

RULE 102. DEFINITIONS. (Adopted 10/18/1971, revised 1/12/1976, readopted 10/23/1978, revised 7/11/1989, 7/10/1990, 7/30/1991, 7/18/1996, 4/17/1997, 1/21/1999, 5/20/1999, 6/19/2003, 1/20/2005, 6/19/2008, ~~and~~ 1/15/2009), and [date of amended rule adoption])

These definitions apply to the entire rulebook. Definitions specific to a given rule are defined in that rule or in the first rule of the relevant regulation. Except as otherwise specifically provided in these Rules where the context otherwise indicates, words used in these Rules are used in exactly the same sense as the same words are used in Division 26 of the Health and Safety Code.

[. . .]

“Application Equipment” means a device or equipment used to apply solvent, sealant, adhesive, coating, ink, or polyester resin materials.

[. . .]

“Coating” means a material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealers, and stains.

[. . .]

“Cured Adhesive, Cured Coating, or Cured Ink” means an adhesive, coating, or ink that is dry to the touch.

[. . .]

“Degreaser” has the same meaning as **“Solvent Cleaning Machine.”**

[. . .]

“Flexographic Printing” means any printing method in which the image area is raised relative to the non-image area and utilizes flexible rubber or other elastomeric plate and rapid drying liquid inks.

[. . .]

“Janitorial Cleaning” means the cleaning of building or facility components including, but not limited to, floors, ceilings, walls, windows, doors, stairs, bathrooms, furnishings, and exterior surfaces of office equipment; excluding the cleaning of work areas associated with:

1. research and development, manufacturing, and repair activities; and
2. laboratory tests and analyses (including quality assurance and quality control activities) and bench scale projects.

[. . .]

“Organic Solvents” means organic materials, including diluents and thinners which are liquid at standard conditions and which are used as, dissolvers, viscosity reducers or cleaning agents, except that such materials which exhibit a boiling point, as measured using ASTM D 1078-05, “Standard Test Method for Distillation Range of Volatile Organic Liquids,” ASTM International, higher than 220°F at 0.5 millimeter mercury absolute pressure or having an equivalent vapor pressure shall not be considered to be organic solvents unless exposed to temperatures exceeding 220°F.

[. . .]

“**Photochemically Reactive Solvent**” means any organic solvent with an aggregate of more than 20 percent of its total volume composed of the chemical compounds classified below or which exceeds any of the following individual percentage composition limitations, referred to the total volume of organic solvent;

1. combination of hydrocarbons, alcohols, aldehydes, esters, ethers or ketones, having an olefinic or cycloolefinic type of unsaturation: 5 percent, or
2. combination of aromatic compounds with 8 or more carbon atoms to the molecule, except ethylbenzene: 8 percent, or
3. combination of ethylbenzene, ketones having branched hydrocarbon structures, trichloroethylene or toluene: 20 percent.

Whenever any organic solvent or any constituent of an organic solvent may be classified from its chemical structure into more than one of the above groups of organic compounds, it shall be considered as a member of the most reactive chemical group, i.e., that group having the least allowable percent of the total volume of organic solvents.

[. . .]

“**Reactive Organic Compound**” means any ~~volatile~~ compound containing at least one (1) atom of carbon, except for the following exempt compounds: [*Note: Compounds and text shown below in **bold** are additions to the “reactive organic compound” definition.*]

1. acetone
2. ammonium carbonate
3. carbon dioxide
4. carbon monoxide
5. carbonic acid
6. **dimethyl carbonate**
7. ethane
8. metallic carbides or carbonates
9. methane
10. methyl acetate
12. methyl chloroform (1,1,1-trichloroethane)
12. **methyl formate; HCOOCH₃**
13. cyclic, branched, or linear completely methylated siloxane compounds
14. methylene chloride
15. parachlorobenzotrifluoride
16. perchloroethylene (tetrachloroethylene)
17. the following four classes of perfluorocarbon (PFC) compounds:
 - a. cyclic, branched, or linear, completely fluorinated alkanes,
 - b. cyclic, branched, or linear, completely fluorinated ethers with no unsaturations,
 - c. cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations,
and
 - d. sulfur containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.
18. **propylene carbonate**
19. **tertiary-butyl acetate; C₆H₁₂O₂ (1,1-dimethylethyl ester)**

Tertiary-butyl acetate (also known as t-butyl acetate or tBAC) shall be considered exempt as a reactive organic compound only for purposes of reactive organic compound emissions limitations or reactive organic compound content requirements and will continue to be a reactive organic compound for purposes of all recordkeeping, emissions reporting,

photochemical dispersion modeling, and inventory requirements which apply to reactive organic compounds.

20. CFC-11 (trichlorofluoromethane)
21. CFC-12 (dichlorodifluoromethane)
22. CFC-113 (1,1,2-trichloro-1,2,2-trifluoroethane)
23. CFC-114 (1,2-dichloro 1,1,2,2-tetrafluoroethane)
24. CFC-115 (chloropentafluoroethane)
25. HCFC-22 (chlorodifluoromethane)
26. **HCFC-31 (chlorofluoromethane)**
27. HCFC-123 (1,1,1-trifluoro 2,2-dichloroethane)
28. HCFC-123a (1,2-dichloro-1,1,2-trifluoroethane)
29. HCFC-124 (2-chloro-1,1,1,2-tetrafluoroethane)
30. HCFC-141b (1,1-dichloro 1-fluoroethane)
31. HCFC-142b (1-chloro-1,1 difluoroethane)
32. **HCFC-151a (1-chloro-1-fluoroethane)**
33. **HCFC-225ca (3,3-dichloro-1,1,1,2,2-pentafluoropropane)**
34. **HCFC-225cb (1,3-dichloro-1,1,2,2,3-pentafluoropropane)**
35. **HFC-23 (trifluoromethane)**
36. **HFC-32 (difluoromethane)**
37. **HFC-43-10mee (1,1,1,2,3,4,4,5,5,5-decafluoropentane)**
38. HFC-125 (pentafluoroethane)
39. HFC-134 (1,1,2,2-tetrafluoroethane)
40. HFC-134a (1,1,1,2-tetrafluoroethane)
41. HFC-143a (1,1,1-trifluoroethane)
42. HFC-152a (1,1-difluoroethane)
43. **HFC-161 (ethylfluoride)**
44. **HFC-236ea (1,1,1,2,3,3-hexafluoropropane)**
45. **HFC-236fa (1,1,1,3,3,3-hexafluoropropane)**
46. **HFC-245ca (1,1,2,2,3-pentafluoropropane)**
47. **HFC-245ea (1,1,2,3,3-pentafluoropropane)**
48. **HFC-245eb (1,1,1,2,3-pentafluoropropane)**
49. **HFC-245fa (1,1,1,3,3-pentafluoropropane)**
50. **HFC-365mfc (1,1,1,3,3-pentafluorobutane)**
51. **HFE-7100; (CF₃)₂CFCF₂OCH₃; (2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane) or C₄F₉OCH₃; (1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane)**
52. **HFE-7200; (CF₃)₂CFCF₂OC₂H₅; (2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane) or C₄F₉OC₂H₅; (1-ethoxy-1,1,2,2,3,3,3,4,4,4-nonafluorobutane)**

Rule 202.D.10.1.1 requires an Authority to Construct and Permit to Operate when using more than one gallon per year per stationary source of any one of the following exempt compounds: dimethyl carbonate, methyl formate, HCFC-225ca, HCFC-225cb, HFC-43-10mee, HFC-245fa, HFC-365mfc, or HFE-7100 [(CF₃)₂CFCF₂OCH₃ or C₄F₉OC₂H₅]. Rule 202.D.10.1.2 requires an Authority to Construct and Permit to Operate when using more than one gallon per year per stationary source of tertiary-butyl acetate. The one gallon per year per stationary source limit is a per compound limit for each compound in aggregate for the entire stationary source and includes any amounts of the compound used in mixed or diluted product.

1. ~~Acetone, ethane, methane, methyl acetate, and inorganic carbon compounds: carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate~~
2. Chlorinated compounds
 - ~~1,1,1 trichloroethane (methyl chloroform)~~
 - ~~methylene chloride (dichloromethane)~~
 - ~~perchloroethylene (tetrachloroethylene)~~
3. Chlorofluorocarbons
 - ~~trichlorofluoromethane (CFC 11)~~
 - ~~dichlorodifluoromethane (CFC 12)~~
 - ~~chlorodifluoromethane (HCFC 22)~~
 - ~~trifluoromethane (HFC 23)~~
 - ~~1,1,2 trichloro 1,2,2 trifluoroethane (CFC 113)~~
 - ~~1,2 dichloro 1,1,2,2 tetrafluoroethane (CFC 114)~~
 - ~~chloropentafluoroethane (CFC 115)~~
4. Hydrofluorocarbons
 - ~~pentafluoroethane (HFC 125)~~
 - ~~1,1,2,2 tetrafluoroethane (HFC 134)~~
 - ~~1,1,1,2 tetrafluoroethane (HFC 134a)~~
 - ~~1,1,1 trifluoroethane (HFC 143a)~~
 - ~~1,1 difluoroethane (HFC 152a)~~
5. Hydrochlorofluorocarbons
 - ~~2,2 dichloro 1,1,1 trifluoroethane (HCFC 123)~~
 - ~~2 chloro 1,1,1,2 tetrafluoroethane (HCFC 124)~~
 - ~~1,1 dichloro 1 fluoroethane (HCFC 141b)~~
 - ~~1 chloro 1,1 difluoroethane (HCFC 142b)~~
6. Parachlorobenzotrifluoride (PCBTF)
7. Cyclic, branched or linear completely methylated siloxanes (VMS)
8. Perfluorocarbon compounds which fall into these classes:
 - a. Cyclic, branched, or linear, completely fluorinated alkanes;
 - b. Cyclic, branched, or linear, completely fluorinated ethers with no unsaturation;
 - c. Cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations;
and
 - d. Sulfur containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.

[. . .]

“Rotogravure Printing” means any printing process where the image area is etched or engraved relative to the surface of the image cylinder. Ink is transferred from minute etched wells on a plate cylinder to a substrate, which is supported by an impression roller, with excess ink removed by a doctor blade. The substrate is fed through the printing press in continuous rolls.

[. . .]

“Solvent” means any liquid containing any reactive organic compound or any toxic air contaminant, which is used as a diluent, thinner, dissolver, viscosity reducer, cleaning agent, drying agent, preservative, or other similar uses.

“Solvent Cleaning” means any activity, operation, or process (including, but not limited to, surface preparation, cleanup, or wipe cleaning) performed outside of a solvent cleaning machine, that uses solvent to remove uncured adhesives, uncured coatings, uncured inks, uncured polyester resin material, uncured sealant, or other contaminants, including, but not limited to, dirt, soil, oil, lubricants, coolants, moisture, fingerprints, and grease, from parts, products, tools, machinery, application equipment, and general work areas. Cleaning spray equipment used for the application of coating, adhesive, ink, polyester resin material, or sealant is also considered to be solvent cleaning irrespective of the spray material being cured.

“Solvent Cleaning Machine” means any device or piece of equipment that uses solvent liquid or vapor to remove soils, moisture, or other contaminants from the surfaces of materials. Types of solvent cleaning machines include, but are not limited to, batch cold, batch vapor, in-line cold, in-line vapor, remote reservoir, and gas-path solvent cleaners, as defined in Rule 321. Buckets, pails, and beakers with capacities of 3.785 liters (1.00 gallon) or less are not considered solvent cleaning machines. However, the use of such a container or similar containers (e.g., hand-held spray bottles) with a solvent for cleaning is considered to be solvent cleaning. Any device or piece of equipment used exclusively for stripping shall not be considered to be a solvent cleaning machine.

[. . .]

“Stripping” means the use of solvent to remove materials such as cured adhesives, cured inks, cured sealants, cured or dried paints, cured or dried paint residues, or temporary protective coatings.

“Surface Preparation” means the removal of contaminants such as dust, soil, oil, grease, moisture, etc., prior to application of an adhesive, coating, ink, polyester resin material, or sealant.

[. . .]

“Toxic Air Contaminant” means “Toxic air contaminant” as defined in Health and Safety Code Section 39655.

