

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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**§228-1.1 Applicability and Exemptions.**

(a) *Applicability.* Except as provided for in subdivision (b) of this section, every owner or operator of a facility containing a coating line must comply with the provisions of this Subpart. All facilities which start-up after the effective date of this regulation must be in compliance upon start-up. All other subject facilities must be in compliance by the effective date of this regulation; or submit a schedule and plan to the department within three months of the effective date of this regulation. The schedule and plan must describe in detail how the facility will implement the applicable requirements of this Subpart, and include a compliance schedule outlining the specific dates the implementation measures will be completed. This schedule and plan must be implemented and bring the facility into compliance within nine months of the effective date of the regulation.

(1) Table 1 identifies the coating lines subject to this Subpart based on their potential to emit (PTE) or actual emissions of volatile organic compounds (VOCs), from all sources at the facility, regardless of process type, excluding combustion installations. The coating lines identified in table 1 must comply with the requirements set forth in this subpart, including any specific requirements applicable to the designated coating line class.

**Table 1 - Applicability**

Designation of Coating Line Class & Description of Coating Line	The following facilities, containing a corresponding coating line, are subject to this subpart:
<b>Class A Coating Line:</b>	
Mobile Equipment Repair and Refinishing or Color Matched Coating Lines	(i) All facilities regardless of location or their actual or potential to emit volatile organic compounds.
<b>Class B Coating Lines:</b>	

(1) Metal Furniture (2) Large Appliance (3) Flat Wood Paneling (4) Miscellaneous Metal Parts (5) Miscellaneous Plastic Parts (6) Auto/Transportation and Business Machine Plastic Parts (7) Marine pleasure craft surface (8) Motor vehicle materials (9) Automobile and Light Duty Truck Assembly	(i) All facilities located in the New York City metropolitan area, plus the Orange County towns of Blooming Grove, Chester, Highlands, Monroe, Tuxedo, Warwick, and Woodbury; and (ii) Facilities not located in the above counties and towns with actual process emissions greater than or equal to 3 tons of VOC per year.
<b>Class C Coating Line:</b>	
Wood Finishing	(i) All facilities located in the New York City metropolitan area, plus the Orange County towns of Blooming Grove, Chester, Highlands, Monroe, Tuxedo, Warwick, and Woodbury; and (ii) Facilities not located in the above counties and towns with PTE's greater than or equal to 25 tons of VOC per year.
<b>Class D Coating Lines:</b>	
Magnetic Wire Metal Cans Coil Vinyl Fabric Paper, Film and Foil	(i) All facilities located in the New York City metropolitan area, plus the Orange County towns of Blooming Grove, Chester, Highlands, Monroe, Tuxedo, Warwick, and Woodbury; and (ii) Facilities not located in the above counties and towns with PTE's greater than or equal to 10 tons of VOC per year.
<b>Class E Coating Lines:</b>	
Tablet (pharmaceutical) Glass Leather Aerospace	(i) All facilities located in the New York City metropolitan area, plus the Orange County towns of Blooming Grove, Chester, Highlands, Monroe, Tuxedo, Warwick, and Woodbury; and (ii) Facilities not located in the above counties and towns with PTE's greater than or equal to 50 tons of VOC per year.

(2) Coating lines not specifically listed in table 1 may also be subject to the requirements applicable to coating line classes A through E. The owner/operator of any "coating line" or "coating process" not specifically listed in table 1 of this section must contact the department's regional office, who will determine the applicable VOC control requirements of the coating process and the class of the coating line. The department's applicability determination will be based on a review of the facility, including but not limited to a review of any processes, emission sources, and/or products to be, or being, coated at the facility. For purposes of its review, the department may require a physical inspection of the facility.

(3) 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, or actual emissions of VOCs, for the facility later falls below the thresholds set forth in this Subdivision of this section.

(4) Coating lines not specifically identified in table 1 of paragraph (1) of this Subdivision or subject to class A through E requirements pursuant to paragraph (2) of this Subdivision need only comply with the 'General Requirements' provisions of section 228-1.3(a) through (d) of this Subpart, including opacity, recordkeeping, prohibition of sale, and handling, storage and disposal requirements.

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

(1) coating lines used in research and development processes which produce a product for study rather than eventual sale;

- (2) coating lines where coatings are applied manually (by hand or without the use of mechanical means) with a brush, roller, cloth or an aerosol spray can;
- (3) coating lines which apply clear or translucent coatings to clear or translucent plastic substrates utilized in the manufacture of back-lighted outdoor signs;
- (4) coating lines which apply clear and pearlescent coatings to plastic fashion items such as beads, buttons, buckles or other plastic accessories;
- (5) coating lines used in the manufacture of optical lenses at a facility whose annual potential to emit VOCs is 10 tons or less;
- (6) coating lines which apply reflective coatings to highway cones;
- (7) coating lines which apply electromagnetic interference/radio frequency interference (EMI/RFI) coatings on plastic electronic equipment to provide shielding against electromagnetic interference, radio frequency interference, or static charge;
- (8) coating lines which apply electric dissipating coatings used to rapidly dissipate a high voltage electric charge applied on plastic parts;
- (9) facility wide use of up to 55 gallons of coatings (or up to 400 pounds of actual VOC usage) on a 12-month rolling total. This exemption is contingent on the owner or operator of the facility maintaining records of such surface coatings, and maintaining compliance with all requirements of section 228-1.3, 'General Requirements', of this Subpart. Mobile equipment repair and refinishing or color matched coating lines do not qualify for this exemption;
- (10) mobile equipment repair and refinishing or color-matched coating lines where the person applying the coatings does not receive compensation;
- (11) coating lines which use powder coatings;
- (12) coating lines that are subject to Part 234 'Graphic Arts';
- (13) mobile equipment repair and refinishing or color-matched coating lines where the facility:
  - (i) applies coatings using one or more of the techniques specified in section 228-1.3(e)(3) of this Subpart that minimize VOC emissions;
  - (ii) cleans spray guns using techniques specified in Section 228-1.3(d)(7) of this Subpart that minimize VOC emissions;
  - (iii) uses coatings that do not exceed the appropriate VOC content limits in table A of section 228-1.4(a)(2) of this Subpart;
  - (iv) uses appropriate emission control measures;
  - (v) applies coatings to work areas that do not exceed 9.0 square feet unless the coating is applied within an enclosure which prevents the uncontrolled release of air contaminants to the outside atmosphere and operates using appropriate emission control measures; and

(vi) uses a quantity of coatings and cleaning solvents on an annual basis that does not exceed 55 gallons (or 400 pounds of actual VOC usage, from coatings and cleaning solutions) on a 12-month rolling total. This exemption is contingent on the owner or operator of the facility maintaining records of the coatings and cleaning materials used, and maintaining compliance with all requirements of section 228-1.3, 'General Requirements', of this Subpart.

## §228-1.2 Definitions

(a) To the extent that they do not conflict 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) *Adhesion prime*. A coating that is applied to a polyolefin part to promote the adhesion of a subsequent coating. An adhesion prime is clearly identified as an adhesion prime or adhesion promoter on its accompanying material safety data sheet.

(3) *Air-dried*. A coating that is cured at a temperature below 90°C (194°F).

(4) *Adhesive*. An adhesive, including glass bonding adhesive, used at an automobile or light-duty truck assembly coating facility, applied for the purpose of bonding two vehicle surfaces together without regard to the substrates involved.

(5) *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.

(6) *Antifoulant coating*. Any coating registered with the United States Environmental Protection Agency (EPA) as a pesticide under the Federal Insecticide, Fungicide, and Rodenticide Act (7 United States Code Section 136) and applied to the underwater portion of a marine pleasure craft to prevent or reduce the attachment of biological organisms.

(7) *Appropriate emission control measures*. Actions taken to prevent a coating lines operation from emitting air contaminants to the outdoor atmosphere of such quantity, characteristic or duration which are injurious to human, plant or animal life or to property, or which unreasonably interfere with the comfortable enjoyment of life or property. The actions taken may consist of mechanical measures (including but not limited to enclosures, exhaust stacks and filters) or operational procedures (including but not limited to controlling the work area, limiting the coating operations size and duration); or a combination of mechanical and operational measures.

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

(9) *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.

(10) *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 resolvable in its original VOC solvent.

- (11) *Automotive low-gloss coating*. A coating which exhibits a gloss reading less than or equal to 25 on a 60 degree gloss-meter.
- (12) *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.
- (13) *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.
- (14) *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.
- (15) *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.
- (16) *Automotive specialty coatings*. Coatings including but not limited to: elastomeric coatings, adhesion promoters, low-gloss coatings, bright metal trim repair coatings, jamming 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.
- (17) *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/or beautification.
- (18) *Automotive touch-up repair*. The application of automotive topcoat finish materials to cover minor finishing imperfections no greater than one inch in diameter.
- (19) *Baked coating*. A coating that is cured at a temperature at or above 90°C (194°F).
- (20) *Bedliner*. A multi-component coating, applied to a cargo bed after the application of a topcoat to provide additional durability and chip resistance.
- (21) *Black coating*. A coating which meets both of the following criteria:
- (i) Maximum lightness: 23 units.
  - (ii) Saturation: less than 2.8, where saturation equals the square root of  $A^2 + B^2$ .
- These criteria are based on Cielab color space, 0/45 geometry. For spherical geometry, specular included, maximum lightness is 33 units.
- (22) *Building enclosure*. A building, housing a process that meets the requirements of a temporary total enclosure. Method 204E of 40 CFR part 51, appendix M, must be 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).

- (23) *Business machine*. A device that uses electronic or mechanical methods to process information, perform calculations, print or copy information or convert sound into electrical impulses for transmission, including devices listed in Standard Industrial Classification (SIC) numbers 3572, 3573, 3574, 3579, and 3661 as well as photocopy machines, which is a subcategory of SIC number 3861 (see table 1, section 200.9 of this Title).
- (24) *Camouflage coating*. A coating used, principally by the military, to conceal equipment from detection.
- (25) *Capture efficiency (CE)*. The fraction of all VOC vapors generated by a coating line that is directed to a control device.
- (26) *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.
- (27) *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 results of an EPA reference method test will govern.
- (28) *Classic motor vehicle*. A motor vehicle that is more than 25 years old; or a motor vehicle which the Commissioner of the New York State Department of Motor Vehicle determines, has historical, classical or exhibition value, qualifying it for a historical registration pursuant to 15 NYCRR Part 23.
- (29) *Cavity wax*. A coating applied into the cavities of automobiles or light-duty trucks and motor vehicles primarily for the purpose of enhancing corrosion protection.
- (30) *Clear coating*. A coating which lacks color and opacity or is transparent and uses the undercoat as a reflectant base.
- (31) *Clear topcoat*. A 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.
- (32) *Clear wood finish*. A clear and semi-transparent topcoat applied to wood substrates of a pleasure craft to provide a transparent or translucent film.
- (33) *Coating Category*. Identifies a particular coating type based on its intended purpose within a coating line or the coating of a product; such as topcoats, clear coats, sealers, adhesives etc.
- (34) *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, sealers, adhesives, inks and maskants.
- (35) *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.
- (36) *Coating system*. A means of complying with VOC emission requirements by use of one or more surface coatings applied sequentially at the same coating line; which may also include the use of other control equipment.

