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Proposal for a

**REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**

**on fluorinated greenhouse gases**

(Text with EEA relevance)

{SWD(2012) 363 final}

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## EXPLANATORY MEMORANDUM

### 1. CONTEXT OF THE PROPOSAL

#### **Problem description and objectives**

The international scientific consensus calls for limiting the global temperature increase to 2°C to prevent undesirable climate effects<sup>1</sup>. In respect of this objective, the European Council has called for a reduction of greenhouse gas emissions in the EU by 80-95 % by 2050 compared to levels in 1990 in the context of similar action by developed countries. The EU Low Carbon Economy Roadmap<sup>2</sup> shows that, in order to achieve this objective at the lowest cost, all sectors and greenhouse gases must contribute including fluorinated greenhouse gases (F-gases) whose warming potential can be up to 23,000 times more potent than carbon dioxide (CO<sub>2</sub>).

In September 2011 the Commission published a report<sup>3</sup> on the application of Regulation (EC) No 842/2006<sup>4</sup>. It concluded that the Regulation could deliver significant emission reductions if it was further improved and fully applied. It also stated that more needed to be done to further reduce F-gas emissions in the EU. By ensuring that F-gases are replaced by safe alternatives with no or a lower impact on the climate, yearly emissions expressed in CO<sub>2</sub> equivalent could be cut by two-thirds by 2030 at relatively low cost<sup>5</sup>.

Clearly early action to exploit relatively cheap abatement options for F-gases will avoid potentially higher costs associated with the reduction of other greenhouse gases in other industrial sectors<sup>6</sup>. However, some stakeholders<sup>7</sup> have stated that it is difficult to market "greener" alternative technologies under prevailing market conditions. In Denmark on the other hand, where stricter national rules on F-gases apply, start-ups and SMEs have successfully innovated and marketed new green technologies, turning them into market leaders.

In this context, this proposal aims to

- (1) replace Regulation (EC) No 842/2006 on certain fluorinated greenhouse gases in order to ensure a more cost-efficient contribution to achieving the EU's climate objectives by discouraging the use of F-gases with a high impact on the climate in favour of energy-efficient and safe alternatives, and further improving the

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<sup>1</sup> Intergovernmental Panel on Climate Change (IPCC), 'Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007'. [www.ipcc.ch/publications\\_and\\_data/ar4/wg3/en/contents.html](http://www.ipcc.ch/publications_and_data/ar4/wg3/en/contents.html).

<sup>2</sup> 'A roadmap for moving to a competitive low carbon economy in 2050', COM (2011)112. [eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52011DC0112:EN:NOT](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52011DC0112:EN:NOT)

<sup>3</sup> Report from the Commission on the application, effects and adequacy of the Regulation on certain fluorinated greenhouse gases (Regulation (EC) No 842 /2006), COM(2011) 581 final.

<sup>4</sup> Regulation (EC) No 842/2006 of the European Parliament and of the Council of 17 May 2006 on certain fluorinated greenhouse gases, OJ L 161, 14.6.2006, p. 1.

<sup>5</sup> Schwarz et al., 2011, 'Preparatory study for a review of Regulation (EC) No 842/2006 on certain fluorinated greenhouse gases', Öko-Recherche et al.

<sup>6</sup> For perspective, the cost-efficient, yearly F-Gas emission reductions possible by 2030 correspond roughly to what the industries covered by the EU's Emission Trading System (ETS) must currently reduce over two years.

<sup>7</sup> "How to bring natural refrigerants faster to market", Summary report of ATMOSphere 2010, International workshop on natural refrigerants.

containment and end-of-life treatment of products and equipment that contain F-gases;

- (2) enhance sustainable growth, stimulate innovation and develop green technologies by improving market opportunities for alternative technologies and gases with a low impact on the climate;
- (3) bring the EU into line with the latest scientific findings at international level, as described in the Fourth Assessment Report of the UN's IPCC, e.g. with regard to the substances covered by this regulation and the calculation of their global warming potential (GWP);
- (4) help to bring about a consensus on an international agreement to phase down hydrofluorocarbons (HFCs), the most relevant group of F-gases, under the Montreal Protocol;
- (5) simplify and clarify Regulation (EC) No 842/2006 to reduce administrative burden in line with the Commission's commitment to better regulation.

## **Background**

According to the cost-effective pathway to decarbonise the EU economy, emissions of F-gases should be reduced in the order of 70-78% by 2050 and by 72-73% by 2030 at a marginal abatement cost of approximately €50 per tonne CO<sub>2</sub> equivalent.<sup>2</sup> In total, F-gases account for 2% of all greenhouse gases in the EU today but have a much more potent atmospheric warming potential than CO<sub>2</sub>. They are used in a variety of refrigeration and air-conditioning equipment, in insulation foams and electrical equipment, in aerosol sprays, as solvents or in fire protection systems. Emissions occur mainly during emissive uses (of aerosol sprays or solvents for example) or due to leakage during the operation and disposal of products and equipment that contain F-gases.

Most F-gases have been developed by industry to replace ozone-depleting substances (ODS) that are being phased out under the Montreal Protocol. Due to greater wealth and population growth, more products and equipment that rely on F-gases or ODS are sold. As a result, there has been a sharp increase worldwide in the production and use of F-gases since 1990 and will, if unaddressed, lead to considerable emissions into the atmosphere. Since products and equipment that contain F-gases often have a long life, if no action is taken today, high emissions that could have been prevented will continue for decades to come.

The current F-Gas Regulation focuses mainly on the containment and end-of-life processing of products and equipment that contain F-gases. Current EU F-gas policies are expected to stabilise F-gas emissions in the EU, if shortcomings in the application of certain measures are rectified. However, it is unlikely that there will be a reduction of emissions in absolute terms unless additional measures are implemented.

There are currently only a few measures in place to avoid the use of F-gases. Nevertheless, today it is possible, in almost all sectors in which F-gases are used, to fully or partially replace them with alternatives that are safe and at least as energy-efficient. Policy measures must, however, take into account the fact that the numerous types of products and equipment are concerned and that the technical feasibility and costs and benefits of replacing F-gases may depend on the size of the product or equipment and on where it will be used.

Internationally, the growing problem of F-gas emissions is receiving attention. In 2009, 2010, 2011 and 2012, several parties to the Montreal Protocol submitted proposals to phase down the supply and consumption of HFCs worldwide. The envisaged measures under this Regulation would anticipate a global phase-down along the lines of the current proposals under the Montreal Protocol and would thus prepare the EU for such future obligations. The EU has supported these proposals as a complement to action to mitigate climate change under the United Nations Framework Convention on Climate Change (UNFCCC)<sup>8</sup>. Little progress has been made in the negotiations so far because China, India, Brazil and other countries have refused to discuss this issue under the Montreal Protocol. However, the United Nations Conference on Sustainable Development (Rio+20) recently expressed support for a gradual phase-down of the consumption and production of HFCs<sup>9</sup>.

In addition, the Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants was established in 2012. The G8, the United Nations Environmental Programme (UNEP), the World Bank and the European Commission have joined it. A priority area for action are emissions of HFCs<sup>10</sup>. The European Parliament has also repeatedly called for ambitious action on F-gases, in particular HFCs<sup>11</sup>.

Current EU legislation on F-gases consists of two main legislative acts:

- (1) Regulation (EC) No 842/2006 focusing on preventing leakage during use (containment) and at the end of the life of (mostly) stationary equipment and on a limited number of F-gas bans on narrowly defined niche applications (the F-Gas Regulation),
- (2) Directive 2006/40/EC of the European Parliament and of the Council introducing restrictions on the use of F-gases with global warming potential (GWP) of more than 150 in the air-conditioning systems of new motor vehicles (the MAC Directive).

Regulation (EC) No 842/2006 is complemented by ten Commission Regulations establishing the format for reports<sup>12</sup>, the form of labels and additional labelling requirements<sup>13</sup>, standard requirements for checking leakage<sup>14, 15</sup>, requirements for training and certification programmes<sup>16, 17, 18, 19, 20</sup> and the format for notifying them<sup>21</sup>.

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<sup>8</sup> Council Conclusions of 10 October 2011 on Preparations for the 17th session of the Conference of the Parties (COP 17) to the United Nations Framework Convention on Climate Change (UNFCCC) and 7th session of the Meeting of the Parties to the Kyoto Protocol in Durban.

<sup>9</sup> <http://www.uncsd2012.org/thefuturewewant.html>.

<sup>10</sup> <http://www.unep.org/CCAC/>.

<sup>11</sup> European Parliament Resolution of 14 September 2011, 'A comprehensive approach to non-CO2 climate-relevant anthropogenic emissions', P7\_TA-PROV(2011)0384 and European Parliament Resolution of 15 March 2012, 'Competitive low carbon economy in 2050 — EP resolution on a roadmap for moving to a competitive low carbon economy in 2050', P7\_TA-PROV(2012)0086.

<sup>12</sup> Commission Regulation (EC) No 1493/2007 of 17 December 2007, OJ L 332, 18.12.2007, p. 7.

<sup>13</sup> Commission Regulation (EC) No 1494/2007 of 17 December 2007, OJ L 332, 18.12.2007, p. 25.

<sup>14</sup> Commission Regulation (EC) No 1516/2007 of 19 December 2007, OJ L 335, 20.12.2007, p. 10.

<sup>15</sup> Commission Regulation (EC) No 1497/2007 of 18 December 2007, OJ L 333, 19.12.2007, p. 4.

<sup>16</sup> Commission Regulation (EC) No 303/2008 of 2 April 2008, OJ L 92, 3.4.2008, p. 3.

<sup>17</sup> Commission Regulation (EC) No 304/2008 of 2 April 2008, OJ L 92, 3.4.2008, p. 12.

<sup>18</sup> Commission Regulation (EC) No 305/2008 of 2 April 2008, OJ L 92, 3.4.2008, p. 17.

<sup>19</sup> Commission Regulation (EC) No 306/2008 of 2 April 2008, OJ L 92, 3.4.2008, p. 21.

<sup>20</sup> Commission Regulation (EC) No 307/2008 of 2 April 2008, OJ L 92, 3.4.2008, p. 25.

<sup>21</sup> Commission Regulation (EC) No 308/2008 of 2 April 2008, OJ L 92, 3.4.2008, p. 28.

## Consistency with other policies and objectives of the Union

The right of the European Union to act in this area is set out in Articles 191 and 192 of the Treaty on the Functioning of the European Union (TFEU). Article 191 explicitly refers to the objective of combating climate change as part of the EU's environmental policy. Action in this area fully respects the principle of subsidiarity. Climate change is a cross-border issue on which EU-wide action is needed, in particular since the EU has a common emission reduction target.

