



The Voice of European Air-Conditioning, Refrigeration and Heat Pumps Contractors

Proposal for a revision of the F-gas Regulation

AREA Amendment proposals

November 2022

Text proposed by the Commission	Amendment
<p><u>Article 1</u></p> <p>This Regulation:</p> <p>(a) lays down rules on containment, use, recovery and destruction of fluorinated greenhouse gases and on related ancillary measures, and facilitates the safe use of alternative substances;</p>	<p><u>Article 1</u></p> <p>This Regulation:</p> <p>(a) lays down rules on containment, use, recovery and destruction of fluorinated greenhouse gases and on related ancillary measures, and facilitates the safe <u>and efficient</u> use of alternative substances;</p>
<p><u>Justification:</u> It reflects the need to ensure proper competence of operatives manipulating alternatives.</p>	
<p><u>Article 2</u></p> <p>1. This Regulation applies to the fluorinated greenhouse gases listed in Annexes I, II and II, whether alone or in a mixture.</p> <p>2. This Regulation also applies to products and equipment, and parts thereof, containing fluorinated greenhouse gases or whose functioning relies upon those gases.</p>	<p><u>Article 2</u></p> <p>1. This Regulation applies to the fluorinated greenhouse gases listed in Annexes I, II and III, whether alone or in a mixture, <u>as well as alternative refrigerant greenhouse gases listed in Annex VI where relevant.</u></p> <p>2. This Regulation also applies to products and equipment, and parts thereof, containing fluorinated greenhouse <u>gases and, where relevant, alternative refrigerant greenhouse gases,</u> or whose functioning relies upon those gases.</p>
<p><u>Justification:</u> Parts of the regulation should apply to alternative refrigerant greenhouse gases in order to ensure its objectives are achieved.</p>	
<p><u>Article 3:</u></p> <p>(5) ‘operator’ means the undertaking exercising actual power over the technical functioning of products and equipment covered by this Regulation or the owner where designated by a Member State as being responsible for the operator’s obligations in specific cases;</p> <p>(9) ‘hermetically sealed equipment’ means equipment in which all fluorinated greenhouse gas containing parts are made tight during its manufacturing process at the premises of the manufacturer by welding, brazing or a similar permanent connection, which may include capped</p>	<p><u>Article 3:</u></p> <p>(5) ‘operator’ means the undertaking exercising actual power over the technical functioning of products and equipment covered by this Regulation or the <u>entity owner</u> where designated by a Member State as being responsible for the operator’s obligations in specific cases;</p> <p>(9) ‘hermetically sealed equipment’ means equipment in which all fluorinated greenhouse gas containing parts are made tight during its manufacturing process at the premises of the manufacturer by welding, brazing or a similar permanent connection, which may include capped</p>

<p>valves or capped service ports that allow proper repair or disposal;</p> <p>(11) 'recovery' means the collection and storage of fluorinated greenhouse gases from products, including containers, and equipment during maintenance or servicing or prior to the disposal of the products or equipment;</p> <p>(13) 'reclamation' means the reprocessing of a recovered fluorinated greenhouse gas in order to match the equivalent performance of a virgin substance, taking into account its intended use;</p>	<p>valves or capped service ports that allow proper repair or disposal, <u>and which have a tested leakage rate of less than 3 grams per year under a pressure of at least a quarter of the maximum allowable pressure;</u></p> <p>(11) 'recovery' means <u>removing refrigerant in any condition from a system and storing it in an external container; the collection and storage of fluorinated greenhouse gases from products, including containers, and equipment during maintenance or servicing or prior to the disposal of the products or equipment;</u></p> <p>(13) 'reclamation' means <u>processing used refrigerants to new product specifications the reprocessing of a recovered fluorinated greenhouse gas in order to match the equivalent performance of a virgin substance, taking into account its intended use;</u></p> <p>(37) NEW <u>Alternative refrigerant greenhouse gas means refrigerating substances with a greenhouse effect used as alternatives to fluorinated greenhouse gases. They include hydrocarbons, ethers, carbon dioxide and unsaturated hydro(chloro)fluorocarbons but not exclusively.</u></p> <p>(38) NEW <u>Disposal means to dispose or to convey a product usually for scrapping or destruction</u></p> <p>(39) NEW <u>Self-contained means complete factory-made refrigerating system in a suitable frame and/or enclosure, that is fabricated and transported complete, or in two or more section and in which no refrigerant-containing parts are connected on site other than by isolation valves, such as companion valves.</u></p>
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Justification:

- **Operator:** the definition in point 5 should be clarified in particular as regards the part “or the owner where designated by a Member State as being responsible for the operator’s obligations in specific cases”
- **Hermetically sealed equipment:** Last part of the current definition (“*and which have a tested leakage rate of less than 3 grams per year under a pressure of at least a quarter of the maximum allowable pressure*”) should not be deleted, thereby keeping the definition of ‘hermetically sealed equipment’ in this Regulation aligned with the definition in EN-378. The equipment being practically leak-free is an essential part of the meaning of the term ‘hermetically sealed’. The reason is to prevent “hermetically sealed look-alike” equipment. Installers and end-users may not be able to notice the difference and prefilled equipment that isn’t hermetically sealed will have a competitive advantage, essentially undermining the idea of leak reduction by the use of hermetically sealed equipment.
- **Alternative refrigerant greenhouse gas:** Since parts of the regulation should apply to alternative refrigerant greenhouse gases, a definition is needed.
- **Self-contained:** Since a lot of heat pumps fall in that category, we propose the definition used in standard EN378 3.1.2.
- **Recovery, reclamation and disposal:** These definitions should be aligned with definitions in EN378

Article 5:

Article 5:

<p>2. Paragraph 1 applies to operators of the following equipment that contains fluorinated greenhouse gases listed in Annex I or in Annex II, Section I:...</p> <p>5. The Commission may, by means of implementing acts, specify requirements for the leak checks to be carried out in accordance with paragraph 1 for each type of equipment referred to in paragraph 2 and identify those parts of the equipment most likely to leak. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 34(2).</p>	<p>2. Paragraph 1 applies to operators of the following equipment that contains fluorinated greenhouse gases listed in Annex I or in Annex II, Section I, <u>or other relevant alternatives to fluorinated greenhouse gases: [...]</u></p> <p><u>5. (a) NEW Operators of equipment that contains greenhouse gas which are alternative to the fluorinated gas in the quantities expressed below shall ensure that the equipment is checked for leaks at least every 12 months by appropriately certified personnel:</u> <u>(a) 3kg of refrigerant classified as A1</u> <u>(b) 1kg of refrigerant classified as A2, A2L and A3”</u> <u>Hermetically sealed equipment that contains less than 10 tonnes of CO2 equivalent of fluorinated greenhouse gases listed in Annex I or 2 kilograms of fluorinated greenhouse gases listed in Annex II, Section I, or 1 kg alternative refrigerant greenhouse gas classified as A2, A2L and A3 shall not be checked for leaks, provided the equipment is labelled as hermetically sealed and its connected parts have a tested leakage rate of less than 3 grams per year under a pressure of at least a quarter of the maximum allowable pressure.</u></p>
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Justification:

- Points 1 to 4 should apply to greenhouse gases of class A1. The different levels of test between A1 and the others is that all non-A1 refrigerants have safety concerns (flammability mainly) but have a low GWP so we cannot measure it by CO2 tonnes equivalent in the way we do currently for A1 HFCs.
- It is necessary to extend periodical inspections and leak checks to prevent safety risks on technicians, personnel and end-users. Since they were introduced in the 2006 F-gas Regulation, leak check requirements have proven to be effective and efficient, bringing lower leakage rates with positive climate and energy consumption impacts. With the increased use of alternative refrigerants, all of which present safety issues and many of which are flammable, regular leak checks are necessary to ensure safe and energy-efficient system operation.

