

Air Quality Requirements for Perc Dry Cleaners

Background

The Clean Air Act requires the U.S. Environmental Protection Agency (EPA) to set standards to reduce hazardous air pollutant (HAP) emissions from various businesses. These standards are called National Emission Standards for Hazardous Air Pollutants or NESHAPs. Perchloroethylene (also known as "perc" or "PCE,") is one of those HAPs, and is one of the most widely used dry cleaning solvents in Oregon. Perc is known to negatively affect, among other things, the nervous and respiratory system in humans.

In 1993, EPA issued a NESHAP for dry cleaners that use perc. On July 27, 2006, EPA revised that NESHAP by adding new requirements. Although many dry cleaners in Oregon have already installed equipment to reduce perc emissions, tighter controls and enhanced work practices are required to further reduce perc emissions to the environment. This fact sheet summarizes these requirements. See page 3 for definitions of terms used.

How is Perc emitted?

Perc is released from dry cleaning machines as a result of poorly maintained machines and process vent controls, when cleaning filters, and when the machine door is left open. These releases are commonly called "fugitive emissions."

What am I expected to do?

Your dry cleaning machine(s) is required to have equipment that reduces perc emissions. The type of equipment depends upon when each machine was installed/re-installed, and whether or not your business is located in a building with a residence. All machines are currently required to have refrigerated condensers that capture perc emissions and allow it to be reused. Any machine installed on or after December 21, 2005, is also required to have a carbon adsorber which collects emissions from the drum and passes it through a bed of carbon. Proper operation of these control systems in addition to a good leak detection and repair program reduce the amount of perc lost during equipment operation. This can benefit you financially while having a positive impact on the environment.

Who regulates Perc emissions in Oregon?

Agencies that regulate air quality in Oregon are the Department of Environmental Quality (DEQ), and in Lane County, the Lane Regional Air Protection Agency ([LRAPA](#)).

Dry cleaners have been required to submit an annual compliance report to DEQ's Dry Cleaner Program since 1997. Future annual compliance reports will include requirements associated with the 2006 NESHAP.

The [Oregon Occupational Safety and Health Administration \(OR-OSHA\)](#) regulates workplace exposure to perc emissions. OSHA standards include the protection of employees who work at dry cleaning facilities. Contact an OR-OSHA office in your area for detailed regulations.

Specific Compliance Requirements

Understanding how the 2006 NESHAP regulations affect your business

Requirements to comply with the new NESHAP requirements depends upon the installation or re-installation date of your machine(s) (*not its age*) and whether your business is co-located in a building with a residence. Follow these steps to determine what to do to comply.

1. Determine when each machine was installed or re-installed at your facility (Table 1)

Table 1. When was your dry cleaning machine(s) installed/re-installed?

Enter the number of machines that correspond to one or more of the dates provided.

Installation/Reconstruction	# of Machines
Prior to 12/9/1991 (Existing)	
12/9/1991 to 12/20/2005 (New)	
On or after 12/21/2005 (New)	
On or after 7/27/2006 (New)	

2. Read through the information in this fact sheet and 40 CFR Part 63: (www.epa.gov/ttn/atw/dryperc/fr27jy06.pdf)



State of Oregon
Department of
Environmental
Quality

Air Quality Business Assistance Program

811 SW 6th Avenue
Portland, OR 97204
Phone: 503-229-5376
800-452-4011
Fax: 503-229-5675
Contact: Rebecca Hillwig
www.oregon.gov/DEQ/

Northwest Region

Tina Leppaluoto
1550 NW Eastman Pkwy,
Ste 290
Gresham, OR 97030
503-667-8414, x55020

Western Region

John Taylor
750 Front St. NE, Ste 120
Salem, OR 97301
503-378-5314

Steve Croucher
221 Stewart Ave. Ste 201
Medford, OR 97501
541-776-6107

Eastern Region

Frank Messina
475 NE Bellevue, Ste 110
Bend, OR 97701
541-633-2019

Tom Hack
700 SE Emigrant, Ste.330
Pendleton, OR 97801
541-278-4626

Lane Regional Air Protection Agency

John Morrissey
1010 Main Street
Springfield, OR 97477
541-736-1056, x231

3. Refer to Tables 2, 3 and 4 for a brief overview of the NESHAP requirements.

Any machine installed/re-installed **on or after 12/21/2005**, regardless of its location, must be equipped with a “non-vented” carbon adsorber (CA) in addition to the refrigerated condenser (RC). For more information see Table 2

Any machine installed/re-installed **from 12/22/2005 to 7/12/2006 and located in a building with a residence** must be equipped with a “non-vented” CA in addition to an RC, AND enclosed within a vapor barrier. For more information see Table 3.

Dry cleaning machines installed/re-installed **prior to 12/21/2005** have no new equipment requirements.

