



Guidance Note EC Regulation No 842/2006 on Certain Fluorinated Greenhouse Gases

FIA Guidance for the Fire Protection Industry

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1. Introduction

This Guidance Note is intended to assist FIA members in meeting their obligations in relation to a proposed EU Regulation affecting the hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs) used in fixed fire suppression systems.

The UK Government has encouraged the Trade organisations to issue particular guidance to their industries. This text has been reviewed by the Defra/DTI team, although it remains a BFPA publication. The reader is directed to the Regulation for the definitive requirements and their legal obligations. Reference to particular requirements of other sectors may have been omitted.

Some background to the Regulation is provided followed by selected key definitions. A summary of the salient points from the Regulation as they apply to fixed fire protection systems follows, these being under the several articles covered in the Regulation. Included within each Section is interpretation and guidance to Members from the FIA on how to meet the obligations of the Regulation, and on actions to be undertaken by the Association itself in pursuit of these requirements.

This document does not constitute formal legal advice and it is for individuals to take their own advice regarding the legal effect of the Regulation and how best to meet its obligations. Only the courts can provide definitive interpretations of the provisions in the Regulation.

2. Background

Selected halon alternative agents have superseded halon usage in fixed fire suppression system applications. Among the chemical halon alternatives, hydrofluorocarbons (HFCs), which exhibit zero ozone depletion potential, are now in common usage. Owing to their Global Warming Potentials (GWP) these are captured within the Kyoto Protocol, which aims to reduce emissions of many greenhouse gases, however, the use of HFCs in fire fighting is virtually non emissive.

In 2001, as part of the European Climate Change programme (ECCP) the European Commission convened a Fluorinated Gases Working Group to discuss a European-wide approach to containing and reducing fluorinated gas emissions. The resulting Regulation encompasses the placing on the market for specific gases and applications, the containment, use, recovery, recycling and destruction of these gases; labelling and disposal issues; annual reporting and the training and certification of relevant personnel.

The European Parliament and Council of Ministers agreed a final text in February 2006. The Regulation was published in the Official Journal on 14 June 2006, with the first of the requirements becoming active on 4 July 2007.

3. Definitions (Article 3 of the Regulation)

Some key definitions are indicated below as they apply to fixed fire protection system gases to assist in defining the scope and detail of the Regulation.

'Fluorinated greenhouse gases' includes hydrofluorocarbons (HFCs) and perfluorocarbons [PFCs] and preparations containing these substances (but excludes the Halons captured under Regulation 2037/2000).

'Hydrofluorocarbon' means an organic compound comprising carbon, hydrogen and fluorine only and with no more than six carbon atoms in the molecule.

'Perfluorocarbon' means an organic compound comprising carbon and fluorine only and with no more than six carbon atoms in the molecule.

'Global Warming Potential' is the climatic warming potential relative to that of carbon dioxide, the standard GWP being calculated in terms of the 100 year warming potential of 1 kg of a gas relative to 1 kg of carbon dioxide. GWPs listed in Annex I of the Regulation are taken from the Third Assessment Report adopted by the Intergovernmental Panel on Climate Change (2001 IPCC GWP values).

A **'preparation'** is a mixture of substances of which at least one is a fluorinated greenhouse gas except when the total GWP of the mixture is less than 150.

The **'operator'** is the natural or legal person exercising actual power over the technical functioning of the equipment and systems covered by the Regulation. Member States may, in some specific defined situations, designate the owner as being responsible for the operator's role.

'Placing on the market' refers to the supply or making available to third persons within the Community of products and equipment containing or reliant upon fluorinated greenhouse gases by a producer or importer for the first time in the EC.

'Use' applies to production, refilling, servicing or maintenance of products and equipment.

A **'Container'** is a product designed primarily for transporting or storing fluorinated greenhouse gases.

A **'non-refillable container'** is designed not to be refilled.

'Recovery' refers to the collection and storage of fluorinated greenhouse gases from [for example] machinery, equipment and containers.

'Reclamation' means the reprocessing of recovered gases in order to meet a specified standard of performance.

'Destruction' is the process by which all or most of a fluorinated greenhouse gas is permanently transformed or decomposed into one or more stable substances which are not fluorinated greenhouse gases.

