OFFICIAL COMPILATION OF CODES, RULES AND REGULATIONS OF THE STATE OF NEW YORK
TITLE 6. DEPARTMENT OF ENVIRONMENTAL CONSERVATION
CHAPTER III. AIR RESOURCES
SUBCHAPTER A. PREVENTION AND CONTROL OF AIR CONTAMINATION AND AIR POLLUTION
PART 228: SURFACE COATING PROCESSES, COMMERCIAL AND INDUSTRIAL ADHESIVES, SEALANTS AND PRIMERS
SUBPART 228-1 SURFACE COATING PROCESSES

(Statutory authority: Environmental Conservation Law, §§ 3-0301, 19-0301, 19-0303)

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Contents:

Sec.

§228-1.1 Permit requirements and applicability

(a) *Permit requirements*. Every owner or operator of a facility containing a coating line described in table 1 of section 228-1.7 or in table 2 of section 228-1.8 of this Subpart and which meets the applicability criteria set forth in subdivision (b) or (c) of this section must apply for a Title V facility permit, a State facility permit or a registration under Part 201 (Permits and Registrations) of this Title, as appropriate. Every owner or operator of a facility applying for a Title V facility permit or State facility permit must:

(1) identify the method(s) (*e.g.*, sampling, testing, etc.), if any, that will be used to comply with the requirements of this Subpart;

(2) where applicable, provide a process specific reasonably available control technology (RACT) determination under section 228-1.3(e) of this Subpart unless the RACT demonstration has already been approved by the department and the administrator and a reevaluation frequency for the RACT determination is included in the facility's existing Title V facility permit or State facility permit; and

(3) where applicable, submit evidence to demonstrate that the shut down of a natural gas fired VOC incinerator pursuant to section 228-1.3(b) of this Subpart will not jeopardize air quality.

(b) Except as provided in subdivision (e) of this section, every owner or operator of a facility containing a coating line described in paragraphs (1) through (5) of this subdivision must comply with the provisions of this Part, applicable to relevant coating line, upon start-up:

(1) a coating line listed in table 1 of section 228-1.7 or in table 2 of section 228-1.8 of this Subpart and located in the New York City metropolitan area;

(2) a coating line listed in table 1 of section 228-1.7 of this Subpart and located in the Lower Orange County metropolitan area, for which the annual potential to emit volatile organic compounds (VOCs) from all sources at the facility, regardless of process type but excluding combustion installations, equal or exceeds 10 tons;

(3) a coating line listed in table 2 of section 228-1.8 of this Subpart and located in Lower Orange County metropolitan area, for which the annual potential to emit VOCs from all sources at the facility, regardless of process type but excluding combustion installations, equals or exceeds 25 tons;

(4) a coating line listed in table 1 of section 228-1.7 of this Subpart and located outside the New York City metropolitan area and the Lower Orange County metropolitan area, for which the annual potential to emit VOCs from all sources at the facility, regardless of process type but excluding combustion installations, equals or exceeds 10 tons; and

(5) a coating line listed in table 2 of section 228-1.8 of this Subpart and located outside the New York City metropolitan area and Lower Orange County metropolitan area, for which the annual potential to emit VOCs from all sources at the facility, regardless of process type but excluding combustion installations, equals or exceeds 50 tons.

(c) Every owner or operator of a facility that applies mobile equipment repair and refinishing or color-matched coatings to mobile equipment or mobile equipment components regardless of the facility's location or annual potential to emit VOCs must be in compliance with this Subpart by January 1, 2005.

(d) Any coating line that is or becomes subject to the provisions of this Subpart, will remain subject to these provisions even if the annual potential to emit VOCs for the facility later falls below the thresholds set forth in subdivision (b) of this section.

(e) This Subpart does not apply to the following:

(1) research and development processes involving surface coatings which produce a product for study rather than eventual sale;

(2) adhesives and materials used to prepare a surface for adhesion where the coating is manually applied without the use of mechanical means;

(3) sealant or filler used to seal or fill seams, joints, holes and minor imperfections of the surface where the coating is manually applied without the use of mechanical means;

(4) anti-corrosive wax and heat resistant anti-corrosive coatings used in the manufacture of automobile door opening seams and floor pans respectively;

(5) clear or translucent coatings, applied to clear or translucent plastic substrates which are utilized in the manufacture of backlighted outdoor signs;

(6) coatings which are applied manually with a brush, roller, or an aerosol spray can;

(7) aerospace coatings which are utilized for pretreatment, adhesive bonding primers, flight testing, fuel tanks, electric/radiation effects, space vehicles and temporary mechanical maskant/high temperature heat treatment;

(8) clear and pearlescent coatings applied to plastic fashion items such as beads, buttons, buckles or other plastic accessories;

(9) coatings used in the manufacture of optical lenses at a facility whose annual potential to emit VOCs is 10 tons or less;

(10) reflective coatings applied to highway cones;

(11) electromagnetic interference/radio frequency interference (EMI/RFI) coatings applied on plastic electronic equipment to provide shielding against electromagnetic interference, or static charge;

