

**SOUTH CAROLINA  
DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL  
AIR POLLUTION CONTROL REGULATIONS AND STANDARDS**

**REGULATION 61-62.5  
AIR POLLUTION CONTROL STANDARDS**

**STANDARD NO. 5  
VOLATILE ORGANIC COMPOUNDS**

**SECTION I - GENERAL PROVISIONS**

**Part A. Definitions.** Unless specifically defined elsewhere in this Standard, the definitions below and those contained in the South Carolina Pollution Control Act and Regulation 62.1, Section I will apply to this Standard.

1. "Air Dried Coatings" are coatings which are dried by the use of air at temperatures up to 90° C (194° F).
2. "Air/vapor interface" means the combined areas of the entrance and exit openings of a conveyORIZED degreaser.
3. "Bead Dipping" means the dipping of an assembled tire bead into a solvent based cement.
4. "Bulk Gasoline Terminal" means a gasoline storage plant which receives gasoline from refineries primarily by pipeline, ship, or barge, and delivers gasoline to bulk plants or to commercial or retail accounts primarily by tank truck, and has a daily throughput of more than 20,000 gallons (76,000 liters) of gasoline.
5. "Capture system" means the equipment (including hoods, ducts, fans, etc.) used to contain, capture, or transport a pollutant to a control device.
6. "Class II Hardboard Paneling Finish" is a finish which meets the specifications of Voluntary Product Standard PS-59-73 as approved by the American National Standards Institute.
7. "Clear Coat" is a coating which lacks color and opacity or is transparent and uses the under coat as a reflectant base or undertone color.
8. "Coating Application System" means all operations and equipment which apply, convey, and dry a surface coating, including, but not limited to, spray booths, flow coaters, conveyers, flashoff areas, air dryers and ovens.
9. "Coil Coating" means the coating of any flat metal sheet or strip that comes in rolls or coils. This includes protective, decorative, and functional coatings.
10. "Cold cleaning" means the batch process of cleaning and removing soils from metal surfaces by spraying, brushing, flushing, or immersion while maintaining the solvent below its boiling point. Wipe cleaning is not included in this definition.

11. "Condenser" is a device which cools a gas stream to a temperature which removes specific organic compounds by condensation.

12. "Construction" means onsite fabrication, erection, or installation of an emission source, air pollution control equipment, or a plant.

13. "Control device" means equipment (incinerator, adsorber, or the like) used to destroy, contain, or remove air pollutant(s) prior to discharge.

14. "Control System" means any number of control devices and associated equipment designed and operated to reduce the quantity of VOC emitted.

15. "Conveyorized degreasing" means the continuous process of cleaning metal surfaces using either cold or vaporized solvents.

16. "Cutback Asphalt" is asphalt cement which has been liquefied by blending with petroleum solvents (diluent).

17. "Emission" means the release or discharge, directly or indirectly, of any air pollutant from any source.

18. "Existing process" is any process described in any Part of Section II of this Standard which was in existence or under construction on the effective date of that Part.

July 1, 1979 is the effective date for Parts A, B, C, D, E, N, O, S and T. July 1, 1980 is the effective date for Parts F, G, H, P, Q and R.

19. "External Floating Roof" means a storage vessel cover in an open top tank consisting of a double deck or pontoon single deck which rests upon and is supported by the petroleum liquid being contained and is equipped with a closure seal or seals to close the space between the roof and tank shell.

20. "Extreme Environmental Conditions" means constant exposure to the weather, exposure to temperatures consistently above 95° C, detergents, scouring, solvents, corrosive atmospheres, or similar environmental conditions.

21. "Extreme Performance Coatings" means coatings designed for harsh exposure or extreme environmental conditions.

22. "Fabric Coating" includes all types of coatings applied to fabric including protective, decorative, and functional coatings.

23. "Flat Wood Paneling" includes wood construction products made of plywood, particle wood, and hardboard for interior paneling. Not included are tileboard or particleboard used as a furniture component, or exterior siding.

24. "Flexographic Printing" is the application of words, designs, and pictures to a substrate by means of a roll printing technique in which the pattern to be applied is raised above the printing roll and the image carrier is made of rubber or other rubber-like synthetic materials.

25. "Freeboard height" means the distance from the top of the vapor zone to the top of the degreaser tank.

26. "Freeboard ratio" means the freeboard height divided by the width of the degreaser.
27. "Functional Coating" a coating that serves a purpose beyond decoration or protection of the substrate being coated. An example of functional coatings could include a layer of light sensitive coating which helps form the photographic image on photographic film. Also, the camouflaging outercoat used by the army on its vehicles is a functional coating.
28. "Gasoline" means a petroleum distillate having a Reid vapor pressure of 4 psi (27.6 k Pa) or greater that is used as fuel for internal combustion engines.
29. "Gasoline Tank Truck" means tank truck (or trailer equipped with a storage tank) used for the transport of gasoline to or from bulk gasoline terminals.
30. "Green Tires" means assembled tires before molding and curing.
31. "Green Tire Spraying" means the spraying of green tires, both inside and outside, with release compounds which help remove air from the tire during molding and which prevent the tire from sticking to the mold after curing.
32. "Hardboard" is a panel manufactured primarily from inter-felted ligno-cellulosic fibers which are consolidated under heat and pressure in a hot press.
33. "Hardwood Plywood" is plywood whose surface layer is a veneer of hardwood.
34. "Heavy Coverage" means thick or large areas of a given color.
35. "Internal Floating Roof" means a cover or roof in a fixed roof tank which rests upon or is floated upon the petroleum liquid being contained, and which is equipped with a closure seal or seals to close the space between the roof edge and tank shell.
36. "Large Appliances" include doors, cases, lids, panels and interior support parts of residential and commercial washers, dryers, ranges, refrigerators, freezers, water heaters, dishwashers, trash compactors, air conditioners and other similar products.
37. "Light Coverage" is thin or small areas of a given color.
38. "Liquid-Mounted Seal" means a primary seal mounted in continuous contact with the liquid between the tank wall and the floating roof around the circumference of the tank.
39. "Low Solvent Coatings" are coatings which emit organic solvent in amounts equal to or less than that required by the Standard in specified applications.
40. "Magnet Wire Coating" means the process of applying a coating of electrically insulating varnish or enamel to aluminum or copper wire used in electrical machinery. This includes protective, decorative, and functional coatings.
41. "Manufacture of Pneumatic Rubber Tires" means the production of passenger car tires, light and medium truck tires and other tires manufactured on assembly lines using automated equipment.
42. "Metal Furniture" includes any furniture made of metal or any metal part which will be assembled

with other metal, wood, fabric, plastic or glass parts to form a furniture piece.

43. "Natural Finish Hardwood Plywood Panels" are panels whose original grain pattern is enhanced by essentially transparent finishes frequently supplemented with fillers and toner.

44. "Non-attainment county" means a county which is determined by the Department to exceed any National Ambient Air Quality Standard.

45. "Non-designated county" means any county which has neither been exempted in Section I. Part B nor listed as a non-attainment county.

46. "Open top vapor degreasing" means the batch process of cleaning metal surfaces by condensing hot solvent vapor on the colder metal parts.

47. "Organic material" means a chemical compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate.

48. "Oven" means a heated chamber used to bake, cure, polymerize, and/or dry a surface coating.

49. "Overall Emission Reduction Efficiency" is the weight (per unit of time) of VOC removed by a control device divided by the weight per identical unit of time) of VOC emissions generated by a source, expressed as a percentage.

50. "Owner or operator" means any person who owns, leases, controls, operates or supervises a plant, emission source, or air pollution control equipment.

51. "Packaging Rotogravure Printing" means rotogravure printing upon paper, paper board, metal foil, plastic film, and other substrates, which are, in subsequent operations, formed into containers and/or labels for articles to be sold.

52. "Paper Coating" means a coating put on paper and pressure sensitive tapes regardless of substrate. Related web coating processes on plastic film, decorative coatings on metal foil and functional coatings are included in this definition.

53. "Passenger Type Tire" means agricultural, airplane, industrial, mobile home, light and medium duty truck, and passenger vehicle tires with a bead diameter up to 20.0 inches and cross section dimension up to 12.8 inches.

54. "Petroleum Liquids" means petroleum, condensate, and any finished or intermediate products manufactured in a petroleum refinery but does not mean Number 2 through Number 6 fuel oils as specified in A.S.T.M. D396-80, gas turbine fuel oils Numbers 2GT through 4GT as specified in A.S.T.M. D2880-82, or diesel fuel oils Numbers 2-D and 4-D as specified in A.S.T.M. D975-82.

