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## **TITLE 250 – DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**

### **CHAPTER 120 – AIR RESOURCES**

#### **SUBCHAPTER 05 – AIR POLLUTION CONTROL**

PART 36 – Control of Emissions from Organic Solvent Cleaning

### **36.1 Purpose and Authority**

#### **36.1.1 Purpose**

The purpose of this regulation is to limit emissions from organic solvent cleaning machines and industrial solvent cleaning operations.

#### **36.1.2 Authority**

These regulations are authorized pursuant to R.I. Gen. Laws § 42-17.1-2(19) and R.I. Gen. Laws Chapter 23-23, and have been promulgated pursuant to the procedures set forth in the Rhode Island Administrative Procedures Act, R.I. Gen. Laws Chapter 42-35.

### **36.2 Application**

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

### **36.3 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.

### **36.4 Incorporated Materials**

These regulations hereby adopt and incorporate 40 C.F.R. §§ 63.471; 63.460; 40 C.F.R. § 60 Appendix A-7 Methods 25 and 25d, and 40 C.F.R. § 63, Appendix A, Subpart T, (2018), by reference, not including any further editions or amendments thereof and only to the extent that the provisions therein are not inconsistent with these regulations.

### **36.5 Definitions**

- A. Unless otherwise expressly defined in this section, the terms used in this regulation shall be defined by reference to [Part 0](#) of this Subchapter (General

Definitions). As used in this regulation, the following terms shall, where the context permits, be construed as follows:

1. "Air blanket" means the layer of air inside a solvent cleaning machine above the solvent/air interface. The centroid of the air blanket is equidistant from the sides of the machine.
2. "As-applied VOC content" means the VOC content of a cleaning solvent at the time of use, including any solvent, catalyst or other substance added to the as-supplied cleaning solvent. "As-applied VOC content" is determined using an EPA reference method, a California Air Resources Board reference method or other method approved by the Director and EPA.
3. "Automated parts handling system" means a mechanical device that carries all parts and parts baskets through the cleaning cycle at a controlled speed from the initial loading of contaminated or wet parts cold cleaning through the removal of the cleaned or dried parts. Automated parts handling systems include, but are not limited to, hoists and conveyors.
4. "Batch cleaning" means the process in which individual parts or a set of parts move through an entire cleaning cycle before new parts are introduced into the solvent cleaning machine.
5. "Capture efficiency" means the ratio of VOC emissions delivered to the control device to the total VOC emissions resulting from industrial solvent cleaning, expressed as a percentage;
6. "Carbon adsorber" means a bed of activated carbon which adsorbs solvent from an air-solvent gas-vapor stream.
7. "Clean liquid solvent" means fresh unused solvent, recycled solvent, or used solvent that has been cleaned of contaminants (e.g., skimmed of oils or sludge and strained of metal chips).
8. "Cleaning activity" means the use of solvents to remove contaminants including, but not limited to, adhesives, inks, paint, dirt, soil, oil, and grease from parts, products, tools, machinery, equipment, vessels, and work production related areas for a variety of reasons, including safety, operability, and to avoid product contamination; this includes activities such as wiping, flushing, or spraying. Examples of such activities may include, but are not limited to, the cleaning of spray booths, spray guns, and printing presses.
9. "Cleaning capacity" means, for a cleaning machine without a solvent/air interface, the maximum volume of parts that can be cleaned at one time.

In most cases, the cleaning capacity is equal to the volume (length x width x height) of the cleaning chamber.

10. "Cleaning solvent" means any VOC-containing liquid, including a liquid impregnated wipe or towelette, used in cleaning;
11. "Cold cleaning" means an organic solvent cleaning process which cleans and removes contaminants or water from surfaces by spraying, brushing, flushing, immersing, or drying parts. Cleaning machines that use heated, nonboiling solvent to clean the parts are classified as cold solvent cleaning machines. Wipe cleaning is not included in this definition.
12. "Control device efficiency" means the ratio of VOC emissions recovered or destroyed by the control device to the total VOC emissions that are introduced into the device, expressed as a percentage;
13. "Dwell" means the technique of holding parts within the freeboard zone but above the vapor zone of the solvent cleaning machine. Dwell is used after cleaning to allow solvent to drain from parts or parts baskets back into the solvent cleaning machine.
14. "Dwell time" means the amount of time that a part dwells in the freeboard zone of the solvent cleaning machine.
15. "Emission" means the release or discharge, directly or indirectly, of one or more air pollutants into the air.
16. "Freeboard height" means; for a batch cleaning machine, the distance from the solvent/air interface, measured during the idling mode, to the top of the cleaning machine; for an in-line cleaning machine, it is the distance from the solvent/air interface to the bottom of the entrance or exit opening, whichever is lower, as measured during the idling mode.
17. "Freeboard ratio" means the freeboard height divided by the width of the smaller interior dimension of the organic solvent cleaning machine.
18. "Freeboard zone" means; for a batch cleaning machine, the zone within the solvent cleaning machine that extends from the solvent/air interface to the top of the solvent cleaning machine; for an in-line cleaning machine, it is the zone within the solvent cleaning machine that extends from the solvent/air interface to the bottom of the entrance or exit opening, whichever is lower.
19. "Hazardous air pollutant" means any pollutant which has been listed pursuant to 42 U.S.C. §§ 7412(b) (CAA § 112(b)) or which is listed in [Part 22](#) of this Subchapter (Air Toxics).

20. "Idling mode" means the time period when a solvent cleaning machine is not actively cleaning parts and the sump heating coils, if present, are turned on.
21. "In-line cleaning" means an organic solvent cleaning machine that uses an automated parts handling system, typically a conveyor, to automatically provide a continuous supply of parts to be cleaned. These units are fully enclosed except for the conveyor inlet and exit openings. In-line cleaning machines can be either cold or vapor cleaning machines.
22. "Industrial solvent cleaning" means the use of cleaning solvent to remove uncured adhesives, uncured inks, uncured coatings or contaminants such as dirt, soil or grease from parts, products, tools, machinery, equipment or work areas, where such parts, products, tools, machinery, equipment and work areas are incorporated into or used exclusively in manufacturing a product.
  - a. Industrial solvent cleaning includes spray gun cleaning, spray booth cleaning, cleaning of manufactured components, parts cleaning, cleaning of production equipment for maintenance or to prohibit cross-contamination, and cleaning of tanks, mixing pots, process vessels and lines.
  - b. Industrial solvent cleaning does not include the cleaning of personal protection equipment, such as respirators.
  - c. Industrial solvent cleaning does not include solvent cleaning machines as defined in § 36.5(A)(35) of this Part.
23. "Janitorial cleaning" means general and maintenance cleaning of building or facility components including, but not limited to, floors, ceilings, walls, windows, doors, stairs, restrooms, furnishings, kitchens and exterior surfaces of office equipment. "Janitorial cleaning" includes graffiti removal. "Janitorial cleaning" does not include the cleaning of parts, products or equipment, where such parts, products or equipment are incorporated into or used exclusively in manufacturing a product. "Janitorial cleaning" excludes the cleaning of work areas, such as laboratory benches, where manufacturing or repair activity is performed;
24. "Leakproof coupling" means a threaded or other type of coupling that prevents solvents from leaking while filling or draining solvent to and from the solvent cleaning machine.
25. "Lip exhaust" means a device installed at the top of the opening of a solvent cleaning machine that draws air and solvent vapor from the freeboard zone and removes the air and vapor from the solvent cleaning area.

