

EU F-Gas Regulation Guidance

Information Sheet 6: Mobile Air-Conditioning

Target audience for this Information Sheet

This Information Sheet is aimed at organisations that are operators (usually the owner) of mobile air-conditioning systems, including those used in cars, larger road vehicles, trains and other forms of transport. It is also useful for those organisations that manufacture, sell, maintain and dispose of mobile air-conditioning systems.

1. Background

This guidance is for organisations affected by the 2014 EU F-Gas Regulation (517/2014) and the 2006 MAC Directive (40/2006). The F-Gas Regulation creates controls on the use and emissions of fluorinated greenhouse gases (F-Gases) including HFCs, PFCs and SF₆. The MAC Directive defines further controls related to cars and other small road vehicles.

In the mobile air-conditioning sector, the F-Gas Regulation affects the use of HFCs as refrigerants. The 2014 EU F-Gas Regulation replaces the 2006 F-Gas Regulation, strengthening all of the 2006 requirements and introducing a number of important new measures. The 2006 MAC Directive remains in force.

The F-Gas Regulation and MAC Directive are important pieces 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 over one 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 mobile air-conditioning. Further guidance is available – see Information Sheet 30 for a full list and a glossary of terms.

Mobile air-conditioning: Compliance Checklist for EU F-Gas Regulation

Purchase of new equipment

- ✓ Comply with bans in MAC Directive
- ✓ **NEW:** Take account of HFC phase down when selecting refrigerants

Operation of existing equipment

- ✓ Use qualified technicians for refrigerant recovery operations

End-of-life requirements

- ✓ Mandatory recovery of refrigerant by qualified technician

Import reporting requirements

- ✓ **NEW:** Mandatory annual reporting of HFCs and HFOs in imported products

2. Sector description

The mobile air-conditioning (MAC) sector is a major user of HFCs. Most MACs are small systems using HFC 134a as the refrigerant. MACs in cars are usually driven via a belt drive to the engine. In larger vehicles (e.g. buses, trains) the MAC can be electrically driven or powered by a dedicated engine. There are 3 main categories of vehicles using MACs:

- a) **Cars and light vans**, including M1 and N1 Class vehicles, as defined in Section B of Annex II of Directive 70/156/EEC.
- b) **Larger road vehicles**, including buses, coaches, lorries and specialist vehicles such as tractors.
- c) **Other transport air-conditioning**, including trains, ships and aircraft.

Only cars and light vans fall under the scope of both the MAC Directive and the F-Gas Regulation. Other vehicles are only affected by the F-Gas Regulation.

3. Purchase of new equipment

HFC Bans

Under the MAC Directive the use of HFC 134a (the standard refrigerant for MACs in cars and light vans) will be banned in new MAC systems used in cars and light vans. The ban takes place in two steps:

- The use of HFCs with a GWP¹ above 150 was banned in the MACs of new vehicle types placed on the market in the EU **after January 1st 2013**². New vehicle types are new models that need to undergo a process of “type approval”.
- The use of HFCs with a GWP above 150 will be banned in the MACs of all new vehicles placed on the market in the EU **after January 1st 2017**.

There are no HFC bans for MACs in any other types of vehicle.

NEW: Impact of the HFC Phase Down on the purchase of new equipment

When purchasing new mobile air-conditioning equipment in all vehicle types you should also consider the HFC phase down³. 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. It makes sense to always purchase equipment using refrigerants with the lowest practical GWP to minimise the future impact of the phase down⁴.

4. Operation of existing equipment

The 2014 F-Gas Regulation states that: *“The intentional release of fluorinated greenhouse gases into the atmosphere shall be prohibited where the release is not technically necessary for the intended use. Operators of equipment that contains fluorinated greenhouse gases shall take precautions to prevent the unintentional release (‘leakage’) of those gases. They shall take all measures which are technically and economically feasible to minimise leakage of fluorinated greenhouse gases”*.

¹ GWP: Global Warming Potential. See Information Sheet 25 for more details on GWP.

² This ban was originally in 2011, but was extended to 2013 due to a shortage of suitable refrigerants.

³ HFC phase down: see Information Sheet 28 for further details

⁴ Low GWP alternatives to HFCs: see Information Sheet 29 for further details

Organisations that use, install or maintain MAC equipment using F-Gases should ensure compliance with this requirement. F-Gases must be used with care and efforts made to avoid unintentional release.

5. Use of trained technicians

All refrigerant recovery operations on mobile air-conditioning equipment containing HFC refrigerants must be carried out by suitably trained technicians. See Information Sheet 22 for details of all training and certification requirements.

6. Requirements at end-of-life

Any mobile air-conditioning equipment containing HFCs that is being disposed of at end-of-life must undergo an HFC recovery process, carried out by a trained technician.

All recovered F-Gases can either be:

- a) sent for destruction by incineration at a licenced waste facility
- b) sent to a specialist plant that can re-process the old refrigerant into a gas with properties identical to virgin refrigerant, to create “reclaimed refrigerant”
- c) given a basic cleaning process, to create “recycled refrigerant”.

Given the HFC supply shortage that will be created by the phase down process, it is worth trying to send the old refrigerant for reclamation as it may have a good residual value. If the old refrigerant is too contaminated it cannot be reclaimed and must be sent for destruction. It is important not to mix different gases in the same recovery cylinder – as this would render them unsuitable for reclamation.

Reclaimed refrigerant can be used in any refrigeration equipment. Recycled refrigerant must always be used with care as it may be contaminated or of unknown composition.

7. Reporting of imports

NEW: Any products and equipment containing F-Gases 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. All imported vehicles that have MAC systems pre-charged with HFC or HFO refrigerants must be included in annual reports.

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This Information Sheet has been prepared by Gluckman Consulting

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