(12) electric dissipating coatings that rapidly dissipate a high-voltage electric charge applied on plastic parts;

(13) low-use surface coatings used for intermittent or specailty-type operations, where the combined facility-wide total usage is 55 gallons of less on a 12-month rolling basis. Records of low-use surface coatings usage must be maintained on an as used basis in a format acceptable to the department in accordance with the recordkeeping provisions of section 228-1.5 of this Subpart. Motor vehicle refinishing coating lines may qualify for this exemption prior to January 1, 2005. Beginning January 1, 2005, mobile equipment repair and refinishing or color matched coating lines will not qualify for this exemption;

(14) mobile equipment repair and refinishing or color-matched coatings applied to mobile equipment or mobile equipment components if the person applying the coatings does not receive compensation;

(15) powder coatings;

(16) prior to January 1, 2005, mobile vehicle refinishing where the facility:

(i) applies coatings using high volume low pressure spraying with a maximum cap pressure of 10.0 psig;

(ii) cleans spray guns using techniques that minimize VOCs emissions;

(iii) uses coatings that do not exceed the appropriate VOC content limits in table 2 of section 228-1.8 of this Subpart;

(iv) exhausts emissions into appropriate emission control equipment;

(v) applies coatings to work areas that do not exceed 9.0 square feet; and

(vi) uses a quantity of coatings and cleaning solvents on an annual basis that does not exceed 55 gallons. The owner or operator of the facility must retain for five years records of the quantity of coatings and cleaning solvents used on an annual basis; and

(17) beginning January 1, 2005, mobile equipment repair and refinishing or color-matched coatings where the facility:

(i) applies coatings using high volume low pressure spraying with a maximum cap pressure of 10.0 psig;

(ii) cleans spray guns using techniques that minimize VOC emissions;

(iii) uses coatings that do not exceed the appropriate VOC content limits in table 2 of section 228-1.8 of this Subpart;

(iv) exhausts emissions into appropriate emission control equipment;

(v) applies coatings to work areas that do not exceed 9.0 square feet; and

(vi) uses a quantity of coatings and cleaning solvents on an annual basis that does not exceed 55 gallons. The owner or operator of the facility must retain for five years records of the quantity of coatings and cleaning solvents used on an annual basis.

§228-1.2 Definitions

(a) To the extent that they are not inconsistent with the specific definitions in subdivision (b) of this section, the general definitions of Part 200 of this Title apply.

(b) For the purposes of this Subpart, the following specific definitions apply:

(1) *Aerospace coating*. A material applied to an aerospace vehicle or component to form a decorative, protective, functional solid film or the solid film itself.

(2) *Airless spray*. A spray coating method in which the coating is atomized by forcing it through a small nozzle opening at high pressure and which is not mixed with air before exiting from the nozzle opening.

(3) *Automotive elastomeric coating*. A coating designed for application over flexible mobile equipment surfaces and mobile equipment components, such as elastomeric bumpers.

(4) *Automotive jambing clearcoat*. A fast-drying, ready-to-spray clearcoat applied to surfaces such as door jambs and trunk and hood edges to allow for quick closure.

(5) Automotive lacquer. A thermoplastic coating applied directly to bare metal of mobile equipment surfaces and mobile equipment components which dries primarily by VOC solvent evaporation, and is re-soluble in its original VOC solvent.

(6) *Automotive low-gloss coating*. A coating which exhibits a gloss reading less than or equal to 25 on a 60 degree glossmeter.

(7) *Automotive multi-colored topcoat*. A topcoat that exhibits more than one color, is packaged in a single container, and camouflages surface defects on areas of heavy use, such as cargo beds and other surfaces of trucks and other utility vehicles.

(8) *Automotive pretreatment primer*. A primer that contains a minimum of 0.5 percent acid, by weight, that is applied directly to bare metal surfaces of mobile equipment surfaces and mobile equipment components to provide corrosion resistance and to promote adhesion of subsequent coatings.

(9) *Automotive primer-sealer*. A coating applied to mobile equipment and mobile equipment components prior to the application of a topcoat for the purpose of providing corrosion resistance, promoting adhesion of subsequent coatings, promoting color uniformity, and promoting the ability of the undercoat to resist penetration by the topcoat.

(10) *Automotive primer-surfacer*. A coating applied to mobile equipment and mobile equipment components prior to the application of topcoat for the purpose of filling surface imperfections in the substrate, providing corrosion resistance, or promoting adhesion of subsequent coatings.

(11) *Automotive specialty coatings*. Coatings including but not limited to: elastomeric coatings, adhesion promoters, low-gloss coatings, bright metal trim repair coatings, jambing clearcoats, impact resistant coatings, rubberized asphaltic underbody coatings, uniform finish blenders, and weld-through primers applied to automotive surfaces; and automotive lacquer topcoats applied to a classic motor vehicle or motor vehicle components.

(12) *Automotive topcoat*. A coating or series of coatings applied over an automotive primer-surfacer, automotive primer-sealer or existing finish on mobile equipment and mobile equipment components for the purpose of protection and/of beautification.