26. "Medical device" means an instrument, apparatus, implement, machine, gadget, appliance, implant, in vitro reagent or other similar or related article, including any component, part or accessory, which meets one of the following conditions:
  - a. Recognized in the official National Formulary or the United States Pharmacopeia or any supplement thereto,
  - b. Intended for use in the diagnosis of disease or other conditions or in the cure, mitigation, treatment or prevention of disease, in persons or animals, or
  - c. Intended to affect the structure or function of the body of a person or animal, and which does not achieve its primary intended purposes through chemical action within or on such body and which is not dependent upon being metabolized for the achievement of its primary intended purposes;
27. "Open top area" means the solvent/air interface area which is open to the atmosphere during operations.
28. "Organic solvent cleaning" means the process of cleaning contaminants or water from surfaces by cold cleaning or vapor cleaning using Volatile Organic Compounds (VOC) or volatile Hazardous Air Pollutants.
29. "Overall control efficiency" means the product of the capture efficiency and the control device efficiency;
30. "Primary condenser" means a series of cooling coils on a vapor cleaning machine through which a chilled substance is circulated to provide continuous condensation of rising solvent vapors and, thereby, create a concentrated solvent vapor zone.
31. "Refrigerated freeboard chiller" means a control device mounted above the primary condenser coils consisting of secondary coils which carry a refrigerant to provide a chilled air blanket above the solvent vapor to reduce emissions from the solvent cleaning machine.
32. "Remote-reservoir cold cleaning" means cold cleaning using equipment which pumps liquid solvent to a sink-like work area and then drains the solvent back into an enclosed container while parts are being cleaned, allowing no solvent to pool in the work area.
33. "Screen printing" means a method of creating an image by pressing ink through a screen or fabric to which a stencil has been applied and where the stencil openings determine the form and dimensions of the image.

34. "Solvent/air interface" means, for a vapor cleaning machine, the location of contact between the concentrated solvent vapor layer and the air. If this location cannot be determined, it is assumed to be at the mid-line height of the primary condenser coils. For a cold solvent cleaning machine, it is the location of contact between the liquid solvent and the air.
35. "Solvent cleaning machine" means any device or piece of equipment that uses solvent liquid or vapor to remove contaminants from the surfaces of materials. Types of solvent cleaning machines include, but are not limited to, batch vapor, in-line vapor, in-line cold, and batch cold solvent cleaning machines.
36. "Solvent vapor zone" means; for a vapor cleaning machine, the zone that extends from the liquid solvent surface to the level that solvent vapor is condensed. This condensation level is defined as the midline height of the primary condenser coils.
37. "Special and extreme solvent metal cleaning" means the use of a cold solvent cleaning machine to clean metal parts where such metal parts are used in any of the following applications:
  - a. Research, development, manufacture and rework of electronic parts, assemblies, boxes, wiring harnesses, sensors and connectors used in aerospace service; or
  - b. Research, development, manufacture and rework of high precision products for which contamination must be minimized in accordance with a customer or other specification.
38. "Sump" means the part of a solvent cleaning machine where the liquid solvent is located.
39. "Superheated vapor system" means a system that heats solvent vapor to a temperature above the solvent's boiling point. Parts are held (dwell) in the superheated vapor to evaporate the liquid solvent on them before exiting the machine. Hot vapor recycle is an example of a superheated vapor system.
40. "Vapor cleaning" means an organic solvent cleaning process in which contaminants or water are cleaned and removed from surfaces by condensing hot solvent vapor on the colder pieces. This definition includes vapor degreasing and drying.
41. "Volatile Organic Compound" or "VOC" means "Volatile Organic Compounds and Halogenated Organic Compounds" or "VOC" and "HOC".
42. "Working mode" means the time period when the solvent cleaning machine is actively cleaning parts.

## 36.6 Applicability

- A. The owner or operator of a solvent cleaning machine as defined in § 36.5(A)(35) of this Part, shall comply with the requirements of §§ 36.7 through 36.16 of this Part, as applicable.
- B. The requirements in § 36.9 of this Part shall not apply to any cold solvent cleaning machine that uses a solvent which contains no more than five percent (5%) VOC or volatile HAP by weight.
- C. The requirements of this regulation, with the exception of §§ 36.14(E) and (F) of this Part, shall not apply to any cold solvent cleaning machine that has an internal volume of one (1) liter or less.
- D. The owner or operator of a facility at which cleaning solvents are used for industrial solvent cleaning as defined in § 36.5(A)(22) of this Part, which has actual VOC emissions, before controls, greater than 2.7 tons during any consecutive 12-month period from industrial solvent cleaning activities, shall comply with the requirements of § 36.17 of this Part unless exempt as specified in §§ 36.6(D)(1) through (16) of this Part.
  1. The use of industrial cleaning solvents for the following activities shall be exempt from § 36.17.1 of this Part; however, the recordkeeping requirements in § 36.17.2 of this Part shall apply:
    - a. Any cleaning activity associated with a category listed below:
      - (1) Coating operations subject to [Part 19](#) of this Subchapter (Control of Volatile Organic Compounds from Surface Coating Operations);
      - (2) Wood product coating operations subject to [Part 35](#) of this Subchapter (Control of Volatile Organic Compounds and Volatile Hazardous Air Pollutants from Wood Products Manufacturing Operations);
      - (3) Printing operations subject to [Part 21](#) of this Subchapter (Control of Volatile Organic Compound Emissions from Printing Operations); or (4) Adhesives, sealants, adhesive primers, and sealant primers subject to [Part 44](#) of this Subchapter (Control of Volatile Organic Compounds from Adhesives and Sealants).
  2. Solvent cleaning activities subject to §§ 36.7 through 36.16 of this Part;
  3. Quality control or laboratory testing;
  4. Research and development;

5. Medical device manufacturing;
6. Pharmaceutical or biological product manufacturing;
7. Any industrial solvent cleaning activity that uses 55 gallons or less of an industrial cleaning solvent in any 12-month rolling period calendar year;
8. Janitorial cleaning activities;
9. Cleaning of screen printing equipment, if the cleaning solvent used has an as-applied VOC content that does not exceed 500 grams VOC per liter, equivalent to 4.2 lb/gal;
10. A cleaning activity, including surface preparation prior to coating, necessary to meet a standard or specification issued or approved by the United States Department of Defense, Federal Aviation Administration, or other federal government entity;
11. Cleaning of electrical and electronic components;
12. Cleaning of high-precision optics;
13. Cleaning of equipment which comes into contact, in both their manufacturing and their end uses, with resins, coatings, inks, and adhesives, such as mixing, molding, and application equipment;
14. Stripping of cured coatings, ink, or adhesives;
15. Cleaning operations in printing pre-press areas, including the cleaning of film processors, film cleaning, and plate cleaning; or
16. Cleaning of plastic-based or vinyl-based substrates for use in the screen printing process when using ultraviolet (UV) curable ink and coatings systems.