- (37) *Coating process*. One or more coating lines and includes any methods of controlling VOC emissions and any operations in between coating lines.
- (38) *Color-matched 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.
- (39) *Container*. Any portable device in which a material is stored, transported, or otherwise handled.
- (40) *Curtain coating*. The application of a coating to an object by moving the object through a falling curtain of coating.
- (41) *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 Capture Efficiency (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).
- (42) *Deadener*. A coating, used on automobile, light duty trucks or motor vehicles, applied to selected vehicle surfaces primarily for the purpose of reducing the sound of road noise in the passenger compartment
- (43) *Dip coating*. The application of a coating by immersing an object into the coating.
- (44) *Drum*. Any cylindrical metal shipping container that is larger than 12 gallons capacity but no larger than 110 gallons capacity.
- (45) *Electric dissipating coating*. A coating that rapidly dissipates a high voltage electric charge.
- (46) *Electric-insulating varnish*. A non-convertible-type coating applied to electric motors, components of electric motors, or power transformers, to provide electrical, mechanical, and environmental protection or resistance.
- (47) *Electro deposition primer*. A process of applying a protective, corrosion-resistant primer on exterior and interior surfaces that provides thorough coverage of recessed areas. It is a dip coating method that uses an electrical field to apply or deposit the conductive coating onto the part. The object being painted acts as an electrode that is oppositely charged from the particles of paint in the dip tank; also referred to as E-Coat, Uni-Prime, and ELPO Primer.
- (48) *Electrostatic prep coat*. A coating that is applied to a plastic part solely to provide conductivity for the subsequent application of a prime, a topcoat, or other coating through the use of electrostatic application methods. An electrostatic prep coat shall be clearly identified as an electrostatic prep coat on its accompanying material safety data sheet.
- (49) *EMI/RFI shielding*. A coating used on electrical or electronic equipment to provide shielding against electromagnetic interference, radio frequency interference, or static discharge.
- (50) *Etching filler*. Is a coating that contains less than 23 percent solids by weight and at least 1/2-percent acid by weight, and is used instead of applying a pretreatment coating followed by a primer.
- (51) *Excluded compounds*. Any of the compounds expressly excluded from the definition of volatile organic compounds in section 200.1 of this Title.

(52) *Exterior siding*. This is flat wood paneling which may be made of solid wood, hardboard, or wafer board. Siding made of solid wood and hardboard is typically primed at the manufacturing facility and finished in the field, although some finishing may be performed during manufacturing on a limited basis.

(53) *Extreme high-gloss coating*. Is defined based on specific coating processes as follows:

(i) for *miscellaneous metal parts*, "miscellaneous plastic parts, large appliance, and metal furniture", a coating which shows at least 75 percent reflectance on a 60° meter; or

(ii) for "pleasure craft surface coatings", a coating which shows at least 95 percent reflectance on a 60° meter.

(54) *Extreme-performance coating*. A coating used on a metal or plastic surface formulated for and exposed to harsh environmental conditions, including but not limited to:

(i) chronic exposure to corrosive, caustic or acidic agents, chemicals, chemical fumes, chemical mixtures or solutions; or

(ii) repeated exposure to temperatures in excess of 121°C (250°F); or

(iii) repeated heavy abrasion, including mechanical wear and repeated scrubbing with industrial grade solvents, cleansers or scouring agents. *Extreme performance coatings* include, but are not limited to, coatings applied to locomotives, railroad cars, farm machinery, and heavy duty trucks.

(55) *Final repair (automobile and light-duty truck assembly)*. The operations performed and coating(s) applied to completely assembled motor vehicles or to parts that are not yet on a completely assembled vehicle to correct damage or imperfections in the coating. The curing of the coatings applied in these operations is accomplished at a lower temperature than that used for curing primer-surfacer and topcoat.

(56) *Finish primer/surface*. A coating applied with a wet film thickness of less than 10 millimeters prior to the application of a topcoat for purposes of providing corrosion resistance, adhesion of subsequent coatings, a moisture barrier, or promotion of a uniform surface necessary for filling in surface imperfections.

(57) *Flexible coating*. Any coating that is required to comply with engineering specifications for impact resistance, mandrel bend, or elongation as defined by the original equipment manufacturer.

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

(59) *Fog coat*. A coating that is applied to a plastic part for the purpose of color matching without masking a molded-in texture. A fog coat shall not be applied at a thickness of more than 0.5 millimeters of coating solids.

(60) *Gasket/gasket sealing material*. Is defined based on specific coating processes as follows:

(i) For "automobile or light-duty truck assembly gasket/gasket sealing material", a fluid, used at a coating facility, applied to coat a gasket or replace and perform the same function as a gasket. *Automobile and light-duty truck gasket/gasket sealing material* includes room temperature vulcanization (RTV) seal material.

(ii) For "motor vehicle gasket/gasket sealing material", a fluid, used at a facility that is not an automobile or light-duty truck assembly coating facility, applied to coat a gasket or replace and perform the same function as a gasket.

(61) *General, multi-component coating.* A coating requiring the addition of a separate reactive resin, commonly known as a catalyst or hardener, before application to form an acceptable dry film. It applies to any coating used in a specified coating line which is not otherwise identified by another coating category.

(62) *General, one-component coating.* A coating that is ready for application as it comes out of its container to form an acceptable dry film. A thinner, necessary to reduce the viscosity, is not considered a component. It applies to any coating used in a specified coating line which is not otherwise identified by another coating category.

(63) *Glass bonding primer.* A primer, used at a coating facility, applied to windshield or other glass, or to body openings, to prepare the glass or body opening for the application of glass bonding adhesives or the installation of adhesive bonded glass. *Automobile and light-duty truck glass bonding primer* includes glass bonding/cleaning primers that perform both functions (cleaning and priming of the windshield or other glass, or body openings) prior to the application of adhesive or the installation of adhesive bonded glass.

(64) *Gloss reducer.* A coating that is applied to a plastic part solely to reduce the shine of the part. A gloss reducer shall not be applied at a thickness of more than 0.5 millimeters of coating solids.

(65) *Heat-resistant coating.* A coating that must withstand a temperature of at least 204°C (400°F) during normal use.

(66) *High build primer surface.* A coating applied with a wet film thickness of 10 millimeters or more prior to the application of a topcoat for purposes of providing corrosion resistance, adhesion of subsequent coatings, or a moisture barrier, or promoting a uniform surface necessary for filling in surface imperfections.

(67) *High Bake.* A coating which is designed to cure only at temperatures of more than 90°C (194°F).

(68) *High gloss coating.* Any coating which achieves at least 85 percent reflectance on a 60° meter.

(69) *High volume low pressure spray.* A coating application method by means of a spray gun which operates between 0.1 and 10.0 pounds per square inch gauge air cap pressure.

(70) *In-line repair.* The operation performed and coating(s) applied to correct damage or imperfections in the topcoat on parts that are not yet on a completely assembled vehicle. The curing of the coatings applied in these operations is accomplished at essentially the same temperature as that used for curing the previously applied topcoat. It is also referred to as *high bake repair* or *high bake reprocess*. In-line repair is considered part of the topcoat operation.

(71) *Large appliance.* Any surface-coated metal range, oven, microwave oven, refrigerator, freezer, washer, dryer, dishwasher, water heater, or trash compactor manufactured for household, commercial, or recreational use; including any parts thereof.

(72) *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 capture efficiency 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).

(73) *Lubricating wax/compound.* A protective lubricating material, applied to vehicle hubs and hinges.

(74) *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 that 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.

(75) *Marine pleasure craft*. Vessels which are manufactured or operated primarily for recreational purposes, or leased, rented, or chartered to a person or business for recreational purposes. The owner or operator of such vessels shall be responsible for certifying that the intended use is for recreational purposes.

(76) *Marine pleasure craft coating*. Any marine coating, except unsaturated polyester resin (fiberglass) coatings, applied by brush, spray, roller, or other means to a pleasure craft.

(77) *Mask coating*. A thin film coating applied through a template to coat a small portion of a substrate.

(78) *Metal furniture coating*. One or more coatings applied to the surfaces of furniture or components of furniture constructed either entirely or partially from metal. *Metal furniture* includes, but is not limited to, the following types of products: household, office, institutional, laboratory, hospital, public building, restaurant, barber and beauty shop, and dental furniture; including their components. *Metal furniture* also includes office and store fixtures, partitions, shelving, lockers, lamps and lighting fixtures, and wastebaskets.

(79) *Metallic coating (miscellaneous metal parts, miscellaneous plastic parts, large appliance, and metal furniture)*. A coating which contains more than five grams of metal particles per liter of coating as applied. *Metal particles* are pieces of a pure elemental metal or a combination of elemental metals.

(80) *Military specification coating*. A coating which has a formulation approved by a United States Military Agency, for use on military equipment.

(81) *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.

(82) *Mold seal coating*. The initial coating applied to a new mold or a repaired mold to provide a smooth surface which, when coated with a mold release coating, prevents products from sticking to the mold.

(83) *Motor vehicle adhesive*. An adhesive, including glass bonding adhesive, used at a facility that is not an automobile or light-duty truck assembly coating facility, applied for the purpose of bonding two vehicle surfaces together without regard to the substrates involved.

(84) *Motor vehicle glass bonding primer*. A primer used at a facility that is not an automobile or light-duty truck assembly coating facility; applied to windshield or other glass, or to body openings, to prepare the glass or body opening for the application of glass bonding adhesives or the installation of adhesive bonded glass. It includes, cleaning primers that perform both functions (cleaning and priming of the windshield or other glass, or body openings) prior to the application of adhesive or the installation of adhesive bonded glass.

(85) *Motor vehicle weatherstrip adhesive*. An adhesive used at a facility that is not an automobile or light-duty truck assembly coating facility, applied to weatherstripping materials for the purpose of bonding the weatherstrip material to the surface of the vehicle.

(86) *Multi-colored coating*. A coating which exhibits more than one color when applied, and which means packaged in a single container and applied in a single coat.

(87) *Multi-component coating*. A coating requiring the addition of a separate reactive resin, commonly known as a catalyst or hardener, before application to form an acceptable dry film.

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

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

(90) *Optical coating*. A coating applied to an optical lens.

(91) *Overall removal efficiency*. The total reduction of volatile organic compound emissions attributable to the use of both the capture system and the control equipment.

(92) *Pan-backing coating*. A coating applied to the surface of pots, pans, or other cooking implements that are exposed directly to a flame or other heating elements.

(93) *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).

(94) *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.

(95) *Plastic parts*. 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, acrylic, cellulose, nylon, polycarbonate vinyls, xenoy, melamines, polyester (BMC), reaction injection molding, and polyurethanes. These also include composites such as fiberglass-reinforced plastics, which are comprised of thermosetting or thermoplastic resins and fibers, filaments, or fine powders.

(96) *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.

(97) *Pretreatment wash primer*. A coating which contains no more than 12 percent solids, by weight, and at least 1/2 percent acids, by weight; is used to provide surface etching; and is applied directly to fiberglass and metal surfaces to provide corrosion resistance and adhesion of subsequent coatings.

(98) *Pretreatment coating*. A coating which contains no more than 12 percent solids, by weight, and at least 1/2 percent acid, by weight; is used to provide surface etching, and is applied directly to metal surfaces to provide corrosion resistance, adhesion, and ease of stripping.

(99) *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.

(100) *Primer-surfacer*. An intermediate protective coating applied over the electro deposition primer and under the topcoat. *Primer-surfacer* may also be called guide coat or surfacer. Primer-surfacer operations may include other coatings including, but not limited to: anti-chip, lower-body anti-chip, chip resistant edge primer, spot primer, blackout, deadener, interior color, and basecoat replacement coating; that is (are) applied in the same spray booths.