(13) *Automotive touch-up repair*. The application of automotive topcoat finish materials to cover minor finishing imperfections no greater than one inch in diameter.

(14) *Building enclosure*. A building housing process that meets the requirements of a temporary total enclosure. 40 CFR part 51, Appendix M, Method 204E (see table 1, section 200.9 of this Title) is used to identify all emission points from the building enclosure and to determine which emission points must be tested as set forth in the EPA guidance document entitled *Guidelines for Determining Capture Efficiency* (see table 1, section 200.9 of this Title).

(15) *Capture efficiency (CE)*. The fraction of all VOC vapors generated by a coating line that is directed to a control device.

(16) *Capture System*. All the equipment including but not limited to: hoods, ducts, fans, booths, ovens, or dryers that contain, collect, and transport an air pollutant to a control device.

(17) *Certification*. Documentation furnished for coatings and adhesives as applied using EPA Method 311 or 24 as presented in Appendices A of both 40 CFR parts 63 and 60, respectively (see table 1, section 200.9 of this Title), manufacturer's formulation data, or an alternative method approved by the administrator and the department. If there are any inconsistencies between the results of an EPA reference method test and any other means of determining the VOC content of a coating, then the EPA reference method test results will govern.

(18) *Classic motor vehicle*. A motor vehicle manufactured before January 1, 1988 which has been maintained in, or restored to, a condition which is substantially in conformity with manufacturer specifications and appearance.

(19) *Clear coating*. A coating which lacks color and opacity or is transparent and uses the undercoat as a reflectant base or under-tone color.

(20) *Clear topcoat*. The final coating which contains binders but not opaque pigments and which is specifically formulated to form a transparent or translucent solid protective film on wood furniture.

(21) *Coating or surface coating*. 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, primers, sealants, adhesives, inks, and maskants.

(22) *Coating line*. The application of one or more surface coatings, using one or more applicators, together with any associated drying or curing areas. A single coating line ends after drying or curing and before other surface coatings are applied. For any web coating line this term means an entire coating application

system, including any associated drying ovens or areas located between an unwind station and rewind station, that is used to apply surface coatings onto a continuous strip or web. It is not necessary to have an oven or flash area in order to be included in this definition.

(23) *Coating system*. A series of surface coatings applied sequentially at the same coating line.

(24) *Color-matching coating*. A coating which is applied over a manufacturer's coating in order to, but not limited to, match colors, add designs or logos to mobile equipment and/or mobile equipment components of a company's mobile vehicle fleet.

(25) *Container*. Any portable device in which a material is stored, transported, or otherwise handled.

(26) *Curtain coating*. The application of a coating to an object by moving the object through a falling curtain of coating.

(27) *Data quality objective approach*. A set of approval criteria that must be met so that data from an alternative test method can be used in determining the CE of a control system as set forth in the EPA guidance document entitled *Guidelines for Determining Capture Efficiency* (see table 1, section 200.9 of this Title).

(28) *Dip coating*. The application of a coating by immersing an object into the coating.

(29) *Excluded VOC*. Any of the compounds expressly excluded from the definition of volatile organic compound in section 200.1 of this Title.

(30) *Extreme performance coating.* A coating formulated for and exposed to harsh environmental conditions, including, but not limited to, continuous exposure to outside weather, temperatures consistently above 95°C, temperatures consistently below 0°C, solvents, detergents, abrasives, scouring agents or corrosive gases and fluids.

(31) *Flow coating*. The application of a coating by flowing the coating over an object and completely covering the surface.

(32) *High volume low pressure spray*. The application of a coating by means of a spray gun which operates between 0.1 and 10.00 pounds per square inch gauge air cap pressure.

(33) *Lower confidence limit approach*. A set of approval criteria that must be met so that data from an alternative test method can be used in determining the CE of a control system as set forth in the EPA guidance document entitled *Guidelines for Determining Capture Efficiency* (see table 1, section 200.9 of this Title).

(34) *Manufacturer's formulation data*. Data on a material (such as a coating) that are supplied by the material manufacturer based on knowledge of the ingredients used to manufacture the material, rather than based on an EPA reference test method. Manufacturer's formulation data may include but are not limited to: information on density, VOC content, and coating solids content.

(35) *Maximum permitted pounds of VOC per gallon of coating, minus water and excluded VOC at application.* The permissible quantity of VOC per gallon of coating minus water and excluded VOC at application, is specified in tables 1 and 2 of this Part. The actual VOC content of the as applied coating is calculated as follows:

$$(VOC)_a = \left[\frac{(W_v)_a - (W_w)_a - (W_e)_a}{[\ 1 - [\ (V_w)_a + (V_e)_a\ ]\ ]} \right] \qquad \text{Equation 1}$$

where:

$(VOC)_a$ is the VOC content of a coating, as applied, expressed as pounds of VOC per gallon of coating minus water and excluded VOC

$(W_v)_a$ is the pounds of total volatiles per gallon of an as applied coating

$(W_w)_a$ is the pounds of water per gallon of an as applied coating

$(V_w)_a$ is the gallons of water per gallon of an as applied coating

$(W_e)_a$ is the pounds of excluded VOC per gallon of an as applied coating

$(V_e)_a$ is the gallons of excluded VOC per gallon of an as applied coating

(36) *Mobile equipment*. Equipment which may be driven, or is capable of being driven on a roadway, including but not limited to:

(i) passenger cars, vans, sport utility vehicles;

(ii) trucks, truck cabs, truck bodies and truck trailers;

(iii) buses;

(iv) motorcycles;

(v) utility bodies;

(vi) camper shells;

(vii) mobile cranes;

(viii) bulldozers;

(ix) street cleaners;

(x) golf carts;

(xi) ground support vehicles, used in support of aircraft activities at airports; and

(xii) farm equipment.

