



Department for
Business, Energy
& Industrial Strategy

FLUORINATED GREENHOUSE GASES

Guidance for the Offshore Hydrocarbon Industry on the Fluorinated Greenhouse Gases Regulation (EU) No. 517 / 2014, the Fluorinated Greenhouse Gases Regulations 2015 (SI 2015 / 310) and the Fluorinated Greenhouse Gases Regulations (Northern Ireland) 2015 (SI 2015 / 425)



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Introduction

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Contents

Introduction	4
Prevention of release	4
Operator’s Responsibilities	6
Control of Use	6
Identification of F gas	8
Training and Certification	9
Use qualified technicians	9
Specific qualification requirements for common equipment found on offshore installations	9
Checking for Leaks	13
Special cases and exemptions	14
Install leak detection equipment	14
Repair leaks	15
Recover F gas when disposing of equipment	15
Records and Reporting	16
Keep records	16
Reporting	16
Inspection and Enforcement	19
Inspection	19
Enforcement	19
Further Information	21
BEIS Contact Information	21

Introduction

This guidance is issued by the Department for Business, Energy & Industrial Strategy (the Department) for use by the offshore oil and gas exploration and production industry (including offshore gas storage and unloading and carbon capture and storage) and covers Regulation (EU) No 517/2014 on fluorinated greenhouse gases (the “EU Regulation”), and the UK’s implementing legislation - the Fluorinated Greenhouse Gases Regulations 2015 (SI 2015 / 310) (the “GB Regulations”) and the Fluorinated Greenhouse Gases Regulations (Northern Ireland) 2015 (SI 2015 / 425) (the “NI Regulations”). (In this guidance, the EU and UK legislation are together referred to as “the Regulations”).

This guidance applies to installation operators (as defined in the Offshore Petroleum Licensing (Offshore Safety Directive) Regulations 2015) and owners of non-production installations (as defined in the Offshore Installations (Offshore Safety Directive) (Safety Case etc.) Regulations 2015) (hereafter referred to as “operators” for the purpose of this guidance). It also details the responsibilities and duties of service companies who may be contracted to service relevant equipment.

The Regulations address the use of fluorinated greenhouse gases (F gas) and impact anyone who:

- manufactures, sells, uses or services equipment that contains F gas, like refrigeration and air conditioning systems, solvents or aerosols,
- produces or sells F gas, and
- imports or exports F gas, or equipment containing F gas, to or from the EU.

This guidance is only intended to summarise the requirements in the Regulations most relevant to offshore installations. In order to ensure compliance, operators should also refer to the Regulations.

Prevention of release

The intentional release of F gas to atmosphere is prohibited by the Regulations where the release is not technically necessary for the intended use (Article 3(1) of the EU Regulation).

The Regulations require operators to take all measures technically and economically feasible to minimise or prevent the release of F gas (Article 3(2) of the EU Regulation).

The responsibilities placed on operators (and outlined in the following sections) are aimed at reducing emissions of F gas.

Operator's Responsibilities

The operator is the company in charge of the day to day running/operation of equipment containing F gas. In most circumstances this will be the installation operator of a production installation or the owner of a non-production installation.

The Regulations allow operators to utilise contractors (service companies) to install, service, maintain, repair and decommission relevant equipment.

Irrespective of the involvement of a service company, operators are responsible for the following:

- Checking if the equipment contains F gas
- Taking precautions to prevent the release of F gas
- Taking all measures technically and economically feasible to minimise the release of F gas
- Using qualified technicians
- Checking the equipment for leaks
- Installing and checking leak detection equipment
- Repairing leaks
- Recovering F gas when disposing of equipment
- Keeping records and reporting to the Department

Any service company employed by an operator is required to keep copies of the records maintained by the operator. Service companies are also required to take precautionary measures to prevent the release of F gas.

Control of Use

From 1 January 2020 the use of F gas (with a global warming potential of 2500 or more) to service or maintain refrigeration equipment (with a charge size of 40 tonnes carbon dioxide equivalent or more) shall be prohibited except where (until 1 January 2030);

- The F gas is reclaimed and is labelled accordingly (as per Article 12(6))

- Recycled F gas is being used for the maintenance or servicing of existing refrigeration equipment (provided it has been recovered from such equipment). Such recycled F gas may only be used by the service company which carried out its recovery as part of maintenance or servicing, or the operator for which the recovery was carried out as part of maintenance or servicing.

Identification of F gas

Operators must identify all equipment that contains F gas that is under the scope of the regulations.

