EU F-Gas Regulation Guidance

Information Sheet 30: Index of Guides and Glossary of Terms

Target audience for this Information Sheet

This information sheet includes a list of the 30 Information Sheets that have been written together with a glossary of terms related to F-Gases and the EU F-Gas Regulation.

1. Background

A series of 30 guidance documents have been prepared for organisations affected by the 2014 EU F-Gas Regulation (517/2014). The F-Gas Regulation creates controls on the use and emissions of fluorinated greenhouse gases (F-Gases) including HFCs, PFCs and SF_6. The 2014 EU F-Gas Regulation replaces the 2006 Regulation, strengthening all of the 2006 requirements and introducing a number of important new measures.

The F-Gas Regulation is an important piece of legislation that will result in significant reductions in the emissions of F-Gases. These are very powerful greenhouse gases, with global warming impacts that are several thousand times higher than CO_2 (per kg of gas emitted). All EU Member States agree that it is important to reduce emissions of these gases.

This information sheet includes:

- A list of the 30 information sheets that have been prepared by Gluckman Consulting and Jacobs on behalf of Defra (the UK Department of Environment, Food and Rural Affairs)
- A list of acronyms used in the 30 Information Sheets
- A glossary of terms used in the Information Sheets and in the EU F-Gas Regulation
- A list of relevant EU Regulations and Directives related to the F-Gas Regulation

2. List of Information Sheets

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3. Acronyms

BV	Burning velocity
CFC	Chlorofluorocarbon
CO_2e	Carbon dioxide equivalent
DIY	Do-It -Yourself
DME	Dimethyl ether
F-Gas	Fluorinated gases
FPS	Fire protection system
GHG	Greenhouse gas
GIS	Gas insulated switchgear.
GWP	Global warming potential
HC	Hydrocarbon
HCFC	Hydrochlorofluorocarbon
HFC	Hydrofluorocarbon
HFE	Hydrofluoro-ether
HFO	Hydrofluoro-olefin
HoC	Heat of Combustion
LFL	Lower flammability limit
MAC	Mobile air-conditioning
MDI	Metered dose inhaler
MIE	Minimum ignition energy
NF_3	Nitrogen trifluoride
OCF	One component foam
ODS	Ozone depleting substance
OEM	Original equipment manufacturer
PFC	Perfluorocarbon
PU	Polyurethane
RACHP	Refrigeration, air-conditioning and heat pump equipment
RTT	Refrigerated trucks and trailers
SF_6	Sulphur hexafluoride
UFL	Upper flammability limit
VRV	Variable refrigerant volume
VRF	Variable refrigerant flow
XPS	Extruded polystyrene

4. Glossary of Terms

The table below includes various definitions that apply to words and phrases used in this set of Information Sheets. All references to the EU F-Gas Regulation are in relation to Regulation 517/2014.

Term	Definition
Attestation	Proof of qualification (the term attestation is used in the F-Gas Regulation for qualifications related to mobile air-conditioning). See Information Sheet 22 for details of MAC attestations.
Automatic leak detection system	Calibrated mechanical, electrical or electronic device for detecting leakage of F-Gases which, on detection, alerts the operator or a service company of any leakage.
Central pack systems	A type of refrigeration system, mainly used in large supermarkets. A number of retail display cases is connected to a remotely located set of refrigeration compressors (the "pack") and an externally located condenser system. See Information Sheet 2 for details of central pack systems for commercial refrigeration.
Certificated technicians	Individuals that have undertaken appropriate training so they are qualified to undertake work with F gases on specified equipment.
Chlorofluorocarbon (CFC)	A family of chemicals consisting of chlorine, fluorine and carbon. CFCs were historically used in various applications such as refrigeration, foam blowing, and aerosols. Now completely banned under the EU Ozone Regulation. CFCs have very high global warming potentials.
CO_2 equivalent (CO_2e)	A quantity of greenhouse gas, expressed as the product of the weight of the greenhouse gas in metric tonnes and the global warming potential of the gas. See Information Sheet 25 for details about CO_2e.
Commercial use	Used for the storage, display or dispensing of products, for sale to end users, in retail and food services.
Company Certificate	Certification of an undertaking that requires the company to demonstrate that they employ sufficient certificated technicians and that they use equipment and operating procedures that helps prevent F-Gas emissions. Company Certificates are required by all undertakings carrying out installation or servicing of RACHP or FPS systems on behalf of 3rd parties. A Company Certificate is required by sole traders as well as larger companies.
Competent authority	Body that can enforce the F-Gas Regulation. In the UK the competent authority is the Environment Agency.
Condensing units	A type of refrigeration system, mainly used in small commercial applications. The evaporator serving a cooling load (e.g. a retail display or a walk-in cold room) is connected to a remotely located condensing unit, which consists of a compressor and condenser.
Decommissioning	Means the final shut-down and removal from operation or usage of a product or piece of equipment containing fluorinated greenhouse gases.
Declaration of conformity	A legally verifiable document provided by a manufacturer, or his authorised representative. It shows that a product meets all the necessary requirements laid down in the applicable EU Directives. It can be used to indicate that imports of equipment pre-charged with HFCs have used HFCs sourced from the EU quota system.

