

# EU F-Gas Regulation Guidance

## Information Sheet 15:

### Fire Protection System Contractors

#### Target audience for this Information Sheet

This Information Sheet is aimed at contractors that carry out installation, maintenance and decommissioning work on fire protection systems using HFCs. It is also useful for operators of fire protection systems that use 3<sup>rd</sup> party contractors to maintain their system.

## 1. Background

This guidance is 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<sub>6</sub>.

Fire protection system (FPS) contractors play a major role supporting operators of FPS equipment. They have to comply with a number of requirements under the F-Gas Regulation. 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<sub>2</sub> (per kg of gas emitted). All EU Member States agree that it is important to reduce emissions of these gases.

This Information Sheet describes the requirements that apply to FPS contractors. Further guidance is available – see Information Sheet 30 for a full list and a glossary of terms.

#### FPS Contractors: Compliance Checklist for EU F-Gas Regulation

- ✓ **NEW:** Advise customers about the impact of HFC bans and the phase down on the selection of new FPS equipment
- ✓ Ensure the company and all relevant staff have suitable F-Gas training and certification
- ✓ **NEW:** Comply with new legal responsibility on contractors to prevent leaks
- ✓ Ensure new systems are properly labelled during installation
- ✓ **NEW:** Ensure mandatory leak checks and repairs are carried out, using the new CO<sub>2</sub> equivalent size thresholds for leak checks and for automatic leak detection
- ✓ **NEW:** Ensure appropriate records are kept by both contractor and operator
- ✓ Ensure proper recovery of HFCs during maintenance and at end-of-life

## 2. Sector description

The fire protection industry make use of HFC fire extinguishing products in certain specialised building applications, where building contents have a high value and other fire protection systems (e.g. water based) could cause too much damage. In the UK most systems of this type use HFC 227ea (also referred to by trade names such as FM 200).

Detailed guidance on the impact of the 2014 F-Gas Regulation for end users in the FPS sector is available in Information Sheet 10.

Most operators of FPS make use of specialist contractors for installation and maintenance work. The skill and expertise of the FPS contracting industry is crucial, providing operators with various services through the life cycle of FPS equipment. The F-Gas Regulation places legally binding obligations on contractors to ensure that they help end users minimise the use and emissions of high GWP HFCs. It is important that contractors comply with the Regulations that apply to them and also that they are aware of other relevant parts of the F-Gas Regulation so that they can provide their clients with appropriate advice.

## 3. Advice regarding purchase of new equipment

Contractors often provide important advice to their clients about purchase of new equipment. In the 2014 F-Gas Regulation there are 2 important new requirements that will change the advice that contractors give to their clients. These are:

- a) Various specific bans, that will require lower GWP fire extinguishing fluids to be used
- b) The impact of the HFC phase down, that will encourage low GWP fluids in all applications

### NEW: HFC Bans

The 2014 Regulation adds a ban on HFC 23 from 1<sup>st</sup> January 2016 to an existing ban on PFCs. See Table 1 for details.

**Table 1: Bans affecting FPS Equipment**

Ban description		Start date from 1 <sup>st</sup> January:
1	Fire protection systems containing PFCs	2007
2	<b>NEW:</b> Fire protection systems containing HFC 23	2016

### NEW: Impact of the HFC Phase Down on the purchase of new equipment

When purchasing new FPS equipment your clients should also consider the HFC phase down<sup>1</sup>. This will reduce the quantity of HFCs that can be sold in the EU – by 2030 there will be an 80% cut in virgin HFC supply. Equipment bought now may still be use when these cuts in virgin supply take effect. Irrespective of the bans described above, it makes sense to always purchase equipment using fluids with the lowest practical GWP to minimise the future impact of the phase down<sup>2</sup>.

The fire protection industry is committed to the responsible use of HFCs in fire protection and always recommends minimising the impact on the environment by recycling material at end-of-life. There is

<sup>1</sup> HFC phase down: see Information Sheet 28 for further details

<sup>2</sup> Low GWP alternatives to HFCs: see Information Sheet 29 for further details

a significant bank of HFCs in installed systems. As these systems reach the end of their natural life the fire extinguishant may be available for recycling

#### 4. Contractor training and certification requirements

All HFC handling operations on FPS equipment containing HFCs must be carried out by suitably trained technicians holding an F-Gas 'Competency' certificate and working for an F-Gas Certificated company. This includes system installation, leak testing, HFC recovery, maintenance and end-of-life decommissioning. The training and certification requirements are based on those already specified in the 2006 F-Gas Regulation.

