COMMONWEALTH OF VIRGINIA
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS FOR THE CONTROL AND ABATEMENT OF AIR POLLUTION

9 VAC 5 CHAPTER 40.
EXISTING STATIONARY SOURCES.

PART II.
Emission Standards.

ARTICLE 24.
Emission Standards For Solvent Metal
Cleaning Operations Using Non-Halogentated Solvents (Rule 4-24).

9 VAC 5-40-3260. Applicability and designation of affected facility.
[Revised; SIP effective date : July 18, 2005]

A. The affected facility to which the provisions of this article apply is each solvent metal cleaning operation using non-halogenated solvents, including, but not limited to, cold or vapor degreasing at service stations; motor vehicle repair shops; automobile dealerships; machine shops; and any other metal refinishing, cleaning, repair, or fabrication facility.

B. The provisions of this article apply only to sources of volatile organic compounds in volatile organic compound emissions control areas designated in 9 VAC 5-20-206. They do not apply to sources in the Northern Virginia volatile organic compound emissions control area designated in 9 VAC 5-20-206. These sources are subject to Article 47 (9 VAC 5-40-6820 et seq.) of this part.

9 VAC 5-40-3270. Definitions.

A. For the purpose of these regulations and subsequent amendments or any orders issued by the board, the words or terms shall have the meaning given them in subsection C of this section.

B. As used in this article, all terms not defined here shall have the meaning given them in 9 VAC 5 Chapter 10 (9 VAC 5-10-10 et seq.), unless otherwise required by context.

C. Terms defined.

"Cold cleaning" means the batch process of cleaning and removing foreign matter from metal surfaces by spraying, brushing, flushing or immersion while maintaining the solvent below its boiling point. Wipe cleaning is not included in this definition.

"Conveyorized degreasing" means the continuous process of cleaning and removing foreign matter from metal surfaces by operating with either cold or vaporized solvents.

"Freeboard height"

a. For cold cleaners, the distance from the liquid solvent level in the degreaser tank to the lip of the tank.

b. For open top vapor degreasers, the distance from the solvent-to-air interface in the tank to the lip of the tank.

c. For conveyerized degreasers, the distance from the solvent-to-air interface to the bottom of the entrance or exit opening, whichever is lower.

"Freeboard ratio" means the freeboard height divided by the width of the degreaser.

"Lower explosive limit" means the lower limit of flammability of a gas or vapor at ordinary ambient temperatures expressed in percent of the gas or vapor in air by volume.

"Nonhalogenated solvent" means any other solvent other than methylene chloride, perchloroethylene, trichlorethylene, 1,1,1-trichloroethane, carbon tetrachloride, or chloroform. Nonhalogenated solvents may include trace quantities of halogenated solvents which are:

a. Unintended residues in recycled solvents, or

b. Unintended impurities resulting from chemical reaction in the manufacturing process.

"Open top vapor degreasing" means the batch process of cleaning and removing foreign matter from metal surfaces by condensing hot solvent vapor on the colder metal parts.

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

"Solvent metal cleaning" means the process of cleaning foreign matter from metal surfaces by cold cleaning or open top vapor degreasing or conveyorized degreasing.

9 VAC 5-40-3280. Standard for volatile organic compounds.

A. Conveyorized degreasing.

1. No owner or other person shall use or permit the use of any conveyorized degreaser unless such degreaser is equipped with a control method that will remove, destroy or prevent the discharge into the atmosphere of at least 70% by weight of volatile organic compound emissions.

2. Achievement of the emission standard in subsection A 1 of this section by use of the methods in 9 VAC 5-40-3290 A and D will be acceptable to the board.

B. Open top vapor degreasing.

1. No owner or other person shall use or permit the use of any open top vapor degreaser unless such degreaser is equipped with a control method that will remove, destroy or prevent the discharge into the atmosphere of at least 75% by weight of volatile organic compound emissions.

2. Achievement of the emission standard in subsection B 1 of this section by use of the methods in 9 VAC 5-40-3290 B and D will be acceptable to the board.

C. Cold cleaning.

1. No owner or other person shall use or permit the use of any cold cleaner unless such cleaner is equipped with a control method that will remove, destroy or prevent the discharge into the atmosphere of at least 85% by weight of volatile organic compound emissions.

2. Achievement of the emission standard in subsection C 1 of this section by use of the methods in 9 VAC 5-40-3290 C and D will be acceptable to the board.

9 VAC 5-40-3290. Control technology guidelines.

A. Conveyorized degreasing.

1. Control requirements.

a. The degreaser (if the air/vapor interface is larger than 20 ft^2) should be equipped with one of the following vapor control methods:

(1) Refrigerated chiller (a secondary set of condensing coils operating with a coolant of less than 40°F).

