

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR RESOURCES

AIR POLLUTION CONTROL REGULATION NO. 33

CONTROL OF VOLATILE ORGANIC COMPOUNDS FROM
ARCHITECTURAL COATINGS AND INDUSTRIAL MAINTENANCE COATINGS

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33. Control of Volatile Organic Compounds from Architectural and Industrial Maintenance Coatings

33.1 Definitions

Unless otherwise expressly defined in this section, the terms used in this regulation shall be defined by reference to the Air Pollution Control General Definitions Regulation. As used in these regulations, the following terms shall, where the context permits, be construed as follows:

- 33.1.1 “**Adhesive**” means any chemical substance that is applied for the purpose of bonding two surfaces together other than by mechanical means.
- 33.1.2 “**Aerosol coating product**” means a pressurized coating product containing pigments or resins that dispenses product ingredients by means of a propellant and is packaged in a disposable can for hand-held application or for use in specialized equipment for ground traffic/marketing applications.
- 33.1.3 “**Antenna coating**” means a coating labeled and formulated exclusively for application to equipment and associated structural appurtenances that are used to receive or transmit electromagnetic signals.
- 33.1.4 “**Antifouling coating**” means a coating labeled and formulated for application to submerged stationary structures and their appurtenances to prevent or reduce the attachment of marine or freshwater biological organisms. To qualify as an antifouling coating, the coating must be registered with the U.S. EPA under the Federal Insecticide, Fungicide and Rodenticide Act (7 U.S.C. Section 136 et. seq.).

- 33.1.5 “**Appurtenance**” means any accessory to a stationary structure coated at the site of installation, whether installed or detached, including, but not limited to: hand railings; cabinets; bathroom and kitchen fixtures; doors; elevators; fences; rain gutters and down-spouts; window screens; lamp posts; heating and air conditioning equipment; other fixed mechanical equipment; fixed stationary tools; partitions, pipes and piping systems; stairways; fixed ladders; catwalks and fire escapes; and concrete forms.
- 33.1.6 “**Architectural coating**” means any coating which is applied to stationary structures and their appurtenances at the site of installation, to portable buildings at the site of installation, to pavements or to curbs. Coatings applied in shop applications or to non-stationary structures such as airplanes, ships, boats, railcars and automobiles, and adhesives are not considered architectural coatings for the purposes of this rule.
- 33.1.7 “**ASTM**” means the American Society for Testing and Materials.
- 33.1.8 “**Bitumens**” means a black or brownish material including, but not limited to, asphalt, tar and pitch, which consists mainly of hydrocarbons, which is soluble in carbon disulfide, and which is obtained from natural deposits or as residue from the distillation of crude oil or low grades of coal.
- 33.1.9 “**Bituminous roof coating**” means a coating which contains bitumens and which is labeled and formulated exclusively for roofing.
- 33.1.10 “**Bituminous roof primer**” means a primer which contains bitumens and which is labeled and formulated exclusively for roofing.
- 33.1.11 “**Bond breaker**” means a coating labeled and formulated for application between layers of concrete to prevent the freshly poured layer of concrete from bonding to the layer over which it is poured.
- 33.1.12 “**Calcimine recoater**” means a flat solvent-borne coating formulated and recommended specifically for recoating calcimine-painted ceilings and other calcimine-painted substrates.
- 33.1.13 “**Clear brushing lacquer**” means a clear wood finish, excluding

clear lacquer sanding sealers, formulated with nitrocellulose or synthetic resins to dry by solvent evaporation without chemical reaction and to provide a solid, protective film, which are intended exclusively for application by brush and which are labeled as specified in paragraph 33.4.1(e) of this regulation.

- 33.1.14 “**Clear wood coatings**” means any clear or semitransparent coating, including lacquers and varnishes, applied to wood substrates to provide a transparent or translucent solid film.
- 33.1.15 “**Coating**” means a material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealers, and stains.
- 33.1.16 “**Colorant**” means concentrated pigment dispersion in water, solvent, and/or a binder that is added to an architectural coating after packaging in sale units to produce the desired color.
- 33.1.17 “**Concrete curing compound**” means a coating labeled and formulated for application to a freshly poured concrete to retard the evaporation of water.
- 33.1.18 “**Concrete surface retarder**” means a mixture of retarding ingredients such as extender pigments, primary pigments, resin, and solvent that interact chemically with the cement to prevent hardening on the surface where the retarder is applied, allowing the retarded mix or cement and sand at the surface to be washed away to create an exposed aggregate finish.
- 33.1.19 “**Conversion varnish**” means a clear acid curing coating with an alkyd or other resin blended with amino resins and supplied as a single component or two-compound product. Conversion varnishes produce a hard, durable, clear finish designed for professional application to wood flooring. This film formation is the result of an acid-catalyzed condensation reaction, affecting a transesterification at the reactive ethers of the amino resins.
- 33.1.20 “**Dry fog coating**” means a coating labeled and formulated only for spray application such that overspray droplets dry before subsequent contact with incidental surfaces in the vicinity of the surface coating activity.