55. "Prime Coat" means the first film of coating applied in a multicoat operation.

56. "Printed Interior Panels" are panels whose grain or natural surface is obscured by fillers and basecoats upon which a simulated grain or decorative pattern is printed.

57. "Production Equipment Exhaust System" is a device for collecting and directing out of the work area VOC fugitive emissions from reactor openings, centrifuge openings, and other vessel openings for the purpose of protecting workers from excessive VOC exposure.

58. "Publication Rotogravure Printing" is printing upon paper which is subsequently formed into books, magazines, catalogues, brochures, directories, newspaper supplements, or similar types of printed materials.

59. "Roll Printing" is the application of words, designs, and pictures to a substrate by means of hard rubber or steel rolls, each with only partial coverage.

60. "Saturation Process" - Saturation processes include coatings which saturate throughout the body of a web, fabric or paper and do not merely coat the surface of the web. Textile dyeing processes are not included.

61. "Reactor" means a vat or vessel, which may be jacketed to permit temperature control, designed to contain chemical reactions.

62. "Separation Operation" is a process that separates a mixture of compounds and solvents into two or more components. Specific mechanisms include extraction, centrifugation, filtration, and crystallization.

63. "Single Coat" means only one film of coating applied on the metal substrate.

64. "Solvent" means organic materials which are liquid at standard conditions and which are used as dissolvers, viscosity reducers, or cleaning agents.

65. "Solvent metal cleaning" means the process of cleaning soils from metal surfaces by cold cleaning or open top vapor degreasing or conveyORIZED degreasing.

66. "Synthesized Pharmaceutical Manufacturing" means manufacture of pharmaceutical products by one or more chemical reactions followed by a series of purifying operations. Organic chemicals are used as raw materials and as solvents.

67. "Thin Particleboard" is a manufactured board one-quarter inch or less in thickness made of individual wood particles which have been coated with a binder and formed into flat sheets by pressure.

68. "Tileboard" is paneling that has a colored waterproof surface coating.

69. "Topcoat" means the final film of coating applied in a multicoat operation.

70. "Total potential emissions" means the maximum capacity of a plant or portion of a plant (of a type governed by this regulation) to emit a pollutant under its physical or operational design, in the absence of air pollution control equipment. Any physical or operational limitations which affect the capacity of the plant to emit a pollutant, including restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is enforceable.

71. "True Vapor Pressure" means the equilibrium partial pressure exerted by a petroleum liquid as determined in accordance with methods described in American Petroleum Institute Bulletin 2517, "Evaporation Loss From Floating Roof Tanks", 1962.

72. "Tread End Cementing" means the application of a solvent based cement to the tire tread ends.

73. "Undertread cementing" means the application of a solvent based cement to the underside of a tire tread.

74. "Vapor Collection System" means a vapor transport system which uses direct displacement by the gasoline being transferred to force vapors from the vessels being loaded into either a vessel being unloaded or a vapor control system or vapor holding tank.

75. "Vapor Control System" means a system that prevents release to the atmosphere of at least 90 percent by weight of organic compounds in the vapors displaced from a vessel during transfer of gasoline.

76. "Vapor-Mounted Seal" means any primary seal mounted so that there is an annular space underneath the seal. The annular vapor space is bounded by the bottom of the primary seal, the tank wall, the liquid surface, and the floating roof.

77. "Vinyl Coating" refers to any protective, decorative, or functional topcoat applied over vinyl coated fabric or vinyl sheets. It does not include the application of vinyl plastisol to the fabric (emissions from the application of plastisol are near zero). Also, organisol and plastisol coatings cannot be used to bubble emissions from vinyl printing and topcoating.

78. "Water Based Sprays" means release compounds, sprayed on the inside and outside of green tires, in which solids, water, and emulsifiers have been substituted for organic solvents for all but 10% by weight of the total.

## **Part B. General Applicability**

1. This standard will apply to existing processes statewide except in the following six counties: Anderson, Bamberg, Barnwell, Chesterfield, Darlington and Hampton.

2. This standard will apply to plants described under one of the Parts of Section II when such a plant has total potential emissions of VOC more than 550 pounds (250 kilograms) in any one day (nominal size - 100 tons per year) or more than 150 pounds (68 kilograms) in any one hour. This paragraph does not apply to Part N.

3. A plant having an existing process which was not required to be regulated due to plant size will be subject to the Regulation when that plant increases emissions sufficiently to meet the applicability requirements regardless of the time frame. Conversely, a source which is subject to the requirements of the Regulation, but which decreases emissions sufficiently so that their total potential emissions are below the applicability requirements, may petition the Department for relief from the emission limits of the Regulation. Approval of the petition will be based, in part, on a showing that the reductions are not temporary and a consent to be permitted at the reduced level.

4. Further applicability requirements or limitations may be listed under the individual Parts of Section II.

## **Part C. Alternatives and Exceptions to Control Requirements**

### **1. Alternative Controls**

a. If the owner or operator of a source of volatile organic compounds regulated by this Standard can demonstrate that compliance with Section II would not be feasible, he may petition the Department to allow the use of alternative operational and/or equipment controls for the reduction of volatile organic

compound emissions of such source. Petition must be made for each source within a given plant and nothing herein should be interpreted as permitting a source regulated by this Standard to exceed emission limits for that source as given in Section II. The petition must be submitted in writing to the Department and must contain:

(i) the name and address of the company and the name, address and telephone number of a company officer over whose signature the petition is submitted; and,

(ii) a description of all operations conducted at the location to which the petition applies and the purpose that the volatile organic compounds emitting equipment serves within the operations; and,

(iii) reference to the specific operational and/or equipment controls under Section II for which alternative operational and/or equipment controls are proposed; and,

(iv) a detailed description of the proposed alternative operational and/or equipment controls, the magnitude of volatile organic compound emission reduction which will be achieved, and the quantity and composition of volatile organic compounds which will be emitted if the alternative operational and/or equipment controls are instituted; and

(v) a schedule for the installation and/or institution of the alternative operational and/or equipment controls in conformance with Section II.

b. The Department may approve a Petition for Alternative Control if:

(i) the petition is submitted in accordance with paragraph a above; and,

(ii) the Department determines that the petitioner cannot comply with Section II because of technological infeasibility (considering costs); and,

(iii) the petition contains a schedule for achieving and maintaining reduction of volatile organic compound emissions to the maximum extent feasible and as expeditiously as practicable; and,

(iv) a nuisance condition will not result from operation of the source as proposed in the Petition; and,

(v) the alternative control approach must assure control levels at least as stringent as those listed in the appropriate part of Section II.

(vi) the petition is approved by U.S.E.P.A. as a source-specific State Implementation Plan revision.

## 2. Alternative Emission Limitations

a. If the owner or operator of a source of volatile organic compounds regulated by this standard can demonstrate that compliance with applicable portions of Section II would not be economically feasible, the Department may, on a case-by-case basis, allow emission limitations less stringent than those required by applicable parts of Section II.

All data pertinent to the showing of economic infeasibility must accompany a petition for this relief, and shall include a present value analysis showing economic infeasibility.

b. Exceptions granted under this part are not effective until submitted to and approved by the Administrator of the United States Environmental Protection Agency as a revision of the State Implementation Plan pursuant to Section 110(a)(3)(A) of the Clean Air Act as amended November 1990.

#### **Part D. Compliance Schedules**

The following schedules of compliance apply to the individual Parts of Section II as indicated by the references given in these individual Parts. The "date of notification" refers to the date that a plant or source is notified in writing that it is subject to one of the VOC Regulations.

##### Schedule No. 1

1. Submit construction permit applications and final plans for the emission control system and/or new process equipment and/or modification of existing process equipment within two (2) months from date of notification.
2. Issue purchase orders and contracts for the emission control systems and/or process equipment and/or modification of existing process equipment to accomplish emission control within five (5) months from date of notification.
3. Initiate on-site construction or installation of the emission control and/or process equipment and/or modification of existing process equipment within eight (8) months from date of notification.
4. Complete on-site construction or installation of the emission control and/or process equipment and/or modification of existing process equipment within sixteen (16) months from the date of notification.
5. Achieve final compliance within eighteen (18) months from date of notification.

##### Schedule No. 2

1. Submit construction permit applications and final plans for the application of low solvent technology within two (2) months from date of notification.
2. Complete evaluation of product quality and commercial acceptance within seven (7) months from date of notification.
3. Issue purchase orders and contracts for low solvent technology and process modifications within nine (9) months from date of notification.
4. Begin process modifications within eleven (11) months from date of notification.
5. Complete process modifications and begin use of low solvent technology within seventeen (17) months from date of notification.
6. Achieve final compliance within eighteen (18) months from date of notification.

