

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 25.  
Emission Standards For Volatile Organic Compound Storage and  
Transfer Operations (Rule 4-25).

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9 VAC 5-40-3410. Applicability and designation of affected facility.

A. Except as provided in subsection C of this section, the affected facility to which the provisions of this article apply is each operation involving the storage or transfer of volatile organic compounds or both.

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.

C. The provisions of this article do not apply to:

1. Facilities subject to the provisions of the emission standards for storage or transfer of petroleum liquids (Article 37 (9 VAC 5-40-5200 et seq.) of this chapter); or

2. Facilities using volatile organic compounds with a vapor pressure less than 1.5 pounds per square inch absolute under actual storage conditions or, in the case of filling, under actual filling conditions.

9 VAC 5-40-3420. 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.

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

"Internal floating roof" means a cover or roof in a fixed roof tank which rests upon or is floated upon the liquid being contained and is equipped with a closure seal or seals to close the space between the roof edge and tank shell.

"Liquid-mounted" means a primary seal mounted so the bottom of the seal covers the liquid surface between the tank shell and the floating roof.

"Submerged fill pipe" means any fill pipe the discharge opening of which is entirely submerged when the liquid level is six inches above the bottom of the tank; or, when applied to a tank which is loaded from the side, any fill pipe the discharge opening of which is entirely submerged when at the minimum operating level.

"Vapor-mounted" means a primary seal mounted so there is an annular vapor space underneath the seal. The annular vapor space is bounded by the bottom of the primary seal, the tank shell, the liquid surface, and the floating roof.

"Vapor tight" means capable of holding a pressure of 18 inH<sub>2</sub>O and a vacuum of 6 inH<sub>2</sub>O without sustaining a pressure change of more than 3 inH<sub>2</sub>O in five minutes.

9 VAC 5-40-3430. Standard for volatile organic compounds.

A. Filling of storage tanks.

1. No owner or other person shall use or permit the use of any

stationary storage tank for storage of any volatile organic compound unless such tank is equipped with a control method that will remove, destroy or prevent the discharge into the atmosphere of at least 60% by weight of volatile organic compound emissions during the filling of such tank.

2. Achievement of the emission standard in subsection A 1 of this section by use of the methods in 9 VAC 5-40-3440 A will be acceptable to the board.

3. Exempted from the provisions of this subsection are stationary storage tanks with a storage capacity of 2,000 gallons or less.

B. Volatile organic compound storage – fixed roof tanks.

1. No owner or other person shall use or permit the use of any fixed roof tank for storage of volatile organic compounds unless such tank is equipped with a control method which will remove, destroy or prevent the discharge into the atmosphere of at least 90% by weight of volatile organic compound emissions.

2. Achievement of the emission standard in subsection B 1 of this section by use of control methods in 9 VAC 5-40-3440 B will be acceptable to the board.

3. Exempted from the provisions of this subsection are stationary storage tanks with a storage capacity of 40,000 gallons or less.

4. The owner of a fixed roof tank subject to the provisions of subsection B 1 of this section shall:

a. When the fixed roof tank is equipped with an internal floating roof, perform a visual inspection annually of the floating cover through the roof hatches, to ascertain compliance with the specifications in subsection B 4 (1) and (2).

(1) The cover should be uniformly floating on or above the liquid and there should be no visible defects in the surface of the cover or liquid accumulated on the cover.

(2) The seal must be intact and uniformly in place around the circumference of the cover between the cover and tank wall.

b. Perform a complete inspection of the cover and seal and record the condition of the cover and seal when the tank is emptied for nonoperational reasons such as maintenance, an emergency, or other similar purposes.

c. Maintain records of the average monthly storage temperature and true vapor pressure of the liquid as stored, and the results of the inspection performed under the provisions of subsection B 4 a and b of this section.

C. Volatile organic compound storage – floating roof tanks.

1. No owner or other person shall use or permit the use of any floating roof tank for storage of volatile organic compounds, unless such tank is equipped with a control method which will remove, destroy or prevent the discharge into the atmosphere of at least 90% by weight of volatile organic compound emissions.

2. Achievement of the emission standard in subsection C 1 of this section by use of methods in 9 VAC 5-40-3440 C will be acceptable to the board.

3. Exempted from the provisions of this subsection are stationary storage tanks with a storage capacity of 40,000 gallons or less.

4. The owner of a floating roof tank subject to the provisions of subsection C 1 of this section shall:

a. Perform routine inspections annually which shall include a visual inspection of the secondary seal gap.

b. When the floating roof is equipped with a vapor-mounted primary seal, measure the secondary seal gap annually in accordance with subsections C 4 b (1) and (2) of this section.

(1) Physically measuring the length and width of all gaps around the entire circumference of the secondary seal in each place where a 1/8 inch uniform diameter probe passes freely (without forcing or binding against the seal) between the seal and tank wall; and

(2) Summing the area of the individual gaps.

c. Maintain records of the types of volatile organic compounds stored, the maximum true vapor pressure of the liquid as stored, and the results of the inspections performed under the provisions of subsection C 4 a and b of this section.

9 VAC 5-40-3440. Control technology guidelines.

A. Filling of storage tanks. The tank should be a pressure tank maintaining working pressure sufficient at all times to prevent vapor loss to the atmosphere, or be designed and equipped with one of the following vapor control systems:

1. Filling of the tank through the use of a submerged fill pipe.

2. Any system of equal or greater control efficiency to the system in subsection A 1 of this section, provided such system is approved by the board.