(101) *Red Coating*. A coating which meets all of the following criteria:

(i) yellow limit: the hue of hostaperm scarlet.

(ii) blue limit: the hue of monastral red-violet.

(iii) lightness limit for metallics: 35 percent aluminum flake.

(iv) lightness limit for solids: 50 percent titanium dioxide white.

(v) solid reds: hue angle of -11 to 38 degrees and maximum lightness of 23 to 45 units.

(vi) metallic reds: hue angle of -16 to 35 degrees and maximum lightness of 28 to 45 units.

These criteria are based on Cielab color space, 0/45 geometry. For spherical geometry, specular included, the upper limit is 49 units.

(102) *Repair coating*. A coating used to re-coat portions of a previously coated product which has sustained mechanical damage to the coating following normal coating operations.

(103) *Resist coating*. A coating that is applied to a plastic part before metallic plating to prevent deposits of metal on portions of the plastic part.

(104) *Sealer*. Is defined based on specific coating processes as follows:

(i) *Automobile and light-duty truck assembly sealer*. A high viscosity material, used at an automobile or light-duty truck assembly coating facility, generally, but not always, applied in the paint shop after the body has received an electrodeposition primer coating and before the application of subsequent coatings (*e.g.*, primer-surfacer). The primary purpose of automobile and light-duty truck sealer is to fill body joints completely so that there is no intrusion of water, gases or corrosive materials into the passenger area of the body compartment. Such materials are also referred to as sealant, sealant primer, or caulk; or

(ii) *Motor vehicle sealer*. A high viscosity material, used at a facility that is not an automobile or light-duty truck assembly coating facility, generally, but not always, applied after the body has received an electrodeposition primer coating and before the application of subsequent coatings (e.g., primer-surfacer). The primary purpose of the sealer is to fill body joints completely so that there is no intrusion of water, gases or corrosive materials into the passenger area of the body compartment. Such materials are also referred to as sealant, sealant primer, or caulk.

(iii) *Wood finishing sealer*. A coating which contains binders that seal a wood surface prior to application of a subsequent coating.

(105) *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 it. Semi-transparent stains include but are not limited to sap stain, toner, non-grain raising stain, pad stain, spatter stain, and other semi-transparent stains.

(106) *Shock-free coating*. A coating applied to electrical components to protect the user from electric shock. The coating has characteristics of being of low capacitance and high resistance, and having resistance to breaking down under high voltage.

(107) *Silicone-release coating*. Any coating which contains silicone resin and is intended to prevent food from sticking to metal surfaces such as baking pans.

(108) *Solar-absorbant coating*. A coating which has as its prime purpose the absorption of solar radiation.

(109) *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.

(110) *Solids turnover ratio (R)*. The ratio of total volume of coating solids that is added to the electrodeposition primer (EDP) system in a calendar month divided by the total volume design capacity of the EDP system.

(111) *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 solvers, viscosity reducers, degreasing agents, or cleaning agents. Any excluded compound is not a solvent.

(112) *Stencil coating*. Is defined based on coating process as follows:

(i) For *miscellaneous metal and plastic parts stencil coating*, an ink or pigmented coating which is rolled or brushed onto a template or stamp; in order to add identifying letters, symbols and/or numbers.

(ii) For *automotive/transportation and business machine plastic parts surfaces stencil coating*, a coating that is applied over a stencil to a plastic part at a thickness of one millimeter or less of coating solids.

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

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

(115) *Texture coat*. A coating that is applied to a plastic part which, in its finished form, consists of discrete raised spots of the coating.

(116) *Tile-board*. A premium interior wall flat wood paneling product made of hardboard that is used in high moisture areas of the home such as kitchens and bathrooms. Specifically, tile-board meets the specifications for Class I hardboard as approved by the American National Standards Institute.

(117) *Topcoat*. Is defined based on coating process as follows:

(i) for *automobile or light-duty truck assembly topcoat*, the final coating system applied to provide the final color and/or a protective finish. The topcoat may be a monocoat color or basecoat/clearcoat system. In-line repair and two-tone are parts of topcoat. Topcoat operations may include other coating(s) (e.g., blackout, interior color, etc.) that is (are) applied in the same spray booth(s);

(ii) for *pleasure craft surface coating topcoat*, any final coating applied to the interior or exterior of a pleasure craft.

(iii) for *wood finishing topcoat*, any final coating applied to a wood or wood coated substrate.

(118) *Touch-up coating*. A coating used to cover minor coating imperfections appearing after the main coating operation.

(119) *Translucent coating*. A coating which contains binders and pigment, and is formulated to form a colored, but not opaque, film.

(120) *Trunk interior coating*. Is defined based on specific coating processes as follows:

(i) for *automobile or light-duty truck assembly trunk interior coating*, a coating, used at a coating facility outside of the primer-surfacer and topcoat operations, applied to the trunk interior to provide chip protection.

(ii) for *motor vehicle truck interior coating*, a coating, used at a facility that is not an automobile or light-duty truck assembly coating facility, applied to the trunk interior to provide chip protection.

(121) *Two-component coating*. A coating requiring the addition of a separate reactive resin, commonly known as a catalyst, before application to form an acceptable dry film.

(122) *Underbody coating*. A coating, applied to the undercarriage or firewall to prevent corrosion and/or provide chip protection.

(123) *Vacuum-metalized coating (miscellaneous metal and plastic parts)*. The undercoat applied to the substrate on which the metal is deposited or the overcoat applied directly to the metal film. *Vacuum metalizing/physical vapor deposition (PVD)* is the process whereby metal is vaporized and deposited on a substrate in a vacuum chamber.

(124) *Vacuum-metalized coating*. Topcoats and basecoats that are used in the vacuum-metalizing process.

(125) *VOC content limits.* The permissible weight of VOC per volume of coating minus water and excluded compounds at application as specified in the tables of section 228-1.4 of this Subpart. The actual VOC content of the as applied coating is calculated as follows:

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

where:

$(\text{VOC})_a$  is the VOC content of a coating, as applied, expressed as weight of VOC per volume of coating minus water and excluded compounds (keeping units consistent).

$(W_v)_a$  is the weight of total volatiles per volume of an as applied coating.

$(W_w)_a$  is the weight of water per volume of an as applied coating.

$(V_w)_a$  is the volume of water per volume of an as applied coating.

$(W_e)_a$  is the weight of excluded compounds per volume of an as applied coating.

$(V_e)_a$  is the volume of excluded compounds per volume of an as applied coating.

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

(127) *Weatherstrip adhesive.* An adhesive, used at an automobile or light-duty truck assembly coating facility, applied to weatherstripping materials for the purpose of bonding it to the surface of a vehicle.

(128) *Wood finishing.* Consists of the application of one or more coatings, colored or clear (including but not limited to: stains, toners, wash-coats, sealers, and topcoats), to wood products.

### §228-1.3 General requirements.

Any facility operating a coating line subject to this Subpart must comply with the following general requirements as specified.

#### (a) *Opacity*

(1) 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.

#### (b) *Recordkeeping*

(1) Except as provided for in paragraph (2) of this subdivision, 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/manufacture which lists the parameters used to determine the actual VOC content of each as applied coating 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 within 90 days of receiving the request. Any facility required to perform the overall removal efficiency calculation set forth in Equation 2 of section 228-1.5(c) of this Subpart, 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 90 percent. Any additional information required to determine compliance with this Part must be provided to the department in a format acceptable to the department. All records required by this paragraph must be maintained at the facility for a period of five years.

(2) Owners and operators of emission sources not subject to this Subpart as set forth in section 228-1.1(b)(9) or (13) of this Subpart, or those sources that are using coatings not subject to specific requirements of this Subpart as set forth in paragraph (e)(2) of this section, or section 228-1.4(b)(5)(iii)(e), (i) or (iv) of this Subpart, must maintain records on an as used basis. The records must include the relevant regulatory citation of each exemption and quantity of coating used. If the exemption criteria are based on VOC usage, the records must contain calculations and supplier/manufacturer material data sheets for verification of VOC usage. All records required by this paragraph must be maintained at the facility for a period of five years.

*(c) Prohibition of sale or specification.*

(1) No person shall sell, supply, offer for sale, solicit, use, specify, or require for use, the application of a coating on a part or product at a facility with a coating line described in section 228-1.1(a) of this Subpart if such sale, specification, or use is prohibited by any of the provisions of this Subpart. 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:

(i) coatings utilized at surface coating lines where control equipment has been installed to meet the maximum permitted VOC content limitations specified in the tables of section 228-1.4 of this Subpart;

(ii) coatings utilized at surface coating lines where a coating system is used which meets the requirements specified in section 228-1.5(d) of this Subpart; and

(iii) coatings utilized at surface coating lines that have been granted variances pursuant to section 228-1.5(e) of this Subpart.

(2) 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.

*(d) 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:

(1) 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;

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

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

(4) 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;

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

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

(7) clean hand held spray guns by one of the following:

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

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

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

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

(e) *General control requirements for the emission of VOCs.*

(1) Only facilities subject to this Subpart in accordance with section 228-1.1(a)(1) of this Subpart must comply with the compliant material requirements of section 228-1.4 of this Subpart.

(2) A facility containing a coating line (other than a class A coating line) may use up to 55 gallons of coatings (facility wide) on a 12-month rolling total basis which does not comply with the VOC content limits set forth in section 228-1.4 of this Subpart; provided such use is recorded in accordance with the requirements of paragraph 228-1.3(b)(2) of this section.

(3) Facilities operating a class A coating line or most class B coating lines, as specified in section 228-1.4 of this Subpart must use one or more of the following application techniques to apply the coating:

(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, (including air assisted);

(viii) airbrush application methods for stenciling, lettering, and other identification markings; or

(ix) other coating application methods approved by the department which can demonstrate transfer efficiencies equivalent to or greater than high volume low pressure spray.

**§228-1.4 Requirements for controlling VOC emissions using compliant materials.**

(a) *Class A coating line.* A facility performing a Class A coating process shall not operate unless the following strategies to control VOC emissions are used:

- (1) The facility must comply with the application technique requirements of section 228-1.3(e)(3) of this Subpart; and use appropriate emission control measures.
- (2) The facility operating a mobile equipment repair and refinishing or color-matched coating line may not use coatings with VOC contents, as applied, which exceed the limits specified in table A. The units in table A are in terms of pounds of VOC per gallon of coating (minus water and excluded compounds) at application.

**Table A Mobile Equipment Repair and Refinishing or Color-Matched Coating Lines**

Coating Category	VOC Content limits (lbs/gal)
Automotive Pretreatment primer	6.5
Automotive Primer-surfacer	4.8
Automobile Primer-sealer	4.6
Automotive Topcoats:	
Single stage-topcoat	5.0
2 Stage basecoat/clear coat	5.0
3 or 4 stage basecoat/clear coat	5.2
Automotive Multi-colored	5.7
Automotive Specialty	7.0

(3) The following equation (equation A) must be used to determine if a topcoat, containing two or more coatings, is in compliance with the VOC content limits specified in table A of this Subpart:

$$VOC_{multi} = \frac{VOC_{bc} + \sum_{i=0}^M VOC_{mci} + 2(VOC_{cc})}{M + 3} \quad \text{Equation A}$$

where:

VOC<sub>multi</sub> is the VOC content of an as applied multi-stage topcoat, expressed as pounds of VOC per gallon of coating minus water and excluded compounds.