4. Placing on the Market (Article 9 of the Regulation)

Annex I lists gases to which the Regulation applies. The HFCs identified are: HFC-23, HFC-32, HFC-41, HFC-43-10mee, HFC-125, HFC-134, HFC-134a, HFC-152a, HFC-143,

HFC-143a, HFC-227ea, HFC-236cb, HFC-236ea, HFC-245ca, HFC-245fa, HCF-365mfc. The PFCs listed are perfluoromethane, -ethane, -propane, -butane, -pentane, -hexane and -cyclobutane.

Annex II of the Regulation features substances and their respective applications which are to be **prohibited** from being placed on the market.

There is no restriction on use or placing on the market of Hydrofluorocarbons (HFCs)

Note: Perfluorocarbons (PFCs) will not be permitted to be placed on the market in new fire protection systems (and fire extinguishers) from 4 July 2007. This prohibition shall not apply to products and equipment shown to be manufactured before 4 July 2007.

Note: Fluorinated greenhouse gases will not be permitted to be deployed in non-refillable containers. This precludes their use as fire extinguishants in any disposable extinguisher.

5. Containment of Fluorinated Greenhouse Gases (Article 3 of the Regulation)

Operators of fire protection systems must use all measures which are technically feasible and not disproportionately costly to prevent leakage of the gases, and must expeditiously take action to repair any detected leakage.

Operators must ensure that systems are inspected for leakage by certificated personnel [see Training and Certification in Item 6 below] according to the following schedules:

- At least every 12 months for systems having more than 3 kg gas
- At least every 6 months for systems having more than 30 kg gas
- At least every 3 months for systems having more than 300 kg gas

Leakage inspection within 1 month after a leak has been repaired

Leakage inspection requires examination primarily for leakage by direct or indirect means focusing on those parts of the system most likely to leak.

Note: The Regulation states that inspection regimes meeting BS ISO 14520 may fulfil the requirements of this Regulation provided that inspections are at least as frequent.

As of 4 July 2007, newly installed HFC fire fighting systems containing over 300kg of HFCs must be fitted with a leakage detection device which alerts the operator.

Note: Existing systems containing over 300kg must be fitted with such a device by 4 July 2010

Where a leakage detection system is fitted it must be inspected at least every 12 months to ensure proper functioning. Where leakage detection systems are installed, the fire

protection system inspection frequency noted above for 30+ kg and 300+ kg systems are halved.

FIA interpret the "leakage detection" obligations as follows:

- *For all HFCs that are deployed super-pressurised with nitrogen as a propelling agent, an installed leakage detection system can be a pressure measuring device (pressure gauge or pressure switch) fitted to each container. In the case of a pressure gauge regular (weekly in accordance with BS ISO 14520) recorded inspections will be required to confirm status. For systems with greater than 300kg a indicator that alerts the operator must also be fitted. In the case of a pressure switch, a connected alarm will enunciate this fault condition.*
- *Alternatively cylinder weight monitoring devices or atmosphere sniffing devices can be configured as a leakage detection means but only if they identify accurately the precise source of the leak and alert the operator A connected alarm will also be needed to enunciate this fault condition*

Operators must maintain records on quantity and types of gases in installed systems; the quantities added and recovered during maintenance, servicing and disposal; the dates and results of inspections and the Company and technicians involved. These records must be made available on request to the competent authority and the Commission.

Note: It is expected that compliance with BS ISO 14520-1:2005 will meet the various requirements relating to Containment within the EU Regulation. This is covered in Section 9.3, Maintenance, and Section 9.4, Training, of that Standard.

6. Recovery (Article 4 of the Regulation)

The Operator is responsible for arranging proper recovery of gases for reuse, recycling or for ultimate disposal by certificated personnel. This applies to both refillable and non-refillable containers. The recovery must take place before the final disposal of the equipment and, when appropriate, during its service and maintenance.

FIA proposals for training and certification schemes are covered in Item 7 below.

7. Training and Certification (Article 5 of the Regulation)

The Commission is to establish minimum requirements and mutual recognition for training programmes and certification in pursuit of the containment and recovery stipulations noted above. Member States must establish or adapt their own requirements and notify the Commission accordingly.

Operators must ensure that relevant personnel involved in the activities provided for in Articles 3 and 4 (see above) have obtained the necessary certification, as specified in Article 5.2. This implies a knowledge of the regulations and standards, competence in emission prevention and recovery of gases, and safe handling of equipment. From 4 July 2009 Fire protection companies may not take delivery of fluorinated greenhouse gases unless such certification is held.

