

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

AIR POLLUTION CONTROL REGULATION NO. 19

**CONTROL OF VOLATILE ORGANIC COMPOUNDS
FROM SURFACE COATING OPERATION**



Effective: 13 November 1979

Last Amended: 19 July 2007

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.

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

AIR POLLUTION CONTROL REGULATION NO. 19

CONTROL OF VOLATILE ORGANIC COMPOUNDS
FROM SURFACE COATING OPERATION

TABLE OF CONTENTS

19.1	Definitions	1
19.2	Applicability	6
19.3	Emission Limitations	7
19.4	Alternative Standards Allowing Internal Offsets for Surface Coating Facilities (The Bubble Concept)	10
19.5	Compliance Certification, Recordkeeping and Reporting Requirements	12
19.6	Registration	22
19.7	Compliance Demonstration/Testing	22
19.8	Compliance Schedules	23
19.9	General Provisions	25
	APPENDIX A	27

**RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR RESOURCES
AIR POLLUTION CONTROL REGULATION NO. 19**

**CONTROL OF VOLATILE ORGANIC COMPOUNDS FROM
SURFACE COATING OPERATIONS**

19.1 Definitions

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

- 19.1.1 "**Actual Emissions**" means the quantity of volatile organic compounds emitted from a source during a particular time period.
- 19.1.2 "**Air-dried coating**" means a coating that is dried by the use of air or forced warm air at temperatures up to 90EC (194EF).
- 19.1.3 "**Class II hardboard paneling finish**" means finishes that meet the specifications of Voluntary Product Standard PS-59-73 as approved by the American National Standards Institute.
- 19.1.4 "**Clear coating**" means a coating that (1) either lacks color and opacity or is transparent and (2) uses the surface to which it is applied as a reflective base or undertone color.
- 19.1.5 "**Coating applicator**" means a device, mechanism, or apparatus used to apply a surface coating. Common types of application techniques include knife, roll, spray or dip.
- 19.1.6 "**Coating line**" means an operation or manufacturing process or device which may be comprised of one or more coating applicators, one or more flash-off areas and/or one or more ovens wherein a surface coating is dried and/or cured.
- 19.1.7 "**Drum**" means any cylindrical metal shipping container of 13- to 110-gallon capacity.
- 19.1.8 "**Emission Baseline**" means a level of emissions calculated by multiplying two factors:

- (a) the lowest of the source's actual or allowable emission rate in emissions per unit of production; and
- (b) the source's actual capacity utilization, or units of production, over some representative time period. Generally, the time period is the preceding two year average unless the source can demonstrate that those years were not representative of historical production.

19.1.9 "**Extreme performance coatings**" means coatings intended for exposure to any of the following; outdoor weather conditions all of the time, temperatures frequently above 95EC (203EF), detergents, abrasive and scouring agents, solvents, corrosive atmospheres, or similar environmental conditions.

19.1.10 "**Hardboard**" is a panel manufactured primarily from inter-felted ligno-cellulosic fibers that are consolidated under heat and pressure in a hot press.

19.1.11 "**Hardwood plywood**" is plywood whose surface layer is a veneer of hardwood.

19.1.12 "**Metal Cans**" means any cylindrical single walled container, with or without a top, cover, spout, and/or handle that is manufactured from metal sheets thinner than 29 gauge (0.0141 inches) and into which solid or liquid materials are packaged.

19.1.13 "**Multicomponent coating**" means a coating which is packaged in two or more parts, which parts are combined before application, and where a coreactant from one part of the coating chemically reacts, at ambient conditions, with a coreactant from another part of the coating.

19.1.14 "**Natural finish hardwood plywood panels**" means panels whose original grain pattern is enhanced by essentially transparent finishes frequently supplemented by fillers and toners.

19.1.15 "**Oven**" means a chamber within which heat is used to bake, cure or polymerize and/or dry a surface coating.

19.1.16 "**Pail**" means any cylindrical metal shipping container with a capacity of greater than or equal to 1 and less than 13 gallons and constructed of 29-gauge and heavier material.

19.1.17 "**Prime Coat**" means the first of two or more coatings applied to a surface.

19.1.18 "**Printed interior panels**" means panels whose grain or natural surface is obscured by fillers and basecoats upon which a simulated grain or decorative pattern is printed.

19.1.19 "**Refinishing**" means the repainting of used equipment.

19.1.20 "**Surface coating**" means a process whereby a layer of one or more substances containing VOC and solids are deposited on another material (substrate) in a uniform manner across the surface of the substrate. The layer of coating may be used for appearance, to decorate, bond, protect, strengthen, functionalize and/or impart stability, water or acid repellence or mildew resistance. For purposes of this regulation only, types of coating processes are defined as follows:

