DEPARTMENT OF ECOLOGY
State of Washington

Hydrofluorocarbons (HFCs) Rulemaking Chapter 173-443 WAC

November 17, 2022

Hydrofluorocarbons (HFCs) Rulemaking Team

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Agenda

- Welcome, today's agenda
- September meeting recap
- Updated draft rule language
- Refrigerant management program
- Wrap up, future meetings

September 14 Meeting Recap

Updated Draft Rule Language

- Definitions – updates
- GWP threshold effective dates

“Chiller”

“Chiller” means a water or heat transfer fluid chilling equipment package custom built in place or a factory-made and prefabricated assembly of one or more compressors, condensers and evaporators, with interconnections and accessories including controls, designed for the purpose of cooling or heating water or a heat transfer fluid. A chiller is a machine specifically designed to make use of a vapor compression cycle or absorption refrigeration cycle to transfer heat from a cold water or heat transfer fluid circulating system to the air, a heat transfer fluid, or other heat exchange media. Chillers can be water-cooled, or evaporatively cooled. Chillers include, but are not limited to, rotary chillers, centrifugal chillers, and positive displacement chillers, including reciprocating, scroll, and screw chillers. A chiller used for ~~comfort cooling~~ air conditioning purposes is considered air conditioning equipment except for purposes of applying a GWP threshold under WAC 173-443-040. **A chiller used for refrigeration in a retail food facility is considered an indirect type of “supermarket system.”** A chiller used for industrial process refrigeration is considered a type of **other** refrigeration application.

“Cumulative Replacement”

“Cumulative replacement” means the addition of or change in multiple components ~~within a three-year period~~.

"New Air Conditioning Equipment"

"New Air-conditioning Equipment" means any air-conditioning equipment or system that is first installed using new components, used components, or a combination of new and used components that is one of the following:

a) New construction in a new facility;

b) An existing system with a single condenser and single evaporator that has a new exterior condenser, condensing unit, or remote condensing unit; or

c) An existing system having more than one condenser and/or more than one evaporator that is modified such that the system has undergone cumulative replacements of 75 percent or more of its indoor evaporator units (by number) and 100 percent of its air source or water source condensing units.

“New Refrigeration Equipment”

“New Refrigeration Equipment” means any refrigeration equipment or system that is first installed using new components, used components, or a combination of new and used components that is one of the following:

a) New construction in a new facility;

b) Modified such that the nominal compressor capacity is increased;

c) An existing facility not previously used for cold storage, retail food refrigeration, commercial refrigeration, industrial process refrigeration, or ice rinks; or

d) An existing facility used for cold storage, retail food refrigeration, commercial refrigeration, or industrial process refrigeration that has undergone cumulative replacement of 75 percent or more of its evaporators (by number) and 100 percent of its compressor racks, condensers, and connected evaporator loads.

GWP Thresholds – Retail Food Refrigeration

End Use	Criteria	Prohibited Substances (GWP)	Effective Date
Retail Food Refrigeration (new facilities)	"New" refrigeration equipment with more than 50 pounds of refrigerant	150+	January 1, 2025
Retail Food Refrigeration (existing facilities)	"New" refrigeration equipment with more than 50 pounds of refrigerant	150 +	January 1, 2025

GWP Thresholds – Industrial Process Refrigeration

End Use	Criteria	Prohibited Substances (GWP)	Effective Date
IPR using a chiller	Chillers (new) designed for chilled fluid leaving the chiller at temperatures > +35°F (2°C)	750+	January 1, 2025
IPR using a chiller	Chillers (new) designed for chilled fluid leaving the chiller at temperatures ≤ +35°F (2°C) and > -10°F (-23°C)	1,500+	January 1, 2025
IPR using a chiller	Chillers (new) designed for chilled fluid leaving the chiller at temperatures ≤ -10°F (-23°C) and > -58°F (-50°C)	2,200+	January 1, 2025

Exemptions

End Use	Prohibited Substance (GWP)	Exemptions
Refrigeration	150+	Equipment with 50 pounds or less of refrigerant; Replacement of a refrigeration component in an existing facility as part of normal **maintenance ~~if the cumulative replacement within any three-year period does not exceed 50 percent of the capital cost of replacing the entire refrigeration system or equipment, excluding the cost of refrigerated display cases;~~** and Facilities with new refrigeration equipment with an approved building permit before the effective date of the chapter (typically 31 days after adoption, but must be by 1/1/2024)
Air Conditioning	750+	

Refrigerant Management Program

Applies to refrigeration and air conditioning systems using 50 pounds of refrigerant or more (in a single circuit)

- EPA rulemaking
- Updates to table of draft requirements
- Fees
- Automatic Leak Detection

Notification Requirements

Applies to all sizes categories of equipment (50+ pounds) that exceeds equipment-specific leak rate threshold

Notify Ecology:

- Within **30** days of leak threshold exceedance (using rolling 12-month average method)
- Upon completion of:
  - leak repair verification test - within 30 days of leak threshold exceedance
  - follow up verification test, if applicable - within 60 days of leak threshold exceedance
  - work described in retrofit or retirement plan, if applicable – within 30 days of completion

Program Fees

Size	Registration Dates	Annual Fee	Implementation Fee
Large	January 1- March 1, 2024	$370	$150
Medium	January 1- March 1, 2026	$170	N/A
Small	January 1- March 1, 2028	N/A	N/A

Automatic Leak Detection Discussion

From CARB:

"Automatic leak detection system" means a calibrated device using continuous monitoring for detecting leakage of refrigerants that on detection, alerts the operator, and may be either:

A. A direct system that automatically detects the presence in air of refrigerant leaked from a refrigeration system; or

B. An indirect system that automatically interprets measurements (e.g. temperature or pressure) within a refrigeration system that indicate a refrigerant leak (e.g., in refrigerated cases and other locations in the system) and alerts the operator to the presence of a refrigerant leak.

Automatic Leak Detection Questions

- Do all large (1500+ pounds) refrigeration systems currently have ALD in place? Is it common to have ALD on other sizes of equipment?
- Is it common to see ALD on air conditioning equipment? If so, what are the most common equipment charge sizes having ALD and what are the typical detections levels?
- CARB currently requires ALD with detection limits of 10 ppm. If Washington decides to align with CARB, what challenges do you foresee in meeting 10 ppm in Washington?

Questions or Comments

Wrap Up and Looking Ahead

Ecology Contacts

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General questions

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More Information

HFC Web Pages

General information

https://ecology.wa.gov/Air-Climate/Climate-change/Reducing-greenhouse-gases/Hydrofluorocarbons

Rulemaking

https://ecology.wa.gov/Regulations-Permits/Laws-rules-rulemaking/Rulemaking/WAC-173-443-455

Informal comments

https://aq.ecology.commentinput.com/?id=6FM8R