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Summary Guidance for Compliance with the ODS and F-Gas Regulations

Fluorinated Greenhouse gases (F-gases) are very potent greenhouse gases which contribute to climate change if released to atmosphere. Ozone Depleting Substances (ODS) are chemicals which can damage and deplete ozone within the earth's ozone layer when released.

[The F-gas Regulations](#)¹ came into force on 1st January 2015. These Regulations are concerned with the **phase down** of F-gases and **preventing their release** into the atmosphere. [The ODS Regulation](#)² remains unchanged, it sets out obligations relating to ODS and equipment containing ODS.

In this document changes introduced by the F-gas Regulations are flagged using the word “**New!**”, where appropriate.

If you are the operator^{3, 4} of any of the equipment listed below containing ODS or F-gas, then you have obligations under the ODS and/or F-gas Regulations.

- **Refrigeration Systems (Stationary and Mobile)**
- **Air Conditioning (AC) Systems (Stationary and Mobile)**
- **Heat Pumps**
- **Fire Protection**
- **Refrigeration Units of Refrigerated Trucks and Trailers**
- **New! Electrical Switchgear**
- **New! Organic Rankine Cycles (ORCs)**

The most common gases used within the equipment listed above are included in Table 1.

¹ [Regulation EU No. 517/2014](#) which came into force on 1st January 2015 and repealed F-gas Regulation EC No. 842/2006

² [Regulation \(EC\) No. 1005/2009](#)

³ The operator is defined in the F-gas Regulation as “*the natural or legal person exercising actual power over the technical functioning of products and equipment covered by this Regulation*”

⁴ As a starting point the owner should assume responsibility for operator obligations under the F-gas Regulation unless it is confirmed that the operator obligations have been transferred to a third party

Table 1: Common ODS and F-gases

Common Gases in Use	F-gas	ODS
R22	✘	✔
R408A (ODS + F-gas Blend)	✔	✔
R134a	✔	✘
R404A	✔	✘
R407C	✔	✘
R410A	✔	✘
Ammonia and CO ₂ gases, may also be used in some of the equipment and these are not ODS nor F-gases and are not covered by the F-gas and ODS Regulations.		

Table 2: Key requirements for compliance with the F-gas and ODS Regulations:

Requirement/Obligation:	How to Comply:
1. Phase Down	New! If your equipment runs on F-gas make sure you are aware of, and ready for, F-gas Phase Down (in force since <u>1st January 2015</u>) and the Service and Maintenance Ban (from <u>1st January 2020</u>)
2. Prevent Emissions	New! prevent the intentional release of F-gases from equipment
3. Leak Checks	Have your systems checked for leaks and get them repaired. How often you must check your systems depends on the quantity of ODS gas in equipment containing ODS and (New!) the Global Warming Potential (GWP) ⁵ of F-gas in equipment containing F-gas.
4. Qualifications	Ensure that the people working on your systems have the correct qualifications and are certified with F-gas Registration Limited (FGR). F-Gas Registration Limited is the certification company established in Ireland to issue company certificates. Contractor company certificates can also be issued by a certification body in another Member State of the European Union and are mutually recognised in Ireland.
5. Labelling	Prior to equipment being placed on the market it must be labelled with the required information.
6. Comply with the ODS Ban	Comply with the ODS ban which is in place since <u>1st January</u>

⁵ A measure of the degree to which a gas contributes to global warming

Requirement/Obligation:	How to Comply:
	2015. You may not add any ODS to equipment during servicing. At this point, the refrigerant gas in the system would either have to be replaced with an alternative gas or the whole system has to be replaced with an alternative system.
7. Hazardous Waste	Make sure any waste gas taken from your systems is recovered properly and treated as a hazardous waste .
8. Keep Records	Keep written records to prove you have checked your equipment, used qualified people to maintain it and managed your waste legally.

1. F-gas Service and Maintenance Ban and Phase Down

New! From **January 1st 2020** the use of F-gas with a GWP of 2,500 or more, in the servicing or maintenance of equipment with a charge size of 40 t CO₂ eq or more, is **prohibited**.

New! In order to limit release of F-gas to atmosphere a phase down of the quantities of F-gases placed on the EU market by producers and importers is in place since 1st January 2015.

This means that each year the quantity of F-gas available to contractors for maintenance/servicing of F-gas containing equipment will reduce. You will have to consider using F-gas alternatives, possible retrofitting of equipment and take into account the GWP of a gas when purchasing new equipment. Further advice and guidance can be obtained from your qualified and certified contractor or by consulting "[Summary Guide to the HFC \(F-gas\) phase down](#)".