The cost-efficient emission reductions planned are consistent with the pathway outlined in the 2050 EU Low Carbon Roadmap. Support for new alternatives will help maintain the competitiveness of the European economy and support green growth in particular, in line with the EU 2020 priority of sustainable growth<sup>22</sup>. Measures to safeguard the interests of SMEs are introduced along 'think small first' lines<sup>23</sup>, while special attention is paid to impacts on energy efficiency to ensure consistency in line with work the EU has done to encourage ecodesign<sup>24</sup> and energy efficiency<sup>25</sup>. Finally, the proposal also aims to simplify the legislation and keep administrative burden for public (EU or national) authorities and companies to a minimum.

## 2. RESULTS OF CONSULTATIONS WITH THE INTERESTED PARTIES AND IMPACT ASSESSMENTS

### Consultation of interested parties and the collection and use of expertise

The Commission has gathered extensive technical advice from a number of expert studies<sup>26, 27, 28, 29</sup> including a comprehensive preparatory study<sup>5</sup> for the review of Regulation (EC) No 842/2006. A 47-member group of experts from the various industry sectors, Member States and NGOs was asked to provide guidance and technical input for this study. The Joint Research Centre (JRC) also did a macro-economic analysis of policy options.

The Commission carried out a broad consultation with stakeholders, including a three-month public online consultation from 26 September to 19 December 2011 and an open hearing in Brussels on 13 February 2012. Three quarters of the 261 stakeholders who replied in the online consultation were from industry. With regard to the most adequate policy approaches in the absence of a worldwide phase-down of HFCs, less than 2% of stakeholders replied 'no further action'. The three most frequently chosen policy options were strengthening measures

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<sup>22</sup> [http://ec.europa.eu/europe2020/priorities/sustainable-growth/index\\_en.htm](http://ec.europa.eu/europe2020/priorities/sustainable-growth/index_en.htm).

<sup>23</sup> [http://ec.europa.eu/enterprise/policies/sme/small-business-act/index\\_en.htm](http://ec.europa.eu/enterprise/policies/sme/small-business-act/index_en.htm).

<sup>24</sup> [http://ec.europa.eu/enterprise/policies/sustainable-business/ecodesign/index\\_en.htm](http://ec.europa.eu/enterprise/policies/sustainable-business/ecodesign/index_en.htm).

<sup>25</sup> [http://ec.europa.eu/energy/efficiency/index\\_en.htm](http://ec.europa.eu/energy/efficiency/index_en.htm).

<sup>26</sup> SKM Enviro, 2012, 'Further Assessment of Policy Options for the Management and Destruction of Banks of ODS and F-Gases in the EU.' [http://ec.europa.eu/clima/policies/ozone/research/docs/ods\\_f-gas\\_destruction\\_report\\_2012\\_en.pdf](http://ec.europa.eu/clima/policies/ozone/research/docs/ods_f-gas_destruction_report_2012_en.pdf).

<sup>27</sup> Becken et al., 2010. 'Avoiding Fluorinated Greenhouse Gases — Prospects for Phasing Out', Umweltbundesamt, Dessau, Germany. <http://www.umweltbundesamt.de/uba-info-medien-e/3977.html>.

<sup>28</sup> UNEP Technology and Economic Assessment Panel (TEAP), Nairobi, 2009. 'Assessment of Alternatives to HCFCs and HFCs and Update of the TEAP 2005 Supplement Report Data', Montreal Protocol, Report of the UNEP Technology and Economic Assessment Panel. [http://ozone.unep.org/teap/Reports/TEAP\\_Reports/teap-may-2009-decisionXX-8-task-force-report.pdf](http://ozone.unep.org/teap/Reports/TEAP_Reports/teap-may-2009-decisionXX-8-task-force-report.pdf).

<sup>29</sup> Clodic et al., 2011, '1990 to 2010 Refrigerant Inventories for Europe — Previsions on banks and emissions from 2006 to 2030 for the European Union', Armines/ERIE. <http://www.epeglobal.org/refrigerants/F-Gas-review/>.

for containment and recovery, voluntary agreements and quantitative limits on placing HFCs on the EU market (phase-down). Many respondents thought several policy measures were appropriate.

The stakeholder hearing, attended by over 130 stakeholders, revealed that a large majority of industry preferred or could live with a phase-down of the supply of F-gases. This would give it some flexibility in cases where alternative technologies were not yet considered suitable. In contrast, they thought that bans on new equipment were too rigid or that they required a complex set of exemptions. For commercial users of F-gas equipment, it was crucial that existing equipment would not become redundant. NGOs and stakeholders from industry who are working with alternative technologies thought that it was essential to have bans with minor exemptions. They regarded a phase-down as a complement to bans. A few stakeholders wanted to focus only on better application of the Regulation. At that stage, Member States had no official positions but indicated support for a phase-down. A network of Environmental Protection Agencies<sup>30</sup> recommended combining a phase-down mechanism with bans to reinforce the phase-down.

### **Impact assessment**

The Commission did an impact assessment of policy alternatives in terms of their effectiveness in achieving the policy objectives and their environmental, economic and social impacts on stakeholders. A wide range of policy measures to complement existing measures were considered. The final options contained only measures that were shown to deliver substantial emission savings at low abatement costs and to be consistent with other EU policies.

Full application of the F-Gas Regulation was set as the baseline option. Four other policy options were assessed in detail:

- (a) Voluntary agreements;
- (b) Extended scope for containment and recovery measures;
- (c) Quantitative limits on the supply of HFCs (phase-down);
- (d) A ban on placing certain products and equipment that contain F-gases on the EU market.

The methodological basis for the impact assessment was a detailed analysis of the feasibility of introducing safe, energy-efficient alternatives in the 28 main sectors that use F-gases. Since alternative technologies were only taken into account if they were considered at least as energy-efficient as conventional F-gas technologies, indirect emissions from electricity consumption were inherently addressed from the outset.

Impacts at different stages in the production chain and at different stages of use were considered, i.e. on producers of chemicals; producers of products and equipment; wholesalers; industrial users of products and equipment; companies that service equipment and final consumers.

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<sup>30</sup> Letter of the European Network of the Heads of Environmental Protection Agencies to Commissioners Potočnik, Hedegaard, Tajani and Oettinger, 15 May 2012.

The impact assessment showed that a phase-down of HFCs that introduces gradually lower limits until 2030 for the amounts of these F-gases to be put on the market in the EU would deliver the most emission savings, reducing today's emissions by two thirds by 2030 (roughly 70 million tonnes of CO<sub>2</sub> equivalent). Some restrictions on the use of F-gases are appropriate, in particular to safeguard the integrity of the phase-down and to target F-gases not covered by the phase-down. Measures on containment and recovery should be extended to some modes of transport. Together, these options would most stimulate innovation and the development of green technologies. Their cost to the economy and society as a whole would be low (a maximum effect on GDP of -0.006%), while giving industry flexibility. An emission reduction of two thirds would be in line with the current proposals under the Montreal Protocol and prepare EU industry for a phase-down. It would lead to cost reductions due to higher market penetration and to economies of scale for alternative technologies, thus helping to reach an agreement on the proposals under the Montreal Protocol.

Administrative costs can be kept relatively low (total administrative costs of around two million euro a year for a phase-down). This is because the reporting scheme under Regulation (EC) No 842/2006 already provides most of the data needed to implement any policy options in the future.

### **3. LEGAL ELEMENTS OF THE PROPOSAL**

#### **Summary of the proposed action**

The proposal maintains the current provisions of the F-Gas Regulation, with adjustments to ensure better implementation and enforcement of the legislation by national authorities. Some containment measures have also been extended to refrigerated trucks and trailers. Annex IX provides in a correlation table an overview on how the existing provisions have been integrated in the proposed regulation.

The most important new measure is the introduction of quantitative limits on the supply of bulk HFC substances in the EU, decreasing over time. This phase-down is complemented by measures ensuring that quantities used in products and equipment are also covered by this mechanism.

The phase-down mechanism involves a gradually declining cap on the total placement of bulk HFCs (in tonnes of CO<sub>2</sub> equivalent) on the market in the EU with a freeze in 2015, followed by a first reduction in 2016 and reaching 21% of the levels sold in 2008–11 by 2030. Producers of products and equipment who face a restricted supply of F-gases will switch to alternative technologies where feasible.

The phase-down mechanism is based to a large extent on the experience gained from phasing down the consumption of ODS. Companies that place bulk HFCs on the EU market must have rights to place bulk substances on the EU market for the first time. The Commission allocates free quotas to companies based on past reporting data, with a reserve for new entrants. Companies must make sure that they have enough rights to cover their actual placing of products and equipment on the market. They may transfer quotas among themselves. The Commission checks compliance the following year, with independent verification of reports. Around 100 companies are expected to participate and a threshold ensures that companies that only place small quantities on the market are exempted.

HFCs imported in pre-charged equipment should also be counted under the phase-down and so complementary measures are indispensable to tackle these gases to ensure the environmental integrity<sup>31</sup> of the phase-down mechanism and a level playing field in the market. Therefore, non-hermetically sealed HFC appliances would still be able to be produced in, or imported into, the EU but they would have to be filled at the place of installation.<sup>32</sup> Similarly, the placing on the market of movable air conditioning containing HFCs will be banned from 2020. A few additional bans are introduced to underpin the phase-down mechanism and restrict the use of other F-gases not covered by the mechanism and which have been found to be cost-effective in relation to the overall required level of emissions reduction. See table 1 for overview.

Table 1. Summary overview over new equipment restrictions

<b>Products and equipment</b>	<b>Date of prohibition</b>
Use of HFC-23 in fire protection systems and fire extinguishers	1 January 2015
Domestic refrigerators and freezers with HFCs with GWP of 150 or more	1 January 2015
Refrigerators and freezers for commercial use (hermetically sealed systems)	1 January 2017 for HFCs with GWP of 2500 or more 1 January 2020 for HFCs with GWP of 150 or more
Movable room air-conditioning appliances (hermetically sealed) with HFCs with GWP of 150 or more	1 January 2020

In addition, recharging of existing refrigeration equipment with a charge size over 5 tonnes of CO<sub>2</sub> equivalent with HFC of very high GWP (>2500) will not be permitted from 2020 onwards as more adequate and energy efficient drop-in refrigerants of lower GWP are already widely available on the market.

Restrictions on the use of SF<sub>6</sub> in magnesium die casting is extended also to facilities using less than 850 kg per year as technological progress has rendered such use obsolete.

Additional reporting obligations should enable monitoring of the use of F-gases that are not covered by current legislation.

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<sup>31</sup> It is estimated that in 2030, almost 20% of the quantities of hydrofluorocarbons placed on the market will be inside imported equipment. If imported equipment did not have to face the same supply restrictions on F-Gases as equipment produced in the EU, it is likely that the share of imported equipment and hence the uncontrolled supply of F-Gases would be even higher.

