

What is GWP and how can it be reduced?

Factsheet

Everyone has heard of global warming, but beyond changes to the weather – like freezing winters and sweltering summers – many people don't really know what it means.

Global warming is a gradual increase in the overall temperature of the earth's atmosphere. NASA says that global warming can be attributed to the greenhouse effect, which occurs when the atmosphere traps heat radiating from Earth. Some types of gases block heat from escaping the atmosphere and are long-lived, remaining semi-permanently in the atmosphere without responding physically or chemically to changes in temperature.

Carbon dioxide, methane, nitrous oxide and chlorofluorocarbons are the most prevalent greenhouse gases and while some, like carbon dioxide, occur naturally, others such as chlorofluorocarbons are synthetic and their manufacture is heavily regulated.

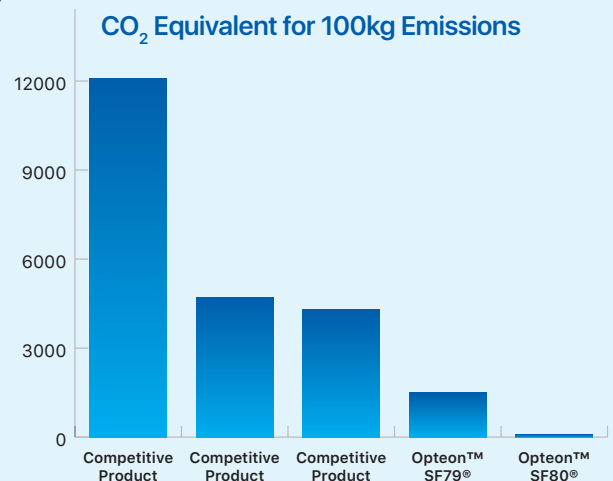
One of the methods for measuring the impact a gas will have on the atmosphere is Global Warming Potential (GWP). GWP is used to represent the equivalent of CO₂ being released into the atmosphere, where 1kg of CO₂ = a GWP of 1. For companies manufacturing gases, and for those purchasing and using them, it is critical to manage environmental impact by keeping the GWP as low as possible.

How can cleaning solvents help?

Cleaning solvents were historically guilty of very high GWP and had seriously detrimental effects on the atmosphere.

However, a new generation of solvents has been developed specifically with the environment in mind and are now far less harmful than comparable solutions.

For example, the new Opteon™ SF80® cleaning solvent from Chemours has an ultralow GWP of less than 2.5, compared to common F-gas solvents that can have a GWP of up to 11,000. Because the solvent is just as effective, and in some cases more efficient than other new generation products, the environmental savings mean it is an ideal replacement.



Reduced costs, reduced carbon footprint

A project recently undertaken by Fraser Technologies demonstrates how advantageous this change can be. One of our customers - a prominent aerospace manufacturer - asked us to look at an alternative to the high-GWP solvent they were using.

We worked with them to approve SF80® and once on site, we assisted in optimising their processes to reduce solvent consumption. We introduced a solvent recovery process to allow them to further reduce waste and reuse the recovered solvent. Previously they had been using 7 Metric Tonnes per year, and this change of solvent has taken the customer's overall usage of solvent down by 28%.

While the existing product was less expensive than SF80®, the reduction in solvent usage has shown a significant cost reduction of around £30,000 per year as well as a significant reduction in CO2 equivalent emissions.

With a GWP of 990, the CO2 emissions created by the customer when using the alternative product were equal to the emissions of driving 143 times around the world* - or 7.5 times to the moon and back. In comparison, by using SF80®, the customer's new emissions are the equivalent of driving from Edinburgh to Moscow.

* Average sized family car emissions.



	CO2 Equivalent	Distance travelled Miles	Times round the World
Common HFC	6930000	3594398	143.51
Opteon™ SF80®	4994	2590	0.10

We need to act now

The statistics are alarming - 18 of the 19 warmest years on record have occurred since 2001; Earth's ice sheets are losing 413 Gigatonnes of mass per year; and the total sea levels are increasing by 3.3 millimetres per year.

When you consider that this can be almost exclusively attributed to harmful gases in the atmosphere, there's really no excuse for not taking action and making improvements where possible.

When more environmentally-friendly solvents exist, which yield the same results, making a change becomes one of the easiest ways to play your part in protecting our Earth.



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