[. . .]

“Wipe Cleaning” means a solvent cleaning activity performed by hand rubbing an absorbent material such as a rag, paper, sponge, brush, or cotton swab containing solvent.

[. . .]

RULE 202. EXEMPTIONS TO RULE 201. (Adopted 10/18/1971, revised 5/1/1972 and 6/27/1977, readopted 10/23/1978, revised 12/7/1987, 1/11/1988, 1/17/1989, 7/10/1990, 7/30/1991, 11/05/1991, 3/10/1992, 5/10/1994, 6/28/1994, 4/17/1997, 3/17/2005, 1/17/2008, and 6/19/2008, and [date of amended rule adoption])

[. . .]

D. General Provisions [. . .]

5. Temporary Equipment

[. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees.

[. . .]

7. Stationary Source Permit Exemption

[. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees.

[. . .]

10. Notwithstanding any exemption defined in this ~~Rule~~ rule, no new or modified stationary source that has the potential to emit air contaminants in excess of the amounts specified shall be exempt from permit requirements:

[. . .]

k. 40 tons per year municipal waste combustor acid gases.

1. In addition, notwithstanding any exemption defined in this rule, no stationary source that has the potential to emit any air contaminants in excess of the amounts specified shall be exempt from permit requirements:

1. more than one gallon per year of any one of the exempt compounds listed below. The one gallon per year per stationary source limit is a per compound limit for each compound in aggregate for the entire stationary source and includes any amounts of the compound used in mixed or diluted product.

a) dimethyl carbonate; or

b) methyl formate; HCOOCH₃; or

c) HCFC-225ca (3,3-dichloro-1,1,1,2,2-pentafluoropropane); or

d) HCFC-225cb (1,3-dichloro-1,1,2,2,3-pentafluoropropane); or

e) HFC-43-10mee (1,1,1,2,3,4,4,5,5,5-decafluoropentane); or

f) HFC-245fa (1,1,1,3,3-pentafluoropropane); or

g) HFC-365mfc (1,1,1,3,3-pentafluorobutane); or

h) HFE-7100; (CF₃)₂CF₂OCH₃; (2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane); or

i) HFE-7100; C₄F₉OCH₃; (1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane); or

2. more than one gallon per year of tertiary-butyl acetate; C₆H₁₂O₂ (1,1-dimethylethyl ester). Tertiary-butyl acetate (also known as t-butyl acetate or tBAC) shall be considered exempt as a reactive organic compound only for purposes of reactive organic compound emissions limitations or reactive organic compound content requirements and will continue to be a reactive organic compound for purposes of all recordkeeping, emissions reporting.

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photochemical dispersion modeling, and inventory requirements which apply to reactive organic compounds. The one gallon per year per stationary source limit for tertiary-butyl acetate is an aggregate limit for the entire stationary source and includes any amounts of the compound used in mixed or diluted product.

[. . .]

E. Compliance with Rule Changes

[. . .]

If no application is filed within the ninety (90) day period, the application filing fee prescribed in Rule 210, Fees, shall be doubled and the equipment owner shall be subject to a Notice of Violation and to the penalty provisions set forth in California Health and Safety Code Sections 42400 et seq.

[. . .]

F. Internal Combustion Engines

[. . .]

5. [. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees. [. . .]

[. . .]

7. [. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees. [. . .]

8. [. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees. [. . .]

[. . .]

I. Coatings Applications Equipment and Operations

The following listed coating applications equipment and operations ~~is~~ are exempt from permit requirements. [. . .]

3. Equipment used in surface coating operations provided that the total amount of coatings and solvents used does not exceed 55 gallons per year. [. . .] Solvents meeting the criteria of Section U.2.b or Section U.2.c or that have a reactive organic compound content of 50 grams per liter or less, as determined by the Environmental Protection Agency Reference Method 24, do not contribute to the 55 gallons per year per stationary source limitation. [. . .]

6. Unheated non-conveyORIZED coating dip tanks of 100 gallons or less capacity.

[. . .]

K. Food Processing and Preparation Equipment

[. . .]

7. [. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees.

[. . .]

P. Miscellaneous Equipment and Operations

[. . .]

14. [. . .] The owner or operator shall pay any applicable fee pursuant to Rule 210, Fees. [. . .]

[. . .]

U. Solvent Application Equipment and Operations

The following solvent ~~cleaning, application equipment~~ solvent cleaning machines and their operations ~~is~~ are exempt from permit requirements. Notwithstanding the listed exemptions, any collection of articles, machines, equipment or other contrivances within each listed equipment category at a stationary source that has aggregate emissions in excess of 10 tons per calendar year of any affected pollutant is not exempt.

1. ~~Unheated solvent dispensing containers, unheated non-conveyorized~~ Unheated nonconveyorized solvent rinsing containers ~~or unheated non-conveyorized coating dip tanks~~ of 1,00 gallons or less capacity provided that cleaning performed in association with such containers complies with the requirements in Rule 321, Solvent Cleaning Machines and Solvent Cleaning. ~~;- this exemption shall not apply to degreasing equipment regulated under the provisions of Rule 321.~~
2. ~~Single pieces of degreasing equipment~~ solvent cleaning machines, which use unheated solvent, and which:
 - a. have a liquid surface area (i.e., the area of the drain for remote reservoir cleaning machines or the solvent/air interface area for other solvent cleaning machines) of less than 929 square centimeters (1.0 square foot), unless the aggregate liquid surface area of all ~~degreasers~~ solvent cleaning machines at a stationary source, covered by this exemption is greater than 0.929 square meter (10 square feet), or
 - b. use only ~~organic~~ solvents with an initial boiling point of 150 degrees Celsius (302 degrees Fahrenheit) or greater as determined by ASTM D-1078-~~8605~~, "Standard Test Method for Distillation Range of Volatile Organic Liquids," ASTM International, or
 - c. use ~~materials~~ solvents with a volatile reactive organic compound content of two percent or less by weight as determined by EPA Environmental Protection Agency Method 24.
 - d. ~~materials exempt pursuant to subsections b. and c. above do not contribute to the 0.929 square meter (10 square feet) limitation in subsection a.~~ The liquid surface area of any solvent cleaning machine using the following solvent shall not be counted towards the 0.929 square meter (10 square feet) aggregate limit in subsection a. above:
 - i. any solvent that has a reactive organic compound content of 50 grams per liter or less, as determined by the Environmental Protection Agency Method 24, or
 - ii. any solvent exempt pursuant to subsection b. or subsection c. above.
3. ~~Equipment used in wipe~~ Wipe cleaning operations, provided that the solvents used do not exceed 55 gallons per year per stationary source and that the solvent cleaning complies with the requirements in Rule 321, Solvent Cleaning Machines and Solvent Cleaning.

To qualify for this exemption, the owner or operator shall maintain records of the amount (gallons per year) of solvents used for wipe cleaning at the stationary source for each calendar year.

These records shall be maintained on site for at least 3 years and be made available to the District on request. Thereafter, the records shall be maintained either on site or readily available for

expeditious inspection and review for an additional 2 years. Solvents meeting the criteria of 2.b. or c. above or that have a reactive organic compound content of 50 grams per liter or less, as determined by the Environmental Protection Agency Reference Method 24, do not contribute to the 55 gallons per year per stationary source limitation.

4. Notwithstanding the Section U.3 exemption above, solvent cleaning to disinfect and decontaminate surfaces and equipment in hospitals, clinics, medical facilities, dentistry facilities, and other health care facilities, including but not limited to, sanatoriums, convalescent hospitals, convalescent homes, skilled nursing facilities, nursing homes, blood banks, and bloodmobiles.
5. Notwithstanding the Section U.3 exemption above, solvent cleaning associated with janitorial cleaning, including graffiti removal.

[...]

RULE 321. SOLVENT CLEANING ~~MACHINES OPERATIONS~~ AND SOLVENT CLEANING.
(Adopted 2/24/1975, readopted 10/23/1978, revised 6/11/1979, 7/10/1990, 4/17/1997,
7/17/1997, ~~and~~ 9/18/1997, and [date of amended rule adoption])

A. Applicability

This ~~Rule~~ rule shall apply to any person who owns, operates, or uses any solvent cleaning machine or performs any solvent cleaning operation outside of a solvent cleaning machine operations during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or in general work areas at any stationary source.

B. Exemptions

Except as otherwise specifically provided herein, the provisions of this rule shall not apply to the following:

1. Any solvent cleaning machine equipped with and any solvent cleaning performed with operations using a solvent (including emulsions) that contains two percent by weight or less of each of the following:
 - a. Reactive organic compounds by weight (as determined by EPA-Environmental Protection Agency method 24), and
 - b. Toxic air contaminants (as determined by generic solvent data, solvent manufacturer's composition data or by a gas chromatography test and a mass spectrometry test). ~~shall not be subject to the requirements of this Rule.~~
 - c. Any person claiming this exemption shall maintain the records specified in Sections R.1.a.1) and R.1.a.2) in a manner consistent with Section R.3 and make them available for review.
2. Except for the Rule 321 Section G.2 requirement that the cleaner be covered when work is not being processed (use of covers are not required for remote reservoir cold cleaners using low volatility solvents), the provisions of this Rule shall not apply to an unheated solvent cleaner that:
 - a. has a capacity of 3.785 liters (1 gallon) or less, or
 - b. has an evaporative surface area of less than 929 square centimeters (1 square foot). However, if the aggregate evaporative surface area of all such solvent cleaners at a stationary source is greater than 0.929 square meters (10 square feet), none of the cleaners are exempt.
3. The provisions of Rule 321 Section J.7 shall not apply to open top vapor solvent cleaners with less than 1 square meter (10.8 square feet) of evaporative surface area. ~~The cleaning of architectural coating application equipment provided that the solvent used does not exceed 950 grams of reactive organic compound per liter of material.~~
4. The provisions of this Rule shall not apply to:
 - a. wipe cleaning,
 - b. Dry cleaning operations of clothing or other fabrics covered under Rule 320, Petroleum Solvent Dry Cleaners, or 47-California Code of Regulations Title 17, Section 93109, Perchloroethylene Airborne Toxic Control Measure— for Emissions of Perchloroethylene from Dry Cleaning and Water-Repelling Operations.

4. e. ~~Stripping of cured coatings (e.g., stripping), cured adhesives, (e.g., debonding, ungluing) cured sealants, and cured inks, except the stripping of such materials from spray application equipment.~~
- d. ~~spray gun cleaning operations,~~
5. e. ~~Notwithstanding Section B.1, any batch vapor, in line vapor, in line cold, and batch cold solvent cleaning machines that uses any halogenated hazardous air pollutant solvent containing methylene chloride, perchloroethylene, trichloroethylene, 1,1,1 trichloroethane, carbon tetrachloride, or chloroform, or any combination of these halogenated hazardous air pollutants solvents, in a total concentration greater than 5 percent by weight, as a cleaning and/or drying agent, provided such a solvent cleaning machines are is subject to 40 CFR, Part 63, Subpart T, National Emission Standards for Hazardous Air Pollutants: Halogenated Solvent Cleaning, (Sections 63.460 et. seq.) or,~~
- f. ~~cold solvent degreasers of 37.854 liters (10 gallons) or less in capacity, provided the degreasers are designed to operate in a closed system fashion (i.e., sealed when operated) and agitated through pump recirculation, mechanical mixing (a mixer), or with ultrasonics. Gas or air agitation shall not be used.~~
6. ~~Any equipment or operation that is subject to or specifically exempted by any of the following District rules.~~
- a. ~~Rule 325, Crude Oil Production and Separation.~~
- b. ~~Rule 326, Storage of Reactive Organic Compound Liquids.~~
- c. ~~Rule 330, Surface Coating of Metal Parts and Products.~~
- d. ~~Rule 337, Surface Coating of Aircraft or Aerospace Vehicle Parts and Products.~~
- e. ~~Rule 339, Motor Vehicle and Mobile Equipment Coating Operations.~~
- f. ~~Rule 343, Petroleum Storage Tank Degassing.~~
- g. ~~Rule 344, Petroleum Sumps, Pits and Well Cellars.~~
- h. ~~Rule 349, Polyester Resin Operations.~~
- i. ~~Rule 351, Surface Coating of Wood Products.~~
- j. ~~Rule 353, Adhesives and Sealants.~~
- k. ~~Rule 354, Graphic Arts.~~
7. ~~Janitorial cleaning, including graffiti removal.~~
8. ~~Provisions of Sections H.7, I.7, K.6, and, M.1 shall not apply to the following:~~
- a. ~~Cleaning of solar cells, laser hardware, scientific instruments, high-precision optics, telescopes, microscopes, avionic equipment, and aerospace and military fluid systems; and~~
- b. ~~Cleaning in laboratory tests and analyses, including quality assurance and quality control applications, bench scale projects, or short-term (less than 2 years) research and development projects; and~~

