

CHAPTER 125: PERCHLOROETHYLENE DRY CLEANER REGULATION

SUMMARY: This regulation establishes the control technology required for all dry cleaners which are area sources of perchloroethylene in the State of Maine.

1. Scope and Applicability.

A. General Applicability. This regulation applies to all new and existing area source dry cleaners that use perchloroethylene in the State of Maine upon the effective date of the regulation unless otherwise specified in the regulation.

B. Applicability Categories

- (1) Area source dry cleaners are those sources with a twelve-month rolling total consumption of perchloroethylene of 2100 gallons or less.
- (2) Major source dry cleaners are those sources with a twelve-month rolling total consumption of perchloroethylene greater than 2100 gallons. Major sources of perchloroethylene must comply with 40 C.F.R. Part 63, Subpart M.
- (3) Co-located dry cleaners are those sources that meet the definition of co-located in subsection 2(C) of this Chapter.

2. Definitions. For the purposes of this chapter, the following definitions apply:

- A. Calendar Year.** “Calendar year” means a 12-month period starting January 1 and ending December 31 of each year.
- B. Carbon Adsorber.** “Carbon adsorber” means a device containing carbon as an adsorbent material used for the removal of perchloroethylene, an inlet and outlet for exhaust gases; and a system to regenerate or replace the saturated adsorbent.
- C. Co-located.** “Co-located” means a dry cleaner located in a building with a residence, or with a day care center, a health care facility, a prison, an elementary school, a middle or high school, a children's pre-school, a senior center, a youth center or other facility inhabited by children or the elderly.
- D. Colorimetric detector tube.** “Colorimetric detector tube” means a glass tube (sealed prior to use), containing material impregnated with a chemical that is sensitive to perchloroethylene and is designed to measure the concentration of perchloroethylene in air.
- E. Condenser.** “Condenser” means a recovery device that removes condensable vapors by a reduction in the temperature of the captured gases. A surface condenser affects condensation by indirect contact between the coolant and process gas stream, through use of a refrigerated condenser coil which contains coolant.

- F. Construction.** “Construction” means the fabrication (onsite), erection, or installation of a perchloroethylene dry cleaning system.
- G. Control device.** “Control device” means equipment (e.g. carbon adsorber, refrigerated condenser) used to reduce the amount of air pollutant(s) in an air stream prior to discharge to the ambient air.
- H. Desorption.** “Desorption” means regeneration of a carbon adsorber by removal of the perchloroethylene adsorbed on the carbon.
- I. Diverter valve.** “Diverter valve” means a flow control device that prevents room air from passing through a refrigerated condenser when the door of the dry-cleaning machine is open.
- J. Dry cleaner.** “Dry cleaner” means a facility engaged in the cleaning of garments in perchloroethylene by means of one or more washes in the solvent, extraction of the solvent by spinning, and drying by tumbling in an air stream. The facility includes, but is not limited to any washer, dryer, emission control device(s), exhaust dampers, diverter valves, filter purification system, waste disposal system, stills, holding tank, muck cooker, water separators, filters, solvent containers, pump and attendant piping, hoses, ducts and valves.
- K. Dry-cleaning drum.** “Dry-cleaning drum” means the perforated container inside the dry-cleaning machine that holds the articles during dry-cleaning.
- L. Dry cleaning system.** “Dry cleaning system” means a dry cleaning machine and its ancillary equipment.
- M. Dryer.** “Dryer” means a machine used to remove perchloroethylene from articles by tumbling them in a heated air stream.
- N. Dry-to-dry machine.** “Dry-to-dry machine” means a one-machine dry cleaning operation in which washing and drying are performed in the same machine.
- O. Exhaust damper.** “Exhaust damper” means a flow control device that prevents the air-perchloroethylene gas-vapor stream from exiting the dry-cleaning machine into a carbon adsorber before room air is drawn into the dry-cleaning machine.
- P. Filter.** “Filter” means a porous device through which perchloroethylene is passed to remove contaminants in suspension. Examples include, but are not limited to, lint filter (button trap), cartridge filter, tubular filter, regenerative filter, prefilter, polishing filter, and spin disc filter.
- Q. Garment.** “Garment” means any article placed in the washer for purposes of cleaning that article.
- R. Halogenated hydrocarbon detector.** “Halogenated hydrocarbon detector” means a portable device capable of detecting vapor concentrations of perchloroethylene of 25 parts per million by volume and indicating a concentration of 25 parts per million by

volume or greater by emitting an audible or visual signal that varies as the concentration changes.