## **36.7 Compliance Schedule**

- A. Unless otherwise specified compliance with the provisions of this regulation shall be achieved by the following dates:
  1. Solvent cleaning machines that commenced construction or reconstruction before November 29, 1993, shall achieve compliance with this regulation by January 1, 1997.
  2. Solvent cleaning machines that commenced construction or reconstruction on or after November 29, 1993, shall achieve compliance with this regulation immediately upon startup or by April 8, 1996, whichever is later.

3. Any batch vapor cleaning machine with a solvent/air interface that uses trans 1,2-dichloroethene or n-propyl bromide shall achieve compliance with §§ 36.10(C), 36.10(F), and 36.10(G) of this Part immediately upon first use of that solvent or by April 9, 2009, whichever is later.
- B. Facilities complying with the facility wide emissions limits for hazardous air pollutants in § 36.8(Q) of this Part, shall achieve compliance by the following dates:
1. Solvent cleaning machines that commenced construction or reconstruction on or before August 17, 2006, shall achieve compliance with the facility wide emissions standards for hazardous air pollutants in § 36.8(Q) of this Part, by May 3, 2010.
  2. Solvent cleaning machines that commenced construction or reconstruction on or after August 17, 2006, shall achieve compliance with the facility wide emissions standards for hazardous air pollutants in § 36.8(Q) of this Part, by May 3, 2007 or immediately upon startup, whichever is later.

### **36.8 General Requirements for Solvent Cleaning Machines**

- A. Equipment covers and dipping or rotating baskets must be constructed of nonporous or nonabsorbent material. Covers must form a tight seal with the sides of the solvent cleaning machine and have no gaps or holes.
- B. When the solvent cleaning machine cover is open, drafts at the same elevation as the tank lip must not be greater than forty (40) m/min. (130 ft/min.) when measured 1 to 2 meters (3 to 7 feet) upwind.
- C. Leaks must be repaired immediately or the solvent cleaning unit shut down.
- D. Equipment used in solvent cleaning must display a conspicuous summary of proper operating procedures consistent with minimizing emissions of organic solvents.
- E. Any solvent spray must be a solid, fluid stream, which is delivered at a pressure no greater than ten (10) pounds per square inch (psi) and which does not cause excessive splashing. For purposes of this regulation, no solvent spray shall be an atomized or shower spray.
- F. Spills shall be wiped up immediately. The wipe rags shall be stored in covered containers meeting the specifications in § 36.8(L) of this Part.
- G. No porous or absorbent materials, such as sponges, fabrics, wood, or paper products, shall be placed in an organic cleaning machine.

- H. Parts baskets or parts shall be drained under the cover and shall not be removed from the cleaning machine for at least fifteen (15) seconds or until dripping ceases and the pieces are visually dry, whichever is longer.
- I. Parts having cavities or blind holes shall be tipped or rotated while draining before being removed from the vapor zone and shall be oriented for best drainage.
- J. All parts shall be oriented for best drainage.
- K. When solvent is added to or drained from a solvent cleaning machine, the solvent shall be transferred using threaded or other leakproof couplings and the end of the pipe in the solvent sump shall be located beneath the liquid solvent surface.
- L. Solvent, waste solvent, still bottoms, and sump bottoms must be stored in covered containers and waste solvent transferal or disposal must allow less than 20 percent (20%) of the waste solvent (by weight) to evaporate into the atmosphere. The closed containers may contain a device that allows for pressure relief, providing that the device does not allow liquid solvent to drain from the containers.
- M. Each solvent cleaning machine and related air pollution control equipment shall be maintained as recommended by the manufacturer of the equipment.
- N. Operators must receive training in proper solvent cleaning procedures and, if requested by representatives of the Department or the EPA during an inspection, must complete and pass the applicable sections of the test on those procedures in 40 C.F.R. § 63, Appendix A, Subpart T incorporated in § 36.4 of this Part.
- O. No work area fans shall be located and positioned so that they blow across the opening of a solvent cleaning machine.
- P. No degreaser units shall be located and positioned so that ventilation from an open window blows across the opening of the solvent cleaning machine.
- Q. Facility wide emissions of Hazardous Air Pollutants (HAPs) from organic solvent cleaning operations shall not exceed 1,500 pounds of any one (1) HAP or 4,000 pounds of any combination of HAPs per calendar month, based upon a 12-month rolling average unless a greater quantity of HAP emissions is allowed by an operating permit issued pursuant to [Part 29](#) of this Subchapter (Operating Permits). In no case shall emissions exceed the facility wide emission limits specified in 40 C.F.R. § 63.471, incorporated in § 36.4 of this Part.

### **36.9 Requirements for Batch Cold Cleaning Machine Operations**

- A. Cleaning machines shall be equipped with an attached cover that can be operated easily with one hand. Covers must be closed at all times except during

parts entry and removal. If the cold solvent cleaning machine is equipped with a lip exhaust, the cover shall be located below the lip exhaust.

- B. The solvent sump of a remote-reservoir batch cold solvent cleaning machine must be equipped with a tight-fitting cover that is kept closed at all times except during the cleaning of parts.
- C. One of the following techniques shall be used to control solvent emissions from batch cold cleaning operations:
  - 1. A freeboard ratio greater than or equal to 0.75; or
  - 2. Another system of equivalent control that is approved by the Director and the EPA. Requests for equivalency determinations for control of cleaning machines must be submitted and approved prior to startup of the cleaning machine. Requests shall include the following information:
    - a. A complete description of process and control equipment;
    - b. Testing procedures that will be used to demonstrate equivalency; and
    - c. The date, time and location of the equivalency test.
- D. If a flexible hose or flushing device is used, flushing shall be performed only within the freeboard zone of the cold solvent cleaning machine.
- E. When an air- or pump-agitated solvent bath is used, the agitator shall be operated so that a rolling motion of the solvent is produced and splashing against the tank or parts being cleaned does not occur.
- F. The height of solvent in a batch cold cleaner shall not exceed the manufacturer's fill-line for that machine.
- G. No cold cleaning operation shall use a solvent with a vapor pressure equal to or greater than 1.0 millimeters of mercury (mm Hg), measured at 20°C (68°F). The following are exempt from this requirement:
  - 1. A cold solvent cleaning machine with an internal volume of one (1) liter or less;
  - 2. A cold solvent cleaning machine used for special and extreme solvent cleaning, as defined in § 36.5(A)(37) of this Part, with the Director's approval;
  - 3. A cold solvent cleaning machine which cannot be operated safely using a solvent that complies with the vapor pressure limit in § 36.9(G) of this Part, with the Director's approval.