- (a) Paper coating - the application of a coating or coatings on paper, pressure-sensitive tapes, plastic film or metal foil to impart any or all qualities above.
- (b) Fabric coating - the application of a coating or coatings on a textile substrate to impart any or all qualities above.
- (c) Vinyl coating - the application of a coating or coatings on a vinyl coated paper, vinyl coated fabric, or vinyl substrate or printing on vinyl-coated fabric or vinyl sheets to impart any or all qualities above.
- (d) Miscellaneous metal parts and products (MMP) coating means the application of a coating or coatings, including but not limited to adhesives, on any metal part or metal product, even if attached to or combined with a nonmetal part or product. Miscellaneous metal parts and products include, but are not limited to:
 - (1) Large farm machinery (harvesting, fertilizing and planting machines, tractors, combines, etc.);
 - (2) Small farm machinery (lawn and garden tractors, lawn mowers, rototillers, etc.);
 - (3) Small appliances (fans, mixers, blenders, crock pots, dehumidifiers, vacuum cleaners, etc.);
 - (4) Commercial machinery (office equipment, computers and auxiliary equipment, typewriters, calculators, vending machines, etc.);
 - (5) Industrial machinery (pumps, compressors, conveyor components, fans, blowers, transformers, etc.);
 - (6) Fabricated metal products (metal covered doors, frames, etc.);
 - (7) Any other industrial category that coats metal parts or products under the Standard Industrial Classification Codes of Major Group 33 (primary metal industries), Major Group 34 (fabricated

metal products), Major Group 35 (non-electric machinery), Major Group 36 (electrical machinery), Major Group 37 (transportation equipment), Major Group 38 (miscellaneous instruments), and Major Group 39 (miscellaneous manufacturing industries); and

- (8) Application of underbody antic hip materials (e.g., underbody plastisol) and coating application operations other than prime, primer surface, topcoat, and final repair operations at automobile and light-duty truck assembly plants.
- (9) Miscellaneous metal parts coating does not include the application of a coating or coatings to the following:
 - (i) Automobiles and light-duty trucks;
 - (ii) Automobile and light duty truck refinishing;
 - (iii) Customized top coating of automobiles and trucks, if production is less than 35 vehicles per day;
 - (iv) Metal cans;
 - (v) Flat metal sheets and strips in the form of rolls or coils;
 - (vi) Magnet wire for use in electrical machinery;
 - (vii) Metal furniture; and
 - (viii) Large appliances.
 - (ix) Exterior of completely assembled aircraft;
 - (x) Exterior of major aircraft subassemblies, if approved by the Director, and approved by EPA, as a Federal Implementation Plan (FIP) or State Implementation Plan (SIP) revision;
 - (xi) Exterior of completely assembled marine vessels; or
 - (xii) Exterior of major marine vessel subassemblies if approved by the Director, and approved by EPA, as a FIP or SIP revision; or
 - (xiii) Exterior of tanks used for bulk storage of chemicals at the facility.

- (e) Magnet wire coating - the application of a coating in which an electrically insulating varnish or enamel is applied onto the surface of a wire for use in electrical machinery.
- (f) Coil coating - the application of a coating to any continuous metal strip with thickness of 0.006 inch or more that is packaged in a roll or coil.
- (g) Flat wood paneling coating - the application of a coating to flat wood panels including: printed interior panels made of hardboard plywood and thin particle board (i.e., less than or equal to 0.25 inches in thickness) natural finish hardboard plywood panels; and hardboard paneling with Class II finishes.
 - (1) Flat wood paneling does not include: Class I hardboard panels, particle board used in furniture or wood products, insulation board, exterior siding, tile board, and soft wood plywood coating lines.
- (h) Metal furniture coating - the application of a coating to any furniture piece made of metal or any metal part that will be assembled with other metal, wood, fabric, plastic, or glass parts to form a furniture piece including, but not limited to, tables, chairs, waste baskets, beds, desk, locker, benches, shelving, file cabinets, and room dividers.
- (i) Large appliance coating - the application of a coating to the surface of component metal parts (including, but not limited to, doors, cases, lids, panels and interior parts) of any residential or commercial washer, dryer, freezer, range, refrigerator, water heater, dishwasher, trash compactor, air conditioner, or other similar products under Standard Industrial Classification Code 363.
 - (1) Large appliance coating does not include the use of quick drying lacquers for repair of scratches and nicks that occur during assembly, provided that the volume of coating does not exceed 0.25 gallons in any one 8 hour period.

19.1.21 **"Thin particleboard"** is a manufactured board that is 0.25 inch or less in thickness made of individual wood particles that have been coated with a binder and formed into flat sheets by pressure.

19.1.22 **"Tile board"** means paneling that has a colored, waterproof surface coating.

19.1.23 **"Topcoat"** means the final film or series of films of coating applied to a surface;

19.2 Applicability

- 19.2.1 The provisions of this regulation apply to all surface coating facilities for which actual uncontrolled emissions from all operations in any one of the surface coating categories listed as Subsections 19.1.20 (a)-(i) have been greater than 15 pounds of volatile organic compounds in any one day after December 31, 1989.
- 19.2.2 Where ever the term Volatile Organic Compound or VOC is used in Sections 19.2 through 19.8 and Subsection 19.1.1 this term should be read as Volatile Organic Compound and Halogenated Organic Compound or VOC and HOC.
- 19.2.3 An owner or operator of a surface coating facility whose emissions are below the applicability threshold in Subsection 19.2.1 shall comply with the certification, recordkeeping, and reporting requirements of Subsection 19.5.1.
- 19.2.4 Any facility that was subject to the provisions of this regulation on or before November 19, 1992 by having or having had the potential to emit 100 tons of VOC per year from paper, fabric, or vinyl coating or becomes subject to the provisions of this regulation after November 19, 1992 by exceeding the applicability threshold in Section 19.2.1 will remain subject to these provisions even if its emissions later fall below the applicability threshold.
- 19.2.5 Any surface coating facility which has actual emissions of 15 lbs VOC/day or more in any one day from all operations in any one of the surface coating categories listed as Subsections 19.1.20 (a)-(i), but has not had total actual VOC emissions from surface coating operations exceeding 1,666 pounds in any calendar month since December 31, 1989, may apply to the Director for exemption from Section 19.3 of this regulation. Exemption will be given in the form of an enforceable document, and will include the following conditions:
- (a) The total emissions from all surface coating operations shall not exceed 1,666 pounds in any one calendar month,
 - (b) The facility shall maintain the following records at the facility for a period of five years. This information shall be made available to DEM and EPA upon request:
 - (1) The name, identification number and amount used each month of each coating, as applied, on each coating line or operation;
 - (2) The mass of VOC per volume (excluding water), as applied, for each coating used on each coating line or operation;
 - (3) The type and amount of solvent used for diluents and cleanup operations;

