

FACT SHEET

October 2023 Final Rule - Phasedown of Hydrofluorocarbons: Restrictions on the Use of Certain Hydrofluorocarbons under Subsection (i) of the American Innovation and Manufacturing Act of 2020

The American Innovation and Manufacturing (AIM) Act was enacted on December 27, 2020. The AIM Act authorizes the U.S. Environmental Protection Agency (EPA) to address hydrofluorocarbons (HFCs) in three main ways: (1) phasing down their production and consumption, (2) promulgating certain regulations for purposes of maximizing reclamation and minimizing releases of HFCs from equipment and ensuring the safety of technicians and consumers, and (3) facilitating the transition to next-generation technologies through sector-based restrictions. This final rule focuses on the third area – the transition to substitutes through sector-based restrictions.

About HFCs

HFCs are potent greenhouse gases intentionally developed as replacements for ozone-depleting substances in the refrigeration and air conditioning, aerosols, fire suppression, foam blowing, and other sectors. They have global warming potentials (GWPs; a measure of the relative climate impact of a greenhouse gas) that can be hundreds to thousands of times greater than that of carbon dioxide.

Under the AIM Act, the United States is phasing down HFCs. In 2023, HFC production and consumption are limited to 90 percent of their historical baseline levels. In 2024, the total quantity of allowed HFC production and consumption will drop by a further 30 percent – to 60 percent of the historic baseline. In 2029, these quantities will decline to 30 percent of historic baseline. Thus, most of the HFC phasedown will occur within the next six years. This final rule supports the HFC phasedown in the United States by transitioning sectors or subsectors to lower-GWP substitutes where those substitutes are, or soon will be, available.

Overview of this Final Rule

This final rule, signed on Oct 5, 2023, restricts the use of higher-GWP HFCs in new aerosol, foam, and refrigeration, air conditioning, and heat pump (RACHP) products and equipment. These restrictions address [petitions](#) from industry, environmental organizations, and state governments that EPA granted on October 7, 2021, and September 19, 2022.

In most subsectors, EPA has set a maximum GWP limit on HFCs or HFC blends that can be used. In a few subsectors, EPA has listed the specific HFCs or HFC blends that are restricted.

The rule operates by:

- prohibiting the manufacture and import of products that use higher-GWP HFCs;
- prohibiting the sale, distribution, and export of those products three years after the manufacture and import restriction; and
- prohibiting the installation of new RACHP systems that use higher-GWP HFCs.

Compliance dates and GWP limits vary based on sector and subsector and appear in the tables at the end of this document. To support compliance with these prohibitions, EPA is also requiring that all new products and components using HFCs be labeled and that companies that manufacture or import such products or components using HFCs report certain information to EPA.

Benefits of The Final Rule

This rule will result in greenhouse gas emissions reductions benefits while providing savings to American consumers and industry through energy efficiency gains and lower cost substitutes. EPA estimates that this rule will result in emission reductions of up to 876 million metric tons carbon dioxide equivalent through 2050. EPA estimates that the monetized climate change mitigation benefits alone may be as much as \$50.4 billion in 2020 dollars. In addition to the climate benefits from avoided emissions of HFCs, EPA estimates that this rule provides up to \$4.5 billion in cost savings to consumers and businesses. This benefit is largely driven by the lower cost of HFC substitutes and increased energy efficiency of products using lower-GWP substitutes.

Entities Affected by This Rule

Entities that manufacture, import, export, sell, distribute, or install systems or products that use HFCs in refrigeration and air-conditioning equipment systems, heat pumps, foams, and aerosols may be affected by this rule. Restrictions apply to original equipment manufacturers, product distributors, retailers, and companies that direct the installation of new RACHP systems.

RACHP Systems versus Products

The final rule makes a distinction between RACHP *products* and *systems*. The rule restricts the manufacture and import of certain RACHP products and the installation of certain RACHP systems.

A *product* is functional upon leaving a factory. Examples of products include window air conditioning units, refrigerators, and stand-alone ice machines. EPA is restricting the sale, distribution, and export of products containing higher-GWP HFCs three years after the manufacture/import restriction dates.

A *system* is assembled and charged in the field using multiple components. Examples include supermarket refrigeration systems that include a centralized compressor room and mini-split air conditioners. Components include equipment such as compressors, condensers, and display cabinets. In this rule, EPA is not restricting the manufacture, import, sale, distribution, or export of components that are used to repair existing RACHP systems.