##### Schedule No. 3

1. Submit construction permit applications and final plans for the application of low solvent content coating technology within two (2) months from date of notification.

2. Complete research and development of low solvent content coating within eight (8) months from date of notification.
3. Complete evaluation of product quality and commercial acceptance within fourteen (14) months from date of notification.
4. Issue purchase orders and contracts for low solvent content coatings and process modifications within sixteen (16) months from date of notification.
5. Begin process modifications within eighteen (18) months from date of notification.
6. Complete process modifications and begin use of low solvent content coatings within twenty-three (23) months from date of notification.
7. Achieve final compliance within twenty-four (24) months from the date of notification.

#### **Part E. Volatile Organic Compound Compliance Testing**

The owner or operator of any volatile organic compound source required to comply with Section II shall, at his own expense, conduct source tests in accordance with the provisions of R.61-62.1, Section IV, Source Tests, to demonstrate compliance unless the Department determines that the compliance status of the source can be monitored as described in Part F.

If tests are required, the following conditions shall apply:

1. Test frequencies for VOC abatement equipment will be as follows:
  - a. every four (4) years for sources utilizing solvent recovery emission control devices (e.g. carbon adsorption, refrigeration).
  - b. every two (2) years for sources utilizing catalytic incineration/destruction.
  - c. every four (4) years for sources utilizing flame incineration provided the source operates, calibrates, and maintains a recorder for each incinerator which continuously records the combustion zone temperature and such temperature is maintained at a value no less than that recorded during the last stack test during which compliance was verified.
2. Testing of VOC capture systems will be performed annually. However, only an initial test will be required provided:
  - a. capture system flow rate indicators (e.g. magnehelic gauges, manometers) are operated, calibrated, and maintained, and
  - b. the indicated values are maintained at a level no less than that recorded during the last source test during which compliance was verified, and
  - c. the type and location of the flow rate indicators are approved by this Department, and
  - d. no process, capture system, nor VOC abatement equipment modifications have been made.

3. Other sources will be placed on a two (2) year test cycle.

4. An owner or operator of a source shall ensure that source tests are conducted in accordance with Regulation 61-62.1, Section IV, Source Tests.

#### **Part F. Recordkeeping, Reporting, Monitoring**

1. The owner or operator of any volatile organic compound emission source or control equipment shall maintain, as a minimum: records detailing all activities relating to any compliance schedule under Part D above, records of all compliance testing conducted under Part E above, and records of all monitoring as required by the Department and conducted under paragraphs 4.a. and 4.b. below.

2. The owner or operator of any applicable volatile organic compound emission source or control equipment shall, on request make available to the Department, or the U.S. Environmental Protection Agency, reports detailing the nature, specific sources, and total monthly quantities of all volatile organic compound emissions.

3. If the applicable volatile organic compound emission source or control equipment is located in an ozone nonattainment area (as designated by the U.S. Environmental Protection Agency) the owner or operator shall maintain daily records of operations. If the applicable volatile organic compound emission source is determined to be in noncompliance with an applicable emission standard, the Department reserves the right to require the owner or operator to maintain daily records of operations. The records, or summaries, shall be made available to the Department or the U.S. Environmental Protection Agency upon request. The records shall include, but not be limited to, the following:

a. The standard number and part applicable to the operation for which the records are being maintained.

b. The application method and substrate type (metal, plastic, paper, etc.).

c. The amount and type of adhesive, coatings (including catalyst and reducer for multicomponent coatings), solvent, and/or graphic arts material used at each point of application, including exempt compounds.

d. The VOC content as applied in each adhesive coating, solvent, and/or graphic arts material.

e. The date for each application of adhesive coating, solvent, and/or graphic arts material.

f. The amount of surface preparation, clean-up, or wash-up solvent (including exempt compounds) used and the VOC content of each.

g. Oven temperature (where applicable).

h. Line number (where applicable).

i. For control equipment:

(i) Thermal incinerator - Combustion temperature, inlet and outlet VOC concentration from emission tests, how and when these concentrations were determined, destruction or removal efficiency, and manufacturer data.

(ii) Catalytic incinerator - Exhaust temperature, change in temperature across catalyst bed, date of last change of catalyst bed, inlet and outlet VOC concentration from emission tests, how and when these concentrations were determined, destruction or removal efficiency, and manufacturer data.

(iii) Condenser - Inlet temperature of cooling medium, outlet temperature of cooling medium, inlet and outlet VOC concentrations from emission tests, how and when these concentrations were determined, removal efficiency, and manufacturer data.

VOC content shall be calculated using a percent solids basis (less water and exempt solvents) for adhesives, coatings, and inks; using EPA Reference Method 24, July 1, 1989. VOC content and density of rotogravure publication inks shall be determined by EPA Reference Method 24A, July 1, 1989. Once initial VOC content calculations have been made for existing adhesives, coatings, and inks, only new or modified adhesives, coatings, and inks must be tested for VOC content. Records must be kept in units necessary to verify compliance, i.e. lb VOC/gal of coating less water and exempt solvents for surface coating.

Copies of all records and reports required under this Part shall be available for inspection during normal working hours and furthermore, copies of the required records and reports shall be furnished within ten working days after receipt of a written request from the Department.

4. The owner or operator of any volatile organic compound emission source or control equipment shall:

a. install, operate, calibrate, and maintain process and/or control equipment, monitoring instruments, or procedures as required by the Department and as necessary to comply with paragraphs 1 and 2 above; and,

b. maintain, in writing, data and/or reports relating to monitoring instruments or procedures which will, upon review, document the compliance status of the volatile organic compound emission source control equipment to the satisfaction of the Department.

5. Copies of all records and reports under paragraphs 1, 2, 3, and 4, above, shall be retained by the owner or operator for two years after the date on which the record was made or the reports submitted.

## **Part G. Equivalency Calculations**

In determining the amount of reduction required within coating/printing industries from a non-complying application, equivalency calculations must be made on a mass of VOC per volume of solids basis in accordance with Department policy and methodology. These determinations must be made when compliance demonstrations are based on reformulation, alternative emission limitation options (bubbles), or add-on control.

## **SECTION II - PROVISIONS FOR SPECIFIC SOURCES**

### **Part A. Surface Coating of Cans**

#### **1. Emission Limitations**

No owner or operator of a can coating application system subject to this Part may cause, allow, or permit the discharge into the atmosphere of any volatile organic compounds in excess of the following levels:

a. 2.8 pounds per gallon (0.34 kilograms per liter) of coating, excluding water and exempt solvents, delivered to the coating applicator from sheet basecoat (exterior and interior) and overvarnish or two-piece can exterior (basecoat and overvarnish) operations.

b. 4.2 pounds per gallon (0.51 kilograms per liter) of coating, excluding water and exempt solvents, delivered to the coating applicator from two and three-piece can interior body spray and two-piece can exterior end (spray or roll coat) operations.

c. 5.5 pounds per gallon (0.66 kilograms per liter) of coating, excluding water and exempt solvents, delivered to the coating applicator from three-piece can side-seam spray operations.

d. 3.7 pounds per gallon (0.44 kilograms per liter) of coating, excluding water and exempt solvents, delivered to the coating applicator from end sealing compound operations.

## 2. Control Technology

a. The emission limitations in Paragraph 1 of this Part can be achieved by:

(i) the application of low solvent coating technology;

(ii) incineration, provided that 90 percent of the nonmethane volatile organic compounds (VOC measured as total combustible carbon) which enter the incinerator are oxidized to carbon dioxide and water; or

(iii) carbon bed solvent recovery system; or,

(iv) alternative controls as allowed under Section I, Part C; and,

(v) a capture system must be used in conjunction with emission control equipment systems. The design and operation of a capture system must be consistent with good engineering practice, and shall be required to provide for an overall VOC emission reduction efficiency sufficient to meet the emission limitations in paragraph 1 of this Part.

b. Compliance may be demonstrated by a 24-hour weighted average of emissions from two or more coatings having the same emission limits for the same type of operation on the same line. Averaging times of longer than 24 hours are not allowed.

## 3. Compliance Schedules.

a. The owner or operator of a volatile organic compound source subject to this Part shall meet one of the following schedules as applicable:

(i) A source utilizing emission control equipment and/or replacement process equipment and/or modification of existing process equipment to comply with Paragraph 1 shall comply with Schedule 1 of Section I, Part D.