(37) *Natural finish hardwood plywood panels*. Panels whose original grain pattern, frequently supplemented by fillers or toners, is enhanced by essentially transparent finishes.

(38) *Opaque stain*. Any stain that contains pigments but which is not classified as a semitransparent stain, including stains, glazes, and other opaque materials applied to wood surfaces.

(39) *Overall removal efficiency*. The total reduction of VOC emissions attributable to the use of both the capture system and the control equipment.

(40) *Permanent total enclosure*. An enclosure that meets the requirements of 40 CFR 63.805(e)(1)(i) through (iv) (see table 1, section 200.9 of this Title).

(41) *Pigmented coat*. Opaque coatings, applied either as an undercoat or a topcoat, that contain binders and colored pigments and are formulated to conceal the wood surface.

(42) *Plastic parts*. Plastic parts are parts made from a substance that has been formed from a resin through the application of heat, pressure or both. These include but are not limited to thermoplastics and thermosets such as acrylonitrile-butadiene styrene (ABS), acrylic (AC), cellulosics, nylon, polycarbonatevinyls, xenoy, melamines, polyester (BMC), reaction injection molding (RIM), and polyurethanes (PU). These also include composites such as fiberglass-reinforced plastics (FPR), which are comprised of thermosetting or thermoplastic resins and fibers, filaments, or fine powders.

(43) *Powder coating*. Any coating applied as dry finely divided solid (without solvent or other carrier) which, when melted or fused, adheres to the substrate as a paint film.

(44) *Printed interior panels*. Panels whose grain or natural surface is obscured by fillers and basecoats upon which a simulated grain or decorative pattern is printed.

(45) *Sealer*. A coating which contains binders that seal a wood surface prior to application of a subsequent coating.

(46) *Semi-transparent stain*. Stains that contain dyes and/or semi-transparent pigments and are formulated to enhance wood grain and to change the color of the surface, but not to conceal the surface; including sap stain, toner, nongrain raising stain, pad stain, spatter stain and other semi-transparent stains.

(47) *Solids as applied*. The part of the coating which remains after the coating is dried or cured. Solids content is determined using Method 311 or Method 24 as presented in Appendix A of both 40 CFR parts 63 and 60, respectively (see table 1, section 200.9 of this Title), manufacturer's formulation data, or an alternative method approved by the administrator and the department. If there are any inconsistencies between the results of an EPA reference method test and any other means of determining the VOC content of a coating, then the EPA reference method test results will govern.

(48) *Solvent*. A substance that is liquid at standard conditions and is used to dissolve or dilute another substance; this term includes but is not limited to: organic materials used as dissolvers, viscosity reducers, degreasing agents, or cleaning agents. Any excluded VOC is not a solvent.

(49) *Substrate*. The surface onto which a coating is applied or into which a coating is impregnated.

(50) *Temporary total enclosure*. An enclosure that meets the requirements of 40 CFR 63.805(e)(1)(i) through (iv) (see table 1, section 200.9 of this Title), is not permanent, and is constructed only to measure the CE of pollutants emitted from a given source.

(51) *Wash coat*. A coating which contains binders that raise wood surfaces, prevent undesired staining, and control penetration.

§228-1.3 Volatile organic compound emission control requirements

(a) Use of coatings that exceed the maximum permitted pounds of VOC per gallon, minus water and excluded VOC at application specified in table 1 of section 228-1.7 or table 2 of section 228-1.8 of this Subpart is prohibited, unless a coating system meeting the requirements of subdivision (d) of this section is utilized, control equipment meeting the requirements of subdivisions (b) and (c) of this section is installed and operated, or a process specific RACT variance is granted under subdivision (e) of this section.

(b) Any VOC incinerator used as control equipment must be designed and operated to provide, at a minimum, an 80 percent overall removal efficiency. The department may allow an owner or operator of a facility which uses a natural gas fired VOC incinerator as a control device for coating lines subject to this Subpart, to shut down the VOC incinerator from November 1st through March 31st for the purposes of natural gas conservation, provided the department has determined that this action will not jeopardize air quality.