2. Prevent the Release of Gases from Equipment

The F-Gas and ODS Regulations places an increased emphasis on the prevention of leaks by taking appropriate precautions. **New!** The F-gas Regulation explicitly prohibits the intentional release of F-gases to atmosphere.

If there is a leak then it must be repaired **without delay**, and in the case of ODS, within 14 days. Leak prevention is crucial to avoid the damaging impacts of both ODS and F-gases.

3. Have your Systems Checked for Leaks

F-gas

New! In addition to stationary equipment⁶ (i.e. refrigeration, air conditioning, heat pumps and fire protection equipment), other F-gas containing equipment now requires leak checking:

- Refrigeration units of refrigerated trucks and trailers⁷

⁶ Stationary means not normally in transit during operations

- Electrical switchgear⁸
- Organic Rankine cycles

New! F-gas containing equipment must be leak checked based on the CO₂ eq of the F-gas within the equipment. Table 3 summarises the required frequency of leak checking.

New! Leak checking is required only for equipment that contains F-gases in quantities of **5 tonnes of Carbon Dioxide (CO₂) equivalent⁹** (t CO₂ eq) **or more**, subject to the following exemption:

The repealed F-gas Regulation leak checking regime for small charge equipment continues until 31st December 2016 after which the new regime applies i.e. leak checking **is not** required for equipment containing less than 3 kg of F-gas and for hermetically sealed equipment (equipment sealed in airtight welding/brazing) containing less than 6 kg of F-gas.

Table 3: F-gas Leak Checking Frequencies

Quantity of gas (t CO ₂ eq)	F- gas Leak Checking Frequency	
	No leak detection equipment fitted	Leak detection equipment fitted
≤ 5	None	None
5 - 50	12-monthly	24 monthly
50 - 500	6-monthly	12-monthly
≥ 500	3-monthly	6-monthly

Hermetically sealed equipment containing less than 10 t CO₂ eq is not subject to leak checking provided the equipment is labelled as being hermetically sealed.

Automatic leak detection equipment¹⁰ is required for equipment covered under the F-gas Regulation (with the exception of refrigerated trucks and trailers) which contains F-gas in quantities of 500 t CO₂ eq, or more.

To determine if your equipment contains F-gas in quantities greater than 5 t CO₂ eq please refer to the conversion table provided in the Guidance Document titled "[Summary Guide to the New Leak Checking Requirements](#)". This Guidance Document also includes a full overview of the new leak checking requirements, leak checking exemptions and worked example calculations.

⁷ A motor vehicle with a mass of more than 3.5 tonnes that is designed and constructed primarily to carry goods and that is equipped with a refrigeration unit

⁸ Electrical switchgear using SF₆

⁹ The CO₂ equivalent is a metric measure used to compare the emissions from various greenhouse gases based upon their GWP

¹⁰ An automatic leakage detection system is a calibrated mechanical, electrical or electronic device for detecting leakage of F-gases which, on detection, alerts the operator

ODS

The leak checking frequency required for ODS containing equipment is unchanged and is based on the ODS weight (in kg).





















Table 4: ODS Leak Checking Frequencies

Leak Checking Frequency	ODS	
	System charge - normal (kg)	System charge - Hermetically sealed (kg)
None	< 3 kg	< 6 kg
Annual	3 kg to 30 kg	6 kg to 30 kg
6-monthly	30 kg to 300 kg	30 kg to 300 kg
Quarterly	> 300 kg	> 300 kg

4. Qualifications

Personnel or companies¹¹ working on ODS or F-gas containing equipment must have the appropriate qualifications for the activities being carried out.

Table 5: Certification Requirements for Activities and Equipment – under the F-gas Regulations

	Installation, Servicing, Maintenance	Repair	Decommissioning	Leak Checking	Recovery
Stationary Equipment ¹²					
Refrigerated Trucks & Trailers					
Electrical Switchgear					
Mobile Air Conditioning (MAC) Units					
Fire Protection Equipment					

¹¹ Personnel include in house personnel or external contractors. Companies include contractors.

¹² Stationary includes refrigeration, air conditioning, heat pumps and fire protection equipment



Company Certification Required



Personnel Qualifications Required

In Ireland, completion of the appropriate level of the City and Guilds 2079 or the Further Education Training Awards Council (FETAC) level 5 (Special Purpose Certificate in Handling F-gas Refrigerants 5S0108) certifications, or the appropriate Craft Certificates (FAS and or SOLAS Apprenticeships) as listed in the Regulations, permits personnel to undertake the various tasks above on both ODS and F-Gas equipment. The City and Guilds 2078 certification permits personnel to work only on ODS equipment.

