



FLUORINATED GASES MANAGEMENT

Doc 192/21

Revision of Doc 192/14

EUROPEAN INDUSTRIAL GASES ASSOCIATION AISBL

AVENUE DE L'ASTRONOMIE 30 · B – 1210 BRUSSELS

Tel: +32 2 217 70 98

E-mail: info@eiga.eu · Internet: www.eiga.eu



Documents

Document Sharing Hub



FLUORINATED GASES MANAGEMENT

Prepared by WG-5 Environment

Disclaimer

All technical publications of EIGA or under EIGA's name, including Codes of practice, Safety procedures and any other technical information contained in such publications were obtained from sources believed to be reliable and are based on technical information and experience currently available from members of EIGA and others at the date of their issuance.

While EIGA recommends reference to or use of its publications by its members, such reference to or use of EIGA's publications by its members or third parties are purely voluntary and not binding.

Therefore, EIGA or its members make no guarantee of the results and assume no liability or responsibility in connection with the reference to or use of information or suggestions contained in EIGA's publications.

EIGA has no control whatsoever as regards, performance or non performance, misinterpretation, proper or improper use of any information or suggestions contained in EIGA's publications by any person or entity (including EIGA members) and EIGA expressly disclaims any liability in connection thereto.

EIGA's publications are subject to periodic review and users are cautioned to obtain the latest edition.

© EIGA grants permission to reproduce this publication provided the Association is acknowledged as the source

EUROPEAN INDUSTRIAL GASES ASSOCIATION AISBL
Avenue de L'Astronomie 30 B 1210 Brussels Tel: +32 2 217 70 98
E-mail: info@eiga.eu Internet: www.eiga.eu



Table of Contents

1	Introduction	1
2	Scope and purpose	1
3	Definitions	1
3.1	Publication terminology	1
3.2	Technical definitions	1
4	Fluorinated gases management	2
4.1	Background.....	2
4.2	Impact on EIGA members	2
4.3	Summary of the regulation	3
4.4	Objectives of the regulation	3
4.5	Summary of requirement	4
5	References.....	9
	Appendix 1 – Fluorinated gases Annex 1	10
	Appendix 2 – Annex II Gases subject to reporting only	11
	Appendix 3 – Placing on the market prohibitions, Annex III	13
	Appendix 4 – Leak detection requirements.....	15
	Appendix 5 – Leak detection systems	16
	Appendix 6 – Guideline on inventory of fluorinated gases.....	17

Amendments to 192/14

Section	Change
	Editorial to align style with EIGA style manual
4.5.4, 4.5.5, 4.5.6, 4.5.7	Updates to reflect current legislation

NOTE Technical changes from the previous edition are underlined

1 Introduction

This publication is intended to provide guidance on the management of fluorinated gases and compliance with the EU regulation on fluorinated gases (F gases).

2 Scope and purpose

This publication provides information and guidance for EIGA members and specifically to directors, technical managers, company environmental specialists, operations and site managers and to national industrial gas associations on management of fluorinated gases.

This publication applies to the specification design, construction, installation, operation and maintenance of equipment containing F gases and the distribution and use of F gases and products containing F gases and specifically on the implementation of the F Gases Regulation enacted in May 2014 by Regulation (EU) No 517/2014 *on fluorinated greenhouse gases* [1].¹

3 Definitions

For the purpose of this publication, the following definitions apply.

3.1 Publication terminology

3.1.1 Shall

Indicates that the procedure is mandatory. It is used wherever the criterion for conformance to specific recommendations allows no deviation.

3.1.2 Should

Indicates that a procedure is recommended.

3.1.3 May

Indicates that the procedure is optional.

3.1.4 Will

Is used only to indicate the future, not a degree of requirement.

3.1.5 Can

Indicates a possibility or ability.

3.2 Technical definitions

3.2.1 Carbon dioxide equivalent

Tonne(s) of carbon dioxide equivalent (CO₂e), a quantity of greenhouse gases, expressed as the product of the weight of the greenhouse gases in metric tonnes and of their global warming potential.

3.2.2 Fluorinated Gases

Gases such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆) and other greenhouse gases that contain fluorine, or mixtures containing any of those substances as listed in Annex 1 and Annex 2 of Regulation 517/2014 [1].

¹ References are shown by bracketed numbers and are listed in order of appearance in the reference section.