(c) The overall removal efficiency of an air cleaning device used as a control strategy must be determined, for every surface coating formulation, on a solids as applied basis using Equation 2 unless an 85 percent or greater overall removal efficiency is achieved by the air cleaning device. The air cleaning device must be designed and operated to provide, at a minimum, an overall removal efficiency of either 85 percent or as determined by Equation 2.

$$\eta = \left[1 - \left[\frac{(VOC)_c (V_n)_a}{(VOC)_a (V_n)_c} \right] \right] \times 100 \qquad \text{Equation 2}$$

where:

η is the overall removal efficiency

$(VOC)_c$ is the maximum permissible pounds of VOC per gallon of coating minus water and excluded VOC at application, as set forth in tables 1 and 2 of this Subpart

$(VOC)_a$ is the VOC content of an as applied coating, expressed as pounds of VOC per gallon of coating minus water and excluded VOC

$(V_n)_c$ is the volumetric fraction of solids, expressed as gallon of solids per gallon of coating minus water and excluded VOC, in a compliant coating expressed as:

$$(V_n)_c = 1 - (V_v)_c \qquad \text{Equation 3}$$

$(V_v)_c$ is the volumetric fraction of VOC, expressed as gallon of VOC per gallon of coating minus water and excluded VOC, in a compliant coating espressed as:

$$(V_v)_c = \left[\frac{(VOC)_c}{d_{voc}} \right]$$ Equation 4

$(V_n)_a$ is the volumetric fraction of solids, expressed as gallon of solids per gallon of coating minus water and excluded VOC, in an as applied coating expressed as:

$$(V_n)_a = 1 - (V_v)_a$$ Equation 5

$(V_v)_a$ is the volumetric fraction of VOC, expressed as gallon of VOC per gallon of coating minus water and excluded VOC, in an as applied coating expressed as:

$$(V_v)_a = \left[\frac{(VOC)_a}{d_{voc}} \right]$$ Equation 6

d_{VOC} is the density of VOC as applied, *i.e.*, total volatiles minus water and excluded VOC, in pounds of VOC per gallon of VOC

(d) An owner or operator of a coating line which utilizes a coating system as a control strategy, which control strategy may also employ a control device, must comply with the following provisions:

(1) the coating system must be approved by the department prior to the use of the coating system in the manufacture of a product for sale;

(2) coatings which are applied manually by handheld spray guns cannot be utilized in a coating system;

(3) the emission differential (ED) for a coating system must be determined using the formula below. The ED for the coating system is the sum of the individual ED values calculated for every coating used in the coating system. The ED calculation requirement is to be performed each time the series of coatings in a coating system is changed. The coating system ED must be less than or equal to zero before the coating system may be operated.

$$ED = [V(V_n)_a] \left[\left((1 - \eta) \left(\frac{(VOC)_a}{(V_n)_a} \right) \right) - \left(\frac{(VOC)_c}{(V_n)_c} \right) \right]$$ Equation 7

where:

V is the actual coating volume used, minus water and excluded VOC, in gallons

η is the overall removal efficiency, expressed as:

$$\eta = \frac{\eta_c \times \eta_d}{10{,}000} \qquad \text{Equation 8}$$

η_c is the percent CE, as determined by paragraph 228-1.5(e)(2) of this Subpart

η_d is the percent destruction and/or removal efficiency, as determined by section 228-1.5(f) of this Subpart

η = 0, for coating systems without a control device and capture system

d_{VOC} = 7.36 pounds of VOC per gallon of VOC when $(VOC)_a = 0$ and $(V_n)_a = 1$

When paragraph 228-1.5(e)(1) of this Subpart applies, η is the VOC solvent recovery fraction.

All other terms are defined in subdivision (c) of this section.

(4) the ED figures for the individual coating used in the coating system must be calculated on an instantaneous basis. There is no averaging period for individual coatings which are part of a coating system; and

(5) the method or instrument by which the owner or operator will measure or calculate the volume of coating applied must be approved by the department;

(e) *Process specific RACT demonstrations.*

(1) The department may allow surface coating processes to operate with a lesser degree of control than is required by this section provided that a process specific reasonably available control technology (RACT) demonstration has been made to the satisfaction of the department. Such process specific RACT demonstrations must be submitted to the administrator for approval as a revision to the State Implementation Plan and must address the technical and economic feasibility of:

(i) utilizing compliant coating(s) and/or inks;

(ii) utilizing demonstrated and proven emission control technologies which would achieve the required overall removal efficiency determined pursuant to subdivision (c) of this section;

(iii) utilizing demonstrated and proven emission control technologies which would achieve a level of overall removal efficiency less than the required level determined pursuant to subdivision (c) of this section; and

(iv) utilizing demonstrated and proven production modification methods which would result in real, documented, and enforceable reductions in the VOC emissions from the process.

(2) Facilities with surface coating processes subject to this Part with an annual potential to emit of less than five tons of VOCs will only be required to comply with subparagraphs (1)(i) and (iv) of this subdivision in order to demonstrate that a lesser degree of control is RACT for these processes.

(f) *Mobile equipment repair and refinishing or color-matched coatings.*

(1) Beginning January 1, 2005, a person may not apply to mobile equipment or mobile equipment components any automotive pretreatment primer, automotive primer-surfacer, automotive primer-sealer, automotive topcoat or automotive specialty coatings that contain VOCs in excess of the limits specified in section 228-1.8 of this Subpart.