- c. Cleaning of cotton swabs to remove cottonseed oil before cleaning of high-precision optics.
 - d. In addition, the provisions of Sections H.7, I.7, and K.6 shall not apply to solvent cleaning machines employed with solvents having 900 grams of reactive organic compound per liter of material or less during the production, repair, maintenance, or servicing of electrical apparatus components, electronic components, satellites, satellite components, aerospace vehicles, aerospace vehicle components, aerospace vehicle payloads, aerospace vehicle payload components, medical devices, or silicone manufacturing.
- 9. Solvent cleaning with aerosol products shall not be subject to Section D.9 and Section M.1 provisions and the Section M.2.c prohibition on solvent atomization provided:
 - a. 160 fluid ounces or less of aerosol products are used per day, per facility, and
 - b. Records are maintained as specified in Sections R.2 and R.3, and
 - c. The aerosol products comply with volatile organic compound limits for consumer products specified in the California Code of Regulations, Title 17, Section 94507 et seq.
- 10. Provisions of Section M.1, Table 1, Solvent Cleaning Activity (c) shall not apply to the cleaning of application equipment when such equipment is used to apply a coating on a satellite or when applying a radiation-effect coating.
- 11. Section D.9 and M.2.c prohibitions on solvent atomization shall not apply to the following applications:
 - a. Cleaning of the nozzle tips of automated spray equipment systems, except for robotic systems.
 - b. Cleaning with hand-held spray bottles, squirt bottles, and other closed containers having a capacity of one liter or less.
 - c. Cleaning of gas turbines or jet engines using a gas-path solvent cleaner.
- 12. De-icing of aircraft and aerospace vehicles.
- 13. Solvent cleaning with a solvent containing 50 grams of reactive organic compounds per liter of material or less shall not be subject to the Section D.9 provision.
- 14. Solvent cleaning to disinfect and decontaminate surfaces and equipment in hospitals, clinics, medical facilities, dental care facilities, and other health care facilities, including but not limited to, sanatoriums, convalescent hospitals, convalescent homes, skilled nursing facilities, nursing homes, blood banks, and bloodmobiles.
- 15. Provisions of Section M.1 shall not apply if the net aggregate amount of solvent used for all solvent cleaning subject to Rule 321 (i.e., subject to Sections D, M.2, and/or M.3 provisions) at a stationary source does not exceed 55 gallons per year. Solvents with a reactive organic compound content of 50 grams per liter of material or less do not count towards the 55 gallons per year aggregate limit. Any person claiming this exemption shall maintain records as specified in Sections R.2 and R.3.
- 16. Provisions of Section M.1 shall not apply to the following applications:

- a. Cleaning of ultraviolet lamps used to cure ultraviolet inks coatings, adhesives, or resins.
 - b. Cleaning of mold release compounds from molds.
 - c. Cleaning of aerospace assembly and subassembly surfaces that are exposed to strong oxidizers or reducers such as nitrogen tetroxide, liquid oxygen, or hydrazine.
 - d. Cleaning of paper gaskets.
 - e. Cleaning of clutch assemblies where rubber is bonded to metal by means of an adhesive.
 - f. Cleaning of hydraulic actuating fluid from filters and filter housings.
 - g. Wipe cleaning to remove crude oil and crude oil residue from well workover, drilling operations, and other activities related to petroleum production and processing on offshore platforms, provided the solvent reactive organic compound content does not exceed 800 grams per liter of material and the reactive organic compound composite partial pressure is no more than 8 millimeters of mercury at 20 degrees Celsius.
17. Provisions of Sections H.7, I.7, and K.6 shall not apply to the following applications, provided the solvent reactive organic compound content does not exceed 900 grams per liter of material and the reactive organic compound composite partial pressure is no more than 5 millimeters of mercury at 20 degrees Celsius:
- a. Cleaning associated with the manufacturing of nuts and bolts designed for automotive racing applications.
 - b. Cleaning of precision-lapped mechanical seals in pumps that handle liquefied gasses.
18. Provisions of Sections J.11.a, d, and e shall not apply to batch vapor cleaning machines with a solvent/air interface area less than 929 square centimeters (1 square foot) or a solvent capacity less than 2 gallons, provided all such solvent cleaning machines emit, in aggregate, less than 55 pounds of reactive organic compounds per month per stationary source. Any person claiming this exemption shall maintain records as specified in Sections R.1 and R.3.
19. The use of solvent for purposes other than cleaning.
20. The Section E.7 and Section J.11.a, d, and e provisions shall not apply to batch vapor cleaning machines provided:
- a. The equipment was installed before January 1, 2007; and
 - b. The solvent/air interface area is less than 4.40 square feet or the solvent capacity is less than 2 gallons; and
 - c. The equipment is used only for cleaning electronic components; and
 - d. The total aggregate reactive organic compound emissions from all batch vapor cleaning machines subject to this exemption do not exceed 188 pounds per month per stationary source; and
 - e. The equipment is subject to a Permit to Operate to help facilitate verifications that the requirements of subparagraphs B.20.a, b, c, and d are met.

- f. In addition, the Section J.8 requirement to have a freeboard ratio of 1.0 or greater shall not apply to solvent cleaning machines meeting the requirements in subsections a – e above, provided the solvent cleaning machines have a freeboard ratio of 0.75 or greater.
21. The Section I.3, I.4, and I.7 requirements for unheated batch cleaning machines shall not apply, provided the equipment is used in medical device manufacturing when performing incidental product cleaning in conjunction with quality assurance or quality control tests (e.g., when conducting leak testing of silicone shells) and the solvent reactive organic compound content does not exceed 900 grams per liter of material.
22. Metal lift-off and other semiconductor and microelectromechanical device manufacturing processes involving thin film deposition, vacuum deposition, and dry etching operations; including any maintenance activities associated with such operations.
23. The solvent container draining and filling provisions in Section D.12 shall not apply to solvent transfers out of a sump, provided the sump has a maximum capacity of 8 gallons or less, such sump is easily removed from the solvent cleaning machine, and the solvent is poured from the sump directly into a bulk storage container.
24. Any batch vapor cleaning machine meeting all of the following requirements shall be exempt from the Section J.8 requirement to have a freeboard ratio of 1.0:
- a. The equipment is used only for cleaning electronic components; and
- b. The dimensions are such that the freeboard ratio is 0.75 or greater; and
- c. The solvent cleaning machine is equipped with the freeboard refrigeration device for which the chilled air blanket temperature (expressed in degrees Fahrenheit) at the coldest point on the vertical axis in the center of the air blanket shall be no greater than 30 percent of the initial boiling point (expressed in degrees Fahrenheit) of the solvent used or no greater than minus 4 degrees Fahrenheit; and
- d. The batch vapor cleaning machine is equipped with a superheated vapor zone where parts remain in the vapor zone for at least the minimum dwell time, as specified by the manufacturer. The temperature within the superheated vapor zone shall be at least 10 degrees Fahrenheit above the initial boiling point of the solvent being used.

C. **Definitions**

See Rule 102 for definitions not limited to this rule. For purposes of this rule the following definitions shall apply:

“Aerosol Product” means a hand-held, non-refillable container that expels pressurized product by means of a propellant-induced force.

“Aerospace Vehicle” means the completed unit of any aircraft, helicopter, missile, or space vehicle.

“Aerospace Vehicle Component” means any raw material, partial or completed fabricated part, assembly of parts, or completed unit of any aircraft, helicopter, missile, or space vehicle, including mockups and prototypes.

“Air Blanket” means the layer of air inside the solvent cleaning machine freeboard located above the solvent/air interface.

“Airless Solvent Cleaning Machine” means any solvent cleaning machine that is automatically operated and seals at an absolute internal pressure of 0.02 pounds per square inch absolute or less, prior to the

introduction of solvent vapor into the cleaning chamber and maintains differential pressure under vacuum during all cleaning and drying cycles.

“Air-Tight Solvent Cleaning Machine” means any solvent cleaning machine that is automatically operated and seals at a differential pressure no greater than 0.5 pounds per square inch absolute during all cleaning and drying operations.

“Air-Vapor Interface” means, for vapor solvent cleaners, the top of the solvent vapor layer, and the air touching this layer. The effective top of the vapor layer may be determined as the maximum height where condensation occurs on a cold metal object lowered into the vapor zone.

“Air-Solvent Interface” means the point of contact between the exposed solvent and the air.

“ASTM” means American Society for Testing and Materials Standards.

“Automated Parts Handling System” means a mechanical device that carries all parts and parts baskets at a controlled speed from the initial loading of soiled or wet parts through the removal of the cleaned or dried parts. Automated parts handling systems include, but are not limited to, hoists and conveyors.

“Batch loaded” means material placed in a nonconveyorized container for cleaning.

“Batch Cleaning Machine” means a solvent cleaning machine in which individual parts or a set of parts move through the entire cleaning cycle before new parts are introduced into the solvent cleaning machine. An open-top vapor cleaning machine is a type of batch cleaning machine. A solvent cleaning machine, such as a Ferris wheel or a cross-rod degreaser, that clean multiple batch loads simultaneously and are manually or semi-continuously loaded are batch cleaning machines.

“Bench Scale Project” means a project (other than at a research and development facility) that is operated on a small scale, such as one capable of being located on a laboratory bench top.

“Carbon adsorber” means a bed of activated carbon into which an air-solvent gas-vapor stream is routed and which adsorbs the solvent on the carbon.

“Carry-out” see “Drag-out.”

“Circumferential Trough” means a receptacle located below the primary condenser that conveys condensed solvent and atmospheric moisture to a water separator.

“Cold Cleaner” means any cleaner using solvent that, if heated, is maintained below the initial boiling point temperature. Cold cleaners include, but are not limited to, remote reservoirs, spray sinks, batch-loaded dip tanks, and cold conveyorized degreasers. Cold cleaners do not include gas/liquid path cleaners.

“Cold Cleaning Machine” means any device or piece of equipment that contains and/or uses liquid solvent, into which parts are placed to remove soils from the surfaces of the parts or to dry the parts. Cleaning machines that contain and use heated, nonboiling solvent to clean the parts are classified as cold cleaning machines. Cold solvent wash stations are classified as cold cleaning machines.

“Condenser” or “Primary Condenser” means a device, such as cooling coils, used to condense (liquify) solvent vapor series of circumferential cooling coils on a vapor cleaning machine through which a chilled substance is circulated or recirculated to provide continuous condensation of rising solvent vapors and, thereby, create a concentrated solvent vapor zone.

“Condenser Flow Switch” means a safety switch connected to a thermostat that shuts off the sump heater if the condenser coolant is either not circulating or exceeds its designed operating temperature.

“Continuous Cleaning Machine” see “In-Line Cleaning Machine.”

“Continuous Web Cleaning Machine” means a solvent cleaning machine in which parts such as film, coils, wire, and metal strips are cleaned at speeds typically in excess of 11 feet per minute. Parts are generally uncoiled, cleaned such that the same part is simultaneously entering and exiting the solvent application area of the solvent cleaning machine, and then recoiled or cut. For the purposes of this rule, all continuous web cleaning machines are considered to be a subset of in-line solvent cleaning machines.

“Control Device” means a device for reducing emissions of reactive organic compounds to the atmosphere.

“Conveyorized (In-Line or Continuous) Cold Solvent Cleaner Cleaning Machine” means any continuously loaded ~~solvent cleaner solvent cleaning machine~~ that is not a conveyorized vapor ~~solvent cleaner cleaning machine~~.