- 33.1.21 “**Exempt compound**” means any carbon-containing compound listed as an exemption to the definition of volatile organic compound (VOC) in the Rhode Island Air Pollution Control General Definitions Regulation.
- 33.1.22 “**Faux finishing coating**” means a coating labeled and formulated as a stain or a glaze to create artistic effects including, but not limited to, dirt, old age, smoke damage and simulated marble and wood grain.
- 33.1.23 “**Fire-resistive coating**” means an opaque coating labeled and formulated to protect structural integrity by increasing the fire endurance of interior or exterior steel and other structural materials, that has been fire tested and rated by a testing agency and approved by building code officials for use in bringing assemblies of structural materials into compliance with federal, state, and local building code requirements. The fire-resistive coating and the testing agency must be approved by building code officials. The fire-resistive coating shall be tested in accordance with ASTM Designation E 119-05a, incorporated by reference in paragraph 33.6.5(b) of this regulation.
- 33.1.24 “**Fire-retardant coating**” means a coating labeled and formulated to retard ignition and flame spread, that has been fire tested and rated by a testing agency and approved by building code officials for use in bringing assemblies of structural materials into compliance with federal, state, and local building code requirements. The fire-retardant coating and the testing agency must be approved by building code officials. The fire-retardant coating shall be tested in accordance with ASTM Designation E84-05e1, incorporated by reference in paragraph 33.6.5(a) of this regulation.
- 33.1.25 “**Flat coating**” means a coating that does not meet the definition in this regulation for another coating and which registers a gloss of less than 15 on an 85-degree gloss meter or less than 5 on a 60-degree gloss meter, according to ASTM Designation D 523-89 (1999), incorporated by reference in paragraph 33.6.5(c) of this regulation.
- 33.1.26 “**Floor coating**” means an opaque coating that is labeled and formulated for application to flooring, including, but not limited to, decks, porches, steps, and other horizontal surfaces which may be subjected to foot traffic.

- 33.1.27 “**Flow coating**” means a coating labeled and formulated exclusively for use by electric power companies or their subcontractors to maintain the protective coating systems present on utility transformer units.
- 33.1.28 “**Form-release compound**” means a coating labeled and formulated for application to a concrete form to prevent freshly poured concrete from bonding to the form. The form may consist of wood, metal or another material other than concrete.
- 33.1.29 “**Graphic arts coating or sign paint**” means a coating labeled and formulated for hand-application by artists using brush or roller techniques to indoor or outdoor signs (excluding structural components) and murals, including letter enamels, poster colors, copy blockers, and bulletin enamels.
- 33.1.30 “**High-temperature coating**” means a high performance coating labeled and formulated for application to substrates exposed continuously or intermittently to temperatures in excess of 204°C (400°F).
- 33.1.31 “**Impacted immersion coating**” means a high performance maintenance coating formulated and recommended for application to steel structures subject to immersion in turbulent, debris-laden water. These coatings are specifically resistant to high-energy impact damage by floating ice or debris.
- 33.1.32 “**Industrial maintenance coating**” means a high performance architectural coating, including primers, sealers, undercoaters, intermediate coats and topcoats, which is labeled as specified in paragraph 33.4.1(d) of this regulation and is formulated for application to substrates exposed to one or more of the following extreme exposure conditions:
- (a) Immersion in water, wastewater, or chemical solutions (aqueous and non-aqueous solutions), or chronic exposures of interior surfaces to moisture condensation;
 - (b) Acute or chronic exposure to corrosive, caustic, or acidic agents, or to chemicals, chemical fumes, or chemical mixtures or solutions;
 - (c) Repeated exposure to temperatures above 121°C (250°F);

- (d) Repeated (frequent) heavy abrasion, including mechanical wear and repeated (frequent) scrubbing with industrial solvents, cleansers, or scouring agents; or
 - (e) Exterior exposure of metal structures and structural components.
- 33.1.33 “**Lacquer**” means a clear or opaque wood coating, including clear lacquer sanding sealers, formulated with cellulosic or synthetic resins to dry by solvent evaporation without chemical reaction and to provide a solid, protective film.
- 33.1.34 “**Low-solids coating**” means a coating containing 0.12 kilogram or less of solids per liter (1 pound or less of solids per gallon) of coating material.
- 33.1.35 “**Magnesite cement coating**” means a coating labeled and formulated for application to magnesite cement decking to protect the magnesite cement substrate from erosion by water.
- 33.1.36 “**Mastic texture coating**” means a coating labeled and formulated to cover holes and minor cracks and to conceal surface irregularities, and which is applied in a single coat of at least 10 mils (0.010 inch) dry film thickness.
- 33.1.37 “**Metallic pigmented coating**” means a coating containing at least 48 grams of elemental metallic pigment per liter of coating as applied (0.4 pounds per gallon), when tested in accordance with SCAQMD Method 318-95, incorporated by reference in paragraph 33.6.5(d) of this regulation.
- 33.1.38 “**Multi-color coating**” means a coating which exhibits more than one color when applied and which is packaged in a single container and applied in one coat.
- 33.1.39 “**Non-flat coating**” means a coating that does not meet the definition in this regulation of another coating and which registers gloss of 15 or greater on an 85-degree gloss meter and 5 or greater on a gloss meter when held at a 60° angle, according to ASTM Designation D 523-89 (1999), incorporated by reference in paragraph 33.6.5(c) of this regulation.
- 33.1.40 “**Non-flat - high gloss coating**” means a non-flat coating labeled

