

## UNIFE fact sheet: F-Gas Regulation

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### CONTENT:

This UNIFE fact sheet sets out to what extent products from its member companies come within the scope of the European Regulation 'on fluorinated greenhouse gases and repealing Regulation 842/2006/EC' (517/2014/EC, 'F-Gases'). The use of fluorinated greenhouse gases has been governed since 2006 by Regulation 842/2006/EC. Regulation 517/2014/EC on fluorinated greenhouse gases will apply from 1 January 2015, repealing Regulation 842/2006/EC.

It is recommended that this fact sheet is considered together with both the legal text as well as the separate guidance documents from the European Commission

### Objective and Scope of the Regulation

After consent of the European Parliament and the Council, Regulation 517/2014/EC on fluorinated greenhouse gases and repealing Regulation 842/2006/EC was published on 20 May 2014. The new Regulation entered into force on 9 June 2014 and shall apply from 1 January 2015.

The UNFCCC has stated the need to reduce greenhouse gas emissions by 80 to 95 per cent below 1990 levels by 2050. The European Commission has stated that the EU needs to decrease emissions to a level of 35 mt of CO<sub>2</sub> equivalent by 2030, corresponding to a reduction of 60 per cent (of 2005 levels). The new provisions aim to decrease the EU's emissions of fluorinated greenhouse gases (F-gases) to reach approximately 21% of the annual average between 2009 and 2012 by 2030. The main regulatory approaches are:

- Introduction of a gradual phase-down of the quantities of hydrofluorocarbons (HFCs) available on the market to one-fifth of current levels by 2030,
- Prohibitions on use and placement on the market specific products and equipment, insofar as technically feasible and more climate friendly alternatives are available,
- Continuation and expansion of the scope of regulations concerning containment, leak tests, certification, disposal and labelling.
- Introduction of conditions on specific uses of fluorinated greenhouse gases

In particular the new F-gas Regulation will create incentives to use alternatives to F-gases.

**With regards the rail industry, HVAC units installed in rolling stock are to be considered mobile according to the regulation as there are normally in transit during operation.**

### Phase-down procedure

The quantity of hydrofluorocarbons (HFCs) marketed in the EU will gradually be reduced to one fifth of current sales levels (21%) by 2030. The HFCs affected by the phase-down and quotas are those placed on the market in bulk and in the filling capacities of imported equipment.

Starting 1 January 2015, companies which place 100 tonnes or more of CO<sub>2</sub> equivalent on the market per calendar year will require a quota. Both 'historical' producers and importers and 'new' market entrants may receive a quota, which requires registration in an electronic registry. New market entrants must notify the Commission of their intention to place HFCs on the market (Article 16 Para 2 of the Regulation). This notification must include data on the prospective quantities that will be placed on the market. Undertakings based outside of the EU must authorise an only representative in the EU to apply for a quota.

Years	Percentage to calculate the maximum quantity of hydrofluorocarbons to be placed on the market and corresponding quotas
2015	100 %
2016–17	93 %
2018–20	63 %
2021–23	45 %
2024–26	31 %
2027–29	24 %
2030	21 %

In addition to this, the Implementing Regulation 1191/2014/EC sets the format and the type of the necessary reporting.

### Pre-charged equipment

Manufacturers or importers of equipment which is pre-charged with F-gases must ensure that the gas used is included in the relevant year's quota and declare conformity to this (Article 14.2). From 2018 importers of pre-charged equipment must ensure that, in addition to their declaration, an independent auditor shall verify the accuracy of the previous year's declarations.

It should be noted that importers of pre-equipment are encouraged to request quota from existing quota holders rather than seeking to apply directly for F-gas quota.

## Prohibitions of use and placement on the market

The new F-gas Regulation issues prohibitions on the use and placement on the market which take effect at different points in time. Article 13 of the Regulation governs prohibitions of use whereas Article 11 in association with Annex III governs restrictions on placement on the market.

- so the placing on the market of products and equipment listed in Annex III, with an exemption for military equipment, shall be prohibited from the date specified in Annex III, differentiating, where applicable, according to the type or global warming potential of the fluorinated greenhouse gas contained;
- the use of sulphur hexafluoride in magnesium die-casting and in the recycling of magnesium die-casting alloys shall be prohibited;
- and from 1 January 2020, the use of fluorinated greenhouse gases, with a global warming potential of 2 500 or more, to service or maintain refrigeration equipment with a charge size of 40 tonnes of CO<sub>2</sub> equivalent or more, shall be prohibited.