Existing individual F Gas qualification certificates remain valid in accordance with the conditions under which they were originally issued.

**NEW:** Qualified technicians must also be given "*information on relevant technologies to replace or to reduce the use of fluorinated greenhouse gases and their safe handling*". No further assessments are required, but all technicians should be aware of relevant information about the use of alternatives. It is expected that standard information will be prepared and then circulated via Certification Bodies.

Company Certification is required by all contractors carrying out installation and maintenance work. This applies to sole traders as well as limited companies. The process is unchanged from the 2006 Regulation. Defra has designated the Fire Industry Association (FIA) as the industry certification body who can issue a Company Certificate for FPS:

**Fire Industry Association:** Telephone: 0203 166 5002, email: [info@fia.uk.com](mailto:info@fia.uk.com); website: [www.fia.uk.com](http://www.fia.uk.com)

See Information Sheet 23 for details of all FPS training and certification requirements.

#### 5. Contractor responsibilities to minimise HFC emissions

Under the 2006 F-Gas Regulation the legal responsibilities related to F-Gas emissions from FPS equipment were held only by the system operator.

**NEW:** In the 2014 Regulation there is an explicit legal requirement for contractors to share this responsibility. Article 3 of the Regulation states that "*The intentional release of F-Gases into the atmosphere shall be prohibited where the release is not technically necessary for the intended use.*"

The Regulation then states that contractors "*carrying out the installation, servicing, maintenance, repair or decommissioning of FPS equipment shall be certified and **shall take precautionary measures to prevent leakage of F-Gases***".

This is an important new requirement about which contractors may need to inform a client, if they are being asked to do something that does not comply with the Regulation.

#### 6. Contractor responsibilities during system installation

All contractor staff carrying out installation work related to HFC handling must hold the appropriate F-Gas competence certificate and must take precautionary measures to prevent leakage. Technicians carrying out unrelated installation activities, e.g. electrical work, do not need a competence qualification. However, anyone doing work that could affect the activation of the FPS and give rise to possible leakage must be qualified.

## Product Labelling

All FPS products that contain F-Gases (including HFCs) shall not be placed on the market unless the F-Gases are identified with a label. The label shall indicate the following information:

- 1) A reference that the FPS system contains F-Gases
- 2) The accepted industry designation for the F-Gas concerned or, if no such designation is available, the chemical name
- 3) **NEW:** From 1 January 2017, the quantity expressed in weight and in CO<sub>2</sub> equivalent of F-Gas contained in the equipment, or the quantity in weight and the global warming potential of the gas

For most FPS equipment the label will be provided by the equipment manufacturer that fills the cylinders of fire extinguishing fluid – however, the contractor should always check that the system is properly labelled.

## 7. Contractor responsibilities during maintenance activities

The 2014 F-Gas Regulation includes a number of requirements that affect the use and maintenance of existing FPS containing HFCs. The rules depend on the size of FPS being used. The regulations affecting existing equipment relate to (a) leak prevention and (b) record keeping. These requirements are described below.

### Mandatory leak checks

Mandatory leak checks are required on all FPS equipment above certain size thresholds.

Under the 2006 F-Gas Regulation, the thresholds were set in terms of the physical quantity of refrigerant in the system – those containing more than 3 kg required a regular leak check.

**NEW:** Under the 2014 Regulation the requirements are similar, but the size thresholds are defined in terms of tonnes CO<sub>2</sub> equivalent<sup>3</sup>. These new CO<sub>2</sub> equivalent (CO<sub>2</sub> e) size thresholds mean that the kg threshold for each HFC is different. HFCs with a high GWP (e.g. HFC 23) will have a lower size threshold than HFCs with a lower GWP (e.g. HFC 227ea). Table 2 shows leak testing requirements under both Regulations. Example thresholds are given for HFC 23 and HFC 227ea. A comprehensive table of thresholds is given in Information Sheet 24.

