

EU F-Gas Regulation Guidance

Information Sheet 7: Foam Insulation Products

Target audience for this Information Sheet

This information sheet is aimed at companies that manufacture, sell or use insulating foam products using HFC blowing agents.

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 SF₆.

In the foam insulation sector, the F-Gas Regulation affects the use of HFCs as foam blowing agents. The 2014 EU F-Gas Regulation replaces the 2006 Regulation, reinforcing 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 can be more than a thousand times higher than CO₂ (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 foam insulation products. Further guidance is available – see Information Sheet 30 for a full list and a glossary of terms.

Foam Insulation Products: Compliance Checklist for EU F-Gas Regulation

Manufacture and purchase of new foam insulation products

- ✓ Ban on use of F-Gases with a GWP above 150 in **one component foam aerosols** from 2008
- ✓ **NEW:** ban on the use of HFCs with a GWP above 150 in foams used in new **domestic refrigerators and freezers** placed on the EU market from 1st January **2015**
- ✓ **NEW:** ban on the use of HFCs with a GWP above 150 in **extruded polystyrene foam** placed on the EU market from 1st January **2020**
- ✓ **NEW:** ban on the use of HFCs with a GWP above 150 in foams used in **commercial refrigerators and freezers** placed on the EU market from 1st January **2022**
- ✓ **NEW:** ban on the use of HFCs with a GWP above 150 in **other foams** placed on the EU market from 1st January **2023**
- ✓ **NEW:** new foam products using HFC blowing agents must be labelled from 1st January 2015

End-of-life requirements

- ✓ Recovery of F-Gases required at end-of-life from foams where it is *“technically feasible and does not entail disproportionate cost”*

2. Sector description

The manufacture of many types of foam insulation requires the use of a blowing agent to create the desired cell structure and product density. The blowing agent remains trapped within closed cells and, owing to its low thermal conductivity, creates a significant proportion of the insulating properties of the foam. Since the phase out of CFCs and HCFCs for foam blowing, a proportion of foam products have been manufactured using HFC blowing agents. These blowing agents have favourable properties including low thermal conductivity and being non-flammable.

The choice of blowing agent depends on the foam type and the application. Most insulation foam is manufactured in a factory environment where safety issues such as flammability can be controlled. This allows for a range of blowing agents to be used, including hydrocarbons, where this choice does not compromise product performance. However, some foams are created “in-situ” (e.g. spray foam used for external roof insulation and one component foam aerosols) where the impact of flammability could be a more significant issue.

There are 2 main categories of foam referred to in the F-Gas Regulation. Extruded polystyrene foam (XPS) is used in the form of insulating boards or panels and is often manufactured using HFC 134a blowing agent. The Regulation also refers to “other foams”, which includes polyurethane, polyisocyanurate and phenolic foam types. These are sometimes manufactured using HFC 245fa or HFC 365mfc/227ea blends. These other foams can be used in a wide range of applications including domestic appliances, steel faced or laminated panels, pipe and vessel insulation and as spray foam.

3. Manufacture and purchase of new foam insulation products

NEW: HFC Bans

The main impact of the 2014 F-Gas Regulation on the manufacture of foam insulation is a series of bans applied to placing new foam products on the market. The foam bans are summarised in Table 1.

Table 1: Bans on HFCs used as foam blowing agents

Ban description		Ban for GWP above ¹ :	Start date from 1 st January:
1	One component foam	150	2008
2	Domestic refrigerators and freezers	150	2015
3	Extruded polystyrene foam (XPS)	150	2020
4	Commercial refrigerators and freezers	150	2022
5	Other insulation foams (including polyurethane)	150	2023

NEW: Impact of the HFC Phase Down on the manufacture of foam insulation

When selecting a foam blowing agent you should also consider the HFC phase down² that is a key feature of the 2014 F-Gas Regulation. 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. The phase down is likely to lead to an increase in

¹ If the blowing agent is part of a mixture (e.g. an HFC blended with a hydrocarbon), the GWP threshold is for the mixture. Annex IV of the Regulation specifies how to calculate the GWP of a mixture.

