

VENTURA COUNTY AIR POLLUTION CONTROL DISTRICT

RULE 74.6.1 - BATCH LOADED VAPOR DEGREASERS

(Adopted 11/11/03 - effective 7/1/04, Amended 11/10/20)

A. Applicability

The requirements of this rule shall apply to batch loaded vapor degreasers.

B. Equipment Requirements

All batch loaded vapor degreasers shall be equipped with the following equipment:

1. A primary condenser and circumferential trough.
2. A freeboard ratio of at least 1.0
3. A water separator. A water separator is not required if the solvent in use forms an azeotrope with water.
4. A snug fitting cover that is free of cracks, holes or other defects, and is designed to be easily operated without disturbing the vapor zone, such as a sliding, rolling or bi-parting cover. If the degreaser opening is larger than 1 square meter (10.8 square feet) the cover must be mechanically assisted by a spring loaded, counterweighted, sliding, rolling or powered system.
5. A high vapor cutoff thermostat.
6. For degreasers with spray capability, a spray pump control switch.
7. For degreasers with a water-cooled primary condenser, a condenser water flow switch.
8. A permanent conspicuous label or sign summarizing the applicable operating requirements appropriate for batch loaded vapor degreasing operations.
9. An automated parts handling system.
10. At least one of the following control devices:
 - a. A superheated vapor zone
 - b. A refrigerated freeboard chiller operated such that the chilled air blanket temperature, measured at the center of the air blanket, is no greater than 40% of the boiling point of the solvent, in degrees Fahrenheit, for solvents

that do not form azeotropes with water, or 50% of the boiling point, in degrees Fahrenheit, for solvents that form azeotropes with water.

C. Operating Requirements

Any person who operates a batch loaded vapor degreaser shall conform to the following operating requirements:

1. The cover shall be closed whenever work is not being processed in the degreaser.
2. The following sequence shall be followed for start up and shut down:
 - a. When starting up the degreaser, the cooling system shall be turned on before, or simultaneously with, the sump heater.
 - b. When shutting down the degreaser, the sump heater shall be turned off before, or simultaneously with, the cooling system.
 - c. The degreaser shall be covered whenever the cooling system is turned off.
3. If a solvent spray is utilized, then all spraying shall be done within the vapor zone in a manner that does not cause turbulence at the air-vapor interface. Only a solid fluid stream (not a fine, atomized or shower type spray) shall be used. The pressure of the solvent spray shall be low enough to prevent solvent from splashing out of the degreaser.
4. The workload area shall not be more than one half of the degreaser's air-vapor interface surface area.
5. The degreaser shall not be located in an area where drafts greater than 9.1 meters per minute (30 feet per minute) occur.
6. Solvent carryout shall be minimized by the following measures:
 - a. Limit the speed of any powered hoist used to move parts in and out of the degreaser to less than 3.4 meters per minute (11.2 feet per minute).
 - b. Degrease the work load in the vapor zone until condensation ceases.
 - c. Tip out pools of solvent on the cleaned parts before removal from the degreaser. Drain cleaned parts until dripping ceases.
 - d. Do not drain parts in the cold air layer.
 - e. Do not remove parts from the degreaser until they are visually dry.

7. No solvent shall be visually detectable in the water exiting the water separator.
8. The degreasing equipment and emission control equipment shall be operated and maintained in proper working order.
9. No person shall remove or open any required device designed to cover the solvent unless work is being processed in the degreaser or maintenance is being performed on the degreaser.
10. Ventilation fans shall not be positioned in such a way as to direct airflow near the degreaser openings.
11. If equipped with a superheated vapor zone, parts and parts baskets shall remain in the vapor zone for at least the minimum dwell time, as specified by the manufacturer.
12. The degreasing of porous or absorbent materials such as cloth, leather, wood, or rope is prohibited.

D. Prohibition

No person shall allow liquid cleaning solvent to leak from any equipment or container.

E. Storage and Disposal

1. All ROC-containing solvents shall be stored in non-absorbent, non-leaking containers that shall be kept closed at all times except when filling or emptying.
2. Waste solvent and waste solvent residues shall be disposed of properly. Spent cleanup solvents may be classified as hazardous waste. The owner or operator shall obtain approval from applicable local, state, or federal water pollution control agency prior to disposing of spent solvents into the sewer or storm drain systems.

F. Alternative Cleaning System: In lieu of the requirements of Section B, or C of this rule, degreaser emissions may be controlled by an emission control system that maintains a combined capture and control efficiency of at least 85 percent, by weight, of the emissions generated by the degreasing activity, and results in an emission rate lower than that achieved by section B, or C of this rule, as approved in writing by the APCO.

G. Exemptions

1. This rule shall not apply to cleaning activities using Clean Air Solvent, or a solvent with an ROC-content no more than 25 grams per liter as applied.

2. Subsections B.9 and B.10 shall not apply to batch loaded vapor degreasers with an open-top surface area less than 1 square foot or a solvent capacity less than 2 gallons, provided the degreasers emit less than 55 pounds of ROC each calendar month.