You can check whether a contractor has an Irish company certification at www.fgasregistration.ie. However company certificates can be issued by a certification body in another Member State of the European Union and are mutually recognised in Ireland.

Further detailed information on certification requirements is included in Guidance Document titled "[Guidance Note for Operators of equipment containing ODS and F-gases](#)" which should be referred to.

5. Labelling

Your F-gas and ODS containing equipment purchased after 1st April 2008 must be labelled, showing the following information:

- The text '*Contains fluorinated greenhouse gases covered by the Kyoto Protocol*'
- For equipment containing F-gas blown foam, the text 'Foam blown with fluorinated greenhouse gases'.
- The abbreviated chemical names for the F-gases contained or designed to be contained in the equipment using accepted industry nomenclature standard to the equipment or substance.
- The quantity of the F-gases, expressed in kilograms.
- A reference that the F-gas is contained in hermetically sealed equipment, where applicable.

From 1st January 2017, the label must also show (i) the quantity (expressed in weight (kg) and in CO₂ eq) of F-Gases contained in the equipment **or** the quantity for which the equipment was designed (in kg) and (ii) the GWP of the F-gas. An example of a label is provided below.

Contains Fluorinated Greenhouse Gases covered by the Kyoto Protocol	
Refrigerant Type:	R404A
Charge in kg:	12.7kg
Charge in CO ₂ :	50 tonnes CO ₂ eq

All ODS systems irrespective of age are required to be labelled with the type and quantity (in kg) of ODS gas in the equipment.

6. Ban on ODS

Since **1st January 2015**, the use of all ODS in the maintenance or servicing of existing refrigeration, air conditioning and heat pump equipment is **prohibited**. You can still operate ODS equipment after this date. However, if the equipment leaks it **cannot** be topped up with ODS refrigerant gas. At this point you either:

- Replace the gas with an alternative (non ODS).
- Replace the equipment (with equipment that does not contain ODS gas).

Note: recovered ODS **must** be managed as a hazardous waste.

7. Waste Management

Removal of F-gas/ODS from equipment can only be performed by suitably qualified personnel and precautions must be taken to prevent emissions/leakages.

ODS cannot be reused and must now be **destroyed** upon removal and managed as a **hazardous waste**. Waste producers (i.e. operators of ODS/F-gas containing equipment) have a “**duty of care**” for the waste they produce. Your contractor may take the gas away for treatment if they have provided **Prior Annual Notification (PAN)** to the EPA (Ozone.ie) or if they have a valid waste collection permit in place (NWCPO.ie). You must check for these before allowing any waste gas to be removed.

8. Records

You must keep **written records** to prove you have had your equipment leak checked, that you've used certified people/companies and managed your waste legally.

Specifically with relation to F-gases you must:

1. Establish and maintain records for each piece of equipment specifying the following information:
 - a. The quantity and type of F-gas installed.
 - b. The quantities of F-gases added during installation, maintenance or servicing due to leakage.
 - c. Whether the quantities of installed F-gases have been recycled or reclaimed, including the name and address of the recycling or reclamation facility and, where applicable, the certificate number.
 - d. The quantity of F-gases recovered.
 - e. The identity of the undertaking which installed, serviced, maintained and where applicable repaired or decommissioned the equipment, including, where applicable, the number of its certificate.

- f. The dates and results of leak checks carried out.
 - g. If the equipment was decommissioned, the measures taken to recover and dispose of the F-gases.
2. Records should be kept for at least five years and should be made available, on request, to the competent authority.
 3. Undertakings supplying F-gases shall establish records (maintained for at least five years and available, on request, to the competent authority) of relevant information on the purchase of F-gases including:
 - a. The number of certificates of the purchasers; and
 - b. The respective quantities of F-gases purchased.

Specifically with relation to ODS you must maintain records (available on request to the competent authority) on:

- a) The quantity and type of controlled substance added and the quantity recovered during maintenance, servicing and final disposal of the equipment or system
- b) The identification of the company or technician which performed the maintenance or servicing; and
- c) Dates and results of leakage checks carried out.

Further information on the required records is included in "[Guidance Note for Operators of equipment containing ODS and F-gases](#)".

Best Practice is to:

1. Prepare an inventory of F-gas/ODS equipment to be held on-site.
2. Maintain records for all equipment on the inventory.
3. Prevent emissions.
4. Comply with F-gas phase down and ODS bans.
5. Treat waste gas as hazardous waste.
6. Consider alternatives to F-gas, particularly when considering the purchase of new equipment.
7. Consider the energy efficiency of equipment.

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