

Department of Environmental Quality
Air Quality Program

**GENERAL
AIR CONTAMINANT DISCHARGE PERMIT
ASSESSMENT REPORT**

HALOGENATED SOLVENT CLEANING

SOURCE DESCRIPTION AND QUALIFICATION

1. This permit incorporates provisions from the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Halogenated Solvent Cleaning (40 C.F.R. part 63 subpart T). These sources commonly use solvents to clean or degrease parts or equipment.
2. The facilities assigned to this General Permit may not emit any other air pollution that requires regulation beyond that specified in this permit, except for other pollution emissions that also qualify for assignment and are assigned to other General Permits and categorically insignificant activities defined by OAR Chapter 340 Division 200. A facility that has experienced recurring or serious compliance problems is not eligible for assignment to this permit.
3. The NESHAP applies to each individual solvent cleaning machine that uses solvent containing one of the following halogenated HAP solvents or any combination of these halogenated HAP solvents, in a total concentration greater than 5 percent by weight, as a cleaning or drying agent.
 - Methylene chloride (CAS No. 75-09-2),
 - Perchloroethylene (CAS No. 127-18-4)
 - Trichloroethylene (CAS No. 79-01-6)
 - 1,1,1-trichloroethane (CAS No. 71-55-6,
 - Carbon tetrachloride (CAS No. 56-23-5)
 - Chloroform (CAS No. 67-66-3)

The NESHAP does not apply to buckets, beakers and pails with capacities less than 2 gallons. The 2-gallon exemption does not apply to items specifically designed to carry out solvent cleaning, such as an ultrasonic cleaners.

4. The NESHAP splits solvent cleaning machines into three main categories: batch cold, batch vapor and in-line. This permit incorporates provisions for all three categories. A facility may have multiple affected cleaning machines and utilize multiple compliance options.
5. A source cannot be assigned to this General ACDP that is demonstrating compliance using 'equivalent methods of control' as described in 40 C.F.R. part 63 subpart T (63.469) as these requirements are not incorporated into the permit and are more appropriately regulated by a Simple or Standard ACDP.

6. A source cannot be assigned to this General ACDP that is demonstrating compliance using an 'idling emission limit' as described in 40 C.F.R. part 63 subpart T as these requirements are not incorporated into the permit and are more appropriately regulated by a Simple or Standard ACDP.
7. A source cannot be assigned to this General ACDP that is subject to the more stringent degreaser rules in OAR chapter 340 division 232, unless the source is only subject to OAR 340-232-0180(4), (5), and/or (6) as these requirements have been incorporated into the permit. These rules apply to degreasing operations inside the Portland and Medford Air Quality Maintenance Areas (AQMA) and the Salem-Keizer Area Transportation Study Area.
8. EPA promulgated the NESHAP on December 2, 1994, and numerous amendments and corrections since. The NESHAP, including amendments and corrections through July 1, 2018 are adopted by reference in OAR 340-244-0220.
9. EPA added residual risk standards to the NESHAP on May 3, 2007. These standards are also adopted by reference in OAR 340-244-0220.

ASSESSMENT OF EMISSIONS

10. Facilities assigned to this General Permit emit criteria pollutants and are area sources of hazardous air pollutant (HAP) emissions.
11. DEQ has assessed the level of emissions of air pollutants from these facilities and determined that facilities complying with the operational limits and monitoring requirements of this permit are in compliance with applicable provisions of the NESHAP and have emissions below the Plant Site Emissions Limits.

SPECIFIC AIR PROGRAM APPLICABILITY

12. Facilities assigned to this General Permit are subject to the general visible emissions standards and nuisance requirements (control of fugitive particulate emissions and odors) in OAR Chapter 340, Division 208. The permit contains requirements and limitations to ensure compliance with these standards. The particulate matter emission limits in OAR Chapter 340, Division 226 are not applicable to these facilities because the emissions, if any, are fugitives, which cannot be measured using standard test methods.

COMPLIANCE APPROACHES

13. Batch vapor and in-line cleaning machines: The NESHAP contains two compliance approaches for batch vapor and in-line solvent cleaning machines: control requirements or alternative standards.
 - Control requirements: For each batch vapor and in-line solvent cleaning machine complying with the control requirement compliance option, a specific control combination, from a list of control combinations, must be installed. The solvent cleaning machine must also meet specific design requirements. This option requires monitoring of control equipment and adherence to specified work practices.

- Alternative standards: The alternative standards consist of an overall emission limit or an overall solvent control efficiency. The alternative standards do not specify base design, equipment, equipment monitoring, or work practice requirements. The alternative standards allow the flexibility to install any equipment and/or implement any work practices provided the specified limits are met.

14. Batch cold cleaning machines: The NESHAP requires that batch cold cleaners meet control and/or design requirements and are operate according to specific work practice requirements.

RESIDUAL RISK STANDARDS

15. The residual risk standards contained in the NESHAP are facility-wide emission limits for methylene chloride (MC), perchloroethylene (PCE), and trichloroethylene (TCE):

- Methylene Chloride*: 132,277 lbs (~66.13 tons)
- Perchloroethylene: 10,582 lbs 4800 (~5.29 tons)
- Trichloroethylene*: 31,085 lbs 14100 (~15.54 tons)

The facility-wide emission limits are applicable to all solvent cleaning machines that use these solvents. Only the emission limit for perchloroethylene is included in the permit because the other emission limits from the residual risk standards exceeds the permitted individual HAP emission limit and the level at which a facility is required to have a Title V permit.

*These pollutants are limited by the permit to 9 tons.