- (c) If the limit in (a) is exceeded, the emission limitations specified in Subsection 19.3.1 will immediately apply.

19.3 Emission Limitations

19.3.1 As outlined in the following table, surface coating lines must meet the emission limitations given below in either pounds of VOC per gallon of coating (minus water) or in pounds of VOC per gallon of solids, depending on the method of compliance:

TYPE OF SURFACE	EMISSION LIMITATION	
	lbs VOC/gallon of coating minus water	lbs VOC/gallon of solids
Paper	2.9	4.79
Fabric	2.9	4.79
Vinyl	3.8	7.86
Flat wood Paneling*		
Printed Interior Wall Panels Made of Hardwood Plywood and Thin Particleboard	6.0*	
Natural Finish Hardwood Plywood Panels	12.0*	
Class II Finishes for Hardboard Paneling	10.0*	
Miscellaneous Metal Parts**		
Clear Coating	4.3	10.34
Steel Pail and Drum Interiors	4.3	10.34
Air Dried Coating	3.5	6.67
Extreme Performance Coating	3.5	6.67
All other coating on misc. metal parts	3.0	5.06
Metal Furniture	3.0	5.06
Coil	2.6	4.02
Large Appliances	2.8	4.52
Magnet Wire	1.7	2.21

*Emission limits for flat wood paneling are expressed in terms of lbs VOC/1000 square feet coated.

**For miscellaneous metal parts coating, if more than one emission limitation applies to a specific coating, then the least stringent emission limitation shall be applied.

For facilities complying without using add-on control equipment, the pounds of VOC per gallon of coating (minus water) limit must be met. For facilities which bubble or use add-on control equipment, the pounds of VOC/gallon of solids emission limit must be met.

19.3.2 Compliance with the emission limitations of Subsection 19.3.1 shall be achieved, through:

- (a) Installation of an approved control system such that the total emission reduction from the controlled coating line is 95 percent or greater over uncontrolled volatile organic compound emissions, or
- (b) Coating reformulation such that the emission limitation of Subsection 19.3.1 is met for all coatings on any coating lines using this method of compliance, or
- (c) Installation of control equipment to reduce emissions to the equivalent of the emission limitations of Subsection 19.3.1 as calculated on a solids applied basis, or
- (d) Use of daily-weighted averaging, as determined by the procedures in Appendix A of this regulation, to achieve the emissions limitations in Subsection 19.3.1 for all surface coating operations except the coating of flat wood paneling;
- (e) An alternative equivalent method of control as approved by the Director. Approval of an alternative method must be approved by EPA as a source specific State Implementation Plan (SIP) revision.

19.3.3 The emission limitations set forth in Subsection 19.3.1 may be relaxed on a case-by-case basis as provided below:

- (a) The emission limitations set forth in Subsection 19.3.1 shall not apply to surface coating facilities that comply with the following, if 6 months prior to the final compliance date the owner or operator of the facility submits for approval by the Director:
 - (1) Economic and/or technical documentation to the satisfaction of the Department and EPA that the applicable emission limitations set forth in Subsection 19.3.1 cannot feasibly be met, and
 - (2) A proposal to set emission limitations different from those of Subsection 19.3.1 that will represent an Alternative Reasonably Available Control Technology; and
 - (3) A schedule for attaining the Alternative Reasonably Available Control Technology emission limitations within two years of its being approved.

- (b) All compliance date and emission limitation relaxations made under Subsections 19.3.3 (a) will not be final until approved by EPA as a SIP revision.
- (c) A relaxation of the emissions limitations in 19.3.1 will be approved only if the facility can demonstrate that economically, technically or both that neither coating reformulation nor the installation of a control system is feasible or even partially feasible.
- (d) The facility will undergo Reasonably Available Control Technology review every three years after the compliance date as determined in 19.3.3(a)(3) until the final emission limitation is achieved as defined in subsection 19.3.1.

19.4 Alternative Standards Allowing Internal Offsets for Surface Coating Facilities (The Bubble Concept)

19.4.1 The Director may approve alternative volatile organic compound emission standards in an applicable compliance schedule if:

- (a) the facility as a whole complies in a 24 hour period with the applicable emission limitations of Subsection 19.3.1 by the applicable compliance date, and
- (b) the requirements of Subsections 19.4.2 through 19.4.7 are met, and
- (c) the state is designated by EPA as Attainment or as Non-Attainment With Approved Demonstration of Attainment for Ozone.

