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## Technical Newsletter - Special Edition

# The new EU F-Gas Regulation Phase-Down of Fluorinated Greenhouse Gases



# The new EU F-Gas Regulation



December 16, 2013 the European Parliaments' Environment Committee, Council and Commission have finally agreed on a phase-down of F-gases. Specific sectors, such as commercial refrigeration and air-conditioning, will be restricted while remaining sectors for safety reasons will keep the opportunity to use F-gases. The new F-gas Regulation will ensure a 79% reduction in climate impact by 2030.

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## Danfoss Statement

"This historic agreement to phase-down F-gases in Europe brings clarity for our customers and will likely set a global precedence. This is a global issue; one that requires a global solution sharply focused on life cycle climate performance, energy efficiency, safety and low GWP refrigerants. It requires close collaboration among a broad stakeholder group, and I am confident our industry will reach viable solutions in the full range of refrigeration and air-conditioning systems," says Jürgen Fischer, President Danfoss Refrigeration & A/C Controls.

Noel Ryan, President Danfoss Commercial Compressors, agrees and sees the decision as a potential game changer for the industry: "The decision has removed the uncertainty in the market – now our customers can look forward to investing in even more climate-friendly solutions."

"Danfoss supports the F-gas regulation and has been working with our customers and industry stakeholders across a broad range of low-GWP refrigerants to enable this transition," says Torben Funder-Kristensen, Head of Public Industry Affairs.

## Objective and timetable

The Regulation 2012/0305 (COD) amends and complements Regulation (EC) No 842/2006, which should therefore be repealed.

However, in order to ensure as smooth a regime as possible from the old regime to the new regime, it is appropriate to provide that Commission Regulations 1493/2007, 1494/2007, 1497/2007, 1516/2007, 303/2008, 304/2008, 305/2008, 306/2008, 307/2008 and 308/2008 should remain in force and continue to be applicable unless and until repealed by Commission delegated or implementing acts adopted pursuant to this Regulation.

The principal objectives are to establish provisions which contain, prevent and minimize emissions of high-global warming fluorinated greenhouse gases (F-Gases).

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Further the European Commission informed according "Climate Action" on Web. It contains also some interesting news concerning the new F-Gas Regulation.

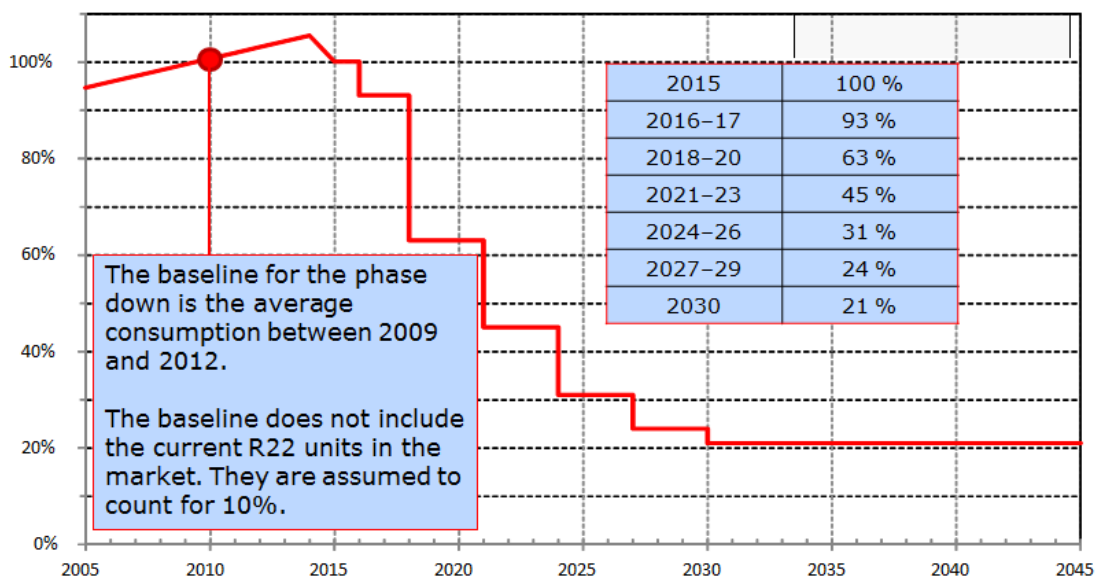
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## Content of the regulation

Some details of the preliminary content of the regulation, which are important:

- *EU HFC Phase-Down schedule*

The rules will introduce a cap on HFC consumption to achieve a 79% reduction by 2030.





- **Bans on new equipment**

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. Where technically feasible alternatives are not available or cannot be used for technical or safety reasons or where the use of such alternatives would entail disproportionate costs, the Commission may authorize a time limited exemption to allow the placing on the market of such products and equipment.

Ban on new equipment:	Condition/ GWP limit	From date: 1 <sup>st</sup> of January	Main consequence
Domestic Refrigerator and Freezers	≥ 150	2015	Bans R134a. Natural refrigerants like R600a will be used.
Commercial Refrigerator and Freezers, hermetically sealed	≥ 2500	2020	Bans R404A/507. Natural refrigerants will be main used refrigerants.
	≥ 150	2022	Bans R134a. Natural refrigerants will be main used refrigerants. HFO solutions can be used.
Stationary refrigeration equipment for temperatures above -50° C	≥ 2500	2020	Bans R404A/507. Natural refrigerants and also new HFC will increase. Many types of solutions
Multipack centralised refr. systems for commercial use with a capacity ≥ 40kW	≥ 150 and ≥ 1500 for prim.circ. of cascades	2022	Bans traditional HFC, except R134a in cascades. Also new HFC/HFO blends can play a role.
Movable room AC, hermetically sealed	≥ 150	2020	Bans traditional HFCs. Below 150g natural refrigerants will be used.
Single split air-conditioning systems containing less than 3kg of HFC	≥ 750	2025	Bans R134a, R407C and R410A. Seems very feasible for A2L refrigerants.

