

# EU F-Gas Regulation Guidance

## Information Sheet 16: Manufacturers and Importers of Refrigeration, Air-Conditioning and Heat Pump Equipment

### Target audience for this Information Sheet

This Information Sheet is aimed at manufacturers and importers of refrigeration, air-conditioning and heat pump equipment (RACHP).

### 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>.

Manufacturers and importers of refrigeration, air-conditioning and heat pump equipment (RACHP) using HFC refrigerants 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 RACHP equipment manufacturers and importers. Further guidance is available – see Information Sheet 30 for a full list and a glossary of terms.

### RACHP Equipment Manufacturers and Importers:

#### Compliance Checklist for EU F-Gas Regulation

- ✓ **NEW:** Comply with bans on HFCs in new RACHP equipment
- ✓ **NEW:** Be aware of the impact of the service ban on selection of new RACHP equipment
- ✓ **NEW:** Be aware of the impact of HFC phase down on selection of new RACHP equipment
- ✓ **NEW:** Supply new RACHP equipment with lowest practical GWP refrigerant
- ✓ Design for low leakage and best energy efficiency
- ✓ Ensure products are properly labelled
- ✓ **NEW:** Comply with rules related to pre-charged equipment
- ✓ **NEW:** Report details of pre-charged imports

## 2. Sector description

The RACHP sector covers a wide range of equipment and end users, ranging from small domestic and commercial systems to large industrial plant. Key sectors of the RACHP market include

1. Domestic refrigeration
2. Commercial refrigeration
3. Industrial refrigeration
4. Transport refrigeration
5. Stationary air-conditioning and heat pumps
6. Mobile air-conditioning

Detailed guidance on the impact of the 2014 F-Gas Regulation for owners / operators in these sectors is available in Information Sheets 1 to 6. Manufacturers and importers of RACHP equipment that serve these markets must become fully aware of relevant parts of the 2014 F-Gas Regulation so that they can provide suitable equipment to their customers and comply with certain legal obligations.

## 3. NEW: Bans on the use of HFCs in certain types of RACHP equipment

The 2014 Regulation includes a number of HFC bans as summarised in Table 1. Equipment manufacturers and importers must ensure they do not place any banned products on the market after the dates shown in Table 1.

Manufacturers should also be aware that these bans “do not tell the full story”. The HFC phase down and the service ban (see below) also have a significant influence on selecting refrigerants for new plant. Equipment manufacturers may gain a competitive advantage if they can supply equipment that uses low GWP<sup>1</sup> refrigerants.

**Table 1: Bans affecting manufacturers and importers of RACHP Equipment**

Market Sector	Product Description	Scope of banned F-Gases	Start Date <sup>2</sup>
Refrigeration	Non-confined direct evaporation systems	All HFCs and PFCs	2007
	Domestic refrigerators and freezers <sup>3</sup>	HFCs with GWP > 150	2015
	Refrigerators and freezers for commercial use (hermetically sealed) <sup>4</sup>	HFCs with GWP > 2,500	2020
		HFCs with GWP > 150	2022
	All stationary refrigeration equipment <sup>5</sup>	HFCs with GWP > 2,500	2020
Multipack central systems for commercial use with a cooling capacity above 40kW <sup>6</sup>	F-Gases with GWP > 150	2022	
Air-conditioning	Moveable, hermetically sealed air-conditioning	HFCs with GWP > 150	2020
	Single split systems containing 3 kg or less	F-Gases with GWP >750	2025

<sup>1</sup> GWP, Global Warming Potential: see Information Sheet 25 for details about GWP

<sup>2</sup> All start dates are January 1<sup>st</sup> of year specified

<sup>3</sup> This ban includes both refrigerant and foam blowing agent

<sup>4</sup> This ban includes both refrigerant and foam blowing agent

<sup>5</sup> Exemption for equipment cooling products below -50°C

<sup>6</sup> The primary circuit of cascade systems can use an HFC with a GWP up to 1,500

#### 4. **NEW:** Impact of the Service Ban on sales of new equipment

Purchasers of new commercial and industrial refrigeration equipment should be made aware that a “Service Ban” will affect certain **existing** systems using HFCs with a GWP above 2,500 from **2020**. The ban applies to systems containing more than 40 tonnes CO<sub>2</sub> equivalent (10 kg for HFC 404A). To avoid future problems manufacturers and importers should advise clients purchasing plants above this size threshold to select only refrigerants with a GWP below 2,500, with immediate effect. It makes no sense to be purchasing equipment that will need converting or replacing within just a few years.

#### 5. **NEW:** Impact of the HFC Phase Down on the sales of new equipment

When purchasing new RACHP equipment your clients should also consider the HFC phase down<sup>7</sup>. This will reduce the quantity of HFCs that can be sold in the EU – by 2030 there will be an 80% cut in HFC supply. Equipment bought now will still be operating when deep cuts in HFC supply are in force. Irrespective of the bans shown in Table 1, it will become increasingly important to purchase equipment using refrigerants with the lowest practical GWP to minimise the future impact of the phase down<sup>8</sup>.

#### 6. HFC Ban in MAC Directive

Mobile air-conditioning (MAC) used in cars and light vans are affected by the MAC Directive (2006/40/EC). This bans the use of any refrigerant with a GWP above 150 in new car and light van air-conditioning systems. The ban applies to new “vehicle types” (i.e. new models) with immediate effect and to all new cars from January 2017. This creates a ban on the standard MAC refrigerant (HFC 134a). Most car manufacturers are starting to use HFO 1234yf.