“Conveyorized (In-Line or Continuous) Solvent Cleaner Cleaning Machine” means any ~~conveyorized cold or vapor solvent cleaner cleaning machine~~, that uses an automated parts handling system to automatically provide a continuous supply of parts to be cleaned. ~~including Conveyorized (in-line or continuous) cleaning machines include~~ but are not limited to ~~gyro, vibra, monorail, cross-rod, mesh, belt, web, and strip cleaners cleaning machines~~. Strip ~~cleaners cleaning machines~~ clean material by drawing the strip itself through the unit for cleaning prior to coating or other fabrication processes. For the purposes of this rule “Conveyorized (In-Line or Continuous) Cleaning Machine” has the same meaning as “In-Line Cleaning Machine.”

“Conveyorized (In-Line or Continuous) Vapor Solvent Cleaner Cleaning Machine” means any continuously loaded solvent ~~cleaner cleaning machine~~ that immerses parts in boiling solvent or in solvent vapors generated by boiling solvent. Conveyorized ~~vapor solvent cleaners (in-line or continuous) cleaning machines~~ that contain any vapor cleaning sections shall be considered to be conveyorized vapor ~~solvent cleaners cleaning machines~~ for the purposes of this rule.

“Cross-Rod Solvent Cleaning Machine” means a batch solvent cleaning machine in which parts baskets are suspended from “cross-rods” as they are moved through the machine. In a cross-rod cleaning machine, parts are loaded semi-continuously, and enter and exit the machine from a single portal.

“Degreaser” means any equipment designed and used for holding a solvent to carry out solvent cleaning operations. ~~Degreasers include, but are not limited to, remote reservoir cold cleaners, batch loaded cold cleaners, open top vapor solvent cleaners, and conveyorized solvent cleaners. All degreasers can be classified as one of the following: 1) cold cleaner (including remote reservoir cold cleaners), 2) batch loaded vapor solvent cleaner, or 3) conveyorized solvent cleaner.~~

“Downtime Mode” means the time period when a solvent cleaning machine is not cleaning parts and the sump heating coils, if present, are turned off.

“Drag-out” or “Carry-out” means solvent carried out of a ~~cleaner solvent cleaning machine~~ that adheres to or is entrapped in the part being removed.

“Drying Tunnel” means an add-on enclosure extending from the exit area of a ~~conveyorized degreaser solvent cleaning machine~~ that reduces drag-out losses by containing evaporating solvent.

“Dwell” means the technique of holding parts within the freeboard area but above the vapor zone of the solvent cleaning machine. Dwell occurs after cleaning to allow solvent to drain from the parts or parts baskets back into the solvent cleaning machine.

“Dwell Time” means the period of time when parts are held within the freeboard area of the solvent cleaning machine, after cleaning, to allow solvent to drain from the parts back into the solvent cleaning machine.

“Electrical Apparatus Components” means the internal components such as wires, windings, stators, rotors, magnets, contacts, relays, energizers, and connections in an apparatus that generates or transmits electrical energy including, but not limited to: alternators, generators, transformers, electric motors, cables, and circuit breakers, except for the actual cabinet in which the components are housed. Electrical components of graphic arts application equipment and hot-line tools are also included in this category.

“Electronic Components” means the portions of an assembly, including, but not limited to: circuit card assemblies, printed wire assemblies, printed circuit boards, soldered joints, ground wires, bus bars, magnetic tapes and tape drive mechanisms, discs and disc drive mechanisms, electro-optical devices (e.g., optical filters, sensor assemblies, infrared sensors, charged coupled devices, thermal electric coolers, and vacuum assemblies), solid state components, semiconductors (e.g., diodes, zeners, stacks, rectifiers, integrated microcircuits, transistors, solar cells, light sensing devices, and light-emitting devices), and other electrical fixtures, except for the actual cabinet in which the components are housed.

“Emulsion” means a suspension of small droplets of one liquid in a second liquid.

“Emission Control Device” means a device for reducing emissions of reactive organic compounds or toxic air contaminants to the atmosphere.

“Evaporation” means to change into a vapor, normally from a liquid state.

“Evaporative Surface Area” means:

- (1) ~~Cold Solvent Cleaner:~~
 - (a) ~~— The surface area of the top of the solvent.~~
 - (b) ~~Remote Reservoir Cold Cleaner: The solvent drain opening area.~~
- (2) ~~Vapor Solvent Cleaner: The surface area of the top of the solvent vapor air interface.~~
- (3) ~~Conveyorized Solvent Cleaner:~~
 - (a) ~~— Cold Cleaner: The surface area of the top of the solvent.~~
 - (b) ~~— Remote Reservoir Cold Cleaner: The solvent drain opening area.~~
 - (c) ~~— Vapor Solvent Cleaner: The surface area of the top of the solvent vapor air interface.~~

“Existing Solvent Cleaning Operation” means solvent cleaning that is being performed as of [*date of amended rule adoption*].

“Existing Solvent Cleaning Machine” means any solvent cleaning machine that is installed as of [*date of amended rule adoption*]

“Fluid System” means a power transmission system that uses the force of flowing liquids and gases to transmit power. Fluid systems include hydraulic systems and pneumatic systems.

“Freeboard Area” means; for a batch cleaning machine, the area 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 area within the solvent cleaning machine that extends from the solvent/air interface to the bottom of the entrance or exit opening, whichever is lower.

“Freeboard Height” means:

- (1) ~~— Cold Solvent Cleaner: The vertical distance from the top of the solvent, or the solvent drain of a remote reservoir cold cleaner, to the top of the cold cleaner.~~
- (2) ~~— Batch loaded Vapor Solvent Cleaner: The vertical distance from the top of the solvent vapor air interface to the top of the solvent cleaner.~~
- (3) ~~— Conveyorized Solvent Cleaner:~~

- (a) ~~For non-boiling solvent, the vertical distance from the top of the solvent to the bottom of the lowest opening in the solvent cleaner where vapors can escape.~~
- (b) ~~For boiling solvent, the vertical distance from the top of the solvent vapor-air interface to the bottom of the lowest opening in the degreaser where vapors can escape.~~

“Freeboard Height” means; for a batch cleaning machine, the distance from the solvent/air interface as measured during the idling mode or the top of the solvent drain of a remote reservoir cold cleaning machine 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.

“Freeboard Ratio” means the ratio of the solvent cleaning machine freeboard height divided by the smaller of the inside length or the inside width (or diameter if applicable) of the solvent cleaner evaporative area to the smaller interior dimension (length, width, or diameter) of the solvent cleaning machine.

“Freeboard Refrigeration Device (Also Called a ‘Chiller’)” means a secondary cooling coil mounted above the primary condenser that provides a chilled air blanket above the solvent vapor air-interface to cause the condensation of additional solvent vapor. A primary condenser capable of meeting the requirements of Section J.9.a or L.10.a is defined as both a freeboard refrigeration device and a primary condenser for the purposes of this rule.

“Gas/Liquid-Path Solvent Cleaner” means a solvent cleaning machine (including ancillary equipment) that applies solvent to the interior of parts, a gas turbine or jet engines, or equipment to clean gas and/or liquid paths. Gas/liquid-path cleaning operations include, but are not limited to, for the removal of corrosion, or combustion deposits, propellants, moisture, residuals, or other undesirable matter. Examples of gas/liquid-path cleaners include, but are not limited to, corrosion-control carts (e.g., used on the interiors of gas turbine or jet engines), valve flushing systems, rocket engine flushing equipment, rocket propellant transfer line flushing and purging systems.

“General Work Surface” means an area of a medical device or pharmaceutical facility where solvent cleaning is performed on work surfaces including, but not limited to, tables, countertops, and laboratory benches. General work surface shall not include items defined under janitorial cleaning.

“Guillotine Cover” means a cover that is biparting and moves in the same plane.

“Halogenated Hazardous Air Pollutant Solvent” means methylene chloride (Chemical Abstracts Service No. 75-09-2), perchloroethylene (Chemical Abstracts Service No. 127-18-4), trichloroethylene (Chemical Abstracts Service No. 79-01-6), 1,1,1-trichloroethane (Chemical Abstracts Service No. 71-55-6), carbon tetrachloride (Chemical Abstracts Service No. 56-23-5), and chloroform (Chemical Abstracts Service No. 67-66-3).

“High-Precision Optics” means any optical element used in an electro-optical device that is designed to sense, detect, or transmit light energy, including specific wavelengths of light energy and changes in light energy levels.

“High Vapor Cutoff Thermostat” means a device, with a manual reset, that shuts off the sump heater if the temperature at the air-vapor interface rises above the designed operating level.

“High Volatility Solvent” means any solvent that is not classified as a low volatility solvent.

“Hoist” means a mechanical device that carries the parts basket and the parts to be cleaned from the loading area into the solvent cleaning machine and to the unloading area at a controlled speed. A hoist may be operated by controls or may be programmed to cycle parts through the cleaning cycle automatically.

“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.

“Initial Boiling Point” means the boiling point of a ~~solvent liquid~~ as defined by ASTM D-1078-9505, “Standard Test Method for Distillation Range of Volatile Organic Liquids,” ASTM International.

“In-Line ~~Cleaner~~Cleaning Machine” or **“Continuous Cleaning Machine”** means ~~conveyorized solvent cleaner~~ any 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 portals. In-line cleaning machines can be either cold or vapor cleaning machines.

“Lip Exhaust” means a ~~system that collects solvent vapors escaping from the top of a solvent cleaner device installed at the top of the opening of a solvent cleaning machine that draws in air and solvent vapor from the freeboard area and ducts the air and vapor away from the solvent cleaning machine.~~

“Liquid Leak” means any ~~ROC containing liquid solvent~~ leak at a rate of more than three drops per minute or any visible liquid mist.

“Low Volatility Solvent” means a solvent with an initial boiling point that is greater than 120 degrees Celsius (248 degrees Fahrenheit) and with a temperature, as used, at least 100 degrees Celsius (~~+80-212~~ degrees Fahrenheit) below the initial boiling point.

“Make-Up Solvent” means ~~that solvent added to the solvent cleaning operation to replace solvent lost through evaporation or other means.~~

“Maintenance Cleaning” means a solvent cleaning operation or activity carried out to keep clean general work areas where manufacturing or repair activity is performed, to clean tools, machinery, molds, forms, jigs, and equipment. This definition does not include the cleaning of adhesive, coating, or ink application equipment.

“Manufacturing Process” means the process of making goods or articles by hand or by machinery.

“Medical Device” means an instrument, apparatus, implement, machine, contrivance, implant, in vitro reagent or other similar article, including any component, accessory, raw material, partial or completed fabricated part, that meets one of the following conditions:

1. It is intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease; or
2. It is intended to affect the structure or any function of the body; or
3. It is defined in the National Formulary or the United States Pharmacopeia, or any supplement to them.

“Mixer” means any device that mechanically agitates the liquid solvent to enhance the cleaning process.

“Nonabsorbent Container” means any container made of nonporous material, which does not allow the migration of the liquid solvent through it.

“Nonatomized Solvent Flow” means the use of a solvent in the form of a liquid stream without atomization.

“Nonleaking Container” means a container without any liquid leaks.

“Open-Top Vapor ~~Solvent Cleaner~~Cleaning Machine” means ~~any batch-loaded degreaser using solvent that is maintained above the initial boiling point temperature of the solvent. Degreasing occurs through the condensation of the resultant solvent vapor onto the surface of the workload~~ a batch solvent cleaning

machine that has its upper surface open to the air and boils solvent to create solvent vapor used to clean and/or dry parts.

“Primary Condenser” see “Condenser.”

“Radiation-Effect Coating” means a material that prevents radar detection.