<sup>32</sup> Filling HFC equipment during on-site installation would also allay the concerns of the service industry (mainly SMEs) that at present, new equipment is often not installed correctly, without the use of certified experts as required by the F-Gas Regulation. This leads to additional emissions. AREA, 2010, 'Position paper: Review of Regulation (EC) No 842/2006 on certain fluorinated greenhouse gases — pre-charged non-monobloc air-conditioning equipment.' [www.area-eur.be](http://www.area-eur.be).

## **Legal basis**

The primary objective of the Regulation is to provide a high level of protection for the environment, in particular by combating climate change. This proposal is therefore based on Article 192(1) of the Treaty on the Functioning of the European Union.

## **Subsidiarity principle**

The objectives of the proposal cannot be sufficiently achieved by the Member States. The EU will better achieve the objectives for the following reasons.

Protecting the climate system is a cross-border issue. Individual Member States cannot solve the problems alone. The scale of the problem demands EU-wide action as well as action worldwide. The proposal also aims to create the legal framework for implementing an international agreement on the phase-down of HFCs, to which the EU would be party. The agreement is currently under discussion at international level.

The Regulation provides for banning the placing on the market and the use of certain products and equipment that contain F-gases. It is therefore relevant to the functioning of the internal market.

The proposal focuses on amending and complementing EU legislation and on strengthening some provisions to improve its implementation and enforcement by Member States.

It therefore complies with the subsidiarity principle.

## **Proportionality principle**

The proposal complies with the proportionality principle. The measures are based on a thorough assessment of their cost-efficiency. The thresholds for acceptable abatement costs are in line with the Low Carbon Roadmap<sup>33</sup>, setting out the overall strategy to combat climate change. Sufficiently long transition periods allow the sectors concerned to adapt in an economically efficient way.

Where restrictions on certain F-gas applications are envisaged, the proposal ensures that technically and economically feasible alternatives are available. If under particular circumstances this is not the case, it allows derogations to be granted.

No detailed provisions are proposed in areas where the objectives might be better achieved by action in other policy areas, for example by legislation on waste or ecodesign. This is to avoid overlaps that might lead to the unclear allocation of responsibilities, creating an additional burden for public authorities and companies.

## **Choice of instruments**

The legal instrument chosen is a Regulation because the proposal aims to replace and improve the existing Regulation and because the phase-down mechanism should build on the system established at EU level for the phase-down of ozone depleting substances. This system has

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<sup>33</sup> *A Roadmap for moving to a competitive low carbon economy in 2050*, COM(2011) 112 final.

proven to work efficiently. Any change to the system would unduly burden both Member States and the companies active in this sector.

#### **4. BUDGETARY IMPLICATION**

The proposal has no incremental impact on the budget of the European Union.

Proposal for a

**REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**

**on fluorinated greenhouse gases**

(Text with EEA relevance)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 192(1) thereof,

Having regard to the proposal from the Commission,

After transmission of the draft legislative act to the national Parliaments,

Having regard to the opinion of the European Economic and Social Committee<sup>34</sup>,

Having regard to the opinion of the Committee of the Regions<sup>35</sup>,

Acting in accordance with the ordinary legislative procedure,

Whereas:

- (1) The Fourth Assessment Report of the Intergovernmental Panel on Climate Change ("IPCC") of the United Nations Framework Convention on Climate Change ("UNFCCC"), to which the Union is party<sup>36</sup>, stated that, on the basis of existing scientific data, developed countries would need to reduce greenhouse gas emissions by 80% to 95% below 1990 emissions by 2050 to limit global climate change to a temperature increase of 2°C and thus prevent undesirable climate effects<sup>37</sup>.
- (2) To reach this target, the European Commission has laid out in a Low Carbon Economy Roadmap a cost-effective way of achieving the necessary overall emission reductions in the Union by 2050<sup>38</sup>. This roadmap establishes the sectoral contributions needed in six areas. Non-CO<sub>2</sub> emissions (including fluorinated greenhouse gases but excluding non-CO<sub>2</sub> emissions from agriculture) should be reduced by 72% to 73% by 2030 and

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<sup>34</sup> OJ C , , p. .

<sup>35</sup> OJ C , , p. .

<sup>36</sup> Council Decision of 15 December 1993 concerning the conclusion of the United Nations Framework Convention on Climate Change, OJ L 33, 7.2.1994, p. 11.

<sup>37</sup> Intergovernmental Panel on Climate Change (IPCC), 'Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007', Mitigation of Climate Change, Chapter 13.3.3.

<sup>38</sup> A Roadmap for moving to a competitive low carbon economy in 2050, COM(2011) 112 final.

by 70% to 78% by 2050, compared to 1990 levels. If based on the reference year 2005, a reduction in non-CO<sub>2</sub> emissions, except those from agriculture, of 60% to 61% by 2030 is required. Fluorinated greenhouse gas emissions were estimated at 90 million tonnes (Mt) of CO<sub>2</sub> equivalent in 2005. A 60% reduction means that emissions would have to be reduced to around 35 Mt of CO<sub>2</sub> equivalent by 2030. Given estimated emissions of 104 Mt of CO<sub>2</sub> equivalent in 2030 based on the full application of current legislation, a further decrease of around 70 Mt of CO<sub>2</sub> equivalent is required.

- (3) A Commission report<sup>39</sup> on the application, effects and adequacy of Regulation (EC) No 842/2006<sup>40</sup> concluded that the current containment measures, if fully applied, have the potential to reduce emissions of fluorinated greenhouse gases. Those measures should, therefore, be maintained and clarified on the basis of the experience gained in implementing them. Certain measures should also be extended to other appliances in which substantial quantities of fluorinated greenhouse gases are used, such as refrigerated trucks and trailers. The obligation to establish and maintain records of equipment that contains such gases should also cover electrical switchgear.
- (4) The Commission's report also concluded that more can be done to reduce emissions of fluorinated greenhouse gases in the Union, in particular by avoiding the use of those gases where there are safe and energy efficient alternative technologies with no impact or a lower impact on the climate. A decrease of up to two thirds of the 2010 emissions by 2030 is cost-effective because proved and tested alternatives are available in many sectors.
- (5) To encourage the use of such technologies, the training of persons who carry out activities involving fluorinated greenhouse gases should cover technologies that serve to replace and reduce the use of fluorinated greenhouse gases. Certificates should have a limited validity and the initial period of validity should only be extended on the basis of compulsory periodic training, to ensure that those persons are kept aware of new technical developments.
- (6) To ensure coherence with monitoring and reporting requirements under the UNFCCC and with Decision 4/CMP.7 of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol, global warming potentials should be calculated in terms of the 100-year global warming potential of one kilogram of a gas relative to one kilogram of CO<sub>2</sub>. The calculation should where possible be based on the fourth assessment report adopted by the IPCC.
- (7) Given that there are suitable alternatives, the current ban on using sulphur hexafluoride in magnesium die-casting and the recycling of magnesium die-casting alloys should be extended to facilities that use less than 850 kg per year. Similarly, with an appropriate transitional period, the use of refrigerants with very high global warming potential ("GWP") to service or maintain refrigeration equipment with a charge size equivalent to 5 tonnes of CO<sub>2</sub> or more should be banned.

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<sup>39</sup> *Report from the Commission on the application, effects and adequacy of the Regulation on certain fluorinated greenhouse gases (Regulation (EC) No 842/2006)*, COM(2011) 581 final.

<sup>40</sup> Regulation (EC) No 842/2006 of the European Parliament and of the Council of 17 May 2006 on certain fluorinated greenhouse gases, OJ L 161, 14.6.2006, p. 1.

- (8) Additional bans on the placing on the market of new equipment for refrigeration, air-conditioning and fire protection that operate using specific fluorinated greenhouse gases should be introduced where suitable alternatives to the use of those substances are available. In the light of future technical developments and the availability of cost-efficient alternatives to the use of fluorinated greenhouse gases, the Commission should be empowered to include other products and equipment or to exclude, also temporarily, certain categories of products or equipment for which alternative substances which fall below the specified global warming potential limit are not available for technical or economic reasons, including insufficient supply of alternative substances on the market to meet the demand, or due to applicable safety standards excluding the use of relevant alternatives.
- (9) Such bans should only be introduced where they will result in lower overall greenhouse gas emissions, in particular from both the leakage of any fluorinated greenhouse gases and the CO<sub>2</sub> emissions resulting from their energy consumption. Equipment containing fluorinated greenhouse gases should thus be allowed if their overall greenhouse gas emissions are less than those that would result from an equivalent equipment without fluorinated greenhouse gases, which has the maximum allowed energy consumption set out in relevant implementing measures adopted under Directive 2009/125/EC (Ecodesign)<sup>41</sup>.
- (10) To ensure that only persons who have been duly certified install non-hermetically sealed refrigeration, air-conditioning and heat-pump equipment, there should be a ban on the placing on the market of this equipment pre-filled with hydrofluorocarbons. This measure should also ensure that all quantities used for the first filling of such equipment are subject to the reduction measures.
- (11) Gradually reducing the placing on the market of hydrofluorocarbons has been identified as the most effective, cost-efficient way of reducing emissions of those substances in the long term.
- (12) To implement the gradual reduction of the placing on the market of hydrofluorocarbons, the Commission should allocate quotas to individual producers and importers for placing them on the market in order that the overall quantitative limit for placing hydrofluorocarbons on the market in the Union is not exceeded.
- (13) The quota allocation to individual companies should be based on the quantities of hydrofluorocarbons they have produced or imported during the reference period from 2008 to 2011. However, in order not to exclude small operators, five per cent of the overall quantitative limit should be reserved for importers and producers who have not imported or produced more than 1 tonne of fluorinated greenhouse gases in the reference period.
- (14) By regularly recalculating the quotas the Commission should ensure that new operators are allowed to continue their activities on the basis of the average volumes they placed on the market in the recent past.

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<sup>41</sup> Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products, OJ L 285, 31.10.2009, p. 10.