4. A cold solvent cleaning machine equipped with an air pollution control system with an overall VOC capture and control efficiency of ninety percent (90%) or greater, with the Director's approval.

### **36.10 Requirements for Batch Vapor Cleaning Machine Operations with Solvent/Air Interfaces**

- A. Vapor cleaning machines shall be equipped with a cover that can be easily operated without disturbing the vapor zone and that is attached to the vapor cleaning machine. Covers must be closed at all times except during parts entry and removal. Covers must be free of cracks, holes and other defects. If the batch vapor cleaning machine is equipped with a lip exhaust, the cover must be located below the lip exhaust.
- B. Each vapor cleaning machine shall be equipped with a primary condenser.
- C. Each vapor cleaning machine, except those exempted as specified in § 36.16 of this Part, which uses a solvent containing trichloroethylene, perchloroethylene, 1,1,1-trichloroethane, methylene chloride, chloroform, trans 1,2-dichloroethene, n-propyl bromide, or carbon tetrachloride shall be equipped with an automated parts handling system, such as, but not limited to, a hoist or conveyor, that maintains a vertical conveyor speed of less than two (2) inches per second (10 feet per minute).
- D. Each vapor cleaning machine must be equipped with the following safety switches:
  1. A condenser flow switch and thermostat to shut off the heat to the solvent if the condenser coolant is not circulating; and
  2. A vapor level control thermostat to shut off the heat when the vapor level rises above the height of the primary cooling coils; and
  3. If the cleaning machine is equipped with a spray apparatus, a spray safety switch to shut off the spray pump if the vapor level drops more than four (4) inches (10 cm) from the bottom of the primary condenser coil and to prevent spraying outside the vapor level; and
  4. A low solvent level safety switch to shut off the heating element if it should become exposed.
- E. Each vapor cleaning machine shall have a freeboard ratio of at least 0.75.
- F. Any vapor cleaning machine that has a solvent/air interface of thirteen (13) square feet (1.21 square meters) or less and uses a solvent containing trichloroethylene, perchloroethylene, 1,1,1-trichloroethane, methylene chloride, chloroform, trans 1,2-dichloroethene, n-propyl bromide, or carbon tetrachloride must be equipped with one of the following control combinations:

1. Refrigerated freeboard chiller and superheated vapor system; or
  2. Refrigerated freeboard chiller and freeboard ratio of at least 1.0; or
  3. Refrigerated freeboard chiller and carbon adsorber; or
  4. Refrigerated freeboard chiller and dwell; or
  5. Another system of equivalent control that is approved by the Director and the EPA. Requests for equivalency determinations, must be submitted and approved prior to startup of the cleaning machine. Requests shall include the following information:
    - a. A complete description of process and control equipment;
    - b. Testing procedures that will be used to demonstrate equivalency; and
    - c. The date, time and location of the equivalency test.
- G. Any vapor cleaning machine that has a solvent/air interface of greater than thirteen (13) square feet (1.21 square meters) and uses a solvent containing trichloroethylene, perchloroethylene, 1,1,1-trichloroethane, methylene chloride, chloroform, trans 1,2-dichloroethene, n-propyl bromide, or carbon tetrachloride must be equipped with one of the following control combinations:
1. Refrigerated freeboard chiller, freeboard ratio of at least 1.0, and superheated vapor system; or
  2. Refrigerated freeboard chiller, superheated vapor system, and carbon adsorber; or
  3. Another system of equivalent control that is approved by the Director and the EPA. Requests for equivalency must be submitted and approved prior to startup of the cleaning machine. Requests shall include the following information:
    - a. A complete description of process and control equipment;
    - b. Testing procedures that will be used to demonstrate equivalency; and
    - c. The date, time and location of the equivalency test.
- H. Pieces shall be held in the vapor zone for at least thirty (30) seconds or until condensation ceases, whichever is longer.
- I. The workload shall not occupy more than half of the cleaning machine's open top area.

- J. The vapor level shall not rise or drop more than four (4) inches (10 cm) when the workload enters or is removed from the vapor zone.
- K. Sprays shall be used only within the vapor zone.
- L. Cleaning machines shall be operated so that water cannot be visually detected in the solvent exiting the water separator.
- M. Each cleaning machine that uses a lip exhaust shall be designed and operated to route all collected solvent vapors through a properly operated and maintained carbon adsorber that meets the requirements of § 36.13(A)(5) of this Part.
- N. The exhaust ventilation rate shall not exceed twenty (20) m<sup>3</sup>/min per m<sup>2</sup> (65 cfm per ft<sup>2</sup>) of solvent/air interface, unless necessary to meet OSHA requirements. If a carbon adsorber is used to meet the requirements of §§ 36.10(F) or (G) of this Part, the exhaust ventilation rate shall be at least fifteen (15) m<sup>3</sup>/min per m<sup>2</sup> (50 cfm per ft<sup>2</sup>) of solvent/air interface.
- O. During startup of each vapor cleaning machine, the primary condenser shall be turned on before the sump heater.
- P. During shutdown of each vapor cleaning machine, the sump heater shall be turned off and the solvent vapor layer allowed to collapse before the primary condenser is turned off.
- Q. To minimize solvent carry-out, pieces shall be removed from the vapor cleaning machine at a rate less than two (2) inches per second (10 feet per minute).

### **36.11 Requirements for In-Line Cleaning Machine Operations**

- A. Cleaning machines must be equipped with covers that completely cover machine openings. Covers must be in place at all times when the conveyors and exhausts are not being operated. If the cleaning machine is equipped with a lip exhaust, the cover must be located below the lip exhaust.
- B. Each in-line vapor cleaning machine shall have a primary condenser.
- C. The automated parts handling system shall move parts at a speed of no more than two (2) inches per second (10 feet per minute).
- D. The following safety switches must be installed and operated:
  - 1. A condenser flow switch to shut off the heat if the condenser coolant is not circulating; and
  - 2. A vapor level control thermostat to shut off the heat when the vapor level rises above the height of the primary cooling coils; and

3. If the cleaning machine is equipped with a spray apparatus, a spray safety switch to shut off the spray pump or conveyor if the vapor level drops more than four (4) inches (10 cm) from the bottom of the primary condenser coil and to prevent spraying outside the vapor level; and
  4. A low solvent level safety switch to shut off the heating element if it should become exposed.
- E. Each in-line cleaning machine shall have a freeboard ratio of at least 0.75.
- F. Each in-line cleaning machine must be equipped with a drying tunnel, a rotating (tumbling) basket, or another device that prevents cleaned pieces from carrying solvent liquid or vapor out of the unit.
- G. Any in-line cleaning machine installed before November 29, 1993, must be equipped with one of the following control combinations:
1. Refrigerated freeboard chiller and freeboard ratio of at least 1.0; or
  2. Refrigerated freeboard chiller and dwell; or
  3. Carbon adsorber and dwell; or
  4. Another system of equivalent control system that is approved by the Director and the EPA. Requests shall include the following information:
    - a. A complete description of process and control equipment;
    - b. Testing procedures that will be used to demonstrate equivalency; and
    - c. The date, time and location of the equivalency test.
- H. Any in-line cleaning machine installed on or after November 29, 1993, must be equipped with and operate one of the following control combinations:
1. Refrigerated freeboard chiller and a superheated vapor system; or
  2. Refrigerated freeboard chiller and carbon adsorber; or
  3. Another system of equivalent control that is approved by the Director and the EPA. Requests for equivalency determinations for control of cleaning machines installed on or after November 29, 1993 must be submitted and approved prior to startup of the cleaning machine. Requests shall include the following information:
    - a. A complete description of process and control equipment;