(2) Beginning January 1, 2005, a person at a facility subject to the provisions of this subdivision must use one or more of the following application techniques to apply mobile equipment repair and refinishing or color-matched coatings listed in section 228-1.8 of this Subpart:

(i) flow/curtain coating;

(ii) dip coating;

(iii) cotton-tipped swab application;

(iv) electro-deposition coating;

(v) high volume low pressure spraying;

(vi) electrostatic spray;

(vii) airless spray; and

(viii) other coating application methods approved by the department which can achieve emission reductions equivalent to high volume low pressure spray or electrostatic spray application methods.

(3) The use of airbrush application methods for stenciling, lettering, and other identification markings are exempt from the application technique requirements listed in paragraph (2) of this subdivision.

(4) The following equation must be used to determine if an automotive topcoat, containing two or more coatings, is in compliance with the VOC limits specified in section 228-1.8 of this Subpart:

$$VOCmulti = \frac{VOCbc + \sum_{i=0}^{M} VOCmci + 2(VOCcc)}{M + 3} \qquad \text{Equation 9}$$

where:

VOCmulti is the VOC content of an as applied multi-stage topcoat, expressed as pounds of VOC per gallon of coating minus water and excluded VOC

VOCbc is the VOC content of the as applied basecoat, expressed as pounds of VOC per gallon of coating minus water and excluded VOC

VOCmci is the VOC content of the as applied midcoat(s), expressed as pounds of VOC per gallon of coating minus water and excluded VOC

VOCcc is the VOC content of the as applied clearcoat, expressed as pounds of VOC per gallon of coating minus water and excluded VOC

M is the number of midcoats

§228-1.4 Opacity

No person shall cause or allow emissions to the outdoor atmosphere having an average opacity of 20 percent or greater for any consecutive six-minute period from any emission source subject to this Subpart.

§228-1.5 Reports, recordkeeping, sampling and analysis

(a) The owner or operator of any emission source subject to this Subpart must maintain and, upon request, provide the department with a certification from the coating supplier/manufacturer which verifies the parameters used to determine the actual VOC content of each as applied coating, $(VOC)_a$, used at the facility. In addition, purchase, usage and/or production records of the coating material, including solvents, must be maintained in a format acceptable to the department and, upon request, these records must be submitted to the department. Any facility required to perform the overall removal efficiency calculation set forth in Equation 2 of this Part, must maintain records to verify the parameters used in the calculation. A facility owner or operator must maintain a record that identifies each air cleaning device that has an overall removal efficiency of at least 85 percent. Any additional information required to determine compliance with this Part must be provided to the department in a format acceptable to the department.

(b) The owner and operator of any emission source subject to this Part must, upon request by the department, use Method 311 or Method 24 as presented in Appendix A of both 40 CFR parts 63 and 60, respectively (see table 1, section 200.9 of this Title), to measure the volatile content, water content, density, volume of solids, and weight of solids in order to determine the actual VOC content of an as applied coating during a compliance demonstration.

(c) When the sampling and analysis methods referenced in subdivision (b) or (f) or paragraph (e)(2) of this section are not applicable, alternate sampling and analysis methods can be used, subject to the approval of the department and the administrator.

(d) Representatives of the department must be permitted, during reasonable business hours, to obtain coating samples for the purpose of determining compliance with this Subpart.

(e) When a coating line utilizes control equipment to comply with the provisions of this Part, test methods acceptable to the department must be used to determine the overall removal efficiency during a required performance test.

(1) This determination may be made by directly measuring VOC/solvent recovery and VOC/solvent usage rates where VOC/solvent recovery is the only control equipment. Methods provided for in subdivision (b) or (c) of this section must be used.

(2) For any control equipment other than VOC/solvent recovery, this determination must include provisions to determine both the efficiency of the capture system and the control equipment. The approved VOC CE test methods are provided for in the following table. Methods 204 through 204F are provided for in

Appendix M of 40 CFR part 51 (see table 1, section 200.9 of the Title). The approved test methods for determining the efficiency of the control equipment are provided for in subdivision (f) of this section.

Approved VOC CE Test Methods

Protocol	***Enclosure Verification***	***Liquid Input(L)***	***Captured Emissions(G)***	***Fugitive Emissions (F) or (F_B)***	***CE Formula***
Permanent Total Enclosure	M204	NA	NA	NA	Assume 100%
Temporary Total Enclosure (gas / gas mass balance test)	M204	NA	M204B or M204C	M204D	G/(G + F)
Tempory Total Enclosure (liquid / gas mass balance test)	M204	M204A or M204F	NA	M204D	(L -F)/L
Building Enclosure (gas / gas mass balance test)	M204	NA	M204B or M204C	M204E	$G/(G + F_B)$
Building Enclosure (liquid / gas mass balance test)	M204	M204A or M204F	NA	M204E	$(L - F_B)/L$

Alternative CE protocols and test methods may be allowed if the data quality objective approach or lower confidence limit approach requirements are met in conjunction with the additional criteria set forth in the EPA guidance document entitled *Guidelines for Determining Capture Efficiency* (see table 1, section 200.9 of this Title). The alternative CE protocols and test methods must be approved in advance by the department. Also, the multiple line testing procedures outlined in the above guidance document can be used to determine CE if the applicable criteria are satisfied. The multiple line testing CE protocols and test methods must be approved in advance by the department.

