

REGULATION 6.17 Standard of Performance for Existing Automobile and Truck Surface Coating Operations

Air Pollution Control District of Jefferson County Jefferson County, Kentucky

Relates To: KRS Chapter 77 Air Pollution Control

Pursuant To: KRS Chapter 77 Air Pollution Control

Necessity And Function: KRS 77.180 provides that the Air Pollution Control board may make and enforce all needful orders, rules, and regulations necessary or proper to accomplish the purposes of KRS Chapter 77. This regulation provides for the control of emissions from surface coating operations at automobile and truck manufacturing facilities.

SECTION 1 Applicability

This regulation applies to each existing auto and truck manufacturing facility which was in being or had a construction permit issued by the District before June 13, 1979. Any source that is ever subject to this regulation will always be subject to it unless the source changes its process to one not covered by this regulation.

SECTION 2 Definitions

Terms used in this regulation not defined herein shall have the meaning given them in Regulation 1.02.

- 2.1 "Affected facility" means a coating line for automobile and truck interior and exterior surfaces including, but not limited to, hoods, fenders, cargo boxes, doors, grill opening panels, engine compartment, all or portions of the passenger compartment, and trunk interior.
- 2.2 "Analytical VOC content" means all volatile organic compounds, excluding water and exempt solvents, that are in a coating expressed as kilograms (or pounds) of VOC per liter (or gallon) of coating as determined by EPA Method 24.
- 2.3 "Anti-chip coatings" as applied to automobile and truck components such as rocker panels, the bottom edge of doors and fenders and frontal surfaces, are considered primer surfaces.
- 2.4 "Applicator" means the mechanism or device used to apply the coating including, but not limited to, dipping and spraying.
- 2.5 "Applied coating solids" means the volume of dried or cured coating solids which is deposited and remains on the surface of the automobile or truck.
- 2.6 "As applied" means including dilution solvents added before application of the coating.
- 2.7 "Automobile" means all passenger cars or passenger car derivatives capable of seating 12 or fewer passengers.
- 2.8 "Coating" means a material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealants, adhesives, inks, maskants, and temporary protective coatings. Coating may refer to more than one coating which serves the same basic function (e.g. prime, surfacer, topcoat).
- 2.9 "Coating line" means a series of one or more coating applicators and any associated flash off area, drying area, and/or oven wherein a coating is applied, dried, and/or cured; a coating line ends with the end of the drying or curing area or prior to the beginning of the application of

- the next coating. It is not necessary to have an oven or a flash off area in order to be included in this definition.
- 2.10 "Electrophoretic deposition" (EDP) means a process of applying a coating by dipping the component in a coating bath with an electrical potential difference between the component and the bath.
- 2.11 "Final repair operation" means the application areas, flash off areas, and ovens used to apply and dry or cure coatings that are used to repair topcoat on fully assembled automobiles and truck bodies.
- 2.12 "Flash-off area" means the space between the application area and the oven.
- 2.13 "Formula VOC content" means all VOCs excluding water and exempt solvents that are in a coating expressed as kilograms (or pounds) of VOC per liter (or gallon) of coating as manufactured, excluding cure volatiles.
- 2.14 "Prime coat coating line" means a coating line for the first of two or more coatings applied to automobile or truck bodies.
- 2.15 "Primer surfacer operation" means the application areas, flash off areas, and ovens that are used to apply and dry or cure a primer surfacer on components of automobile and truck bodies, The Primer surfacer is also referred to as a "guidecoat".
- 2.16 "Primer surfacer" or "guidecoat" means a surface coating between the prime coat and topcoat.
- 2.17 "Process storage" means mixing tanks, holding tanks, drums, or other containers which contain surface coatings, VOCs or recovered VOCs, but does not mean storage tanks which are subject to Regulation 6.13.
- 2.18 "Surface coating operation" means any prime coat, guide coat, or topcoat operation on an automobile or truck surface coating line.
- 2.19 "Topcoat" means the final coating on components of automobile and truck bodies.
- 2.20 "Topcoat operation" means the application areas, flash off areas, and ovens used to apply and dry or cure topcoat on components of automobile and truck bodies.
- 2.21 "Transfer efficiency" means the ratio of the amount of coating solids transferred onto the surface of a part or product to the total amount of coating solids used.
- 2.22 "Truck" means a motor vehicle regardless of size or weight classification designed primarily for transportation of payloads or property consisting of, but not limited to, 13 or more passengers, cargo, recreational, or commercial equipment. This excludes motor vehicles designed principally for off-road construction use.
- 2.23 "Volatile organic compounds net input" means the total amount of VOCs input to the affected facility minus the amount of VOCs that are not emitted into the atmosphere. Volatile organic compounds that are prevented from being emitted to the atmosphere by the use of control devices shall not be subtracted from the total for the purposes of determining VOC net input. When the nature of any operation or design of equipment is such as to permit more than one interpretation of this definition, the interpretation that results in the minimum value for allowable emission shall apply.

SECTION 3 Standard for Volatile Organic Compounds

No person shall cause, allow or permit an affected facility to discharge into the atmosphere more than the standards listed below:

- 3.1 Prime coating line: 0.17 kg/l (1.4 lbs/gal) of coating, excluding water and exempt solvents, which shall be applied by electrophoretic deposition (EDP) when the solids turnover ratio (R_T) is 0.16 or greater. R_T shall be calculated as follows:

$$R_T = \frac{T_v}{L_e}$$

where:

T_v = total volume of coating solids that is added to the EDP system in a calendar month (liters).

