Chapter 129 -- Standards for Sources

SOURCES OF VOCs

§ 129.52. Surface coating processes.

(a) This section applies to a surface coating process category, regardless of the size of the facility, which emits or has emitted VOCs into the outdoor atmosphere in quantities greater than 3 pounds (1.4 kilograms) per hour, 15 pounds (7 kilograms) per day or 2.7 tons (2,455 kilograms) per year during any calendar year since January 1, 1987.

(b) A person may not cause or permit the emission into the outdoor atmosphere of VOCs from a surface coating process category listed in Table I, unless one of the following limitations is met:

(1) The VOC content of each as applied coating is equal to or less than the standard specified in Table I.

(i) The VOC content of the as applied coating, expressed in units of weight of VOC per volume of coating solids, shall be calculated as follows:

$$\mathbf{VOC = (W_o)(D_c)/V_n}$$

Where:

VOC = VOC content in lb VOC/gal of coating solids

W_o = Weight percent of VOC (W_v-W_w-W_{ex})

W_v = Weight percent of total volatiles (100%-weight percent solids)

W_w = Weight percent of water

W_{ex} = Weight percent of exempt solvent(s)

D_c = Density of coating, lb/gal, at 25°C

V_n = Volume percent of solids of the as applied coating

(ii) The VOC content of a dip coating, expressed in units of weight of VOC per volume of coating solids, shall be calculated on a 30-day rolling average basis using the following equation:

$$VOC_A = \frac{\Sigma_i (W_{oi} \times D_{ci} \times Q_i) + \Sigma_j (W_{oj} \times D_{cj} \times Q_j)}{\Sigma_i (V_{ni} \times Q_i)}$$

Where:

VOC_A = VOC content in lb VOC/gal of coating solids for a dip coating, calculated on a 30-day rolling average basis

W_{oi} = Percent VOC by weight of each as supplied coating (i) added to the dip coating process, expressed as a decimal fraction (that is 55% = 0.55)

D_{ci} = Density of each as supplied coating (i) added to the dip coating process, in pounds per gallon

Q_i = Quantity of each as supplied coating (i) added to the dip coating process, in gallons

V_{ni} = Percent solids by volume of each as supplied coating (i) added to the dip coating process, expressed as a decimal fraction

W_{oJ} = Percent VOC by weight of each thinner (J) added to the dip coating process, expressed as a decimal fraction

D_{dJ} = Density of each thinner (J) added to the dip coating process, in pounds per gallon

Q_J = Quantity of each thinner (J) added to the dip coating process, in gallons

(iii) The VOC content of the as applied coating, expressed in units of weight of VOC per weight of coating solids, shall be calculated as follows:

$$\mathbf{VOC_B = (W_o)/(W_n)}$$

Where:

VOC_B = VOC content in lb VOC/lb of coating solids

W_o = Weight percent of VOC (W_v-W_w-W_{ex})

W_v = Weight percent of total volatiles (100%-weight percent solids)

W_w = Weight percent of water

W_{ex} = Weight percent of exempt solvents

W_n = Weight percent of solids of the as applied coating

(iv) Sampling and testing shall be done in accordance with the procedures and test methods specified in Chapter 139 (relating to sampling and testing).

(2) The overall weight of VOCs emitted to the atmosphere is reduced through the use of vapor recovery or incineration or another method which is acceptable under § 129.51(a) (relating to general). The overall efficiency of a control system, as determined by the test methods and procedures specified in Chapter 139 shall be no less than the equivalent overall efficiency calculated by the following equation:

$$O = (1 - E/V) \times 100$$

Where:

V = The VOC content of the as applied coating, in lb VOC/gal of coating solids or lb VOC/lb of coating solids.

E = Table I limit in lb VOC/gal of coating solids or lb VOC/lb of coating solids.

O = Overall control efficiency.

(c) A facility, regardless of the facility's annual emission rate, which contains surface coating processes shall maintain records sufficient to demonstrate compliance with this section. At a minimum, a facility shall maintain daily records of:

(1) The following parameters for each coating, thinner and other component as supplied:

(i) The coating, thinner or component name and identification number.

