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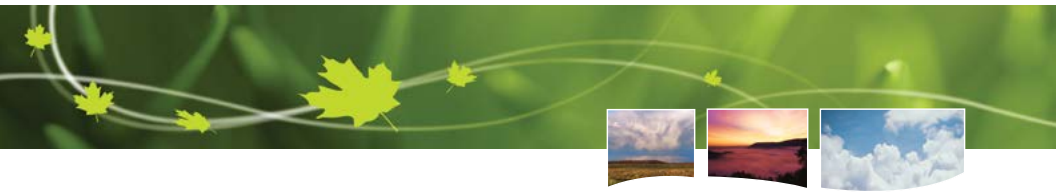


Environmental protection on federal and Aboriginal lands – a guide for individuals and organizations

What you need to know about the

Federal Halocarbon Regulations, 2003

Refrigeration and air-conditioning systems

Fire-extinguishing systems

Solvent systems

Warning: This document is provided for information purposes only. It does not cover all of the matters addressed in the *Federal Halocarbon Regulations, 2003*. In case of discrepancy between this document and the Regulations, the official version of the Regulations prevails.

Canada

What are the Federal Halocarbon Regulations, 2003*?*

The *Federal Halocarbon Regulations, 2003* (FHR 2003) were published on August 13, 2003, under the authority of the *Canadian Environmental Protection Act, 1999* (CEPA 1999) as part of Canada's commitment to protect the Earth's ozone layer.

Environment Canada administers and enforces the FHR 2003. The purpose of the FHR 2003 is to reduce and prevent emissions of halocarbons into the environment from air-conditioning, refrigeration, fire-extinguishing and solvent systems, and from equipment associated with these systems, including storage containers. The FHR 2003 apply to those systems owned by Her Majesty in right of Canada, federal departments, agencies, boards, crown corporations, or federal works and undertakings, and those systems that are located on federal or Aboriginal lands.

Canada Gazette
Part II
OTTAWA, AUGUST 27, 2003

Gazette du Canada
Partie II
OTTAWA, 27 AOÛT, 2003

NOTICE TO READERS

The *Canada Gazette* is published under authority of the *Statutory Instruments Act*. It consists of three parts as described below:

Part I — Material required by federal statute or regulation to be published in the *Canada Gazette* other than items scheduled for Parts II and III below — Published every Saturday

Part II — Statutory Instruments (Regulations) and other classes

AVIS AU LECTEUR

La *Gazette du Canada* est publiée conformément aux dispositions de la *Loi sur les textes réglementaires*. Elle est composée des trois parties suivantes

Partie I — Textes devant être publiés dans la *Gazette du Canada* conformément aux exigences d'une loi fédérale ou d'un règlement fédéral et qui ne satisfont pas aux critères des Parties II et III — Publiée le samedi

Partie II — Textes réglementaires (Règlements) et autres catégories

How do the Federal Halocarbon Regulations, 2003 *prevent and minimize releases of halocarbons?*

The regulations:

- require preventive maintenance
- set prohibitions and restrictions
- phase out the use of some substances

Full text of the *Federal Halocarbon Regulations, 2003* is available at:

http://laws.justice.gc.ca/eng/SOR-2003-289/index.html

http://ec.gc.ca/lcpe-cepa/eng/regulations/detailReg.cfm?intReg=75

What are halocarbons?

Halocarbons are:

- synthetic chemical compounds made up of carbon and one or more halogens (chlorine, bromine and fluorine)
- used as refrigerants, fire-extinguishing agents, solvents, foam-blowing agents and fumigants
- common halocarbons include chlorofluorocarbons **(CFCs)**, hydrochlorofluorocarbons **(HCFCs)**, **halons**, hydrofluorocarbons **(HFCs)** and perfluorocarbons **(PFCs)**

Why are halocarbons controlled?

