

REGULATION 7.59 Standard of Performance for New Miscellaneous Metal Parts and Products 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 volatile organic compound emissions from new miscellaneous metal parts and products surface coating operations.

SECTION 1 Applicability

This regulation applies to each affected facility commenced on or after May 20, 1981. Any affected facility that is ever subject to this regulation will always be subject to it unless the affected facility 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 to them in Regulation 1.02.

- 2.1 "Affected facility" means a coating line located at job shops and original equipment manufacturing industries that applies coatings on a metal substrate not elsewhere subject to regulation in this chapter.
- 2.2 "Air-dried coatings" means a coating that is dried by the use of air or forced warm air at temperatures up to 90°C (194°F).
- 2.3 "Applicator" means the mechanism or device used to apply the coating, including, but not limited to, dipping, spraying, or flow-coating.
- 2.4 "Clear Coating" means a coating which either lacks color or opacity, or which is transparent and uses the surface to which it is applied as a reflectant base or undertone color.
- 2.5 "Coating line" means a series of one or more coating applicators and any associated flashoff area, drying area, or oven wherein a coating is applied and subsequently, dried, 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 flashoff area in order to be included in this definition. This shall include, but is not limited to:
 - 2.5.1 Mixing operations,
 - 2.5.2 Process storage,
 - 2.5.3 Applicators,
 - 2.5.4 Drying operations including, but not limited to, flashoff area evaporation, oven drying, baking, curing, and polymerization,
 - 2.5.5 Clean up operations,
 - 2.5.6 Leaks, spills, and disposal of VOCs, and
 - 2.5.7 Processing and handling of recovered VOCs.
- 2.6 "Extreme performance coating" means a coating that is designed to protect a coated part from outdoor or harsh exposure or extreme environmental conditions and that is applied to a part

that, in its use as a finished product, is intended to be subjected to outdoor or harsh exposure or extreme environmental conditions.

- 2.7 "Flashoff area" means the space between the applicator and the oven.
- 2.8 "Miscellaneous metal parts and products" means items including, but not limited to:
 - 2.8.1 Large farm machinery (harvesting, fertilizing, and planting machines, tractors, combines, etc.),
 - 2.8.2 Small farm machinery (lawn and garden tractors, lawn mowers, rototillers, etc.),
 - 2.8.3 Small appliances (fans, mixers, blenders, crock pots, dehumidifiers, vacuum cleaners, etc.),
 - 2.8.4 Commercial machinery (computers and auxiliary equipment, typewriters, calculators, vending machines, etc.),
 - 2.8.5 Industrial machinery (pumps, compressors, conveyor components, fans, blowers, transformers, etc.),
 - 2.8.6 Fabricated metal products (metal covered doors, frames, etc.), and
 - 2.8.7 Any other industrial category which coats metal parts or products under the Standard Industrial Classification Code of Major Group 33 (primary metal industries), Major Group 34 (fabricated metal products), Major Group 35 (nonelectric machinery), Major Group 36 (electrical machinery), Major Group 37 (transportation equipment), Major Group 38 (miscellaneous instruments), or Major Group 39 (miscellaneous manufacturing industries).
- 2.9 "Outdoor or harsh exposure or extreme environmental conditions" means exposure to any of the following: year round weather conditions, temperatures consistently above 95°C, detergents, scouring solvents, corrosive atmospheres, and similar environmental conditions.
- 2.10 "Prime coat" means the first of two or more films of coating applied in an operation.
- 2.11 "Process storage" means mixing tanks, holding tanks, and other tanks, drums, or other containers that contain surface coatings, volatile organic compounds, or recovered volatile organic compounds, but does not mean storage tanks that are subject to Regulation 6.13 or 7.12.
- 2.12 "Single coat" means only one film of coating is applied to the metal substrate.
- 2.13 "Topcoat" means the final film or series of films of coating applied in a two coat (or more) operation.

