

Retail Food Refrigeration and the Phaseout of HCFC-22

What You Need to Know



What Is the HCFC Phaseout?

Under the U.S. Clean Air Act and the *Montreal Protocol on Substances that Deplete the Ozone Layer*, the United States is phasing out the production and import of hydrochlorofluorocarbons (HCFCs) in order to protect the stratospheric ozone layer. By phasing out the production of ozone-depleting substances like HCFCs, we are reducing the risk of skin cancer caused by exposure to UV radiation. In addition, many of these ozone-depleting substances, as well as their substitutes, are greenhouse gases that contribute to climate change.

No Immediate Change Is Required

HCFC-22, commonly referred to as R-22, is used as a refrigerant in many applications, including commercial refrigeration. Starting on January 1, 2020, U.S. production and import of HCFC-22 will end; however, use of HCFC-22 may continue. HCFC-22 that is recovered and reclaimed, along with HCFC-22 produced prior to 2020, will help meet the needs of owners of existing HCFC-22 systems.

Planning for the Future Is Important

Even though there is no immediate need for change, HCFC-22 supply will decline over the next few years, and prices may rise. By tightening leaks and performing preventive maintenance, you can keep your refrigerant emissions down and reduce the need to purchase additional HCFC-22. Recovered HCFC-22 from decommissioned or retrofitted stores will also help. When the time does come to replace or retrofit an existing system, there are many non-ozone-depleting alternatives available.

What Alternatives Can Be Used Instead of HCFC-22?

Many non-ozone-depleting alternatives to HCFC-22 are available for use in retail food refrigeration equipment. See the table on the next page for a list of some acceptable non-ozone-depleting alternatives under EPA's Significant New Alternatives Policy (SNAP) Program. Some of these alternatives are listed for use in either retrofitted HCFC-22 systems or new retail food refrigeration systems, while others are suitable in both applications. A full list of acceptable alternatives under SNAP by end-use is available at www.epa.gov/ozone/snap/refrigerants.

When evaluating an alternative for retrofitting a system, be sure to follow the manufacturer's suggested handling and installation guidelines and to consider possible effects on the system's energy consumption.



Retail food refrigeration includes refrigeration equipment found in supermarkets, convenience stores, restaurants and other food service establishments.

Acceptable Non-Ozone-Depleting Alternatives to HCFC-22 for Retail Food Refrigeration¹

Refrigerant	GWP ^a	Ozone Depleting?	Equipment Category ^b	
			Self-Contained	Condensing Units & Rack Systems
R-744	1	No	New	New
R-290 ^c	3.3	No	New	
R-450A	601	No	New, Retrofit	New, Retrofit
R-134a	1,430	No	New ^d	New
R-407C	1,770	No	New ^d , Retrofit	New, Retrofit
R-407F	1,830	No	New ^d , Retrofit	New, Retrofit
R-407A	2,110	No	New ^d , Retrofit	New, Retrofit
R-427A	2,140	No	Retrofit	Retrofit

^aGWP = Global Warming Potential. GWP is a measure of how much a given mass of greenhouse gas is estimated to contribute to global warming relative to the same mass of carbon dioxide.

^bIndicates whether a substitute is acceptable in retrofitted and/or new equipment in each equipment category.

^cNote that R-290 is approved for use in self-contained retail food equipment only (not remote systems).

^dEPA has proposed to list this substitute as unacceptable for use in new stand-alone equipment beginning January 1, 2016. See 79 FR 46126.

Are There Other Refrigerant Regulations Affecting Retail Food Refrigeration?

EPA has proposed to list several substitutes as unacceptable for use in new equipment under SNAP as early as January 1, 2016 (as noted in the table above). Retail food refrigeration is also subject to refrigerant management regulations under section 608 of the Clean Air Act. Specifically, leaks must be repaired within 30 days when the equipment leaks at a rate that would release 35% or more of the charge over a year.² Additionally, it is illegal to knowingly vent refrigerant—both ozone-depleting refrigerants and the alternatives³—during servicing, maintaining or disposing of a refrigeration or air conditioning system.

For Further Information

- HCFC Phaseout: www.epa.gov/ozone/title6/phaseout/class2.html
- Section 608 of the Clean Air Act: Stationary Refrigeration and Air Conditioning: www.epa.gov/ozone/title6/608
- Leak Repair Requirements for Systems Containing HCFCs or CFCs: www.epa.gov/ozone/title6/608/leak.html



Other EPA Resources for Commercial Refrigeration Managers

- GreenChill Best Practices Guideline Commercial Refrigeration Retrofits: www.epa.gov/greenchill/downloads/RetrofitGuidelines.pdf

FOR MORE INFORMATION Contact EPA at 1-800-296-1996 or www.epa.gov/ozone/comments.htm.

¹This table represents common applications of refrigerants in the market today. There are additional SNAP acceptability listings for these and other refrigerants, though EPA has proposed to make certain alternatives not shown in this chart unacceptable for use in retail food refrigeration. A full and current list of acceptable alternatives under SNAP is available online for the retail food refrigeration end-use at www.epa.gov/ozone/snap/refrigerants/lists/foodref.html.

²This only applies for systems that contain 50 lbs or more of an ozone-depleting refrigerant like HCFCs or CFCs.

³Several alternatives have been exempted from the venting prohibition. Examples include ammonia in commercial or industrial process refrigeration or in absorption units, and carbon dioxide, nitrogen or water in any application. A complete list is available at <http://go.usa.gov/kAhQ>.