(f) The owner and/or operator of a surface coating process must follow the applicable notification requirements, protocol requirements and test procedures of Part 202 of this Title for testing and monitoring. Depending upon conditions at a test site, one of the following test methods from Appendix A of 40 CFR part 60 (see Table 1, section 200.9 of this Title) must be used when measuring VOC concentrations of a gas stream at the inlet and outlet of a control device to determine the destruction and/or removal efficiency:

(1) Method 18, Measurement of Gaseous Organic Compound Emissions by Gas Chromatography;

(2) Method 25, Determination of Total Gaseous Organic Emissions as Carbon; or

(3) Method 25A, Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer.

(g) If an air cleaning device is used, continuous monitors for the following parameters must be installed, periodically calibrated, and operated when the associated control equipment is operating:

(1) exhaust gas temperature of all incinerators;

(2) temperature rise across catalytic incinerator bed;

(3) breakthrough of VOCs on a carbon adsorption unit; and

(4) any other continuous monitoring or recording device required by the department.

(h) Every owner or operator of a facility which is not subject to the VOC control requirements set forth in section 228-1.3 of this Subart because its annual potential to emit VOCs is below the thresholds set forth in section 228-1.1 of this Subpart must maintain records in a format acceptable to the department that verify the facility's annual potential to emit VOCs. Upon request, these records must be submitted to the department.

(i) For each ED calculation performed under section 228-1.3(d) of this Subpart, the owner or operator of the coating system must record the following and make the records available to the department upon request: the name or identification of each coating; the coating parameters used in Equation 7, the individual ED values for each coating, and the ED value calculated for the coating system.

(j) Any information or record showing noncompliance with the requirements of this Part must be reported to the department within 30 days following notice or generation of the information or record.

(k) All records required by this section must be maintained at the facility for a period of five years.

§228-1.6 Prohibition of sale or specification

(a) No person shall sell, specify, or require for use the application of a coating on a part or product at a facility with a coating line described in table 1 or 2 in section 228-1.7 or 228-1.8 of this Subpart if such use is prohibited by any of the provisions of this Part. The prohibition shall apply to all written or oral contracts under the terms of which any coating is to be applied to any part or product at an affected facility. This prohibition shall not apply to the following:

(1) coatings utilized at surface coating lines where control equipment has been installed to meet the maximum permitted VOC content limitations specified in tables 1 and 2 of section 228-1.7 or 228-1.8 of this Subpart;

(2) coatings utilized at surface coating lines where a coating system is used which meets the requirements specified in section 228-1.3(d) of this Subpart; and

(3) coatings utilized at surface coating lines that have been granted variances for reasons of technological and economic feasibility per section 228-1.3(e) of this Subpart.

(b) Any person selling a coating for use in a coating line subject to this Part must, upon request, provide the user with certification of the VOC content of the coating supplied.

§228-1.7 Table 1

Process	*Description of Products*	*Maximum permitted pounds of VOC per gallon (minus water and excluded VOC) of coating at application*
Large appliance coating lines	Residential and commercial washers, refrigerators, freezers, water heaters, dishwashers, trash compactors, and air conditioners.	2.8
Magnet wire insulation coating lines	Enameling or varnish of aluminum or copper wire for use in electrical machinery to create an electromagnetic field.	1.7
Metal furniture coating lines	Metal parts used in household, business and institutional furniture, including but not limited to: tables, chairs, wastebaskets, beds, lighting fixtures, shelves, room dividers, and bathroom dividers.	3.0
Metal can coating lines	Sheet basecoat-exterior and interior over-varnish	2.8
	Two-piece can exterior (basecoat and over-varnish)	2.8
	Two-and three-piece can interior body spray	4.2
	Two-piece can exterior end (spray or roll coat)	4.2
	Three-piece can side-seam spray	5.5
	End sealing compound	3.7
Fabric coating lines	Fabric coatings, including but limited to: rubber that is used for rainwear, tents, and industrial gaskets.	2.9
Vinyl coating lines	Printing, decorations or protecting coats over vinyl-coated fabric or vinyl sheets.	3.8
Paper coating lines	Paper, pressure-sensitive tape regardless of substance (including paper, fabric or plastic film) and related web coating processes on plastic film including, but not limited to: typewriter ribbons,	2.9

	photographic film, magnetic tape, metal foil gift wrap, and packaging.	
Automobile assembly coating lines	Automobiles and light-duty trucks, exterior and main body sheet metal parts, excluding nonmetallic parts.	
	Prime coat	1.9
	Primer-surface	2.8
	Top coats	2.8
	Repair coat	4.8
Coil coating lines	Flat metal sheet from a coil or roll which is coated and later used for items, including but not limited to: cans, appliances, roof decks, siding, cars, and gutters.	2.6
Coating lines for miscellaneous metal parts and products	Large farm machinery, small farm and garden machinery, small appliances, commercial and office machinery, computer equipment, industrial machinery, fabricated metal products and any other industrial category which coats miscellaneous metal machinery, instruments or equipment, excluding all nonmetallic parts.	
	Clear coatings	4.3
	Coating application system which is air dried or forced warm air dried at temperature up to 90°C	3.5
	Extreme performance coatings designed for harsh exposure or extreme environmental conditions	3.5
	All other miscellaneous metal parts and products coatings	3.0
Coating lines for flat wood surface finishing	Printed interior panels made of hardwood, plywood and thin particle board	2.5
	Natural finish hardwood plywood panels	3.3
	Hardboard paneling	3.6