(2) Carbon adsorption system, with ventilation of 50 cfm/ft^2 or greater of conveyor opening area (when down-time covers are open), and exhausting less than 25 ppm of solvent by volume averaged over a complete adsorption cycle.

(3) Any method of equal or greater control efficiency to the methods in subsections A 1 a (1) and (2) of this section, provided such method is approved by the board.

b. The degreaser should be equipped with either a drying tunnel, or other means such as rotating (tumbling) basket, sufficient to prevent cleaned parts from carrying out solvent liquid or vapor.

c. The degreaser should be equipped with all of the following control devices:

(1) A device to prevent heat input unless there is adequate coolant.

(2) The spray shall be equipped with a device that will prevent spraying unless the degreaser is operating normally.

(3) A device to shut off the heat if the vapor level rises above a predetermined level.

d. Entrances and exits should silhouette work loads so that the average clearance (between the largest parts and the edge of the degreaser opening) is either four inches or 10% of the width of the opening, whichever is less.

e. Covers should be provided for closing off the entrance and exit during shutdown, heat-up and cool-down.

2. Operating requirements.

a. Exhausting ventilation should not exceed 65 cfm/ft^2 of degreaser open area, unless necessary to meet the requirements of any regulations promulgated by the U.S. Occupational Safety and Health Administration. Fans shall not be used near the degreaser opening.

b. Carry-out vapor losses should be minimized by racking parts to allow full drainage and maintaining vertical conveyor speed at less than 11 ft/min.

c. Waste solvent should not be disposed of or transferred to another party such that greater than 20% of the waste (by weight) can evaporate into the atmosphere. Waste solvent should only be stored in closed containers.

d. Solvent leaks should be repaired immediately or the degreaser should be shut down.

e. Water should not be visibly detectable in the solvent exiting the water separator.

f. Downtime cover should be placed over entrances and exits of conveyorized degreaser immediately after the conveyor and exhaust are shut down and removed just before they are started up.

B. Open top vapor degreasing.

1. Control requirements.

a. Covers should be provided that can be opened and closed easily without disturbing the vapor zone.

b. The degreaser should be equipped with all of the following control devices:

(1) A device to prevent heat input unless there is adequate coolant.

(2) The spray should be equipped with a method that will prevent spraying unless the degreaser is operating normally.

c. Degreaser should be equipped with one of the following vapor control methods:

(1) Freeboard ratio equal to or greater than 0.75. If the open

area is larger than 10 ft^2, the cover should be powered.

(2) Refrigerated chiller (a secondary set of condensing coils operating with a coolant of less than 40°F).

(3) Enclosed design (cover or door opens only when the dry part is actually entering or exiting the degreaser).

(4) Carbon adsorption system, with ventilation of 50 cfm/ft^2 or greater of air/vapor area (when cover is open), and exhausting less than 25 ppm solvent by volume averaged over one complete adsorption cycle.

(5) Any method of equal or greater control efficiency to the methods in subsections B 1 c (1) through (4) of this section, provided such method is approved by the board.

d. A permanent label, summarizing operating procedures in subsections B 2 a through f of this section, should be placed in a conspicuous location on or near the degreaser.

2. Operating requirements.

a. The cover should be kept closed at all times except when processing work loads through the degreaser.

b. Carry-out vapor losses should be minimized by:

(1) Racking parts to allow full drainage;

(2) Moving parts in and out of the degreaser at less than 11 ft/min;

(3) Degreasing the work load in the vapor zone at least 30 seconds or until condensation ceases, whichever is longer;

(4) Tipping out any pools of solvent on the cleaned parts before removal; and

(5) Allowing parts to dry within the degreaser for at least 15 seconds or until visually dry, whichever is longer.

c. Porous or absorbent materials, such as cloth, leather, wood or rope should not be degreased.

d. Work loads should not occupy more than half of the degreaser's open top area.

e. The vapor level should not drop more than four inches when the work load enters the vapor zone. However, for certain specific solvent vapor degreasing operations where of necessity very large masses are required to be degreased at one time, such as large castings and fabricated assemblies, the manufacturers design should accommodate a drop of the vapor-air interface of more than four inches. This introduction of such large masses of necessity causes significant vapor-air interface drop and so the problem must be resolved by engineering of the degreaser in these cases rather than by limiting the amount of air-vapor

interface drop.

f. Spraying above the vapor level should not be done.

g. Solvent leaks should be repaired immediately or the degreaser shutdown.

h. Waste solvent, still, and sump bottoms shall be collected and stored in closed containers. The closed containers may contain a device that would provide pressure relief, but would not allow liquid solvent to drain from the container.

i. Exhaust ventilation should not exceed 65 cfm/ft^2 of degreaser open area, unless necessary to meet OSHA requirements. Fans should not be used near the degreaser opening.

j. Water should not be visually detectable in solvent exiting the water separator.