- b. Testing procedures that will be used to demonstrate equivalency; and
  - c. The date, time and location of the equivalency test.
- I. The size of entrance and exit openings shall be minimized so that there is a clearance of no more than four (4) inches on each side between the largest piece cleaned and the edges of the opening of the cleaning machine.
- J. Each in-line cleaning machine that uses a lip exhaust shall be designed and operated to route all collected solvent vapors through a properly operated and maintained carbon adsorber that meets the requirements of § 36.13(A)(5) of this Part.
- K. The exhaust ventilation rate shall not exceed twenty (20) m<sup>3</sup>/min per m<sup>2</sup> (65 cfm per ft<sup>2</sup>) of solvent/air interface, unless necessary to meet OSHA requirements. If a carbon adsorber is used to meet the requirements of §§ 36.11(G) or (H) of this Part, the exhaust ventilation rate shall be at least fifteen (15) m<sup>3</sup>/min per m<sup>2</sup> (50 cfm per ft<sup>2</sup>) of solvent/air interface.
- L. The cleaning machine shall be operated so that water cannot be visually detected in the solvent exiting the water separator.
- M. During startup of each vapor in-line cleaning machine, the primary condenser shall be turned on before the sump heater.
- N. During shutdown of each vapor in-line cleaning machine, the sump heater shall be turned off and the solvent vapor layer allowed to collapse before the primary condenser is turned off.
- O. Any spraying operations shall be done only within the vapor zone or within a section of the in-line cleaning machine that is not directly exposed to the room air.

### **36.12 Requirements for Batch Vapor Cleaning Machine Operations without Solvent/Air Interfaces**

- A. The owner or operator of a batch vapor cleaning machine which does not have a solvent/air interface must comply with the requirements specified below.
  - 1. A log of solvent additions and deletions shall be maintained for each cleaning machine.
  - 2. Solvent emissions from each cleaning machine which does not have a solvent/air interface shall not exceed the amount calculated using Equation 1 in § 36.12(A)(2) of this Part:

Equation 1

$$EL = 85.5 * (Vol)^{0.6}$$

Where:

EL = the average monthly emission limit for any three-month period(pounds/month)

Vol = the cleaning capacity (volume) of the cleaning machine (cubic feet)

3. The owner or operator of a batch vapor cleaning machine that does not have a solvent/air interface shall demonstrate compliance with the emission limit calculated with Equation 1 in § 36.12(A)(2) of this Part on the 15th day of every month using the following procedure:
  - a. A fill-line must be marked on the first month the measurements are taken. Solvent shall be added to bring the level to the same fill-line on the first operating day of each month thereafter; and
  - b. Confirm that only clean liquid solvent is in the vapor cleaning machine; and
  - c. Using the records of solvent additions and deletions for the previous month required in § 36.12(A)(1) of this Part and Equation 2 in § 36.12(A)(3)(c) of this Part, determine monthly solvent emissions:

Equation 2

$$E = SA - LSR - SSR$$

Where:

E = the total solvent emissions for the previous month (pounds)

SA = the total amount of solvent added to the cleaning machine during the previous month (pounds)

LSR = the total amount of liquid solvent removed from the cleaning machine during the previous month (pounds)

SSR = the total amount of solid waste removed from the cleaning machine during the previous month (pounds)

- d. The SSR shall be determined using either engineering calculations or 40 C.F.R. § 60, Appendix A-7, Method 25d, incorporated in § 36.4 of this Part.
- e. The average monthly emissions for the previous three-month period shall be calculated according to Equation 3 in § 36.12(A)(3)(e) of this Part:

Equation 3

$$E_{3\text{-month}} = \frac{E_1 + E_2 + E_3}{3}$$

3

Where:

$E_{3\text{-month}}$  = average monthly solvent emissions during the previous three-month period

$E_1, E_2, E_3$  = solvent emissions for each of the three (3) most recent months, calculated using Equation 2 in § 36.12(A)(3)(c) of this Part.

- f. The cleaning machine is in compliance with the average monthly emission limit if  $E_{3\text{-month}}$ , calculated using Equation 3 in § 36.12(A)(3)(e) of this Part, is less than or equal to EL, calculated according to Equation 1 in § 36.12(A)(2) of this Part.

### **36.13 Compliance Specifications and Monitoring Requirements for Solvent Cleaning Machines**

- A. The owner or operator of a solvent cleaning machine shall monitor the following parameters and record the results:
  - 1. The cover of each batch vapor or in-line cleaning machine shall be visually inspected monthly to confirm that it is opening and closing properly, that it completely covers the cleaning machine's openings when closed, and that it is free of cracks, holes, and other defects.

2. The speed of automated parts handling systems shall be monitored according to the following specifications:
  - a. Determine the speed by measuring the time it takes for the conveyor to travel a measured distance. The speed is the distance in inches divided by the time in seconds, or the distance in feet divided by the time in minutes; and
  - b. Monitoring shall be performed on a monthly basis. If no exceedances of the speed requirements specified in §§ 36.10(C) and 36.11(C) of this Part occur in a year, then future hoist speed monitoring may be conducted on a quarterly basis; and
  - c. If a speed greater than that specified in §§ 36.10(C) and 36.11(C) of this Part is measured, the automated parts handling system must be adjusted so that this specification is met; and
  - d. If a speed greater than that specified in §§ 36.10(C) and 36.11(C) of this Part is measured while monitoring is being conducted on a quarterly basis, then monthly monitoring must be resumed until another year passes without any exceedances.
3. If a refrigerated freeboard chiller is used, the temperature at the coldest point of the centroid of the chilled air blanket shall be no greater than thirty percent (30%) of the solvent's boiling point, measured in °F, and shall be monitored weekly according to the following specifications:
  - a. The temperature shall be monitored while the batch vapor or in-line cleaning machine is operating in the idling mode; and
  - b. A thermometer or thermocouple shall be used to measure the temperature at the centroid of the air blanket; and
  - c. If the temperature at the coldest point of the centroid of the air blanket exceeds thirty percent (30%) of the solvent's boiling point, measured in °F, the chiller shall be adjusted so that this specification is met.
4. If a superheated vapor system is used, the temperature of the solvent vapor at the centroid of the superheated vapor zone shall be maintained at least ten degrees Fahrenheit (10°F) above the solvent's boiling point and shall be monitored weekly according to the following specifications:
  - a. The temperature shall be monitored while the batch vapor or in-line cleaning machine is operating in the idling mode; and