“Reactive Organic Compound Composite Partial Pressure” means the sum of the partial pressures of compounds defined as reactive organic compounds. Reactive organic compound composite pressure shall be calculated as follows:

$$PP_C = \frac{\sum_{i=1}^n \left(\frac{W_i}{MW_i} \right) (VP_i)}{\left(\frac{W_w}{MW_w} \right) + \sum_{e=1}^n \left(\frac{W_e}{MW_e} \right) + \sum_{i=1}^n \left(\frac{W_i}{MW_i} \right)}$$

Where:

W_i = Weight of the “i”th reactive organic compound, in grams

W_w = Weight of water, in grams

W_e = Weight of the “e”th exempt organic compound, in grams

MW_i = Molecular weight of the “i”th reactive organic compound, in grams per grams-mole

MW_w = Molecular weight of water, in grams per grams-mole

MW_e = Molecular weight of the “e”th exempt compound, in grams per grams-mole

PP_c = Reactive organic compound composite partial pressure at 20 degrees Celsius, in millimeters of mercury

VP_i = Vapor pressure of the “i”th reactive organic compound at 20 degrees Celsius, in millimeters of mercury

“Refrigerated Freeboard Chiller” means a secondary cooling coil mounted above the primary condenser that provides a chilled air blanket above the solvent vapor air interface to cause the condensation of additional solvent vapor. ~~see the definition for “Freeboard Refrigeration Device (also called a ‘Chiller’).”~~

“Remote Reservoir Cold-Cleaner Cleaning Machine” means any device in which liquid solvent is pumped through to a sink-like work area for cleaning parts and that drains immediately solvent back into an enclosed container while parts are being cleaned, without forming a allowing no solvent to pool in the work area, through a single drain hole less than 100 square centimeters (15.5 square inches) in area into an enclosed container that is not accessible for soaking parts. A remote reservoir cold cleaning machine that uses an enclosed container that is accessible for dipping or soaking parts is also considered to be a batch cleaning machine.

“Repair Cleaning” means a solvent cleaning operation or activity carried out during a repair process.

“Repair Process” means the process of returning a damaged object or an object not operating properly to good condition.

“Research and Development Activities” means activities conducted at a research or laboratory facility whose primary purpose is to conduct research and development into new processes and products, where such source is operated under the close supervision of technically trained personnel and is not engaged in the manufacture of products for sale or exchange for commercial profit, except in a de minimis manner.

“Rotating Basket” means a perforated or wire mesh cylinder containing parts to be cleaned that is slowly rotated while proceeding through the ~~degreaser~~ solvent cleaning machine.

“Scientific Instrument” means an instrument (including the components, assemblies, and subassemblies used in their manufacture) and associated accessories and reagents that is used for the detection, measurement, analysis, separation, synthesis, or sequencing of various compounds.

“Semiconductor Manufacturing” means any process or operation producing semiconductor material, slicing or polishing semiconductor material, utilizing photoresist to manufacture intermediate products, or producing either semiconductor devices or related solid state devices.

“Silicone Manufacturing” means any process or operation producing a silicone raw material (e.g., polymer, fluid, gum, gel, elastomer, dispersion, or other bulk state silicone material). Silicone manufacturing also includes any on site preliminary processes or operations that occurs before a silicone raw material is produced.

“Soils” mean contaminants that are removed from the part or parts being cleaned. Soils include, but are not limited to, grease, oils, waxes, metal chips, carbon deposits, fluxes, and tars.

“Solvent” means **“Organic Solvent.”**

“Solvent/Air Interface” means, for a vapor cleaning machine, the location of contact between the concentrated solvent vapor layer and the air. This location of contact is defined as the mid-line height of the primary condenser coils. For a cold cleaning machine, it is the location of contact between the liquid solvent and the air.

“Solvent/Air Interface Area” means; for a vapor cleaning machine, the surface area of the solvent vapor zone that is exposed to the air; for an in-line cleaning machine, it is the total surface area of all the sumps; for a cold cleaning machine, it is the surface area of the liquid solvent that is exposed to the air, except for remote reservoir cleaning machines, in which case it is the area of the drain.

“Solvent Cleaner” means a device that applies solvent or in which solvent is applied to items for the purpose of solvent cleaning.

“Solvent Cleaning” means the use of organic solvent to remove loosely held uncured adhesives, uncured inks, uncured coatings, and other contaminants that include, but are not limited to, dirt, soil, lubricants, coolant, moisture, grease and fingerprints from parts, products, tools, machinery, equipment and general work areas.

“Solvent Container” means that part of the solvent ~~cleaner~~ cleaning machine that is intended to hold the cleaning solvent.

“Solvent Vapor Zone” means; for a vapor cleaning machine, the area 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.

“Space Vehicle” means a vehicle designed to travel beyond the earth’s atmosphere.

“Space Vehicle Component” means any raw material, partial or completed fabricated part, assembly of parts, or completed unit of any space vehicle, including mockups and prototypes.

“Spray Pump Control Switch” means a safety switch that prevents the spray pump from operating if the vapor level falls below the design operating level.

“Sump” means the part of a solvent cleaning machine where the liquid solvent is located.

“Sump Heater Coils” mean the heating system on a cleaning machine that uses steam, electricity, or hot water to heat or boil the liquid solvent.

“Superheated Vapor System” means a system that heats the solvent vapor, either passively or actively, to a temperature above the solvent's initial boiling point. Parts are held in the superheated vapor before exiting the machine to evaporate the liquid solvent on them. Hot vapor recycle is an example of a superheated vapor system.

“Superheated Vapor Zone” means any region located within the vapor zone of a vapor cleaning machine whereby solvent vapors are heated above the solvent’s initial boiling point.

“Ultrasonics” means enhancement of the cleaning process by agitation of liquid solvents with high frequency sound wave vibrations.

“Vapor Cleaning Machine” means a batch or in-line solvent cleaning machine that boils liquid solvent generating solvent vapor that is used as a part of the cleaning or drying cycle.

“Vapor Level Control Switch or Vapor Level Control Thermostat” see “High Vapor Cutoff Thermostat.”

~~“Vapor Solvent Cleaner” means any solvent cleaners that cleans through the condensation of hot solvent vapor on colder workloads.~~

“Waste Solvent Residue” means sludge that may contain dirt, oil, metal particles, and/or other undesirable waste products concentrated after heat distillation of the waste solvent either in the solvent ~~cleaner cleaning machine~~ itself or after distillation in a separate still.

“Water Layer” means a layer of water that floats above the denser solvent and provides control of solvent emissions. In many cases, the solvent used in batch cold cleaning machines is sold containing the appropriate amount of water to create a water cover.

~~“Wipe Cleaning” means that method of cleaning that uses a material such as a rag wetted with a solvent, coupled with a physical rubbing process to remove contaminants from surfaces.~~

“Workload” means the objects put in a ~~cleaner solvent cleaning machine~~ for the purpose of removing oil, grease, soil, coating, dirt, moisture, or other undesirable matter from the surface of the objects.

“Workload Area” means:

- (1) The plane geometric surface area of the top of the submerged parts basket, or
- (2) The combined plane geometric surface area(s) displaced by the submerged workload, if no basket is used.

D. General Operating Requirements. Any person who owns, operates, or uses any solvent ~~cleaner cleaning machine or performs any solvent cleaning~~ shall ensure such operation conforms to the following ~~operating~~ requirements:

1. All ~~S~~solvent, including waste solvent and waste solvent residue, and waste solvent cleaning materials such as cloth, paper, etc. shall ~~not~~ be stored or disposed of ~~in a manner that will cause or allow evaporation into the atmosphere~~ in nonabsorbent and nonleaking containers equipped with tight-fitting covers. The covers shall be in place unless adding material to or removing material from the containers, the containers are empty, or doing maintenance/inspection of the containers. Containers shall have a label indicating the name of the solvent/material they contain. After distillation recovery of waste solvent, solvent residues shall not contain more than 20 percent solvent of reactive organic compound by weight.

2. The solvent ~~cleaner~~cleaning machine, ventilation system, and/or emission control equipment shall be installed, operated, and maintained ~~in proper working order~~ consistent with the manufacturer's specifications.
3. ~~Solvent~~The cleaning ~~or solvent vapor cleaning~~ of porous or absorbent materials, such as cloth, leather, wood, or rope, is prohibited. This provision shall not apply to paper gaskets, paper filters, and medical devices.
4. ~~The~~All solvent containers holding solvent shall be free of ~~all~~ liquid leaks. ~~Auxiliary cleaner~~ Solvent cleaning machine equipment, such as covers, pumps, water separators, steam traps, or distillation units shall not have any liquid leaks, visible tears, holes, or cracks. Any such liquid leak, visible tear, hole, or crack that is detected shall be repaired within one day from discovery ~~by the operator~~, or the ~~cleaner~~solvent cleaning machine shall be drained of all solvent, ~~in a manner authorized by this Rule~~consistent with Section D.12 provisions, and shut down until replaced or repaired. Solvent ~~cleaners~~cleaning machines shall not be operated when leaking.
5. Covers and other closure devices (e.g., valves or drain plugs) designed to reduce solvent evaporation shall not be removed or opened except to process work or to perform monitoring, inspections, maintenance, or repairs that require the removal of the covers or other closure devices. Solvent cleaning machines shall not be operated when performing maintenance or repairs.
6. For solvent ~~degreaser~~cleaning machine operations other than gas-path solvent cleaners and continuous web cleaning machines, solvent carry-out shall be minimized by the following methods, as applicable:
 - a. Except for remote reservoir cold cleaning machines, ~~The~~ the workload shall be racked.
 - b. For manual operations, any pools of solvent remaining on the cleaned parts shall be tipped out before removing them from the cleaner. Parts having cavities, holes, or blind holes shall be tipped or rotated before being removed from the solvent cleaning machine such that the solvent in the cavities, holes, or blind holes is returned to the solvent container.
 - c. Pools of solvent shall be drained by a device.
 - d. The workload shall be drained within the freeboard area so that the drained solvent is returned to the solvent container.
 - e. For cold solvent cleaning, parts shall be drained immediately after cleaning, until one of the following conditions exists:
 - 1) At least 15 seconds have elapsed; or
 - 2) Dripping of solvent ceases; or
 - 3) The parts become visibly dry.
 - f. For automated parts handling systems, ~~The~~ the workload shall be moved in and out of the ~~degreaser~~solvent cleaning machine at less than ~~3.33~~3.4 meters per minute (11.2 feet per minute).
7. For solvent ~~degreaser~~cleaning machine operations other than gas-path solvent cleaners and continuous web cleaning machines, solvent flow shall be directed downward to avoid turbulence at the air vapor or air solvent solvent/air interface and to prevent liquid solvent from splashing

outside of the ~~cleaner~~ solvent cleaning machine. If a flexible hose or flushing device is used, flushing shall be performed only within the freeboard area of the solvent cleaning machine.

8. For solvent ~~degreaser~~ cleaning machine operations other than gas-path solvent cleaners, solvent flow shall not be used in a manner such that liquid solvent splashes outside the container.

9. Solvent ~~atomization operations (e.g., blow drying)~~ shall not be atomized unless be it is vented to an emission control system that meets the requirements of ~~Rule 321~~ Section MN.

10. Any solvent spills shall be wiped up immediately and the used absorbent material (e.g., cloth, paper, sand, sawdust, etc.) shall be stored in closed containers that are handled in accordance with Section D.1.

11. Solvent levels shall not exceed the solvent cleaning machine's fill line.

12. Draining or filling solvent containers shall be performed at a level lower than the liquid solvent surface.

13. When using a ventilation fan, it shall not be positioned in such a way as to direct air flow near a solvent cleaning machine opening.

E. **Additional Operating Requirements for ~~Open-top Batch Vapor Solvent Cleaners~~ Cleaning Machines and ~~In-Line Conveyorized Vapor Solvent Cleaners~~ Cleaning Machines.** ~~In addition to the general operating requirements specified above in Rule 321 Section D, a~~ Any person who owns, operates, or uses any ~~open-top batch~~ vapor solvent cleaner ~~cleaning machine~~ or any ~~conveyorized in-line~~ vapor solvent cleaner ~~cleaning machine~~ shall ensure the equipment operation conforms to the following ~~operating~~ requirements:

1. ~~The degreaser shall be covered whenever the cooling system is off. Except to perform monitoring, inspections, maintenance, or repairs that require the removal of the covers:~~

a. Idling mode covers shall be closed or in place when the equipment is in an idling mode.

b. Downtime mode covers shall be closed or in place when the equipment is in a downtime mode.

2. When starting the ~~degreaser solvent cleaning machine~~, the ~~cooling system primary condenser~~ shall be turned on before ~~or simultaneously with~~ the sump heater.

3. When shutting down the ~~degreaser solvent cleaning machine~~, the sump heater shall be turned off and the solvent vapor layer allowed to collapse before ~~or simultaneously with~~ the ~~cooling system primary condenser~~ is turned off.