- (15) The Commission should ensure that a central electronic registry is in place to manage the quotas, based on the system for licensing trade under Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 16 September 2009 on substances that deplete the ozone layer<sup>42</sup>.
- (16) To maintain the flexibility of the market in bulk hydrofluorocarbons, transferring quotas should be permitted, also to producers and importers that have not been active in the sector before.
- (17) In order to make it possible to monitor the effectiveness of the Regulation, the scope of the current reporting obligations should be extended to cover other fluorinated substances that have significant GWP or are likely to replace fluorinated greenhouse gases listed in Annex I as well. For the same reason the destruction of fluorinated greenhouse gases and the importation of those gases when contained in products and equipment should also be reported. *De minimis* thresholds should be set to avoid disproportionate administrative burden, in particular for small and medium-sized enterprises and micro-enterprises.
- (18) The Commission should continuously monitor the effects of reducing the placing on the market of hydrofluorocarbons, including the effect of reduction on the supply for appliances where the use of hydrofluorocarbons would result in lower life-cycle emissions than if an alternative technology was used. The monitoring should also ensure the early detection of health or safety concerns, due to negative impacts on the availability of medicinal products. A comprehensive review should be carried out before 2030 in time to adapt the provisions of this Regulation in the light of its implementation and of new developments and to adopt, if appropriate, further reduction measures.
- (19) To ensure uniform conditions for the implementation of this Regulation, implementing powers should be conferred on the Commission to determine the formats of records to be kept on equipment installed, serviced, maintained, repaired or decommissioned, of the notification of training and certification programmes and of the labels for products and equipment; to determine reference values for importers and producers based on the quantities of hydrofluorocarbons placed on the market in the Union and to determine the format and means of submitting reports. Those powers should be exercised in accordance with Regulation (EU) No 182/2011 of the European Parliament and of the Council of 16 February 2011 laying down the rules and general principles concerning mechanisms for control by the Member States of the Commission's exercise of implementing powers<sup>43</sup>.
- (20) In order to take technological progress and the development of markets affected by this Regulation into account, and to ensure compliance with international agreements, the power to adopt acts in accordance with Article 290 of the Treaty on the Functioning of the European Union should be delegated to the Commission with regard to the following: specifying requirements for standard leakage checks; extending the list of equipment subject to mandatory recovery of fluorinated greenhouse gases; specifying minimum requirements and the conditions for the mutual recognition of training programmes for persons who install, maintain, repair or

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<sup>42</sup> OJ L 286, 31.10.2009, p. 1.

<sup>43</sup> OJ L 55, 28.2.2011, p. 13.

decommission the equipment and who check leaks and recover fluorinated greenhouse gases, and for the certification of those persons and of companies that perform such tasks; amending labelling requirements; prohibiting the placing on the market of more products and equipment that contain or rely on fluorinated greenhouse gases; amending the maximum quantities of hydrofluorocarbons that may be placed on the market and exempting the supply of hydrofluorocarbons for specific critical uses from the quota requirement for health and safety reasons; determining the rules for recalculating reference values for the placing on the market of hydrofluorocarbons by individual undertakings and amending or supplementing the mechanism for the allocation of quotas; revising the thresholds for reporting requirements; establishing requirements for the reporting systems on emissions of fluorinated greenhouse gases and the use of the data on emissions collected by the Member States; including other substances with a significant global warming potential in the lists of substances covered by this Regulation and updating the lists on the basis of new scientific findings, in particular the global warming potential of the substances listed in the annexes to the Regulation.

- (21) It is of particular importance that the Commission carry out appropriate consultations during its preparatory work, including at expert level. When preparing and drawing up delegated acts, the Commission should ensure a simultaneous, timely and appropriate transmission of relevant documents to the European Parliament and to the Council.
- (22) This Regulation amends and complements Regulation (EC) No 842/2006, which should therefore be replaced,

HAVE ADOPTED THIS REGULATION:

## **CHAPTER I**

### **GENERAL PROVISIONS**

#### *Article 1* *Definitions*

For the purposes of this Regulation the following definitions shall apply:

- (1) ‘fluorinated greenhouse gases’ means the hydrofluorocarbons ("HFCs"), perfluorocarbons ("PFCs"), sulphur hexafluoride ("SF<sub>6</sub>") and other greenhouse gases that contain fluorine, as listed in Annex I, whether alone or in a mixture;
- (2) ‘global warming potential’ ("GWP") means the climatic warming potential of a greenhouse gas relative to that of carbon dioxide ("CO<sub>2</sub>"), calculated in terms of the 100-year warming potential of one kilogram of a gas relative to one kilogram of CO<sub>2</sub>, as laid down in Annexes I, II and III;
- (3) ‘tonne(s) CO<sub>2</sub> equivalent’ means a quantity of greenhouse gases, or of a mixture containing such gases, expressed as the product of the weight of the greenhouse gases in metric tonnes and their global warming potential;

- (4) ‘operator’ means the natural or legal person possessing the equipment and systems covered by this Regulation and exercising actual power over the technical functioning of them;
- (5) ‘use’ means the use of fluorinated greenhouse gases in the production, maintenance or servicing, including the refilling, of products and equipment, or in other processes;
- (6) ‘placing on the market’ means supplying or making available to another party in the Union for the first time, for payment or free of charge, or using for its own account in the case of a producer, or importing into the customs territory of the Union under a customs procedure that allows use or operation of the imported goods in the Union;
- (7) ‘hermetically sealed system’ means a system in which all parts that contain fluorinated greenhouse gases have been hermetically sealed during their manufacturing by welding them, brazing them or otherwise making them tight by permanently connecting them and for which the refrigerant circuit does not need to be opened for placing the system into operation;
- (8) ‘a non-refillable container’ means a container designed exclusively to transport or store fluorinated greenhouse gases and which cannot be refilled without being adapted for that purpose or is placed on the market without provision having been made for its return for refilling;
- (9) ‘recovery’ means the collection and storage of fluorinated greenhouse gases from products, equipment or containers during maintenance or servicing or prior to the disposal of the products, equipment or containers;
- (10) ‘recycling’ means the reuse of a recovered fluorinated greenhouse gas following a basic cleaning process;
- (11) ‘reclamation’ means the reprocessing of a recovered fluorinated greenhouse gas in order to meet the equivalent performance of a virgin substance, taking into account its intended use;
- (12) ‘destruction’ means the process of permanently transforming or decomposing all or most of a fluorinated greenhouse gas into one or more stable substances that are not fluorinated greenhouse gases;
- (13) ‘stationary’ means not in motion during operation;
- (14) ‘one-component foam’ means a foam composition contained in a single aerosol container in unreacted or partly reacted liquid state and that expands and hardens when it leaves the container;
- (15) ‘refrigerated truck’ means a motor vehicle with a maximum mass of more than 3.5 tonnes that is designed and constructed primarily to carry goods and that is equipped with a refrigeration unit;
- (16) ‘refrigerated trailer’ means a vehicle that is designed and constructed to be towed by a truck or a tractor, primarily to carry goods and that is equipped with a refrigeration unit;

## CHAPTER II CONTAINMENT

### *Article 2 Prevention of emissions*

1. The intentional release of fluorinated greenhouse gases into the atmosphere shall be prohibited where the release is not technically necessary for the intended use.
2. Operators of equipment that contains fluorinated greenhouse gases shall take precautions to prevent their unintentional release (hereinafter "leakage").
3. Where a leakage of those gases is detected, the operators shall ensure that the equipment is repaired without undue delay.

Where a leak in the equipment has been repaired, the operators shall ensure that the equipment is checked by certified persons within one month after the repair to verify that the repair has been effective.

4. Persons and undertakings carrying out the following tasks shall be certified in accordance with Article 8:
  - (a) installing, servicing, maintaining, repairing or decommissioning equipment referred to in Article 3(1);
  - (b) servicing maintaining, repairing or decommissioning mobile air conditioning equipment that contains fluorinated greenhouse gases;
  - (c) installing, servicing, maintaining, repairing or decommissioning electrical switchgear that contains SF<sub>6</sub>;
  - (d) delivering or receiving fluorinated greenhouse gases for the tasks listed in points (a), (b) and (c).

When carrying out those tasks, persons and undertakings referred to in the first subparagraph shall take precautionary measures to prevent leakage of fluorinated greenhouse gases.

5. Any person who assigns the task of installing, servicing, maintaining, repairing or decommissioning electrical switchgear that contains SF<sub>6</sub> or equipment referred to in Article 3(1) to another party shall ascertain that that other party holds the necessary certificates pursuant to Article 8 for the required tasks.

### *Article 3 Checking for leakage*

1. Operators of equipment that contains fluorinated greenhouse gases with a global warming potential equivalent to 5 tonnes of CO<sub>2</sub> not contained in foams shall ensure that the equipment is checked for leakage. However, equipment with hermetically sealed systems which are labelled as such, containing fluorinated greenhouse gases

with a global warming potential equivalent to less than 10 tonnes CO<sub>2</sub>, shall not be subject to leak checks under this Article.

The checks shall be carried out by persons certified in accordance with the rules provided for in Article 8.

This paragraph applies to operators of the following equipment that contains fluorinated greenhouse gases:

- (a) stationary refrigeration equipment;
- (b) stationary air-conditioning equipment;
- (c) stationary heat pumps;
- (d) stationary fire protection systems;
- (e) refrigerated trucks and refrigerated trailers.

2. The checks pursuant to paragraph 1 shall be carried out with the following frequency:

- (a) equipment that contains fluorinated greenhouse gases with a global warming potential equivalent to 5 tonnes of CO<sub>2</sub> or more but to less than 50 tonnes of CO<sub>2</sub>, shall be checked for leakage at least once every 12 months;
- (b) equipment that contains fluorinated greenhouse gases with a global warming potential equivalent to 50 tonnes of CO<sub>2</sub> or more, but to less than 500 tonnes of CO<sub>2</sub>, shall be checked for leakage at least once every six months;
- (c) equipment that contains fluorinated greenhouse gases with a global warming potential equivalent to 500 tonnes of CO<sub>2</sub> or more shall be checked for leakage at least once every three months.

3. Where in respect of fire protection systems as referred to in paragraph 1(d) there is an existing inspection regime in place that meets ISO 14520 or EN 15004 standards, and the fire protection system is inspected as often as required in accordance with paragraph 2, those inspections shall be considered to fulfil the obligations of paragraph 1.

4. The Commission shall be empowered to adopt delegated acts in accordance with Article 20 specifying requirements for the leakage checks to be carried out in accordance with paragraph 1 of this Article for each type of equipment referred to in that paragraph, identifying those parts of the equipment most likely to leak, and amending the list of equipment in paragraph 1 of this Article to include other types of equipment in the light of market trends and technological progress.

#### *Article 4* *Leakage detection systems*

1. Operators of the equipment referred to in Article 3(1) containing fluorinated greenhouse gases with a global warming potential equivalent to 500 tonnes CO<sub>2</sub> or

more, shall ensure that the equipment is provided with a leakage detection system which alerts the operator of any leakage.

The leakage detection systems shall be checked at least once every 12 months to ensure its proper functioning.

2. By way of derogation from Article 3(2) point (b), where equipment containing fluorinated greenhouse gases with a global warming potential equivalent to 50 tonnes CO<sub>2</sub> or more, but to less than 500 tonnes CO<sub>2</sub>, is provided with a leakage detection system, the equipment shall be checked for leakage at least once every 12 months.