- b. A thermometer or thermocouple shall be used to measure the temperature at the centroid of the superheated solvent vapor zone; and
  - c. If the temperature at the centroid of the air blanket is less than ten degrees Fahrenheit (10°F) above the solvent's boiling point, the system shall be adjusted so that this specification is met.
5. If a carbon adsorber is used, the concentration of solvent in the exhaust shall not exceed twenty-five (25) ppm. Compliance with this requirement shall be determined using the following methods:
- a. Within sixty (60) days of initial startup of the carbon adsorber, the solvent concentration in the carbon adsorber exhaust shall be tested using 40 C.F.R § 60, Appendix A-7 Method 25, incorporated in § 36.4 of this Part. Each test shall consist of three (3) separate one-hour samples, and the arithmetic mean shall be used to determine initial compliance. The results shall be reported to the Office of Air Resources within sixty (60) days of the test.
  - b. Continuing compliance shall be determined weekly using the following procedure:
    - (1) The concentration of solvent in the exhaust shall be measured while the cleaning machine is in the working mode and is exhausting to the carbon adsorber; and
    - (2) An easily accessible sampling port shall be provided that is located on the exhaust outlet at least eight (8) stack or duct diameters downstream and two (2) stack or duct diameters upstream of any flow disturbance such as a bend, expansion, contraction, or outlet. The sampling port must not be downstream of any other inlet; and
    - (3) Solvent concentration shall be measured at the sampling port using a colorimetric detector tube capable of detecting twenty-five (25) ppm with an accuracy of ± twenty-five percent (25%) or better; and
    - (4) Colorimetric detector tubes must be used according to the manufacturer's instructions; and
    - (5) If the carbon adsorber's exhaust exceeds twenty-five (25) ppm then the desorption cycle shall be adjusted or the carbon canister replaced in order to bring the exhaust concentration below twenty-five (25) ppm; and

- (6) If desorption of the carbon adsorber is required, the carbon adsorber shall not be bypassed during the desorption cycle.
6. If dwell or a superheated vapor system is used, the actual dwell time shall equal or exceed the minimum dwell time. Minimum and actual dwell time shall be determined using the following procedures:
  - a. For units without a superheated vapor system, the minimum dwell time shall be determined for each part type or parts basket or for the most complex part type or parts basket using the following procedure:
    - (1) Determine the amount of time necessary for the part or parts basket to cease dripping once placed in the vapor zone. The part or parts basket used for this determination must be at room temperature when placed in the vapor zone; and
    - (2) The minimum dwell time required for parts to remain in the freeboard zone above the vapor zone is calculated as thirty-five percent (35%) of the time determined in § 36.13(A)(6)(a)(1) of this Part.
  - b. The minimum dwell time for a cleaning machine equipped with a superheated vapor system shall be determined according to the specifications of the manufacturer of the control equipment; and
  - c. On a monthly basis, the actual dwell time that parts are held in the freeboard zone above the vapor zone shall be measured; and
  - d. If the actual dwell time is less than the minimum dwell time determined using the applicable procedure in §§ 36.13(A)(6)(a) or (b) of this Part for a particular part or parts basket, the automatic parts handling system must be adjusted so that this specification is met.
7. Safety switches must be tested semiannually.
8. Alternative monitoring procedures may be used if approved by the Director and the EPA.

### **36.14 Recordkeeping for Solvent Cleaning Machines**

- A. The owner or operator of a batch vapor or in-line organic cleaning machine shall maintain the following records for the lifetime of the cleaning unit:
  1. Owner's manuals or written maintenance and operating procedures for the cleaning machine and air pollution control equipment; and

2. Date of installation of the cleaning machine and its control devices; and
  3. Records of the content of each solvent used in the cleaning machine; and
  4. If dwell or superheated vapor is used, the minimum dwell times determined using the procedures specified in §§ 36.13(A)(6)(a) or (b) of this Part; and
  5. Records of training provided to solvent cleaning machine operators.
- B. The owner or operator of a batch vapor or in-line organic cleaning machine shall maintain the following records for a period of five (5) years:
1. Amount and type of solvent used in each cleaning machine each year; and
  2. Amount of trichloroethylene, perchloroethylene and methylene chloride used in each cleaning machine each month; and
  3. Results of monitoring required under § 36.13 of this Part; and
  4. Information on the actions taken to comply with §§ 36.13(A)(2)(c), 36.13(A)(3)(c), 36.13(A)(4)(c), 36.13(A)(5)(b)((5)), and 36.13(A)(6)(d) of this Part. This includes records of written or verbal orders for replacement parts, a description of the repairs made, and the additional monitoring conducted to demonstrate that monitored parameters have returned to acceptable levels; and
  5. The dates that carbon adsorber beds are desorbed; and
  6. The dates that the carbon adsorber bed is changed; and
  7. The date and type of each equipment malfunction (or leak) and the date it is repaired; and
  8. The date and time of each incidence where a cover was not in place, as specified in §§ 36.10(A) and 36.11(A) of this Part; and
  9. If any safety switches are activated, the date and the reason why the switch was triggered;
  10. The results of semiannual safety switch tests; and
  11. For batch vapor machines which have been exempted from the automated parts handling system requirements of § 36.10(C) of this Part, a log of additions and deletions of solvent from the exempted vapor cleaning machine, as required in § 36.16(C) of this Part.

- C. The owner or operator of a batch vapor cleaning machine without a solvent/air interface complying with the emission limits in § 36.12 of this Part must maintain the following records for five (5) years:
1. A log of solvent additions and deletions, as required in § 36.12(A)(1) of this Part; and
  2. Monthly emissions, average monthly emissions for each three-month period, and the calculations of those values according to the procedure specified in § 36.12(A)(3) of this Part; and
  3. The amount of solvent in the solid waste removed from the cleaning machine, calculated using the procedure specified in § 36.12(A)(3)(d) of this Part; and
  4. The method used to determine the cleaning capacity of the cleaning machine.
- D. The owner or operator of a batch cold solvent cleaning machine shall maintain records of training provided to cleaning machine operators for the lifetime of the unit and shall maintain the following records for a period of five (5) years:
1. Amount and type of solvent used in each cleaning machine each year and;
  2. The date and type of each equipment malfunction (or leak) and the date it is repaired and;
  3. The date and time of each incidence where a cover was not in place, as specified in § 36.9(A) of this Part and;
  4. The amount of trichloroethylene, perchloroethylene and methylene chloride used in each cleaning machine each month.
- E. The owner or operator of a cold solvent cleaning machine shall maintain, for a period of not less than two (2) years, written records of each purchase of solvents containing volatile organic compounds for cold cleaning, including the following information:
1. The name and address of the solvent supplier.
  2. The type of solvent, including the product or vendor identification number.
  3. The vapor pressure of the solvent measured in mm Hg at twenty degrees Celsius (20°C) (sixty-eight degrees Fahrenheit (68°F))

4. An invoice, bill of sale, certificate that corresponds to a number of sales, Material Safety Data Sheet (MSDS), or other documentation acceptable to the Department may be used to comply with this Part.
- F. All records specified in §§ 36.14(A) through (E) of this Part shall be made available to the Department or the EPA for inspection upon request.