4. The workload shall be ~~degreased-cleaned~~ in the vapor zone for at least 30 seconds or until condensation ceases.

5. Parts shall be allowed to dry within the ~~degreaser solvent cleaning machine~~ until the exterior surface of the parts become visually dry.

6. Solvent spray shall be kept at least 10 centimeters (3.94 inches) below the ~~air-vapor-solvent/air~~ interface.

7. The workload area shall not occupy more than half of the ~~evaporative surface area~~ solvent/air interface area of the solvent ~~cleaner~~ cleaning machine.

8. For ~~cleaners-solvent cleaning machines~~ equipped with water separators, water shall not be visibly detectable in the solvent phase exiting the water separator, nor shall solvent be visibly detectable in the aqueous phase leaving the separator.

9. If equipped with a superheated vapor zone:

a. The manufacturer's specifications for determining the minimum proper dwell time within the superheated vapor system shall be followed.

b. Parts and parts baskets shall remain in the vapor zone for at least the minimum proper dwell time.

c. The temperature within the superheated vapor zone shall be at least 10 degrees Fahrenheit above the initial boiling point of the solvent being used.

F. **Additional Operating Requirements for Gas/Liquid-Path CleanersSolvent Cleaners.** ~~In addition to the operating requirements specified in Rule 321 Sections D.1—D.5 and D.9, a~~ny person who owns, operates, or uses using any gas/liquid path cleaner gas-path solvent cleaner shall ensure the equipment operation conforms to the following ~~operating~~ requirements:

1. Cleaned parts or equipment shall be drained until dripping ceases or 15 seconds have elapsed.

2. The cover of the solvent container(s), reservoir(s) and opening(s) of a solvent collection system shall be closed at all times except ~~when the reservoir is being filled, emptied, cleaned, repaired or inspected to process work or to perform monitoring, inspections, maintenance, or repairs that require the removal of the covers or other closure devices.~~

G. **General Equipment Requirements for Solvent CleanersCleaning Machines.** Any person who owns, operates, or uses All any solvent cleaners-cleaning machine shall ensure that it is equipped with conform to the following ~~requirements~~:

1. A container ~~shall be used~~ for the solvent.

2. Except for remote reservoir cold ~~cleaners-cleaning machines~~ using low volatility solvents, ~~all cleaners shall be equipped with~~ an apparatus or cover(s) to completely cover the solvent container when not processing work.

3. ~~Solvent degreasers shall be equipped with a facility~~ Except for gas-path solvent cleaners using a solvent with a reactive organic compound content of 50 grams per liter of material or less, an apparatus or a device for draining cleaned parts such that the drained solvent or drag-out is returned to the cleaner-solvent tankcontainer.

4. ~~The A list of the~~ applicable operating requirements. At a minimum, the list shall include the applicable operating requirements contained in ~~Rule 321~~ Sections D, E, and F. The list of operating requirements shall be ~~legibly written legible~~ and ~~permanently and~~ conspicuously posted or maintained on or near the equipment in such a manner that it is conveniently available to the operator for reference purposes.

5. Where solvent agitation is used, ~~the equipment that achieves~~ agitation ~~shall be achieved by use of using~~ pump recirculation, mechanical mixing (a mixer), or ultrasonics. Gas or air agitation shall not be used. When a pump-agitated solvent bath is used, the pump agitator shall be designed to produce a rolling motion of the solvent without any observable splashing against tank walls or parts being cleaned.

6. When employing solvent flow, ~~with a solvent degreaser, the flow shall only be a~~ flexible hose or flushing device that produces only a continuous fluid stream. An atomized or shower type spray

shall not be used ~~unless it is used in an conveyorized in-line~~ or enclosed ~~cleaner solvent cleaning machine, a shower type spray may be used provided that where~~ the spray is conducted in a totally confined space that is sealed from the atmosphere.

7. ~~Any degreaser equipped with~~ Where a hood, enclosure, ~~or lip exhaust, or a lip exhaust connected to a hood or enclosure is employed, shall not have an a blower or fan such that the~~ air ventilation rate ~~in excess of~~ shall not exceed 20 cubic meters per minute per square meter (65.6 cubic feet per minute per square feet) of ~~air vapor or air solvent solvent/air~~ interface surface area, unless necessary to meet a National Institute for Occupational Safety and Health standard.
8. ~~Effective July 17, 1997, no person shall install or add a lip exhaust to a degreaser~~ When a lip exhaust ~~unless it is installed or added after July 17, 1997, vented to~~ an emission control system that meets the requirements of ~~Rule 321 Section M N~~.
9. ~~A~~ The average draft rate in the solvent cleaner workroom ~~having an average draft rate,~~ as measured parallel to the plane of the ~~degreaser solvent cleaning machine~~ opening, shall not exceed ~~ing-~~ 9.1 meters per minute (30 feet per minute), unless necessary to meet a National Institute for Occupational Safety and Health standard.
- ~~10. Ventilation fans shall not be positioned in such a way as to direct air flow near the degreaser openings.~~
- ~~11.10.~~ When employing an automated parts handling system, ~~The vertical equipment such that the~~ speed of any powered hoist or conveyor of the parts shall not exceed ~~3.33,4~~ 3.4 meters per minute (11.2 feet per minute).

H. Additional Equipment Requirements for Remote Reservoir Cold ~~Cleaners~~ Cleaning Machines. ~~In addition to the requirements in Rule 321 Section G, Any person who owns, operates, or uses any~~ remote reservoir cold ~~cleaner equipment cleaning machine~~ shall ensure that it is equipped with ~~meet~~ the following requirements:

1. ~~The A~~ sink or work area shall be ~~that is~~ sloped sufficiently towards the drain to prevent pooling of solvent.
2. ~~There shall be a~~ single drain hole, not larger than 100 square centimeters (15.5 square inches) in area, for the solvent to flow from the sink into the enclosed reservoir.
3. Except ~~for remote reservoir cold cleaners when~~ using low volatility solvents, ~~a cover or a device, such as a valve or a drain plug, to prevent or minimize the~~ solvent vapor emissions shall be prevented from escaping from the solvent container ~~by means of closing a cover or a device, such as a valve or a drain plug, when the remote reservoir is not being used, cleaned, or repaired not~~ processing work or performing monitoring, inspections, maintenance, or repairs that require the removal of the cover or device.
4. ~~The A~~ freeboard height shall be ~~of~~ 6 inches or higher.
5. ~~The unit shall have a~~ When the solvent is heated above 50 degrees Celsius (122 degrees Fahrenheit), or it is agitated, or the solvent is a high volatility solvent, dimensions such that the freeboard ratio ~~of is~~ 0.75 or greater, ~~if the solvent is heated above 50 degrees Celsius (122 degrees Fahrenheit), agitated, or a high volatility solvent is used.~~
6. In lieu of the freeboard height required by ~~Rule 321~~ Section H.4 or the freeboard ratio required by ~~Rule 321~~ Section H.5, one of the following requirements shall ~~may~~ be met:

- a. ~~a~~ A water cover layer at a minimum thickness of 2.5 centimeters (1.0 inch) on the surface of the solvent within the cleaning machine at least 1 inch deep shall be used, provided the solvent is insoluble in water and has a specific gravity greater than 1, or
- b. ~~a~~ An emission control system that meets the requirements of Rule 321 Section M N shall be used.

7. Effective [one year from the date of amended rule adoption], except when using an emission control system that meets the requirements of Section N, solvent that contains 50 grams of reactive organic compound per liter of material or less.

I. Additional Equipment Requirements for Batch Cold CleanersCleaning Machines. ~~In addition to the requirements specified in Rule 321 Section G, Any person who owns, operates, or uses any batch cold cleaners-cleaning machine other than a remote reservoir cold cleaning machine shall ensure that it is equipped with~~ include all of the following:

- 1. When using a high volatility solvent, ~~the unit shall be equipped with~~ a cover that is a sliding, rolling, or guillotine type that is designed to easily open and close. If a mechanized batch cold cleaning machine (e.g., a manually loaded or semi-continuously loaded Ferris wheel or cross-rod solvent cleaning machine) is used with a high volatility solvent, the unit shall be equipped with a downtime mode cover.
- 2. ~~A method for draining cleaned parts, so the drained solvent is returned to the container.~~ If using a high volatility solvent, the drainage ~~facility-apparatus or device required by Section G.3~~ shall be internal so that the cleaned parts are within the solvent ~~cleaner-cleaning machine~~ and under the cover while draining. The drainage ~~facility-apparatus or device~~ may be external where the internal type cannot fit into the cleaning system provided the drained solvent is returned to the solvent container.
- 3. When using a low volatility solvent that is not agitated, ~~the a~~ freeboard height ~~shall be of~~ 6 inches or higher or dimensions such that a the freeboard ratio ~~of is~~ 0.5 or greater ~~shall be maintained.~~
- 4. ~~The unit shall have a~~ When the solvent is heated above 50 degrees Celsius (122 degrees Fahrenheit), or it is agitated, or the solvent is a high volatility solvent, dimensions such that the freeboard ratio of is 0.75 or greater, if the solvent is heated above 50 degrees Celsius (122 degrees Fahrenheit), agitated, or a high volatility solvent is used.
- 5. In lieu of the freeboard height or freeboard ratio required by ~~Rule 321~~ Section I.3 or the freeboard ratio required by Section I.4, one of the following requirements may be met:
 - a. ~~a water cover at least 1 inch deep shall be used, provided the solvent is insoluble in water and has a specific gravity greater than 1~~ A water layer at a minimum thickness of 2.5 centimeters (1.0 inch) on the surface of the solvent within the cleaning machine shall be used, or
 - b. ~~a~~ An emission control system shall be used that meets the requirements of Rule 321 Section M N shall be used.
- 6. A ~~permanent,~~ conspicuous mark ~~shall be maintained locating denoting~~ the maximum allowable solvent level conforming to the applicable freeboard requirements. This requirement does not apply if employing a water ~~cover-layer~~ or an emission control system per ~~Rule 321~~ Section I.5.
- 7. Effective [one year from the date of amended rule adoption], except when using an emission control system that meets the requirements of Section N, solvent that contains 50 grams of reactive organic compound per liter of material or less.

J. **Additional Equipment Requirements for ~~Open-top Batch Vapor Solvent Cleaners~~Cleaning Machines.** ~~In addition to the requirements specified in Rule 321 Section G, open top~~ Any person who owns, operates, or uses any batch vapor solvent cleaners cleaning machine shall ensure that it is equipped with ~~include all of~~ the following:

1. For open-top vapor cleaning machines, A-a cover that is a sliding, rolling, or guillotine type that is designed to easily open and close without disturbing the vapor zone. This requirement does not apply to open-top vapor ~~solvent degreasers cleaning machines~~ equipped with top enclosures, provided:
 - a. the operator only opens the enclosure cover(s) or door(s) when the condenser is operative or when the ~~degreaser solvent cleaning machine~~ is shut down, and
 - b. the ~~degreaser solvent cleaning machine evaporative surface area~~solvent/air interface area is less than 1 square meter (10.8 square feet), and
 - c. the ~~degreaser solvent cleaning machine~~ cover is designed such that it can be opened and closed easily without disturbing the vapor zone.
2. For mechanized batch vapor cleaning machines (e.g., a manually-loaded or semi-continuously-loaded Ferris wheel or cross-rod solvent cleaning machine), idling and downtime mode covers.
23. A primary condenser ~~oil~~ situated above the boiling solvent.
34. A condenser flow switch that automatically shuts off the sump heater if the condenser coolant stops circulating or becomes warmer than its designed operating temperature.
45. A high-vapor ~~level cutoff thermostat control device~~ that automatically shuts off the sump heater ~~when if~~ the solvent-vapor level in the vapor cleaning machine rises above the ~~designed operating level~~ height of the primary condenser.
56. For ~~degreasers solvent cleaning machines~~ with solvent flow, a device such as a spray pump control switch that prevents the solvent flow pump operation unless the solvent vapor level is at the designed operating level.
7. A device that automatically shuts off the sump heat if the sump liquid solvent level drops to the sump heater coils.
68. ~~A~~-Dimensions such that the freeboard ratio ~~of is~~ 0.75 or greater. Effective [one year from the date of amended rule adoption], the unit shall have dimensions such that the freeboard ratio is 1.0 or greater.
79. Cleaners-For solvent cleaning machines with ~~an evaporative surface area~~ a solvent/air interface area of 1 square meter (10.8 square feet) or greater ~~shall be equipped with one of the following~~:
 - a. A ~~refrigerated freeboard chiller~~ freeboard refrigeration device for which the chilled air blanket temperature (expressed in degrees Fahrenheit) at the coldest point on the vertical axis in the center of the ~~air vapor interface~~ air blanket shall be no greater than 30 percent of the initial boiling point (expressed in degrees Fahrenheit) of the solvent used or no greater than 40 degrees Fahrenheit. If the chiller operates below 32 degrees Fahrenheit, it shall be equipped with an automatic defrost ~~;~~ or
 - b. An enclosed design in which the cover or door opens only when the dry part is actually entering or exiting the ~~cleaner~~ solvent cleaning machine.