- S. Heating coil.** “Heating coil” means the device used to heat the air stream circulated from the dry cleaning machine drum, after perchloroethylene has been condensed from the air stream and before the stream re-enters the dry cleaning machine drum.
- T. Major Source.** “Major source” means a source whose twelve-month rolling total consumption of perchloroethylene exceeds 2100 gallons.
- U. Muck cooker.** “Muck cooker” means a device for heating perchloroethylene-laden waste material to volatilize and recover perchloroethylene.
- V. Perchloroethylene or perc or tetrachloroethylene or PCE.** “Perchloroethylene” or “perc” or “tetrachloroethylene” or “PCE” means a colorless volatile chlorinated hydrocarbon with a chemical formula of C_2Cl_4 and a CAS (Chemical Abstract System) Registry number of 127-18-4.
- W. Perchloroethylene consumption.** “Perchloroethylene consumption” means the twelve-month rolling total volume (sum) of perchloroethylene purchased based upon monthly purchase receipts or other reliable measures.
- X. Perchloroethylene Consumption Limit.** “Perchloroethylene consumption limit” means a dry-cleaner’s highest twelve-month rolling total perchloroethylene consumption, as calculated according to subsection 5(A)(2).
- Y. Perchloroethylene gas analyzer or PCE gas analyzer.** “Perchloroethylene gas analyzer” or “PCE gas analyzer” means a flame ionization detector, photoionization detector, or infrared analyzer capable of detecting vapor concentrations of perchloroethylene of 25 parts per million by volume.
- Z. Reclaimer.** “Reclaimer” means a machine used to remove perchloroethylene from articles by tumbling them in a heated air stream.
- AA. Refrigerated condenser coil.** “Refrigerated condenser coil” means the coil containing the chilled liquid used to cool and condense the perchloroethylene.
- BB. Residence.** “Residence” means any dwelling or housing in which people reside.
- CC. Sensory Inspection.** “Sensory Inspection” means an inspection using the human sensory system to detect evidence of a leak, including looking for visible signs of a leak, feeling for air vapor leaking from a machine, or detecting the smell of perchloroethylene gas.
- DD. Still.** “Still” means any device used to volatilize and recover perchloroethylene from contaminated perchloroethylene.

EE. Temperature sensor. “Temperature sensor” means a thermometer or thermocouple used to measure temperature.

FF. Twelve-month Rolling Total. “Twelve-month rolling total” means the total perchloroethylene consumed during any consecutive 12-month period.

GG. Totally enclosed refrigerated condenser. “Totally enclosed refrigerated condenser” means a vapor recovery system into which an air-perchloroethylene gas-vapor stream is routed and the perchloroethylene is condensed by cooling the gas-vapor stream. The refrigerated condenser is integrated into the dry cleaning machine. The two are a single unit.

HH. Vapor leak. “Vapor leak” means a perchloroethylene vapor concentration exceeding 25 parts per million by volume (50 parts per million by volume as methane) as indicated by a halogenated hydrocarbon detector or perchloroethylene gas analyzer.

II. Washer. “Washer” means a machine used to clean articles by immersing them in perchloroethylene.

JJ. Water separator. “Water separator” means any device used to recover perchloroethylene from a water-perchloroethylene mixture.

