

Fluorinated Gases FAQ's



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What are Fluorinated Gases?

Fluorinated gases are a family of man-made gases that are used in a range of industrial applications. They are used as they do not harm the ozone layer but are greenhouse gases meaning that they will contribute significantly to global warming as they have a global warming effect about 23,000 times greater than Carbon Dioxide.

Hydrofluorocarbons are the most common type of F-Gas and they contain Hydrogen, Fluorine and Carbon. They are mainly used in commercial and industrial refrigeration and for air-conditioning units. All hydrofluorocarbons are man-made and tend to be colourless, odourless and unreactive. They generally pose little threat to human health, however at high concentrations they can be mildly toxic and possibly carcinogenic.

How are Fluorinated Gases controlled?

In order to reduce the affects the F-Gases have on global warming, the EU created two pieces of legislation the must be complied with, these are: The [F-Gas Regulations](#), released in 2006 and amended in 2014 and the [Mobile Air Conditioning Directive](#) that was first put into place in the year 2008, with a three phase strategy to reduce the fluorinated gas usage in motor vehicles in the EU. In regards to this directive, all new EU vehicles using MAC systems using these gases will not be registered or sold in the EU. Any vehicle that currently that has a Global Warming Potential of 150 will not be put on the EU market and be totally banned.

What is Global Warming Potential (GWP)?

GWP is a measure of how much heat a certain greenhouse gas traps within the atmosphere. The GWP depends on the following factors:

- the absorption of infrared radiation by a given chemical
- the spectral location of its absorbing wavelengths
- the atmospheric lifetime of the chemical

| Greenhouse Gas | GWP | Lifetime (y) |
|--|-------------|--------------|
| Carbon Dioxide (CO ₂) | 1 | variable |
| Methane (CH ₄) | 21 | 12.2 |
| Nitrous Oxide (NO ₂) | 206 | 120 |
| Hydrofluorocarbons (HFC) | 140-11700 | 1.5-264 |
| Perfluocarbons (PFC) | 6500-9200 | 3200-50000 |
| Sulfur Hexafluoride (SF ₆) | 23000 | 3200 |
| Chlorofluorocarbons (CFC) | 12000-16000 | |

Figure 1

Figure 1 shows a list of greenhouse gases and the GWP they have; it includes all four Fluorinated Gases.

Figure 2



Figure 2 shows the projected timeline for the reduction of F-Gas up until 2030.

TM 44 Air-Conditioning Inspections

Air Conditioning inspections are designed to help improve efficiency, reduce energy consumption, reduce operating costs and reduce the carbon emissions of the system. All air conditioning units that have an output of more than 12kW must be regularly inspected no more than 5 years apart. Also, fluorinated gas inspections are required to minimise emissions mainly through leak prevention and repair.

How do I comply to the F-Gas Regulations? User Responsibilities?

Major users of Fluorinated Gases will be required to sign a Compliance Assistance Agreement and have to demonstrate their commitment to these regulations. Anyone with stationary refrigeration or air-conditioning systems in their organisation must be aware of the regulations and remain compliant. This link will give you a guide on how to achieve this:

<http://webarchive.nationalarchives.gov.uk/20130822084033/http://www.defra.gov.uk/environment/air-atmos/fgas/sectors/rac.htm>

What will happen if I do not comply with these regulations?

- In April 2016, Schneider Electrical Limited was fined £3,000 for failing to recover a greenhouse gas that was released to the air in Essex. The company was also ordered to pay £18, 368 in costs.

How can Crowberry Consulting help you?

- Crowberry Consulting are able to provide legal updates for your organisation with quarterly updates. This is to ensure your company remains compliant to the updated legislation both European and in the UK.
- As part of the EMS ISO 14001, Crowberry Consulting are able to provide internal help with Environmental Auditing functions.
- We can provide advice on alternate products instead of ones that use F-Gas.

Compiled by Nathan Green, Project Manager

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