H. Recordkeeping Requirements

1. Each time solvent is added to the degreaser, record the volume of solvent added. Each time waste solvent and residues are removed, record the volume removed.
2. Maintain records of the type of solvent being used including records of its initial boiling point.
3. The ROC content of material, as used (expressed in g/L (lb/gal))

Records shall be saved for at least five (5) years from the date of each record. All such records shall be made available to District personnel upon request.

I. Test Method

The following test method shall apply. Other test methods determined to be equivalent and approved in writing by the APCO and by EPA may also be used.

1. Compliance with subsection C.5 shall be determined by measuring the length of time for a visible smoke cloud to move one foot (0.3 meters) horizontally in the area directly above the degreaser. If the measured time is more than 2 seconds, compliance is demonstrated.
2. The ROC content of materials shall be determined by EPA Test Method 24 (40 C.F.R. 60, Appendix A). The ROC content of materials containing 50 g/l of ROC or less shall be determined by the most recent version of SCAQMD Method 313 (Determination of Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry) or any other alternative test methods approved by the USEPA, CARB, and the District.
3. The control efficiency of a ROC control system's control device(s) shall be determined using EPA Methods 2, 2A or 2D for measuring flow rates and EPA Methods 25, 25A, or 25B for measuring total gaseous organic concentrations at the inlet and outlet of the ROC emission control system's control device. EPA Method 18 or ARB Method 422 shall be used to determine the emissions of exempt compounds.

4. The efficiency of a collection device shall be determined in accordance with the U.S. EPA technical guideline document, "Guidelines for Determining Capture Efficiency," dated January 9, 1995. Individual capture efficiency test runs subject to U.S. EPA technical guidelines shall be determined by:
 - a. Applicable U.S. EPA Methods 204, 204A, 204B, 204C, 204D, 204E, and/or 204F; or
 - b. Any other method approved by U.S. EPA, the California Air Resources Board, and the Air Pollution Control Officer.
5. The identity of components in solvents shall be determined using manufacturer's formulation data or by using ASTM E168-67, ASTM E169-87, or ASTM E260-85.

J. Violations

Failure to comply with any provision of this rule shall constitute a violation.

K. Definitions

1. "Air Vapor Interface": The top of the solvent-vapor layer, and the air touching this layer.
2. "Automated Parts Handling System": A mechanical device such as a hoist 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.
3. "Batch loaded vapor degreaser": Any nonconveyorized, boiling solvent degreasing equipment.
4. "Circumferential Trough": A receptacle located below the primary condenser that conveys condensed solvent and atmospheric moisture to a water separator.
5. "Condenser Water Flow Switch": A safety switch that turns off the sump heat if the condenser water fails to circulate or rises above the design operating temperature.
6. "Degreaser": A container for solvent and articles being cleaned that includes a facility for draining solvent from surfaces such that the drained solvent is returned to the container.
7. "Freeboard height": For batch loaded vapor degreasers, the distance from the solvent vapor-air interface to the top of the degreaser tank.
8. "Freeboard ratio": The freeboard height divided by the smaller of the length or width of the degreaser.

9. "High Vapor Cutoff Thermostat": A manually reset switch that shuts off the sump heat if the temperature at the air-vapor interface rises above the designed operating level.
10. "Liquid Leak": A visible liquid solvent leak from a container at a rate of three or more drops of liquid solvent per minute, or a visible liquid mist.
11. "Non-absorbent Containers": Containers made of nonporous material that do not allow the migration of the liquid solvent through them.
12. "Non-atomized Solvent Flow": The use of a solvent in the form of a liquid stream without atomization.
13. "Non-leaking Containers": Containers without liquid leaks.
14. "Primary Condenser": A series of circumferential cooling coils on the inside walls of a vapor degreaser through which a chilled substance is circulated or recirculated to provide continuous condensation of rinsing solvent vapors, thereby creating a concentrated solvent vapor zone.
15. "ROC Content": The ROC content of a solvent in units of grams of ROC per liter of material is calculated by the following equation:

$$\text{ROC Content} = \frac{W_s - W_w - W_{es}}{V_m}$$

Where: W_s = Weight of volatile compounds in grams

W_w = Weight of water in grams

W_{es} = Weight of exempt organic compounds in grams

V_m = Volume of material in liters

16. "Refrigerated Freeboard Chiller": Any equipment mounted above the condenser equipment that carry a refrigerant to provide a chilled air blanket above the solvent vapor, to reduce emissions from a vapor degreaser.
17. "Solvent": Any ROC-containing liquid used to perform solvent cleaning.
18. "Spray Pump Control Switch": A safety switch that prevents the spray pump from operating if the vapor level falls below the design operating level.
19. "Superheated Vapor Zone": A region located within the vapor zone of a degreaser where solvent vapors are heated at least 10 degrees Fahrenheit above the solvent's boiling point.

20. "Water Separator": A device that isolates water from a solvent or a mixture of solvents by a variety of means including, but not limited to, extraction, evaporation, distillation, drying, adsorption, or filtration.