#### *Article 5* *Record keeping*

1. Operators of equipment that contains fluorinated greenhouse gases not contained in foams, shall for each piece of equipment establish and maintain records of the following information identifying the equipment:
  - (a) the quantity and type of fluorinated greenhouse gases installed;
  - (b) the quantities of fluorinated greenhouse gases added and the reasons for adding them;
  - (c) the quantity of fluorinated greenhouse gases recovered;
  - (d) observed leakage rates;
  - (e) an identification of the undertaking and the person who installed, serviced, maintained and, where applicable, repaired or decommissioned the equipment;
  - (f) the dates and results of the checks carried out under Article 3(1) and (3);
  - (g) if the equipment was decommissioned, the measures taken to recover and dispose of the fluorinated greenhouse gases.

This paragraph shall apply to operators of electrical switchgear that contains SF<sub>6</sub> and of the equipment referred to in Article 3(2).

2. Unless the records referred to in paragraph 1 are registered in a database set up by the competent authorities of the Member States, the operators referred to in paragraph 1 shall keep the records until at least two years after decommissioning the equipment.

Unless the records referred to in paragraph 1 are registered in a database set up by the competent authorities of the Member States, persons or undertakings carrying out the activities referred to in paragraph 1(e) for operators shall keep copies of the records for at least five years.

The records shall be made available on request to the competent authority or to the Commission.

3. The Commission may determine the format of the records referred to in paragraph 1 and specify how they should be established and maintained in an implementing act. That implementing act shall be adopted in accordance with the examination procedure referred to in Article 21.

*Article 6*  
*Emissions from production*

Producers of fluorinated compounds shall take all the precautions necessary to limit emissions of fluorinated greenhouse gases, to the greatest extent possible, during production, transport and storage.

Those producers shall ensure that any trifluoromethane (HFC-23) produced as a by-product in significant quantities is destroyed as part of the manufacturing process.

*Article 7*  
*Recovery*

1. Operators of equipment, including mobile equipment, that contains fluorinated greenhouse gases not contained in foams, shall put arrangements in place for their recovery of those gases by persons and undertakings that hold the relevant certificates provided for by Article 8, to ensure that those gases are recycled, reclaimed or destroyed.

That obligation applies to operators of any of the following equipment:

- (a) the cooling circuits of refrigeration, air-conditioning and heat pump equipment;
  - (b) equipment that contains fluorinated greenhouse gas-based solvents;
  - (c) fire protection systems and fire extinguishers;
  - (d) electrical switchgear.
2. The Commission shall be empowered to adopt delegated acts in accordance with Article 20 amending the list of equipment in paragraph 1 to include other types of equipment in view of their increasing relevance due to the commercial or technological development.
  3. Prior to disposal of a fluorinated greenhouse gas container, the person who used the container for transport or storage shall arrange for the recovery of any residual gases to make sure they are recycled, reclaimed or destroyed.
  4. Users of products and operators of equipment not listed in paragraph 1 that contain fluorinated greenhouse gases shall arrange for the recovery of the gases, to the extent that it is practicable, by appropriately qualified persons, to make sure they are recycled, reclaimed or destroyed or for their destruction without prior recovery.

*Article 8*  
*Training and certification*

1. Member States shall establish training and certification programmes for the following persons:
  - (a) persons who install, service, maintain, repair or decommission of the equipment listed in the third subparagraph of Article 3(1);
  - (b) persons who install, service, maintain, repair or decommission electrical switchgear that contains SF<sub>6</sub>;
  - (c) persons who carry out the leak checks provided for in Article 3(1);
  - (d) persons who recover fluorinated greenhouse gases as provided for in Article 7.
2. The training programmes provided for in paragraph 1 shall cover the following:
  - (a) applicable regulations and technical standards;
  - (b) emission prevention;
  - (c) recovery of fluorinated greenhouse gases;
  - (d) safe handling of equipment of the type and size covered by the certificate;
  - (e) technologies to replace or to reduce the use of fluorinated greenhouse gases and their safe handling.
3. Certificates under the certification programmes provided for in paragraph 1 shall be issued on condition of the applicant having completed a training programme established in accordance with paragraphs 1 and 2.
4. Member States shall establish certification programmes for undertakings carrying out the activities mentioned in paragraph 1, points (a) to (d), for other parties.
5. The certificates provided for in paragraphs 1 and 3 shall be valid for a maximum of 5 years. Member States may prolong the validity of the certificates provided for in paragraph 1 when the person concerned is undergoing a compulsory periodic training every five years to update the knowledge on the subjects referred to in paragraph 2.
6. Member States shall notify the Commission of their training and certification programmes by 1 January 2015. They shall recognise certificates issued in another Member State. They shall not restrict the freedom to provide services or the freedom of establishment because a certificate was issued in another Member State.
7. The Commission shall be empowered to adopt delegated acts in accordance with Article 20 specifying minimum requirements for the training and certification provided for in paragraph 1 and specifying conditions for the mutual recognition of certificates.

8. The Commission may, by means of implementing acts, determine the format of the notification referred to in paragraph 6. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 21.

### **CHAPTER III**

#### **PLACING ON THE MARKET AND CONTROL OF USE**

##### *Article 9*

##### *Restrictions on the placing on the market*

1. The placing on the market of specific products and equipment listed in Annex III shall be prohibited from the date specified in that Annex, where applicable differentiating according to the type or global warming potential of the fluorinated greenhouse gas contained.

For the calculation of the global warming potential of mixtures of fluorinated greenhouse gases contained in those products and that equipment the method laid down in Annex IV shall be applied.

2. The prohibition set out in paragraph 1 shall not apply to equipment for which it has been established in ecodesign requirements adopted under Directive 2009/125/EC<sup>44</sup> that due to higher energy efficiency during its operation its lifecycle CO<sub>2</sub> emissions would be lower than that from equivalent equipment which meets relevant ecodesign requirements and does not contain hydrofluorocarbons.
3. The Commission shall be empowered to adopt delegated acts in accordance with Article 20 amending the list set out in Annex III to include other products and equipment that contain fluorinated greenhouse gases with a global warming potential of 150 or more, or that rely on them to work, if it has been established that alternatives to the use of fluorinated greenhouse gases or to the use of specific types of fluorinated greenhouse gases are available, and their use would result in lower overall greenhouse gas emissions and to exclude, where appropriate for a specified period of time, certain categories of products or equipment for which alternative substances which fall below the specified global warming potential limit are not available for technical, economic or safety reasons.

##### *Article 10*

##### *Labelling and product information*

1. Products and equipment that contain fluorinated greenhouse gases shall not be placed on the market unless they are labelled.

This paragraph shall apply to the following types of equipment:

- (a) refrigeration equipment;

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<sup>44</sup> Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products, OJ L 285, 31.10.2009, p. 10.

- (b) air-conditioning equipment;
- (c) heat pumps;
- (d) fire protection systems;
- (e) electrical switchgear;
- (f) aerosol cans that contain fluorinated greenhouse gases;
- (g) all fluorinated greenhouse gas containers.

2. The label required in accordance with paragraph 1 shall indicate the following:

- (a) Information that the product or equipment contains fluorinated greenhouse gases;
- (b) The name of the fluorinated greenhouse gases using the accepted industry designation or, if no such designation is available, the chemical name;
- (c) As of 1 January 2017, the quantity of greenhouse gases contained in the product or equipment, expressed in weight and in CO<sub>2</sub> equivalent.

Where the fluorinated greenhouse gases are contained in a hermetically sealed system, this shall be stated on the label.

3. The label shall be clearly readable and indelible and shall be placed adjacent to the service ports for charging or recovering the fluorinated greenhouse gas, or on that part of the product or equipment that contains the fluorinated greenhouse gas.

4. Foams that contain fluorinated greenhouse gases shall not be placed on the market unless the fluorinated greenhouse gases are identified with a label using the accepted industry designation or, if no such designation is available, the chemical name. The label shall clearly indicate that the foam contains fluorinated greenhouse gases.

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

5. The information referred to in paragraphs 2 and 3 shall be included in instruction manuals for such products and equipment. In the case of products and equipment that contain fluorinated greenhouse gases with a global warming potential of 150 or more this information shall also be included in descriptions used for advertising.

6. The Commission may determine, by means of implementing acts, the format of the labels referred to in paragraphs 1 and 3. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 21.

7. The Commission shall be empowered to adopt delegated acts in accordance with Article 20 amending the labelling requirements set out in paragraphs 1 and 3 and amending the list of products and equipment in paragraph 1 to include other products and equipment where appropriate in view of the commercial or technological development.

*Article 11*  
*Control of use*

1. The use of SF<sub>6</sub> in magnesium die-casting and in the recycling of magnesium die-casting alloys shall be prohibited. As regards installations using a quantity of SF<sub>6</sub> below 850 kg per year, this prohibition shall only apply from 1 January 2015.
2. The use of SF<sub>6</sub> to fill vehicle tyres shall be prohibited.
3. The use of fluorinated greenhouse gases, or of mixtures that contain fluorinated greenhouse gases, with a global warming potential of 2500 or more, to service or maintain refrigeration equipment with a charge size equivalent to 5 tonnes of CO<sub>2</sub> or more, shall be prohibited from 1 January 2020.

For the purpose of this provision, the global warming potential of mixtures that contain fluorinated greenhouse gases shall be calculated pursuant to Annex IV.

*Article 12*  
*Pre-charging of equipment*

1. From [dd/mm/yyyy] [*insert date 3 years after entry into force of this regulation*], refrigeration, air-conditioning and heat pump equipment shall not be charged with hydrofluorocarbons before it is placed on the market or before it is made available to the end-user for its first installation.

The equipment shall be charged where it is intended to be used, by persons certified in accordance with Article 8.

2. Paragraph 1 shall not apply to hermetically sealed equipment or to equipment that contains a quantity of hydrofluorocarbons corresponding to less than 2% of the equipment's foreseen maximum capacity.

**CHAPTER IV**  
**REDUCTION OF THE PLACING ON THE MARKET OF HYDROFLUOROCARBONS**

*Article 13*  
*Reduction of the placing on the market of hydrofluorocarbons*

1. The Commission shall ensure that the quantity of hydrofluorocarbons that producers and importers are entitled to place on the market in the Union each year does not exceed the maximum quantity for the year in question calculated in accordance with Annex V. Each producer and importer shall ensure that the quantity of hydrofluorocarbons calculated in accordance with Annex V that it places on the market does not exceed the quota allocated to it pursuant to Article 14(5) or transferred to it pursuant to Article 16.
2. This Article shall not apply to hydrofluorocarbons imported into the Union to be destroyed.

It shall not apply to producers or importers of less than 1 000 tonnes of CO<sub>2</sub> equivalent of hydrofluorocarbons per year.

