

Department of Environmental Quality
Air Quality Program

GENERAL
AIR CONTAMINANT DISCHARGE PERMIT
ASSESSMENT REPORT

BATCH COLD SOLVENT CLEANING MACHINES

SOURCE DESCRIPTION AND QUALIFICATION

1. This General Permit is designed to regulate air contaminant emissions from batch cold solvent cleaning machines.
2. The facilities assigned to this General Permit have no other air pollution sources which require regulation beyond that specified in this permit, or have other pollution sources that also qualify for General Permits. Facilities eligible for assignment to this permit have not experienced recurring or serious compliance problems.

ASSESSMENT OF EMISSIONS

3. Facilities assigned to this General Permit are sources of hazardous air pollutants (HAPs) and volatile organic compounds (VOC) emissions.
4. The Department has assessed the level of emissions of all air pollutants from these facilities and determined that facilities complying with the operational limits and monitoring requirements of this permit have emission levels below the established levels of concern stated in Tables 2 and 3 of OAR 340-200-0020.

SPECIFIC AIR PROGRAM APPLICABILITY

5. This permit incorporates the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations in 40 CFR Part 63, Subpart T (Halogenated Solvent Cleaning) for batch cold solvent cleaning machines. EPA promulgated the NESHAP on December 2, 1994, and numerous amendments and/or corrections since initial promulgation. The NESHAP, including amendments and corrections through July 1, 2000, were adopted as state rules in OAR 340-244-0510.

NESHAP Applicability:

6. The NESHAP applies to each individual batch vapor, in-line vapor, in-line cold, and batch cold solvent cleaning machine that uses any 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 and/or drying agent.
 - a. methylene chloride, (CAS No. 75-09-2)
 - b. perchloroethylene, (CAS No. 127-18-4)
 - c. trichloroethylene, (CAS No. 79-01-6)
 - d. 1,1,1-trichloroethane, (CAS No. 71-55-6)
 - e. carbon tetrachloride, (CAS No. 56-23-5)
 - f. chloroform, (CAS No. 67-66-3).
7. 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.

NESHAP Machine Definitions and Classification:

8. The NESHAP splits solvent cleaning machines into three main categories:
 - a. Batch cold
 - b. Batch vapor
 - c. In-line
9. The following definitions will help explain the differences between these three categories:
 - a. Vapor vs. Cold
 - i. Vapor cleaning machine: Cleaning machine that boils liquid solvent generating solvent vapor that is used as a part of the cleaning or drying cycle.
 - ii. Cold cleaning machine: Any device or piece of equipment that contains and/or uses liquid solvent, into which parts are placed to remove soils from the surface of parts or to dry the parts. Cleaning machines that contain and use heated, nonboiling solvent to clean the parts are considered cold cleaning machines.
 - b. Batch vs. In-Line
 - i. Batch cleaning machine: 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 loaded are batch cleaning machines.

- ii. In-line cleaning machine or continuous cleaning machine: 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. The following machine types are a subset of in-line cleaning machines and are specifically addressed in the NESHAP:
 - A. Continuous web cleaning machine: 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 and cut.
 - B. Remote reservoir continuous web cleaning machine: A continuous web cleaning machine in which there is no exposed solvent sump. In these units, the solvent is pumped from an enclosed chamber and is typically applied to the continuous web part through a nozzle or series of nozzles. The solvent then drains from the part and is collected and recycled through the machine, allowing no solvent to pool in the work or cleaning area.

- 10. The NESHAP splits batch cold cleaners into two categories: immersion batch cold cleaning machines and remote reservoir batch cold solvent cleaning machines.
 - a. Immersion batch cold cleaning machine: A cold cleaning machine in which the parts are immersed in the solvent when being cleaned. A remote reservoir cold cleaning machine that is also an immersion cold cleaning machine is considered an immersion cold cleaning machine for the purposes of this subpart.
 - b. Remote reservoir batch cold solvent cleaning machines: Any device in which liquid solvent is pumped to a sink-like work area that drains solvent back into an enclosed container while parts are being cleaned, allowing no solvent to pool in the work area.

NESHAP EQUIPMENT STANDARDS:

- 11. Control requirements: The solvent cleaning machine must meet the following control and/or design requirements and be operated according to specific work practice requirements.
 - a. Immersion batch cold cleaning machine: Employ a tightly fitting cover over the

- solvent sump that shall be closed at all times except during the cleaning of parts.
- b. Remote reservoir batch cold solvent cleaning machines: Employ a tightly fitting cover that shall be closed at all times except during parts entry and removal, and one of the following controls:
- A 0.75 freeboard ratio (or greater); or
 - A 2.5 cm [1 inch] water layer.

EMISSIONS

12. Hazardous Air Pollutants (HAPs): HAP potential-to-emit (PTE) for batch cold cleaning machines is calculated using the following equation:

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

Example:

$$\begin{aligned} &= (8,760 \text{ hrs}) \times (0.4 \text{ lbs/ft}^2\text{hr}) \times (10.0 \text{ ft}^2) \\ &= 35,040 \text{ lbs/year} \\ &= 17.5 \text{ tons of per year} \end{aligned}$$

- b. Actual 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

13. Volatile Organic Compounds (VOC): VOC emissions depend on which halogenated solvents are used.

- a. The following halogenated solvents are not VOCs:
- methylene chloride,
 - perchloroethylene, and
 - 1,1,1-trichloroethane.

- b. The following halogenated solvents are VOCs:
- i. trichloroethylene,
 - ii. carbon tetrachloride
 - iii. chloroform
- c. Actual 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

NESHAP REPORTING:

14. Initial Notification Report: This report is used to notify EPA and DEQ that a source is subject to the NESHAP. It also provides some preliminary facility and machine information. It is due according the following schedule.
- a. Existing sources: Was due August 29, 1995.
 - b. New sources: Is due as soon as possible before construction is scheduled to commence.
15. Compliance Report: This report is due shortly after the compliance date and is used to demonstrate to EPA and DEQ that the machine is in compliance with the NESHAP. It includes information on the control/design option chosen. It is due according to the following schedule.
- a. Existing sources: Was due May 1, 1998.
 - b. New sources: Is due 150 days after startup.

COMPLIANCE ASSURANCE

16. Permittees are required to maintain records of fuel use, upset conditions, and complaints received at the facility. These items are reported to the Department annually.

17. Department staff members perform site inspections of the permitted facilities on a routine basis, and more frequently if complaints are received.

REVOCACTION OF ASSIGNMENT

18. Any facility that fails to demonstrate compliance, generates complaints, 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 higher, more stringent level of permitting.

PUBLIC NOTICE

19. General Air Contaminant Discharge Permits are incorporated into the Oregon Administrative Rules by reference and are part of the State Implementation Plan. As part of the rulemaking process, the public will be provided at least 30 days to submit written comments or may provide oral testimony at a public hearing that will be held at the end of the comment period in different locations throughout the state. Notice of when and where the hearings will be held will be provided at least 30 days in advance of the hearings. The Department will review any comments and may modify the permits in response to the comments. The final permits will be issued after approval by the Environmental Quality Commission.

AQGP-003r, batch cold degreaser
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