VOC<sub>bc</sub> is the VOC content of the as applied basecoat, expressed as pounds of VOC per gallon of coating minus water and excluded compounds.

VOC<sub>mci</sub> is the VOC content of the as applied mid-coat(s), expressed as pounds of VOC per gallon of coating minus water and excluded compounds.

VOC<sub>cc</sub> is the VOC content of the as applied clear coat, expressed as pounds of VOC per gallon of coating minus water and excluded compounds.

M is the number of mid-coats.

(4) Anti-corrosive wax and heat resistant anti-corrosive coatings used in mobile equipment repair and refinishing are not subject to the VOC limitations of paragraph 228-1.4(a)(2) of this section or the application requirements of section 228-1.3(e)(3) of this Subpart.

(b) *Class B coating line.* Unless the appropriate emission control requirements of section 228-1.5 of this Subpart have been met or a process specific RACT variance has been granted in accordance with section 228-1.5(e) of this Part, a facility performing a class B coating process shall not operate unless the following strategies to control VOC emissions are used. The VOC content limits for class B coating lines can be met by averaging the VOC content of the materials used on a single surface coating unit each day ('i.e.', daily within- coating unit averaging).

(1) Metal furniture coatings.

(i) A facility applying *metal furniture coatings* must use application techniques as specified in section 228-1.3(e)(3) of this Subpart.

(ii) A facility applying *metal furniture coatings* may not use coatings with VOC contents, as applied, which exceed the limits specified in table B1. The facility must specify the use of baked or air dried limits for the purpose of compliance and recordkeeping. The units in table B1 are in terms of weight (kilograms or pounds) of VOC per volume (liters or gallons) of coating (minus water and excluded compounds) at application.

**Table B1 Metal Furniture Coating**

Coating Categories	VOC Content Limits			
	Baked		Air Dried	
	kg/l	lb/gal	kg/l	lb/gal
General, One Component	0.275	2.3	0.275	2.3
General, Multi-Component	0.275	2.3	0.340	2.8
Extreme High Gloss	0.360	3.0	0.340	2.8
Extreme Performance	0.360	3.0	0.420	3.5
Heat Resistant	0.360	3.0	0.420	3.5
Metallic	0.420	3.5	0.420	3.5
Pretreatment Coatings	0.420	3.5	0.420	3.5
Solar Absorbent	0.360	3.0	0.420	3.5

(iii) The following types of coatings and coating operations are exempt from the VOC content limits specified in Table B1:

- (a) stencil coatings;
- (b) safety-indicating coatings;
- (c) solid-film lubricants;
- (d) electric-insulating and thermal-conducting coatings;

- (e) touch-up and repair coatings; and
- (f) coating application utilizing hand-held aerosol cans.

(2) Large appliance coating

- (i) A facility applying *large appliance coatings* must use application techniques as specified in section 228-1.3(e)(3) of this Subpart.
- (ii) A facility applying *large appliance coatings* may not use coatings with VOC contents, as applied, which exceed the limits specified in table B2. The facility must specify the use of baked or air dried limits for the purpose of compliance and recordkeeping. The units in table B2 are in terms of (kilograms or pounds) of VOC per volume (liters or gallons) of coating (minus water and excluded compounds) at application.

**Table B2 Large Appliance Coatings**

Coating Categories	VOC Content Limits			
	Baked		Air Dried	
	kg/l	lb/gal	kg/l	lb/gal
General, One Component	0.275	2.3	0.275	2.3
General, Multi-Component	0.275	2.3	0.340	2.8
Extreme High Gloss	0.360	3.0	0.340	2.8
Extreme Performance	0.360	3.0	0.420	3.5
Heat Resistant	0.360	3.0	0.420	3.5
Metallic	0.420	3.5	0.420	3.5
Pretreatment Coatings	0.420	3.5	0.420	3.5
Solar Absorbent	0.360	3.0	0.420	3.5

(iii) The following types of coatings and coating operations are exempt from the VOC content limits of table B2:

- (a) stencil coatings;
- (b) safety-indicating coatings;
- (c) solid-film lubricants;
- (d) electric-insulating and thermal-conducting coatings;
- (e) touch-up and repair coatings; and
- (f) coating application utilizing hand-held aerosol cans.

(3) Flat wood paneling

- (i) A facility applying coatings in the production of *flat wood paneling* may not use coatings with VOC concentrations, as applied, which exceed the limits specified in table B3. The units in Table B3 are in terms of weight (grams or pounds) of VOC per volume (liters or gallons) of coating (minus water and excluded compounds) at application.

**Table B3 Flat Wood Paneling**

Coating Categories	VOC Content Limits	
	pounds VOC/ per gallon	grams VOC per liter
Printed interior panels made of hardwood, plywood, or thin particleboard	2.1	250
Natural finish hardwood plywood	2.1	250
Class II finishes on hardboard panels	2.1	250
Tileboard	2.1	250
Exterior siding	2.1	250

(4) Miscellaneous metal parts coatings

(i) A facility applying *miscellaneous metal parts coatings* must use application techniques as specified in section 228-1.3(e)(3) of this Subpart.

(ii) A facility applying *miscellaneous metal parts coatings* may not use coatings with VOC contents, as applied, which exceed the limits specified in table B4. The facility must specify the use of baked or air dried for the purpose of compliance and recordkeeping. All units in table B4 are in terms of weight (kilograms or pounds) of VOC per volume (liters or gallons) of coating (minus water and excluded compounds) at application.

**Table B4 Miscellaneous Metal Parts Coatings**

Coating Category	VOC Content Limits			
	Air Dried		Baked	
	kg VOC/l	lb VOC/gal	kg VOC/l	lb VOC/gal
General One-Component	0.34	2.8	0.28	2.3
General Multi-Component	0.34	2.8	0.28	2.3
Camouflage	0.42	3.5	0.42	3.5
Electric-Insulating Varnish	0.42	3.5	0.42	3.5
Etching Filler	0.42	3.5	0.42	3.5
Extreme High-Gloss	0.42	3.5	0.36	3.0
Extreme Performance	0.42	3.5	0.36	3.0
Heat-Resistant	0.42	3.5	0.36	3.0
High Performance Architectural	0.74	6.2	0.74	6.2
High Temperature	0.42	3.5	0.42	3.5
Metallic	0.42	3.5	0.42	3.5
Military Specification	0.34	2.8	0.28	2.3
Mold Seal	0.42	3.5	0.42	3.5
Pan Backing	0.42	3.5	0.42	3.5
Prefabricated Architectural Components	0.42	3.5	0.28	2.3
Pretreatment Coatings	0.42	3.5	0.42	3.5
Repair and Touch-up	0.42	3.5	0.36	3.0
Silicone Release	0.42	3.5	0.42	3.5
Solar-Absorbent	0.42	3.5	0.36	3.0
Vacuum-Metalizing	0.42	3.5	0.42	3.5
Drum Coating, New, Exterior	0.34	2.8	0.34	2.8
Drum Coating, New, Interior	0.42	3.5	0.42	3.5
Drum Coating, Reconditioned, Exterior	0.42	3.5	0.42	3.5

Drum Coating, Reconditioned, Interior	0.50	4.2	0.50	4.2
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(iii) For miscellaneous metal parts coating the following types of coatings and coating operations are exempt from the VOC content limits of table B4:

- (a) stencil coating;
- (b) safety-indicating coatings;
- (c) solid-film lubricants;
- (d) electric-insulating and thermal-conducting coatings;
- (e) magnetic data storage disk coatings; and
- (f) plastic extruded into metal parts to form a coating.

(5) Miscellaneous plastic parts coatings

(i) A facility applying *Miscellaneous Plastic Parts Coatings* must use application techniques as specified in section 228-1.3(e)(3) of this Subpart.

(ii) A facility applying *miscellaneous plastic parts coatings* may not use coatings with VOC contents, as applied, which exceed the limits specified in table B5. The units in table B5 are in terms of weight (kilograms or pounds) of VOC per volume (liters or gallons) of coating (minus water and excluded compounds) at application.

**Table B5 Miscellaneous Plastic Parts Coatings**

Coating Category	VOC Content Limit	
	Kg VOC/liter	lb VOC/gal
General one component	0.28	2.3
General Multi-Component	0.42	3.5
Electric Dissipating Coatings and Shok-Free Coatings	0.80	6.7
Extreme Performance	0.42 (2-pack coatings)	3.5 (2-pack coatings)
Metallic	0.42	3.5
Military Specification	0.34 (1-Pack) 0.42 (2-Pack)	2.8 (1-Pack) 3.5 (2-Pack)
Mold-Seal	0.76	6.3
Multi-colored Coatings	0.68	5.7
Optical Coatings	0.80	6.7
Vacuum-Metalizing	0.80	6.7

(iii) For miscellaneous plastic parts coating, the following types of coatings and coating operations are exempt from the VOC content limits of table B5:

- (a) touch-up and repair coatings;
- (b) stencil coatings applied on clear or transparent substrates;

- (c) clear or translucent coatings;
  - (d) coatings applied at a paint manufacturing facility while conducting performance tests on the coatings;
  - (e) Any individual coating category used in volumes less than 50 gallons in any 12 month period, if substitute compliant coatings are not available, provided that the total usage of all such coatings does not exceed 200 gallons in a 12 month period. Records of such coating must be maintained in accordance with section 228-1.3(b)(2) of this Subpart of the general requirements;
  - (f) reflective coating applied to highway cones;
  - (g) mask coatings that are less than 0.5 millimeters thick (dried) and the area coated is less than 25 square inches;
  - (h) EMI/RFI shielding coatings; and
  - (i) heparin-benzalkonium chloride (HBAC)-containing coatings applied to medical devices, provided that the total usage of all such coatings does not exceed 100 gallons in a 12 month period Records of such low use coating must be maintained in accordance with section 228-1.3(b)(2) of this Subpart of the general requirements.
- (iv) For miscellaneous plastic parts coating using an airbrush coating operation, the application requirements of section 228-1.3(e)(3) of this Subpart do not apply provided less than five gallons per 12-month period is used. Records of such coatings must be maintained in accordance with section 228-1.3(b)(2) of this Subpart of the general requirements.

(6) Automotive/transportation and business machine plastic parts coatings.

- (i) A facility applying automotive/transportation and business machine plastic parts coatings must use application techniques as specified in section 228-1.3(e)(3) of this Subpart.
- (ii) A facility applying coatings to automotive/transportation and business machine plastic parts may not use coatings with VOC contents, as applied, which exceed the limits specified in table B6. The units in table B6 are in terms of weight (kilograms or pounds) of VOC per volume (liters or gallons) of coating (minus water and excluded compounds) at application.

**Table B6 Automotive/Transportation and Business Machine Plastic Parts**

Coating Category	VOC Content Limits	
	Kg VOC/liter	Lbs VOC/gal
Automotive/Transportation Coatings		
High bake coatings- interior and exterior parts		
Flexible primer	0.54	4.5
Non-flexible primer	0.42	3.5
Base coats	0.52	4.3
Clear coats	0.48	4.0
Non base coat/clearcoat	0.52	4.3
Low bake /Air dried coatings-exterior Parts		
Primers	0.58	4.8
Basecoat	0.60	5.0

Clearcoats	0.54	4.5
Non base coat/clearcoat	0.60	5.0
Lowbake/ air dried coatings-interior parts	0.60	5.0
Touchup and repair coatings	0.62	5.2
Business Machine Coatings		
Primers	0.35	2.9
Topcoats	0.35	2.9
Texture coats	0.35	2.9
Fog coats	0.26	2.2
Touchup and repair	0.35	2.9

(iii) For coating Automotive/Transportation and Business Machine Plastic Parts, the following types of coatings and coating operations are exempt from the VOC content limits of table B6:

- (a) texture coatings;
- (b) vacuum metalizing coatings;
- (c) gloss reducers;
- (d) texture topcoats;
- (e) adhesion primers;
- (f) electrostatic preparation coatings;
- (g) resist coatings; and
- (h) stencil coatings.