Alternative Monitoring

Typically temperature readings are used to monitor whether equipment is in compliance with the standard. As an alternative, pressure gauges can be used if present and in good working order. Take the high and low pressures during the drying cycle. Pressure readings must be within the range specified in your manufacturer’s operating instructions. DEQ recommends you use the monitoring method you are most comfortable with. For more information see Table 4.

Monitoring Requirements

Any CAs installed on equipment before September 22, 1993, must be monitored using a colorimetric tube to determine the concentration of perc vapors coming from the machine. Sampling must be done through a sampling port in the machine stack. For details on how to monitor and where to construct the sampling port, see Table 4.

Reporting Requirements

Notification of compliance status

Must be signed by a responsible person (owner, partner, etc) and submitted to DEQ. The notification must include:

- Name, address and physical location of the dry cleaning facility
- A statement indicating whether or not you are located in a building with a residence (even if vacant at the time of notification)
- A statement indicating whether or not you are located in a building with no other tenants, leased space or owner occupants
- Your yearly perc consumption

- A statement indicating whether or not you are in compliance with all applicable requirements of the NESHAP
- Verification that information submitted is true and accurate.

Monitoring of Control Equipment

Table 4 below outlines the monitoring requirements for your control equipment based on the applicable installation/re-installation date. Refer to Tables 2 and 3 for all other requirements that apply to your equipment.

Leak Detection and Repair Requirements

Using a halogenated leak detector, perform weekly leak checks during normal operations while the machine is running and record the results. Refer to your DEQ compliance calendar for the list of items you are required to leak check. Remember, if any leaks are detected, you must repair them within 24 hours, or order any replacement parts as necessary within two working days after the leak is found and install parts within five working days after they are received.

Work Practices

- Store all perc and perc waste in sealed containers.
- Keep machine door open only as necessary.
- Drain cartridge filters a minimum of 24 hours in housing (or other sealed container) before removing them from your facility.
- Operate and maintain all dry-cleaning and emission control equipment according to manufacturers' instructions.

Records Maintenance

The following information must be maintained on site for a period of five years:

- Annual Hazardous Waste and Air Quality Compliance Reports
- Refrigerated condenser and carbon adsorber monitoring data
- A log of weekly leak detection inspections and documentation of any leaks and repairs
- Amount of perc purchased during the past 12 months, calculated each month. Record zero if no perc was purchased within the month
- Operation and maintenance manuals for all dry cleaning and emission control equipment (*Hint: use your compliance calendar to help track your records*)

Annual Compliance Reports

An Annual **Hazardous Waste and Air Quality Compliance Report** must be submitted to DEQ no later than **March 1 of each year**. DEQ

provides reporting forms via mail and the internet. Required information includes:

- Yearly perc consumption
- Leak detection reporting and repair records

- Proof that work practice requirements have been met
- Signature of a responsible person

Table 2 Dry Cleaner Requirements

Requirements	Installation/Reconstruction Date of Dry Cleaning			
	Existing Sources	New Sources		
	Prior to 12/9/1991	12/9/1991 to 12/20/2005	On or After 12/21/2005	On or After 7/27/2006
Process Vent Controls	Refrigerated Condenser (RC) or Carbon Adsorber (CA) - Vented	RC required. Vented CA with RC ok if installed before 9/22/1993	RC AND "Non-vented" CA required "Non-vented" means air-gas-vapor stream inside drum must pass through CA before door is opened Required by July 27, 2006 or immediately upon start-up.	RC AND "Non-vented" CA required by July 27, 2006, or upon startup, whichever is later.
Monitoring/Repair	Monitor and test RC and CA as required (see table 4)		Monitor and test RC and CA as required (see table 4)	
	Weekly leak inspection using a halogenated leak detector while in operation (required by DEQ)			
	Repair leaks within 24 hrs. Initiate parts orders within 2 days. Install parts within 5 days after receipt.			
Operation/Maintenance (refer to table 4)	If CA present desorb according to manufacturer's specifications		Desorb CA according to manufacturer's specifications	
	Operate and maintain equipment according to manufacturer's specifications—Keep manuals on site.			
	When RC present or required: Prevent perc vapor from venting to the atmosphere while drum is rotating.			
	Drain cartridge filters for minimum of 24 hrs in housing or sealed container before removal from facility.			
Reporting	Must submit notification of compliance status and annual compliance report			
Fugitive Controls	Keep door open only as necessary			
	Store perc waste in leak tight containers			
Recordkeeping	<ul style="list-style-type: none"> • Log monthly perc purchases • Keep annual perc receipts and logs for 5 yrs. • Keep leak detection and repair records on site • Keep monitoring results for RC and CA on site 			

Definition of Terms

Carbon Adsorber (CA): System that captures perc by passing the air-perc stream through a bed of activated carbon. Often referred to as a "sniffer."