EMISSIONS CALCULATIONS

Potential to emit (PTE)

16. HAP PTE for batch vapor and cold cleaning machines is calculated using the following equation:

$$\text{PTE} = (\text{time in operation}) \times (0.4 \text{ lbs/ft}^2\text{-hr}) \times (\text{solvent-air interface area})$$

Example:

$$= (8,760 \text{ hrs/year}) \times (0.4 \text{ lbs/ft}^2\text{-hr}) \times (10.0 \text{ ft}^2)$$

$$= 35,040 \text{ lbs/year}$$

$$= 17.5 \text{ tons of per year}$$

17. HAP PTE for in-line cleaning machines is calculated using the following equation:

$$\text{PTE} = (\text{time in operation}) \times (0.23 \text{ lbs/ft}^2\text{-hr}) \times (\text{solvent-air interface area})$$

Example:

$$= (8,760 \text{ hrs/year}) \times (0.23 \text{ lbs/ft}^2\text{-hr}) \times (10.0 \text{ ft}^2)$$

$$= 20,148 \text{ lbs/year}$$

$$= 10.1 \text{ tons of per year}$$

Actual emissions

18. HAP emissions are determined using the following equation:

$$E_{\text{HAPI}} = [\sum(C_X * D_X * K_X) - W] \times 1 \text{ ton} / 2000 \text{ lb.}$$

where,

- E_{HAPI} = Individual HAP emissions (ton/yr);
I = Subscript I represents a specific HAP
 \sum = Symbol meaning the sum of the emissions from all types of materials used.
C = Material usage for the period in gallons;
D = Material density in pounds per gallon;
K = Material HAP fraction in pounds of HAP per pound of material;
X = Subscript X represents a specific material;
W = Weight of HAP shipped offsite

19. VOC emissions depend on the solvent used. The following solvents are not VOCs: methylene chloride, perchloroethylene, and 1,1,1-trichloroethane. The following solvents are VOCs: trichloroethylene, carbon tetrachloride, and chloroform. VOC emissions are determined using the following equation:

$$E_{\text{VOC}} = [\sum(C_X * D_X * K_X) - W] \times 1 \text{ ton} / 2000 \text{ lb.}$$

where,

- E_{VOC} = VOC emissions (ton/yr);
 \sum = Symbol meaning the sum of the emissions from all types of materials used.
C = Material usage for the period in gallons;
D = Material density in pounds per gallon;
K = Material VOC fraction in pounds of VOC per pound of material;
X = Subscript X represents a specific material;
W = Weight of VOC shipped offsite

COMPLIANCE DEMONSTRATION: Batch Vapor and In-Line Cleaning Machines

Control, Design, and Work Practice Requirements

20. Monitoring: For each control used to comply with the control combination, there are specific monitoring requirements. The monitoring requirements, which involve periodic checks of key equipment parameters, are necessary to define the controls and ensure that each control is working properly.
21. Recordkeeping: For each control used to comply with the control combination, there are specific recordkeeping requirements. Recordkeeping is necessary to document the results of installation, monitoring, and determination results.

Alternative Standards; Overall Emission Limit

22. Monitoring: The overall solvent emission limit option has no associated control equipment specific monitoring. It is the easiest compliance option for already well-controlled or infrequently

used machines. The only monitoring required is tracking of solvent usage and recovery and calculating 3-month rolling average emissions.

23. Recordkeeping: For each machine complying with the overall emission limit option, the following records must be maintained:
- Records of the dates and amounts of solvent added to the machine.
 - The amount of solvent in the wastes removed from the machine.
 - Calculation sheets showing how the monthly emissions and the 3-month rolling average monthly emissions were determined.

Alternative Standards; Overall Solvent Control Efficiency

24. Monitoring: The overall solvent control efficiency option has no associated control equipment specific monitoring. The only monitoring required is tracking of solvent usage and recovery and calculating the overall cleaning system control efficiency.
25. Recordkeeping: For each machine complying with the overall solvent control efficiency option, the following records must be maintained:
- Records of the dates and amounts of solvent added to the machine.
 - The amount of solvent in the wastes removed from the machine.
 - Records of the dates and amounts of solvent recovered from the desorption of the carbon adsorber system.
 - Calculation sheets showing how the calculations and results of determining the overall cleaning system control efficiency.

REPORTING

26. Annual Report: This report is due no later than February 15 each year for each permitted source. The information that is required to be submitted will vary based on the source's equipment and chosen compliance option(s).
27. Solvent Emission Report: This report is due no later than February 15 each year for each machine complying with the overall emission limit or the overall solvent control efficiency compliance option.
28. Exceedance Report: An exceedance report states whether any exceedances in monitored parameters have occurred and what actions were taken to correct any exceedances. An exceedance report is required every six months if there is not an exceedance and every 3 months if there is an exceedance or upon request by DEQ.

COMPLIANCE ASSURANCE

29. DEQ staff members review annual report submittals every year, semiannual exceedance reports, and perform site inspections of the permitted facilities on a routine basis; inspections may be performed more frequently if complaints are received.

REVOCAION OF ASSIGNMENT

30. Any facility that fails to demonstrate compliance or fails to conform to the requirements and limitations contained in the permit may have its assignment to the General Permit revoked. The facility would then be subject to a more stringent level of permitting.

PUBLIC NOTICE

31. General Air Contaminant Discharge Permits are authorized by Oregon Administrative Rules and are part of the State Implementation Plan. As part of the General ACDP issuance process under OAR chapter 340, division 209, the public was provided at least 30 days to submit written comments. DEQ did not receive any comments pertaining to this permit and did not modify the permit prior to issuance.

AQGP-005r, halogenated solvent cleaning/degreasing
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