SECTION 3 Standards for Volatile Organic Compounds

- 3.1 A person shall not cause or allow the emission of VOC from any affected facility resulting from the coating of metallic surfaces in excess of the applicable emission rate as follows:
 - 3.1.1 0.52 kg of VOC/l (4.3 lb of VOC/gal) of coating, excluding water and exempt solvents, as applied for clear coatings,
 - 3.1.2 0.42 kg of VOC/l (3.5 lb of VOC/gal) of coating, excluding water and exempt solvents, as applied for air-dried coatings,
 - 3.1.3 0.42 kg of VOC/l (3.5 lb of VOC/gal) of coating, excluding water and exempt solvents, as applied for extreme performance coatings, or
 - 3.1.4 0.36 kg of VOC/l (3.0 lb of VOC/gal) of coating, excluding water and exempt solvents, as applied for all other coatings.
- 3.2 Compliance with the emission limits specified in section 3.1 shall be based upon the coatings used for the affected facility during a calendar-day averaging period. The District may

specifically authorize compliance to be based upon a longer averaging period that shall not exceed 1 calendar month.

3.3 If more than 1 limit of section 3.1 would be applicable for a specific coating, the least stringent limit shall apply.

3.4 Upon written request by the owner or operator of the affected facility, and approval by the District, the emission limits specified in section 3.1 may be achieved by an equivalent emission limit expressed in kg of VOC/l (lb of VOC/gal) of coating solids, as applied. The equivalent emission limit shall be established by the following equation:

$$A = \frac{E}{S}$$

where:

A = Allowable equivalent emission limit, in kg of VOC/l (lb of VOC/gal) of coating solids, as applied.

E = Applicable emission limit as specified in section 3.1, in kg of VOC/l (lb of VOC/gal) of coating, excluding water and exempt solvent, as applied.

S = Solids volume fraction representative of a compliance coating, in liter (gallon) of solids per liter (gallon) of coating, excluding water and exempt solvents, as applied. The value of "S" shall be determined by using one of the following equations:

$$S = 1 - \frac{E}{0.88} \quad \text{Where } E \text{ is in kg of VOC / l}$$

$$S = 1 - \frac{E}{7.36} \quad \text{Where } E \text{ is in lb of VOC / gal}$$

SECTION 4 Compliance

4.1 A new affected facility shall comply with the requirements of this regulation on startup.

4.2 In all cases, the design of any control system is subject to approval by the District.

4.3 Compliance with an emission limit in section 3.4 shall be demonstrated by a material balance except in those cases where the District determines that a material balance is not possible. For those cases where a material balance is not possible, compliance will be determined based upon an engineering analysis by the District of the control system design, control device efficiency, control system capture efficiency, and any other factors that could influence the performance of the system. If so requested by the District, performance tests as specified by the District shall be conducted in order to determine the efficiency of the control device. The control system capture efficiency shall be measured according to methods specified in Regulation 1.05.

4.4 Whenever deemed necessary by the District, the District shall obtain samples of the coatings used at an affected facility to verify compliance with Section 3.

4.4.1 The method of analysis for coatings is EPA Method 24.

4.5 For each coating line that applies multiple coatings, all of which are subject to the same numerical emission limitation in section 3.1, during the same averaging period, e.g., all coatings used on the line are subject to 0.42 kg of VOC/l (3.5 lb of VOC/gal) of coating,

excluding water and exempt solvents, the daily weighted VOC content, calculated in accordance with the procedure in section 4.4.1, shall not exceed the coating VOC content limit corresponding to the category of coating used.

- 4.5.1 The averaging period weighted average VOC content, which means the VOC content of two or more coatings as applied on a coating line during any averaging period and weighted according to the fraction of the total coating volume that each coating represents, shall be calculated using the following equation:

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

where:

- VOC_w = The average VOC content of two or more coatings as applied each averaging period on a coating line, in kg VOC/l (lb of VOC/gal) of coating, excluding water and exempt solvents.
- V_i = The volume of each coating as applied each averaging period on a coating line in units of liters (gallons), excluding water and exempt solvents.
- C_i = The VOC content of each coating as applied each averaging period on a coating line in units of kg of VOC/l (lb of VOC/gal) of coating, excluding water and exempt solvents.
- VT = The total volume of all coatings as applied each averaging period on a coating line in units of liters (gallons), excluding water and exempt solvents.
- n = The number of different coatings as applied each averaging period on a coating line.