Operators should refer to the list of F gas covered by the Regulations (<https://www.gov.uk/government/publications/fluorinated-greenhouse-gases-f-gases-regulated-by-the-eu>).

Training and Certification

Use qualified technicians

Only qualified technicians can carry out work on equipment containing F gas, including:

- installation
- testing for leaks
- general maintenance, servicing and repair
- disposal or decommissioning when the product is no longer needed

Operators are responsible for checking that service companies and technicians working on their equipment are qualified where required by the Regulations.

Qualifications and certificates issued in accordance with the EU's 2006 F gas Regulation (EC 842/2006) are still valid under the 2014 EU Regulation (Article 10(7)). A new certificate is not required unless the qualification has expired.

As well as the high-level training and certification requirements set out in the EU Regulation, implementing Commission Regulations set out the detail on certification requirements for different equipment, as specified below.

Specific qualification requirements for common equipment found on offshore installations

Refrigeration or stationary air conditioning and heat pump systems

These requirements are set out in Regulation (EU) 2015/2067. Persons must be qualified to carry out any of the following types of work on refrigeration systems, or stationary air conditioning and heat pump systems (Article 2(1)):

- installation
- repair, maintenance and servicing
- leak checking of equipment containing 5 tonnes CO₂e (carbon dioxide equivalent) or more of F gas not contained in foams, unless such equipment is hermetically sealed, labelled accordingly and contains less than 10 tonnes CO₂e of F gas.

- recovering F gas
- decommissioning

Persons must hold one of the following qualifications:

- City & Guilds F gas and ODS Regulations certificate
- Construction Industry Training Board Refrigeration certificate
- an equivalent qualification that's recognised by another EEA State

Qualifications to work on refrigeration or stationary air conditioning and heat pump systems have 4 different categories. The category will depend on the tasks to be carried out:

- Category 1 certificate holders can carry out all activities (Article 3(2)(a)).
- Category 2 certificate holders can install, repair, maintain, service, decommission and recover refrigerant from systems that contain less than 3kg of F gas, or less than 6kg of F gas for labelled hermetically sealed systems. They can also check equipment for leaks if they don't break into the refrigeration circuit containing F gas (Article 3(2)(b)).
- Category 3 certificate holders can recover F gas from systems that contain less than 3 kg of F gas, or less than 6kg of F gas for labelled hermetically sealed systems (Article 3(2)(c)).
- Category 4 certificate holders can check equipment for leaks if they don't break into the refrigeration circuit containing F gas (Article 3(2)(d)).

Fire Protection Systems

These requirements are set out in Regulation (EC) No 304/2008 and the GB and NI Regulations. Persons must be qualified to carry out leakage checking of applications containing 3kg or more of F gas, and for recovery, installation, maintenance and servicing of fire protection systems (Article 2(1)). Persons must also be qualified to carry out recovery with regard to fire extinguishers. Persons must hold one of the following qualifications (regulations 10 and 11 of the GB Regulations and regulations 8 and 9 of the NI Regulations):

- a Fire Industry Association (FIA) F gas competency certificate
- an equivalent qualification from another EEA State

Electrical Switchgear

These requirements are set out in Regulation (EU) 2015/2066. Persons must be qualified to carry out any of the following types of work on electrical switchgear that contains F gas (Articles 1 and 2(1)):

- installation
- servicing, maintenance and repair
- recovering F gas from stationery electrical switchgear
- decommissioning

However, for electrical switchgear that is not high voltage switchgear, the certification requirement only applies from 1 July 2017 (Article 9).

Persons must hold a qualification from one of the bodies listed at Schedule 1 of the GB and NI Regulations or an equivalent qualification recognised by another EEA state. Persons can carry out the above activities for up to a year in total before they qualify if they are:

- working under the supervision of a qualified person
- enrolled on a course to obtain the necessary qualification.

Certification for Service Companies working on equipment containing F gas

Service Companies must be certified to handle F gas covered by the Regulations if they work on the following types of equipment for other businesses:

- stationary refrigeration systems that contain F gas (Article 2(2) of Regulation (EU) 2015/2067)
- stationary air conditioning and heat pump systems that contain F gas (Article 2(2) of Regulation (EU) 2015/2067)
- stationary fire protection systems that contain F gas (Article 2(2) of Regulation (EC) No 304/2008)

This includes installing, repairing, maintaining and servicing and, except for fire protection systems, decommissioning. Service Company employees must also be qualified as individuals as described above if they handle F gas.

Certificates issued in other EEA states are valid in the UK.