§228-1.8 Table 2

Process	*Description of Products*	*Maximum permitted pounds of VOC per gallon (minus water and excluded VOC) of coating at application*
Wood coating lines	Coated room furnishings, including but not limited to:cabinets (kitchen, bath and vanity), tables, chairs, beds, sofas, shutters, art objects and any other coated product made of solid wood composition or wood material.	
	Semi-transparent stain	6.8
	Wash coat	6.1
	Opaque stain	4.7
	Sealer	5.6
	Pigmented coat	5.0
	Clear topcoat	5.6
Tablet coating lines	Formed pharmaceutical products, including but not limited to: pills and capsules.	5.5
Glass coating lines	Lamps, incandescent light bulbs and miscellaneous glass products.	3.0
	Fluorescent light bulbs.	4.1
Leather coating lines	Leather substrates, including but not limited to: clothing, furniture, and automobile components.	5.8
Miscellaneous plastic parts coating lines	Plastic parts and products including but not limited to: business and office machine parts, toys, sporting goods, architectural structures such as doors and window frames, automotive interior parts, automotive exterior parts (both flexible and rigid), musical equipment housings, and other miscellaneous plastic parts.	

	Color topcoat	3.8
	Clear coat	4.8
Aerospace coating lines	Aerospace components, including but not limited to: assembly parts or completed unit of any aircraft, helicopter or missile.	
	Primer	2.9
	Topcoat	5.1
	Maskant for chemical processing	5.1
(Effective until January 1, 2005) Motor vehicle refinishing coating line	Automobile, truck or bus coating, including but not limited to: repair coats, repainting and touch-ups, except at automobile assembly plants.	
	Repair/touch-ups	6.2
	Overall (coating entire vehicle)	5.0
(Effective January 1, 2005) Mobile equipment repair and refinishing or color-matched coating line	Including repainting and repair coats, excluding automotive touch-up repair:	
	Automotive pretreatment primer	6.5
	Automotive primer-surfacer	4.8
	Automotive primer-sealer	4.6
	Automotive topcoat:	
	Single stage-topcoat	5.0
	2 stage basecoat/clearcoat	5.0
	3 or 4-stage basecoat/clearcoat	5.2
	Multi-colored	5.7
	Automotive specialty	7.0
Urethane coating lines	Urethane substrates that are more than 50 micrometers (0.002 inches) thick, except for resilient floor covering and flexible	3.8

packaging.

§228-1.9 Products regulated

The "Process" and "Description of Products" columns in tables 1 and 2 of sections 228-1.7 and 228-1.8 of this Subpart may not contain all possible products in each coating line category. For any "Process" and "Description of Products" not specifically listed, the department will determine, based on inspections of the process, emission source, and product to be coated, the maximum permitted pounds of VOC per gallon, minus water and excluded VOC, of coating at application.

§228-1.10 Handling, storage and disposal of volatile organic compounds

Within the work area(s) associated with a coating line, the owner or operator of a facility subject to this Subpart must:

(a) use closed, non-leaking containers to store or dispose of cloth or other absorbent applicators impregnated with VOC solvents that are used for surface preparation, cleanup or coating removal;

(b) store in closed, non-leaking containers spent or fresh VOC solvents to be used for surface preparation, cleanup or coating removal;

(c) not use VOC solvents to cleanup spray equipment unless equipment is used to collect the cleaning compounds and to minimize VOC evaporation;

(d) not use open containers to store or dispense surface coatings and/or inks unless production, sampling, maintenance or inspection procedures require operational access. This provision does not apply to the actual device or equipment designed for the purpose of applying a coating material to a substrate. These devices may include, but are not limited to: spray guns, flow coaters, dip tanks, rollers, knife coaters, and extrusion coaters;

(e) not use open containers to store or dispose of spent surface coatings, or spent VOC solvents;

(f) minimize spills during the handling and transfer of coatings and VOC solvents; and

(g) beginning on January 1, 2005, clean spray guns used to apply mobile equipment repair and refinishing or color-matched coatings by one of the following:

(1) an enclosed spray gun cleaning system that is kept closed when not in use;

(2) non-atomized discharge of VOC solvent into a paint waste container that is kept closed when not in use;

(3) disassembling and cleaning of the spray gun in a vat that is kept closed when not in use; or

(4) atomized spray into a paint waste container that is fitted with a device designed to capture atomized VOC solvent emissions.