Emissions of halocarbons can lead to ozone depletion and contribute to climate change. Preventing halocarbon emissions provides a dual benefit for both ozone layer protection and the fight against climate change.

Schedule 1 List of halocarbons from *Federal Halocarbon Regulations, 2003*

HALOCARBONS

1. **Carbon tetrachloride**
2. **Methyl chloroform**
3. **CFCs – chlorofluorocarbons**
4. **Halon 1211 – bromochlorodifluoromethane**
5. **Halon 1301 – bromotrifluoromethane**
6. **Halon 2402 – dibromotetrafluoroethane**
7. **Bromofluorocarbons other than in 4–6**
8. **Halon 1011 – bromochloromethane**
9. **HBFCs – hydrobromofluorocarbons**
10. **HCFCs – hydrochlorofluorocarbons**
11. **HFCs – hydrofluorocarbons**
12. **PFCs – perfluorocarbons**

- **Chemicals with chlorine or bromine cause ozone depletion.**
- **All halocarbons are greenhouse gases.**

What is the impact of halocarbons?

The ozone layer is beneficial to life on Earth, as it absorbs harmful ultraviolet (UV) radiation from the sun. Halocarbons with chlorine or bromine cause ozone depletion, a decrease in the density of the ozone layer. As the ozone layer is depleted, increasing amounts of UV rays reach the Earth.

In addition to most halocarbons being ozone depleters, all halocarbons are greenhouse gases. Emissions of greenhouse gases due to human activities disrupt the natural balance of energy in the atmosphere and can significantly alter the climate on Earth.

What are the potential impacts of ozone depletion?

Ozone depletion may lead to:

- increase in UV-B radiation, resulting in a decline in the health of humans and other organisms
- increase in sunburns, skin cancer and cataracts
- humans and other organisms developing weakened immune systems
- decline in natural resources (fisheries, agriculture and forestry)

Ozone depletion

A sustained 10 percent depletion of the ozone layer would lead to a 26 percent increase in non-melanoma skin cancer. This could mean an additional 300 000 cases per year worldwide.[1]

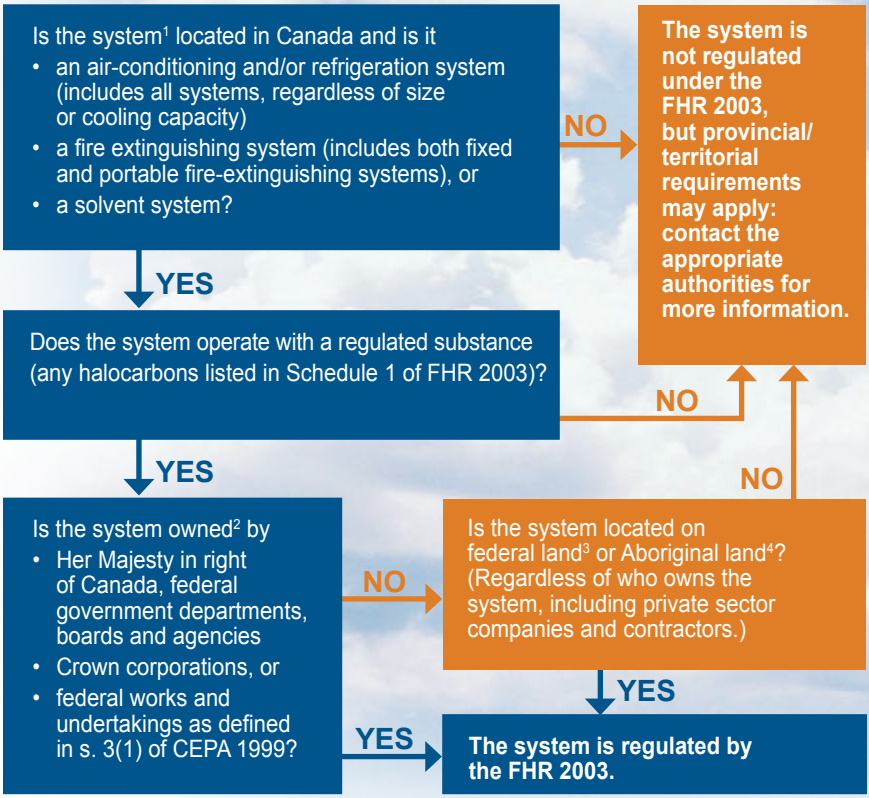
A sustained 10 percent thinning of the ozone layer would cause up to 1.75 million new cases of cataracts worldwide each year.[1]