Article 6:

1. Operators of the equipment listed in Article 5(2), points (a) to (d), and containing fluorinated greenhouse gases listed in Annex I in quantities of 500 tonnes of CO2 equivalent or more, shall ensure that the equipment is provided with a leakage detection system which alerts the operator or a service company of any leakage.
2. Operators of the equipment listed in Article 5(2), points (f) and (g), and containing fluorinated greenhouse gases listed in Annex I in quantities of 500 tonnes of CO2 equivalent or more and installed from 1 January 2017, shall ensure that equipment is provided with a leakage detection system which alerts the operator or a service company of any leakage.
3. Operators of the equipment listed in Article 5(2), points (a) to (d) and (f), that is subject to paragraphs 1 or 2 shall ensure that leakage detection systems are checked at least

Article 6:

1. Operators of the equipment listed in Article 5(2), points (a) to (d), and containing fluorinated greenhouse gases listed in Annex I in quantities of 500 tonnes of CO2 equivalent or more, shall ensure that the equipment is provided with a leakage detection system which alerts the operator or a service company of **any a** leakage.
2. Operators of the equipment listed in Article 5(2), points (f) and (g), and containing fluorinated greenhouse gases listed in Annex I in quantities of 500 tonnes of CO2 equivalent or more and installed from 1 January 2017, shall ensure that equipment is provided with a leakage detection system which alerts the operator or a service company of **any a** leakage.
3. a **NEW Operators of equipment that contains alternative refrigerant greenhouse gas in the quantities expressed in Article 5 (5 a new) shall ensure that the**

<p>once every twelve months to ensure their proper functioning.</p> <p>(...)</p>	<p><u>equipment is provided with a leakage detection system which alerts the operator or a service company of a leakage.</u></p> <p>3. <u>b</u> Operators of the equipment listed in Article 5(2), points (a) to (d) and (f), that is subject to paragraphs 1 or 2 shall ensure that leakage detection systems are checked at least once every twelve months to ensure their proper functioning.</p> <p>(...)</p> <p>5. NEW <u>Operators of equipment that contains alternative refrigerant greenhouse gas in the quantities expressed in Article 5 (5 a new) shall ensure that leakage detection systems are checked at least once every twelve months to ensure their proper functioning.</u></p>
<p><u>Justification:</u> It is technically impossible to detect every leak because leak detection equipment has a minimum leakage threshold (e.g. 5 grammes per year).</p>	
<p><u>Article 7:</u></p> <p>1. <u>(e)</u> the identity of the undertaking which installed, serviced, maintained and where applicable repaired or decommissioned the equipment, including, where applicable, the number of its certificate;</p>	<p><u>Article 7:</u></p> <p>1 <u>(e):</u> the identity of the undertaking which installed, serviced, maintained and where applicable repaired or decommissioned the equipment, including, where applicable, the <u>registration</u> number of <u>its the undertaking's F-Gas</u> certificate;</p>
<p><u>Justification:</u> The current wording creates confusion as to the type of certificate what is meant here is the certificate of registration for the legal entity.</p>	
<p><u>Article 8:</u></p> <p>2. Any recovered fluorinated greenhouse gases listed in Annex I and Annex II, Section 1, shall not be used for filling or refilling equipment unless the gas has been recycled or reclaimed.</p>	<p><u>Article 8:</u></p> <p>2. Any recovered fluorinated greenhouse gases listed in Annex I and Annex II, Section 1, shall not be used for filling or refilling <u>other</u> equipment unless the gas has been recycled or reclaimed.</p>
<p><u>Justification:</u> It should be clear that f-gases recovered can be used to refill the same equipment they have been recovered from.</p>	
<p><u>Article 10</u></p> <p>1. Member States shall, on the basis of the minimum requirements referred to in paragraph 5, establish or adapt certification programmes, including evaluation processes, and ensure that training on practical skills and theoretical knowledge is available for natural persons carrying out the following tasks involving fluorinated greenhouse gases listed in Annex I and Annex II, Section 1 and other relevant alternatives to fluorinated greenhouse gases:</p>	<p><u>Article 10:</u></p> <p>1. Member States shall, on the basis of the minimum requirements referred to in paragraph 5, establish or adapt certification programmes, including evaluation processes, and ensure that training on practical skills and theoretical knowledge is available for natural persons carrying out the following tasks involving fluorinated greenhouse gases listed in Annex I and Annex II, Section 1 and other relevant alternatives to fluorinated <u>refrigerant</u> greenhouse gases:</p>