- 19.4.2 (a) The facility owner or operator specifies an emission limitation which defines the alternative maximum allowable emission rate in pounds per hour for each surface coating line which is part of the surface coating facility, and which is eligible under the criteria in Subsection 19.4.2 (b), and
- (b) To be eligible for consideration under this section the construction or modification of the coating line must have commenced prior to the effective date of the regulation, and
 - (c) The combined actual emissions over a 24-hour period from all surface coating in the bubble used at surface coating lines which are a part of the surface coating facility and which are eligible as per subsection 19.4.2(b) must be less than or equal to the allowable emission total (E) determined by the following equation:

$$E = A1 \times B1 + A2 \times B2 + \dots + An \times Bn \text{ where:}$$

E = the allowable emissions from the surface coating facility in pounds per day, A_1, A_2, \dots, A_n = the applicable emission limitation for each coating line as determined in Subsection 19.3.1 in pounds per gallon of solids applied; B_1, B_2, \dots, B_n = the amount of gallons of solids applied for each coating in that 24-hour period.

- (d) All surface coating lines at the surface coating facility which are not included in the internal offset must comply with other applicable portions of this regulation. Non reactive VOC may not generate credit in a trade against reactive VOC in a bubble.

19.4.3 In order for a facility to demonstrate compliance with the emission limitations that were approved pursuant to Subsection 19.3.1, it is required that records shall be maintained. The records shall be:

- (a) kept on a daily basis for each installation being bubbled; and
- (b) follow record keeping requirements of Subsection 19.5.2; and
- (c) maintained for a five-year period and be accessible for review by the Director or the designated personnel of the Director.

19.4.4 Facilities applying to bubble will be assigned an emission baseline, as described in Subsection 19.1.8 Capacity utilization will be based on the average production during the two-year period prior to application to bubble. Facilities' annual emissions may not exceed the limit set by the emission baseline. Emissions will be reported monthly and compliance with the emission baseline will be met every consecutive 12 month period or some shorter period approved by the Director.

19.4.5 The provisions and emission limitations of any emissions bubble shall be incorporated in an approval, which must include source specific emission limits, recordkeeping requirements, and test methods used to demonstrate compliance. Facilities which are subject to an enforcement action need EPA approval to bubble.

19.4.6 The ERC's used in an emissions bubble must be calculated on a solids applied basis.

19.4.7 An approvable bubble must meet the following requirements:

- (a) Emissions must be surplus. The reductions must not have been included in those anticipated in the SIP for the affected source. Credit cannot be taken for reductions made prior to the base year of the State's Approved SIP. This is accomplished by not including any coatings that were in compliance prior to the base year of the State's Approved SIP in the daily calculation of actual emissions and the daily calculation of allowable emissions in subsection 19.4.2 (c). Emissions reductions shown must not have been required by current state regulations, and must not be used by the source to meet any other regulatory requirement.
- (b) Emission reductions must be permanent. The amount and duration of the reductions must be shown.
- (c) Emission reductions must be quantifiable. A reliable basis for calculating the amount and rate of reductions must be used. Emission rates before and after the reductions must be demonstrated.
- (d) Emission reductions must be enforceable. An approval containing enforceable emissions rates will be issued. Demonstration of emission reductions must follow recordkeeping guidelines listed in subsection 19.5.2.
- (e) All of the requirements of EPA's final Emission Trading Policy (51 FR 43814) must be met.

19.4.8 The Department shall not approve any emissions bubble without first giving public notice at least 30 days prior to approval, and affording all interested persons opportunity to comment. The public may request a hearing. Upon a demonstration of significant public interest, the Director, in his discretion, may hold a hearing. EPA shall be provided with the public notice, proposed approval order, and technical support by the first day of the public comment period. Public (and EPA) comments will be considered prior to final approval of the bubble application. Upon issuance of final approval of the bubble, EPA will be mailed a copy of the approval, new technical support, and response to public comments.

19.5 Compliance Certification, Recordkeeping and Reporting Requirements

19.5.1 Any owner or operator of a coating line or operation that is **exempt** from the emission limitations in Section 19.3 because the facility's VOC emissions from all operations in any one of the surface coating categories listed as Subsections 19.1.20 (a)-(i) have not exceeded 15 lbs/day, before the application of capture systems and control devices, on any day since 31 December 1989, shall comply with the following:

- (a) Certification. By November 19, 1993, the owner or operator of a facility referenced in Subsection 19.5.1 shall certify to the Director that the facility is exempt by providing the following:
- (1) Name and location of the facility;
 - (2) Name, address and telephone number of the person responsible for the facility;
 - (3) A declaration that the facility is exempt from the emission limitations of Section 19.3 because the facility's VOC emissions from all operations on each of the surface coating categories listed as Subsections 19.1.20 (a) - (i) have not exceeded 15 lbs/day, before the application of capture systems and control devices, on any day since 31 December 1989;
 - (4) Calculations that demonstrate that the combined VOC emissions from all coating lines and operations at the facility for each of the surface coating categories listed as Subsections 19.1.20 (a) - (i) for a day representative of current maximum production levels are 15 pounds or less before the application of capture systems and control devices. The following equation shall be used to calculate total VOC emissions for that day for each surface coating category:

Where:

- T = Total VOC emissions from coating lines and operations at the facility associated with any one of the surface coating categories listed as Subsections 19.1.20 (a) - (i), before the application of capture systems and control devices, in units of lb/day;
- n = The number of different coatings applied on each coating line or each operation at the facility associated with the surface coating category;
- i = Subscript denoting an individual coating;
- A_i = Mass of VOC per volume of coating (i) (excluding water), as applied, used at the facility in units of pounds VOC per gallon; and
- B_i = Volume of coating (I) (excluding water), as applied, associated with the surface Coating category, used at the facility in units of gallons per day. The instrument or method by which the owner or operator accurately measured or calculated the volume of each coating, as applied, used shall be described in the certification to the Director.