Compliance Dates

The final rule restricts the sale, distribution, import, and export of products containing higher-GWP HFCs three years after the manufacture and import restriction dates. The sales restriction does not apply to components that are used to repair legacy RACHP. This rule also restricts the installation of certain RACHP systems.

Restrictions on the manufacture and import of products and installation of RACHP systems take effect on different dates varying by subsector. The earliest restrictions start January 1, 2025, (or model year 2025, but no earlier than one year after publication of the final rule, for some motor vehicle air conditioners). The latest restrictions start January 1, 2028. EPA set these dates by considering the availability of substitutes and other factors prescribed in the AIM Act. A list of restrictions in each of the covered sectors and associated compliance dates appears at the end of this document.

Maintenance of Legacy Systems

This rule does not restrict the continued use of any existing products or RACHP systems. Allowing existing systems to continue to operate to the end of their useful life is important to ensuring a smooth transition in the phasedown of HFCs. A product or system may be serviced and repaired throughout its useful life; this includes replacing components, as needed. Components needed to repair existing RACHP equipment may continue to be manufactured, imported, sold, distributed, or exported.

In this rule, EPA defines the distinction between maintenance of a system and installation of a new system. Specifically, the following actions, upon charging the system to full charge, are considered a new installation of a RACHP system and thus subject to the relevant HFC use restrictions:

- Assembling a system for the first time from used or new components;
- Increasing the cooling capacity, in BTU per hour, of an existing system; or
- Replacing 75 percent or more of evaporators (by number) and 100 percent of the compressor racks, condensers, and connected evaporator loads of an existing system.

Labeling

To support compliance with the prohibitions in this rule, EPA is requiring that all new products and components using HFCs be labeled and that companies that manufacture or import such products or components using HFCs report certain information to EPA.

All aerosols, foams, and RACHP products, components, and systems must be labeled if they continue to use an HFC. This requirement takes effect on the same date as the manufacture and import restriction (i.e., 2025–2028). The label must indicate the HFC being used along with other information, including date of manufacture for products and components. New RACHP replacement components using higher-GWP HFCs must have a label indicating they are for servicing existing equipment only.

Reporting

EPA is requiring annual online reporting from manufacturers and importers of products and specified components of RACHP equipment covered by this rule. This requirement takes effect for all sectors and subsectors beginning with calendar year 2025 data. Reports are due to EPA 90 days after the end of each calendar year. Thus, the first reports submitted by manufacturers and importers under this rule will be due March 31, 2026. EPA intends to conduct a series of trainings and stakeholder outreach as we plan for implementation of the reporting provisions.

Import and Export Provisions

The restrictions in this rule apply equally to domestically manufactured and imported products and the restrictions on import and manufacture of new products containing higher-GWP HFCs take effect on the same dates. Products restricted under this rule from using certain HFCs cannot be manufactured in the U.S. and then exported.

The rule allows for continued import and domestic manufacture of components for servicing legacy RACHP systems. Components manufactured for the purpose of servicing legacy RACHP systems may be domestically manufactured and then exported.

Subsectors Exempt from This Rule

The restrictions do not apply to any product or system for which application-specific HFC allowances are provided under subsection (e)(4)(B) of the AIM Act. As such, this action currently does not restrict use of HFCs in the following applications:

- As a propellant in metered dose inhalers
- In the manufacture of defense sprays
- In the manufacture of structural composite preformed polyurethane foam for marine use and trailer use
- Etching of semiconductor material or wafers and the cleaning of chemical vapor deposition chambers within the semiconductor manufacturing sector
- Mission-critical military end uses
- Onboard aerospace fire suppression

For More Information

For more information, please visit the [Technology Transitions website](#).

Sector Reference Tables

For each regulated technology sector, the reference tables below provide information on the GWP limits and/or prohibited substances, as well as compliance dates.