B. Volatile organic compound storage – fixed roof tanks.

1. The tank should be a pressure tank maintaining working pressure sufficient at all times to prevent vapor loss to the atmosphere, or be designed and equipped with one of the following vapor control systems:

a. An internal floating roof resting on the surface of the liquid contents and equipped with a closure seal, or seals, to close the space between the roof edge and tank shell. All tank gauging and sampling devices should be vapor tight except when gauging or sampling is taking place.

b. Any system of equal or greater control efficiency to the system in subsection B 1 a of this section, provided such system is approved by the board.

2. There should be no visible holes, tears or other openings in the seal or any seal fabric.

3. All openings, except stub drains, should be equipped with a cover, seal or lid. The cover, seal or lid should be in a closed position at all times except when the device is in actual use. Automatic bleeder vents should be closed at all times except when the roof is floated off or landed on the roof leg supports. Rim vents, if provided should be set to open when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting.

4. The exterior aboveground surfaces (exposed to sunlight) should be painted white, light pastels or light metallic and such exterior paint should be periodically maintained in good condition. Repainting may be performed during normal maintenance periods.

C. Volatile organic compound storage – floating roof tanks.

1. The tank should be designed and equipped with one of the following vapor control systems:

a. An external floating roof resting on the surface of the liquid contents and equipped with a seal closure device (meeting the specifications set forth in subsection C 2 and 3 of this section) to close the space between the roof edge and tank shell. All tank gauging and sampling devices should be vapor tight except when gauging or sampling is taking place.

b. Any system of equal or greater control efficiency to the system in subsection C 1 a of the section, provided such system is approved by the board.

2. Unless the tank is a welded tank fitted with a metallic-type shoe seal which has a secondary seal from the top of the shoe seal to the tank wall (a

shoe-mounted secondary), the tank should be fitted with a continuous secondary seal extending from the floating roof to the tank wall (a rim-mounted secondary) if:

a. The tank is a welded tank, the true vapor pressure of the contained liquid is 4.0 psi or greater, and the primary seal is one of the following:

- (1) A metallic-type shoe seal.
- (2) A liquid-mounted foam seal.
- (3) A liquid-mounted liquid-filled type seal.
- (4) Any other seal closure device which can be demonstrated equivalent to the primary seals specified in subsection C 2 a (1) through (3) of this section.

b. The tank is a riveted tank, the true vapor pressure of the contained liquid is 1.5 psi, or greater, and the seal closure device is as described in subsection C 2 a of this section.

c. The tank is a welded or riveted tank, the true vapor pressure of the contained liquid is 1.5 psi, or greater, and the primary seal is vapor mounted. When such primary seal closure device can be demonstrated equivalent to the primary seals described in subsection C 2 a of this section the provisions of that subsection apply.

3. The seal closure devices should meet the following requirements:

a. There should be no visible holes, tears or other openings in the seal or any seal fabric.

b. The seal should be intact and uniformly in place around the circumference of the floating roof between the floating roof and the tank wall.

c. The areas where the gap between the secondary seal, installed pursuant to subsection C 2 c of this section, and the tank wall exceeds 1/8 inch in width shall be calculated in square inches. The sum of all such areas shall not exceed 1.0 square inch per foot of tank diameter.

4. All openings, except for automatic bleeder vents, rim space vents and leg sleeves, should provide a projection below the liquid surface. All openings, except stub drains, should be equipped with a cover, seal or lid. The cover, seal or lid should be in a closed position at all times except when the device is in actual use. Automatic bleeder vents should be closed at all times except when the roof is floated off or landed on the roof leg supports. Rim vents, if provided, should be set to open when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting. Any emergency roof drain should be provided with a slotted membrane fabric

cover or equivalent cover that covers at least 90% of the area of the opening.

5. The exterior above ground surfaces (exposed to sunlight) should be painted white, light pastels, or light metallic and such exterior paint should be periodically maintained in good condition. Repainting may be performed during normal maintenance periods.

9 VAC 5-40-3450. Standard for visible emissions.

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

9 VAC 5-40-3460. Standard for fugitive dust/emissions.

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

9 VAC 5-40-3470. Standard for odor.

The provisions of Article 2 (9 VAC 5-40-130 et seq.) of this chapter (Emission Standards for Odor, Rule 4-2) apply.

9 VAC 5-40-3480. Standard for toxic pollutants.

The provisions of Article 3 (9 VAC 5-40-160 et seq.) of this chapter (Emission Standards for Toxic Pollutants, Rule 4-3) apply.

9 VAC 5-40-3490. Compliance.

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

9 VAC 5-40-3500. Test methods and procedures.

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

9 VAC 5-40-3510. Monitoring.

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

9 VAC 5-40-3520. Notification, records and reporting.

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

9 VAC 5-40-3530. Registration.

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

9 VAC 5-40-3540. 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 5-40-3550. 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.

HISTORICAL NOTES:

Derived from: Rule 4-25 of Part IV of VR 120-01 (§ 120-04-2501 through § 120-04-2515)

Effective Date: November 30, 1979

Promulgated: January 30, 1979

Amended: October 5, 1979

Amended: November 30, 1979

Amended: July 1, 1982

Amended: January 1, 1983

Amended: January 1, 1985

Amended: July 1, 1991

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