<p>(a) installation, servicing, maintenance, repair or decommissioning of the equipment listed in Article 5(2), points (a) to (g);</p> <p>(b) leak checks of the equipment referred to Article 5(2), points (a) to (f), as provided for in Article 5(1);</p> <p>(c) recovery as provided for in Article 8(1).</p> <p>2. Member States shall ensure that training programmes for natural persons recovering fluorinated greenhouse gases listed in Annex I and Annex II, Section I from air conditioning equipment in motor vehicles falling within the scope of Directive 2006/40/EC of the European Parliament and of the Council are available, pursuant to paragraph 5.</p> <p>3. The certification programmes and training provided for in paragraphs 1 and 2 shall cover the following,</p> <p>(a) applicable regulations and technical standards;</p> <p>(b) emission prevention;</p> <p>(c) recovery of fluorinated greenhouse gases listed in Annex I and Annex II, Section 1;</p> <p>(d) safe handling of equipment of the type and size covered by the certificate; and</p> <p>(e) energy efficiency aspects.</p> <p>(...)</p> <p>6. Member States shall establish or adapt certification programmes on the basis of the minimum requirements referred to in paragraph 5 for undertakings carrying out installation, servicing, maintenance, repair or decommissioning of the equipment listed in Article 5(2), points (a) to (f), containing fluorinated greenhouse gases listed in Annex I and Annex II, Section I, and other relevant alternatives to fluorinated greenhouse gases for other parties.</p> <p>7. Existing certificates and training attestations issued in accordance with Regulation (EU) No 517/2014 shall remain valid, in accordance with the conditions under which they were originally issued.</p>	<p>(a) installation, servicing, maintenance, repair or decommissioning of the equipment listed in Article 5(2), points (a) to (g);</p> <p>(b) leak checks of the equipment referred to Article 5(2), points (a) to (f), as provided for in Article 5(1);</p> <p>(c) recovery as provided for in Article 8(1).</p> <p>2. Member States shall ensure that training programmes for natural persons recovering alternative refrigerant greenhouse gases, fluorinated greenhouse gases listed in Annex I and Annex II, Section I from air conditioning equipment in motor vehicles falling within the scope of Directive 2006/40/EC of the European Parliament and of the Council are available, pursuant to paragraph 5.</p> <p>3. The certification programmes and training provided for in paragraphs 1 and 2 shall cover the following,</p> <p>(a) applicable regulations and technical standards;</p> <p>(b) emission prevention;</p> <p>(c) recovery of fluorinated greenhouse gases listed in Annex I and Annex II, Section 1;</p> <p>(d) safe handling of equipment of the type and size covered by the certificate; and</p> <p>(e) energy efficiency aspects installation and maintenance of equipment to ensure best practice and improve the energy efficiency of systems and minimise indirect CO2 emissions</p> <p>(...)</p> <p>6. Member States shall establish or adapt certification programmes on the basis of the minimum requirements referred to in paragraph 5 for undertakings carrying out installation, servicing, maintenance, repair or decommissioning of the equipment listed in Article 5(2), points (a) to (f), containing fluorinated greenhouse gases listed in Annex I and Annex II, Section I, and other relevant alternatives to fluorinated refrigerant other relevant alternatives to fluorinated refrigerant greenhouse gases for other parties.</p> <p>7. Existing certificates and training attestations issued in accordance with Regulation (EU) No 517/2014 shall remain valid, in accordance with the conditions under which they were originally issued.</p> <p><u>The validity of existing certificates may be subject to additional requirements to reflect the extension of the certification scheme to alternative refrigerant greenhouse gases .</u></p>
<p>Justification:</p> <p>The successful achievement of the F-gas Regulation’s objectives greatly depends on a large uptake of alternative low GWP refrigerants. Such an uptake relies itself on sufficient knowledge and competence from the RACHP contracting sector on these alternative low GWP refrigerants.</p> <p>Although alternative refrigerants do not contribute significantly to climate change, there are other issues which present safety-related challenges. Alternative greenhouse gas refrigerant systems include flammable refrigerants, lower</p>	

flammability refrigerants and high pressure refrigerants. Training and certification will be required to avoid accidents, injury and fatalities involving systems with alternative greenhouse gas refrigerant systems. Refrigeration, air conditioning and heat pump systems using flammable and lower flammability refrigerants contain many potential ignition sources during the installation stage, during maintenance and during operation. The working system pressure in a CO2 refrigeration system is at least 200% and up to 400% higher than in traditional systems, a simple error during installation or maintenance could lead to a substantial explosion. Unless technicians are trained and certified in the handling of these high pressure substances accidents will happen.