C. Cold cleaning.

1. Control requirements.

a. Covers or enclosed remote reservoirs should be provided. Covers should be designed so that they can be easily operated with one hand. (Covers for larger degreasers may require mechanical assistance, by spring loading, counterweighting or powered systems). Enclosed remote reservoirs should be designed such that they provide reduction effectiveness equivalent to that of a cover.

b. External or internal drainage facilities should be provided to collect and return the solvent to a closed container or a solvent cleaning machine. If solvent volatility is greater than 0.6 psi measured at 100°F, then the drainage facilities should be internal, so that parts are enclosed under the cover while draining. The drainage facilities may be external for applications where an internal type cannot fit into the cleaning system.

c. A permanent label, summarizing the operating procedures in subsections C 2 a through c of this section, should be placed in a conspicuous location on or near the degreaser.

d. If used, the solvent spray should be a solid, fluid stream (not a fine, atomized or shower type spray) and at a pressure which does not cause excessive splashing.

e. If a solvent volatility is greater than 0.6 psi measured at 100°F, or if solvent is heated above 120°F, then the degreaser (if the open area is greater than 20 ft^2) should be equipped with one of the following vapor control methods:

(1) Freeboard ratio that is equal to or greater than 0.7;

(2) Water cover (solvent should be insoluble in and heavier than water);

(3) Refrigerated chiller (a secondary set of condensing coils operating with a coolant of less than 40°F);

(4) Carbon adsorption system, with ventilation of 50 cfm/ft^2 or

greater of air/vapor area (when down-time covers are open), and exhausting less than 25 ppm of solvent by volume averaged over a complete adsorption cycle; or

(5) Any method of equal or greater control efficiency to the methods in subsections C 1 e (1) through (4) of this section, provided such method is approved by the board.

2. Operating requirements.

a. Waste solvent should not be disposed of or transferred to another party, such that greater than 20% of the waste (by weight) can evaporate into the atmosphere. Store waste solvent only in closed containers.

b. The degreaser cover should be closed whenever not handling parts in the cleaner.

c. Cleaned parts should drain for at least 15 seconds or until dripping ceases.

D. Disposal of waste solvent from solvent metal cleaning operations should be by one of the following methods:

1. Reclamation (either by outside services or in-house).

2. Incineration.

9 VAC 5-40-3300. Standard for visible emissions.

The provisions of Article 1 (9 VAC 5-40-60 et seq.) of 9 VAC 5 Chapter 40 (Emission Standards for Visible Emissions and Fugitive Dust/Emissions, Rule 4-1) apply.

9 VAC 5-40-3310. Standard for fugitive dust/emissions.

The provisions of Article 1 (9 VAC 5-40-60 et seq.) of 9 VAC 5 Chapter 40 (Emission Standards for Visible Emissions and Fugitive Dust/Emissions, Rule 4-1) apply.

9 VAC 5-40-3320. [Not in SIP]

9 VAC 5-40-3330. [Not in SIP]

9 VAC 5-40-3340. Compliance.

The provisions of 9 VAC 5-40-20 (Compliance) apply.

9 VAC 5-40-3350. Test methods and procedures.

The provisions of 9 VAC 5-40-30 (Emission Testing) apply.

9 VAC 5-40-3360. Monitoring.

The provisions of 9 VAC 5-40-40 (Monitoring) apply.

9 VAC 5-40-3370. Notification, records and reporting.

The provisions of 9 VAC 5-40-50 (Notification, Records and Reporting) apply.

9 VAC 5-40-3380. Registration.

The provisions of 9 VAC 5-20-160 (Registration) apply.

9 VAC 5-40-3390. Facility and control equipment maintenance or malfunction.

The provisions of 9 VAC 5-20-180 (Facility and Control Equipment Maintenance or Malfunction) apply.

9 VAC 5-40-3400. Permits.

A permit may be required prior to beginning any of the activities specified below and the provisions of 9 VAC 5 Chapter 50 (9 VAC 5-50-10 et seq.) and 9 VAC 5 Chapter 80 (9 VAC 5-80-10 et seq.) may apply. Owners contemplating such action should contact the appropriate regional office for guidance.

1. Construction of a facility.
2. Reconstruction (replacement of more than half) of a facility.
3. Modification (any physical change to equipment) of a facility.
4. Relocation of a facility.
5. Reactivation (restart-up) of a facility.
6. Operation of a facility.