Both humans and animals will experience an increase in skin cancers and cataracts.

1. Source: UN Environment Programme. *Environmental effects of ozone depletion: 1991 update.* Nairobi: UNEP. 1991.

Do the Federal Halocarbon Regulations, 2003 *apply to your situation?*

The following decision table will help you determine if the *Federal Halocarbon Regulations, 2003* (FHR 2003) apply to your system(s).



1. "**system**", unless the context requires otherwise, means an air-conditioning system, a fire-extinguishing system, a refrigeration system or a solvent system [including any associated equipment such as containers]. [FHR 2003]

2. "**owner**" means to hold a right in or to have possession, control or custody of, to be responsible for the maintenance, operation or management of, or to have the power to dispose of, a system. [FHR 2003]

3. "**federal land**" means

(*a*) land, including any water, that belongs to Her Majesty in right of Canada, or that Her Majesty in right of Canada has the right to dispose of, and the air and all layers of the atmosphere above and the subsurface below that land; and

(*b*) the following land and areas, namely,

(i) the internal waters of Canada as determined under the *Oceans Act*, including the seabed and subsoil below and the airspace above those waters, and

(ii) the territorial sea of Canada as determined under the *Oceans Act*, including the seabed and subsoil below and the air and all layers of the atmosphere above that sea. [CEPA 1999]

4. "**aboriginal land**" means

(*a*) reserves, surrendered lands and any other lands that are set apart for the use and benefit of a band and that are subject to the *Indian Act*;

(*b*) land, including any water, that is subject to a comprehensive or specific claim agreement, or a self-government agreement, between the Government of Canada and aboriginal people where title remains with Her Majesty in right of Canada; and

(*c*) air and all layers of the atmosphere above and the subsurface below land mentioned in paragraph (*a*) or (*b*). [CEPA 1999]

Federal Halocarbon Regulations, 2003
halocarbon system categories

The FHR 2003 apply to all refrigeration, air-conditioning and fire-extinguishing systems, including their associated equipment and devices, that contain or are designed to contain a halocarbon. They also apply to solvent systems that use halocarbons as a solvent. The following table can be used as a reference for system descriptions when interpreting the FHR 2003.

Refrigeration and air-conditioning system descriptions	
refrigeration or air-conditioning systems	- systems that contain or are designed to contain a halocarbon refrigerant
	- includes any associated equipment
small refrigeration or air-conditioning system	- has a refrigeration capacity of less than 19 kW*
	- **does not apply** to systems associated with a means of transportation
chiller	- has a compressor, an evaporator and a secondary refrigerant
motor vehicle air-conditioning system	- air-conditioning system designed for the occupants of a motor vehicle
mobile refrigeration system	- refrigeration system that is associated with a means of transportation
	- **does not** include chillers

Fire-extinguishing system descriptions	
fire-extinguishing systems	- portable or fixed fire extinguishing equipment, including any associated equipment, that contains or is designed to contain a halocarbon fire-extinguishing agent
portable fire-extinguisher	- a cylinder or cartridge that has a charging capacity of 25 kg or less and that can be carried or wheeled to the site of a fire

Solvent system descriptions
- applications or systems that use halocarbons as solvents, including cleaning applications
- **does not** include laboratory analytical standards or laboratory reagents