- **Service ban**

Ban on servicing equipment with fluorinated greenhouse gases, with GWP>2500 (R404A/R507):

- Exemption for charge less than 40 tonnes CO<sub>2</sub> eq. (for R404A 10,2kg).
- Exemption for temperatures below -50°C.
- Exemption for military equipment.

Timing:

- From **1<sup>st</sup> January 2020** only recycled refrigerant is allowed for servicing.
- From **1<sup>st</sup> January 2030** **no service** is allowed.

**Target application:**

**Distributed R404A refrigeration systems in supermarkets. They may use recycled refrigerant or shift to new drop in blends like R407A & R407F.**

- **Leak test**

Leak check frequency:	CO <sub>2</sub> eq.	Year	R-134a GWP:1430	R-407C GWP:1770	R-410A GWP:2090	R-404A GWP:3920
<b>Non-hermetically sealed equipment:</b> Every 12 month (every 24 month if gas leakage detection system is installed)	≥5t	2015	3,5 kg	3,0 kg	3,0 kg	3,0 kg
		2017	3,5 kg	2,8 kg	2,4 kg	1,3 kg
<b>Hermetically sealed equipment:</b> Every 12 month. (every 24 month if gas leakage detection system is installed)	≥10t	2015	7,0 kg	6,0 kg	6,0 kg	6,0 kg
		2017	7,0 kg	5,7 kg	4,8 kg	2,6 kg
<b>All systems</b> Every 6 month. (every 12 month if gas leakage detection system is installed)	≥50t	2015	35 kg	28 kg	24 kg	13 kg
<b>All systems</b> In practice every 6 month due to the requirement for gas leakage detection system . (from 2017 for Organic Rankine Cycle) Otherwise every 3 month.	≥500t	2015	350 kg	282 kg	239 kg	128 kg

- **Training and Certification**

Certification is needed for people installing, servicing, leak checking and decommissioning:

- Existing certificates are still valid.
- Companies delegating tasks to other companies must take reasonable steps to ensure that the task is carried out by certified personnel.
- Certificates issued by one country will be accepted in all other countries.
- There will also be certification programs for companies in each country.

- **Record keeping**

Servicing on equipment involving adding or removing refrigerant and leak detection must be recorded by both

- The operator of the system
- The servicing company

Requirements for recording:

- Both parties must store the records for 5 years.
- In some countries records will be stored by reporting to a national database.
- In other countries logbooks for systems and service personnel will likely be enough.

Similar recording requirements apply to companies selling or buying HFC's.

- **Reporting**

Import, export, or production of fluorinated gas must be reported to the commission when quantities are more than:

- 100 tonnes CO<sub>2</sub>eq per year or 1 metric tonne.
- 

You also need to report to the commission if you **bring to market** products containing more than 500 tonnes of CO<sub>2</sub>eq per year. This is equivalent to:

- 349.65 kg of R134a, or
- 282.49 kg of R407C, or
- 239.23 kg of R410A, or
- 127.55 kg of R404A.

Importers must provide evidence that R23 by product from production of the HFC is destroyed.

- **Labelling on products**

From 2017 refrigeration, A/C, HP and Organic Rankin cycle equipment must be labelled with:

- Information that the equipment contains or relies on HFCs.
- Refrigerant type.
- Refrigerant quantity expressed in both weight and CO<sub>2</sub> equivalents.
- GWP of the refrigerant.
- If the equipment is hermetically sealed this must also be stated.

Information is also to be included in instruction manuals and descriptions used for advertising.

Containers for HFC's must be labelled as above, but also stating if HFC is:

- reclaimed,
- to be destroyed,
- for military purposes,
- for direct export.

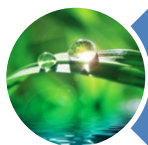
## **The future is still uncertain!**

### **Danfoss expects:**

- Natural refrigerants and other low GWP refrigerants will grow.
- Intermediate solutions like 407A/F will be used for some years.
- Traditional HFCs may come under pressure from quota price.
- New blends will play a not yet foreseeable role.

## Danfoss Information Package

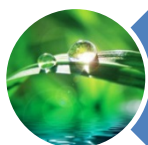
Please find detailed information concerning our product program and latest useful information and brochures: A Step towards a better Future.



### R407A & R407F

• Environmentally friendly substitutes for R404A

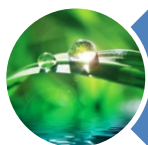
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### R600a & R290

• Danfoss your Hydrocarbon Solution Provider

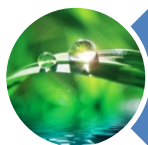
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### CO<sub>2</sub>

• Danfoss - Your CO<sub>2</sub> Solution Provider

• [Read more](#)



### R717

• Danfoss - A wide R717 Program

• [Read more](#)



### R32

• More environmentally friendly AC Systems & Heatpumps

• [Read more](#)



### Low GWP refrigerants in focus

• [Read more](#)

See our newest brochure on low-GWP refrigerants

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Should you have any questions concerning the F-Gas review or Danfoss Products and Applications please do not hesitate to contact your local Danfoss Sales Company. We will be pleased to assist you.