(ii) A source utilizing low solvent technology where the Department determines that low solvent content coating technology has been sufficiently researched and developed for a particular application to comply with emission limitations in Paragraph 1 shall comply with Schedule 2 of Section I, Part D.

(iii) A source utilizing low solvent technology which does not qualify under (ii) above to comply with emission limitations in Paragraph 1 shall comply with Schedule 3 of Section I, Part D.

b. Any owner or operator of a source subject to any compliance schedule shall certify to the Department within five days after the deadline for each increment of progress, whether the required increment of progress has been met.

## **Part B. Surface Coating of Coils**

### 1. Emission Limitations

No owner or operator of a coil coating application system subject to this Part may cause, allow, or permit the discharge into the atmosphere of any volatile organic compound in excess of 2.6 pounds per gallon (0.31 kilograms per liter) of coating, excluding water, delivered to the coating applicator from prime and topcoat or single coat operations.

### 2. Control Technology

a. The emission limitation in Paragraph 1 of this Part can be achieved by:

(i) the application of low solvent technology; or,

(ii) incineration, provided that 90 percent of the nonmethane volatile organic compounds (VOC measured as total combustible carbon) which enter the incinerator are oxidized to carbon dioxide and water; or

(iii) carbon bed solvent recovery system; or

(iv) alternative controls as allowed under Section I, Part C;

(v) a capture system must be used in conjunction with emission control equipment systems. The design and operation of a capture system must be consistent with good engineering practice, and shall be required to provide for an overall VOC emission reduction efficiency sufficient to meet the emission limitations in Paragraph 1 of this Part.

b. Compliance may be demonstrated by 24-hour weighted averaging of emissions for two or more coatings having the same emission limits from the same type of operation on the same line. Averaging times of longer than 24 hours are not allowed.

### 3. Compliance Schedules.

a. The owner or operator of a volatile organic compound source subject to this Part shall meet one of the following schedules as applicable:

(i) Sources utilizing emission control equipment and/or replacement process equipment and/or modification of existing process equipment to comply with Paragraph 1 shall comply with Schedule 1 of Section I, Part D.

(ii) Sources utilizing low solvent technology where the Department determines that low solvent content technology has been sufficiently researched and developed for a particular application to comply

with emission limitations in Paragraph 1 shall comply with Schedule 2 of Section I, Part D.

(iii) Sources utilizing low solvent technology which does not qualify under (ii) above to comply with emission limitations in Paragraph 1 shall comply with Schedule 3 of Section I, Part D.

b. Any owner or operator of a source subject to any compliance schedule shall certify to the Department within five days after the deadline for each increment of progress, whether the required increment of progress has been met.

### **Part C. Surface Coating of Paper, Vinyl, and Fabric.**

#### 1. Emission Limitations

No owner or operator of a fabric, vinyl, or paper coating application system, including saturation processes, subject to this Part may cause, allow or permit the discharge into the atmosphere of any volatile organic compounds in excess of the following levels;

a. 2.9 pounds per gallon (0.35 kilograms per liter) of coating, excluding water and exempt solvents, delivered to the fabric or paper coating applicator system;

b. 3.8 pounds per gallon (0.45 kilograms per liter) of coating, excluding water and exempt solvents, delivered to the vinyl coating applicator system.

#### 2. Control Technology

a. The emission limitations in Paragraph 1 of this Part can be achieved by:

(i) The application of low solvent technology; or

(ii) incineration, provided that 90 percent of the nonmethane volatile organic compounds (VOC measured as total combustible carbon) which enter the incinerator are oxidized to carbon dioxide and water; or,

(iii) carbon bed solvent recovery system; or

(iv) alternative controls as allowed under Section I, Part C;

(v) a capture system must be used in conjunction with emission control equipment systems. The design and operation of a capture system must be consistent with good engineering practice, and shall be required to provide for an overall VOC emission reduction efficiency sufficient to meet the emission limitations in Paragraph 1 of this Part.

b. Compliance may be demonstrated by a 24-hour weighted average of emissions for two or more coatings having the same emission limits for the same type of operation on the same line. Averaging time of longer than 24 hours are not allowed.

#### 3. Compliance Schedules.

a. The owner or operator of a volatile organic compound source subject to this Part shall meet one of the following schedules as applicable:

(i) Sources utilizing emission control equipment and/or replacement process equipment and/or modification of existing process equipment to comply with Paragraph 1 shall comply with Schedule 1 of Section I, Part D.

(ii) Sources utilizing low solvent technology where the Department determines that low solvent content coating technology has been sufficiently researched and developed for a particular application to comply with emission limitations in Paragraph 1 shall comply with Schedule 2 of Section I, Part D.

(iii) Sources utilizing low solvent technology which does not qualify under (ii) above to comply with emission limitations in Paragraph 1 shall comply with Schedule 3 of Section I, Part D.

b. Any owner or operator of a source subject to any compliance schedule shall certify to the Department within five days after the deadline for each increment of progress, whether the required increment of progress has been met.

#### **Part D. Surface Coating of Metal Furniture and Large Appliances.**

##### 1. Emission Limitations

No owner or operator of a metal furniture or a large appliance coating application system subject to this Part may cause, allow or permit the discharge into the atmosphere of any volatile organic compounds in excess of the following levels:

a. 3.0 pounds per gallon (0.36 kilograms per liter) of coating, excluding water and exempt solvents, delivered to the coating applicator from prime and topcoat or single coat operation from a metal furniture coating application system;

b. 2.8 pounds per gallon (0.34 kilograms per liter) of coating, excluding water and exempt solvents, delivered to the coating applicator from prime, single or topcoat from a large appliance coating application system. This emission limit will not apply to 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 1 quart (0.95 liters) in any one 8-hour period.

##### 2. Control Technology

a. The emission limitations in Paragraph 1 of this Part can be achieved by:

(i) the application of low solvent content coating technology; or,

(ii) incineration, provided that 90 percent of the nonmethane volatile organic compounds (VOC measured as total combustible carbon) which enter the incinerator are oxidized to carbon dioxide and water; or,

(iii) carbon bed solvent recovery system; or,

(iv) alternative controls as allowed under Section I, Part C;

(v) a capture system must be used in conjunction with emission control equipment systems. The design and operation of a capture system must be consistent with good engineering practice, and shall be required to provide for an overall VOC emission reduction efficiency sufficient to meet the emission limitations in Paragraph 1 of this Part.

b. Compliance may be demonstrated by a 24-hour weighted average of emissions for two or more coatings having the same type of operation on the same line. Averaging times of longer than 24 hours are not allowed.

### 3. Compliance Schedules

a. The owner or operator of a volatile organic compound source subject to this Part shall meet one of the following schedules as applicable:

(i) Sources utilizing emission control equipment and/or replacement process equipment and/or modification of existing process equipment to comply with Paragraph 1 shall comply with Schedule 1 of Section I, Part D.

(ii) Sources utilizing low solvent technology where the Department determines that low solvent content coating technology has been sufficiently researched and developed for a particular application to comply with emission limitations in Paragraph 1 shall comply with Schedule 2 of Section I, Part D.

(iii) Sources utilizing low solvent technology which does not qualify under (ii) above to comply with emission limitations in Paragraph 1 shall comply with Schedule 3 of Section I, Part D.

b. Any owner or operator of a source subject to any compliance schedule shall certify to the Department within five days after the deadline for each increment of progress, whether the required increment of progress has been met.

## **Part E. Surface Coating of Magnet Wire**

### 1. Emission Limitations

No owner or operator of a magnet wire coating oven subject to this Part may cause, allow or permit the discharge into the atmosphere of any volatile organic compounds in excess of 1.7 pounds per gallon (0.20 kilograms per liter) of coating, excluding water and exempt solvents, delivered to the coating applicator from magnet wire coating operations.

### 2. Control Technology

a. The emission limitations in Paragraph 1 of this Part can be achieved by:

(i) the application of low solvent content coating technology; or,

(ii) incineration, provided that 90 percent of the nonmethane volatile organic compounds (VOC measured as total combustible carbon) which enter the incinerator are oxidized to carbon dioxide and water; or,

(iii) carbon bed solvent recovery system; or,

(iv) alternative controls as allowed under Section I, Part C;

(v) a capture system must be used in conjunction with emission control equipment systems. The design and operation of a capture system must be consistent with good engineering practice, and shall be required to provide for an overall VOC emission reduction efficiency sufficient to meet the emission

limitations in Paragraph 1 of this Part.

b. Compliance may be demonstrated by a 24-hour weighted average of emissions for two or more coatings having the same type of operation on the same line. Averaging times of longer than 24 hours are not allowed.

