Opteon™

HFO Refrigerants: A Critical Tool for Climate Progress

In recent years, several of the regulatory actions surrounding refrigerants have focused on reducing the use of hydrofluorocarbons (HFCs), a class of higher-GWP fluorinated gases (F-gases).

International efforts to phase down HFCs began with the 2016 adoption of the **Kigali Amendment to the Montreal Protocol**.

Nearly **200 countries** committed to cutting their production and consumption of HFCs by more than **80%** over the next **30 years**.

In April 2022, the European Commission proposed updating the F-gas Regulation. The European Parliament is currently negotiating an updated scope of the regulation.

In the U.S., the 2020 enactment of the AIM Act has made the phasedown of HFCs a priority.

The new generation of F-gases

Decades of innovation have given rise to a new generation of F-gas refrigerants that are safe, sustainable, and cost-effective. Based on hydrofluorolefin chemistry, HFOs and HFO blends are proven alternatives to both legacy F-gases and the various industrial gases (also called "naturals") on the market today. HFOs and HFO blends have:

- Zero ozone-depletion potential (ODP)
- Low or ultra-low GWP
- Low toxicity
- Similar system and servicing requirements to legacy F-gases
- No or low flammability (2L class)
- Moderate operating pressures

Chemours™

LOW GWP ©

Essential tools for a cooler planet

As new-generation F-gases, HFOs play a critical role in helping the world move away from high GWP refrigerants. They are safe, versatile, and easy to use.

Changing regulations, including the phaseout and phasedown of legacy refrigerants, are increasing the global demand for HFOs. The continued adoption of these new-generation solutions is crucial to making progress on sustainability, energy efficiency, and supply chain goals worldwide—all while ensuring human comfort, a robust cold chain for foods and pharmaceuticals, and efficient industrial cooling.

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Opteon™ HFO refrigerant fast facts

- Opteon™ XL HFO refrigerant blends for commercial applications, including Opteon™ XL20 (R-454C), deliver a significantly lower lifetime climate-change impact than industrial gases, including CO2 and hydrocarbons.
- Opteon™ YF (R-1234yf) offers a 99% reduction in GWP versus R-134a.
- R-1234yf has a lifetime of 11 days in the atmosphere, versus 13 years for R-134a and more than 500 years for carbon dioxide.
- Thanks to their superior energy efficiency, refrigeration systems using Opteon™ XL 20 (R-454C) and Opteon™ XL40 (R-454A) produce 10-year total emissions of up to 25% lower than a transcritical CO2 (R-744) booster system and up to 15% lower than a propane (R-290)/glycol system, according to recent data published by major retailers.