according to the requirements in paragraph 33.4.1(i) that registers a gloss of 70 or above on a 60-degree meter according to ASTM Designation D 523-89 (1999), incorporated by reference in paragraph 33.6.5(c) of this regulation.

- 33.1.41 “**Nonindustrial use**” means any use of architectural coatings except in the construction or maintenance of any of the following: facilities used in the manufacturing of goods and commodities; transportation infrastructure, including highways, bridges, airports and railroads; facilities used in mining activities, including petroleum extraction; and utilities infrastructure, including power generation and distribution, and water treatment and distribution systems.
- 33.1.42 “**Nuclear coating**” means a protective coating formulated and recommended to seal porous surfaces such as steel or concrete that otherwise would be subject to intrusion by radioactive materials. These coatings must be resistant to long-term (service life) cumulative radiation exposure, according to ASTM Method D 4082-02, incorporated by reference in paragraph 33.6.5(k)), relatively easy to decontaminate, and resistant to various chemicals to which the coatings are likely to be exposed, according to ASTM Method D 3912-95 (2001), incorporated by reference in paragraph 33.6.5(l).
- 33.1.43 “**Post-consumer coating**” means a finished coating that would have been disposed of in a landfill, having completed its usefulness to a consumer, and does not include manufacturing wastes.
- 33.1.44 “**Pretreatment wash primer**” means a coating which contains a minimum of 0.5% acid by weight, when tested in accordance with ASTM Designation D 1613-06, incorporated by reference in paragraph 33.6.5(e) of this regulation, which is labeled and formulated for application directly to bare metal surfaces to provide corrosion resistance and to promote adhesion of subsequent topcoats.
- 33.1.45 “**Primer**” means a coating labeled and formulated for application to a substrate to provide a firm bond between substrate and subsequent coats.
- 33.1.46 “**Quick-dry enamel**” means a non-flat coating that is labeled as specified in paragraph 33.4.1(h) and that is formulated to have the following characteristics:

- (a) The coating is capable of being applied directly from the container under normal conditions with ambient temperatures between 16 and 27°C (60 and 80°F);
 - (b) When tested in accordance with ASTM Designation D 1640-03, incorporated by reference in paragraph 33.6.5(f) of this regulation, the coating sets to touch in two hours or less, is tack free in four hours or less, and dries hard in eight hours or less by the mechanical test method; and
 - (c) The coating has a dried film gloss of 70 or above on a 60-degree meter, according to ASTM Designation D 523-89 (1999), incorporated by reference in paragraph 33.6.5(c) of this regulation.
- 33.1.47 **“Quick-dry primer, sealer, and undercoater”** means any primer, sealer or undercoater which dries to touch within one-half hour and can be recoated in two hours, as determined by ASTM Designation D 1640-03, incorporated by reference in paragraph 33.6.5(f) of this regulation.
- 33.1.48 **“Recycled coating”** means an architectural coating formulated such that not less than 50 percent of the total weight consists of secondary and post-consumer coating, with not less than 10 percent of the total weight consisting of post-consumer coating.
- 33.1.49 **“Residential use”** means use in an area where people reside or lodge, including, but not limited to, single and multiple family dwellings, condominiums, mobile homes, apartment complexes, motels, and hotels.
- 33.1.50 **“Roof coating”** means a non-bituminous coating labeled and formulated exclusively for application to roofs for the primary purpose of preventing penetration of the substrate by water, or reflecting heat and ultraviolet radiation. Metallic pigmented roof coatings, which qualify as metallic pigmented coatings, shall not be considered in this category, but shall be considered to be in the metallic pigmented coatings category.
- 33.1.51 **“Rust preventive coating”** means a coating formulated exclusively for nonindustrial use to prevent the corrosion of metal surfaces and labeled as specified in paragraph 33.4.1(f).