- [Aerosols](#)
- [Foams](#)
- [Self-contained Refrigeration, Air Conditioning, and Heat Pump Products](#)
- [Refrigeration, Air Conditioning, and Heat Pump Systems](#)

Restricted Products by Sector and Subsector

Aerosol Products*		
Subsector	Global Warming Potential Limit or Prohibited Substances	Manufacture and Import Compliance Date ¹
Consumer aerosol products	150	January 1, 2025
Technical aerosol products ²	150	January 1, 2028

Foam Products*		
Subsector	Global Warming Potential Limit or Prohibited Substances	Manufacture and Import Compliance Date ¹
Polyurethane ³ (rigid, flexible, integral skin, laminated boardstock)	150	January 1, 2025
Polystyrene extruded boardstock and billet and extruded sheet	150	January 1, 2025
Phenolic insulation board and bunstock	150	January 1, 2025
Polyisocyanurate laminated boardstock	150	January 1, 2025
Polyolefin	150	January 1, 2025

Self-contained Refrigeration, Air Conditioning, and Heat Pump Products*			
Subsector	Products	Global Warming Potential Limit or Prohibited Substances	Manufacture and Import Compliance Date ¹
Stationary residential and light commercial air conditioning and heat pumps	Stationary residential and light commercial air conditioning and heat pumps (e.g., window units, portable room air conditioning)	700	January 1, 2025
Residential dehumidifiers	Residential dehumidifiers	700	January 1, 2025
Household refrigerators and freezers	Household refrigerators and freezers	150	January 1, 2025
Vending machines	Vending machines	150	January 1, 2025
Motor vehicle air conditioning	Light-duty passenger vehicles	150	Model Year 2025, and no earlier than one year after publication in the Federal Register
	Medium-duty passenger vehicles, heavy-duty pick-up trucks, complete heavy-duty vans	150	Model Year 2028
	Listed nonroad vehicles (agricultural tractors greater than 40 horsepower; self-propelled agricultural machinery; compact equipment; construction, forestry, and mining equipment; and commercial utility vehicles)	150	January 1, 2028
Chillers (as a stand-alone product)	Industrial process refrigeration with exiting fluid below -50 °C (-58 °F)	Not covered	Not covered
	Industrial process refrigeration with exiting fluid greater than or equal to -50 °C (-58 °F) and less than -30 °C (-22 °F)	700	January 1, 2028
	Industrial process refrigeration with exiting fluid equal to or above -30 °C (-22 °F)	700	January 1, 2026
	Comfort cooling	700	January 1, 2025
	Ice rinks	700	January 1, 2025

Self-contained Refrigeration, Air Conditioning, and Heat Pump Products*			
Subsector	Products	Global Warming Potential Limit or Prohibited Substances	Manufacture and Import Compliance Date ¹
Data centers, computer room air conditioning, and information technology equipment cooling	Data centers, computer room air conditioning, and information technology equipment cooling	700	January 1, 2027
Industrial process refrigeration (not using chillers)	With refrigerant entering the evaporator below -50 °C (-58 °F)	Not covered	Not covered
	With refrigerant entering the evaporator equal to or above -50 °C (-58 °F) and less than -30 °C (-22 °F)	700	January 1, 2028
	With less than 200 lb refrigerant charge and temperature of the refrigerant entering the evaporator equal to or above -30 °C (-22 °F)	300	January 1, 2026
	With 200 or more lb refrigerant charge and temperature of the refrigerant entering the evaporator equal to or above -30 °C (-22 °F)	150	January 1, 2026
Retail food - refrigeration stand-alone units	Retail food - refrigeration stand-alone units	150	January 1, 2025

Self-contained Refrigeration, Air Conditioning, and Heat Pump Products*			
Subsector	Products	Global Warming Potential Limit or Prohibited Substances	Manufacture and Import Compliance Date ¹
Retail food - refrigerated food processing and dispensing equipment	500 g of refrigerant or less and outside scope of UL 621, edition 7	150	January 1, 2027
	More than 500 g of refrigerant and outside scope of UL 621, edition 7	R-402A, R-402B, R-404A, R-407A, R-407B, R-407C, R-407F, R-407H, R-408A, R-410A, R-410B, R-411A, R-411B, R-417A, R-417C, R-420A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-426A, R-427A, R-428A, R-434A, R-437A, R-438A, R-507A, HFC-134a, HFC-227ea, R-125/290/134a/600a (55/1/42.5/1.5), RB-276, RS-24 (2002 formulation), RS-44 (2003 formulation), GHG-X5, Freeze 12	January 1, 2027
	Ice cream makers within the scope of UL 621, edition 7	R-402A, R-402B, R-404A, R-407A, R-407B, R-407C, R-407F, R-407H, R-408A, R-410A, R-410B, R-411A, R-411B, R-417A, R-417C, R-420A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-426A, R-427A, R-428A, R-434A, R-437A, R-438A, R-507A, HFC-134a, HFC-227ea, R-125/290/134a/600a (55/1/42.5/1.5), RB-276, RS-24 (2002 formulation), RS-44 (2003 formulation), GHG-X5, Freeze 12	January 1, 2028

