

Opteon™ and TFA

1. Opteon™ is a Chemours brand of F-Gases used in Refrigeration, Air-Conditioning and Heat-Pump applications (RACHP), as well as foam-blowing agents, as propellants and solvents. Under this brand, Chemours produces Hydrofluoroolefins (HFOs) and Hydrofluorocarbons (HFCs). Both are Fluorinated Products (F-Gases).
2. HFO alternatives have been developed to replace certain F-Gases that have relatively high Global Warming Potential (GWP).
3. Like HFCs, HFOs come in different grades (e.g., R-1234yf, R-1234ze and R-1336mzz). HFOs are also offered in blends with HFCs (e.g., R-454C, R-455A). All of these different grades are necessary for different RACHP applications.
4. Some F-Gases ultimately degrade, partly or completely, to Trifluoroacetic Acid (TFA), which is a naturally occurring organic acid with a similar structure to acetic acid. TFA and its salts present no known significant risk to humans, as they do not bioconcentrate in aquatic organisms and do not bio-magnify in food chains.
5. TFA is a ubiquitous natural component in rivers, lakes, and other surface water bodies. The oceans (coastal and deep-ocean seawater) contain over 200 million tons of TFA, having apparently accumulated over many million years from chemical reactions in or around sub-sea volcanic vents. More than 95% of TFA found in the oceans is naturally formed.
6. F-Gases should not fall under the proposed EU restriction for Per- and polyfluoroalkyl substances (PFAS). F-Gases do not pose significant environmental risk: they are used in closed systems and recovered at the end of life. They are not meant for release in the environment except in very specific applications, like pressurized inhalers for asthma treatment.
7. Additionally, double regulation should be avoided. The existing EU F-Gas Regulation (No 517/2014) and MAC Directive (2006/40/EC) secure the safety of the substances' intended use throughout their entire lifecycle, while foreseeing a robust recovery mechanism.
8. There are no readily available or universal alternatives to F-Gases, offering the same unique combination of properties, uses and societal benefits. Specifically, no alternatives are of simultaneously low-GWP, non-toxic and minimally flammable with the same efficacy.
9. In 2019, Opteon™ replaced existing refrigerants in over 68 million cars, an equivalent to taking 10 million cars off the road. In 2018, the use of Opteon™ resulted in a reduction of ~66 million tons of CO₂, the equivalent of emissions from ~14 million cars.