- (b) Recordkeeping. On and after November 19, 1993, the owner or operator of a facility referenced in Subsection 19.5.1 shall collect and record all of the following information each year and maintain the information at the facility for a period of 5 years:
- (1) The name and identification number of each coating, as applied;
 - (2) The mass of VOC per volume (excluding water) and the volume of coating (excluding water), as applied, used each year;
 - (3) The total VOC emissions from coating lines and operations at the facility associated with each of the surface coating categories listed as Subsections 19.1.20 (a) - (i), before the application of capture systems and control devices, as calculated using the equation in Section 19.5.1(a)(5), and
 - (4) The type and amount of solvent used for diluents and cleanup operations.
- (c) Reporting. On and after November 19, 1993, the owner or operator of a facility referenced in Subsection 19.5.1 of this regulation shall notify the Director of any record

showing that the facility's VOC emissions from all operations in any one of the surface coating categories listed as Subsections 19.1.20 (a) - (i), before the application of capture systems and control devices, exceed 15 pounds on any day.

19.5.2 Any owner or operator of a coating line or operation that meets the applicability threshold in Subsection 19.2.1 and complies with or intends to comply with Subsection

19.3.1 by the use of **daily-weighted averaging** shall comply with the following:

- (a) Initial Compliance Certification Plan: By November 19, 1993, or upon startup of a new coating line or operation, or upon changing the method of compliance for an existing subject coating line or operation from control devices or complying coatings to the use of daily-weighted averaging, the owner or operator of a coating line or operation referenced in Subsection 19.5.2 shall certify to the Director that the coating line or operation is or will be in compliance with the requirements of Subsection 19.3.1 on and after the compliance dates specified in Subsection 19.8.5. Such certification shall include:
- (1) The name and location of the facility;

- (2) The name, address and telephone number of the person responsible for the facility;
- (3) An identification of subject sources;
- (4) The name and identification number of each coating line or operation which will comply by means of daily-weighted averaging;
- (5) The instrument or method by which the owner or operator will accurately measure or calculate the volume of each coating (excluding water), as applied, used each day on each coating line or operation;
- (6) The method by which the owner or operator will create and maintain records each day as required by Subsection 19.5.2(b);
- (7) The time at which the facility's day begins if a time other than midnight local time is used to define a day.

(b) Final Compliance Certification: By the compliance dates specified in Subsection 19.8.5, the owner or operator of sources identified in Subsection 19.5.2 shall certify to the Director that the facility is in compliance with the emission limitations in Subsection 19.3.1 by the use of daily-weighted averaging. This certification shall include:

- (1) The name, identification number, mass of VOC per volume (minus water) and the volume of each coating (minus water), as applied, on each coating line or operation and the calculation of the daily-weighted average for each day of the previous month using the procedure outlined in Appendix A of this regulation, or
- (2) The name, identification number, mass of VOC per volume (minus water) and the volume of each coating (minus water), as applied, on each coating line or operation, the density of each coating as applied, and the volume fraction solids content of each coating, as applied and the calculation of the daily-weighted average for each day of the previous month using the procedure outlined in Appendix A of this regulation, and
- (3) An identification of any changes from the initial compliance certification plan.

(c) Recordkeeping. On and after the compliance dates specified in Subsection

19.8.5, the owner or operator of a coating line or operation referenced in Subsection 19.5.2 and complying by the means of daily-weighted averaging shall collect and record all of the following information each day for each coating line or operation and maintain the information at the facility for a period of 5 years:

- (1) The name and identification number of each coating, as applied, on each coating line or operation,
- (2) The mass of VOC per volume coating (excluding water) and the volume of each coating (excluding water), as applied, used each day on each coating line or operation,
- (3) The daily-weighted average VOC content of all coatings, as applied on each coating line or operation calculated according to the procedure in Appendix A of this regulation
- (4) The type and amount of solvent used for diluents and cleanup operations.

(d) Reporting. On and after the compliance dates specified in Subsection 19.8.5, the owner or operator of a subject coating line or operation referenced in Subsection 19.5.2 shall:

- (1) Notify the Director of any record showing noncompliance with the applicable daily weighted average requirements by sending a copy of the record to the Director within 30 calendar days following the occurrence, and,
- (2) At least 30 calendar days before changing the method of compliance from daily-weighted averaging to the use of complying coatings or control devices, comply with all requirements of Subsections 19.5.3 or 19.5.4, respectively. Upon changing the method of compliance from the use of daily-weighted averaging to complying coatings or control devices, the owner or operator shall comply with all requirements of the sections of this regulation applicable to that compliance method.