- 33.1.52 “**Sanding sealer**” means a clear or semi-transparent wood coating labeled and formulated for application to bare wood to seal the wood and to provide a coat that can be abraded to create a smooth surface for subsequent applications of coatings. A sanding sealer that also meets the definition of a lacquer is not included in this category, but it is included in the lacquer category.
- 33.1.53 “**SCAQMD**” means the South Coast Air Quality Management District, the air pollution control agency for Orange County and the urban portions of Los Angeles, Riverside and San Bernardino counties in California.
- 33.1.54 “**Sealer**” means a coating labeled and formulated for application to a substrate for one or more of the following purposes: to prevent subsequent coatings from being absorbed into the substrate, or to prevent harm to subsequent coatings by materials in the substrate.
- 33.1.55 “**Secondary coating (rework)**” means a fragment of a finished coating or a finished coating from a manufacturing process that has converted resources into a commodity of real economic value, but does not include excess virgin resources of the manufacturing process.
- 33.1.56 “**Shellac**” means a clear or opaque coating formulated solely with resinous secretions of the lac beetle (*Lacifer lacca*), thinned with alcohol, and formulated to dry by evaporation without a chemical reaction.
- 33.1.57 “**Shop application**” means application of a coating to a product or a component of a product in or on the premises of a factory or a shop as part of a manufacturing, production, or repairing process (e.g., original equipment manufacturing coatings).
- 33.1.58 “**Solicit**” means to require for use or to specify, by written or oral contract.
- 33.1.59 “**Specialty primer, sealer, and undercoater**” means a coating labeled as specified in paragraph 33.4.1(g) that is formulated for application to a substrate to seal fire, smoke or water damage; to condition excessively chalky surfaces; to seal in efflorescence or to block stains. An excessively chalky surface is one that is defined as having a chalk rating of four or less as determined by ASTM Designation D 4214-98, incorporated by reference in paragraph

33.6.5(g).

- 33.1.60 “**Stain**” means a clear, semi-transparent, or opaque coating labeled and formulated to change the color of a surface, but not conceal the grain pattern or texture.
- 33.1.61 “**Swimming pool coating**” means a coating labeled and formulated to coat the interior surface of swimming pools and which is specifically formulated to resist swimming pool chemicals.
- 33.1.62 “**Swimming pool repair and maintenance coating**” means a rubber-based coating labeled and formulated to be used over existing rubber-based coatings for the repair and maintenance of swimming pools.
- 33.1.63 “**Temperature-indicator safety coating**” means a coating labeled and formulated as a color-changing indicator coating for the purpose of monitoring the temperature and safety of the substrate, underlying piping, or underlying equipment, and for application to substrates exposed continuously or intermittently to temperatures above 204°C (400°F).
- 33.1.64 “**Thermoplastic rubber coating and mastic**” means a coating or mastic formulated and recommended for application to roofing or other structural surfaces and that incorporates no less than 40 percent by weight of thermoplastic rubbers in the total resin solids and may also contain other ingredients including, but not limited to, fillers, pigments, and modifying resins.
- 33.1.65 “**Tint base**” means an architectural coating to which colorant is added after packaging in sale units to produce a desired color.
- 33.1.66 “**Traffic marking coating**” means a coating labeled and formulated for marking and striping streets, highways and other traffic surfaces including, but not limited to, curbs, berms, airport runways, driveways and parking lots.
- 33.1.67 “**Undercoater**” means a coating labeled and formulated to provide a smooth surface for subsequent coatings.
- 33.1.68 “**Varnish**” means a clear or semi-transparent wood coating, excluding lacquers and shellacs, formulated to dry by chemical reaction on exposure to air. Varnishes may contain small amounts

of pigment to color a surface or to control the final sheen or gloss of the finish.

- 33.1.69 “**VOC content**” means the weight of VOC per volume of coating, calculated according to the procedures specified in subsection 33.6.1.
- 33.1.70 “**Waterproofing sealer**” means a coating which is labeled and formulated for application porous substrates for the primary purpose of preventing the penetration of water.
- 33.1.71 “**Waterproofing concrete/masonry sealer**” means a clear or pigmented sealer that is labeled and formulated for sealing concrete and masonry to provide resistance against water, alkalis, acids, ultraviolet light, and staining.
- 33.1.72 “**Wood preservative**” means any coating which is labeled and formulated to protect exposed wood from decay or insect attack and which is registered as a pesticide product with the United States Environmental Protection Agency under the Federal Insecticide, Fungicide and Rodenticide Act (7 U.S.C. section 136, et..seq.).