3. Emission Limitations and Performance Standard Requirements.

A. Requirements for co-located dry cleaners.

- (1) Beginning on the effective date of the 2009 amendments to this regulation, no new or relocated perchloroethylene dry cleaning machine may be installed in a co-located facility.
- (2) Any new or relocated dry cleaning machines located in a building with a residence which commenced construction on or after December 21, 2005 must comply with 40 C.F.R. Part 63.320(b)(2)(ii).
- (3) After December 21, 2020, all co-located dry cleaners must completely eliminate perchloroethylene use and remove all perchloroethylene dry cleaning equipment from the building.

B. Control Technology Requirements for Sources Installed after June 2, 1991.

- (1) All dry cleaning machines installed after June 2, 1991, must be equipped with a totally enclosed refrigerated condenser system with a diverter valve which does not allow venting to the atmosphere while the drum is rotating, and comply with the Compliance Methods and Monitoring Requirements in subsection 4(B) of this Chapter.
- (2) All dry cleaning machines installed after February 12, 1997, must install a closed loop refrigerated condenser system with a small carbon adsorber and a door fan that draws air into the drum to collect any fugitive emissions that may result when the door is opened and shall be in compliance with the Compliance Methods and Monitoring Requirements in subsection 4(B) of this Chapter.

C. Control Technology Requirements for Existing Sources Installed on or before June 2, 1991. All dry cleaning machines installed on or before June 2, 1991 must be equipped with one of the following control devices on or before October 1, 1991.

(1) Option A, Carbon Adsorber System

- (a) A carbon adsorber which reduces perchloroethylene emissions to no more than 50 parts per million by volume (ppmv) before dilution. The carbon adsorber shall not be bypassed at any time allowing perchloroethylene to be vented directly to the atmosphere. The carbon adsorber shall be monitored in accordance with Section 4(A) and desorbed in accordance with the manufacturer's instructions.
- (b) All exhaust from the washer, dryer, filter purification system, holding "tanks" and attendant piping and valves must be routed through the carbon adsorber
 - (i) The carbon adsorber shall be operated at an air flow capacity at least equal to the unrestricted total exhaust gas flow rate of the dry cleaning machines.
 - (ii) A minimum air velocity of 100 feet per minute shall be maintained through all machine door and exhaust hood openings.
- (c) Any dry cleaner which uses a carbon adsorber to comply with this Section must regenerate the carbon bed at least once per unit of garments cleaned. A unit of garments is based on a ratio of the weight of the carbon bed compared to the amount of garments cleaned. The formula used for determining a unit of garments is 2.83 lbs. of garments per pound of carbon (see NOTE below).
 - (i) The 50 ppmv emission limit from the carbon adsorber must be met regardless of the regeneration requirements of this Section
 - (ii) The carbon adsorber must not be bypassed to the atmosphere during regeneration.

NOTE: (For Example) If a facility has a 60 lb. carbon bed it is permitted to clean 170 lbs. of garments before regeneration of the carbon bed must take place; or if a facility has a 300 lb. carbon bed, it is permitted to clean 850 lbs. of garments before regeneration of the carbon bed must take place.

(2) Option B, Refrigerated Condenser System.

- (a) A refrigerated condenser system must be installed on a dry-to-dry machine and reclaimer, provided that the dryer/condenser system is closed to the atmosphere except when articles are being loaded or unloaded at which time a door fan is activated that draws air into the dryer.
- (b) A diverter valve which does not allow venting to the atmosphere while the drum is rotating must be used to prevent air drawn into the dry cleaning

machine when the machine door is opened from passing through the refrigerated condenser.