4 Fluorinated gases management

4.1 Background

Fluorinated industrial gases (F Gases, for example HFCs, PFCs and SF₆) are widely used in common devices and applications such as refrigerators, air conditioners, insulation, medical aerosols and semiconductors. In the 1990s, after the Montreal Protocol entered effect, these gases were used to replace ozone-depleting substances such as CFCs [2].

However, the high Global Warming Potential (GWP) of these gases raised new environmental concerns and they were included among the six greenhouse gases identified by the Kyoto Protocol, along with carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) [3].

HFCs, PFCs and SF₆ are gases contained in the basket of gases whose emissions are controlled under the 1997 Kyoto Protocol to the United Nations Framework Convention on Climate Change. These gases are monitored within the EU under the monitoring directive and featured in a number of national action programmes in individual member states.

Fluorinated gases and gas mixtures are used for many common applications and in a wide variety of products. As part of the first phase of the ECCP (European Climate Change Programme) the EU Commission proposed a regulation on fluorinated gases which was adopted in 2006 as Regulation (EC) No 842/2006 *on certain fluorinated greenhouse gases* [4].

As this is a regulation and not a directive, the requirements are directly applicable to member states. The aim of the regulation was to contain, prevent and thereby reduce emissions of fluorinated greenhouse gases covered by the Kyoto protocol [3].

In December 2013, EU policymakers reached an agreement on a new F Gases Regulation to replace Regulation 842/2006, introducing wider control and a phase down of F Gas use [4]. The revised F Gases Regulation (EU) No 517/2014 was published in May 2014 [1].

This regulation applies from 1st January 2015, repealing the former regulation. The regulation sets minimum EU wide standards and is directly applicable to member states. However, member states are free to adopt more ambitious measures going beyond the regulation, for example introducing taxes at the member state level.

The revised regulation:

- includes a reduction in the amount of F Gases in the EU by 79% by 2030;
- includes further restrictions on the use of F Gases in refrigeration equipment so that the recharging during service and maintenance of existing refrigeration equipment, with a charge size of over 40 tonnes of CO₂e and with a GWP of 2500 or more, will not be permitted from 2020 onwards; and
- introduces bans on certain products based on agreed GWP thresholds, there are no specific bans for industrial refrigeration other than a ban on the use of F Gases with a GWP of 2500 or more from 2020 as outlined in 11a of Annex III [1]. It should be noted, however, that this ban does not apply to equipment designed to cool products to temperatures below –50 °C.

The Commission is currently reviewing Regulation (EU) No 517/2014 [1]. Based on the results of a consultation process and the work of external experts, the Commission will draw up a joint evaluation and impact assessment to examine if and how it can further improve the regulation in the coming years. A Commission proposal for a new regulation is expected by the end of 2021.

4.2 Impact on EIGA members

EIGA members are both users and distributors of these gases so EIGA members may be impacted both for the purchase / use and sale of the F Gases and shall be aware, in particular, of the following:

- phase down of supply of HFCs;
- restrictions on marketing and use of equipment containing F-Gases, and of use of the gases for certain applications;
- requirements for service and maintenance;
- requirements for recovery of F Gases;
- need for monitoring of equipment (refrigeration units and electrical equipment) containing F Gases;
- reporting of information on F Gases (imports, exports, use, emissions, etc.);
- training requirements; and
- requirements for certification to purchase / use F Gases, but also to ensure customers are certified and the requirement to hold records to show this.

4.3 Summary of the regulation

The regulation on F Gases applies to fluorinated greenhouse gases such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆) and preparations containing these substances as listed in Annex I of the regulation (see Appendix 1) [1].

Annex 2, F Gases (see Appendix 2) has requirements for reporting only [1].

The scope of the regulation covers F Gases in stationary applications such as refrigeration equipment, air conditioning and heat pump equipment, including their circuits, as well as fire protection and high voltage electrical equipment and mobile equipment such as refrigeration equipment in vehicles or trailers.

The main points in the regulation are:

- supply phase down for F Gases;
- revised leak detection requirements, based now on CO₂e; and
- inclusion of SF₆ switchgear in leak detection requirements.

4.4 Objectives of the regulation

The F Gases regulation aims to further reduce projected F Gases emissions. It is composed of the following elements:

- phase down of F Gases use;
- restrictions on the use of F Gases in service and of refrigeration equipment;
- restricting the marketing and use for number of applications where containment is not feasible or the use of fluorinated gases is deemed inappropriate;
- improving the monitoring and verification of F Gases emissions;
- improvement in containment and recovery of F Gases;
- certification for persons handling and using F Gases; and