Term	Definition
Destruction	Means the process of permanently transforming or decomposing all or most of a fluorinated greenhouse gas into one or more stable substances that are not fluorinated greenhouse gases.
Extruded polystyrene foam (XPS)	A form of closed cell insulating foam.
Feedstock	Any F-Gas, or other substance listed in Annex II of the EU F-Gas Regulation, that undergoes chemical transformation in a process in which it is entirely converted from its original composition and its emissions are insignificant.
Fluorinated greenhouse gases (F-Gases)	The greenhouse gases listed in Annex I of the F-Gas Regulation, or mixtures containing any of those substances. The gases include HFCs, PFCs and SF_6.
Gas insulated switchgear (GIS)	Equipment that uses SF_6 as an insulating gas in high voltage electrical applications. See Information Sheet 11 for further details.
Global warming potential (GWP)	The climatic warming potential of a greenhouse gas relative to that of carbon dioxide, calculated in terms of the 100-year warming potential of one kilogram of a greenhouse gas relative to one kilogram of CO_2. The GWPs of relevant gases are listed in Annexes I, II and IV of the F-Gas Regulation. The GWP of mixtures is calculated in accordance with Annex IV.
Greenhouse gas (GHG)	A type of gas that makes a contribution to global warming if emitted to the atmosphere. Most fluorinated gases including CFCs, HFCs, PFC and SF_6 are very powerful GHGs.
Heat of combustion (HoC)	HoC is the energy released as heat when a compound undergoes complete combustion with oxygen under standard conditions
Hermetically sealed	Equipment in which all fluorinated greenhouse gas containing parts are made tight by welding, brazing or a similar permanent connection, which may include capped valves or capped service ports that allow proper repair or disposal, and which have a tested leakage rate of less than 3 grams per year under a pressure of at least a quarter of the maximum allowable pressure.
Hydrocarbons (HC)	A family of chemicals consisting of hydrogen and carbon. Certain HCs (e.g. propane and butane) are used as low GWP alternatives to HFCs.
Hydrochlorofluorocarbons (HCFCs)	A family of chemicals consisting of hydrogen, chlorine, fluorine and carbon. HFCs have very high global warming potential.
Hydrofluorocarbons (HFCs)	A family of chemicals consisting of hydrogen, fluorine and carbon. HCFCs are ozone depleting substances and have been phased out in the EU. HCFCs have very high global warming potentials.
Hydrofluoro-olefins (HFOs)	HFOs consist of the same chemical elements as HFCs (i.e. hydrogen, fluorine and carbon). HFOs are unsaturated molecules (i.e. they have a double bond between 2 carbon atoms). This makes them less chemically stable than HFCs, resulting in very low GWPs. HFOs are being developed as possible alternatives to HFCs.
Incumbent quota holder	A holder of quota to sell HFCs in the EU market that placed HFCs on the market in the baseline period, 2009 to 2012 (see Information Sheet 17).

Term	Definition
Installation	Means joining two or more pieces of equipment or circuits containing or designed to contain fluorinated greenhouse gases, with a view to assembling a system in the location where it will be operated, that entails joining together gas carrying conductors of a system to complete a circuit irrespective of the need to charge the system after assembly.
Letter of Assurance	A letter used during customer screening to provide certification details to a seller of bulk F-Gases (see Information Sheet 19).
Lower flammability limit (LFL)	LFL is the minimum concentration of a gas or vapour that is capable of propagating a flame within a homogeneous mixture of that gas or vapour and air.
Maintenance or servicing	Means all activities that entail breaking into the circuits containing or designed to contain F-Gases, in particular supplying the system with fluorinated greenhouse gases, removing one or more pieces of circuit or equipment, reassembling two or more pieces of circuit or equipment, as well as repairing leaks.
Metered dose inhaler (MDI)	Medical aerosol used to dispense certain drugs (e.g. inhalers for asthma treatment).
Military equipment	Mean arms, munitions and war material intended specifically for military purposes which are necessary for the protection of the essential interests of the security of Member States.
Mobile	Normally in transit during operation.
Mobile air-conditioning (MAC)	An air-conditioning system operating in any form of vehicle, including cars, buses, lorries, trains, boat and aircraft.
Multi-pack central system	See “central pack system”.
New entrant quota holder	A holder of a quota to sell HFCs in the EU market that obtained quota via the new entrant mechanism (see Information Sheet 17).
Non-confined direct evaporation systems	A form of refrigeration system in which the coolant is a liquid that evaporates and is emitted into the atmosphere.
Novelty aerosols	A form of aerosol used for entertainment and decorative purposes, as listed in point 40 of Annex XVII to Regulation (EC) No 1907/2006.
One component foam	A foam composition contained in a single aerosol dispenser in unreacted or partly reacted liquid state and that expands and hardens when it leaves the dispenser.
Ozone depleting substance (ODS)	Various chemicals, including CFCs and HCFCs that damage the ozone layer. Most are already completely phased out in the EU.
Operator	The natural or legal person exercising actual power over the technical functioning of products and equipment covered by the F-Gas Regulation; a Member State may, in defined, specific situations, designate the owner as being responsible for the operator’s obligations.
Perfluorocarbons (PFCs)	A family of chemicals consisting of fluorine and carbon. PFCs are F-Gases used in a few unusual applications such as electronic chip manufacture. They have very high GWPs.