- (c) The temperature at the dryer/condenser outlet must be less than or equal to 45°F. This condenser shall be monitored in accordance with section 4(B).
 - (3) All dry cleaning systems installed after December 21, 2005 must route the air-perchloroethylene gas-vapor stream from inside the dry cleaning machine drum through a non-vented carbon adsorber or equivalent control device immediately before the door of the dry cleaning machine is opened. Option C, Other Devices Approved by the Department and EPA. Any other equally effective control device as approved by the Commissioner of the Department and EPA, pursuant to 40 CFR 63.325.
- D.** The installation and use of any other type of perchloroethylene dry cleaning machine, including transfer machines, is strictly prohibited.
- E. General Maintenance Performance Standard Requirements.** All new and existing dry cleaners shall comply with the following requirements:
- (1) Filtration cartridges must be drained in the filter housing for at least 24 hours or as approved by the Commissioner of the Department and EPA. When any filtration cartridge is removed from the filter housing, it must be placed in a sealed container which does not allow the solvent in the filter to be emitted to the atmosphere, and must be disposed in accordance with state and federal requirements;
 - (2) All perchloroethylene and perchloroethylene containing waste must be stored in tightly sealed containers so that no perchloroethylene is emitted to the atmosphere;
 - (3) All facilities must maintain the system as to prevent the leaking of perchloroethylene liquid, and prevent perchloroethylene vapor losses greater than 25 ppm from gaskets, seals, ducts, and related equipment.
 - (a) Except as provided in subsection 3(E)(3)(c) of this Chapter, all leaks of perchloroethylene liquid or vapor must be repaired within 24 hours of detection.
 - (b) Except as provided in subsection 3(E)(3)(c) of this Chapter, if temperature, concentration of perchloroethylene, or other parameters required to be monitored in Section 4 of this Chapter do not meet the values or conditions specified, adjustments or repairs must be made within 24 hours of detection.
 - (c) If repair parts are not available at the facility, the parts must be ordered within two working days of detection. Such repair parts must be installed as soon as possible but no later than five working days after receipt.
 - (d) Equipment with a leak that has not been repaired by the end of the fifteenth working day after detection must not be operated until the leak is repaired;
 - (4) The owner or operator shall close the door of each dry cleaning machine immediately after transferring garments to or from the machine, and shall keep the door closed at all other times;

- (5) The owner or operator of each dry cleaning system shall operate and maintain the system in accordance with the manufacturer's specifications and recommendations; and
- (6) The owner or operator must develop and implement a written startup, shutdown and malfunction plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown and malfunction; a program of corrective action for malfunctioning process; and air pollution control and monitoring equipment used to comply with the standard.

4. Compliance Methods and Monitoring Requirements.

A. Carbon Adsorber Systems. Compliance with the emission limit in Section 3(C)(1) shall be determined by a weekly monitoring test and a sensory inspection and any other evidence demonstrating that the carbon adsorber has been properly installed, operated and maintained.

- (1) The owner/operator of any source using a carbon adsorber to comply with section 3(C) shall measure the exhaust of the carbon adsorber weekly with a colorimetric detector tube. This must be done while the dry cleaning machine is venting to the carbon adsorber at the end of the last dry cleaning cycle before desorption of the carbon adsorber. The colorimetric tube must be designed to measure 10-500 ppmv of perchloroethylene with an accuracy of ± 5 ppmv, and must be used according to the manufacturer's instructions.
- (2) The sampling port for monitoring within the exhaust outlet of the carbon adsorber should be easily accessible and located at least 8 stack or duct diameters downstream from any flow disturbance such as a bend, expansion, contraction, or outlet; downstream from no other inlet; and 2 stack or duct diameters from any flow disturbance such as a bend, expansion, contraction, inlet or outlet.

B. Refrigerated Condenser Systems. The owner/operator of any major or area source using a refrigerated condenser to comply with the Control Technology Requirements in section 3(B) or 3(C) of this Chapter must either:

- (1) measure the temperature on the outlet side of the condenser. This temperature must be recorded weekly, and the temperature sensor shall be used in accordance with the manufacturer's instructions and specifications and shall be designed to measure a temperature of 45°F (7.2°C) to an accuracy of $\pm 2^\circ\text{F}$ ($\pm 1.1^\circ\text{C}$); or
- (2) monitor refrigeration system high pressure and low pressure and record the pressure readings weekly

C. System Inspection of All Unit Types. Compliance with the General Maintenance and Performance Standard Requirements subsection (3)(E)(3), shall be determined by the following means:

