

(Adopted March 2, 1979)(Amended December 5, 1980)(Amended March 16, 1984)
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**RULE 1115. MOTOR VEHICLE ASSEMBLY LINE COATING
OPERATIONS**

(a) Purpose and Applicability

The purpose of Rule 1115 is to reduce volatile organic compound (VOC) emissions that result from coating operations conducted on motor vehicle assembly lines. This rule applies to all assembly line coating operations, conducted during the manufacturing of new motor vehicles.

(b) Definitions

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

- (1) APPLICATION LINE is that portion of a motor vehicle assembly production line which applies surface and other coatings to motor vehicle bodies, hoods, fenders, cargo boxes, doors, and grill opening panels.
- (2) ASSEMBLY LINE is an arrangement of industrial equipment and workers in which the product passes from one specialized operation to another until complete, by either automatic or manual means.
- (3) BASECOAT is a pigmented topcoat which is the first topcoat applied as part of a multistage topcoat system.
- (4) BASECOAT/CLEARCOAT (BC/CC) is a topcoat consisting of a base coat portion and a clear coat portion.
- (5) CAPTURE EFFICIENCY is the percentage of volatile organic compounds used, emitted, evolved, or generated by the operation, that are collected and directed to an air pollution control device.
- (6) CLEARCOAT is a topcoat which contains no pigments or only transparent pigments and which is the final topcoat applied as part of a multistage topcoat system.
- (7) COATING is a material which is applied to a surface in order to beautify and/or protect such surface.
- (8) ELECTROPHORETIC APPLIED PRIMER is an undercoat applied by dipping the component in a coating bath with an electrical potential difference between the component and the bath.
- (9) EXEMPT COMPOUNDS are any of the following compounds:

- (A) Group I
- trifluoromethane (HFC-23)
 - chlorodifluoromethane (HCFC-22)
 - dichlorotrifluoroethane (HCFC-123)
 - 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124)
 - pentafluoroethane (HFC-125)
 - 1,1,2,2-tetrafluoroethane (HFC-134)
 - tetrafluoroethane (HFC-134a)
 - dichlorofluoroethane (HCFC-141b)
 - chlorodifluoroethane (HCFC-142b)
 - 1,1,1-trifluoroethane (HFC-143a)
 - 1,1-difluoroethane (HFC-152a)
 - 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
- (B) Group II
- methylene chloride
 - carbon tetrachloride
 - 1,1,1-trichloroethane (methyl chloroform)
 - trichlorotrifluoroethane (CFC-113)
 - dichlorodifluoromethane (CFC-12)
 - trichlorofluoromethane (CFC-11)
 - dichlorotetrafluoroethane (CFC-114)
 - chloropentafluoroethane (CFC-115)

Use of Group II compounds may be restricted in the future because they are toxic, potentially toxic, or are upper-atmosphere ozone depleters, or cause other environmental impacts. By January 1, 1996, production of chlorofluorocarbons (CFC), 1,1,1-trichloroethane (methyl chloroform), and carbon tetrachloride will be phased out in accordance with the Code of Federal Regulation Title 40, Part 82 (December 10, 1993). Specifically, the District Board has established a policy to phase out chlorofluorocarbons (CFC) on or before 1997.

- (10) FINAL REPAIR is the final coating applied to correct topcoat imperfections prior to shipment.

- (11) METALLIC/IRIDESCENT TOPCOAT is a topcoat which contains iridescent particles, composed of either metal as metallic particles or silicon as mica particles, in excess of 5 g/L (0.042 lb/gal) as applied, where such particles are visible in the dry film.
- (12) MIDCOAT is a semi-transparent topcoat which is the middle topcoat applied as part of a three-stage topcoat system.
- (13) MOTOR VEHICLES are all passenger cars, light-duty trucks, medium-duty vehicles and heavy-duty vehicles as defined in Section 1900, Title 13, California Administrative Code.
- (14) MULTISTAGE TOPCOAT SYSTEM is any basecoat/clearcoat topcoat system or any three-stage topcoat system, manufactured as a system, and used as specified by the manufacturer.
- (15) OVERALL CONTROL EFFICIENCY is the product of capture and control efficiencies.
- (16) PRIMER is any or all coatings beneath the topcoat.
- (17) SPRAY PRIMER is any primer, except primer surfacer, that is applied by spraying.
- (18) PRIMER SURFACER is a primer coat applied over an electrophoretically applied primer.
- (19) SOLVENT CLEANING OPERATION is the removal of loosely held uncured adhesives, uncured inks, uncured coatings, and contaminants which include, but are not limited to, dirt, soil, and grease from parts, products, tools, machinery, equipment, and general work areas. Each distinct method of cleaning in a cleaning process which consists of a series of cleaning methods shall constitute a separate solvent cleaning operation.
- (20) THREE-STAGE TOPCOAT SYSTEM is a topcoat system composed of a basecoat portion, a midcoat portion, and a transparent clearcoat portion.
- (21) TOPCOAT is the final coating applied for the purpose of establishing the final color and/or protective surface. This includes all multistage topcoat systems, metallic/iridescent topcoats, and final repair coatings.
- (22) TRANSFER EFFICIENCY is the ratio of the weight (or volume) of coating solids adhering to an object to the total weight (or volume) of coating solids used in the application process expressed as a percentage.
- (23) VOLATILE ORGANIC COMPOUND (VOC) is any volatile compound of carbon, excluding methane, carbon monoxide, carbon dioxide, carbonic

acid, metallic carbides or carbonates, ammonium carbonate, and exempt compounds.