810. In lieu of the freeboard ratio required by ~~Rule 321~~ Section J.68 or the freeboard chiller/enclosed design required by Section J.79, an emission control system that meets the requirements of Section ~~M-N~~ may be used.

11. Effective [one year from the date of amended rule adoption], except when an emission control system that meets the requirements of Section N is employed, when using solvent containing in excess of 50 grams of reactive organic compound per liter of material:

a. An automated parts handling system;

b. A circumferential trough;

c. A water separator (not required for solvents that form azeotropes with water);

d. A freeboard refrigeration device that is operated such that the chilled air blanket temperature, measured at the center of the air blanket, is no greater than 40 percent of the initial boiling point of the solvent, in degrees Fahrenheit, for solvents that do not form azeotropes with water, or 50 percent of the initial boiling point, in degrees Fahrenheit, for solvents that form azeotropes with water; and

e. A superheated vapor zone where parts remain in the vapor zone for at least the minimum dwell time, as specified by the manufacturer. The temperature within the superheated vapor zone shall be at least 10 degrees Fahrenheit above the initial boiling point of the solvent being used.

K. Additional Equipment Requirements for Conveyorized-In-Line Cold CleanersCleaning Machines. ~~In addition to the requirements specified in Rule 321 Section G, conveyorized-~~Any person who owns, operates, or uses any batch in-line cold ~~cleaners~~ cleaning machine shall ensure that it is ~~be~~ equipped with the following:

1. A rotating basket, tumbling basket, drying tunnel, or other means that prevents cleaned parts from carrying out solvent liquid or vapor.

2. Openings such that ~~the~~ the average clearance between workload material and the edges of the ~~cleaner~~ solvent cleaning machine entrance and exit openings shall be less than 10 centimeters (3.94 inches) or less than 10 percent of the opening width, whichever is less.

3. Down-time mode covers ~~for closing off the entrance and exit during shutdown hours, or an equivalent device that cover at least 90 percent of the opening. A continuous web part that completely occupies an entry and exit port when the machine is idle is considered to meet this requirement.~~

4. ~~A~~ Dimensions such that the freeboard ratio ~~of is~~ 0.75 or greater ~~that is physically verifiable.~~

5. In lieu of the freeboard ratio required by ~~Rule 321~~ Section K.4, ~~use of~~ an emission control system that meets the requirements of Section ~~M-N~~ may be used.

6. Effective [one year from the date of amended rule adoption], except when using an emission control system that meets the requirements of Section N, solvent that contains 50 grams of reactive organic compound per liter of material or less.

L. Additional Equipment Requirements for Conveyorized-In-Line Vapor Solvent CleanersCleaning Machines. ~~In addition to the requirements specified in Rule 321 Section G, conveyorized-~~Any person who owns, operates, or uses any in-line vapor ~~solvent cleaners~~ cleaning machine shall ensure that it is ~~be~~ equipped with the following:

1. A rotating basket, tumbling basket, drying tunnel, or other means that prevents cleaned parts from carrying out solvent liquid or vapor.
2. Openings such that the average clearance between workload material and the edges of the cleaner solvent cleaning machine entrance and exit openings shall be less than 10 centimeters (3.94 inches) or less than 10 percent of the opening width, whichever is less.
3. Idling and D~~own-time~~ mode covers for closing off the entrance and exit during shutdown hours, or an equivalent device that cover at least 90 percent of the opening. A continuous web part that completely occupies an entry and exit port when the machine is idle is considered to meet this requirement.
4. A primary condenser ~~coil~~ situated above the boiling solvent.
5. A condenser flow switch that automatically shuts off the sump heater if the condenser coolant stops circulating or becomes warmer than its designed operating temperature.
6. A ~~high~~ vapor level cutoff thermostat control device that automatically shuts off the sump heater when if the solvent vapor level in the vapor cleaning machine rises above the designed operating level height of the primary condenser.
7. For ~~degreasers solvent cleaning machines~~ with solvent flow, a device such as a spray pump control switch device that prevents the solvent flow pump operation unless the solvent vapor level is at the designed operating level.
8. A device that automatically shuts off the sump heat if the sump liquid solvent level drops to the sump heater coils.
89. A Dimensions such that the freeboard ratio of is 0.75 or greater that is physically verifiable. Effective [one year from the date of amended rule adoption], the unit shall have dimensions such that the freeboard ratio is 1.0 or greater.
910. In lieu of the freeboard ratio required by ~~Rule 321~~ Section L.89, one of the following ~~shall may~~ be met:
 - a. A ~~refrigerated freeboard chiller freeboard refrigeration device~~ for which the chilled air blanket temperature (expressed in degrees Fahrenheit) at the coldest point on the vertical axis in the center of the ~~air vapor interface air blanket~~ shall be no greater than 30 percent of the initial boiling point (expressed in degrees Fahrenheit) of the solvent used or no greater than 40 degrees Fahrenheit. If the chiller operates below 32 degrees Fahrenheit, it shall be equipped with an automatic defrost; or
 - b. An emission control system that meets the requirements of ~~Rule 321~~ Section ~~M-N~~ shall be used.
11. Effective [one year from the date of amended rule adoption], except when an emission control system that meets the requirements of Section N is employed, when using solvent containing in excess of 50 grams of reactive organic compound per liter of material:
 - a. A circumferential trough;
 - b. A water separator (not required for solvents that form azeotropes with water);
 - c. A freeboard refrigeration device that is operated such that the chilled air blanket temperature, measured at the center of the air blanket, is no greater than 40 percent of the initial boiling point of the solvent, in degrees Fahrenheit, for solvents that do not form

azeotropes with water, or 50 percent of the initial boiling point, in degrees Fahrenheit, for solvents that form azeotropes with water; and

- d. A superheated vapor zone where parts remain in the vapor zone for at least the minimum dwell time, as specified by the manufacturer. The temperature within the superheated vapor zone shall be at least 10 degrees Fahrenheit above the initial boiling point of the solvent being used.

M. Requirements - Solvent Cleaning.

Section M requirements apply to any person performing solvent cleaning, including, but not limited to, use of wipe cleaning cloths, cotton swabs, dabber bottles, hand-held spray bottles, squirt bottles, aerosol products, and the cleaning of application equipment. The following requirements become effective [one year from the date of amended rule adoption] and are in addition to the general operating requirements specified in Section D.

1. **Solvent Requirements.** Except when using an emission control system that meets the requirements of Section N, no person shall use any solvent to perform solvent cleaning which exceeds the applicable grams of reactive organic compound per liter of material limit specified in Table 1.

Table 1: Reactive Organic Compound Content Limits for Solvent Cleaning

<u>SOLVENT CLEANING ACTIVITY</u>	<u>ROC Limit, grams of ROC per liter of material (pounds of ROC per gallon^a)</u>
<u>(a) Product Cleaning During Manufacturing Processes and Surface Preparation for Coating Application:</u>	
<u>(i) General</u>	<u>50 (0.42)</u>
<u>(ii) Electrical Apparatus Components & Electronic Components</u>	<u>900 (7.51)</u>
<u>(iii) Medical Devices & Pharmaceuticals</u>	<u>900 (7.51)</u>
<u>(iv) Silicone Manufacturing</u>	<u>900 (7.51)</u>
<u>(b) Repair Cleaning and Maintenance Cleaning:</u>	
<u>(i) General</u>	<u>50 (0.42)</u>
<u>(ii) Electrical Apparatus Components & Electronic Components</u>	<u>900 (7.51)</u>
<u>(iii) Medical Devices & Pharmaceuticals:</u>	
<u>(I) Tools, Equipment, & Machinery</u>	<u>900 (7.51)</u>
<u>(II) General Work Surfaces</u>	<u>900 (7.51)</u>
<u>(iv) Silicone Manufacturing</u>	<u>900 (7.51)</u>

^a English units are provided for information only.

<u>SOLVENT CLEANING ACTIVITY</u>	<u>ROC Limit, grams of ROC per liter of material (pounds of ROC per gallon^a)</u>
<u>(c) Cleaning of Coatings Application Equipment</u>	<u>950 (7.93)</u>
<u>(d) Cleaning of the Following Items and Equipment and their Components:</u> <u>(i) Aerospace Vehicles;</u> <u>(ii) Aerospace Vehicle Payloads and Satellites;</u> <u>(iii) Aerospace Vehicle, Aerospace Vehicle Payload, and Satellite:</u> <u>(I) Transport Equipment (e.g., railcars, trucks, trailers, forklifts, and containers), and</u> <u>(II) Support Processing Equipment (e.g., clean rooms, tools, payload fairing fixtures, alignment jigs, fuel and oxidizer loading carts and associated transfer lines).</u>	<u>900 (7.51)</u>

2. Cleaning Devices and Methods. Except for solvent cleaning of spray application equipment, any person performing solvent cleaning with a solvent containing more than 50 grams per liter of material shall use one or more of the following cleaning devices or methods:

- a. Wipe cleaning where solvent is dispensed to wipe cleaning materials from containers that are kept closed to prevent evaporation, except while dispensing solvent or replenishing the solvent supply;
- b. Application of solvent from hand-held spray bottles, squirt bottles, or other closed containers with a capacity of one liter or less; or
- c. Non-atomized solvent flow, dip, or flush method where pooling on surfaces being cleaned is prevented or drained, and all solvent runoff is collected in a manner that enables solvent recovery or disposal. The collection system shall be kept closed to prevent evaporation except while collecting solvent runoff or emptying the collection system.

3. Solvent Cleaning of Spray Application Equipment. Any person cleaning spray application equipment with a solvent containing more than 50 grams of reactive organic compound per liter of material shall use an enclosed system, or equipment that is proven to the satisfaction of the Control Officer to be equally effective as an enclosed system at controlling emissions. If an enclosed system is used, it shall totally enclose spray guns, cups, nozzles, bowls, and other parts during washing, rinsing and draining procedures, and it shall be used according to the manufacturer's recommendations and be closed when not in use.