- (1) Sensory Inspection. A weekly sensory inspection, while system is operating if practicable, of dry cleaning machine parts including, but not limited to, the following components:

- (a) Hose and pipe connections, fittings, couplings and valves;
 - (b) Machine door gaskets, and seatings;
 - (c) Filter head gaskets and seatings;
 - (d) Pumps;
 - (e) Solvent tanks and storage containers;
 - (f) Water separators;
 - (g) Muck cookers;
 - (h) Stills;
 - (i) Diverter valves;
 - (j) Saturated lint from lint basket;
 - (k) Exhaust dampers;
 - (l) All filter housings; and
 - (m) All other equipment and control devices associated with a dry cleaning machine; and
- (2) Analyzer Inspection. Beginning on the effective date of the 2009 amendments to this Chapter, the owner or operator of a dry cleaner shall inspect the components identified in subsection 4(C)(1) of this Chapter for vapor leaks weekly while the component is in operation using a halogenated hydrocarbon detector or perchloroethylene gas analyzer that is operated according to manufacturer's instructions. The operator shall place the probe inlet at the surface of each component interface where leakage could occur and move it slowly along the interface periphery.

5. Recordkeeping Requirements.

- A.** All dry cleaning facilities must keep a copy of the design specifications and operating manual for each dry cleaning machine and control equipment on-site; and keep receipts of perchloroethylene purchases and record in a log the following:
- (1) The volume of perchloroethylene purchased each month. This number represents the perchloroethylene purchases for a given month.

- (2) The calculated value of the twelve-month rolling total perchloroethylene consumption limit. To calculate the twelve-month rolling total perchloroethylene consumption limit, the owner/operator shall perform the following calculations on the first day of every month:
 - (a) Sum up the volume of perchloroethylene purchases made in each of the previous 12 months, as recorded in the log.
 - (b) If no perchloroethylene purchases were made in a given month, then the perchloroethylene consumption for that month is zero gallons.
 - (c) The highest twelve-month rolling total is the facility's perchloroethylene consumption limit.
- (3) The dates that the system was inspected for leaks in compliance with subsection 4(C) of this Chapter, and the name and location of any parts where detectable leaks were found.
- (4) The dates of repair and records of written or verbal orders for repair parts to demonstrate compliance with subsection 3(E)(3) of this Chapter.
- (5) The date and temperature monitoring results for compliance with subsection 4(B) of this Chapter.
- (6) The date and colorimetric detector tube monitoring results, if a carbon adsorber is used for compliance with section 3(B)(1) and 4(A).

The log, perchloroethylene receipts, all manufacturer design specifications and operation manuals for each machine and control device located at the facility must be maintained on site for at least five (5) years and must be made available to the Department upon request. An owner that operates more than one dry cleaner may store records older than one year from all facilities at one dry cleaner location or at a centralized office.

6. Registration Requirements.

- A.** The owners or operators of all dry cleaners shall register with the Department annually.
- B.** Registration shall be on a form prescribed by the Department and shall include but is not limited to the following information:
 - (1) Name of facility and the name of the owner or operator who is responsible;
 - (2) Facility address and telephone;
 - (3) Whether the dry cleaner is located in a building with a residence (even if the residence is vacant at the time of this notification), or with a day care center, a health care facility, a prison, an elementary school, a middle or high school, a

children's pre-school, a senior center, a youth center or other facility inhabited by children or the elderly.