3. This Article and Articles 14, 16, 17 and 22 shall also apply to hydrofluorocarbons contained in polyol blends.
4. The Commission shall be empowered to adopt delegated acts in accordance with Article 20
  - (a) amending the maximum quantities set out in Annex V in the light of developments of the market in hydrofluorocarbons and related emissions; and
  - (b) exempting the placing on the market for specific uses from the quota requirement laid down in paragraph 1 where the use of hydrofluorocarbons is necessary for health or safety reasons and a sufficient supply would otherwise not be ensured.

#### *Article 14*

##### *Allocation of quotas for placing hydrofluorocarbons on the market*

1. By 31 October 2014 the Commission shall determine, by means of implementing decisions, for each producer or importer having reported data under Article 6 of Regulation (EC) No 842/2006 a reference value based on the annual average of the quantities of hydrofluorocarbons the producer or importer reported to have produced or imported from 2008 to 2011. For the purposes of determining the reference value, no account shall be taken of quantities reported in excess of the quota. The reference values shall be calculated in accordance with Annex V to this Regulation.

Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 21.

2. Producers and importers that have not reported production or imports under Article 6 of Regulation (EC) No 842/2006 for the reference period referred to in paragraph 1 may declare their intention to produce or import hydrofluorocarbons in the following year.

The declaration shall be addressed to the Commission, specifying the types of hydrofluorocarbons and the quantities that are expected to be placed on the market.

The Commission shall issue a notice of the time limit for submitting those declarations. Before submitting a declaration pursuant to paragraphs 2 and 3, undertakings shall register in the registry provided for in Article 15.

3. By 31 October 2017 and every three years after that, the Commission shall recalculate the reference values for the producers and importers referred to in paragraphs 1 and 2 on the basis of the annual average of the quantities of hydrofluorocarbons produced or imported after 1 January 2015 as reported under Article 17. It shall determine those reference values by means of implementing acts.

Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 21.

4. Producers and importers for which reference values have been determined may declare additional anticipated quantities following the procedure set out in paragraph 2.
5. The Commission shall allocate quotas for placing hydrofluorocarbons on the market for each producer and importer for each year beginning with the year 2015 applying the allocation mechanism laid down in Annex VI.
6. The Commission shall be empowered to adopt delegated acts in accordance with Article 20 determining the mechanism to recalculate the reference values pursuant to paragraph 3 and amending or supplementing the mechanism for allocating quotas set out in Annex VI.

*Article 15*  
*Quota registry*

1. An electronic registry for quotas for placing hydrofluorocarbons on the market shall be established. The Commission shall take measures to set up and to ensure the operation of that electronic registry.

In the electronic registry shall be registered on request

- (a) producers and importers to which a quota for the placing on the market has been allocated in accordance with Article 14(5);
  - (b) producers and importers to which a quota is transferred in accordance with Article 16;
  - (c) producers and importers declaring their intention to submit a declaration pursuant to Article 14(2).
2. The Commission shall ensure that the producers and importers and the competent authorities of the Member States are informed via that registry about the quota allocated and about any changes to it during the allocation period.

*Article 16*  
*Transfer of quotas*

Any producer or importer for whom a reference value has been determined pursuant to Article 14(1) or (3) and who has been allocated a quota in accordance with Article 14(5), may transfer that quota for all or any quantities to another undertaking in the Union that is registered in the registry referred to in Article 15(1). Any such transfer shall be notified in advance to the Commission.

## CHAPTER V

### REPORTING

#### *Article 17*

#### *Reporting on production, import, export and destruction*

1. By 31 March 2014 and every year after that, each producer, importer and exporter that produced, imported or exported more than one metric tonne or 1 000 tonnes of CO<sub>2</sub> equivalent of fluorinated greenhouse gases and gases listed in Annex II during the preceding calendar year shall report to the Commission the data specified in Annex VII on each of those substances for that calendar year.
2. By 31 March 2014 and every year after that, each undertaking that destroyed more than one metric tonne or 1 000 tonnes of CO<sub>2</sub> equivalent of fluorinated greenhouse gases and gases listed in Annex II during the preceding calendar year shall report to the Commission the data specified in Annex VII on each of those substances for that calendar year.
3. By 31 March 2014 and every year after that, each undertaking that placed more than 10 000 tonnes of CO<sub>2</sub> equivalent of fluorinated greenhouse gases and gases listed in Annex II contained in products or equipment on the market during the preceding calendar year shall report to the Commission the data specified in Annex VII on each of those substances for that calendar year.
4. Each undertaking which, under paragraph 1 and 3, is to report on the placing on the market of more than 10 000 tonnes of CO<sub>2</sub> equivalent of hydrofluorocarbons during the preceding calendar year shall, before the report is submitted, ensure that the accuracy of the data is verified by an independent auditor, accredited pursuant to Directive 2003/87/EC<sup>45</sup> or accredited to verify financial statements in accordance with the legislation of the Member State concerned.  
  
The undertaking shall keep the verification report for at least five years. The verification report shall be made available to the competent authority and the Commission on request.
5. The Commission shall be empowered to adopt delegated acts in accordance with Article 20 amending the thresholds for the obligations provided for in paragraphs 1, 2 and 3 where appropriate, in view of the development of the market, to avoid that substantial quantities of fluorinated greenhouse gases produced, imported or exported are not monitored or to reduce administrative burdens in cases where the quantities reported are insignificant.
6. The Commission may determine, by means of implementing acts, the format and means of submitting the reports referred to in this Article.

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<sup>45</sup> Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community, OJ L 275, 25.10.2003, p. 32.

Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 21.

7. The Commission shall take appropriate measures to protect the confidentiality of the information submitted to it in accordance with this Article.

*Article 18*  
*Collection of emissions data*

1. Member States shall collect data on emissions of fluorinated greenhouse gases.

For that purpose they shall establish one of the following systems, as appropriate:

- (a) a system whereby a database is kept at national level for the collection of the data recorded in accordance with Article 5(1);
  - (b) a system whereby surveys on emissions from a representative sample of operators covered by the provisions of Article 5(1) are carried out, and results are extrapolated from those surveys.
2. The data collected in accordance with paragraph 1 shall be made available to the Commission on request. The Commission may disseminate those data to the other Member States.
  3. The Commission shall be empowered to adopt delegated acts in accordance with Article 20 establishing requirements for the data collection systems referred to in the second subparagraph of paragraph 1 of this Article and laying down whether, for specific sectors, a system shall be established in accordance with point (a) or point (b) of the second subparagraph of paragraph 1 of this Article.

**CHAPTER VI**  
**FINAL PROVISIONS**

*Article 19*  
*Review*

1. The Commission shall be empowered to adopt delegated acts in accordance with Article 20 amending Annex I to include, in the list, substances with a significant global warming potential that are used as replacement for substances already listed in that Annex and that are exported, imported, produced or put on the market in significant quantities.
2. The Commission shall be empowered to adopt delegated acts in accordance with Article 20 updating Annexes I, II and IV on the basis of new scientific findings, in particular on the global warming potential of the listed substances.
3. On the basis of information on the placing on the market reported in accordance with Article 17 and on emissions of fluorinated greenhouse gases made available in

accordance with Article 18(2), the Commission shall monitor the application and effects of this Regulation.

No later than 31 December 2020, the Commission shall publish a report on the availability of hydrofluorocarbons on the Union market, in particular for medical applications.

No later than 31 December 2024, it shall publish a comprehensive report on the effects of this Regulation, including a forecast of the continued demand for hydrofluorocarbons after 2030.

#### *Article 20* *Exercise of the delegation*

1. The power to adopt delegated acts is conferred on the Commission subject to the conditions laid down in this Article.
2. The power to adopt delegated acts referred to in Articles 3(4), 7(2), 8(7), 9(3), 10(7), 13(5), 14(6), 17(5), 18(3) and 19(1) and (2) shall be conferred on the Commission for an indeterminate period of time from [dd/mm/yyyy] [*insert date of entry into force of this regulation*].
3. The power to adopt delegated acts referred to in Articles 3(4), 7(2), 8(7), 9(3), 10(7), 13(5), 14(6), 17(5), 18(3) and 19(1) and (2) may be revoked at any time by the European Parliament or by the Council. A decision of revocation shall put an end to the delegation of the power specified in that decision. It shall take effect the day following the publication of the decision in the *Official Journal of the European Union* or on a later date specified therein. It shall not affect the validity of any delegated acts already in force.
4. As soon as it adopts a delegated act, the Commission shall notify it simultaneously to the European Parliament and to the Council.
5. A delegated act adopted pursuant to Articles 3(4), 7(2), 8(7), 9(3), 10(7), 13(5), 14(6), 17(5), 18(3) and 19(1) and (2) shall enter into force only if no objection has been expressed either by the European Parliament or the Council within a period of two months of notification of that act to the European Parliament and the Council or if, before the expiry of that period, the European Parliament and the Council have both informed the Commission that they will not object. That period shall be extended by two months at the initiative of the European Parliament or of the Council.

#### *Article 21* *Committee procedure*

1. The Commission shall be assisted by a committee. That committee shall be a committee within the meaning of Regulation (EU) No 182/2011.
2. Where reference is made to this paragraph, Article 5 of Regulation (EU) No 182/2011 shall apply.

*Article 22*  
*Penalties*

1. Member States shall lay down the rules on penalties applicable to infringements of this Regulation and shall take all measures necessary to ensure that they are implemented. The penalties provided for must be effective, proportionate and dissuasive.

Member States shall notify those provisions to the Commission by [dd/mm/yyyy] [*date of entry into application*] at the latest and shall notify it without delay of any subsequent amendment affecting them.

2. In addition to the penalties referred to in paragraph 1, undertakings that have exceeded their quota for placing hydrofluorocarbons on the market, allocated in accordance with Article 14(5) or transferred to them in accordance with Article 16, may only be allocated a reduced quota allocation for the allocation period after the excess has been detected.

The amount of reduction shall be calculated as 200 % of the amount by which the quota was exceeded. If the amount of the reduction is higher than the amount to be allocated in accordance with Article 14(5) as a quota for the allocation period after the excess has been detected, no quota shall be allocated for that allocation period and the quota for the following allocation periods shall be reduced likewise until the full amount has been deducted.

*Article 23*  
*Repeal*

Regulation (EC) No 842/2006 shall be repealed.

References to the repealed Regulation shall be construed as references to this Regulation and shall be read in accordance with the correlation table in Annex VIII.

*Article 24*  
*Entry into force*

This Regulation shall enter into force on the 20th day following that of its publication in the *Official Journal of the European Union*.