19.5.3 Any owner or operator of a coating line which meets the applicability threshold in Subsection 19.2.1 of this regulation and complies with or intends to comply with Subsection 19.3.1 by the use of **complying coatings** shall comply with the following:

- (a) **Initial Compliance Certification Plan:** By November 19, 1993, or upon startup of a new coating line or operation, or upon changing the method of compliance for an existing subject coating line or operation from daily-weighted averaging or control devices to the use of complying coatings, the owner or operator of a coating line or operation referenced in Subsection 19.5.3 shall certify to the Director that the coating line or operation is or will be in compliance with the applicable emission limitations in this regulation on and after the compliance dates specified in Subsection 19.8.5. Such certification shall include:
- (1) The name and location of the facility;
 - (2) The name, address and telephone number of the person responsible for the facility;
 - (3) Identification of subject sources;
 - (4) The name and identification number of each coating, as applied, on each coating line or operation;
 - (5) The mass of VOC per volume coating (excluding water) and the volume of each coating (excluding water), as applied, and
 - (6) The time at which the facility's day begins if a time other than midnight local time is used to define a day.
- (b) **Final Compliance Certification:** By the compliance dates specified in Subsection 19.8.5, the owner or operator of sources identified in Subsection 19.5.2 shall certify to the Director that the facility is in compliance with the emission limitations in Subsection 19.3.1 by the use of complying coatings. This certification shall include:
- (1) The name, identification number, mass of VOC per volume (minus water) and the volume of each coating (minus water), as applied, on each coating line or operation and
 - (2) An identification of any changes from the initial compliance certification plan.
- (c) **Recordkeeping.** On and after the compliance dates specified in Subsection 19.8.5, the owner or operator of a coating line or operation referenced in Subsection 19.5.3 shall collect and record all of the following information each month for each coating line or operation and maintain the information at the facility for a period of 5 years:

- (1) The name and identification number of each coating, as applied, on each coating line or operation, and
 - (2) The mass of VOC per volume of each coating (excluding water), as applied, used each month on each coating line or operation.
 - (3) The type and amount of solvent used for diluents and cleanup operations.
- (d) Reporting. On and after the compliance dates specified in Subsection 19.8.5, the owner or operator of a subject coating line or operation referenced Subsection 19.5.3 shall:
- (1) Notify the Director of any record showing use of any non-complying coatings by sending a copy of such record to the Director within 30 calendar days following that use, and,
 - (2) At least 30 calendar days before changing the method of compliance from the use of complying coatings to daily-weighted averaging or control devices, comply with all requirements of Subsections 19.5.2 or 19.5.4, respectively. Upon changing the method of compliance from the use of complying coatings to daily-weighted averaging or control devices, the owner or operator shall comply with all requirements of the section of this regulation applicable to that compliance method.

19.5.4 Any owner or operator of a coating line or operation that meets the applicability threshold in subsection 19.2.1 and complies with or intends to comply with subsection 19.3.1 by means of **control devices** shall comply with the following:

- (a) Initial Compliance Certification Plan: By November 19, 1993, or upon startup of a new coating line or operation, or upon changing the method of compliance for an existing coating line or operation from the use of complying coatings or daily-weighted averaging to control devices, the owner or operator of the subject coating line or operation shall certify to the Director that the coating line will be in compliance with the applicable emission limits in this regulation on and after the compliance dates specified in Subsection 19.8.5. Such certification shall include:
 - (1) The name and location of the facility;
 - (2) The name, address and telephone number of the person responsible for the facility;
 - (3) Identification of subject sources;

- (4) The name and identification number of each coating, as applied, on each coating line or operation;
 - (5) The mass of VOC per volume coating solids applied and the gallons of solids of each coating applied;
 - (6) Identification of each control device which will be or has been installed pursuant to the requirements in this regulation and date of installation;
 - (7) Identification of coating lines which will be controlled by each control device and documentation of expected capture and destruction efficiency or reduction efficiency;
 - (8) Control device design information;
 - (i) For thermal incinerators - design combustion temperature ($^{\circ}\text{F}$);
 - (ii) For catalytic incinerators - design exhaust gas temperature ($^{\circ}\text{F}$), design temperature rise across catalyst bed ($^{\circ}\text{F}$), anticipated frequency of catalyst change, and catalyst changes;
 - (iii) For condensers - design inlet temperature of cooling medium ($^{\circ}\text{F}$), design exhaust gas temperature ($^{\circ}\text{F}$);
 - (iv) For carbon adsorbers - design pressure drop across the adsorber, VOC concentration at breakthrough.
- (b) Final Compliance Certification: By the compliance dates specified in Subsection 19.8.5, the owner or operator of sources identified in Subsection 19.5.4 shall certify to the Director that control devices have been installed which reduce emissions from subject lines. This certification shall include:
- (1) An identification of each control device installed, including the identification number, model number, installation date and coating lines controlled.