- (4) Type of control technology or technologies in use;
 - (5) Number and type of dry cleaning machines, and when they were installed;
 - (6) The total perchloroethylene consumption for each of the previous twelve months as required under subsection 5(A)(2) of this Chapter;
 - (7) A certification of the source applicability category, i.e. whether a facility is a major source or an area source; and
 - (8) An estimate of the waste that was shipped off-site.
- C.** Registration is due on or before March 15, for the previous calendar year's activities, and must be signed and verified as accurate and true by the owner or operator of the facility.
- D.** If a source starts-up after February 12, 1997 and thus has not submitted a compliance certification (as required by 40 C.F.R. Section 63.324(b)), the dry cleaner shall submit the following:
- (1) The yearly perchloroethylene consumption limit based on the twelve-month rolling total perchloroethylene consumption limit as specified in subsection 5(A)(2) of this Chapter; and
 - (2) Whether or not they are in compliance with this rule.
 - (3) This certification shall be signed and verified as true and accurate, and submitted to the Department and EPA no later than 30 days after the start-up date.

AUTHORITY: 38 M.R.S.A., Section 585-B

EFFECTIVE DATE: June 2, 1991
 Amended February 12, 1997
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 Amended: June 24, 2009

BASIS STATEMENT

Perchloroethylene causes liver cancer in animals and is a suspected human carcinogen. Dry cleaners account for over 80 percent of all perchloroethylene emissions in Maine. Controlling dry cleaning facilities will reduce the emission of perchloroethylene to the ambient air, thus improving overall air quality and providing greater protection of public health and welfare.

In addition to the above Basis Statement, the Department has filed with the Secretary of State the response to representative comments received during the comment period.

BASIS STATEMENT FOR AMENDMENT OF 1997

In 1991, the Department adopted this Chapter to control perchloroethylene emissions from dry cleaners. In 1993, the US EPA adopted 40 C.F.R. Section 63 Subpart M (MACT) to control emissions from both major and non-major dry cleaner sources of perchloroethylene. Thus, from 1993 to date, the dry cleaners in Maine are responsible for complying with two regulations. To the best of the Department's knowledge, Maine has no dry cleaners which are major sources of perchloroethylene. The primary purpose of the 1997 amendments is to make changes to this Chapter so that Maine may petition EPA to accept this Chapter as a substitute for the federal requirements for dry cleaners which are non-major sources of perchloroethylene. If EPA grants Maine's request, non-major source dry cleaners in Maine using perchloroethylene will no longer be required to comply with 40 C.F.R. Part 63, Subpart M. These amendments make the original Chapter 125 equivalent to the federal MACT, so that the state can accept delegation of the MACT standard from the US EPA.

Title 30 MRSA, Section 341-D (1-A) requires that provisions of state regulation which are more stringent than federal requirements be stayed for 60 days following adoption by the Board of Environmental Protection. The following provision in Chapter 125 is more stringent than the federal regulations: Section 3.B.1. Because staying only parts of the 1997 amendments to Chapter 125 for 60 days would unnecessarily complicate the regulatory requirements for Maine's dry cleaners (most of which are small businesses), the 1997 amendments to Chapter 125 will not become effective until April 15, 1997.

BASIS STATEMENT FOR AMENDMENT OF 2003

The Proposed amendment to the rule removes language referring to obsolete practices and equipment, combines the applicability categories of large area source and small area source into a single "area source," and corrects erroneous references within the rule. These changes clarify and streamline Chapter 125 to facilitate compliance by the regulated community. In addition to this Basis Statement, the Department has filed a supplemental basis statement with the Secretary of State that summarizes its responses to comments received during the comment period.

BASIS STATEMENT FOR AMENDMENTS OF 2009

The amendments to Chapter 125 incorporate changes to the Federal dry cleaner NESHAP (National Emission Standard for Hazardous Air Pollutants). In addition, the amendments protect a broader range of potentially sensitive populations than the Federal regulation, which imposes certain restrictions on dry cleaners located in buildings with residences, by including requirements for dry cleaning facilities that are located in a building with a day care center, a health care facility, a prison, an elementary school, a middle or high school, a children's pre-school, a senior center, a youth center or other facility inhabited by children or the elderly. Additionally, the proposed amendments increase the inspection frequency using a monitor from Federally required monthly inspection to a

weekly inspection. The amendments also limit the amount of time leaking dry cleaning equipment can be operated to a maximum of fifteen days while awaiting repair parts.