It shall apply from 1 January 2014.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels,

*For the European Parliament*  
*The President*

*For the Council*  
*The President*

## ANNEX I

### Fluorinated greenhouse gases referred to in Article 1 point (1)

Substance			Global warming potential <sup>46</sup>
Industrial designation	Chemical name (Common name)	Chemical formula	
<b>Section 1:      <i>Hydrofluorocarbons (HFCs)</i></b>			
HFC-23	trifluoromethane (fluoroform)	CHF <sub>3</sub>	14800
HFC-32	difluoromethane	CH <sub>2</sub> F <sub>2</sub>	675
HFC-41	fluoromethane (methyl fluoride)	CH <sub>3</sub> F	92
HFC-125	pentafluoroethane	CHF <sub>2</sub> CF <sub>3</sub>	3 500
HFC-134	1,1,2,2-tetrafluoroethane	CHF <sub>2</sub> CHF <sub>2</sub>	1 100
HFC-134a	1,1,1,2-tetrafluoroethane	CH <sub>2</sub> FCF <sub>3</sub>	1 430
HFC-143	1,1,2-trifluoroethane	CH <sub>2</sub> FCHF <sub>2</sub>	353
HFC-143a	1,1,1-trifluoroethane	CH <sub>3</sub> CF <sub>3</sub>	4 470
HFC-152	1,2-difluoroethane	CH <sub>2</sub> FCH <sub>2</sub> F	53
HFC-152a	1,2-difluoroethane	CH <sub>3</sub> CHF <sub>2</sub>	124
HFC-161	fluoroethane (ethyl fluoride)	CH <sub>3</sub> CH <sub>2</sub> F	12
HFC-227ea	1,1,1,2,3,3,3-heptafluoropropane	CF <sub>3</sub> CHFCF <sub>3</sub>	3 220
HFC-236cb	1,1,1,2,2,3-hexafluoropropane	CH <sub>2</sub> FCF <sub>2</sub> CF <sub>3</sub>	1 340
HFC-236ea	1,1,1,2,3,3-hexafluoropropane	CHF <sub>2</sub> CHFCF <sub>3</sub>	1 370
HFC-236fa	1,1,1,3,3,3-	CF <sub>3</sub> CH <sub>2</sub> CF <sub>3</sub>	9 810

<sup>46</sup> Based on the Fourth Assessment Report adopted by the Intergovernmental Panel on Climate Change, unless otherwise indicated.

	hexafluoropropane		
HFC-245ca	1,1,2,2,3-pentafluoropropane	CH <sub>2</sub> FCF <sub>2</sub> CHF <sub>2</sub>	693
HFC-245fa	1,1,1,3,3-pentafluoropropane	CHF <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	1030
HFC-365 mfc	1,1,1,3,3-pentafluorobutane	CF <sub>3</sub> CH <sub>2</sub> CF <sub>2</sub> CH <sub>3</sub>	794
HFC-43-10 mee	1,1,1,2,2,3,4,5,5,5-decafluoropentane	CF <sub>3</sub> CHFCHF <sub>2</sub> CF <sub>3</sub>	1 640
<b>Section 2: <i>Perfluorocarbons (PFCs)</i></b>			
PFC-14	perfluoromethane (carbon tetrafluoride)	CF <sub>4</sub>	7 390
PFC-116	hexafluoroethane (perfluoroethane)	C <sub>2</sub> F <sub>6</sub>	12 200
PFC-218	octafluoropropane (perfluoropropane)	C <sub>3</sub> F <sub>8</sub>	8 830
PFC-3-1-10 (R-31-10)	decafluorobutane (perfluorobutane)	C <sub>4</sub> F <sub>10</sub>	8 860
PFC-4-1-12 (R-41-12)	dodecafluoropentane (perfluoropentane)	C <sub>5</sub> F <sub>12</sub>	9 160
PFC-5-1-14 (R-51-14)	tetradecafluorohexane (perfluorohexane)	C <sub>6</sub> F <sub>14</sub>	9 300
PFC-c-318	octafluorocyclobutane (perfluorocyclobutane)	c-C <sub>4</sub> F <sub>8</sub>	10 300
<b>Section 3: <i>Other perfluorinated compounds</i></b>			
	sulphur hexafluoride	SF <sub>6</sub>	22 800

## ANNEX II

### Other fluorinated gases subject to reporting in accordance with Article 17

Substance		Global warming potential <sup>47</sup>
Common name / industrial designation	Chemical formula	
<b>Section 1:        <i>Unsaturated hydrofluorocarbons</i></b>		
HFC-1234yf	CF <sub>3</sub> CF=CH <sub>2</sub>	4 <sup>Fn 48</sup>
HFC-1234ze	trans — CHF=CHCF <sub>3</sub>	7 <sup>Fn 48</sup>
<b>Section 2:        <i>Fluorinated ethers</i></b>		
HFE-125	CHF <sub>2</sub> OCF <sub>3</sub>	14 900
HFE-134	CHF <sub>2</sub> OCHF <sub>2</sub>	6 320
HFE-143a	CH <sub>3</sub> OCF <sub>3</sub>	756
HCFE-235da2	CHF <sub>2</sub> OCHClCF <sub>3</sub>	350
HFE-245cb2	CH <sub>3</sub> OCF <sub>2</sub> CF <sub>3</sub>	708
HFE-245fa2	CHF <sub>2</sub> OCH <sub>2</sub> CF <sub>3</sub>	659
HFE-254cb2	CH <sub>3</sub> OCF <sub>2</sub> CHF <sub>2</sub>	359
HFE-347 mcc3	CH <sub>3</sub> OCF <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	575
HFE-347pcf2	CHF <sub>2</sub> CF <sub>2</sub> OCH <sub>2</sub> CF <sub>3</sub>	580
HFE-356pcc3	CH <sub>3</sub> OCF <sub>2</sub> CF <sub>2</sub> CHF <sub>2</sub>	110
HFE-449sl (HFE-7100)	C <sub>4</sub> F <sub>9</sub> OCH <sub>3</sub>	297
HFE-569sf2 (HFE-7200)	C <sub>4</sub> F <sub>9</sub> OC <sub>2:5</sub>	59
HFE-43-10pccc124 (H-Galden 1040x)	CHF <sub>2</sub> OCF <sub>2</sub> OC <sub>2</sub> F <sub>4</sub> OCHF <sub>2</sub>	1 870
HFE-236ca12 (HG-10)	CHF <sub>2</sub> OCF <sub>2</sub> OCHF <sub>2</sub>	2 800

<sup>47</sup> Based on the Fourth Assessment Report adopted by the Intergovernmental Panel on Climate Change, unless otherwise indicated.

<sup>48</sup> GWP according to the Report of the 2010 Assessment of the Montreal Protocol Scientific Assessment Panel (SAP), Tables 1-11, citing two peer-reviewed scientific references.  
[http://ozone.unep.org/Assessment\\_Panels/SAP/Scientific\\_Assessment\\_2010/index.shtml](http://ozone.unep.org/Assessment_Panels/SAP/Scientific_Assessment_2010/index.shtml).

HFE-338pcc13 (HG-01)	CHF <sub>2</sub> OCF <sub>2</sub> CF <sub>2</sub> OCHF <sub>2</sub>	1 500
	(CF <sub>3</sub> ) <sub>2</sub> CFOCH <sub>3</sub>	343
	CF <sub>3</sub> CF <sub>2</sub> CH <sub>2</sub> OH	42
	(CF <sub>3</sub> ) <sub>2</sub> CHOH	195
HFE-227ea	CF <sub>3</sub> CHFOCF <sub>3</sub>	1 540
HFE-236ea2	CHF <sub>2</sub> OCHF <sub>2</sub> CF <sub>3</sub>	989
HFE-236fa	CF <sub>3</sub> CH <sub>2</sub> OCF <sub>3</sub>	487
HFE-245fa1	CHF <sub>2</sub> CH <sub>2</sub> OCF <sub>3</sub>	286
HFE 263fb2	CF <sub>3</sub> CH <sub>2</sub> OCH <sub>3</sub>	11
HFE-329 mcc2	CHF <sub>2</sub> CF <sub>2</sub> OCF <sub>2</sub> CF <sub>3</sub>	919
HFE-338 mcf2	CF <sub>3</sub> CH <sub>2</sub> OCF <sub>2</sub> CF <sub>3</sub>	552
HFE-347 mcf2	CHF <sub>2</sub> CH <sub>2</sub> OCF <sub>2</sub> CF <sub>3</sub>	374
HFE-356 mec3	CH <sub>3</sub> OCF <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	101
HFE-356pcf2	CHF <sub>2</sub> CH <sub>2</sub> OCF <sub>2</sub> CHF <sub>2</sub>	265
HFE-356pcf3	CHF <sub>2</sub> OCH <sub>2</sub> CF <sub>2</sub> CHF <sub>2</sub>	502
HFE 365 mcf3	CF <sub>3</sub> CF <sub>2</sub> CH <sub>2</sub> OCH <sub>3</sub>	11
HFE-374pc2	CHF <sub>2</sub> CF <sub>2</sub> OCH <sub>2</sub> CH <sub>3</sub>	557
	- (CF <sub>2</sub> ) <sub>4</sub> CH (OH) -	73
	(CF <sub>3</sub> ) <sub>2</sub> CHOCHF <sub>2</sub>	380
	(CF <sub>3</sub> ) <sub>2</sub> CHOCH <sub>3</sub>	27
<b>Section 3: Other perfluorinated compounds</b>		
PFPME	CF <sub>3</sub> OCF(CF <sub>3</sub> )CF <sub>2</sub> OCF <sub>2</sub> OCF <sub>3</sub>	10 300
nitrogen trifluoride	NF <sub>3</sub>	17 200
trifluoromethyl sulphur	SF <sub>5</sub> CF <sub>3</sub>	17 700

pentafluoride		
perfluorocyclopropane	c-C <sub>3</sub> F <sub>6</sub>	17340 <sup>Fn 49</sup>

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<sup>49</sup> Minimum value according to UNFCCC Forward Action Request.