Self-contained Refrigeration, Air Conditioning, and Heat Pump Products*			
Subsector	Products	Global Warming Potential Limit or Prohibited Substances	Manufacture and Import Compliance Date ¹
Self-contained automatic commercial ice machines	Batch type: harvest rate ≤1,000 lb ice per 24 hours	150	January 1, 2026
	Continuous type: harvest rate ≤1,200 lb ice per 24 hours	150	January 1, 2026
	Batch type: harvest rate above 1,000 lb ice per 24 hours	R-402A, R-402B, R-404A, R-407A, R-407B, R-407C, R-407F, R-408A, R-410A, R-410B, R-411A, R-411B, R-417A, R-417C, R-420A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-426A, R-428A, R-434A, R-437A, R-438A, R-442A, R-507, R-507A, HFC-134a, R-125/290/134a/600a (55/1/42.5/1.5), RB-276, RS-24 (2002 formulation), RS-44 (2003 formulation), GHG-X5, G2018C, Freeze 12	January 1, 2027
	Continuous type: harvest rate above 1,200 lb ice per 24 hours	R-402A, R-402B, R-404A, R-407A, R-407B, R-407C, R-407F, R-408A, R-410A, R-410B, R-411A, R-411B, R-417A, R-417C, R-420A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-426A, R-428A, R-434A, R-437A, R-438A, R-442A, R-507, R-507A, HFC-134a, R-125/290/134a/600a (55/1/42.5/1.5), RB-276, RS-24 (2002 formulation), RS-44 (2003 formulation), GHG-X5, G2018C, Freeze 12	January 1, 2027

Self-contained Refrigeration, Air Conditioning, and Heat Pump Products*			
Subsector	Products	Global Warming Potential Limit or Prohibited Substances	Manufacture and Import Compliance Date ¹
Refrigerated transport ⁴	Intermodal containers with refrigerant temperature entering the evaporator below -50 °C (-58 °F)	Not covered	Not covered
	Intermodal containers with refrigerant temperature entering the evaporator equal to or above -50 °C (-58 °F)	700	January 1, 2025
	Road—self-contained products	R-402A, R-402B, R-404A, R-407B, R-408A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-428A, R-434A, R-438A, R-507A, R-125/290/134a/600a (55/1/42.5/1.5), RS-44 (2003 formulation), GHG-X5	January 1, 2025
	Marine—self-contained products	R-402A, R-402B, R-404A, R-407B, R-408A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-428A, R-434A, R-438A, R-507A, R-125/290/134a/600a (55/1/42.5/1.5), RS-44 (2003 formulation), GHG-X5	January 1, 2025

Refrigeration, Air Conditioning, and Heat Pump Systems*			
Subsector	Systems	Global Warming Potential Limit or Prohibited Substances	Installation Compliance Date ⁵
Stationary air conditioning and heat pumps	Residential and light commercial air conditioning and heat pump systems	700	January 1, 2026 ⁶
	Variable refrigerant flow systems	700	January 1, 2027 ⁷
Chillers	Industrial process refrigeration with exiting fluid below -50 °C (-58 °F)	Not covered	Not covered
	Industrial process refrigeration with exiting fluid from -50 °C (-58 °F) to -30 °C (-22 °F)	700	January 1, 2028
	Industrial process refrigeration with exiting fluid above -30 °C (-22 °F)	700	January 1, 2026
	Comfort cooling	700	January 1, 2025
Ice rinks	Ice rinks	700	January 1, 2025
Data centers, computer room air conditioning, and information technology equipment cooling	Data centers, computer room air conditioning, and information technology equipment cooling	700	January 1, 2027
Industrial process refrigeration (not using chillers)	With 200 or more lb refrigerant charge excluding high temperature side of cascade system and temperature of the refrigerant entering the evaporator above -30 °C (-22 °F)	150	January 1, 2026
	With less than 200 lb refrigerant charge and temperature of the refrigerant entering the evaporator above -30 °C (-22 °F)	300	January 1, 2026
	High temperature side of cascade systems and temperature of the refrigerant entering the evaporator above -30 °C (-22 °F)	300	January 1, 2026
	Temperature of the refrigerant entering the evaporator from -50 °C (-58 °F) to -30 °C (-22 °F)	700	January 1, 2028
	Temperature of the refrigerant entering the evaporator below -50 °C (-58 °F)	Not covered	Not covered