(iv) For red, yellow and black automotive coatings, except touch up and repair coatings, the limits in table B6 may be multiplied by 1.15 for compliance.

(7) Marine pleasure craft surface coating.

(i) A facility applying marine pleasure craft surface coatings must use application techniques as specified in section 228-1.3(e)(3) of this Subpart.

(ii) A facility applying coatings to marine pleasure craft surfaces may not use coatings with VOC contents, as applied, which exceed the limits specified in table B7. The units in table B7 are in terms of weight (kilograms or pounds) of VOC per volume (liters or gallons) of coating (minus water and excluded compounds) at application.

**Table B7 Marine Pleasure Craft Surface Coating**

Coating Category	VOC Content Limits	
	Kg VOC/liter	Lbs VOC/gal
Extreme high gloss topcoat	0.49	4.1
High gloss topcoat	0.42	3.5
Pretreatment Wash Primers	0.78	6.5
Finish primer/surfacer	0.42	3.5
High build primer surface	0.34	2.8
Aluminum substrate antifoulant coating	0.56	4.7
Other substrate antifoulant coating	0.33	2.8
All other marine pleasure craft surface coatings for metal or plastic	0.42	3.5

(iii) When applying extreme high gloss coatings to marine pleasure craft surfaces, the application requirements of section 228-1.3(e)(3) of this Subpart do not apply.

(8) Motor vehicle material coatings.

(i) A facility applying motor vehicle material coatings must use application techniques as specified in section 228-1.3(e)(3) of this Subpart.

(ii) A facility applying motor vehicle material coatings may not use coatings with VOC contents, as applied, which exceed the limits specified in table B8. The units in table B8 are in terms of weight (kilograms or pounds) of VOC per volume (liters or gallons) of coating (minus water and excluded compounds) at application.

**Table B8 Motor Vehicle Materials**

Coating Category	VOC Content Limits	
	Kg VOC/liter	Lbs VOC/gal
Cavity wax (motor vehicle)	0.65	5.4
Sealer (motor vehicle)	0.65	5.4
Deadener (motor vehicle)	0.65	5.4
Gasket/gasket sealing material (motor vehicle)	0.20	1.7
Underbody coating (motor vehicle)	0.65	5.4
Trunk interior coating(motor vehicle)	0.65	5.4
Bed liner (motor vehicle)	0.20	1.7
Lubricating wax/compounds (motor vehicle)	0.70	5.8

(9) Automobile and light - duty truck assembly coatings.

(i) The facility applying coatings during automobile and light-duty truck assembly may not exceed the emission rate limits specified in table B9-1. The symbol "R" is the solids turnover solids turnover ratio; which means the ratio of the total volume of coating solids that is added to the electro deposition primer (EDP) system in a calendar month divided by the total volume design capacity of the EDP system.

**Table B9-1 Automobile and Light-Duty Truck Assembly**

Coating Categories	Required VOC Emission Limit		
	When solids turnover ratio (R) ≥ 0.16	When 0.04 ≤ R < 0.16	When 0.04 < R
Electro deposition primer (EDP) operations (including application area, spray/rinse stations, and curing ovens)	0.084 kg VOC/liter (lb/gal) coating solids applied	0.084X350 <sup>0.16-R</sup> kg VOC/liter (0.084X350 <sup>0.16-R</sup> X8.34 lb/gal) coating solids applied	No VOC emission limit
Primer-surfacer operations (including application area, flash-off area, and oven)	1.44 of VOC/liter of deposited solids (12.0 lbs VOC/gal deposited solids) on a daily weighted average basis as determined by following the procedures in the revised Automobile Topcoat Protocol (40 CFR Part 60, Subpart MM <i>Standards of performance for Automobile and Light-Duty Truck Surface Coating Operations or Protocol for Determining the Daily VOC emission Rate of Automobile and Light-Duty Truck Primer Surfacer and Topcoat Operations</i> (EPA-453/R-08-002)).		
Topcoat operations (including application area, flash-off area, and oven)	1.44 of VOC/liter of deposited solids (12.0 lbs VOC/gal deposited solids) on a daily weighted average basis as determined by following the procedures in the revised Automobile Topcoat Protocol.		
Combined primer-surfacer and topcoat operations	1.44 of VOC/liter of deposited solids (12.0 lbs VOC/gal deposited solids) on a daily weighted average basis as determined by following the procedures in the revised Automobile Topcoat Protocol.		
Final repair operations	0.58 kg/liter (4.8 lb/gal) of coating) less water and exempt compounds on a daily weighted average basis or as an occurrence weighted average.		

(ii) The facility applying coatings to miscellaneous materials at an automobile and light-duty truck assembly plant may not exceed the VOC content limits specified in table B9-2. The units in table B9-2 are in terms of weight (grams or pounds) of VOC per volume (liters or gallons) of coating (minus water and excluded compounds) at application.

**Table B9-2 Miscellaneous Materials at Automobile and Light-Duty Truck Assembly Facilities**

Coating Categories	VOC Content limit	
	g/l	lbs/gal
Glass bonding primer (automobile and light-duty truck)	900	7.51
Adhesives (automobile and light-duty truck)	250	2.09
Cavity wax (automobile and light-duty truck)	650	5.42
Sealer (automobile and light-duty truck)	650	5.42
Deadener (automobile and light-duty truck)	650	5.42
Gasket/gasket sealing material (automobile and light-duty truck)	200	1.67
Underbody coating (automobile and light-duty truck)	650	5.42
Trunk interior coating (automobile and light-duty truck)	650	5.42
Bedliner (automobile and light-duty truck)	200	1.67
Weatherstrip adhesive (automobile and light-duty truck)	750	6.26
Lubricating wax/compounds (automobile and light-duty truck)	700	5.84

(iii) Materials supplied in containers with a net volume of 16 ounces or less, or a net weight of one pound or less are exempt from the VOC content limits of table B9-2.

(iv) Anti-corrosive wax and heat resistant anti-corrosive coatings used in the manufacture of automobile door opening seams and floor pans, respectively are exempt from the VOC content limits of table B9-2.

(v) In addition to the handling storage and disposal requirements of section 228-1.3 "General requirements", of this Subpart, each facility with a State facility or title V permit which is performing automobile and light duty truck assembly coating must develop, and submit (with their permit application or renewal application) for department approval, a work practice plan to minimize VOC emissions from cleaning and from purging of equipment associated with all coating operations for which emission control requirements are specified in this Subpart. As a minimum, the plan must specify the practices and procedures to ensure that VOC emissions are minimized from the following operations:

- (a) vehicle body wiping;
- (b) coating line purging;
- (c) flushing of coating systems;
- (d) cleaning of spray booth grates, walls and equipment; and
- (e) cleaning external spray booth areas.

(c) *Class C coating Line, wood finishing.*

(1) Unless the appropriate emission control requirements of section 228-1.5 of this Subpart have been met or a process specific RACT variance has been granted in accordance with section 228-1.5(e) of this Subpart, a facility performing a class C coating process shall not operate unless the following strategies to control VOC emissions are used.

(2) A facility applying wood finishing coatings using a spray gun must use a high volume low pressure (HVL) spray gun except in the following instances:

- (i) the coating being applied emits less than 1.0 kg(lb) VOC per kg (lb) of solids used;
- (ii) for the touchup and repair;
- (iii) when the spray is automated;
- (iv) when add-on controls are employed; or
- (v) if the cumulative application is less than 5.0 percent of the total gallons of coating applied.

(3) A facility applying wood finishing coatings may use one of two approaches to comply with VOC content requirements. The facility may not use coatings with VOC contents greater than the limits specified in either table C-1 (Low VOC Topcoats) or table C-2 (High solids Sealers and Topcoats). The facility must specify which table (approach) it will be using for the purpose of compliance and record keeping. The units in tables C-1 and C-2 are in terms of weight (kilograms or pounds) of VOC per weight (kilograms or pounds) of applied, which exceed the limits specified in either table C-1 or table C-2.

**Table C-1  
Wood Finishing VOC Content Limit  
(Low VOC Topcoats)**

<b>Coating Categories</b>	<b>VOC content limit kg VOC/kg solids (lb VOC/lb solids)</b>
Topcoats	0.80

**Table C-2  
Wood Finishing VOC Content Limit  
(High solids Sealers & Topcoats)**

<b>Coating Categories</b>	<b>VOC content limit kg VOC/kg solids (lb VOC/lb solids)</b>
Sealer	1.9
Topcoat	1.8
Acid-cured alkyd amino vinyl sealers	2.3
Acid-cured alkyd amino conversion varnish sealers	2.0

(4) In addition to the handling storage and disposal requirements of section 228-1.3, "General requirements" of this Subpart each facility with a state facility or title V permit which is performing wood finishing operations must develop, and submit (with their permit application or renewal application) for department approval, a work practice plan to minimize VOC emissions from cleaning and process operations from all coating operations for which emission control requirements are specified in this Subpart. As a minimum, the plan must specify the practices and procedures to ensure that:

- (i) solvents are not being used for spray booth cleaning except when metal filters or conveyors are being cleaned or the spray booth is being refurbished;
- (ii) conventional air spray guns are not being used except as specified in paragraph (1) of this Subdivision;
- (iii) cleaning solvent from gun/line cleaning has been collected into a closed container; and the washoff tank is covered when not in use; and
- (iv) the use of wash off and cleaning solvents are tracked.

(d) *Class D Coating line.*

(1) Unless the appropriate emission control requirements of section 228-1.5 of this Subpart have been met or a process specific RACT variance has been granted in accordance with section 228-1.5(e) of this Subpart, a facility performing a class D coating process shall not operate unless the following strategies to control VOC emissions are used.

(2) The facility applying coatings to magnet wire, metal cans, coils, vinyl and fabric may not use coatings with VOC contents, as applied, which exceed the limits specified in table D-1. The units in table D-1 are in terms of pounds of VOC per gallon of coating (minus water and excluded compounds) at application.

**Table D-1  
Magnet Wire, Metal Can, Coil, Vinyl, and Fabric Coating Lines**

<b>Coating Lines</b>	<b>Description of Product or Coating Category</b>	<b>VOC Content Limit Lb VOC/ gal coating)</b>
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 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 compounds	3.7
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
Vinyl coating lines	Printing, decorations or protecting coats over vinyl-coated fabric or vinyl sheets.	3.8
Fabric coating lines	Fabric coatings, including but limited to: rubber that is used for rainwear, tents, and industrial gaskets.	2.9

(3) The facility applying coatings to paper film and foil may not use coatings with VOC contents, as applied, which exceed the limits specified in table D-2. The units in table D-2 are in terms of weight of VOC per weight of coating applied.