## **36.15 Reporting Requirements for Solvent Cleaning Machines**

### **36.15.1 Initial Notification Report**

- A. The owner or operator of an organic solvent cleaning machine that uses a solvent containing trichloroethylene, perchloroethylene, 1,1,1-trichloroethane, methylene chloride, chloroform, or carbon tetrachloride must submit an Initial Notification Report to the Office of Air Resources one hundred twenty (120) days before startup of the cleaning machine. This report must include the following information:
1. The name and address of owner or operator; and
  2. The address of the solvent cleaning machine(s); and
  3. The type of solvent cleaning machine (cold, batch vapor, or in-line), the solvent/air interface area, and the type of existing controls; and
  4. The facility's anticipated compliance approach for each solvent cleaning machine; and
  5. The expected commencement date of the construction or reconstruction; and
  6. The expected completion date of the construction or reconstruction; and
  7. The anticipated date of startup of the solvent cleaning machine; and
  8. An estimate of the amount of solvent which will be used annually in each solvent cleaning machine.
- B. The owner or operator of an organic solvent cleaning machine that uses a solvent containing trans 1,2-dichloroethene or n-propyl bromide must submit an Initial Notification Report to the Office of Air Resources one hundred and twenty (120) days before startup of the cleaning machine using that. This report must include the following information:
1. The name and address of the owner or operator; and
  2. The address of the solvent cleaning machine(s); and

3. The type of solvent cleaning machine used (cold, batch vapor, or in-line), the solvent/air interface area, and the type of controls used; and
4. The facility's anticipated compliance approach and the anticipated date of compliance for each solvent cleaning machine; and
5. An estimate of the amount of solvent to be used annually in each solvent cleaning machine.

### **36.15.2 Compliance Notification Report**

- A. The owner or operator of an organic solvent cleaning machine must submit a Compliance Notification Report to the Office of Air Resources within sixty (60) days after startup of the cleaning machine.
- B. The owner or operator of an organic solvent cleaning machine that uses a solvent containing trans 1,2-dichloroethene or n-propyl bromide must submit a Compliance Notification Report to the Office of Air Resources within thirty (30) days after startup of the cleaning machine using that solvent.
- C. Compliance Notification Reports shall contain the following information:
  1. The name and address of the owner or operator; and
  2. The address of the solvent cleaning machine; and
  3. A statement, signed by the owner or operator, stating that each cleaning machine is in compliance with this regulation; and
  4. The control equipment used to achieve compliance for each cleaning machine; and
  5. If a refrigerated freeboard chiller or superheated vapor is used, the dates and results of weekly temperature monitoring for the first month after the compliance date; and
  6. If a carbon adsorber is used, the date and results of weekly measurements of the solvent concentration in the exhaust for the first month after the compliance date; and
  7. If dwell is used, the minimum dwell times and the actual dwell times measured for the first month; and
  8. For vapor cleaning machines without solvent/air interfaces, a description of the method used to determine the cleaning capacity of the machine and the results of the monthly solvent emissions calculation for the month beginning with the compliance date.

### **36.15.3 Exceedances and Exceedance Reports**

- A. The following occurrences are considered exceedances and must be reported on the facility's Exceedance Report:
1. An exceedance has occurred if the requirement in § 36.13(A)(5)(b)((6)) of this Part has not been met; or
  2. An exceedance has occurred if the requirements in §§ 36.13(A)(1) through (6) of this Part are not met. Once adjustments or repairs have been made, parameters must be remeasured to demonstrate that the parameter is within the acceptable limits; or
  3. If a vapor cleaning machine does not have a solvent/air interface, an exceedance has occurred if the three-month average monthly emission limit is not met in any month;
  4. If a vapor cleaning machine has been exempted from the automated parts handling system requirements, an exceedance has occurred if the three-month emission limit, S, as calculated using Equation 4 in § 36.16(A) of this Part, is not met in any month.
  5. An exceedance has occurred if emissions exceed the facility wide emission limits specified in 40 C.F.R. § 63.471, incorporated in § 36.4 of this Part.
- B. The owner or operator of a batch vapor or in-line cleaning machine shall initially submit Exceedance Reports semiannually, except when the Department determines on a case-by-case basis that more frequent reporting is necessary.
- C. If an exceedance occurs, Exceedance Reports must be submitted quarterly until a request to reduce the reporting frequency as specified in § 36.15.3(F) of this Part has been approved.
- D. The Exceedance Report shall be received by the thirtieth (30<sup>th</sup>) day following the end of each exceedance reporting period. Initial reporting periods are January 1 - June 30 and July 1 - December 31.
- E. Exceedance Reports shall include the following information for actions taken to comply with §§ 36.13(A)(1) through (6) of this Part:
1. Records of written or verbal orders for replacement parts, a description of the repairs made, additional monitoring to demonstrate that monitored parameters have returned to acceptable levels; and
  2. If an exceedance has occurred, the reason for the exceedance and a description of the actions taken to correct the exceedance; and

3. If an exceedance has occurred, the dates the cleaning machine or control equipment was repaired, retested, and returned to service; and
  4. If an exceedance has not occurred or the cleaning and control equipment has not been inoperative, repaired, or adjusted, this information must be stated in the report.
- F. If a facility is required to submit Exceedance Reports on a quarterly (or more frequent) basis, the submittal frequency may be reduced to semiannual with the Director's approval, if the following requirements are achieved:
1. The facility has demonstrated a full year of compliance without an exceedance; and
  2. The owner or operator continues to comply with the recordkeeping and monitoring requirements specified in this regulation.

#### **36.15.4 Annual Compliance Reports**

- A. The owner or operator of a batch vapor or in-line solvent cleaning machine shall submit an annual report to the Office of Air Resources by February 1 of each year for the previous calendar year. This report shall include the following:
1. A signed statement from the facility owner or their designee stating that, "All operators of solvent cleaning machines have received training on the proper operation of solvent cleaning machines and their control devices sufficient to pass the test required in 40 C.F.R. § 63, Appendix A, Subpart T" incorporated in § 36.4 of this Part.
  2. An estimate of solvent consumption for each solvent cleaning machine during the reporting period.
  3. For each machine complying with § 36.12 of this Part, the average monthly solvent consumption and the average monthly emissions for each consecutive three-month period, calculated using Equation 3 in § 36.12(A)(3)(e) of this Part.
  4. For each batch vapor cleaning machine that has received an exemption from the automated parts handling system requirements, as specified in § 36.16 of this Part, the solvent emissions during each three-month period, calculated using Equation 5 in § 36.16(D)(3) of this Part.
- B. The owner or operator of a facility which uses a solvent containing trichloroethylene, perchloroethylene or methylene chloride in a solvent cleaning machine shall report its annual emissions of those solvents in writing to the Office of Air Resources on or before April 15 of the following calendar year. The report shall be signed by the owner or operator of the facility and can be fulfilled by submitting the reports required in [Part 14](#) of this Subchapter (Record Keeping

and Reporting). If annual emissions of those solvents from solvent cleaning operations at a facility exceed fifty percent (50%) of the facility wide limits established in 40 C.F.R. § 63.471, incorporated in § 36.4 of this Part, in any year, the facility must thereafter fulfill all applicable recordkeeping and reporting requirements in 40 C.F.R. § 63.460 and 40 C.F.R. § 63.471, incorporated in § 36.4 of this Part.