33.2 Applicability and Exemptions

- 33.2.1 Except as provided in subsection 33.2.2, the provisions of this regulation apply to any person who, on or after July 1, 2009, sells, offers for sale, supplies or manufactures an architectural coating for use within the State of Rhode Island, as well as any person who applies any architectural coating for compensation or who solicits the application of any architectural coating within the State of Rhode Island.
- 33.2.2 The provisions of this regulation do not apply to the following:
 - (a) Architectural coatings and industrial maintenance coatings that are sold, offered for sale or manufactured in Rhode Island for shipment and use outside of Rhode Island or for shipment to other manufacturers for reformulation or repackaging;
 - (b) Architectural coatings sold in containers having capacities of 1 liter (1.057 quart) or less; and
 - (c) Any aerosol coating product.

33.3 Emission Limitations

33.3.1 Except as provided in subsections 33.3.2, 33.3.3 and 33.3.8, on and after July 1, 2009, no person shall (i) sell, offer for sale, or supply within the State of Rhode Island; (ii) manufacture, blend or repackage for sale within the State or Rhode Island; or (iii) solicit for application or apply for compensation within the State of Rhode Island any architectural coating which has a VOC content, expressed in grams of VOC per liter of coating, when thinned to the manufacturer's maximum recommendation, minus water, exempt compounds and any colorant added to tint bases, in excess of the limits in the Table of Standards in subsection 33.3.1. Manufacturer's maximum recommendation means the maximum recommendation for thinning that is indicated anywhere on the container, or any label or sticker affixed thereto.

Table of Standards

Coating category	VOC Content Limit (grams VOC per liter)
Flat coatings	100
Nonflat coatings	150
Nonflat – high gloss coatings	250
Specialty coatings:	
Antenna coatings	530
Antifouling coatings	400
Bituminous roof coatings	300
Bituminous roof primers	350
Bond breakers	350
Calcimine recoaters	475

Clear wood coatings	
• Clear brushing lacquers	680
• Lacquers (including lacquer sanding sealers)	550
• Sanding sealers (other than lacquer sanding sealers)	350
• Varnishes	350
• Conversion varnishes	725
Concrete curing compounds	350
Concrete surface retarders	780
Dry fog coatings	400
Faux finishing coatings	350
Fire resistive coatings	350
Fire retardant coatings	
• Clear	650
• Opaque	350
Floor coatings	250
Flow coatings	420
Form-release compounds	250
Graphic arts coatings (sign paints)	500
High temperature coatings	420
Impacted immersion coatings	780
Industrial maintenance coatings	340
Low solids coatings	120
Magnesite cement coatings	450
Mastic texture coatings	300
Metallic pigmented coatings	500
Multi-color coatings	250
Nuclear coatings	450
Pre-treatment wash primers	420
Primers, sealers, and undercoaters	200

Quick-dry enamels	250
Quick-dry primers, sealers, and undercoaters	200
Recycled coatings	250
Roof coatings	250
Rust preventive coatings	400
Shellacs:	
• Clear	730
• Opaque	550
Specialty primers, sealers, and undercoaters	350
Stains	250
Swimming pool coatings	340
Swimming pool repair and maintenance coatings	340
Temperature-indicator safety coatings	550
Thermoplastic rubber coatings and mastics	550
Traffic marking coatings	150
Waterproofing sealers	250
Waterproofing concrete/masonry sealers	400
Wood preservatives	350

33.3.2 **Sell-Through of Coatings:** A coating manufactured prior to July 1, 2009 may be sold, supplied, offered for sale or applied after that date, so long as the coating complies with the standards in effect at the time the coating was manufactured and the coating displays the date or date code that meets the specifications in paragraph 33.4.1(a).

33.3.3 **Most restrictive VOC limit.** If, anywhere on the container of any architectural coating, or on any label or sticker affixed thereto, or in any sales, advertising, or technical literature supplied by a manufacturer or anyone acting on the manufacturer's behalf,

including retailers who sell under a private label, representation is made that the coating is consistent with the definition of or is recommended for use or may be used for more than one category listed above, then the lower emission limitation shall apply. This provision does not apply to the following coating categories:

- (a) antenna coatings;
- (b) antifouling coatings;
- (c) bituminous roof primers;
- (d) calcimine recoaters;
- (e) fire-retardant coatings;
- (f) flow coatings;
- (g) high temperature coatings;
- (h) impacted immersion coatings;
- (i) industrial maintenance coatings;
- (j) lacquer coatings, including lacquer sanding sealers;
- (k) low-solids coatings;
- (l) metallic pigmented coatings;
- (m) nuclear coatings.
- (n) pretreatment wash primers;
- (o) shellacs;
- (p) specialty primers, sealers, and undercoaters;
- (q) temperature-indicator safety coatings;
- (r) thermoplastic rubber coatings and mastics; and
- (s) wood preservatives.