The majority of products or equipment for the Rail Industry is not part of the scope of the F-Gas Regulation as it not falls into one of the following products or equipment listed in the extract (domestic or general public prohibitions omitted) of the Annex III, see below:

No.	Products and equipment	Date of prohibition	
1.	Non-refillable containers for fluorinated greenhouse gases used to service, maintain or fill refrigeration, air-conditioning or heat-pump equipment, fire protection systems or switchgear, or for use as solvents	4 July 2007	
2.	Non-confined direct evaporation systems that contain HFCs and PFCs as refrigerants	4 July 2007	
3.	Fire protection equipment	that contain PFCs	4 July 2007
		that contain HFC-23	1 January 2016
8.	One-component foams, except when required to meet national safety standards, that contain fluorinated greenhouse gases with GWP of 150 or more	4 July 2008	
11.	Refrigerators and freezers for commercial use (hermetically sealed equipment)	that contain HFCs with GWP of 2 500 or more	1 January 2020
		that contain HFCs with GWP of 150 or more	1 January 2022
12.	Stationary refrigeration equipment, that contains, or whose functioning relies upon, HFCs with GWP of 2 500 or more except equipment intended for application designed to cool products to temperatures below - 50 °C	1 January 2020	
13.	Multipack centralised refrigeration systems for commercial use with a rated capacity of 40 kW or more that contain, or whose functioning relies upon, fluorinated greenhouse gases with GWP of 150 or more, except in the primary refrigerant circuit of cascade systems where fluorinated greenhouse gases with a GWP of less than 1 500 may be used	1 January 2022	
14.	Movable room air-conditioning equipment (hermetically sealed equipment which is movable between rooms by the end user) that contain HFCs with GWP of 150 or more	1 January 2020	
15.	Single split air-conditioning systems containing less than 3 kg of fluorinated greenhouse gases, that contain, or whose functioning relies upon, fluorinated greenhouse gases with GWP of 750 or more	1 January 2025	
16.	Foams that contain HFCs with GWP of 150 or more except when required to meet national safety standards	Extruded polystyrene (XPS)	1 January 2020
		Other foams	1 January 2023
17.	Technical aerosols that contain HFCs with GWP of 150 or more, except when required to meet national safety standards or when used for medical applications	1 January 2018	

### **Installation, Maintenance and Service**

Mobile equipment does not entail an obligation to monitor ensure that systems are monitored for leaks, or that any corrective work is performed. Rolling stock operators do have an obligation to ensure the recovery of fluorinated greenhouse gases as provided for in Article 8(3), including that the staff who handle F-gases are appropriately trained and certified for the task.

### **Labelling and product and equipment information**

A label is required for products and equipment that contains Fluorinated greenhouse gases (Article 12). The label has to contain the following information:

- Reference that the equipment contains F-gases
- Designation of the F-gases or Chemical name
- Quantity of F-gases expressed in weight and CO<sub>2</sub>
- Mention of hermetically sealed

### **Conclusion for the Rail Industry**

The regulation places new requirements on certain activities however in general the direct impact for the Rail Industry of the regulation when compared with other industries is minimal. This reflects both the lower contribution to emissions from the rail industry as well as the particular technical challenges that limit the potential of alternatives. The requirements of the regulation will need to be considered during at least the following activities:

- Design
- Procurement
- Installation
- Warranty
- Maintenance
- Refurbishment

In particular the Regulation must be considered when conducting those activities on systems or material where F-gases may be found. In the Rail Industry, these include:

- HVAC
- High voltage gear
- Refrigeration
- Fire protection
- Foams

### **Definitions (selected from the Regulation)**

- 'fluorinated greenhouse gases' means the hydrofluorocarbons, perfluorocarbons, sulphur hexafluoride and other greenhouse gases that contain fluorine, listed in Annex I of the Regulation, or mixtures containing any of those substances;
- 'hydrofluorocarbons' or 'HFCs' means the substances listed in section 1 of Annex I of the Regulation, or mixtures containing any of those substances;
- 'perfluorocarbons' or 'PFCs' means the substances listed in section 2 of Annex I of the Regulation, or mixtures containing any of those substances;
- 'sulphur hexafluoride' or 'SF6' means the substance listed in section 3 of Annex I of the Regulation, or mixtures containing that substance;
- 'mixture' means a fluid composed of two or more substances, at least one of which is a substance listed in Annex I or in Annex II of the Regulation.
- 'global warming potential' or 'GWP' means the climatic warming potential of greenhouse gas relative to that of carbon dioxide (CO<sub>2</sub>), calculated in terms of the 100-year warming potential of one kilogram of a greenhouse gas relative to one kilogram of CO<sub>2</sub>.
- 'use' means the utilisation of fluorinated greenhouse gases in the production, maintenance or servicing, including the refilling, of products and equipment, or in other processes referred to in this Regulation;
- 'placing on the market' means supplying or making available to another party in the Union 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;
- 'hermetically sealed equipment' means 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;
- 'repair' means the restoration of damaged or leaking products or equipment that contain, or whose functioning relies upon, fluorinated greenhouse gases, involving a part containing or designed to contain such gases;
- '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;
- 'maintenance or servicing' means all activities, excluding recovery in accordance with Article 8 and leak checks in accordance with Article 4 and point (b) of Article 10(1) of this Regulation, that entail breaking into the circuits containing or designed to contain fluorinated greenhouse 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;

### **Further Information**

F-Gas Regulation: [http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ%3AJOL\\_2014\\_150\\_R\\_0008](http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ%3AJOL_2014_150_R_0008)

EC Guidance: [http://ec.europa.eu/clima/policies/f-gas/documentation\\_en.htm](http://ec.europa.eu/clima/policies/f-gas/documentation_en.htm)