating operations provided that:
  - (A) the VOC limit of all coatings used for polyurethane shoe sole coating operations does not exceed 800 grams per liter or 6.7 pounds per gallon;
  - (B) the operation does not use more than 160 gallons per month averaged over a consecutive 12 month period;
  - (C) the operation does not use more than 200 gallons per month during any one month; and,

- (D) records are maintained for at least three years demonstrating compliance with subparagraphs (i)(4)(A), (i)(4)(B) and (i)(4)(C) and made available to the Executive Officer upon request.