- 33.3.4 **Painting practices.** Any person who applies architectural coatings shall ensure that all containers used to apply the contents therein to a surface directly from the container by pouring, siphoning brushing or rolling, padding, ragging or other means, shall be closed when not in use. These architectural coatings containers include, but are not limited to, drums, buckets, cans, pails, trays, or other application containers. Containers of any VOC-containing materials used for thinning and cleanup shall also be closed when not in use.
- 33.3.5 **Thinning.** No person shall apply or solicit the application of any architectural coating that is thinned such that the coating, as applied, exceeds the applicable VOC limitation in the Table of Standards in subsection 33.3.1.
- 33.3.6 **Rust preventive coatings.** No person shall apply or solicit the application of any rust preventive coating for industrial use, unless such a rust preventive coating complies with the industrial maintenance coating VOC limit specified in the Table of Standards in subsection 33.3.1.
- 33.3.7 **Coatings not listed in the Table of Standards.** For any coating that does not meet any of the definitions for the specialty coatings categories listed in the Table of Standards in subsection 33.3.1, the VOC content limit shall be determined by classifying the coating as a flat coating, nonflat coating, or nonflat-high gloss coating as those terms are defined in section 31.1 and the corresponding coating limit in the Table of Standards in subsection 33.3.1 shall apply.
- 33.3.8 **Lacquers.** Notwithstanding the VOC content limits in the Table of Standards in subsection 33.3.1, a person or facility may add up to 10% by volume of VOC to a lacquer to avoid blushing of the finish when the relative humidity is greater than 70% and the temperature is below 65°F, at the time of application, provided that the coating contains acetone and contains no more than 550 grams of VOC per liter of coating, less water and exempt compounds, prior to the addition of VOC.

33.4 Labeling Requirements

- 33.4.1 No person shall sell, offer for sale, or supply within the State of Rhode Island any architectural coating specified in subsection 33.3 unless the coating's container (or label affixed thereto) displays the

following information:

- (a) **Date or date code.** The manufacturing date of the contents of the container, or a date code indicating the manufacturing date of the contents. If the manufacturer uses a date code for any coating, the manufacturer shall supply an explanation of each date code to the Director within 30 days of request;
- (b) **VOC content.** The maximum or actual VOC content of the coating, as supplied, in grams of VOC per liter of coating, including the maximum thinning as recommended by the manufacturer. VOC content displayed shall be calculated according to the equations in subsection 33.6.1 or shall be determined using the test methods specified in subsection 33.6.2;
- (c) **Thinning recommendations.** A statement of the manufacturer's recommendation regarding thinning of the coating. If thinning of the coating prior to use is not necessary, the recommendation must state that the coating is to be applied without thinning. Thinning does not include dilution of architectural coatings with water.
- (d) **Industrial maintenance coatings.** For industrial maintenance coatings, one or more of the following descriptions:
 - (1) "For industrial use only"
 - (2) "For professional use only;" or
 - (3) "Not for residential use" or "Not intended for residential use".
- (e) **Clear brushing lacquers.** For clear brushing lacquers, one or more of the following statements:
 - (1) "For brush application only," or
 - (2) "This product must not be thinned or sprayed."
- (f) **Rust preventive coatings.** For rust preventative coatings, the statement "For metal substrates only."

- (g) **Specialty primers, sealers and undercoaters.** For specialty primers, sealers and undercoaters, one or more of the following descriptions:
- (1) “For blocking stains;”
 - (2) “For fire-damaged substrates;”
 - (3) “For smoke-damaged substrates;”
 - (4) “For water-damaged substrates;”
 - (5) “For excessively chalky substrates,” or
 - (6) “To seal in efflorescence.”
- (h) **Quick dry enamels.** For quick dry enamels, the words “Quick dry” and the dry hard time.
- (i) **Non-flat high-gloss coatings.** For non-flat high gloss coatings, the words “High gloss”.

33.5 Reporting Requirements

33.5.1 Each manufacturer of architectural coatings subject to the requirements of this regulation shall maintain records demonstrating that the coatings comply with the VOC content limits in the Table of Standards in subsection 33.3.1. Such records shall be kept for a period of not less than five (5) years and shall be made available to the Department within 90 days of request unless an extension of time is granted by the Director. Such records shall clearly list the following information for each product:

- (a) Product name (and identifying number, if applicable), as shown on the product label and in applicable sales and technical literature;
- (b) The VOC content, as determined using the equations specified in subsection 33.6.1 or as determined using the test methods specified in subsection 33.6.2 and the date that the VOC content was determined;
- (c) The names(s) and chemical abstract service (CAS) number of the VOC constituents in the product; and

- (d) The applicable coating category and VOC content limit, as listed in the Table of Standards.