² HFC phase down: see Information Sheet 28 for further details

the price of HFCs. Irrespective of the bans described above, it makes sense to always use foam blowing agents with the lowest practical GWP to minimise the future impact of the phase down³.

New: Product Labelling

From January 1st 2015 all foam products and pre-blended polyols that contain F-Gases (including HFCs) shall not be placed on the market unless the F-Gases are identified with a label. The label should indicate the F-Gas used as a blowing agent, with the accepted industry designation or, if no such designation is available, the chemical name.

The label shall clearly indicate that the foam or pre-blended polyol contains F-Gases.

In the case of foam boards, this information shall be clearly and indelibly stated on the boards.

4. Use of existing foam products

There are no restrictions in the 2014 F-Gas Regulation that affect the use of existing insulating foam.

5. End-of-life requirements

The 2014 F-Gas Regulation requires operators of products and equipment that contain F-Gases to arrange for the recovery of the gases, *“to the extent that it is technically feasible and does not entail disproportionate cost”*.

Recovery of blowing agent from foam may involve crushing the foam in a special plant and capturing the released gases. Specialised recovery facilities are available in the UK for domestic appliances (mainly refrigerators and freezers). Recovery of blowing agents from domestic appliances is mandatory and should be available via all UK local authorities. Commercial refrigeration appliances (e.g. display cases used for food retail) are also subject to mandatory blowing agent recovery at end-of-life. Block foam used for insulating pipes and vessels can also be sent for processing in the facilities dealing with domestic appliances.

Steel faced insulation panels may be cut up and processed in domestic appliance facilities. The steel facings can be recovered in addition to any F-Gases in the insulating foam.

For some foam products end-of-life recovery is not considered feasible or cost effective. For example laminated panels used as building insulation foam needs to be segregated from demolition waste and then sent to a specialised recovery facility. Currently this might not be cost effective in terms of the F-Gas Regulation requirements. However, organisations disposing of building insulation foam should be aware that the foam should be treated as a hazardous waste under UK waste regulations if it contains either HFC blowing agents or ozone depleting blowing agents (i.e. CFCs or HCFCs).

It is important to note that end-of-life foam insulation products could contain a range of different blowing agents:

- Foam manufactured before 1995 probably used **CFCs**
- Foam manufactured between 1995 and 2004 may have used **HCFCs**
- Foam manufactured after 2004 may have used **HFCs**
- Since the phase out of CFCs, various other alternatives have been used. In particular, for polyurethane and phenolic insulation, **hydrocarbons** (HCs) are often used. This must be taken into consideration at recovery facilities as the blowing agent could be highly flammable.

³ Low GWP alternatives to HFCs: see Information Sheet 28 for further details

All recovered F-Gases can either be:

- a) Sent for destruction by incineration at a licenced waste facility
- b) Sent to a hazardous waste landfill
- c) Sent to a specialist plant that can re-process old HFC blowing agent into a gas with properties identical to virgin fluid, to create “reclaimed blowing agent”. In the foam sector this is a theoretical possibility, although in practice it is unlikely to be worthwhile. The specialist foam crushing plants receive a mixture of different foam types, hence the recovered blowing agent could be a mixture of CFCs, HCFCs, HFCs and HCs. Only a small proportion of the recovered blowing agent will be HFCs, so segregation and reclaim may not be cost effective.

6. Reporting of imports

NEW: Any foam products containing HFCs and HFOs⁴ imported from outside the EU need to be reported to the Commission on an annual basis. The first report covers the calendar year 2014 and must be submitted to the Commission by March 31st 2015. Reports for future calendar years must be made by March 31st of the following year.

Details of import reporting requirements are given in Information Sheet 20.

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This Information Sheet has been prepared by Gluckman Consulting

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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.

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⁴ HFOs: hydro-fluoro-olefins. These are unsaturated HFCs, being introduced as they have very low GWPs. Certain HFOs are being considered as foam blowing agents.