(ii) The volume used.

(iii) The mix ratio.

(iv) The density or specific gravity.

(v) The weight percent of total volatiles, water, solids and exempt solvents.

(vi) The volume percent of solids for Table I surface coating process categories 1—10.

(2) The VOC content of each coating, thinner and other component as supplied.

(3) The VOC content of each as applied coating.

(d) The solvents methyl chloroform (1,1,1-trichloroethane) and methylene chloride are exempt from control under this section and § 129.67 (relating to graphic arts systems). A surface coating process which seeks to comply with this section through the use of an exempt solvent may not be included in any alternative standards.

(e) If more than one emission limitation under miscellaneous metal parts and products applies to a specific coating, the least stringent emission limitation applies.

(f) A person may not cause or permit the emission into the outdoor atmosphere of VOCs from the application of wood furniture coatings unless the coatings are applied using electrostatic, airless, curtain coating, roller coating, hand roller, hand brush, flow coating, dip coating or high volume-low pressure application equipment. Air atomized sprays may be used to apply cosmetic specialty coatings if the volume of the cosmetic specialty coatings is less than 5% by volume of the total coating used at the facility or to apply final repair coatings.

(g) The records shall be maintained for 2 years and shall be submitted to the Department on a schedule reasonably prescribed by the Department.

(h) The VOC standards in Table I do not apply to a coating used exclusively for determining product quality and commercial acceptance, touch-up and repair and other small quantity coatings if the coating meets the following criteria:

(1) The quantity of coating used does not exceed 50 gallons per year for a single coating and a total of 200 gallons per year for all coatings combined for the facility.

(2) The owner or operator of the facility requests, in writing, and the Department approves, in writing, the exemption prior to use of the coating.

(i) Beginning January 1, 2011, the requirements and limits for metal furniture coatings and large appliance coatings in this section are superseded by the requirements and limits in § 129.52a (relating to control of VOC emissions from large appliance and metal furniture surface coating processes).

(j) Beginning January 1, 2012, the requirements and limits for paper coatings in this section are superseded by the requirements and limits in § 129.52b (relating to control of VOC emissions from paper, film and foil surface coating processes).

Table I

Emission Limits of VOCs in Surface Coatings by Process Category

Weight of VOC per Volume of Coating Solids

Surface Coating Process Category	*lbs VOC per gal coating solids*	*kg VOC per liter coating solids*
1. Can coating		
(a) sheet basecoat	4.62	0.55
(b) can exterior	4.62	0.55
(c) interior body spray	10.05	1.20
(d) two piece can end exterior	10.05	1.20

(e) side-seam spray	21.92	2.63
(f) end sealing compound	7.32	0.88
2. Coil coating	4.02	0.48
3. Fabric coating	4.84	0.58
4. Vinyl coating	7.69	0.92
5. Paper coating	4.84	0.58
6. Automobile and light duty truck coating		
(a) prime coat	2.60	0.31
(b) top coat	4.62	0.55
(c) repair	14.14	1.69
7. Metal furniture coating	5.06	0.61
8. Magnet wire coating	2.16	0.26
9. Large appliance coating	4.62	0.55
Categories 1—9 were adopted on April 17, 1979		
10. Miscellaneous metal parts & products		
(a) top coats for locomotives and heavy-duty trucks	6.67	0.80
(b) hopper car and tank car interiors	6.67	0.80
(c) pail and drum interiors	10.34	1.24
(d) clear coatings	10.34	1.24
(e) air-dried coatings	6.67	0.80
(f) extreme performance coatings	6.67	0.80
(g) all other coatings	5.06	0.61
Category 10 was adopted on April 21, 1981		

Weight of VOC per Weight of Coating Solids

	lbs VOC per lb coating solids	*kg VOC per kg coating solids*
11. Wood furniture manufacturing operations		
(a) Topcoats and enamels	3.0	3.0
(b) Washcoat	14.3	14.3
(c) Final repair coat	3.3	3.3

(d) Basecoats	2.2	2.2
(e) Cosmetic specialty coatings	14.3	14.3
(f) Sealers	3.9	3.9

Category 11 was adopted on May 7, 1988