### 3. Compliance Schedules

a. The owner or operator of a volatile organic compound source subject to this Part shall meet one of the following schedules as applicable:

(i) Sources utilizing emission control equipment and/or replacement process equipment and/or modification of existing process equipment to comply with Paragraph 1 shall comply with Schedule 1 of Section I, Part D.

(ii) Sources utilizing low solvent technology where the Department determines that low solvent content coating technology has been sufficiently researched and developed for a particular application to comply with emission limitations in Paragraph 1 shall comply with Schedule 2 of Section I, Part D.

(iii) Sources utilizing low solvent technology which does not qualify under (ii) above to comply with emission limitations in Paragraph 1 shall comply with Schedule 3 of Section I, Part D.

b. Any owner or operator of a source subject to any compliance schedule shall certify to the Department within five days after the deadline for each increment of progress, whether the required increment of progress has been met.

## **Part F. Surface Coating of Miscellaneous Metal Parts and Products.**

### 1. Applicability

a. This Standard will apply to plants whose operations include at least one of the affected sources in paragraph b.

b. Affected sources include those which utilize coating application systems for miscellaneous metal parts and products in the following industries:

(i) Large Farm Machinery;

(ii) Small Farm Machinery;

(iii) Small Appliances;

(iv) Commercial Machinery;

(v) Industrial Machinery;

(vi) Fabricated Metal Products;

(vii) Any other industrial category which coats metal parts or products under the Standard Industrial Classification Code of Major Group 33 (primary metal industries), Major Group 34 (fabricated metal products), Major Group 35 (non-electric machinery), Major Group 36 (electric machinery), Major

Group 37 (transportation equipment), Major Group 38 (miscellaneous instruments), and Major Group 39 (miscellaneous manufacturing industries);

c. Not included is the surface coating of the following metal parts and products:

(i) Automobiles and light duty trucks;

(ii) Metal cans;

(iii) Flat metal sheets and strips in the form of rolls or coils;

(iv) Magnet wire for use in electrical machinery;

(v) Metal furniture;

(vi) Large appliances;

(vii) Exterior of airplanes;

(viii) Automobile refinishing;

(ix) Customized coating of automobiles and trucks, if production is less than 35 vehicles per day; and,

(x) Exterior of marine vessels.

## 2. Emission Limitations.

No owner or operator of a miscellaneous metal parts and products coating application system subject to this Part may cause, allow, or permit the discharge into the atmosphere of any volatile organic compounds in excess of the following levels;

a. 0.52 kilograms/l (4.3 lb/gal) of coating, excluding water and exempt solvents, delivered to a coating applicator that applies clear coatings;

b. 0.42 kilograms/l (3.5 lb/gal) of coating, excluding water and exempt solvents, delivered to a coating applicator in a coating application system that utilizes air dried or forced warm air dried at temperatures up to 90° C (194° F);

c. 0.42 kilograms/l (3.5 lb/gal) of coating, excluding water and exempt solvents, delivered to a coating applicator that applies extreme performance coatings; and,

d. 0.36 kilograms/l (3.0 lb/gal) of coating, excluding water and exempt solvents, delivered to a coating applicator for all other coatings and coating application systems.

e. If more than one emission limitation in paragraph 2 applies to a specific coating, then the least stringent emission limitation shall be applied.

## 3. Control Technology.

a. The emission limits set forth in paragraph 2 can be achieved by:

(i) The application of low solvent content coating technology; or,

(ii) Incineration, provided that 90 percent of the nonmethane volatile organic compounds (VOC measured as total combustible carbon) which enter the incinerator are oxidized to carbon dioxide and water; or,

(iii) Carbon bed solvent recovery system; or,

(iv) Alternative controls as allowed under Section I, Part C;

(v) A capture system must be used in conjunction with emission control equipment systems. The design and operation of a capture system must be consistent with good engineering practice, and shall be required to provide for an overall VOC emission reduction efficiency sufficient to meet the emission limitations in paragraph 2 of this Part.

b. Compliance may be demonstrated by 24-hour weighted average of emissions for two or more coatings having the same emission limits for the same type of operation on the same line. Averaging times of longer than 24 hours are not allowed.

#### 4. Compliance Schedules

a. The owner or operator of a source of volatile organic compounds subject to this Part shall meet one of the following schedules as applicable:

(i) A source utilizing low solvent content coatings to comply with the emission limitations in paragraph 2 shall comply with Schedule 2 of Section I, Part D.

(ii) A source utilizing process equipment changes or add-on control devices, including incineration with or without heat recovery, or process modifications not requiring purchase orders to comply with the emission limitations in paragraph 2 shall comply with Schedule 1 of Section I, Part D.

b. Any owner or operator of a source subject to any compliance schedule shall certify to the Department within five days after the deadline for each increment of progress, whether the required increment of progress has been met.

### **Part G. Surface Coating of Flat Wood Paneling**

#### 1. Applicability

Affected plants include all flat wood manufacturing operations which produce:

(a) printed interior panels made of hardwood plywood and thin particleboard; or,

(b) natural finish hardwood plywood panels; or,

(c) paneling with Class II finishes.

Not included is the manufacture of exterior siding, tileboard, or particleboard used as a furniture component.

## 2. Emission Limitations

No owner or operator of a flat wood paneling coating application system subject to this Part may cause, allow, or permit the discharge into the atmosphere of any volatile organic compounds in excess of the following levels :

a. 2.9 kg per 100 square meters of coated finished product (6.0 lb/1,000 sq ft) from printed interior panels, regardless of the number of coats applied;

b. 5.8 kg per 100 square meters of coated finished product (12.0 lb/1,000 sq ft) from natural finish hardwood plywood panels, regardless of the number of coats applied; and,

c. 4.8 kg per 100 square meters of coated finished product (10.0 lb/1,000 sq ft) from Class II finishes on hardboard panels, regardless of the number of coats applied.

## 3. Control Technology

a. The emission limits in Paragraph 2 of this Part can be achieved by:

(i) the application of low solvent content coating technology; or,

(ii) incineration, provided that 90 percent of the nonmethane volatile organic compounds (VOC measured as total combustible carbon) which enter the incinerator are oxidized to carbon dioxide and water; or,

(iii) carbon bed solvent recovery system, or,

(iv) alternative controls as allowed under Section I, Part C;

(v) a capture system must be used in conjunction with emission equipment control systems. The design and operation of a capture system must be consistent with good engineering practice and shall be required to provide for an overall emission reduction efficiency sufficient to meet the emission limitations in Paragraph 2 of this Part.

b. Compliance may be demonstrated by a 24-hour weighted average of emissions for two or more coatings having the same emission limits for the same type of operation on the same line. Averaging time of longer than 24 hours are not allowed.

## 4. Compliance Schedules

a. The owner or operator of a source of volatile organic compounds subject to this Part shall meet one of the following schedules as applicable:

(i) Sources utilizing low solvent content coatings to comply with the emission limitations in Paragraph 2 shall comply with Schedule 2 of Section I, Part D.

(ii) Sources utilizing process equipment changes or add-on control devices, including incineration with or without heat recovery, (or process modification not requiring purchase orders) to comply with the emission limitations in Paragraph 2 shall comply with Schedule 1 of Section I, Part D.

b. The owner or operator of a source subject to any compliance schedule shall certify to the

Department within five days after the deadline for each increment of progress, whether the required increment of progress has been met.

## **Part H. Graphic Arts - Rotogravure and Flexography**

### 1. Applicability

Affected plants include all packaging rotogravure, publication rotogravure, and flexographic printing operations. Potential emissions are calculated on historical records of actual consumption of solvent and ink.

### 2. Emission Limitations

No owner or operator of a packaging rotogravure, publication rotogravure, or flexographic printing operation subject to this Part may cause, allow, or permit the discharge into the atmosphere of any volatile organic compounds unless:

a. The volatile fraction of water-borne inks, as applied to the substrate, contains 25 percent by volume or less of organic solvent and 75 percent by volume or more of water for heavy coverage.

b. The source achieves a 70 percent by volume overall reduction of solvent usage as compared to all solvent-borne ink usage for light coverage.

c. The source prints with high solids ink which contains, less water, 60 percent by volume or more nonvolatile materials.