- (2) Results of compliance tests and associated calculations demonstrating a 95% overall reduction of VOC emissions from subject lines or reduction of emissions to the equivalent of the emission limitations of Subsection 19.3.1 as calculated on a solids applied basis. Overall reduction efficiency shall be calculated as the product of the capture efficiency and the control device destruction or removal efficiency. Testing shall be performed according to Section 19.7. Capture efficiency shall be determined by methods approved by the Department and EPA.
 - (3) An identification of any changes from the initial compliance certification plan.
- (c) Recordkeeping. On and after the compliance dates specified in Subsection 19.8.5, the owner or operator of a coating line or operation referenced in Subsection 19.5.4 shall collect and record all of the following information each month for each coating line or operation and maintain the information at the facility for a period of 5 years:
- (1) The name and identification number of each coating used on each coating line or operation;
 - (2) For sources complying with Subsection 19.3.2 (a):
 - (i) The mass of VOC per unit volume of coating solids, as applied, the volume solids content, as applied, and the volume, as applied, of each coating used each month on each coating line or operation;
 - (3) For sources complying with Subsection 19.3.2 (c):
 - (i) The maximum VOC content (mass of VOC per unit volume of coating solids, as applied) or the daily-weighted average VOC content (mass of VOC per unit volume of coating solids, as applied) of the coatings used each day on each coating line or operation;
 - (4) The type and amount of solvent used for diluents and clean up operations;
 - (5) A log of operating time for the capture system, control device, monitoring equipment, and the associated coating line or operation;

- (6) A maintenance log for the capture system, control device, and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages;
- (7) For thermal incinerators:
 - (i) All 3-hour periods of operation in which the average combustion temperature was more than 28EC (50EF) below the average combustion temperature during the most recent performance test that demonstrated that the facility was in compliance, and
 - (ii) The operating temperature.
- (8) For catalytic incinerators:
 - (i) All periods where the temperature increase across the catalyst bed is less than 80% of the temperature increase recorded during the most recent performance test that demonstrated that the facility was in compliance, and
 - (ii) The inlet and outlet temperatures and temperature rise across the catalyst bed.
- (9) For carbon adsorbers:
 - (i) All 3-hour periods of operation during which the average VOC concentration or reading of organics in the exhaust gases is more than 20 percent greater than the average exhaust gas concentration or reading measured by the organics monitoring device during the most recent determination of the recovery efficiency of the carbon adsorber that demonstrated that the facility was in compliance, and
 - (ii) The pressure drop across the adsorber and the hydrocarbon levels for breakthrough.
- (d) Reporting. On and after the compliance dates specified in Subsection 19.8.5, the owner or operator of a subject coating line or operation referenced in Subsection 19.5.4 shall:

- (1) Notify the Director of any record showing noncompliance with the applicable requirements for control devices by sending a copy of the record to the Director within 30 calendar days following the occurrence, and
- (2) At least 30 calendar days before changing the method of compliance from control devices to the use of complying coatings or daily-weighted averaging, comply with all requirements of Subsections 19.5.3 or 19.5.2, respectively. Upon changing the method of compliance from control devices to the use of complying coatings or daily-weighted averaging, the owner or operator shall comply with all requirements of the section of this regulation applicable to the coating line or operation referenced in Subsection 19.5.4

19.6 Registration

19.6.1 Any person who meets the applicability threshold in Subsection 19.2.1 must register annually with the Office of Air Resources. No later than 45 days following the end of a calendar year, the following information must be submitted on forms supplied by the Director:

- (a) The name and address of the company and the name and telephone number of a responsible corporate official submitting the registration, and
- (b) A description of all operations in the facility where volatile organic compounds are emitted, and
- (c) Quantities of coatings, solvents, dissolvers, viscosity reducers, diluents, thinners, reagents, cleaning agents, enamels, lacquers, or paints consumed during the calendar year of record, and
- (d) The amount of volatile organic compound per gallon of coating solution (pounds per gallon) for each coating, enamel, lacquer, or paint consumed at the facility during the calendar year of record.

19.7 Compliance Demonstration/Testing

19.7.1 Compliance with emission limitations of Subsections 19.3.1 and 19.3.3 and Section 19.4 shall be demonstrated in accordance with 40 CFR 60, Appendix A, Methods 24, 24A, 25 as amended or any other EPA approved method which has been accepted by the Director. A one hour bake time must be used for Methods 24 and 24A and, further, Methods 24 and 24A apply to multicomponent coatings.

19.7.2 (Reserved for stack exhaust sampling techniques.)

19.7.3 Facilities using add on controls to comply with RACT must show that the equipment meets specific capture and control efficiency limits which will be set in an enforceable document. Control efficiency of the equipment will be determined using EPA-approved test methods. Calculations will be done on a solids applied basis. Continuous compliance will be maintained at all times. Compliance averaging times will be met according to the control device chosen and EPA test methods (as codified in 40 CFR 60), as follows:

Compliance Method	EPA Reference Test Method	Test Averaging Time
Reformulation	24	instantaneous
Solvent destruction or solvent recovery except carbon adsorption	25	3 hours
Carbon adsorption	25 or other test method as appropriate	The length of adsorption cycle or 24-hours, whichever is less.

or other methods approved by the Director and EPA. Once the control efficiency has been determined for any add-on control device by Reference Method 25, or any alternative method approved by the Department and EPA, compliance shall be determined on an instantaneous basis time period (e.g. determined control efficiency shall be used to calculate whether samples from the process meet the applicable emissions limit.)