33.5.2 An authorized representative from each manufacturer shall, within 90 days of written request, provide to the Department data concerning the distribution and sales of coatings subject to the VOC content limits in the Table of Standards in subsection 33.3.1. Such data shall include, but not be limited to, the following:

- (a) The name and address of the manufacturer;
- (b) The name, address and telephone number of the manufacturer's authorized representative;
- (c) The name of the product as it appears on the label and the coating category as listed in the Table of Standards in subsection 33.3.1;
- (d) Amount of the coating, in gallons, sold in Rhode Island during the previous calendar year in containers greater than one liter and in containers less than one liter;
- (e) The actual VOC content and VOC content limit for the product, in grams per liter. If thinning is recommended, list the actual VOC content and VOC content limit after thinning. If containers of one liter or less have a different VOC content than containers greater than one liter, they should be listed separately;
- (f) Whether the product is marketed for interior or exterior use or both;
- (g) The name and CAS number of each VOC constituent in the product; and
- (h) The name and CAS number of any exempt compounds in the product.

33.5.3 For each architectural coating that contains perchloroethylene or methylene chloride, the manufacturer shall maintain the following records for a period of not less than five (5) years and make those records available to the Department within 90 days of request:

- (a) The product brand name and a copy of the product label with the legible usage instructions;

- (b) The product category listed in the Table of Standards to which the product belongs;
- (c) The total sales of the product in Rhode Island during the previous calendar year to the nearest gallon: and
- (d) The volume percent, to the nearest 0.10 percent, of perchloroethylene and methylene chloride in the coating.

33.6 Compliance Provisions and Test Methods

33.6.1 **Calculation of VOC content.** Compliance with the VOC content limits in the Table of Standards shall be determined using the procedures described in paragraphs (a)(1) or (a)(2) of this subsection, as appropriate. The VOC content of a tint base shall be determined prior to the addition of the colorant.

- (a) With the exception of low solids coatings, determine the VOC content in grams of VOC per liter of coating thinned to the manufacturer's maximum recommendation, excluding the volume of any water and exempt compounds. Determine the VOC content using the following equation:

$$\text{VOC Content} = \frac{(W_s - W_w - W_{ec})}{(V_m - V_w - V_{ec})}$$

Where:

VOC content = grams of VOC per liter of coating

W_s = weight of volatiles, in grams

W_w = weight of water, in grams

W_{ec} = weight of exempt compounds, in grams

V_m = volume of coating, in liters

V_w = volume of water, in liters

V_{ec} = volume of exempt compounds, in liters

- (b) For low solids coatings, determine the VOC content in units of grams of VOC per liter of coating thinned to the manufacturer's maximum recommendation, including the volume of any water and exempt compounds. Determine the VOC content using the following equation:

$$\text{VOC Content (ls)} = \frac{(\text{Ws} - \text{Ww} - \text{Wec})}{(\text{Vm})}$$

Where:

VOC Content (ls) = the VOC content of a low solids coating in grams per liter of coating

Ws = weight of volatile, in grams

Ww = weight of water, in grams

Wec = weight of exempt compounds, in grams

Vm = volume of coating, in liters

- 33.6.2 **Testing of VOC properties and content.** To determine the physical properties of a coating in order to perform the calculations in subsection 33.6.1, the reference method for VOC content is U.S. EPA Method 24, incorporated by reference in paragraph 33.6.5(h), except as provided in subsections 33.6.3 and 33.6.4. An alternative method to determine the VOC content of coatings is SCAQMD Method 304-91 (Revised February 1996), incorporated by reference in paragraph 33.6.5(i). To determine the VOC content of a coating, the manufacturer may use U.S. EPA Method 24, or an alternative method, as provided in subsection 33.6.3, formulation data, or any other reasonable means for predicting that the coating has been formulated as intended (e.g. quality assurance checks, recordkeeping). However, if there are any inconsistencies between the results of a Method 24 test and any other means for determining VOC content, the Method 24 results will govern, except when an alternative method is approved as specified in subsection 33.6.3. The Department may require the manufacturer to conduct a Method 24 analysis.
- 33.6.3 **Alternative test methods.** Other test methods demonstrated to provide results that are acceptable for purposes of determining VOC physical properties and VOC content, after review and approved in writing by the Department and the U.S. EPA, may also be used.
- 33.6.4 **Methacrylate traffic coating markings.** Analysis of methacrylate multi-component coatings used as traffic marking coatings shall be conducted according to a modification of U.S. EPA Method 24 Code of Federal Regulations Title 40 section 59 subpart D, Appendix A, incorporated by reference in paragraph 33.6.5(j). This method has not been approved for methacrylate multi-component coatings used for other purposes than as traffic marking coatings or for other classes of multi-component coatings.