***converting refrigeration capacity:**
19 kW = 5.4 tons = 64 828 BTU/hr = 25.5 hp

What do I need to know to make sure I comply with the Federal Halocarbon Regulations, 2003*?*

General prohibitions against releasing halocarbons

You cannot release a halocarbon from a:

- refrigeration or air-conditioning system, except from a purge system that emits less than 0.1 kg of halocarbons per kg of air purged
- fire-extinguishing system, except during recovery with a maximum release of less than one percent
- container or equipment used in the re-use, recycling, reclamation or storage of a halocarbon

HCFC 123 chiller

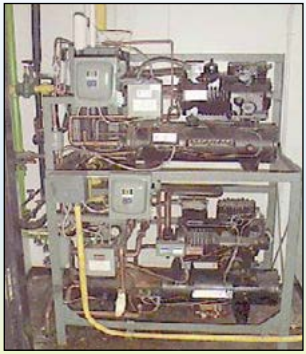
Large rooftop air conditioner

There are only a few circumstances where a release is not a violation, including:

- use of a halocarbon fire-extinguishing system to fight a real fire (cannot be used for training purposes)
- charging a leaking refrigeration, air-conditioning or fire-extinguishing system to prevent immediate danger to human life or health (The leak must be fixed as soon as possible, and Environment Canada must be notified of the leak, the nature of the danger and the work done to rectify the leak.)

Rooftop cooling unit compressors

Purge capture device



Walk-in refrigerator compressors

Recovering halocarbons

- Halocarbons must always be recovered:
  - when installing, servicing, leak testing, charging or doing any other work that could result in a release
  - if a system is leaking
  - before a system is decommissioned, dismantled or destroyed
- For refrigeration and air-conditioning systems, halocarbon recovery must be done in accordance with *Environment Canada's Environmental Code of Practice for Elimination of Fluorocarbon Emissions from Refrigeration and Air Conditioning Systems* (Refrigerant Code of Practice).
- For fire-extinguishing systems, halocarbon recovery shall be performed in accordance with the standard *Halocarbon Clean Agent Recovery and Reconditioning Equipment* (ULC/ORD-C1058.5-2004).
- Halocarbons must always be stored, purchased, transported and recovered in containers designed and manufactured to be refilled and to contain that specific type of halocarbon.

Recovery cylinder

Refrigerant cylinders

Requirements for refrigeration and air-conditioning systems

Servicing

- Work on air-conditioning or refrigeration systems must be done according to the Refrigerant Code of Practice.
- Any work that could result in a release of a halocarbon must be done by a certified person.
- The owner must maintain a service log.

Leak testing

- Required once every 12 months except for small systems and motor vehicle air-conditioning systems.
- Required before charging.
- The certified person who conducts a leak test must attach a leak test notice to the system. The owner must also keep a record of this information.
- Chlorofluorocarbons cannot be used for leak testing.

What do I do if I find a leak?

If a leak is detected:

- Notify the owner of the system
- The owner must
  - repair the leak, or
  - isolate the leaking portion and recover halocarbon from that portion, or
  - recover the halocarbon from the system

Air conditioning evaporator

Chlorofluorocarbons

Chlorofluorocarbons cannot be used to charge:

- a motor vehicle air-conditioning system
- a mobile refrigeration system
- any air-conditioning or refrigeration systems other than a small system
- a system on a military ship
- a chiller which has undergone an overhaul as described in the FHR 2003

Requirements for fire-extinguishing systems

Servicing

- Work on fire-extinguishing systems must be done according to the Underwriters Laboratories of Canada (ULC) documents: *Halon and Halocarbon Clean Agent Recovery and Reconditioning Equipment* (ULC/ORD-C1058.5-2004) and *The Servicing of Halon and Clean Agent Extinguishing Systems* (ULC/ORD-C1058.18-2004), as applicable.
- Service may be done by in-house staff or contractors.
- Before a system is serviced, a notice must be affixed to the control panel to indicate that it is out of operation during the service period, with the exception of portable fire extinguishers.
- The owner must maintain a service log.

