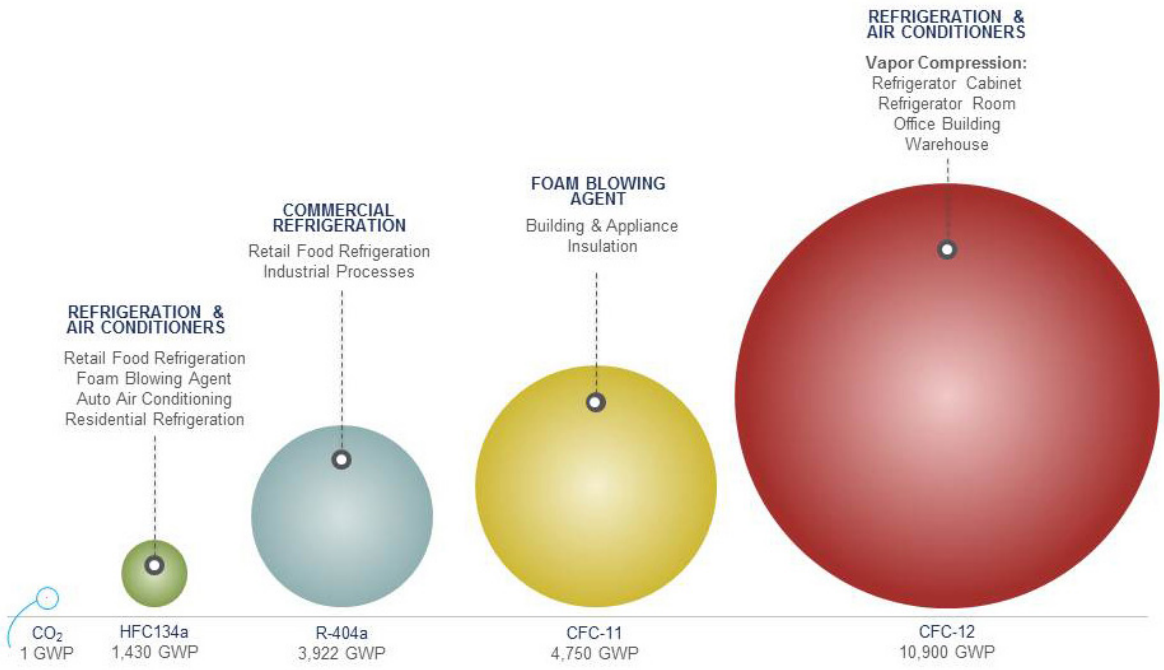
HFC Refrigerants' Impact on Climate Change

Fact Sheet



Global Warming Potential (GWP) of refrigerants compared with CO_2

What are HFCs?

HFCs (hydrofluorocarbons) are a class of refrigerant gases widely used to process, store and transport food, cool our homes, buildings and cars, and support commercial/industrial processes (pharmaceutical, chemical production).

How do HFCs affect climate change?

HFCs are thousands of times more powerful than carbon dioxide as a greenhouse gas (GHG). Although HFCs represent a small percentage of the current total GHG emissions by volume, their contribution to climate change is disproportionately large due to their high global warming potential (GWP)—up to 5,000 times more potent than CO_2. For perspective, 16 oz of HFC 404a equates to burning approximately 4½ barrels of oil from a climate perspective.

Why is it important to recycle HFCs?

HFCs have historically been used in a linear production model of produce-use-emit where each pound produced eventually reaches the atmosphere. Even under a potential international phase-out scenario, GHG emissions from HFCs are projected to exceed 50 billion metric tons of CO_2 equivalent (mtCO2e)—approximately 10% of the total allowable GHG emissions to stay within the 2° Celsius temperature target. Left unabated, HFC emissions could rise to as much as 19% of carbon dioxide emissions by 2050.

The current global inventory consists of billions of pounds of HFCs. If greater efforts are made towards reclaiming and re-using, the need for new production will be reduced.

What is the potential impact of HFC recycling?

HFCs can be used again and again without losing their thermal properties, but only about 10-15% of HFCs produced are currently recycled, driven primarily by individual companies' decisions to capture and process back to virgin status. If the current recycling rate were increased to 30%, approximately 18 billion mtCO2e would avoid reaching the atmosphere over the next 25 years—that equates to 3.5 years of GHG emissions in the United States from all sources.

Why isn't HFC recycling currently more broadly adopted?

Unfortunately, the current marketplace lacks incentives supporting a higher recycling rate and recycled gas is not differentiated from virgin gas, even though it is far less impactful than new virgin production from a climate perspective. However, there is already an infrastructure to support recycling—there are reclaimers all across the U.S.

What can be done to promote recycling?

An essential component to reducing HFC refrigerant emissions is establishing the metrics that will incentivize increased re-use of HFC refrigerants. To achieve that goal, EOS Climate, an environmental commodities and technology company, has authored a methodology to quantify the climate benefits of recovering, reclaiming and reusing existing HFC resources—it has also outlined the processes by which the materials themselves can be differentiated and certified. The methodology has been submitted to the American Carbon Registry (ACR) and can be found at http://americancarbonregistry.org/news-events/program-announcements/open-public-comment-period-methodology-for-use-of-reclaimed-hfc-refrigerants-and-advanced-refrigeration-systems.

To learn more about HFC refrigerant recycling, visit www.eosclimate.com/climate-solutions/.

About EOS Climate

The $15 billion U.S. refrigerant market is leaking $1 billion of assets into the atmosphere each year. EOS Climate is committed to developing solutions that address refrigerant climate challenges and has brought together experts in refrigerants, supply chain management, environmental policy, operations, finance, technology, and environmental commodities to engineer climate solutions. The company has established methodologies, technologies, services, and proven business models that sustainably and economically address refrigerants throughout their lifecycle. For more information on EOS Climate, visit www.eosclimate.com.