Note: In respect of the requirements relating to Recovery and to Training and Certification, the FIA intends to develop a BAFE-adopted third party certification scheme similar to the SP 204 scheme for Halon Decommissioning. It is intended that such a scheme would be DEFRA-approved and become recognised as the UK industry norm for meeting the requirements of the Regulation.

Trained and Certificated procedures and staff will be required from 4 July 2007 when the Regulation comes into force. The operators can contract a service provider to fulfil their obligations. FIA recommends that the owner has a system service contract which specifies that only certificated personnel are used.

8. Reporting (Article 6 of the Regulation)

Those parties producing more than 1 tonne of fluorinated greenhouse gases per annum must report: total production of each gas within the EU and identify the main categories of application; quantities placed on the market within the EU; and quantities recycled, reclaimed or destroyed.

Those parties importing more than 1 tonne of gases per annum must report: quantities of each gas imported or placed on the market within the EU and identify the main categories of application; and quantities imported for recycling, reclamation or destruction.

Exporters of more than 1 tonne per annum of gases must report quantities of each gas exported from the EU, including used gases exported for recycling, reclamation or destruction.

Note: FIA will consider collation of reported information from its Membership into a compiled annual report on F-Gas usage, which will be submitted to DEFRA, and made available to Eurofeu as an indicator of movements and trends.

9. Labelling (Article 7 of the Regulation)

Products and equipment containing fluorinated greenhouse gases must be indelibly marked with the chemical name and accepted industry name of the gas either on the equipment or adjacent to service points for charging and recovering the gas. It must indicate clearly that it contains a fluorinated greenhouse gas. This applies to products and equipment placed on the market after 4 July 2007.

The format of the label is to be defined by the Commission before 4 July 2007.

FIA recommends that documentation includes the statement 'these products and systems contain a gas covered by the regulation' together with the statement that 'they are fully compliant with the regulation.'

10. Penalties (Article 12 of the Regulation)

Each Member State will define its own sanctions for offences and penalties for infringements of the provisions of this Regulation but the Regulation does specify that the penalties shall be effective, proportionate and dissuasive.

The UK regulations are expected to be in place by 4 July 2007.

As a Regulation of the European Union, the UK will not have to take any steps to enact other parts of this legislation that apply directly.

11. Closing Comments

Adherence to the terms of the proposed Regulation will ensure that HFCs continue to be recognised as viable, environmentally-acceptable agents for use in fixed fire protection systems. This Guidance Note outlines the requirements which must be met through Association activity in providing appropriate training and certification schemes, and by member companies in ensuring that their own practices and procedures meet the minimum criteria identified.

Note: It is important that the UK Fire Industry can demonstrate its engagement and transparency in fulfilling the obligations of this Regulation. FIA welcome the reporting obligations, since it provides the data that will demonstrate responsible use and the low emissions of HFCs in fixed fire extinguishing systems.

12. Further information

Website links

Defra climate change website:

<http://www.defra.gov.uk/environment/climatechange/index.htm>

Defra f gas website:

<http://www.defra.gov.uk/environment/climatechange/internat/fluorinated.htm>

DTI f gas website:

<http://www.dti.gov.uk/innovation/sustainability/fgases/page28889.html>

BS ISO 14520 standard for fire protection:

<http://www.iso.org/iso/en/CatalogueDetailPage.CatalogueDetail?CSNUMBER=23938>

European Commission, DG Environment website:

http://www.europa.eu.int/comm/environment/ozone/contact_us.htm

EC F gas Regulation text

<http://europa.eu.int/eur-lex/lex/JOhtml.do?uri=OJ:L:2006:161:SOM:EN:HTML>

The Scottish Executive Web site:

<http://www.scotland.gov.uk/Topics/Environment/Climate-Change/16327/4825>

The Welsh Assembly Government website:

http://new.wales.gov.uk/topics/environmentcountryside/epq/climate_change/?lang=en

Annex A

Extract from ANNEX II (Relevant to the Fire protection Industry)

Fluorinated greenhouse gases	Products and equipment	Date of prohibition
Fluorinated greenhouse gases	Non-refillable containers	4 July 2007
Perfluorocarbons	Fire protection systems and fire extinguishers	4 July 2007