33.6.5 **Test Methods:** The following test methods are incorporated by reference herein, and shall be used to test coatings subject to the provisions of this rule:

- (a) **Flame Spread Index:** The flame spread index of a fire-retardant coating shall be determined by the ASTM Designation E 84-05e1, "Standard Test Method for Surface Burning Characteristics of Building Materials," (see definition of "fire-retardant coating" in section 33.1).
- (b) **Fire-Resistance Rating:** The fire-resistance rating of a fire-resistive coating shall be determined by ASTM Designation E 119-05a, "Standard Test Methods for Fire Tests of Building and Construction Materials," (see definition of "fire-resistive coating" in section 33.1).
- (c) **Gloss Determination:** The gloss of a coating shall be determined by ASTM Designation D 523-89 (1999), "Standard Test Method for Specular Gloss," (see definitions of "flat coating", "non-flat coating", "non-flat - high-gloss coating" and "quick-dry enamel" in section 33.1).
- (d) **Metal Content of Coatings:** The metallic content of a coating shall be determined by SCAQMD Method 318-95, "Determination of Weight Percent Elemental Metal in Coatings by X-Ray Diffraction," SCAQMD "Laboratory Methods of Analysis for Enforcement Samples," (see definition of "metallic pigmented coating" in section 33.1).
- (e) **Acid Content of Coatings:** The acid content of a coating shall be determined by ASTM Designation D 1613-06, "Standard Test Method for Acidity in Volatile Solvents and Chemical Intermediates Used in Paint, Varnish, Lacquer and Related Products," (see definition of "pre-treatment wash primer" in section 33.1).
- (f) **Drying Times:** The set-to-touch, dry-hard, dry-to-touch and dry-to-recoat times of a coating shall be determined by ASTM Designation D 1640-03, "Standard Methods for Drying, Curing, or Film Formation of Organic Coatings at Room Temperature," (see definitions for "quick-dry enamel" and "quick-dry primer, sealer, and under-coater" in section 33.1). The tack free time of a quick-dry enamel coating shall be determined by the Mechanical Test Method of ASTM Designation D 1640-03.

- (g) **Surface Chalkiness:** The chalkiness of a surface shall be determined using ASTM Designation D 4214-98, "Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films," (see definition of "specialty primer, sealer, and under-coater" in section 33.1).
- (h) **VOC Content of Coatings:** The VOC content of a coating shall be determined by U.S. EPA Method 24 as it exists in appendix A of the Code of Federal Regulations Title 40 section 60 "Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings," (see subsection 33.6.2).
- (i) **Alternative VOC Content of Coatings:** The VOC content of coatings may be analyzed by either U.S. EPA Method 24 or SCAQMD Method 304-91 (Revised 1996), "Determination of Volatile Organic Compounds (VOC) in Various Materials," SCAQMD "Laboratory Methods of Analysis for Enforcement Samples," (see subsection 33.6.2).
- (j) **Methacrylate Traffic Marking Coatings:** The VOC content of methacrylate multi-component coatings used as traffic marking coatings shall be analyzed by the procedures in the Code of Federal Regulations title 40 section 59, subpart D, appendix A, "Determination of Volatile Matter Content of Methacrylate Multicomponent Coatings Used as Traffic Marking Coatings," (September 11, 1998), (see subsection 33.6.4).
- (k) **Radiation Resistance.** The radiation resistance of a nuclear coating shall be determined by ASTM Method D 4082-02, "Standard Test Method for Effects of Gamma Radiation on Coatings for Use in Light-Water Nuclear Power Plants" (see definition for "nuclear coating" in section 33.1).
- (l) **Chemical Resistance.** The chemical resistance of nuclear coatings shall be determined by ASTM Method D 3912-95, "Standard Test Method for Chemical Resistance of Coatings Used in Light-Water Nuclear Power Plants" (see definition of "nuclear coating" in section 33.1).

33.7 General Provisions

33.7.1 Purpose

The purpose of this regulation is to limit the emissions of volatile organic compounds from architectural coatings and industrial maintenance coatings.

33.7.2 Authority

These regulations are authorized pursuant to R.I. Gen. Laws § 42-17.1-2(s) and 23-23, as amended, and have been promulgated pursuant to the procedures set forth in the R.I. Administrative Procedures Act, R.I. Gen. Laws Chapter 42-35.

33.7.3 Application

The terms and provisions of this regulation shall be liberally construed to permit the Department to effectuate the purposes of state law, goals and policies.

33.7.4 Severability

If any provision of this regulation or the application thereof to any person or circumstance, is held invalid by a court of competent jurisdiction, the validity of the remainder of the regulation shall not be affected thereby.

33.7.5 Effective Date

The foregoing regulation, "Control of Volatile Organic Compounds from Architectural and Industrial Maintenance coatings", after due notice, is hereby adopted and filed with the Secretary of State this ___15th__ day of ___May___, 20_09_ to become effective twenty (20) days thereafter, in accordance with the provisions of Chapters 23-23, 42-35, 42-17.1, 42-17.6, of the General Laws of Rhode Island of 1956, as amended.

W. Michael Sullivan, PhD., Director
Department of Environmental Management

Notice Given on: January 20, 2009
Public Hearing held: February 20, 2009
Filing Date: May 15, 2009
Effective Date: June 4, 2009