**Table D-2 Paper Film and Foil**

<b>Coating Categories</b>	<b>Kg VOC/kg coating or Lb VOC/lb coating</b>
Pressure sensitive tape and label surface coating	0.067
Paper, film, and foil	0.08

(i) The VOC content limits in table D-2 can be met by averaging the VOC content of the materials used on a single surface coating line (*i.e.* daily with-in-line averaging).

(ii) Materials used to form unsupported substrates, such as calendaring of vinyl, brown film, cast film, extruded film and co-extruded film are not considered coating for the purpose of table D-2.

(e) *Class E coating line.*

(1) Unless the appropriate emission control requirements of section 228-1.5 of this Subpart have been met or a process specific RACT variance has been granted in accordance with section 228-1.5(e) of this Subpart, a facility performing a class E coating process shall not operate unless the following conditions are met.

(2) The VOC content limits specified in table E must not be exceeded. Table E units are in terms of pounds of VOC per gallon of coating (minus water and excluded compounds) at application.

**Table E Tablet, Glass, Leather, Aerospace, Urethane**

Coating Category	VOC Content Limits Lb VOC/gal coating
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
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
Urethane coating lines	
Urethane substrates that are more than 50 micrometers (0.002 inches) thick, except for resilient floor covering and flexible packaging.	3.8

(3) 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 are not subject to the VOC limits of this section.

**§228-1.5 Requirements for controlling VOC emissions using add-on controls or coating systems.**

(a) Use of coatings that exceed the VOC content limits at application specified in the tables of section 228-1.4 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 a 90 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 that 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 a 90 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 90 percent or as determined by Equation 2.

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

where:

$\eta$  is the overall removal efficiency.

$(VOC)_c$  is the maximum permissible pounds of VOC per gallon of coating minus water and excluded compounds at application, as set forth in the tables of Section 228-1.4 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 compounds.

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

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

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

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

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

$$(V_n)_a = 1 - (V_v)_a \quad \text{Equation 5}$$

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

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

$d_{VOC}$  is the density of VOC as applied, *i.e.*, total volatiles minus water and excluded compounds, 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 equation 7 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.

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

where:

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

$\eta$  is the overall removal efficiency, expressed as:

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

where:

$\eta_c$  is the percent CE, as determined by section 228-1.6(d)(2) of this Subpart.

$\eta_d$  is the percent destruction and/or removal efficiency, as determined by section 228-1.6(d)(1) of this Subpart.

$\eta = 0$ , 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 section 228-1.6(d)(1) of this Subpart applies,  $\eta$  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.

**§228-1.6 Reports, sampling and analysis.**

(a) The owner and/or operator of any emission source subject to the VOC emission control requirements of this Subpart must, upon request by the department, use Method 311 or Method 24, included 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.

(b) When the sampling and analysis methods referenced in subdivision (a) or (e) or paragraph (d)(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.

(c) Representatives of the department must be permitted on the facility owner's property, during reasonable business hours, to obtain coating samples for the purpose of determining compliance with this Subpart.

(d) When an owner and/or operator of 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) The overall removal efficiency 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 (a) or (b) 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 contained in the following table. Test methods 204 through 204F (M204 - M204F) are

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

#### Approved VOC CE Test Methods

Protocol	Enclosure Verification	Liquid Input (L)	Captured Emissions (G)	Fugitive Emissions (F) or (FB)	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)
Temporary 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+FB)
Building Enclosure (liquid/gas mass balance test)	M204	M204A or M204F	NA	M204E	(L-FB)/L

(3) 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.

(e) The owner and/or operator of a surface coating line 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 contents 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.

(f) 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.

(g) For each emission differential (ED) calculation performed under section 228-1.5(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.

(h) 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.

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

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 228-2 COMMERCIAL AND INDUSTRIAL ADHESIVES, SEALANTS AND PRIMERS

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

*[Filed 5/6/13. Effective 30 days after filing.]*

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**§228-2.1 Applicability**

(a) Except as provided in section 228-2.2 of this Subpart, this Subpart applies to any person who, sells, supplies, offers for sale or manufactures for sale in the State of New York any commercial or industrial adhesive, sealant, adhesive primer or sealant primer for use in the State of New York.

(b) Except as provided in section 228-2.2 of this Subpart, this Subpart applies to any person who uses or applies, solicits, requires the use of or specifies the application of any commercial or industrial adhesive, sealant, adhesive primer, sealant primer, surface preparation solvent or cleanup solvent within the State of New York.

**§228-2.2 Exemptions**

(a) The requirements of this Subpart shall not apply to the use or sale of the following compounds:

- (1) adhesives, sealants, adhesive primers or sealant primers being tested or evaluated in any research and development, quality assurance or analytical laboratory, provided that records are maintained as required in section 228-2.5 of this Subpart;
- (2) adhesives, sealants, adhesive primers and sealant primers that are subject to Part 234, Part 235 or Subpart 228-1 of this Title;
- (3) adhesives and sealants that contain less than 20 grams of VOC per liter of adhesive or sealant, less water and less exempt compounds, as applied;

(4) cyanoacrylate adhesives; and

(5) except as provided in paragraph (2) of this Subdivision, adhesives, sealants, adhesive primers or sealant primers that are sold or supplied by the manufacturer or supplier in containers with a net volume of 16 fluid ounces or less, or a net weight of one pound or less, except plastic cement welding adhesives. If two or more containers are sold as a unit, the containers in such a unit shall total no more than 16 fluid ounces or one pound, as applicable, to qualify for this exemption; and

(6) except as provided in paragraph (2) of this Subdivision, contact bond adhesives that are sold or supplied by the manufacturer or supplier in a container with a net volume of one gallon or less.

(b) The requirements of this Subpart shall not apply to the use of adhesives, sealants, adhesive primers, sealant primers, surface preparation and cleanup solvents in the following operations:

(1) tire repair operations, provided the label of the adhesive states "For tire repair only";

(2) solvent welding operations used in the manufacture of medical devices; and

(3) plaque laminating operations in which adhesives are used to bond clear, polyester acetate laminate to wood with lamination equipment installed prior to July 1, 1992. Any person claiming exemption pursuant to this subparagraph shall record and maintain monthly operational records sufficient to allow the department to verify eligibility for the exemption and in accordance with section 228-2.5(c) of this Subpart.

(c) The VOC content limits in section 228-2.4(a) of this Subpart shall not apply to the use of the identified categories of compounds at the following facilities:

(1) Where the total VOC emissions from all adhesives, sealants, adhesive primers and sealant primers used at the facility are less than 200 pounds, or an equivalent volume, per year (12-month rolling total). Emissions from cold cleaning units, vapor degreasers and aerosol products shall not be included in determining the total VOC emissions.

(2) Where the total volume of commercial or industrial adhesives, sealants, adhesive primers, sealant primers, cleanup solvent and surface preparation solvent used facility-wide does not exceed 55 gallons per year (12-month rolling total).

(3) Any facility claiming the "low usage exemption" as described in paragraphs (1) and (2) of this subdivision shall record and maintain monthly operational records sufficient to demonstrate compliance with this exemption and in accordance with section 228-2.5(c) of this Subpart. Facilities must have information available, such as product name and description, product VOC content, product monthly volume, purchase orders, material safety data sheets, work orders, or contracts for review by the department that would allow the department to verify eligibility for the exemption.

(d) Except as provided in section 228-2.4(c) of this Subpart, a manufacturer or distributor who sells, supplies or offers for sale in the State of New York any commercial or industrial adhesive, sealant, adhesive primer or sealant primer shall not be required to comply with the VOC content limits specified in section 228-2.4(a) of this Subpart, provided that such manufacturer or distributor makes and keeps records demonstrating:

(1) the commercial or industrial adhesive, sealant, adhesive primer or sealant primer is intended for shipment and use outside of the State of New York;

(2) the manufacturer or distributor has taken reasonable precautions to assure that the adhesive, sealant, adhesive primer or sealant primer is not distributed to or within the State of New York; and

(3) the commercial or industrial adhesive, sealant, adhesive primer or sealant primer is sold to a facility achieving compliance by using add-on air pollution control equipment pursuant to section 228-2.4(c) of this Subpart.

(e) The exemption in subdivision (d) of this section shall not apply to any commercial or industrial adhesive, sealant, adhesive primer or sealant primer that is sold, supplied or offered for sale by any person to a retail outlet in the State of New York.

### §228-2.3 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) *Acrylonitrile-butadiene-styrene* or *ABS welding adhesive*. Any adhesive labeled to weld acrylonitrile-butadiene-styrene pipe, which is made by reacting monomers of acrylonitrile, butadiene and styrene.

(2) *Adhesive*. Any chemical substance that is applied for the purpose of bonding two surfaces together other than by mechanical means.

(3) *Adhesive primer*. Any product labeled for application to a substrate, prior to the application of an adhesive, to provide a bonding surface.

(4) *Aerosol adhesive*. An adhesive packaged as an aerosol product in which the spray mechanism is permanently housed in a non-refillable can designed for hand-held application without the need for ancillary hoses or spray equipment.

(5) *Architectural*. Architectural shall pertain to stationary structures, including mobile homes, and their appurtenances. Appurtenances to an architectural structure include, but are not limited to: hand railings, cabinets, bathroom and kitchen fixtures, fences, rain gutters and downspouts and windows.

(6) *Automotive glass adhesive sealer*. Any adhesive primer that improves adhesion to the pinch weld and blocks ultraviolet light and that is designed for application to automotive glass prior to installation with an adhesive/sealant.

(7) *Ceramic tile installation adhesive*. Any adhesive labeled for use in the installation of ceramic tiles.

(8) *Chlorinated polyvinyl chloride plastic* or *CPVC plastic*. A polymer of the vinyl chloride monomer that contains 67 percent chlorine.

(9) *Chlorinated polyvinyl chloride welding adhesive* or *CPVC welding adhesive*. Any adhesive designed for welding of polyvinyl chloride plastic.

(10) *Cleanup solvent*. A solvent used to remove excess adhesive, sealant, adhesive primer or sealant primer from a substrate.

(11) *Commercial adhesive*. An adhesive product that is sold or supplied by the manufacturer or supplier in containers with a net volume greater than 16 fluid ounces, or a net weight greater than one pound, and is not subject to Part 235 of this Title. *Commercial adhesives* do not include products that are incorporated

into or used exclusively in the manufacture or construction of the goods or commodities that are produced by the establishment.

(12) *Computer diskette jacket manufacturing adhesive*. Any adhesive designed to glue the fold-over flaps to the body of a vinyl computer diskette jacket.

(13) *Contact bond adhesive*. Any adhesive that forms an instantaneous, non-repositionable bond when substrates, on which the adhesive was applied and allowed to dry, are brought together using momentary pressure.

(14) *Cove base*. A flooring trim unit, generally made of vinyl or rubber, having a concave radius on one edge and a convex radius on the opposite edge that is used in forming a junction between the bottom wall course and the floor or to form an inside corner.

(15) *Cove base installation adhesive*. Any adhesive labeled for the installation of cove base or wall base on a wall or vertical surface at floor level.

(16) *Cyanoacrylate adhesive*. Any adhesive with a cyanoacrylate content of at least 95 percent by weight.

(17) *Dry wall installation*. The installation of gypsum dry wall to studs of solid surfaces using an adhesive labeled for that use.

(18) *Flexible vinyl*. Non-rigid polyvinyl chloride plastic with at least five percent by weight plasticizer content.

(19) *Fiberglass*. A material consisting of extremely fine glass fibers.