MN. **Emission Control System Requirements.** Any person who owns, operates, or uses any emission control system required by owning or operating a solvent cleaner subject to this rule may use Sections D.9, G.8, or T.2.b.4) an emission control system or as an alternative compliance method as provided for in this rule to Rule 321 Sections D.9, G.8, H.6.b, I.5.b, J.8, K.5, or L.9.b, provided that shall ensure that the following requirements are met:

1. The overall efficiency (the capture system efficiency multiplied by the [emission](#) control device efficiency) of the total system shall not be less than 85 percent by weight in reducing total reactive organic compound [and toxic air contaminant](#) emissions.
2. When using [a carbon-adsorption adsorber](#), the system exhaust shall be no more than 25 parts per million of [solvent-reactive organic compound](#) by volume, calculated as carbon, over a complete adsorption cycle,
3. The emission collection system shall have a ventilation rate between 15 to 20 cubic meters per minute per square meter of [air vapor or air solvent-solvent/air](#) interface area (49.2 to 65.6 cubic feet per minute per square feet of [air vapor or air solvent-solvent air](#) interface [surface](#)-area), unless otherwise required to meet a National Institute for Occupational Safety and Health standard.
4. An application for installation of the emission control equipment is submitted and the Control Officer grants an Authority to Construct for the equipment.
5. [An initial source test is accomplished by \[one year from the date of amended rule adoption\] or a later deadline established in an Authority to Construct to demonstrate compliance with the overall efficiency of the total system and/or the 25 parts per million reactive organic compound by volume limits of this rule.](#)
6. [Compliance through the use of an emission control system will not result in reactive organic compound emissions in excess of the reactive organic compound emissions which would result from compliance with Sections H.7, I.7, K.6, or M.1.](#)

O. [Alternative Operating and Equipment Requirements for an Airless Solvent Cleaning Machine or an Air-Tight Solvent Cleaning Machine.](#) [In lieu of meeting the requirements of Sections E through L, any person may use an airless solvent cleaning machine or air-tight solvent cleaning machine provided all of the following requirements are met:](#)

1. [The equipment is operated in accordance with the manufacturer's specifications and operated with a door or other pressure sealing apparatus that is in place during all cleaning and drying cycles.](#)
2. [No pressure relief device shall allow liquid solvent to drain out.](#)
3. [A differential pressure gauge shall be installed to indicate the sealed chamber pressure.](#)
4. [A list of operating requirements shall be legible and conspicuously posted or maintained on or near the equipment in such a manner that it is conveniently available to the operator for reference purposes.](#)

NP. **Test Methods.**

[Any person who owns, operates, or uses any solvent cleaning machine or performs any solvent cleaning shall comply with the following test methods:](#)

1. The reactive organic compound content of solvents shall be measured by the Environmental Protection Agency Reference Method 24 (40 CFR, Part 60, Appendix A-7).
2. The initial boiling point of solvents shall be determined by ASTM D-1078-8605, "Standard Test Method for Distillation Range of Volatile Organic Liquids," [ASTM International](#).
3. The capture system efficiency shall be determined in accordance with the Environmental Protection Agency method described in 40 CFR, §52.741(a)(4)(iii) [when the emission control system is used for reducing emissions of reactive organic compounds. For emission control systems handling compounds that are toxic air contaminants but not reactive organic compounds.](#)

the capture system efficiency shall be determined by using the same aforementioned method modified in a manner approved by the Control Officer to quantify the mass of liquid or gaseous reactive organic compounds and/or toxic air contaminants.

4. The emission control device efficiency shall be determined pursuant to the Environmental Protection Agency method described in 40 CFR, §~~52.741(a)(4)(iv)-51~~, Appendix M, Methods 204-204F, when the emission control system is used for reducing emissions of reactive organic compounds. For emission control systems handling any compound that is a toxic air contaminant but not a reactive organic compound, the emission control device efficiency shall be determined using:
 - a. an Environmental Protection Agency approved test method or methods, or
 - b. in the case where there is no Environmental Protection Agency approved test method, a Control Officer approved detection method applicable for each target toxics specie.
 - c. Several Environmental Protection Agency and/or Control Officer approved test methods on the emission control device efficiency may need to be employed to demonstrate that the emission control system overall efficiency is at least 85 percent by weight in reducing emissions of reactive organic compounds and/or toxic air contaminants. In addition, techniques to convert “parts per million by volume” test method results to 1) “parts per million by weight” and/or 2) “mass emission rates” (e.g., pounds per hour) shall be approved by the Control Officer.
5. The volumetric flowrate shall be determined in accordance with the Environmental Protection Agency Methods 2, 2A, 2C, ~~and 2D~~, 2F, or 2G (40 CFR, Part 60, Appendix A-1).
6. The average workroom draft rate shall be measured parallel to the plane of the ~~degreaser solvent cleaning machine~~ opening with a thermistor anemometer with an accuracy within ± 2 feet per minute and a calibration pursuant to the National Institute of Standards and Technology.
7. The identity of components in solvents shall be determined using manufacturer’s formulation data or by using ASTM E 168-~~6706~~, “Standard Practices for General Techniques of Infrared Quantitative Analysis,” ASTM International, ASTM E 169-8704, “Standard Practices for General Techniques of Ultraviolet-Visible Quantitative Analysis,” ASTM International, or ASTM E 260-8596 (2006), “Standard Practice for Packed Column Gas Chromatography,” ASTM International.
8. Emissions of ~~ROC~~ reactive organic compounds from the exhaust of an emission control system shall be measured by the ~~appropriate EPA Environmental Protection Agency Method 18 or 25, or, if applicable, 25A or 25B may be used~~ (40 CFR, Part 60, Appendix A-7), with gas chromatography-flame ionization detection speciation analysis for C1, C2, C3, C4, C5, C6+ species. Alternatively, the Environmental Protection Agency Method 25 or 25A in combination with Method 18 may be used.

9Q. Operational and Maintenance Plan. Any person proposing to use an emission control device to comply with this rule pursuant to ~~Rule 321~~ Section ~~M-N~~ shall submit, with the Authority to Construct application, an emission control device Operation and Maintenance Plan to the Control Officer for approval. ~~Owners or operators of emission control devices installed as of July 17, 1997, if not previously submitted, shall submit Operation & Maintenance Plans by January 17, 1998 and obtain approval of the plan by the Control Officer.~~ The Operation and Maintenance Plan shall specify:

1. operation and maintenance procedures of emissions-producing operation, and
2. which records shall be kept to document these operation and maintenance procedures.

3. ~~In addition, These~~ records shall comply with the requirements of ~~Rule 321~~ Section ~~PR~~.1.c and ~~P.3R.3~~. The Operation and Maintenance Plan shall be implemented upon approval of the Control Officer.

PR. Recordkeeping Requirements.

1. Any person ~~holding a permit for~~ who owns, operates, or uses a solvent ~~cleaner~~ cleaning machine or performs solvent cleaning that is subject to this rule shall comply with the following requirements:
 - a. ~~Record and Maintain and have available on site solvent manufacturer specification sheets that show~~ the following information ~~for each solvent~~:
 - 1) Type of solvent (chemical or manufacturer's product name), Brand name, stock identification number, and generic product class for each solvent used during the month at the stationary source.
 - 2) The solvent initial boiling point, Material safety data sheets for each material listed in response to Section R.1.a.1).
 - 3) Purchase records for each material listed in response to Section R.1.a.1).
 - b. Record ~~each quarter~~ the following information for the stationary source:
 - 1) The total volume of make-up solvent used, itemized by each solvent's chemical or manufacturer's product name. If the solvent is a mix of materials blended by the operator, the mix ratio by each solvent's chemical or manufacturer's product name shall be recorded. On a monthly basis, the total monthly volume (gallons) usage and reactive organic compound content (grams per liter or pounds per gallon of reactive organic compound) for each material listed in response to Section R.1.a.1).
 - 2) The date Records confirming compliance with the acceptable disposal methods listed in Section D.1, each time waste solvent or waste solvent residue is removed from the ~~facility~~ stationary source for disposal.
 - 3) For solvent cleaning, the type of cleaning activity for each solvent used at the stationary source in accordance with the cleaning categories specified in Table 1 of this rule.
 - 4) For each solvent cleaning machine:
 - i. Type of solvent cleaning machine.
 - ii. Brand name of each solvent used in the solvent cleaning machine and the reactive organic compound content of each solvent, as used.
 - iii. The solvent(s) initial boiling point.
 - 5) When the solvent used is a mixture of different materials that are blended by the operator, the mix ratio of the batch shall be recorded and the reactive organic compound content of the batch shall be calculated and recorded in order to determine compliance with the specified limits of reactive organic compound content, as applied.
 - c. If using an emission control system pursuant to ~~Rule 321~~ Section ~~M-N~~ as a means of complying with this rule, the person shall maintain such records as required by the

Operation and Maintenance Plan in Section ~~Q-Q~~ on a daily basis. Key operating parameters and other information necessary to verify compliance with the required overall efficiency of the total system, as specified in Section N.1, shall be recorded. These parameters shall include, but not be limited to:

- 1) Hours of operation;
- 2) All maintenance work that requires the emission control system to be shut down;
- 3) All information needed to demonstrate continuous compliance with Section N, such as temperatures, pressures, and/or flow rates.

~~2. Any person claiming an exemption from Rule 321, pursuant to Section B.2.b, shall record each quarter the following information for the stationary source: the aggregate evaporative surface area of all solvent cleaners subject to the Rule 321 Section B.2.b exemption claim.~~

~~32. In addition to the records required by Section R.1, any person claiming the Section B.9 exemption or the Section B.15 exemption, shall maintain records in order to demonstrate compliance with the solvent usage rate aggregate limits. For Section B.9 exemption claims, daily records on a facility basis shall be maintained. For Section B.15 exemption claims, monthly and calendar year total records on a stationary source basis shall be maintained.~~

~~3. Maintain the R~~ records kept pursuant to this ~~section rule shall be maintained~~ on site for at least ~~2-3~~ years. Thereafter, ~~the records shall be maintained~~ such records either on site or readily available for expeditious inspection and review for an additional ~~3-2~~ years.

QS. **Reporting Requirements**

Any person holding a permit for a solvent ~~cleaner-cleaning machine or solvent cleaning~~ subject to the requirements of this rule shall submit an annual report to the ~~Control~~-District. At a minimum, Tthe annual report shall contain the ~~quarterly-monthly~~ records required by ~~Rule 321~~ Section ~~PR~~.1.b.1), the annual totals based on each of the solvent's monthly data, the name and address of the Permittee, and the Permit to Operate number that the solvent cleaning machine and/or solvent cleaning is subject to. The report shall be due March 1 for the previous calendar year.

RT. **Compliance Schedule**

Any person who owns, operates, or uses any solvent cleaning machine or performs any solvent cleaning subject to this rule shall meet the following compliance schedule:

1. New solvent cleaning machines and solvent cleaning operations:

Commencing [date of amended rule adoption], any new solvent cleaning machine shall comply with this rule the first time it is operated in the District. Also commencing [date of amended rule adoption], any new solvent cleaning shall comply with this rule the first time it is performed in the District.

2. Existing solvent cleaning machines:

a. For any solvent cleaning machine previously subject to the Rule 321 adopted on September 18, 1997, commencing [date of amended rule adoption], the owner or operator shall ensure that the equipment complies with the applicable provisions of Rule 321. The provisions in Sections H.7, I.7, J.8, J.11, K.6, L.9, and L.11 have an effective date of [one year from the date of amended rule adoption].

b. For any solvent cleaning machine previously exempt from the September 18, 1997 amended Rule 321 that lost its exemption by the adoption of amended Rules 102 (Definitions), 202 (Exemptions to Rule 201), and/or Rule 321 on [date of amended rule adoption], the owner or operator of such equipment shall comply with the following:

~~1. The owner or operator of any solvent cleaning equipment in operation as of July 17, 1997 and subject to the requirements of this rule shall comply with the following:~~

- a. 1) By ~~August 16, 1997~~[30 days from the date of amended rule adoption], be in full compliance with the applicable operating requirements of ~~Rule 321~~Sections D, E, and F.
- b. 2) By ~~January 13, 1998~~[180 days from the date of amended rule adoption], be in full compliance with the applicable recordkeeping and reporting provisions of ~~Rule 321~~Sections ~~P-R~~ and ~~Q-S~~.
- e. 3) By ~~July 17, 1998~~[365 days from the date of amended rule adoption], be in full compliance with the applicable equipment requirements of ~~Rule 321~~Sections G, H, I, J, K, L, and ~~M-N~~.
- d. 4) ~~Notwithstanding Rule 321 Section R.1.e, the provisions of Section G.8 shall take effect on July 17, 1997. Any lip exhaust installed after [date of amended rule adoption] shall be vented to an emission control system that meets the requirements of Section N at the time of installation, notwithstanding the date in Sections G.8 and T.2.b.3.~~

~~2. This rule applies to any new or modified solvent cleaning equipment on July 17, 1997.~~

~~3. Existing solvent cleaning operations:~~

The owner or operator of any facility performing solvent cleaning as of [date of amended rule adoption] and subject to the requirements of this rule shall comply with the following:

- a. By [30 days from the date of amended rule adoption], be in full compliance with the applicable operating requirements of Section D.
- b. By [180 days from the date of amended rule adoption], be in full compliance with the applicable recordkeeping and reporting provisions of Sections R and S.
- c. By [365 days from the date of amended rule adoption], be in full compliance with the solvent cleaning requirements of Rule Section M.