**Table 2: Size Thresholds for Mandatory Leak Checks**

Leak Check Frequency*	2006 Regulation	2014 Regulation		
	kg threshold for all HFCs	tonnes CO <sub>2</sub> e threshold for all HFCs	kg threshold for HFC 23	kg threshold for HFC 227ea
Annual	3 kg	5 tonnes CO <sub>2</sub> e **	0.3 kg	1.6 kg
Every 6 months	30 kg	50 tonnes CO <sub>2</sub> e	3.4 kg	15.5 kg
Every 3 months	300 kg	500 tonnes CO <sub>2</sub> e	34 kg	155 kg

\* Leak check frequency is halved if automatic leak detection system is installed

All stationary fire protection systems using HFCs contain considerably more than the lower threshold shown in Table 2, so they will all require a mandatory leak test regime. This is unlikely to impact the

<sup>3</sup> Understanding CO<sub>2</sub> thresholds: see Information Sheet 25 for further details

fire protection industry as there is already a strict 6 monthly maintenance regime for most systems. The Regulation recognises that most fire protection systems have regular maintenance and leak checks. The leak checking obligations shall be considered to be fulfilled provided the following two conditions are met:

- the existing inspection regime meets ISO 14520 or EN 15004 standards; and
- the fire protection equipment is inspected as often as shown in Table 2

If a leak is found during a mandatory leak check it must be repaired without undue delay and the leak test repeated within one month to ensure the repair was effective.

### Mandatory automatic leak detection

**NEW:** For all fire protection systems containing 500 tonnes CO<sub>2</sub>e or more there is a mandatory requirement for an automatic leak detection system to be fitted. This is a continuation of a similar requirement in the 2006 Regulation, although the size threshold is changed from 300 kg to 500 tonnes CO<sub>2</sub>e. This will have an impact on systems using high GWP fire extinguishing fluids. As shown in Table 2, for HFC 227ea systems the new threshold for automatic leak detection systems is reduced from 300 kg to 155 kg. For HFC 23 systems the threshold for automatic leak detection is even lower – at just 34 kg. This rule applies from 1<sup>st</sup> January 2015. Most systems are provided with an automatic leak detection facility as standard.

An automatic leak detection system is defined as a “*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*”.

Automatic leak detection systems must be tested at least once every 12 months to ensure their proper functioning.

### Record keeping

Operators of fire protection systems must keep records for each piece of equipment that is subject to a mandatory leak check (i.e. above the 5 tonnes CO<sub>2</sub>e threshold). The records that must be kept are similar to those required under the 2006 Regulation:

- a) quantity and type of F-Gas installed
- b) quantities of F-Gas added during installation, maintenance or when repairing a leak
- c) **NEW:** whether the F-Gases used have been recycled or reclaimed (including the name and address of the recycling or reclamation facility and, where applicable, the certificate number).
- d) quantity of any F-Gases recovered
- e) the identity of the undertaking that installed, serviced or decommissioned the equipment, including, where applicable, their certificate number
- f) dates and results of all mandatory leak checks
- g) **NEW:** if the equipment was decommissioned, the measures taken to recover and dispose of the F-Gases.

**NEW:** Records must be kept by the “operator” for at least 5 years. Where a contractor prepares records for the operator, the records should also be kept by the contractor for at least 5 years. The records shall be made available on request to the UK Government’s competent authority (i.e. the Environment Agency) or to the Commission.

## 8. Purchase of bulk HFCs

HFCs shall only be sold to and purchased by certified undertakings. This means that HFC suppliers will require evidence that contractors are certified or qualified to make the purchase. You should contact your suppliers to confirm what new requirements they plan to introduce – it is likely to be evidence based on your Company F-Gas Certificate.

## 9. Contractor responsibilities for systems at end-of-life

Any fire protection systems containing HFCs that is being disposed of at end-of-life must undergo an HFC recovery process. Recovery must be carried out by a certificated technician.

All recovered F-Gases can either be:

- a) given a basic cleaning process, to create “recycled HFC”.
- b) sent to a specialist facility that can re-process the old HFC into a fluid with properties identical to virgin HFC, to create “reclaimed HFC”
- c) sent for destruction by incineration at a licenced waste facility

Given the HFC supply shortage that will be created by the phase down process, it is worth trying to send the old HFC for reclamation as it may have a good residual value. If the old HFC is too contaminated it cannot be reclaimed and must be sent for destruction. It is important not to mix different gases in the same recovery cylinder – as this would render them unsuitable for reclamation.

**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**

This document can be used and distributed for no charge. It contains the best information available to date and will be updated as more or different information is made available. It does not seek to provide a definitive view on the legal requirements; only the courts can provide such a view. If there are uncertainties you should always refer to the text of the Regulation and seek qualified legal advice.

[admin@gluckmanconsulting.com](mailto:admin@gluckmanconsulting.com)

[www.gluckmanconsulting.com](http://www.gluckmanconsulting.com)