Companies servicing their own equipment

An operator carrying out the installation, servicing, maintenance, repair or decommissioning of their own F gas containing equipment does not require a company certificate from the relevant certifying organisation. However, employees still have to be appropriately qualified as individuals if they handle F gas, whether they work directly for an operator or a service company. An operator also does not require a company certificate to purchase F gas from a supplier provided that its personnel are appropriately qualified (Article 11(4) of the EU Regulation).

Refrigeration and stationary air conditioning certification

Service Companies must be certified by one of the following organisations if they work on refrigeration or stationary air conditioning and heat pump systems for other businesses:

- Bureau Veritas
- Quidos
- Refcom

Or they must hold an equivalent certification recognised by another EEA State

Companies must ensure that all relevant certification is renewed on the basis required by the certification body renew their certification every 3 years.

Fire protection certification

Companies working on fire protection systems must be certified by the Fire Industry Association, or hold an equivalent certification that's recognised by another EEA State (regulations 10 and 11 of the GB Regulations and regulations 8 and 9 of the NI Regulations).

Company certification ensure that all relevant certification is renewed on the basis required by the certification body must be renewed every 5 years.

Certified companies must be able to demonstrate that they:

- employ sufficient trained staff to carry out the work
- have tools and procedures in place for the safe handling of F gas and to minimise emissions

Checking for Leaks

Operators are responsible for stopping leaks from their equipment.

Service companies that install, service, maintain, repair or decommission equipment share responsibility for trying to stop leaks with the operators of the equipment (see Article 3(4)).

Equipment must be checked for leaks at specific intervals, as set out in Article 4 of the EU Regulation.

The thresholds at which leak check intervals are specified are expressed in terms of CO₂e. They take into account both the quantity of F gas in the equipment and the 'global warming potential' of the F gas (how much the F gas contributes to global warming).

The table below sets out the:

- F gas thresholds, in tonnes CO₂e, at which leak check intervals are specified
- maximum allowed interval between leaks checks for equipment that meets each threshold
- quantities of commonly used HFCs equal to each threshold

Maximum interval between leak checks	CO ₂ e (tonnes)	HFC 23 (kg)	HFC 227ea (kg)	HFC 404A (kg)	HFC 410a (kg)	HFC 134a (kg)
1 year	5-49	0.3	1.6	1.3	2.4	3.5
6 months	50-499	3.4	15.5	13	24	35
3 months	500+	34	155	127	240	350

The global warming potentials of other F gas can be found here (<https://www.gov.uk/government/publications/fluorinated-greenhouse-gases-f-gases-regulated-by-the-eu>). These can be used to calculate

(<https://www.gov.uk/guidance/calculate-the-carbon-dioxide-equivalent-quantity-of-an-f-gas>)
the CO₂e of an F gas.

Special cases and exemptions

If a system to automatically detect leaks is installed, the maximum interval between leak checks is doubled. For example a system that contains 5 tonnes CO₂e only needs to be leak checked once every 2 years, if a leak detection system is fitted.

Leak check requirements do not apply if the F gas is contained in foams.

There is no requirement to leak check labelled hermetically sealed equipment provided it contains less than 10 tonnes CO₂e.

Until 31 December 2016, there is no requirement to leak check equipment that contains less than 3 kg of F gas or equipment that contains less than 6 kg of F gas which is hermetically sealed and labelled accordingly. However, from 1 January 2017 such equipment must be checked.

Electrical switchgear will not be subject to leak checks provided it complies with one of the following conditions:

- (a) it has a tested leakage rate of less than 0.1% per year and is labelled accordingly;
- (b) it is equipped with a pressure or density monitoring device; or
- (c) it contains less than 6 kgs of F gas.

Install leak detection equipment

An automatic leak detection system must be fitted if the equipment contains 500 tonnes of CO₂e or more for stationary refrigeration, air conditioning, heat pump and fire protection equipment (Article 5(1) of the EU Regulation). For electrical switchgear containing 500 tonnes of CO₂e or more, the requirement for a leakage detection system applies for equipment installed from 1 January 2017 (Article 5(2) of the EU Regulation).

The leak detection system must alert the operator, or a service company responsible for the equipment, if a leak is detected.

The leak detection system must be checked at least once a year to make sure it's working properly unless it is associated with electrical switchgear in which case it must be checked at least once every 6 years (Article 5(3) and 5(4) of the EU Regulation).

Repair leaks

If a leak is found it must be repaired without delay and following a repair of equipment that must be leak checked, a leak check must be carried out within a month by a certified person to check the repair worked (Article 3(3) of the EU Regulation).