(20) *Indoor floor covering installation adhesive*. Any adhesive labeled for use in the installation of wood flooring, carpet, resilient tile, vinyl tile, vinyl backed carpet, resilient sheet and roll or artificial grass. Adhesives used to install ceramic tile and perimeter bonded sheet flooring are not indoor floor covering installation adhesives.

(21) *Industrial adhesive*. A product category which includes adhesives (including adhesive primers used in conjunction with certain types of adhesives) used at industrial manufacturing and repair facilities for a wide variety of products and equipment that operate adhesives application processes.

(22) *Industrial adhesive application processes*. *Industrial adhesive application processes* shall include the application of the adhesives, sealants, adhesive primers or sealant primers listed in table 1 of this Subpart and shall also include the application of other materials used for the same purposes contained in the definitions of each adhesive, sealant, adhesive primer and sealant primer in this section.

(23) *Laminate*. A material made by bonding two or more sheets or layers.

(24) *Low-solids adhesive, sealant or primer*. Any product that contains 120 grams or less of solids per liter of material.

(25) *Marine deck sealant or marine deck sealant primer*. Any sealant or sealant primer labeled for application to wooden marine decks.

(26) *Metal to urethane/rubber molding or casting adhesive*. Any adhesive labeled to bond metal to high density or elastomeric urethane or molded rubber materials, in heater molding or casting processes, to fabricate products such as rollers for computer printers or other paper handling equipment.

- (27) *Multipurpose construction adhesive*. Any adhesive labeled for use in the installation or repair of various construction materials, including but not limited to drywall, subfloor, panel, fiberglass reinforced plastic (FRP), ceiling tile and acoustical tile.
- (28) *Non-membrane roof installation/repair adhesive*. Any adhesive labeled for use in the installation or repair of non-membrane roofs and that is not intended for the installation of prefabricated single-ply flexible roofing membrane, including, but not limited to, plastic or asphalt roof cement, asphalt roof coating and cold application cement.
- (29) *Outdoor floor covering installation adhesive*. Any adhesive labeled for use in the installation of floor covering that is not in an enclosure and that is exposed to ambient weather conditions during normal use.
- (30) *Panel installation*. The installation of plywood, pre-decorated hardboard (or tileboard), fiberglass reinforced plastic, and similar pre-decorated or non-decorated panels to studs or solid surfaces using an adhesive formulated for that purpose.
- (31) *Perimeter bonded sheet flooring installation*. The installation of sheet flooring with vinyl backing onto a nonporous substrate using an adhesive designed to be applied only to a strip of up to four inches wide around the perimeter of the sheet flooring.
- (32) *Plastic cement welding adhesive*. Any adhesive labeled for use to dissolve the surface of plastic to form a bond between mating surfaces.
- (33) *Plastic cement welding primer*. Any primer labeled for use to prepare plastic substrates prior to bonding or welding.
- (34) *Plastic foam*. Foam constructed of plastics.
- (35) *Plasticizer*. A material, such as a high boiling point organic solvent, that is added into a hard plastic to provide a desired flexibility or pliability.
- (36) *Plastics*. Any of various organic compounds produced by polymerization, capable of being molded, extruded, cast into various shapes and films or drawn into filaments.
- (37) *Polyvinyl chloride plastic or PVC plastic*. A polymer of the chlorinated vinyl monomer that contains 57 percent chlorine.
- (38) *Polyvinyl chloride welding adhesive or PVC welding adhesive*. Any adhesive labeled for use in the welding of PVC plastic pipe.
- (39) *Porous material*. A substance that has tiny openings, often microscopic, in which fluids may be absorbed or discharged, including, but not limited to, wood, paper and corrugated paperboard.
- (40) *Propellant*. A fluid under pressure that expels the contents of a container when a valve is opened.
- (41) *Reactive diluent*. A liquid that is a reactive organic compound during application and one in that, through chemical and/or physical reactions, such as polymerization, 20 percent or more of the reactive organic compound becomes an integral part of a finished material.
- (42) *Retail outlet*. Any establishment at which adhesives, sealants and primers are sold, supplied, or offered for sale directly to consumers.

- (43) *Roadway sealant*. Any sealant labeled for application to public streets, highways and other surfaces, including but not limited to curbs, berms, driveways and parking lots. Asphalt-based surface coating is regulated pursuant to Part 241 of this Title.
- (44) *Rubber*. Any natural or manmade rubber substrate, including but not limited to, styrene-butadiene rubber, polychloroprene (neoprene), butyl rubber, nitrile rubber, chlorosulfonated polyethylene and ethylene propylene diene terpolymer.
- (45) *Sealant primer*. Any product labeled for application to a substrate, prior to the application of a sealant, to enhance the bonding surface.
- (46) *Sealant*. Any material with adhesive properties that is formulated primarily to fill, seal, waterproof or weatherproof gaps or joints between two surfaces. Sealants include sealant primers and caulks.
- (47) *Sheet-applied rubber installation*. The process of applying sheet rubber liners by hand to metal or plastic substrates to protect the underlying substrate from corrosion or abrasion, inclusive of the process of laminating sheet rubber to fabric by hand.
- (48) *Single-ply roof membrane*. A prefabricated single sheet of rubber, normally ethylene-propylenediene terpolymer, that is field applied to a building roof using one layer of membrane material.
- (49) *Single-ply roof membrane installation and repair adhesive*. Any adhesive labeled for use in the installation or repair of single-ply roof membrane. Installation includes, as a minimum, attaching the edge of the membrane to the edge of the roof and applying flashings to vents, pipes and ducts that protrude through the membrane. Repair includes gluing the edges of torn membrane together, attaching a patch over a hole and reapplying flashings to vents, pipes or ducts installed through the membrane.
- (50) *Single-ply roof membrane adhesive primer*. Any primer labeled for use to clean and promote adhesion of the single-ply roof membrane seams or splices prior to bonding.
- (51) *Single-ply roof membrane sealant*. Any sealant labeled for application to single-ply roof membrane.
- (52) *Solvent*. Organic compounds that are used as diluents, thinners, solvents, viscosity reducers, cleaning agents or other related uses.
- (53) *Structural glazing adhesive*. Any adhesive labeled to apply glass, ceramic, metal, stone or composite panels to exterior building frames.
- (54) *Subfloor installation*. The installation of subflooring material over floor joists, including the construction of any load bearing joists.
- (55) *Surface preparation solvent*. A solvent used to remove dirt, oil and other contaminants from a substrate prior to the application of a primer, adhesive or sealant.
- (56) *Thin metal laminating adhesive*. Any adhesive labeled for use in bonding multiple layers of metal to metal or metal to plastic in the production of electronic or magnetic components in which the thickness of the bond line(s) is less than 0.25 mils.
- (57) *Tire repair*. A process that includes expanding a hole, tear, fissure or blemish in a tire casing by grinding or gouging, applying adhesive and filling the hole or crevice with rubber.

(58) *Tire tread adhesive.* Any adhesive labeled for application to the back of precure tread rubber and to the casing and cushion rubber. Tire tread adhesive may also be used to seal buffed tire casings to prevent oxidation while the tire is being prepared for a new tread.

(59) *Traffic marking tape.* Preformed reflective film labeled for application to public streets, highways and other surfaces, including but not limited to curbs, berms, driveways and parking lots.

(60) *Traffic marking tape adhesive primer.* Any primer labeled for application to surfaces prior to installation of traffic marking tape.

(61) *Waterproof resorcinol glue.* A two-part resorcinol-resin-based adhesive designed for applications where the bond line must be resistant to conditions of continuous immersion in fresh or salt water.

**§228-2.4 Requirements**

(a) *VOC content limits.* Except as provided in section 228-2.2 of this Subpart, no person shall use, apply, solicit, require the use of, specify the application of, sell, supply, offer for sale, or manufacture for sale in the State of New York any commercial or industrial adhesive, sealant, adhesive primer or sealant primer unless such adhesive, sealant, adhesive primer or sealant primer complies with the applicable VOC content limits specified in table 1 of this subdivision and the applicable requirements of this Subpart. For adhesives applied to the listed substrates, the VOC content limits in table 1 of this subdivision apply as follows:

- (1) if an operator uses a commercial or industrial adhesive or sealant subject to a specific VOC content limit for such adhesive or sealant in table 1 of this subdivision, such specific limit is applicable rather than an adhesive-to-listed-substrate limit; and
- (2) if an adhesive is used to bond dissimilar substrates together, the applicable substrate category with the highest VOC content shall be the limit for such use.

**Table 1. VOC Content Limits for Adhesives, Sealants, Adhesive Primers, Sealant Primers and Adhesives Applied to the Listed Substrates**

<b>Adhesive, sealant, adhesive primer or sealant primer category</b>	<b>VOC content limit (grams per liter)</b>
Adhesives	
ABS welding	400
Ceramic tile installation	130
Computer diskette jacket manufacturing	850
Contact bond	250
Contact bond -- specialty substrate	250
Cove base installation	150
CPVC welding	490
Indoor floor covering installation	150
Metal to urethane/rubber molding or casting	850
Multipurpose construction	200
Nonmembrane roof installation/repair	300
Other plastic cement welding	510
Outdoor floor covering installation	250
PVC welding	510
Single-ply roof membrane installation/repair	250

Structural glazing	100
Thin metal laminating	780
Tire retread	100
Perimeter bonded sheet vinyl flooring installation	660
Waterproof resorcinol glue	170
Sheet-applied rubber installation	850
Sealants	
Architectural	250
Marine deck	760
Nonmembrane roof installation/repair	300
Roadway	250
Single-ply roof membrane	450
Other	420
Adhesive Primers	
Automotive glass	700
Plastic cement welding	650
Single-ply roof membrane	250
Traffic marking tape	150
Other	250
Sealant Primers	
Non-porous architectural	250
Porous architectural	775
Marine deck	760
Other	750
Adhesives Applied to the Listed Substrate	
Flexible vinyl	250
Fiberglass	200
Metal	30
Porous material	120
Rubber	250
Other substrates	250

(b) *Surface preparation and cleanup solvents.* Except as provided in section 228-2.2 of this Subpart, no person shall use or apply, solicit, require the use of or specify the application of any surface preparation or clean-up solvent within the State of New York if such use or application results in a violation of the provisions of this Subpart. Any person using a surface preparation or cleanup solvent shall:

(1) except as provided in paragraph (2) of this subdivision for single-ply roofing, limit the VOC content of surface preparation solvent used to less than 70 grams per liter;

(2) if a surface preparation solvent is used in applying single-ply roofing, the composite vapor pressure, excluding water and exempt compounds, of the surface preparation solvent used, shall not exceed 45 mm Hg at 20° C;

(3) except as provided in paragraph (4) of this subdivision, limit the composite vapor pressure of a cleanup solvent to less than 45 mm Hg at 20° C; and

(4) perform the removal of a commercial or industrial adhesive, sealant, adhesive primer or sealant primer from the parts of spray application equipment as follows:

(i) in an enclosed cleaning system, or equivalent cleaning system as determined by the test method identified in section 228-2.6(h) of this Subpart;

(ii) using a solvent with a VOC content less than or equal to 70 grams of VOC per liter of material; and

(iii) parts containing dried adhesive may be soaked in a solvent if the composite vapor pressure of the solvent, excluding water and exempt compounds, is less than or equal to 9.5 mm Hg at 20° C and the parts and solvent are in a closed container that remains closed except when adding parts to or removing parts from the container.