Refrigeration, Air Conditioning, and Heat Pump Systems*			
Subsector	Systems	Global Warming Potential Limit or Prohibited Substances	Installation Compliance Date ⁵
Cold storage warehouses	With 200 or more lb refrigerant charge, excluding high temperature side of cascade system	150	January 1, 2026
	With less than 200 lb refrigerant charge	300	January 1, 2026
	High temperature side of cascade system	300	January 1, 2026
Retail food - supermarkets	With 200 or more lb refrigerant charge, excluding high temperature side of cascade system	150	January 1, 2027
	With less than 200 lb refrigerant charge	300	January 1, 2027
	High temperature side of cascade systems	300	January 1, 2027
Retail food - remote condensing units	With 200 or more lb refrigerant charge, excluding high temperature side of cascade system	150	January 1, 2026
	With less than 200 lb refrigerant charge	300	January 1, 2026
	High temperature side of cascade system	300	January 1, 2026
Retail food - remote refrigerated food processing and dispensing equipment	Retail food - remote refrigerated food processing and dispensing equipment	R-402A, R-402B, R-404A, R-407A, R-407B, R-407C, R-407F, R-407H, R-408A, R-410A, R-410B, R-411A, R-411B, R-417A, R-417C, R-420A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-426A, R-427A, R-428A, R-434A, R-437A, R-438A, R-507A, HFC-134a, HFC-227ea, R-125/290/134a/600a (55/1/42.5/1.5), RB-276, RS-24 (2002 formulation), RS-44 (2003 formulation), GHG-X5, Freeze 12	January 1, 2027
Remote automatic commercial ice machines	Remote automatic commercial ice machines	R-402A, R-402B, R-404A, R-407B, R-408A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-428A, R-434A, R-438A, R-507A, R-125/290/134a/600a (55/1/42.5/1.5), RS-44 (2003 formulation), GHG-X5	January 1, 2027

Refrigeration, Air Conditioning, and Heat Pump Systems*			
Subsector	Systems	Global Warming Potential Limit or Prohibited Substances	Installation Compliance Date ⁵
Refrigerated transport	Intermodal containers with exiting fluid temperature from a chiller below -50 °C (-58 °F)	Not covered	Not covered
	Intermodal containers with exiting fluid temperature from a chiller equal to or above -50 °C (-58 °F)	700	January 1, 2025
	Road systems	R-402A, R-402B, R-404A, R-407B, R-408A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-428A, R-434A, R-438A, R-507A, R-125/290/134a/600a (55/1/42.5/1.5), RS-44 (2003 formulation), GHG-X5	January 1, 2025
	Marine systems	R-402A, R-402B, R-404A, R-407B, R-408A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-428A, R-434A, R-438A, R-507A, R-125/290/134a/600a (55/1/42.5/1.5), RS-44 (2003 formulation), GHG-X5	January 1, 2025

*These tables are for informational purposes only and should not be relied on for compliance purposes. Please refer to 40 CFR Part 84, Subpart B for full details.

¹Sale, distribution, and export of these products is prohibited three years after the manufacture and import compliance date.

²See regulatory text for specific types of aerosol products subject to the later compliance date. Excludes metered dose inhalers using HFC-134a or HFC-227ea or defense sprays using HFC-134a as a propellant.

³Includes blown foam, products incorporating blown foam, and pre-blended polyol products. Excludes composite structural preformed polyurethane foam for trailer use and for marine use.

⁴New products only; does not apply to equipment that is operational during transport.

⁵EPA is restricting the installation of new field-assembled systems. Components used to repair existing systems are not subject to these restrictions.

⁶New systems with a GWP above 700 can be installed until January 1, 2026, so long as all components are manufactured or imported prior to January 1, 2025 (refer to the [Interim Final Rule](#) for additional details).

⁷New systems with a GWP above 700 can be installed until January 1, 2027, so long as all components are manufactured or imported prior to January 1, 2026. New systems with a GWP above 700 can be installed until January 1, 2028, in buildings that were issued an approved building permit prior to October 5, 2023, as long as that permit approved the use of an HFC or blend containing an HFC in such a system, and all components used in that system are manufactured or imported prior to January 1, 2026 (refer to the [Variable Refrigerant Flow Air Conditioning Final Rule](#) for additional details).