### 3. Control Technology

The emission limitations in paragraph 2 of this Part can be achieved by:

- a. The application of low solvent content coating technology;
- b. A carbon adsorption system;
- c. Incineration;
- d. An alternative VOC emission reduction system.
- e. A capture system must be used in conjunction with the control equipment systems and provide for an overall VOC emission reduction of at least:
  - (i) 75 percent where a publication rotogravure process is employed;
  - (ii) 65 percent where a packaging rotogravure process is employed; and,
  - (iii) 60 percent where a flexographic printing process is employed.
- f. Alternative controls as allowed under Section I, Part C.

### 4. Compliance Schedules

a. The owner or operator of a source of VOC subject to this Part must comply with Schedule 1 of Section I, Part D.

b. The owner or operator of a source subject to any compliance schedule shall certify to the Department within five days after the deadline for each increment of progress, whether the required increment of progress has been met.

**Part I. through Part M. (Reserved for future use.)**

**Part N. Solvent Metal Cleaning**

1. Applicability

a. This Standard will apply in the following manner:

(i) control system A shall apply to cold cleaning, open top vapor degreasing and conveyORIZED degreasing operation, if the plant is located in a non-designated county and uses more than 100 tons per year of solvents plant-wide based upon annual solvent purchase records.

(ii) control system B shall apply to cold cleaning, open top vapor degreasing and conveyORIZED degreasing operations, if the plant is located in a nonattainment county and uses more than 100 tons per year of solvents plant-wide based upon annual solvent purchase records.

b. In lieu of meeting the requirements of 1a(i), a plant in a non-designated county may choose to retain all solvent purchase and return records, including, making them available to the Department and if the potential loss to the ambient air, by evaporation or by other means, of solvent is less than 100 tons/year, then the plant is exempted from control system A requirements. Potential loss for this purpose shall be determined by subtracting returned solvent from purchased solvent.

c. The provision of this Part shall apply with the following exceptions:

(i) open top vapor degreasers with an open area smaller than one square meter (10.8 square feet) shall be exempt from paragraphs 3b(iii)(b) and 3b(iii)(d) of this Part.

(ii) conveyORIZED degreasers with an air/vapor interface smaller than 2.0 square meters (21.6 square feet) shall be exempt from paragraphs 4b(iii) of this Part.

2. Control Provisions for Cold Cleaning

Except as provided under paragraph 1c of this Part, the owner or operator of a cold cleaning operation shall:

a. for Control System A;

(i) equip the cleaner with a cover; and,

(ii) equip the cleaner with some means for draining cleaned parts; and,

(iii) provide a permanent, conspicuous label, summarizing the operating requirements; and,

(iv) drain the cleaned parts for at least 15 seconds or until dripping ceases; and,

(v) close degreaser cover whenever parts are not handled in the cleaner; and,

(vi) store waste solvent only in covered containers; and,

(vii) do not dispose of waste solvent nor transfer it to another party, such that greater than 20 percent of the waste (by weight) can evaporate into the atmosphere.

b. for Control System B;

(i) equip the cleaner with a cover and the cover shall be so designed that it can be easily operated with one hand; if,

(a) the solvent volatility is greater than 2 kilo Pascals (15 millimeters of mercury or 0.3 pounds per square inch) measured at 38° C (100° F); or,

(b) the solvent is agitated; or,

(c) the solvent is heated; and,

(ii) equip the cleaner with some means for draining cleaned parts and the drainage mechanism shall be constructed internally so that parts are enclosed under the cover while draining if the solvent volatility is greater than 4.3 kilo Pascals (32 millimeters of mercury or 0.6 pounds per square inch) measured at 38°C (100° F), except that the drainage mechanism may be external for applications where an internal type cannot fit into the cleaning system; and,

(iii) install one of the following control devices if the solvent volatility is greater than 4.3 kilo Pascals (33 millimeters of mercury or 0.6 pounds per square inch) measured at 38° C (100° F), or if the solvent is heated above 50° C (122° F);

(a) freeboard that gives a freeboard ratio greater than or equal to 0.7; or,

(b) water cover (solvent must be insoluble in water and heavier than water); or,

(c) other systems of equivalent control, such as refrigerated chiller or carbon adsorption, approved by the Department; and,

(iv) provide a permanent, conspicuous label, summarizing the operating requirements; and,

(v) store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, such that greater than 20 percent of the waste solvent (by weight) can evaporate into the atmosphere; and,

(vi) close the cover whenever parts are not being handled in the cleaner; and,

(vii) drain the cleaned parts for at least 15 seconds or until dripping ceases; and,

(viii) if used, supply a solvent spray that is a solid fluid stream (not a fine, atomized or shower type spray) at a pressure which does not cause excessive splashing.

### 3. Control Provisions for Vapor Degreasers

Except as provided under paragraph 1c of this Part, the owner or operator of an open top degreaser shall:

a. for Control System A;

(i) equip the vapor degreaser with a cover that can be opened and closed easily without disturbing the vapor zone; and,

(ii) keep the cover closed at all times except when processing work loads through the degreaser; and,

(iii) minimize solvent carryout by:

(a) racking parts to allow complete drainage; and,

(b) moving parts in and out of the degreaser at less than 3.3 meters per minute (11 feet per minute); and,

(c) holding the parts in the vapor zone at least 30 seconds or until condensation ceases; and,

(d) tipping out any pools of solvent on the cleaned parts before removal from the vapor zone; and,

(e) allowing parts to dry within the degreaser for at least 15 seconds or until visually dry; and,

(iv) not degrease porous or absorbent materials, such as cloth, leather, wood, or rope; and,

(v) not occupy more than half of the degreaser's open top area with a workload; and,

(vi) not load the degreaser to the point where the vapor level would drop more than 10 centimeters (4 inches) when the workload is removed from the vapor zone; and,

(vii) always spray below the vapor level; and,

(viii) repair solvent leaks immediately, or shut down the degreaser; and,

(ix) store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, such that greater than 20 percent of the waste solvent (by weight) can evaporate into the atmosphere; and,

(x) not operate the cleaner so as to allow water to be visually detectable in solvent exiting the water separator; and,

(xi) not use ventilation fans near the degreaser opening, nor provide exhaust ventilation exceeding 20 cubic meters per minute per square meter (65 cubic feet per minute per square foot) of degreaser open area, unless necessary to meet OSHA requirements.

b. for Control System B;

(i) equip the vapor degreaser with a cover that can be opened and closed easily without disturbing the vapor zone; and,

(ii) provide the following safety switches:

(a) a condenser flow switch and thermostat which shut off the pump heat if the condenser coolant is either not circulating or too warm; and,

(b) a spray safety switch which shuts off the spray pump if the vapor level drops more than 10 centimeters (4 inches); and,

(iii) install one of the following control devices:

(a) powered cover, if the freeboard ratio is greater than or equal to 0.75, and if the degreaser opening is greater than 1 square meter (10 square feet); or,

(b) refrigerated chiller; or,

(c) enclosed design (cover or door opens only when the dry part is actually entering or exiting the degreaser); or,

(d) carbon adsorption system with ventilation greater than or equal to 15 cubic meters per minute per square meter (50 cubic feet per minute per square foot) of air/vapor area (when cover is open), and exhausting less than 25 parts per million of solvent averaged over one complete adsorption cycle; or,

(e) a control system, demonstrated to have control efficiency equivalent to or greater than any of the above, and approved by the Department; and,

(iv) attach a permanent, conspicuous label, summarizing operating procedures (v) to (x).

(v) keep the cover closed at all times except when processing work loads through the degreaser; and,

(vi) minimize solvent carryout by:

(a) racking parts to allow complete drainage;

(b) moving parts in and out of the degreaser at less than 3.3 meters per minute (11 feet per minute); and,

(c) holding the parts in the vapor zone at least 30 seconds or until condensation ceases; and,

(d) tipping out any pools of solvent on the cleaned parts before removal from the vapor zone; and,

(e) allowing parts to dry within the degreaser for at least 15 seconds or until visually dry; and,

(vii) not degrease porous or absorbent materials, such as cloth, leather, wood or rope; and,

(viii) not occupy more than half of the degreaser's open top area with a workload; and,

(ix) not load the degreaser to the point where the vapor level would drop more than 10 centimeters (4 inches) when the workload is removed from the vapor zone; and,

(x) always spray below the vapor level; and,

(xi) repair solvent leaks immediately, or shut down the degreaser; and,

(xii) store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, such that greater than 20 percent of the waste solvent (by weight) can evaporate into the atmosphere; and,

(xiii) not operate the cleaner so as to allow water to be visually detectable in solvent exiting the water separator; and

(xiv) not use ventilation fans near the degreaser opening, nor provide exhaust ventilation exceeding 20 cubic meters per minute per square meter (65 cubic feet per minute per square foot) of degreaser open area, unless necessary to meet OSHA requirements.