Recover F gas when disposing of equipment

Qualified technicians must be used to recover F gas not contained in foams when decommissioning and/or disposing of equipment. Operators shall ensure that recovered gases are recycled, reclaimed or destroyed (Article 8(1) of the EU Regulation).

The operator or service company that uses an F gas container immediately prior to its disposal must arrange for the recovery of any residual gases to make sure they are recycled, reclaimed or destroyed (Article 8(2) of the EU Regulation).

Records and Reporting

Keep records

Operators must keep the following records for any equipment that has to be checked for leaks (Article 6 of the EU Regulation) (see previous section for leak-checking criteria):

- quantity and type of F gas in the equipment when it's installed
- quantity and type of F gas added during installation, maintenance, servicing or due to leakage
- details (name, address and certificate number if relevant) of any companies that install, service, maintain, repair or decommission the equipment
- dates and results of all mandatory leak checks
- measures taken to recover and dispose of F gas when the equipment is decommissioned (e.g. disposing of it through a registered waste carrier)
- quantity of any F gas recovered

Operators must also record if the F gas used in the equipment has been recycled or reclaimed and if so the:

- details of the recycling or reclamation facility (name, address and certificate number if it has one)

Operators should maintain their records in a clearly auditable fashion that readily demonstrates compliance with the Regulations. Operators must keep records for at least 5 years and make them available to the Department if requested to do so.

Service companies employed by an operator are required to keep copies of the records maintained by the operator for at least 5 years.

Reporting

The operator of equipment shall notify the Department on an annual basis (via the Environmental Emissions Monitoring System – EEMS) of the quantities and types of F gas released from, or contained in, their equipment on an installation-by-installation basis. The reporting shall be in kilograms and tonnes CO₂e. Where stock cylinders are present on an

installation, only releases shall be reported to EEMS - not the stock cylinder F gas inventory.

Additionally, operators shall inform the Department (using the form below) of any releases of F gas greater than or equal to 250 tonnes CO₂e within 2 working days of becoming aware of the release. The purpose of this reporting requirement is to enable the Department to receive timeous notification of significant releases and identification of any systemic issues with managing F gas offshore. The reporting form should be completed with sufficient detail to allow the Department to make a determination on whether any further inspection or enforcement activities are required.

REPORTING FORM FOR THE EU F GASES REGULATION			
Reporting year:		Date submitted:	
1. Operator name, installation and reporting person:			
Telephone number:		E-mail:	
2. Equipment make:		Equipment model:	
Equipment type:		Equipment capacity:	
3. Year equipment installed:			
4. Date when the release occurred (known or estimated):			
5. Details / likely cause of the release:			
7. Type of F gas released:		8. Quantity released (estimated if necessary)	
		kg	Tonnes CO₂e
9. Steps taken to resolve / prevent recurrence of the release:			
<i>For BEIS Purposes Only</i>			
Environmental Inspector:			
Inspector's Assessment:			
No Further Action	<input type="checkbox"/>	Further Information Requested	<input type="checkbox"/>
Further Action Taken	<input type="checkbox"/>		
Additional Details:			
Date Completed:			

Inspection and Enforcement

Inspection

BEIS offshore environmental inspectors are appointed as 'authorised persons' in relation to the inspection and enforcement of the regulations. For the purpose of enforcing the regulations authorised persons have certain specified powers which include (regulation 22 of the GB Regulations and regulation 20 of the NI Regulations):

- entering premises (including offshore installations)
- taking possession of any relevant article or substance
- requiring the production of relevant records
- requiring any person to provide any relevant information
- issuing information notices
- issuing enforcement notices

Enforcement

The approach of the Department to the enforcement of the Regulations is consistent with the principles of enforcement as detailed in the BEIS Enforcement Policy (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/470442/DE-CC-Offshore-Inspectorate-Enforcement-Policy-October-2015.pdf).

The Regulations specify a number of offences (regulations 29 and 30 of the GB Regulations and regulations 26 and 27 of the NI Regulations). Offences are potentially committed by any person and include:

- breaching certain prohibitions detailed in the Regulations
- failing to produce a document or record when required to do so
- failing to comply with an Enforcement Notice
- intentionally obstructing any person acting in the execution or enforcement of the Regulations

- failing to give any person acting in the execution or enforcement of the Regulations any assistance or information which they may reasonably require.

Further Information

BEIS Contact Information

For enquiries on this guidance document please contact;

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