Currently, the proportion of F-Gas certified personnel trained on alternative refrigerants ranges from 3.5% to 7% in most Member States, depending on the type of alternative refrigerant. Extending the current F-Gas training and certification scheme to alternative refrigerants would address this issue.

The indirect CO2 emissions from the energy required to power refrigeration, air conditioning and heat pump systems is significant. Many of the new alternative greenhouse gas refrigerant systems operate at higher pressures and use more energy when compared to traditional systems especially systems containing CO2 refrigerant. Training and certification of technicians and ensuring best practice will be needed to avoid higher energy usage due to poor installation and poor maintenance.

Article 11

1. The placing on the market of products and equipment, including parts thereof, listed in Annex IV, with an exemption for military equipment, shall be prohibited from the date specified in that Annex, differentiating, where applicable, according to the type or global warming potential of the gas contained

5. Only undertakings that hold a certificate required under Article 10(1), point (a) or the training attestation required under Article 10(2), or undertakings that employ persons holding such a certificate or a training attestation shall be allowed to purchase fluorinated greenhouse gases listed in Annex I or Annex II, Section 1, for the purpose of carrying out the installation, servicing, maintenance or repair of the equipment containing those gases, or whose functioning relies upon those gases, referred to in Article 5(2), points (a) to (g), and Article 10(2). This paragraph shall not prevent non-certified undertakings, who do not carry out such activities, from collecting, transporting or delivering fluorinated greenhouse gases listed in Annex I and Annex II, Section 1.

6. Non-hermetically sealed equipment charged with fluorinated greenhouse gases listed in Annex I and Annex II, Section 1 may only be sold to an end user where evidence is provided that the installation is to be carried out by an undertaking certified in accordance with Article 10.

Article 11

1. The placing on the market of products and equipment, ~~including parts thereof~~, listed in Annex IV, with an exemption for military equipment, shall be prohibited from the date specified in that Annex, differentiating, where applicable, according to the type or global warming potential of the gas contained.

5. Only undertakings that hold a certificate required under Article 10(1), point (a) or the training attestation required under Article 10(2), or undertakings that **directly** employ persons holding such a certificate or a training attestation shall be allowed to purchase fluorinated greenhouse gases **and alternative refrigerant greenhouse gases** listed in Annex I or Annex II, Section 1, for the purpose of carrying out the installation, servicing, maintenance or repair of the equipment containing those gases, or whose functioning relies upon those gases, referred to in Article 5(2), points (a) to (g), and Article 10(2). This paragraph shall not prevent non-certified undertakings, who do not carry out such activities, from collecting, transporting or delivering fluorinated greenhouse gases **and alternative refrigerant greenhouse gases** listed in Annex I and Annex II, Section 1.

6. Non-hermetically sealed equipment charged with ~~fluorinated~~ greenhouse gases ~~listed in Annex I and Annex II, Section 1~~ may only be sold to an end user where evidence ~~is~~ **has been** provided **to the seller by an undertaking certified in accordance with article 10 confirming that they will be carrying out the installation of the equipment being supplied. The seller shall maintain records of the transaction and the certified undertaking records of the installation available for inspection for 5 years after the transaction.** ~~that the~~