Term	Definition
Phase down	A process of reducing the amount of a chemical that can be sold on the EU market. HFCs are subject to a phase down in the F-Gas Regulation. See Information Sheet 28 for further details.
Phase out	A process of banning sales of a chemical on the EU market. Various ozone depleting chemicals including CFCs and HCFCs have been phased out in the EU under the EU Ozone Regulation.
Placing on the market	Supplying or making available to another party in the EU for the first time, for payment or free of charge, or using for its own account in the case of a producer, and includes customs release for free circulation in the Union.
Pre-charged	Equipment or products that are filled with an F-Gas during manufacture. Examples include aerosols, domestic refrigerators and some types of split system air-conditioning.
Primary refrigerant circuit of cascade system	The primary circuit in indirect medium temperature systems where a combination of two or more separate refrigeration circuits are connected in series such that the primary circuit absorbs the condenser heat from a secondary circuit for the medium temperature.
Quota system	The quota system that is being introduced under the F-Gas Regulation to control the phase down of HFC sales in the EU market
Reclaimed F-Gas	F-Gas that has been recovered from equipment and reprocessed to match the equivalent performance of a virgin substance, taking into account its intended use.
Recovered F-Gas	F-Gas that has been collected from products, including containers, and equipment during maintenance or servicing or prior to the disposal of the products or equipment.
Recycled F-Gas	F-Gas that has been recovered from equipment and given a basic cleaning process.
Refrigerated trucks	Motor vehicles above 3.5 tonnes and equipped with a refrigeration unit.
Refrigerated trailers	Vehicles designed to be towed by a tractor or truck and equipped with a refrigeration unit.
Registry	An electronic registry set up by the European Commission to monitor and control the HFC phase down.
Retrofill	Replacement of a high GWP refrigerant in a system with an alternative refrigerant that has a lower GWP.
Service Ban	A ban on the use of high GWP refrigerants for the servicing of existing refrigeration plants.
Signal horns	A type of aerosol.
Split system air-conditioning	Systems for room air conditioning that consist of one outdoor unit and one indoor unit linked by refrigerant piping, needing installation at the site of usage.
Stationary	Not normally in transit during operation and includes moveable room air-conditioning appliances.

Term	Definition
Sulphur hexafluoride (SF_6)	An F-Gas used in a few unusual applications such as magnesium smelting and high voltage electrical switchgear. SF6 has the highest GWP of all F-Gases.
Technical aerosol	An aerosol used in maintaining, repairing, cleaning, testing, disinsecting and manufacturing products and equipment, installing equipment, and in other applications.
Upper Flammability Limit (UFL)	UFL is the maximum concentration of a gas or vapour that is capable of propagating a flame within a homogeneous mixture of that gas or vapour and air.
Virgin refrigerant	Means a refrigerant which has not previously been used.

5. Relevant EU Legislation

The table below lists Regulations and Directives that are of relevance to these Information Sheets.

Legislation	Description / Comments
517/2014	The EU F-Gas Regulation that is the main subject of these Information Sheets.
1191/2014	A Commission Implementing Regulation that defines reporting requirements under 517/2014.
842/2006	The old F-Gas Regulation, that is now repealed
40/2006	The MAC Directive, that bans the use of certain HFCs in mobile air-conditioning
1493/2007	A Commission Implementing Regulation that defined reporting requirements under 842/2006. Now repealed and replaced by 1191/2014
1494/2007	A Commission Implementing Regulation that defined labelling requirements funder 842/2006. Still in force, although will be repealed and replaced during 2015
1497/2007	A Commission Implementing Regulation that defined leak checking requirements for fire protection systems under 842/2006. Still in force.
1516/2007	A Commission Implementing Regulation that defined leak checking requirements for refrigeration, air-conditioning and heat pump systems under 842/2006. Still in force.
303/2008	A Commission Implementing Regulation that defined training and certification requirements for RACHP under 842/2006. Still in force.
304/2008	A Commission Implementing Regulation that defined training and certification requirements for FPS under 842/2006. Still in force.
305/2008	A Commission Implementing Regulation that defined training and certification requirements for electrical switchgear under 842/2006. Still in force.
306/2008	A Commission Implementing Regulation that defined training and certification requirements for solvent use under 842/2006. Still in force.
307/2008	A Commission Implementing Regulation that defined training and attestation requirements for MACs under 842/2006. Still in force.
1005/2009	EU Ozone Regulation that bans sales of CFCs and HCFCs

Gluckman Consulting
specialists in refrigeration and climate change

This Information Sheet has been prepared by Gluckman Consulting

in collaboration with the Defra (UK Department for Environment, Food and Rural Affairs) and Jacobs

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admin@gluckmanconsulting.com www.gluckmanconsulting.com