(c) *Emission control equipment.* As an alternative to utilizing materials that comply with the VOC content limits in subdivision (a) of this section, a person may achieve compliance by using add-on air pollution control equipment if such equipment meets the following requirements:

- (1) the VOC emissions from the use of all adhesives, sealants, adhesive primers or sealant primers subject to this Subpart are reduced by an overall capture and control efficiency of at least 85 percent, by weight;
- (2) the combustion temperature is monitored continuously if a thermal oxidizer is operated;
- (3) inlet and exhaust gas temperatures are monitored continuously if a catalytic oxidizer is operated;
- (4) control device efficiency is monitored continuously if a carbon absorber or control device other than a thermal or catalytic oxidizer is operated; and
- (5) operation records sufficient to demonstrate compliance with the requirements of this subdivision are maintained as required by section 228-2.5 of this Subpart.

(d) *Work practices.* Work practices shall be employed at facilities where the total actual VOC emissions from all industrial adhesive application processes, including related cleaning activities, equal or exceed three tons in a 12-month rolling period, before consideration of emission control equipment. *Work practices* shall include:

- (1) the following types of application equipment, with the use of low-VOC adhesives or adhesive primers: electrostatic spray; HVLP spray; flow coat; roll coat or hand application, including non-spray application methods similar to hand or mechanically powered caulking gun, brush, or direct hand application; dip coat (including electrodeposition); airless spray; air-assisted airless spray; any other adhesive application method, subject to department approval, capable of achieving a transfer efficiency equivalent to or better than that achieved by HVLP spraying;
- (2) the following work practices for storage, mixing operations, and handling operations for adhesives, thinners, and adhesive-related waste materials that:
  - (i) store all VOC-containing adhesives, adhesive primers, and process related waste materials in closed containers;
  - (ii) ensure that mixing and storage containers used for VOC-containing adhesives, adhesive primers, and process related waste materials are kept closed at all times except when depositing or removing these materials;
  - (iii) minimize spills of VOC-containing adhesives, adhesive primers, and process related waste materials; and
  - (iv) convey VOC-containing adhesives, adhesive primers, and process related waste materials from one location to another in closed containers or pipes.

(3) the following work practices to reduce VOC emissions from cleaning materials used in industrial adhesive application processes that:

- (i) store all VOC-containing cleaning materials and used shop towels in closed containers;
- (ii) ensure that storage containers used for VOC-containing materials are kept closed at all times except when depositing or removing these materials;
- (iii) minimize spills of VOC-containing cleaning materials;
- (iv) convey VOC-containing cleaning materials from one location to another in closed containers or pipes; and
- (v) minimize VOC emission from cleaning of application, storage, mixing, and conveying equipment by ensuring that equipment cleaning is performed without atomizing the cleaning solvent and all spent solvent is captured in closed containers.

(e) *Process-specific RACT demonstrations.*

(1) The department may allow industrial adhesive application processes to operate with a lesser degree of control than is required by subdivisions (a), (b) and (c) of this section, provided the applicant makes a process specific reasonably available control technology (RACT) demonstration to the satisfaction of the department. Such process-specific RACT demonstrations must address the technical and economic feasibility of:

- (i) utilizing compliant adhesives, sealants and coatings;
- (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) Department approved process-specific RACT demonstrations under this subdivision shall be submitted to the EPA administrator for approval as State Implementation Plan revisions.

#### **§228-2.5 Administrative requirements**

(a) Each owner or operator of an emission source where a product subject to a VOC content limit in section 228-2.4(a) of this Subpart is used shall maintain records demonstrating compliance with the VOC content limits of this Subpart, including, but not limited to, the following information:

- (1) a list of each commercial and industrial adhesive, sealant, adhesive primer, sealant primer cleanup solvent and surface preparation solvent in use and in storage at the facility;
- (2) identification of each product by product name and description;

- (3) the VOC content of each product as supplied;
- (4) the mix ratio of any catalysts, reducers or other components used;
- (5) the final VOC content or vapor pressure, as applied; and
- (6) the monthly volume of each commercial or industrial adhesive, sealant, adhesive primer, sealant primer, cleanup or surface preparation solvent used at the facility.

(b) Any owner or operator of an emission source that complies with the VOC content limits in section 228-2.4(a) of this Subpart through the use of add-on air pollution control equipment shall record the key operating parameters for the control equipment, including but not limited to, the following information:

- (1) the volume used per day of each adhesive, sealant, adhesive primer, sealant primer or solvent listed in table 1 of section 228-2.4(a) of this Subpart;
- (2) on a daily basis, the combustion temperature, inlet and exhaust gas temperatures and control device efficiency, as appropriate, pursuant to section 228-2.4(c) of this Subpart;
- (3) daily hours of operation; and
- (4) all maintenance performed including the date and type of maintenance.

(c) All records made to determine compliance with this Subpart shall be maintained for five years from the date such record is created and shall be made available to the department within 90 days of a request.

(d) For adhesives, sealants, adhesive primers and sealant primers subject to the laboratory testing exemption pursuant to section 228-2.2(a)(1) of this Subpart, the person conducting the testing shall make and maintain records of all such materials used, including, but not limited to, the product name, the product category of the material or type of application and the VOC content of each material.

#### **§228-2.6 Compliance procedures and test methods**

(a) Except as provided in sections 228-2.2, 228-2.4 and 228-2.5 of this Subpart, the VOC and solids content of all non-aerosol adhesives, adhesive primers and cleanup solvents shall be determined using U.S. EPA Reference Method 24, as identified in 40 CFR 60, appendix A, or SCAQMD Method 304-91.

(b) The organic content of exempt organic compounds shall be determined using ASTM D4457-02.

(c) The VOC content of any plastic welding cement adhesive or primer shall be determined using SCAQMD Method 316A-92.

(d) To determine if a diluent is a reactive diluent, the percent of the reactive organic compound that becomes an integral part of the finished materials shall be determined using SCAQMD Method 316A-92.

(e) The composite vapor pressure of organic compounds in cleaning materials shall be determined by quantifying the amount of each compound in the blend using gas chromatographic analysis ASTM E 260-96 (2006) for organics and ASTM D3792-05 for water content, as applicable, and the following equation:

$$P_{pc} = \left[ \sum_{i=1}^n (W_i)(V_{pi}) / M_{wi} \right] / \left[ (W_w / M_{ww}) + \sum_{i=1}^n (W_e / M_{we}) + \sum_{i=1}^n (W_i / M_{wi}) \right]$$

Where:

$P_{pc}$  = VOC composite partial pressure at 20° C, in mm Hg.

$W_i$  = Weight of the "i"th VOC compound, in grams, as determined by ASTM E 260-96.

$W_w$  = Weight of water, in grams as determined by ASTM D 3792-05.

$W_e$  = Weight of the "i"th exempt compound, in grams, as determined by ASTM E 260-96.

$M_{wi}$  = Molecular weight of the "i"th VOC compound, in grams per g-mole, as given in chemical reference literature.

$M_{ww}$  = Molecular weight of water, 18 grams per g-mole.

$M_{we}$  = Molecular weight of the "i"th exempt compound, in grams per g-mole, as given in chemical reference literature.

$V_{pi}$  = Vapor pressure of the "i"th VOC compound at 20° C, in mm Hg, as determined by subdivision (f) of this section.

(f) The vapor pressure of each single component compound may be determined from ASTM D2879-97 or may be obtained from a source approved by SCAQMD, other California air districts, or the department.

(g) If air pollution control equipment is used to meet the requirements of this Subpart, the owner or operator shall make the following determinations:

(1) the measurement of capture efficiency shall be conducted and reported in accordance with the EPA Technical Document Guidelines for Determining Capture Efficiency, issued January 9, 1995; and

(2) the control efficiency shall be determined in accordance with U.S. EPA Reference Methods 25, 25A, and 25B found at 40 CFR part 60 appendix A, and CARB Method 100.

(h) The active and passive solvent losses from spray gun cleaning systems shall be determined using SCAQMD's 'General Test Method for Determining Solvent Losses from Spray Gun Cleaning Systems', dated October 3, 1989. The test solvent for this determination shall be any lacquer thinner with a minimum vapor pressure of 105 mm of Hg at 20° C, and the minimum test temperature shall be 15° C.

(i) For adhesives that do not contain reactive diluents, grams of VOC per liter of adhesive, less water and exempt compounds, shall be calculated according to the following equation:

$$\text{Grams of VOC per liter of adhesive} = \frac{W_s - W_w - W_e}{V_m - V_w - V_e}$$

Where:

$W_s$  = weight of volatile compounds, in grams.

$W_w$  = weight of water, in grams.

$W_e$  = weight of exempt compounds, in grams.

$V_m$  = volume of material, in liters.

$V_w$  = volume of water, in liters.

$V_e$  = volume of exempt compounds, in liters.

(j) For adhesives that contain reactive diluents, the VOC content of the adhesive is determined after curing. The grams of VOC per liter of adhesive, less water and exempt compounds, shall be calculated according to the following equation:

$$\text{Grams of VOC per liter of adhesive} = \frac{W_{rs} - W_{rw} - W_{re}}{V_{rm} - V_{rw} - V_{re}}$$

Where:

$W_{rs}$  = weight of volatile compounds not consumed during curing, in grams.

$W_{rw}$  = weight of water not consumed during curing, in grams.

$W_{re}$  = weight of exempt compounds not consumed during curing, in grams.

$V_{rm}$  = volume of material not consumed during curing, in liters.

$V_{rw}$  = volume of water not consumed during curing, in liters.

$V_{re}$  = volume of exempt compounds not consumed during curing, in liters.

(k) Grams of VOC per liter of material shall be calculated according to the following equation:

$$\text{Grams of VOC per liter of materials} = \frac{W_s - W_w - W_e}{V_m}$$

Where:

$W_s$  = weight of volatile compounds, in grams.

$W_w$  = weight of water, in grams.

$W_e$  = weight of exempt compounds, in grams.

$V_m$  = volume of material, in liters.

(l) Percent VOC by weight shall be calculated according to the following equation:

$$\% \text{ VOC by weight} = [(W_v / W)] \times 100$$

Where:

$W_v$  = weight of VOCs in grams.

$W$  = weight of material in grams.

### **§228-2.7 Container labeling**

(a) Each manufacturer of a commercial or industrial adhesive, sealant, adhesive primer or sealant primer subject to a VOC content limit in section 228-2.4(a) of this Subpart shall display the following information on the container or label for such adhesive, sealant, adhesive primer or sealant primer:

(1) a statement of the manufacturer's recommendation regarding thinning, reducing or mixing, provided:

(i) a statement is not required for thinning, reducing or mixing with water; and

(ii) if thinning prior to use is not necessary, the recommendation shall specify that the product is to be applied as supplied;

(2) the maximum or the actual VOC content as supplied, displayed in grams of VOC per liter of product; and

(3) the maximum or the actual VOC content as applied in accordance with the manufacturer's recommendation regarding thinning, reducing or mixing, displayed in grams of VOC per liter of applied product.

(b) The VOC content of a commercial or industrial adhesive, sealant, adhesive primer or sealant primer shall be calculated using the manufacturer's formulation data or determined using the calculations, procedures and test methods in section 228-2.6 of this Subpart.

(c) Any person applying a commercial or industrial adhesive, sealant, adhesive primer or sealant primer subject to a VOC content limit in section 228-2.4(a) of this Subpart may rely on the manufacturer's representation on the container or label, if such product is applied as recommended for a use specified on the container or label.