Opteon™

THE WORLD NEEDS F-GASES

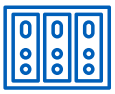
F-gases: A Critical Climate Solution

As the world mobilizes to rein in climate change, next-generation F-gas refrigerants have become a critical tool for advancing sustainable cooling. Today's F-gases have low-to ultra-low global warming potential (GWP) and are free of the many risks and shortcomings of outmoded industrial gases like ammonia, CO_2, and propane. F-gases are a reliable and energy-efficient solution for a variety of cooling applications, including:

Heat Pumps

Air Conditioning

Food & Pharmaceutical Cold Chains



Data Center Cooling

So-called "Natural" Refrigerants Have Issues

Ammonia has restricted use due to its high toxicity and health risks when it leaks. It is flammable and considered a serious health hazard because it is corrosive to the skin, eyes, and lungs. Exposure to ammonia at 300 parts per million (ppm) is considered dangerous to life and health.

CO_2 has increased installation and operational complexity due to high-pressure hazards and increased leak potential, ultimately leading to higher costs in components, labor, and maintenance.

Propane is easily combustible. (In comparison, today's F-gases, e.g., A2Ls, require 2000x more energy to ignite.)

F-gases vs. Industrial Gases (So-Called "Naturals")

MYTH VS FACT

MYTH CO_2, ammonia, and hydrocarbons are "natural" refrigerants.

FACT Refrigerant-grade CO_2, ammonia, and hydrocarbons are not extracted from nature. They are chemically manufactured through industrial processes like all other refrigerants.

MYTH "Naturals" are the best solution because of their GWP.

FACT The total lifecycle emissions from F-gas systems are often lower than "natural" alternatives. Most F-gases are removed from the atmosphere quickly compared to CO_2.

MYTH CO_2 is an efficient refrigerant solution.

FACT CO_2 is inefficient, especially in HVAC and medium-temperature refrigeration applications, consuming more electricity and producing higher greenhouse gas emissions.

F-gases Support Modern Priorities

F-gases are crucial to supporting green technology, enabling sustainable industries and supply chains, and advancing emissions-reduction targets through decarbonization.

Decarbonization

F-gas refrigerants support the adoption of heat pumps for residential heating and cooling—an essential technology for displacing fossil fuels.

Green Mobility

By the end of 2019, ultra low-GWP HFO refrigerants were used in 68 million cars worldwide, the equivalent of taking 10 million cars off the road each year. F-gases are also essential to the continued adoption of electric vehicles.

Digitization

Conventionally cooled data centers use massive amounts of energy and water. Two-phase immersion cooling technology using F-gases is the most sustainable cooling solution known today, and can drastically reduce the resources data centers consume.*

F-gases Are Essential to a Sustainable Future

As demand for cooling increases worldwide, only next-generation F-gases have the qualities needed to improve the comfort, health, and safety of modern life while balancing our duty to maintain and protect the natural world for future generations.

(*) pending regulatory approval