#### 4. Control Provisions for Conveyorized Degreasers

Except as provided under Paragraph 1.c. of this Part the owner or operator of the conveyorized degreasers shall:

##### a. for Control System A;

(i) not use workplace fans near the degreaser opening, nor provide exhaust ventilation exceeding 20 cubic meters per minute per square meter (65 cubic feet per minute per square foot) of degreaser opening, unless necessary to meet OSHA requirements; and,

(ii) minimize carryout emissions by:

(a) racking parts for best drainage; and,

(b) maintaining the vertical conveyor speed at less than 3.3 meters per minute (11 feet per minute); and,

(iii) store waste solvent only in covered containers and not dispose of waste solvent nor transfer it to another party, such that greater than 20 percent of the waste solvent (by weight) can evaporate into the atmosphere; and,

(iv) repair solvent leaks immediately, or shut down the degreaser; and,

(v) not operate the cleaner so as to allow water to be visually detectable in solvent exiting the water separator.

##### b. or Control System B:

(i) install one of the following control devices:

(a) refrigerated chiller; or,

(b) carbon adsorption system, with ventilation greater than or equal to 15 cubic meters per minute per square meter (50 cubic feet per minute per square foot) of air/vapor area (when downtime covers are open), and exhausting less than 25 parts per million of solvent by volume averaged over a complete adsorption cycle; or,

(c) a system, demonstrated to have a control efficiency equivalent to or greater than paragraph 4(b)(i)a or 4(b)(i)b of this Part, and approved by the Department; and,

(ii) equip the cleaner with equipment, such as a drying tunnel or rotating (tumbling) basket, sufficient to prevent cleaned parts from carrying out solvent liquid or vapor; and,

(iii) provide the following safety switches:

(a) a condenser flow switch and thermostat which shuts off the pump heat if the condenser coolant is either not circulating or too warm; and,

(b) a spray safety switch which shuts off the spray pump or the conveyor if the vapor level drops more than 10 centimeters (4 inches); and,

(c) a vapor level control thermostat which shuts off the pump heat when the vapor level rises too high; and,

(iv) minimize openings during operation so that entrance and exits will silhouette workloads with an average clearance between the parts and the edge of the degreaser opening of less than 10 centimeters (4 inches) or less than 10 percent of the width of the opening; and,

(v) provide downtime covers for closing off the entrance and exit during shutdown hours; and,

(vi) not use workplace fans near the degreaser opening, nor provide exhaust ventilation exceeding 20 cubic meters per minute per square meter (65 cubic feet per minute per square foot) of degreaser opening, unless necessary to meet OSHA requirements; and,

(vii) minimize carryout emissions by:

(a) racking parts for best drainage; and,

(b) maintaining the vertical conveyor speed at less than 3.3 meters per minute (11 feet per minute); and,

(viii) store waste solvent only in covered containers and not dispose of waste solvent nor transfer it to another party, such that greater than 20 percent of the waste solvent (by weight) can evaporate into the atmosphere; and,

(ix) repair solvent leaks immediately, or shut down the degreaser; and,

(x) not operate the cleaner so as to allow water to be visually detectable in solvent exiting the water separator; and,

(xi) place downtime covers over entrances and exits of conveyorized degreasers immediately after the conveyors and exhausts are shut down and not remove them until just before start-up.

## 5. Compliance Schedule

a. The owner or operator of a volatile organic compound source subject to this Part shall comply with Schedule 1 of Section I, Part D.

b. Any owner or operator of a source subject to any compliance schedule shall certify to the Department within five days after the deadline for each increment of progress, whether the required increment of progress has been met.

## **Part O. Petroleum Liquid Storage in Fixed Roof Tanks**

### 1. Applicability

Affected sources include all fixed roof storage vessels with capacities of 40,000 gallons (151,412 liters) and larger which contain volatile petroleum liquids whose true vapor pressure is greater than 1.52 psia (10.5 kilo pascals).

### 2. Control Provisions

No owner or operator shall permit petroleum liquid storage in fixed roof tanks unless:

a. the source has been retrofitted with an internal floating roof equipped with a closure seal, or seals, to close the space between the roof edge and tank wall; or,

b. the source has been retrofitted with equally effective alternative control approved by the Department; and,

c. the source is maintained such that there are no visible holes, tears, or other openings in the seal or any seal fabric or materials; and,

d. all openings except stub drains are equipped with covers, lids, or seals such that;

(i) the cover, lid, or seal is in the closed position at all times except when in actual use; and,

(ii) automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports; and,

(iii) rim vents, if provided, are set to open when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting; and,

e. routine inspections are conducted through roof hatches once per month; and a complete inspection of cover and seal is conducted whenever the tank is emptied for nonoperational reasons or once per year; and,

f. records are maintained in accordance with Section I, Part F that shall include:

(i) reports of results of inspections; and,

(ii) average monthly storage temperatures and true vapor pressures of petroleum liquids stored; and,

(iii) throughput quantities and types of petroleum liquids for each storage vessel.

### 3. Compliance Schedules

a. The owner or operator of a volatile organic compound source subject to this Part shall comply with Schedule 1 of Section I, Part D.

b. Any owner or operator of source subject to any compliance schedule shall certify to the Department within five days after the deadline for each increment of progress, whether the required increment of progress has been met.

## **Part P. Petroleum Liquid Storage in External Floating Roof Tanks**

### 1. Applicability

a. Affected sources include all petroleum liquid storage vessels equipped with external floating roofs and having capacities greater than 150,000 liters (39,600 gallons).

b. This Part does not apply to petroleum liquid storage vessels which:

(i) contain a petroleum liquid with a true vapor pressure less than 27.6 k Pa (4.0 psia) and are of welded construction presently possessing a metallic-type shoe seal, a liquid-mounted foam seal, a liquid mounted, liquid filled type seal, or other closure device of demonstrated equivalence approved by the Department; or,

(ii) are of welded construction, equipped with a metallic-type shoe primary seal and has a secondary seal from the top of the shoe seal to the tank wall (shoe-mounted secondary seal).

### 2. Control Provisions

No owner or operator of a petroleum liquid storage vessel subject to this Part shall store a petroleum liquid in that vessel unless:

a. the vessel has been fitted with a continuous secondary seal extending from the floating roof to the tank wall (rim-mounted secondary seal), or a closure or other device of equivalent control efficiency and approved by the Department;

b. all seal closure devices meet the following requirements:

(i) there are no visible holes, tears, or other openings in the seal or seal fabric and the seals are intact and uniformly in place around the circumference of the floating roof between the floating roof and the tank wall; and,

(ii) for vapor-mounted seals, the area of accumulated gaps between the secondary seal and the tank wall shall not exceed 21.2 cm<sup>2</sup> per meter of tank diameter (1.0 in<sup>2</sup> per foot of tank diameter).

c. all openings in the external floating roof, except for automatic bleeder vents, rim space vents, and leg sleeves, are:

(i) equipped with covers, seals, or lids in the closed position except when the openings are in

actual use; and,

(ii) equipped with projections into the tank which remain below the liquid surface at all times.

d. automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports;

e. rim vents are set to open only when the roof is being floated off the leg supports or at the manufacturer's recommended setting; and,

f. emergency roof drains are provided with slotted membrane fabric covers or equivalent covers at least 90 percent of the area of the opening;

g. the owner or operator of a petroleum liquid storage vessel subject to this Part shall:

(i) perform annual inspections to ensure compliance with this Part, including a visual inspection of the secondary seal gap; and,

(ii) measure the secondary seal gap annually when the floating roof is equipped with a vapor-mounted seal; and,

(iii) maintain records of the results of 2g(i) and (ii) and of the throughput quantities and types of petroleum liquids stored.

### 3. Compliance Schedules

a. The owner or operator of a VOC source subject to this Part shall comply with Schedule 1 of Section I, Part D., for installation of a secondary seal, closure, or other VOC emission reduction device:

b. Any owner or operator of a source subject to any compliance schedule shall certify to the Department within five days after the deadline for each increment of progress, whether the required increment of progress has been met.

## **Part Q. Manufacture of Synthesized Pharmaceutical Products**

### 1. Applicability

All synthesized pharmaceutical manufacturing plants which emit volatile organic compounds from any source, including reactors, distillation units, dryers, transfer or storage of volatile organic compounds, extraction equipment, filters, crystallizers, and centrifuges are affected.