(c) Requirements

(1) VOC Content of Coatings and VOC Emission Limits

(A) A person shall not apply any electrophoretic primer, in any motor vehicle application line, which has a VOC content in excess of 145 grams per liter (1.2 lb/gal) of coating, less water and less exempt compounds.

(B) A person shall not apply any final repair coating, in any motor vehicle application line, which has a VOC content in excess of 580 grams per liter (4.8 lb/gal) of coating, less water and less exempt compounds.

(C) A person shall not apply any spray primer, primer surfacer and/or topcoat in any motor vehicle application line that result in VOC emissions in excess of 1.80 kilograms per liter (15.0 lb/gal) of applied solids.

(2) A person may comply with the requirements of paragraph (c)(1) by means of an Alternative Emission Control Plan pursuant to Rule 108.

(3) Approved Emission Control System

A person may comply with the provisions of paragraph (c)(1) by using an approved emission control system for reducing VOC emissions, consisting of collection and control devices which have been approved in writing by the Executive Officer, or designee. The approved emission control system shall reduce the VOC emissions resulting from the use of coatings by an equivalent or greater level to that which would have been achieved by the provisions of paragraph (c)(1).

The required efficiency of an emission control system at which an equivalent or greater level of VOC reduction will be achieved shall be calculated by the following equation:

$$\text{C.E.} = \left[1 - \left\{ \frac{(\text{VOC}_{\text{LWc}})}{(\text{VOC}_{\text{LWn,Max}})} \times \frac{1 - (\text{VOC}_{\text{LWn,Max}}/D_{\text{n,Max}})}{1 - (\text{VOC}_{\text{LWc}}/D_{\text{c}})} \right\} \right] \times 100$$

Where: C.E. = Overall Control Efficiency, percent

VOC_{LWc} = VOC Limit of Rule 1115, less water and less exempt compounds, pursuant to subdivision (c).

$VOC_{LWn,MAX}$ = Maximum VOC content of non-compliant coating used in conjunction with a control device, less water and exempt compounds.

$D_{n,MAX}$ = Density of solvent, reducer, or thinner contained in the non-compliant coating.

D_c = Density of corresponding solvent, reducer, or thinner used in the compliant coating system = 880 g/L.

(4) Solvent Cleaning Operations; Storage and Disposal of VOC-containing Materials.

Solvent cleaning of application equipment, parts, products, tools, machinery, equipment, general work areas, and the storage and disposal of VOC-containing materials used in solvent cleaning operations shall be carried out pursuant to Rule 1171 - Solvent Cleaning Operations.

(d) Rule 442 Applicability

Any motor vehicle application line exempt from all or a portion of this rule shall comply with the provisions of Rule 442.

(e) Methods of Analysis

(1) Determination of VOC content

The VOC content of materials subject to the provisions of the rule shall be determined by the following methods:

(A) United States Environmental Protection Agency USEPA Reference Method 24, (Code of Federal Regulations (CFR) Title 40, Part 60, Appendix A). The exempt compound content shall be determined by SCAQMD Test Method 303 (Determination of Exempt Compounds) contained in the SCAQMD "Laboratory Methods of Analysis for Enforcement Samples" manual or;

(B) SCAQMD Test Method 304 [Determination of Volatile Organic Compounds (VOCs) 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
paragraph (c), only when manufacturers specify which individual
compounds are used in the coating formulation. In addition, the
manufacturers must identify the United States Environmental
Protection Agency, California Air Resources Board, and the
District approved test methods used to quantify the amount of each
exempt compound.

- (2) Determination of Compliance, Including Transfer Efficiency
Determination of compliance, including transfer efficiency, to verify
compliance with subparagraph (c)(1)(C) shall be conducted as prescribed
in EPA Protocol for Determining the Daily Volatile Organic Compound
Emission Rate of Automobile and Light-Duty Truck Topcoat Operations,
dated December 1988.
- (3) Determination of Efficiency of Emission Control System
- (A) The capture efficiency of the emissions control system as specified
in paragraph (c)(3) shall be determined by the procedures
presented in the USEPA technical guidance document, "Guidelines
for Determining Capture Efficiency, January 9, 1995."
Notwithstanding the test methods specified by the Guidelines, any
other method approved by the USEPA, the California Air
Resources Board, and the SCAQMD Executive Officer may be
substituted.
- (B) The efficiency of the control device of the emission control system
as specified in paragraph (c)(3) and the VOC content in the control
device exhaust gases, measured and calculated as carbon, shall be
determined by the USEPA Test Methods 25, 25A, or SCAQMD
Method 25.1 (Determination of Total Gaseous Non-Methane
Organic Emissions as Carbon) as applicable. USEPA Test Method

18, or ARB Method 422 shall be used to determine emissions of exempt compounds.

(4) 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.

(f) Exemptions

(1) The provisions of paragraph (c)(1) of this rule shall not apply to the following manufacturing operations:

(A) Other coating operations not associated with applying body primer, and topcoat coatings to exterior sheet metal and body.

(B) Use of:

(i) Wheel Topcoat Application

(ii) Antirust Coatings

(iii) Trunk Coatings

(iv) Interior Coatings

(v) Flexible Coatings

(vi) Sealers and Deadeners

(vii) Plastic Parts

(viii) Accent and Stripe Coatings

(g) Recordkeeping Daily Record of Coating and Solvent Usage

Daily records of coating and solvent usage shall be maintained pursuant to Rule 109.