19.8 Compliance Schedules

19.8.1 Persons owning, leasing or controlling the operation of any surface coating facility and subject to the emission limitations set forth in Subsection 19.3.1 shall achieve compliance according to the dates set forth in Subsection 19.8.5. Proposed plans and compliance schedules for paper, fabric, and vinyl coating facilities which have or have had actual emission of 100 tons of VOC per year will be submitted to the Director no later than 1 March 1980. The Director may require other subject facilities to submit compliance schedules after review of initial compliance certification.

19.8.2 All compliance schedules for process equipment replacement or modification or installation of control equipment shall provide for periodic increments of progress to document such, including but not limited to:

- (a) Submittal of engineering plans,
- (b) Ordering of equipment plan approval,
- (c) Installation date after confirmation of order by the manufacturer, and
- (d) Date by which the applicable regulatory emission limitations will be

achieved after equipment is in satisfactory operation.

19.8.3 All compliance schedules based upon reformulation shall provide for periodic increments of progress to document such, including but not limited to:

- (a) Submittal of research, engineering plans, and formulation,
- (b) Operating and maintenance procedures,
- (c) Schedules for research and development,
- (d) Purchase orders for reformulations,
- (e) Commencement and completion of process modifications, product marketability testing, and
- (f) Date by which regulatory emission limitations will be achieved.

19.8.4 Any compliance schedule based on the provisions of Sections 19.3 and Section 19.4 shall not allow a facility to supersede any applicable emission limitations including but not limited to:

- (a) Best Available Control Technology determinations, or
- (b) Lowest Achievable Emissions Rate determinations, or
- (c) Federal New Source Performance Standards, or National Emission Standards of Hazardous Air Pollutants, or
- (d) Any other condition or standard that is specifically required by the Clean Air Act (as amended) for new or modified sources.
- (e) In the case of a bubble issued under Section 19.4, the emission baseline as defined by Subsection 19.1.8

19.8.5 Compliance schedules submitted in accordance with the requirements of Subsection 19.8.1 are subject to review and approval by the Director. Compliance shall be achieved as follows:

- (a) For paper, vinyl, and fabric coating facilities with actual emissions in excess of 100 tons per year prior to 1985, no later than July 1, 1985.
- (b) For paper, fabric, and vinyl coating facilities having actual emissions of 100 tons per year or more between July 1, 1985 and December 10, 1989, no later than one year after having become an actual 100 ton per year source.

- (c) For paper, fabric and vinyl coating facilities having potential emissions in excess of 100 tons per year or more prior to 1990, no later than December 10, 1990.
- (d) For any surface coating facility covered by this regulation, which exceeds the applicability threshold in Subsection 19.2.1 on or after November 19, 1992 and which does not come under Subsections (a) through (c) above, no later than May 31, 1995. All coating lines commencing operation after November 19, 1992 must be in compliance with the emission limits specified in Section 19.3 upon commencing operation.

19.9 General Provisions

19.9.1 Purpose

The purpose of this regulation is to limit the emissions of volatile organic compounds from surface coating operations.

19.9.2 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

19.9.3 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.

19.9.4 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.

19.9.5 Effective Date

The foregoing regulation, "Control of Volatile Organic Compounds from Surface Coating Operations", as amended, after due notice, is hereby adopted and filed with the Secretary of State this _____ day of _____, 20__ 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: February 21, 2007

Public Hearing held: March 23, 2007

Filing Date: June 29, 2007

Effective Date: July 19, 2007

APPENDIX A

Procedure for Calculating the Daily-Weighted Averages

1. The daily-weighted average VOC content, in units of mass of VOC per unit volume of coating, excluding water and exempt compounds, as applied, of the coatings used on a day on a coating line or operation shall be calculated using the following equation:

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

where:

- VOC_w = The daily-weighted average VOC content of the coatings, as applied, used on a coating line or operation in units of pounds of VOC per gallon of coating, excluding water and exempt compounds;
- n = The number of different coatings, as applied, each day on a coating line or operation;
- V_i = The volume of each coating (i), as applied, used in a day on a coating line or operation in units of gallons, excluding water and exempt compounds;
- C_i = The VOC content of each coating (i), as applied, used in a day on a coating line or operation in units of pounds VOC per gallon of coating, excluding water and exempt compounds; and
- V_T = The total volume of all coating, as applied, used in a day on a coating line or operation in units of gallons, excluding water and exempt compounds.

2. The daily-weighted average VOC content, as applied, of the coatings used on a coating line or operation in units of mass of VOC per unit volume of coating solids shall be calculated by the following equation:

$$VOC_{ws} = \frac{\sum_{i=1}^n W_{VOC_i} D_i V_i}{\sum_{i=1}^n V_i VS_i}$$

where:

- VOC_{ws} = The daily-weighted average VOC content, as applied, of the coatings used on a coating line or operation in units of mass of VOC per unit volume of coating solids;
- n = The number of different coatings, as applied, used in a day on a coating line or operation;
- V_i = The volume of each coating (i), as applied, used in a day on a coating line or operation in units of gallons,
- W_{VOC_i} = The weight fraction of VOC in each coating (i), as applied, used in a day on a coating line or operation in units of pounds VOC per pound of coating;
- D_i = The density of each coating (i) as applied, used in a day on a coating line or operation in units of pounds VOC per gallon of coating (lb/gal); and
- VS_i = The volume fraction solids content of each coating (i), as applied, used in a day on a coating line or operation in units of gallons solids/gallons coating.