	installation is to be carried out by an undertaking certified in accordance with Article 10.
<p><u>Justification:</u></p> <ul style="list-style-type: none"> • Para 1: The current wording affects spare parts and components, thereby effectively preventing repair and maintenance of existing equipment. • Para 5: Direct employment ensures that companies using temping staff on an ad hoc basis do not circumvent the requirement. • Para 6: Extend to alternative refrigerant greenhouse gases used in refrigeration, air conditioning and heat pump equipment. 	
<p><u>Article 12:</u></p> <p>4. The label required pursuant to paragraph 1 shall be clearly legible and indelible and shall be placed either:</p> <p>(a) adjacent to the service ports for charging or recovering the fluorinated greenhouse gas; or</p> <p>(b) on that part of the product or equipment that contains the fluorinated greenhouse gas.</p> <p>The label shall be in the official languages of the Member State in which the good is to be placed on the market.</p> <p>6. Reclaimed or recycled fluorinated greenhouse gases shall be labelled with an indication that the substance has been reclaimed or recycled, information on the batch number and the name and address of the reclamation or recycling facility in the Union</p>	<p><u>Article 12:</u></p> <p>4. The label required pursuant to paragraph 1 shall be clearly legible and indelible and shall be placed either:</p> <p>(a) adjacent to the service ports for charging or recovering the fluorinated greenhouse gas; or</p> <p>(b) on that part of the product or equipment that contains the fluorinated greenhouse gas.</p> <p><u>The label can be available through a QR code or other electronic mechanisms that lead to an online logbook.</u></p> <p>The label shall be in the official languages of the Member State in which the good is to be placed on the market.</p> <p>6. Reclaimed or recycled fluorinated greenhouse gases shall be labelled with an indication that the substance has been reclaimed or recycled, information on the batch number and the name and address of the reclamation or recycling facility in the Union. <u>For the purpose of article 12, 'facility' means any establishment which engages in reclaiming and/or recycling fluorinated greenhouse gases or alternatives to fluorinated greenhouse gases."</u></p>
<p><u>Justification:</u> More and more contractors use QR codes that lead to an online logbook. The Regulation should accommodate this technological development.</p>	
<p><u>Article 20:</u></p> <p>NEW</p>	<p><u>Article 20:</u></p> <p><u>6. (a) NEW: The Commission shall ensure that the information on whether an importer or a manufacturer has a quota or not is publicly available on the portal based on the company name or VAT number.</u></p>
<p><u>Justification:</u> According to Article 19.1 and 19.2, manufacturers of equipment must be able to identify the source of the refrigerants they use, draft declarations, and keep records of proof. An F-Gas portal that makes the names and IDs of all quota holders public would really help buyers of refrigerants to be more confident on the quality and legality of their purchases.</p>	
<p><u>Annex IV</u></p> <p>(14) Stationary refrigeration equipment, that contains, or whose functioning relies upon, fluorinated greenhouse gases with GWP of 2 500 or more except equipment</p>	<p><u>Annex IV</u></p> <p>(14) Stationary refrigeration equipment, that contains, or whose functioning relies upon, fluorinated greenhouse gases <u>HFCs</u> with GWP of 2 500 or more except equipment</p>

<p>intended for application designed to cool products to temperatures below – 50 °C.</p> <p>(17) Plug-in room and other self-contained air-conditioning and heat pump equipment that contain fluorinated greenhouse gases with GWP of 150 or more. Date of prohibition: 1 January 2025</p> <p>(18) (a) 1 January 2025 (b) 1 January 2027 (c) 1 January 2027</p>	<p>intended for application designed to cool products to temperatures below – 50 °C.</p> <p>(17) a. Plug-in self-contained and other self-contained room air-conditioning and <u>plug-in self-contained room</u> heat pump equipment that contain fluorinated greenhouse gases with GWP of 150 or more. Date of prohibition: 1 January 2025<u>8</u></p> <p><u>(17) b. Other self-contained air-conditioning and heat pump equipment that contain fluorinated greenhouse gases with GWP of 750, except when needed to meet safety requirements.</u> <u>Date of prohibition: 1 January 2027</u></p> <p>(18) (a) 1 January 2030<u>30</u> (b) 1 January 2027<u>30</u> (c) 1 January 2027<u>30</u></p>
<p><u>Justification:</u></p> <ul style="list-style-type: none"> • 14: Replace ‘<i>fluorinated greenhouse gases</i>’ with ‘<i>HFCs</i>’ to align with wording of ban 13. • 17. and 18: Additional years are required to make it possible for manufacturers to develop alternatives in all the existing product ranges and for enough competent contractors to install them. 	