SECTION 5 Exemptions

- 5.1 The surface coating of the following metal parts and products, or operations, are exempt from this regulation:
- 5.1.1 The exterior of airplanes and marine vessels, but not parts for the exterior of airplanes and marine vessels that are coated as a separate manufacturing or coating operation,
- 5.1.2 Automobile refinishing,
- 5.1.3 Customized top coating of automobiles and trucks if production is less than 35 vehicles per day,
- 5.1.4 Metallic surfaces that are subject to Regulation 6.16, 6.17, 6.19, 7.02, or 7.55, and
- 5.1.5 Parts consisting of both metallic and nonmetallic components, if a demonstration is made, to the satisfaction of the District, that the limits of this rule cannot be met due to the presence of the nonmetallic component. In this case, Regulation 7.25 applies to the coating of these parts.
- 5.2 Any affected facility shall be exempt from Section 3 if the total VOC emissions from all affected facilities subject to this regulation are less than or equal to five tons per year (potential emissions prior to any add-on controls).

SECTION 6 Recordkeeping

- 6.1 An owner or operator of an affected facility subject to this regulation shall maintain records of operations for each averaging period for the most recent two-year period. The records shall be made available to the District upon request. The records shall include, but not be limited to, the following:
- 6.1.1 The regulation and section number applicable to the affected facility for which the records are being maintained,
 - 6.1.2 The application method and substrate type (metal, plastic, etc.),
 - 6.1.3 The amount and type of coatings (including catalyst and reducer for multicomponent coatings) and solvent (including exempt compounds) used at each point of application during the averaging period. The District may specifically authorize the usage record to reflect a period longer than the compliance averaging period, with the usage prorated for each compliance averaging period by a method approved by the District. In this case, the usage record period shall not exceed 1 calendar month,
 - 6.1.4 The VOC content as applied in each coating and solvent,
 - 6.1.5 The date, or usage record period, for each application of coating and solvent,
 - 6.1.6 The amount of surface preparation, clean-up, wash-up of solvent (including exempt compounds) used and the VOC content of each material used during the averaging period. The District may specifically authorize the usage record to reflect a period longer than the compliance averaging period, with the usage prorated for each compliance averaging period by a method approved by the District. In this case, the usage record period shall not exceed 1 calendar month, and
 - 6.1.7 Oven temperature, where applicable.
- 6.2 The VOC content shall be calculated using a percent solids basis (excluding water and exempt solvents) for coatings using EPA Method 24.
- 6.3 When an affected facility utilizes add-on controls to achieve compliance, documentation will be necessary to assure proper operation. Examples of some controls and related information are:
- 6.3.1 Thermal incineration: combustion temperature, inlet and outlet VOC concentration from emission tests, how and when these concentrations were determined, destruction or removal efficiency, and manufacturer data,
 - 6.3.2 Catalytic incineration: exhaust gas temperature, change in temperature across catalyst bed, date of last change of catalyst bed, inlet and outlet VOC concentration from emission test, how and when these concentrations were determined, destruction or removal efficiency, and manufacturer data, and
 - 6.3.3 Condenser: inlet temperature of cooling medium, outlet temperature of cooling medium, inlet and outlet VOC concentration from emission tests, how and when these concentrations were determined, removal efficiency, and manufacturer data.
- 6.4 When an affected facility utilizes add-on controls, compliance shall be determined by using EPA Method 25.

SECTION 7 Deviations

Deviations from the standards and limitations in this regulation, when supported by adequate technical information, will be considered by the District on a case-by-case basis to allow for technological or economic circumstances that are unique to an affected facility. However, these deviations will require federal approval pursuant to Regulation 1.08.

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