L_e = volume design capacity of the EDP system (liters).

- 3.1.1 When R_T , calculated according to the equation in section 3.1, is less than 0.160 but equal to or greater than 0.040, the standard for prime coat applied by EDP shall be determined by the following formula:

$$0.17 \times 350 (0.160 - R_T) \text{ kg/l.}$$

- 3.1.2 When R_T , calculated according to the equation in section 3.1 is less than 0.040 for any EDP prime coat operation, there is no emission limit. When R_T is less than 0.040, the owner or operator shall comply with the recordkeeping and reporting requirements in section 6.
- 3.2 Primer surfacer coating line: 1.8 kg VOC/l (15.1 lb VOC/gal) of applied coating solids, excluding water and exempt solvents;
- 3.3 Topcoat coating line: 11.3 lb VOC/gal of applied coating solids, excluding water and exempt solvents; or
- 3.4 Final repair coating line: 4.8 lb/gal of coating as applied, excluding water and exempt solvents.
- 3.5 Application to metal parts of underbody antichip coatings (e.g., underbody plastisol) and coatings other than prime, primer surfacer, topcoat and final repair shall be subject to the requirements of Regulation 6.31.

SECTION 4 Compliance

- 4.1 In all cases, the design of any control device is subject to approval by the District.
- 4.2 Any affected facility subject to the provisions of section 3 shall calculate a daily volume-weighted average of the coatings used in the particular coating line involved. If such average meets the applicable standard, then the coating line will be considered in compliance. Compliance with limits applicable to primer surfacer and topcoat coating lines shall be determined using procedures described in "Protocol for Determining the Daily VOC Emission Rate of Automobile and Light-Truck Topcoat Operation", EPA 450/3-88-018, December, 1988, (Protocol).
- 4.3 The standards specified in this section may be achieved by:

- 4.3.1 The use of a low solvent coating; or
- 4.3.2 Any other emission reduction process or equipment shown to be as effective. However, another equivalent emission reduction process or equipment may require federal approval pursuant to Regulation 1.08.
- 4.4 Capture efficiency shall be measured according to the method in Regulation 1.05.
- 4.5 EPA Method 24 shall be the method for determining the amount of VOC in the coating.
- 4.6 Test Methods and Compliance Procedures: Alternative Compliance Methods for Surface Coating.
- 4.6.1 Daily-weighted average; the daily-weighted average VOC content, in units of mass of VOC per unit volume of coating, excluding water and exempt compounds, as applied, of the coatings used in a day on a coating line or operation shall be calculated using the following equation:

$$VOC_w = \frac{\sum_{i=1}^n V_i C_i}{V_t}$$

where:

- VOC_w = The daily-weighted average VOC content of the coating, as applied, used on a coating line or operation in units kg VOC/l of coating or lb VOC/gal of coating, excluding water and exempt compounds.
 - n = The number of different coatings, as applied, each day on a coating line or operation.
 - V_i = The volume of each coating, as applied, each day on a coating line or operation in units of l (gal), excluding water and exempt compounds.
 - C_i = The VOC content of each coating, as applied, each day on a coating line or operation in units of kg VOC/l of coating (lb VOC/gal), excluding water and exempt compounds.
 - V_t = The total volume of all coating, as applied, each day on a coating line or operation in units of l (gal), excluding water and exempt compounds.
- 4.7 Whenever deemed necessary by the District, the District shall obtain samples of the coatings used at an affected facility to verify that the coatings meet the requirements in section 3.

SECTION 5 Compliance Timetable

Any owner or operator of an affected facility not in compliance with this regulation shall achieve compliance by December 31, 1993.

SECTION 6 Recordkeeping and Reporting

- 6.1 An owner or operator of a stationary source using coatings or solvents, and subject to this rule shall maintain daily records of operations for the most recent three year period. The records shall be made available to the District, State air pollution control agency, or EPA upon request. The records shall include, but not be limited to, the following:

- 6.1.1 The coating line, the amount and type of coatings (including catalyst and reducer for multicomponent coatings), solvent, and/or exempt compounds used daily for final repair and used monthly for topcoat and primer surfacer;
- 6.1.2 The VOC content as applied in each coating and solvent, as determined by EPA Methods 24 and 25 in accordance with the Protocol;
- 6.1.3 The date that coating and solvent is poured;
- 6.1.4 Daily production records indicating the type and color of vehicles produced;
- 6.1.5 The analytical VOC content shall be calculated using EPA Method 24;
- 6.1.6 For each day, the total volume of coating solids that is added to the EDP system; and
- 6.1.7 For each month, calculations of R_T using the equation in section 3.1.
- 6.2 When a source utilizes add-on controls, compliance shall be determined by using EPA Method 25 or 25a, as appropriate for the concentration of the VOC. However, in determining incinerator efficiency, both the inlet and outlet VOC concentration shall be determined using EPA Method 25a.
- 6.3 Daily compliance for topcoat, primer surfacer, and EDP shall be calculated monthly from these records using the procedures contained in the Protocol and section 4 where appropriate.
- 6.4 Any instance of noncompliance with the emission limits in section 3 as determined in accordance with section 4 shall be reported to the District, in writing, within 30 calendar days of the compliance reporting period.

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