Desorbition: Regeneration of the activated carbon bed by removing the perc absorbed on the carbon during the dry cleaning cycle.

Co-located with a Residence: Business located in the same building, dwelling or housing unit in which people live, except for short-term housing occupied by the same person for a period of less than 180 days (such as a hotel room).

Dry-To-Dry machine: An all-in-one closed looped dry cleaning system in which washing and drying are performed in the same machine and perc is recycled for re-use.

Fugitive Emissions: Releases of perc that cannot reasonably be vented through a process vent control or similar device. For example: leaks from faulty hose or pipe fittings and equipment parts.

Halogenated Leak Detector: Device for detecting leaks of halogenated solvents. This includes perc from your machine and Freon from your refrigerated condenser.

Process Vent Controls: Devices used to control emissions from a vent, stack, drum or similar mechanism.

Refrigerated Condenser: System that condenses perc by cooling the air-perc stream. Often referred to as a "chiller."

Table 3 Additional Requirements For Dry Cleaners Located in Residential Buildings

	Installation/Reconstruction Date of Dry Cleaning Equipment		
	Pre 12/9/1991 to 12/20/2005	On or after 12/21/2005 to 7/12/2006	On or after 7/27/2006
Requirements	December 21, 2020 Eliminate all perc emissions from dry cleaning system (s).	July 27, 2006 Operate & maintain inside vapor barrier with exhaust. Open enclosure only when entering or exiting. July 27, 2009 Eliminate all perc emissions from system(s).	By July 27, 2006 or upon startup Eliminate all perc emissions from system(s).
Located in a building with a residence	No new or replacement perc machines allowed in co-located buildings after applicable dates in each category above OR when an existing machine wears out, whichever date comes first.		

Table 4 Monitoring Requirements and Test Methods for Refrigerated Condensers and Carbon Adsorbers

Monitoring Requirements and Test Methods	Refrigerated Condensers (RC)	
	Temperature Sensor (Sensor used as per manufacturer's specifications) Correct Range: 45° F (Must be accurate to within ± 2° F required)	Record temperature on the outlet side before end of cool down or drying cycle while gas/vapor stream is flowing through RC. Correct Range: Record reading Incorrect Range: Record reading and have repairs made within same timeframe as equipment leaks
High and Low Pressure Gauges (Can be used in place of temperature if present) Correct Range: Those determined by the manufacturer	Take High/Low pressures during drying cycle. Correct Range: Record reading on calendar Incorrect Range: Record reading on calendar. Have necessary repairs made within 24 hrs, parts ordered within 2 days and parts installed within 5 days after receipt.	
Monitoring Requirements and Test Methods	Carbon Adsorbers (CA)	
	Installed Prior to 9/22/1993 (Vented)	Installed After 12/21/2005 (Non-Vented)
Colorimetric Tubes Weekly tests required to measure perc concentrations – use colorimetric tubes according to manufacturer's specifications (see vendor for information on where to purchase tubes) Correct Concentration: ≤100 parts per million (ppm) by volume of perc in the air (Must be accurate to within ± 25 ppm)	Take measurement in exhaust of CA while machine is venting to it. Perform at end of cleaning cycle prior to desorption or removal of perc from the activated carbon. Correct Concentration: ≤ 100 parts per million (ppm) by volume of perc in air (accuracy of ± 25 ppm required) <i>If concentration correct record reading</i> Incorrect Concentration: Record reading. Have necessary repairs made within 24 hrs. Parts ordered within 2 days and parts installed within 5 days after receipt.	Not Applicable
Sampling Port For monitoring within exhaust outlet stack of CA	Port must be easily accessible and located 8 stack or duct diameters downstream and 2 stack or duct diameters upstream from any flow disturbance (bend, expansion, contraction, inlet or outlet)	No sampling port required
Carbon beds	Beds must be desorbed regularly according to manufacturer's specifications	

What are my permitting requirements?

If subject to the federal rules for perc dry cleaning, you must apply for and obtain a DEQ permit and pay an annual fee of \$240 or \$180 per year (whichever may apply). There may also be an initial permit fee of \$1,200 charged for a new business. Additional required forms and fees are:

- An approved [Land Use Compatibility Statement](#) from your city or county planning department is required with your permit application. The planning department charges a fee for this service.
- Change of business name. Submittal of a form and fee are required.

Call a DEQ contact in your area for information regarding the required forms and fees.

Accessibility information

DEQ is committed to accommodating people with disabilities. Please notify DEQ of any special physical or language accommodations or if you need information in large print, Braille or another format.

To make these arrangements, contact DEQ Communications and Outreach in Portland at 503-229-5696 or call toll-free in Oregon at 800-452-4011; fax to 503-229-6762; or email deqinfo@deq.state.or.us.

People with hearing impairments may call 711.