Portable fire extinguisher

Leak testing

- Required once every 12 months except for portable fire extinguishers.
- Required before charging.
- Halons cannot be used for leak testing.


Showerhead of fire extinguishing system

What do I do if I find a leak?

In case of a leak, the requirements for air-conditioning and refrigeration systems also apply to fire-extinguishing systems (see previous related section under "Requirements for refrigeration and air-conditioning systems").

Halons

Halons cannot be used to charge a portable fire extinguisher or a fixed fire-extinguishing system.

Systems that are excluded from the charge prohibition include:

- systems for aircraft, military vehicles and military ships
- systems for which a permit has been obtained from Environment Canada

Requirements for solvent systems

- It is prohibited to:
  - use tetrachloromethane (carbon tetrachloride), 1,1,1-trichloroethane (methylchloroform) or CFCs as solvents
  - install or use a system using hydrofluorocarbons (HFCs) or perfluorocarbons (PFCs) unless a permit has been obtained from Environment Canada
- The owner must maintain a service log whenever the system is charged with more than 10 kg of halocarbons.

Additional requirements

Installation

Unless authorized by a permit issued by Environment Canada, it is prohibited to install a refrigeration, air-conditioning or fire-extinguishing system that operates with a halocarbon other than HCFCs, HFCs and PFCs.

Release reporting

The owner of the system must report all halocarbon releases over 10 kg. In the case of a release of 100 kg or more, a verbal or written report must be submitted within 24 hours followed by a written report within 14 days of detecting the release. Written reports for releases of more than 10 kg and less than 100 kg must be submitted semi-annually as follows:

- releases that occur between January 1st and June 30th must be submitted by July 30th
- releases that occur between July 1st and December 31st must be submitted by January 30th

Please refer to the telephone numbers and mailing addresses for release reporting in this Guide (page 15), for where to call in a release report and where to submit written release reports. Release reports must include the information prescribed in Schedule 2 of the FHR 2003.

Record keeping

All logs, notices, records and reports must be kept for five years at the site where the system is located. If the system is located on a means of transportation or on unoccupied premises, the documentation may be kept at a single location occupied by the owner. Owners are also required to submit a report of their systems that are located on unoccupied sites to Environment Canada.

The information that must be included in the documentation is found in Schedule 2 of the FHR 2003. Examples of forms for notices, service logs and release reports can be obtained from Environment Canada.

Advice for when you are dealing with a contractor

When issuing a contract, ensure that the terms and conditions are clearly described.

For example, for refrigeration and air-conditioning service specify:

- all work must comply with the FHR 2003 and the Refrigerant Code of Practice and any other applicable federal or provincial/territorial regulations
- a copy of the Environmental Awareness Course Certificate and Trade Qualification Certificate must be supplied for each individual who will work on the system

For fire-extinguishing system service specify:

- all work must comply with the FHR 2003 and the requirements of ULC standards ULC/ORD-C1058.18-2004 and ULC/ORD-C1058.5-2004 as applicable and with all the other standards referenced therein.

Keep in mind:

- each province has its own version of the Trade Qualification Certificate for any given trade
- while the FHR 2003 does not require use of a service company certified by ULC for work on a fire-extinguishing system, the work must be done in accordance with the ULC standards mentioned above