### **36.16 Exemption from Automated Parts Handling System Requirement for Solvent Cleaning Machines**

- A. The owner or operator of a batch vapor cleaning machine may apply for an exemption from the automated parts handling system requirement in § 36.10(C) of this Part. Exemptions shall limit solvent emissions from the cleaning machine during any three-month period after the compliance date to the amount calculated using Equation 4 in § 36.16(A) of this Part:

Equation 4

$$S = 92 * A$$

Where:

S = The amount of solvent, in pounds, that can be emitted from that cleaning machine during any three-month period after start-up.

A = The area of the solvent/air interface for that machine, in square feet.

- B. Exemption requests shall be submitted to the Office of Air Resources thirty (30) days prior to startup and shall include the following information:
1. The name and address of the facility; and
  2. An identification of the vapor cleaning machine for which the exemption is being requested; and
  3. The area of the solvent/vapor interface, in square feet, of the vapor cleaning machine; and
  4. The three-month emission limit, S, calculated using Equation 4 in § 36.16(A) of this Part; and
  5. A statement, signed by the owner or operator of the facility, that emissions of solvent from the vapor cleaning machine will not exceed the three-month emission limit, S, during any three-month period after start-up.

- C. The owner or operator of a facility which is granted an exemption to the requirements of § 36.10(C) of this Part shall maintain a log of additions and deletions of solvent from the exempted vapor cleaning machine.
- D. The owner or operator of a facility which is granted an exemption to the requirements of § 36.10(C) of this Part shall demonstrate compliance with the three-month emission limit, S, calculated using Equation 4 in § 36.15(A) of this Part on the first operating day of every month using the following procedure:
1. A fill-line must be marked on the machine on the first month the measurements are taken; and
  2. On the first day of each month thereafter, the machine shall be filled to the fill-line with clean liquid solvent; and
  3. On the first day of each month, using the log of solvent additions and deletions required in § 36.16(C) of this Part, calculate solvent emissions for the most recent three-month period with Equation 5 in § 36.16(D)(3) of this Part:

Equation 5

$$EA = SA - SR$$

Where:

EA = solvent emissions during the three-month period (pounds)

SA = the total amount of solvent added to the cleaning machine during the three-month period (pounds)

SR = the total amount of solvent removed from the cleaning machine during the three-month period (pounds)

4. The cleaning machine is in compliance with the three-month emission limit if solvent emissions in the three-month period, EA, calculated using Equation 5 in § 36.16(D)(3) or this Part, are less than or equal to S, calculated according to Equation 4 in § 36.16(A) of this Part.
- E. If the three-month emission limit, S, is exceeded two (2) times, an automated parts handling system must be installed within sixty (60) days of the end of the three-month period in which the second exceedance occurred.

## **36.17 Requirements for Industrial Cleaning Solvents**

### **36.17.1 Compliance Standards**

- A. The owner or operator of a source subject to § 36.17 of this Part shall limit VOC emissions from the use, handling, storage, and disposal of industrial cleaning solvents and shop towels by implementing the following work practices:
1. Store all VOC-containing industrial cleaning solvents, used shop towels and related waste materials in closed containers;
  2. Ensure that mixing and storage containers used for VOC-containing industrial cleaning solvents are kept closed at all times except when depositing or removing these materials;
  3. Minimize spills of VOC-containing industrial cleaning solvents and waste materials and clean up spills immediately;
  4. Convey VOC-containing industrial cleaning solvents and related waste materials from one location to another in closed containers or pipes;
  5. Minimize VOC emissions from cleaning of storage, mixing and conveying equipment; and
  6. Minimize air circulation around industrial solvent cleaning operations.
- B. All spray guns must be cleaned using one of the following methods:
1. A fully enclosed cleaning system that is kept closed when not in use; or
  2. Flushing the spray gun without atomizing the solvent and paint residue and discharging the solvent and paint residue into a container that is kept closed when not in use; or
  3. Hand cleaning of the parts of a disassembled spray gun in a container of solvent that is kept closed when not in use.
- C. All spent solvent, shop towels and paint residue must be kept in an enclosed container and disposed of in accordance with applicable hazardous waste regulations.
- D. The owner or operator of a source subject to § 36.17 of this Part shall limit VOC emissions by utilizing one or more of the following methods for each applicable cleaning activity:
1. Using industrial cleaning solvents with a maximum VOC content limit of fifty (50) grams VOC per liter, equivalent to 0.42 lb/gal;
  2. Using industrial cleaning solvents with a composite vapor pressure of eight (8.0) millimeters or less of mercury (mm Hg), measured at 20 °C (68 °F); or

3. Using an emission control system with an overall control efficiency of at least eighty-five percent (85%).

### **36.17.2 Recordkeeping**

- A. An owner or operator conducting industrial cleaning activities shall maintain monthly purchase or use records of all industrial cleaning solvents, including the following information:
  1. Name and description of each industrial cleaning solvent;
  2. VOC content and/or vapor pressure of each industrial cleaning solvent either as supplied or as applied;
  3. Amount of each industrial cleaning solvent purchased or used;
  4. Safety data sheets for each industrial cleaning solvent;
  5. If applicable, documentation of control device efficiency and capture efficiency, using an applicable EPA reference method as approved by the Office of Air Resources and EPA; and
  6. If applicable, date and type of maintenance performed on air pollution control equipment.
- B. Any owner or operator conducting industrial solvent cleaning activities whose actual emissions before controls are less than or equal to 2.7 tons of VOC for any consecutive 12-month period calendar year shall maintain materials purchase or use records sufficient to verify this.
- C. An owner or operator conducting industrial solvent cleaning exempted by § 36.6(D) of this Part shall maintain records sufficient to verify the exemption.
- D. All records required by § 36.17 of this Part shall be maintained for a minimum of five (5) years and shall be provided to the Office of Air Resources and or EPA upon request.

**250-RICR-120-05-36**

**TITLE 250 - DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**

**CHAPTER 120 - AIR RESOURCES**

**SUBCHAPTER 05 - AIR POLLUTION CONTROL**

**PART 36 - AIR POLLUTION CONTROL REGULATION NO. 36 - CONTROL OF EMISSIONS FROM ORGANIC SOLVENT CLEANING**

Type of Filing: Refile Capabilities

**Department of State**

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Regulation Effective Date

Original Signing Date

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Department of State Initials

Department of State Date