### ANNEX III

#### Placing on the market prohibitions referred to in Article 9(1)

<b>Products and equipment</b>		<b>Date of prohibition</b>	
Where relevant, the global warming potential (GWP) of mixtures containing fluorinated greenhouse gases shall be calculated in accordance with Annex IV, as provided for in Article 9(1) subparagraph 2.			
1.	Non-refillable containers for fluorinated greenhouse gases used to service, maintain or fill refrigeration, air-conditioning or heat-pump equipment, fire protection systems or switchgear, or for use as solvents	4 July 2007	
2.	Non-confined direct evaporation systems that contain HFCs and PFCs as refrigerants	4 July 2007	
3.	Fire protection systems and fire extinguishers	that contain PFCs	4 July 2007
		that contain HFC-23	1 January 2015
4.	Windows for domestic use that contain fluorinated greenhouse gases	4 July 2007	
5.	Other windows that contain fluorinated greenhouse gases	4 July 2008	
6.	Footwear that contains fluorinated greenhouse gases	4 July 2006	
7.	Tyres that contain fluorinated greenhouse gases	4 July 2007	
8.	One-component foams, except when required to meet national safety standards, that contain fluorinated greenhouse gases with GWP of 150 or more	4 July 2008	
9.	Aerosol generators marketed and intended for sale to the general public for entertainment and decorative purposes, as listed in point 40 of Annex XVII to Regulation (EC) No 1907/2006 <sup>50</sup> , and signal horns that contain HFCs with GWP of 150 or more	4 July 2009	
10.	Domestic refrigerators and freezers that contain HFCs containing HFCs with GWP of 150 or more	1 January 2015	
11.	Refrigerators and freezers for the storage, display or distribution of	that contain HFCs with GWP of 2500 or more	1 January 2017

<sup>50</sup>

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), OJ L 396, 30.12.2006, p. 1.

products in retail and food service ("commercial use") - hermetically sealed systems	that contain HFCs with GWP of 150 or more	1 January 2020
12. Movable room air-conditioning appliances (hermetically sealed equipment which is movable between rooms by the end user) that contain HFCs with GWP of 150 or more		1 January 2020

## ANNEX IV

### **Method of calculating the total global warming potential of a mixture referred to in Articles 9(1) and 11(3)**

The total global warming potential (GWP) of a mixture that contains fluorinated greenhouse gases is calculated as a weighted average, derived from the sum of the weight fractions of the individual substances multiplied by their GWP, unless otherwise specified, including substances that are not fluorinated greenhouse gases.

$$\Sigma (\text{Substance X \%} \times \text{GWP}) + (\text{Substance Y \%} \times \text{GWP}) + \dots (\text{Substance N \%} \times \text{GWP}),$$

where % is the contribution by weight with a weight tolerance of +/- 1%.

For example: applying the formula to a blend of gases consisting of 60% dimethyl ether, 10% HFC-152a and 30% isobutane:

$$\Sigma (60\% \times 1) + (10\% \times 125) + (30\% \times 4)$$

→ Total GWP = 14.3

The GWP of the following non-fluorinated substances are used to calculate the GWP of mixtures. For other substances not listed in this annex a default value of 0 applies.

<b>Substance</b>			<b>Global warming potential<sup>51</sup></b>
<b>Common name</b>	<b>Industrial designation</b>	<b>Chemical Formula</b>	
Methane		CH <sub>4</sub>	25
Nitrous oxide		N <sub>2</sub> O	298
Dimethyl ether		CH <sub>3</sub> OCH <sub>3</sub>	1
Methylene chloride		CH <sub>2</sub> Cl <sub>2</sub>	9
Methyl chloride		CH <sub>3</sub> Cl	13
Chloroform		CHCl <sub>3</sub>	31
Ethane	R-170	CH <sub>3</sub> CH <sub>3</sub>	6
Propane	R-290	CH <sub>3</sub> CH <sub>2</sub> CH <sub>3</sub>	3
Butane	R-600	CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub>	4

<sup>51</sup> Based on the Fourth Assessment Report adopted by the Intergovernmental Panel on Climate Change, unless otherwise indicated.

Isobutane	R-600a	$\text{CH}(\text{CH}_3)_2\text{CH}_3$	3
Pentane	R-601	$\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$	20
Isopentane	R-601a	$(\text{CH}_3)_2\text{CHCH}_2\text{CH}_3$	4
Ethoxyethane (Diethyl ether)	R-610	$\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$	4
Methyl formate	R-611	$\text{HCOOCH}_3$	25
Hydrogen	R-702	$\text{H}_2$	6
Ammonia	R-717	$\text{NH}_3$	0
Ethylene	R-1150	$\text{C}_2\text{H}_4$	4
Propylene	R-1270	$\text{C}_3\text{H}_6$	2

## ANNEX V

### **Calculation of the maximum quantity, reference values and quotas for placing hydrofluorocarbons on the market**

The maximum quantity referred to in Article 13(1) shall be calculated by applying the following percentages to the annual average of the total quantity produced and imported into the Union during the period from 2008 to 2011:

<b>Years</b>	
2015	100%
2016–17	93%
2018–20	63%
2021–23	45%
2024–26	31%
2027–29	24%
2030	21%

The maximum quantity, reference values and quotas for placing hydrofluorocarbons on the market referred to in Articles 13 and 14 shall be calculated as the aggregated quantities of all types of hydrofluorocarbons, expressed in tonne(s) of CO<sub>2</sub> equivalent.

The calculation of reference values and quotas for placing hydrofluorocarbons on the market referred to in Articles 13 and 14 shall be based on the quantities of hydrofluorocarbons producers and importers have placed on the market in the Union during an allocation period.

Quantities transferred to an undertaking to be exported in the same allocation period, are not taken into account for calculating a quota or assessing compliance with Article 13(2), provided the export takes place during the same period and the exporter reports it in accordance with Article 17(1). The transaction must be verified in accordance with Article 17(4) regardless of the quantities involved.

## ANNEX VI

### **Allocation mechanism referred to in Article 14**

1. Determination of the quantity to be allocated to undertakings for which a reference value has been established under Article 14(1) and (3)

Each undertaking for which a reference value has been established receives a quota corresponding to 95 % of the reference value multiplied by the percentage indicated in Annex V for the respective year.

2. Determination of the quantity to be allocated to undertakings that have submitted a declaration under Article 14(2)

The sum of the quotas allocated under point 1 is subtracted from the maximum quantity for the given year set out in Annex V to determine the quantity to be allocated to undertakings for which no reference value has been established and which have submitted a declaration under Article 14(3) (quantity to be allocated in step 1 of the calculation).

#### **2.1. Step 1 of the calculation**

Each undertaking receives an allocation corresponding to the quantity requested in its declaration, but no more than a pro-rata share of the quantity to be allocated in step 1.

The pro-rata share is calculated by dividing 100 by the number of undertakings that have submitted a declaration. The sum of the quotas allocated in step 1 is subtracted from the quantity to be allocated in step 1 to determine the quantity to be allocated in step 2.

#### **2.2. Step 2 of the calculation**

Each undertaking that has not obtained 100% of the quantity requested in its declaration in step 1 receives an additional allocation corresponding to the difference between the quantity requested and the quantity obtained in step 1. However, this must not exceed the pro-rata share of the quantity to be allocated in step 2.

The pro-rata share is calculated by dividing 100 by the number of undertakings eligible for an allocation in step 2. The sum of the quotas allocated in step 2 is subtracted from the quantity to be allocated in step 2 to determine the quantity to be allocated in step 3.

#### **2.3. Step 3 of the calculation**

Step 2 is repeated until the remaining quantity to be allocated in the next phase is less than 1 000 tonnes of CO<sub>2</sub> equivalent.

3. Determination of the quantity to be allocated to undertakings that have submitted a declaration under Article 13(4)

The sum of the quotas allocated under points 1 and 2 is subtracted from the maximum quantity for the given year set out in Annex V to determine the quantity to be allocated to undertakings for which a reference value has been established and that have submitted a declaration under Article 14(4).

The allocation mechanism set out under points 2.1 and 2.2 applies.

## ANNEX VII

### **Data to be reported pursuant to Article 17**

1. Each producer referred to in Article 17(1) shall report on:
  - (a) the total production of each substance in the Union, identifying the main categories of application in which the substance is used;
  - (b) the quantities of each substance it has placed on the market in the Union;
  - (c) the quantities of each substance that have been recycled, reclaimed and destroyed, respectively;
  - (d) any stocks held at the beginning and the end of the reporting period.
2. Each importer referred to in Article 17(1) shall report on:
  - (a) the quantity of each substance it has imported into the Union, identifying the main categories of application in which the substance is used;
  - (b) the quantities of each substance that have been recycled, reclaimed and destroyed, respectively.
3. Each exporter referred to in Article 17(1) shall report on:
  - (a) the quantities of each substance that it has exported from the EU other than to be recycled, reclaimed or destroyed;
  - (b) any quantities of each substance that it has exported to be recycled, to be reclaimed and to be destroyed, respectively.
4. Each undertaking referred to in Article 17(2) shall report on:
  - (a) the quantities of each substance destroyed, including quantities contained in products or equipment;
  - (b) any stocks of each substance waiting to be destroyed, including quantities contained in products or equipment;
  - (c) the technology used for the destruction.
5. Each undertaking referred to in Article 17(3) shall report on:
  - (a) the categories of the products or equipment;
  - (b) the number of units;
  - (c) any quantities of each substance contained in the products or equipment.

## ANNEX VIII

### Correlation table

Regulation (EC) No 842/2006	This Regulation
Article 1	-
Article 2	Article 1
Article 3(1)	Article 2(2)
Article 3(2), first subparagraph	Article 3(1)
Article 3(2), second subparagraph	Article 2(3), second subparagraph
Article 3(2), third subparagraph	Article 3(1), first subparagraph
Article 3(3)	Article 3(3)
Article 3(4)	Article 3(4)
Article 3(5)	Article 3(5)
Article 3(6)	Article 4(1)
Article 3(7)	Article 3(6)
Article 4(1)	Article 6(1)
Article 4(2)	Article 6(3)
Article 4(3)	Article 6(4)
Article 4(4)	Article 6(5)
Article 5(1)	Article 8(7)
Article 5(2), first sentence	Article 8(1) and (4)
Article 5(2), second sentence	Article 8(6), first sentence
Article 5(2), third sentence	Article 8(6), second sentence
Article 5(3)	Article 2(5)
Article 5(4)	Article 2(4) point (d)
Article 5(5)	Article 8(8)
Article 6(1), first subparagraph	Article 17(1), first subparagraph

Article 6(1)	Article 17(1) and Annex VII
Article 6(2)	Article 17(5)
Article 6(3)	Article 17(6)
Article 6(4)	Article 18(1)
Article 7(1) first subparagraph, first sentence	Article 10(1)
Article 7(1) second subparagraph, second and third sentence	Article 10(2) and (3)
Article 7(2)	Article 10(1), first subparagraph
Article 7(3), first sentence	Article 10(6)
Article 7(3), second sentence	Article 10(7)
Article 8(1)	Article 11(1)
Article 8(2)	Article 11(2)
Article 9(1)	Article 9(1)
Article 9(2)	-
Article 9(3)	-
Article 10	19(3)
Article 11	-
Article 12	Article 21
Article 13(1)	Article 22(2), first subparagraph
Article 13(2)	Article 22(2), second subparagraph
Article 14	-
Article 15	Article 24
Annex I — Part 1	Annex I
Annex I — Part 2	Annex IV
Annex II	Annex III