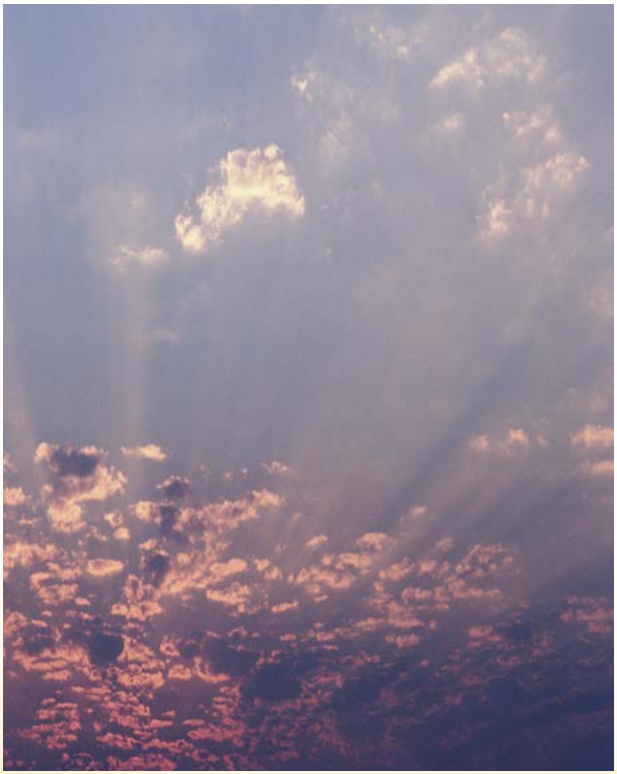
What does Environment Canada do to verify that individuals and organizations are complying with the Federal Halocarbon Regulations, 2003*?*

Regulatory compliance

Environment Canada's enforcement officers undertake regular inspections in order to verify compliance with the requirements of CEPA 1999 and the FHR 2003. Investigations are also conducted when an enforcement officer has reasonable grounds to believe that a violation has occurred.

CEPA 1999 provides for measures ranging from a warning to imprisonment. The choice of the enforcement action is based on principles founded in law and framed by the criteria assessment defined in the *Compliance and Enforcement Policy for the Canadian Environmental Protection Act, 1999*.

www.ec.gc.ca/CEPARegistry/documents/policies/candepolicy/toc.cfm



Federal Halocarbon Regulations, 2003 – *Halocarbon release reporting*

Contact information for where halocarbon releases subject to the FHR 2003 shall be reported

Release Reporting		
Geographic Region	Emergency Number (verbal reporting)	Mailing Address (written reporting)
Newfoundland and Labrador	1-800-563-9089	Regional Director Environmental Enforcement Division Environment Canada 16th floor, Queen Square 45 Alderney Drive Dartmouth NS B2Y 2N6 Fax: 902-426-7924 Email: fhr2003@ec.gc.ca
Prince Edward Island Nova Scotia New Brunswick	1-800-565-1633	
Quebec	1-866-283-2333	Regional Director Environmental Enforcement Division Environment Canada 105 McGill Street (3rd floor) Montréal QC H2Y 2E7 Fax: 514-496-2087 Email: InstalFed.Dale-RQ@ec.gc.ca
Ontario	1-800-268-6060	Regional Director Environmental Enforcement Division Environment Canada 845 Harrington Court Burlington ON L7N 3P3 Fax: 905-333-3952 Email: FHR.Ontario@ec.gc.ca
Manitoba Saskatchewan Alberta Northwest Territories Nunavut	204-944-4888 1-800-667-7525 1-800-222-6514 867-920-8130 867-920-8130	Regional Director Environmental Enforcement Division Environment Canada Twin Atria Building 4999-98th Avenue NW, Room 200 Edmonton AB T6B 2X3 Fax: 780-495-2451 Email: FHR2003.EED-PNR@ec.gc.ca
British Columbia Yukon	1-800-663-3456 867-667-7244	Regional Director Environmental Enforcement Division Environment Canada 201-401 Burrard Street (4th floor) Vancouver BC V6C 3S5 Fax: 604-666-9059 Email: FHR.PYR@ec.gc.ca

For information about the *Federal Halocarbon Regulations, 2003*, visit Environment Canada's stratospheric ozone website:

www.ec.gc.ca/ozone

Cat. No. En14-24/2010E-PDF
ISBN 978-1-100-16457-1

Aussi disponible en français