#### 7. Equipment design requirements

It is important to consider the overall aims of the F-Gas Regulation and the obligations that it places on purchasers of RACHP equipment. Your equipment should be designed to help customers comply with the F-Gas Regulation. The key design rules are:

- a) Use the refrigerant with the lowest practical and cost effective GWP
- b) Design the plant for very low leakage
- c) For large plant fit an automatic leak detection system

##### **Energy Efficiency is Crucial**

When designing RACHP equipment it is also important to maximise the energy efficiency. During the life cycle of such equipment it is the energy related CO<sub>2</sub> emissions that dominate the overall greenhouse gas emissions. It is counter-productive, from an environmental perspective, to use an ultra-low GWP alternative but have to sacrifice energy efficiency. Always try to ensure that the low GWP alternative that you select has equal (or preferably better) energy efficiency to the best high GWP option available on the market.

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<sup>7</sup> HFC phase down: see Information Sheet 28 for further details

<sup>8</sup> Low GWP alternatives to HFCs: see Information Sheet 29 for further details

## 8. Product Labelling

All RACHP 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 RACHP 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, and the global warming potential of the gas
- 4) If applicable, a reference that the F-Gases are contained in hermetically sealed equipment

## 9. **NEW:** Pre-charged RACHP equipment

From 1<sup>st</sup> January 2017 RACHP equipment pre-charged with HFCs cannot be placed on the market unless the HFCs are accounted for within the EU HFC phase down quota system<sup>9</sup>. This is an important rule that affects all pre-charged RACHP equipment (including both manufactured in the EU and imported). Examples of equipment affected includes:

- a) Hermetically sealed systems (e.g. for commercial refrigeration)
- b) Split system and VRV air-conditioning systems
- c) Chillers
- d) Mono-block heat pumps

For equipment manufactured within the EU, manufacturers should purchase refrigerant from an EU supplier that holds a quota to sell HFCs under the 2014 F-Gas Regulation. An EU based equipment manufacturer cannot import HFCs directly from outside the EU unless they hold an import quota.

From January 2017 onwards, any RACHP equipment imported into the EU that is pre-charged with HFCs, must use HFCs obtained from the EU quota. Importers will need to prove to the authorities that the equipment they import complies with this requirement.

Non-EU manufacturers will have the option of:

- a) Purchasing their required HFCs from an EU quota holder (the quota holder would deliver actual HFC fluids to the non-EU manufacturer)
- b) Obtain an authorisation from an EU quota holder to use a specified amount of their quota (the non-EU manufacturer will then be able to source the actual HFC fluid from a local supplier)

The compliance information required from manufacturers and importers of pre-charged equipment includes documentation to show the source of HFCs and a declaration of conformity.

From 1<sup>st</sup> January 2018, where HFCs contained in the equipment have not been placed on the market prior to the charging of the equipment, importers of that equipment shall ensure that by 31<sup>st</sup> March every year the accuracy of the documentation and declaration of conformity is verified, for the preceding calendar year, by an independent auditor<sup>10</sup>.

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<sup>9</sup> See Information Sheet 28 for more details on the EU HFC phase down quota mechanism

<sup>10</sup> The auditor shall be either: (a) accredited pursuant to Directive 2003/87/EC (the EU Emissions Trading Directive) or (b) accredited to verify financial statements in accordance with the legislation of the Member State concerned.

Manufacturers and importers of pre-charged equipment must keep the documentation and declaration of conformity for a period of at least five years after the placing on the market of that equipment. Importers of pre-charged equipment must ensure they are registered in the HFC quota system registry and must submit their verified conformity data to the European Commission annually.

## 10. NEW: Reporting Imports of Pre-charged RACHP equipment

Linked to the pre-charge restrictions discussed in the section above is an important new reporting requirement that applies to importers of pre-charged RACHP equipment. Key requirements include:

- The reporting rules apply to F-Gases being placed on the EU market in all products and equipment, including RACHP equipment.
- The rules apply to both F-Gases and “gases listed in Annex II”. F-Gases refers to a list in Annex I of the Regulation and it includes all the currently used HFC refrigerants. The gases in Annex II includes five of the new HFO<sup>11</sup> refrigerants (e.g. HFO 1234yf) and a number of very unusual gases (not likely to be used in RACHP equipment).
- The reporting threshold is 500 tonnes CO<sub>2</sub> per year - this is a low threshold for an equipment importer. The metric tonne equivalent depends on the GWP of the refrigerant in the imported equipment<sup>12</sup>. For HFC 410A, 500 tonnes CO<sub>2</sub>e is only 0.24 metric tonnes.
- The data that must be reported includes:
  - a) the categories of the products or equipment containing F-Gases / Annex II refrigerants
  - b) the number of units placed on the market
  - c) the quantities of each refrigerant contained in the products or equipment.
- The first report must be made before March 31<sup>st</sup> 2015 for imports in calendar year 2014.
- It is worth noting that these reporting rules do not apply to pre-charged equipment manufactured within the EU, as any HFC refrigerants contained in such equipment is already being reported by the production / import quota holder.

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**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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<sup>11</sup> HFO, hydro-fluoro-olefin: a new family of unsaturated HFC fluids with ultra-low GWPs

<sup>12</sup> See Information Sheet 25 for more details on CO<sub>2</sub> thresholds