### 2. Control Technology Provisions.

The owner or operator of a synthesized pharmaceutical manufacturing plant having sources subject to this Part shall:

a. Control the volatile organic compound emissions from reactors, distillation operations, crystallizers, centrifuges, and vacuum dryers that have the potential to emit 6.80 kg/day (15 lb/day) or more of VOC. Surface condensers or equivalent controls shall be used, provided that:

(i) If surface condensers are used, the condenser outlet gas temperature must not exceed:

at 20° C, (a) 25° C when condensing VOC of vapor pressure greater than 40.0 k Pa (5.8 psi) measured

at 20° C, (b) 15° C when condensing VOC of vapor pressure greater than 20.0 k Pa (2.9 psi) measured

at 20° C, (c) 0° C when condensing VOC of vapor pressure greater than 10.0 k Pa (1.5 psi) measured

at 20° C, or, (d) 10° C when condensing VOC of vapor pressure greater than 7.0 k Pa (1.0 psi) measured

at 20° C, or, (e) 25° C when condensing VOC of vapor pressure greater than 3.50 k Pa (0.5 psi) measured

(ii) If other controls are used, the VOC emissions must be reduced by the equivalent of a surface condenser which meets the requirements of part (a)(i) above.

b. Reduce the VOC emissions from air dryers and production equipment exhaust systems;

(i) by at least 90 percent if emissions are 150 kg/day (330 lb/day) or more of VOC; or,

(ii) to 15.0 kg/day (33 lb/day) or less if emissions are less than 150 kg/day (330 lb/day) of VOC.

c. For storage tanks:

(i) provide a vapor balance system or equivalent control that is at least 90 percent effective in reducing emissions from truck or railcar deliveries to storage tanks with capacities greater than 7,500 liters (2,000 gallons) that store VOC with vapor pressures greater than 28.0 k Pa (4.1 psi) at 20°C; and,

(ii) install pressure/vacuum conservation vents set at  $\pm 0.2$  k Pa on all storage tanks that store VOC with vapor pressures greater than 10.0 k Pa (1.5 psi) at 20° C, unless a more effective control system is used.

d. enclose centrifuges, rotary vacuum filters, and other filters which process liquids containing VOC with vapor pressures of 3.50 k Pa (0.5 psi) or more at 20° C.

e. install covers on in-process tanks containing a volatile organic compound at any time. These covers must remain closed, unless production, sampling, maintenance, or inspection procedures require operator access.

f. repair leaks from which a liquid containing VOC can be observed running or dripping. The repair shall be completed the first time the equipment is off line for a period of time long enough to complete the repair.

### 3. Compliance Schedule

a. The owner or operator of a VOC source subject to this Part shall comply with Schedule 1 of Section I, Part D.

b. Any owner or operator of a source subject to any compliance schedule shall certify to the Department within five days after the deadline for each increment of progress, whether the required increment of progress has been met.

## **Part R. Manufacture of Pneumatic Rubber Tires**

### 1. Applicability

Affected sources include the following operations in all plants for the “Manufacture of Pneumatic Rubber Tires”: Undertread cementing, tread end cementing, bead dipping, and green tire spraying.

### 2. Control Technology Provisions.

The owner or operator of an undertread cementing, tread end cementing, or bead dipping operation subject to this Part shall:

a. Install and operate a capture system, designed to achieve maximum reasonable capture, up to 85 percent by weight of VOC emitted, from all undertread cementing, tread end cementing and bead dipping operations. Maximum reasonable capture shall be consistent with the following documents:

(i) Industrial Ventilation, A Manual of Recommended Practices, 14th Edition, American Federation of Industrial Hygienists.

(ii) Recommended Industrial Ventilation Guidelines, U.S. Department of Health, Education, and Welfare, National Institute of Occupational Safety and Health.

b. Install and operate a control device that meets the requirements of one of the following:

(i) a carbon adsorption system designed and operated in a manner such that there is at least a 95 percent removal of VOC by weight from the gases ducted to the control device; or,

(ii) an incineration system that oxidizes at least 90 percent of the nonmethane volatile organic compounds (VOC measured as total combustible carbon) which enter the incinerator to carbon dioxide and water.

(iii) an alternative volatile organic compound emission reduction system certified by the owner or operator to have at least a 90.0 percent reduction efficiency, measured across the control system, that has been approved by the Department.

The owner or operator of a green tire spraying operation subject to this Part must implement one of the following means of reducing volatile organic compound emissions:

(a) substitute water-based sprays for the normal solvent-based mold release compound; or,

(b) install a capture system designed and operated in a manner that will capture and transfer at least 90 percent of the VOC emitted by the green tire spraying operation to a control device; and,

(c) in addition to part b, install and operate a control device that meets the requirements of one of the following:

(i) a carbon adsorption system designed and operated in a manner such that there is at

least 95 percent removal of VOC by weight from the gases ducted to the control device; or,

(ii) an incineration system that oxidizes at least 90 percent of the nonmethane volatile organic compounds (VOC measured as total combustible carbon) to carbon dioxide and water.

(iii) an alternative volatile organic compound emission reduction system certified by the owner or operator to have at least a 90.0 percent reduction efficiency, measured across the control system, that has been approved by the Department.

### 3. Compliance Schedules.

a. The owner or operator of a VOC source subject to this Part shall comply with Schedule 1 of Section I, Part D.

b. The owner or operator of a source subject to any compliance schedule shall certify to the Department within five days after the deadline for each increment of progress, whether the required increment of progress has been met.

## **Part S. Cutback Asphalt**

### 1. Control Provisions

No person may cause, allow or permit the use or application of cutback asphalt except:

- a. when used solely as a penetrating prime coat; or
- b. when long-life asphalt mix stockpile storage is required; or
- c. when application is to be made during the months of January, February, or December.

### 2. Compliance Schedules

a. The owner or operator of a volatile organic compound source subject to this Part shall comply with Schedule 1 of Section I, Part D.

b. Any owner or operator of a source subject to any compliance schedule shall certify to the Department within five days after the deadline for each increment of progress, whether the required increment of progress has been met.

## **Part T. Bulk Gasoline Terminals and Vapor Collection Systems**

### 1. Applicability

This standard will apply to all bulk gasoline terminals and the appurtenant equipment necessary to load or unload gasoline tank trucks.

### 2. Control Technology

No person may load or unload a gasoline tank truck at any bulk gasoline terminal subject to this Part unless:

a. the bulk gasoline terminal is equipped with a vapor control system, properly installed, in good working order, in operation and consisting of one of the following:

(i) an adsorber or condensation system which may not allow mass emissions of VOC's to exceed 4.7 grains per gallon (80 milligrams per liter) of gasoline loaded; or,

(ii) a vapor collection system which directs all vapors to a fuel gas system; or,

(iii) alternative controls as allowed under Section I, Part C.

b. all displaced vapors and gases are vented only to the vapor control system; and,

c. a means is provided to prevent liquid drainage from the loading device when it is not in use or to accomplish complete drainage before the loading device is disconnected; and,

d. all loading and vapor lines are equipped with fittings which make vapor-tight connections and which close automatically when disconnected.

Sources affected by this Part may not:

a. allow avoidable visible liquid leaks during loading or unloading operations; nor,

b. allow the pressure in the vapor collection system to exceed the gasoline tank truck pressure relief settings; nor,

c. allow gasoline to be discarded in sewers nor stored in open containers nor handled in any manner that would result in evaporation.

### 3. Compliance Schedules

a. The owner or operator of a volatile organic compound source subject to this Part shall comply with Schedule 1 of Section I, Part D.

b. Any owner or operator of a source subject to any compliance schedule shall certify to the Department within five days after the deadline for each increment of progress, whether the required increment of progress has been met.

#### **R. 61-62.5, Standard No. 5 History - *South Carolina State Register*:**

Vol. 3, Issue No. 11, (Doc. No. ???), November 19, 1979;

Vol. 4, Issue No. 6, (Doc. No. ???), August 8, 1980;

Vol. 7, Issue No. 4, (Doc. No. ???), April 22, 1983;

Vol. 9, Issue No. 5, (Doc. No. 457), May 24, 1985;

Vol. 13, Issue No. 2, (Doc. No. 868), February 24, 1989;

Vol. 14, Issue No. 9, (Doc. No. 1267), August 24, 1990;

Vol. 16, Issue No. 6, (Doc. No. 1507), June 26, 1992;

Vol. 22, Issue No. 6, (Doc. No. 2244), June 26, 1998;

Vol. 25, Issue No. 10, (Doc. No. 2648), October 26, 2001.