

DAIKIN takes the next step towards a sustainable air conditioning, heating and refrigeration industry by investing in a circular economy of refrigerants.

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The HVACR industry is currently feeling the impact of the EU F gas regulationⁱ. The HFC phase down step in 2018 requires a reduction of CO₂ equivalent consumption to 63% of the baseline period, and a reduction to 21% is needed from 2030 onwards.

Several studiesⁱⁱ have shown that a combination of actions can contribute to achieving these targets:

- Conversion to refrigerants with a lower GWP value
- Reduction of the amount of refrigerant charge
- Further reduction of leakage
- Enhancing refrigerant recovery, reclamation and reuse

Daikin is committed to take actions on all these aspects. Because we have an important role to play as an equipment manufacturer and refrigerant producer, we are not only dedicated to improve the sustainability of the Daikin business, but also to ensure a sustainable air conditioning, heating and refrigeration industry in general. Addressing the sustainability challenges requires a comprehensive assessment for each application based on various aspects such as safety, energy efficiency, environmental impact and cost-effectiveness.

In 2015, the global Daikin group explained its refrigerant policy and actionsⁱⁱⁱ, and has taken several actions since, based on a “Sooner, the Better” approach. One of the mentioned actions is to “collaborate with stakeholders” for the recovery and reuse of refrigerants.

Daikin believes that recovery and reuse of refrigerants will support the long term availability of HFCs for installation and maintenance of HVACR systems. The statistics of the European Environment Agency (EEA)^{iv} already indicate a positive growing trend of reclaimed refrigerants in the European Union, but Daikin believes more can be done in order to create a circular economy of refrigerants. Based on the experience of Daikin in Japan, Daikin Europe N.V. has decided to invest in recovery and reclaim of refrigerants. As a first step, Daikin will reclaim refrigerants which were recovered through



its existing routes. In a next step, Daikin will extend these routes in Europe in collaboration schemes with other stakeholders.

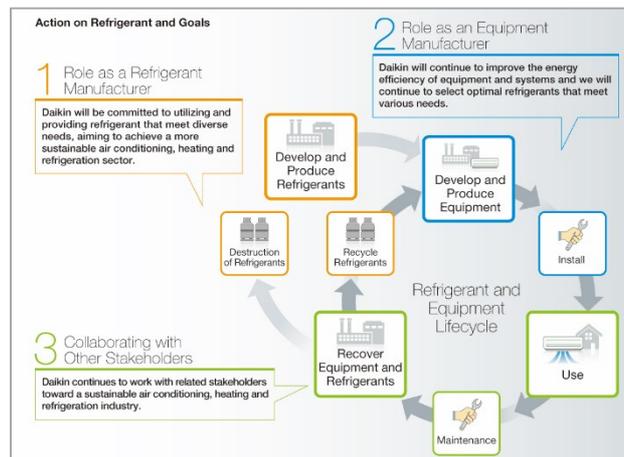


Figure 1: The Challenge in Achieving a Sustainable Refrigerant Lifecycle

Below are some other examples of Daikin actions to contribute to a phase down of HFC consumption (in CO₂equivalent) and a sustainable air conditioning, heat pump and refrigeration industry:

1. Develop and produce refrigerants with a lower GWP such as R-407H for refrigeration applications.
2. Launch of equipment using lower GWP refrigerants, such as air conditioners and heat pumps with R-32 instead of R-410A and screw chillers using HFO R1234ze(E) instead of R-134a. In the refrigeration market, use of R-410A and R-407H instead of R-404A, and non-HFC technology such as CO₂.
3. Since September 2015, Daikin has offered companies worldwide free access to 93 patents, to allow them to develop and commercialize air conditioning, cooling and heat pumps using R-32 as a single component refrigerant.
4. Reduction of refrigerant charge by optimizing product designs, by using microchannel heat exchangers in air cooled chillers for example.
5. Use of monitoring systems to allow service technicians to inspect tightness of systems both on site and remotely.



6. Contribution to standardisation committees to enhance the tightness of components and joints, to the safe use of lower GWP refrigerants and to the qualification of installation and service technicians for any type of refrigerant.

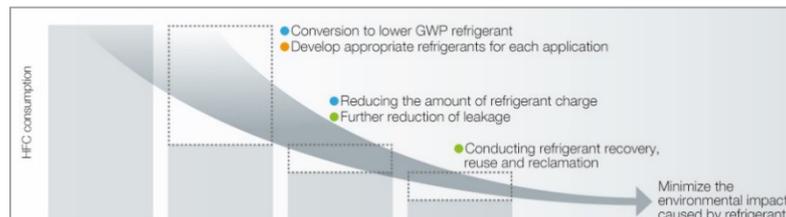


Figure 2: Comprehensive approaches towards phase down of HFC consumption (in CO₂equivalent)

Ends

- I. Regulation EU 517/2014 of the European Parliament and of the Council of 16 April 2014 on fluorinated greenhouse gases.
- II. Phase Down of HFC Consumption in the EU – Assessment of Implications for the RAC Sector. SKM Enviro, September 2012. EPEE Gapometer (European Partnership for Energy and Environment) : <https://www.epeeglobal.org/refrigerants/the-gapometer-faq/>
- III. Daikin's policy and comprehensive actions on the environmental impact of refrigerants. Catalogue download : http://www.daikin.com/csr/information/influence/daikin_policy-en.pdf
Website : <http://www.daikin.com/csr/information/influence/index.html>
- IV. EEA report N°20/2017 Data reported by companies on the production, import, export and destruction of fluorinated greenhouse gases in the European Union, 2007-2016. <https://www.eea.europa.eu/publications/fluorinated-greenhouse-gases-2017>



EDITOR NOTES

About Daikin Europe N.V.

Daikin Europe N.V. is a major European producer of air conditioners, heat pumps and refrigeration equipment, with approximately 5,500 employees throughout Europe and 10 major manufacturing facilities based in Belgium, the Czech Republic, Germany, Italy, Turkey and the UK.

Globally, Daikin is renowned for its pioneering approach to product development and the unrivalled quality and versatility of its integrated solutions. With more than 90 years' experience in the design and manufacture of heating and cooling technologies, Daikin is a market leader in heat pump technology. Daikin VRV and Daikin Altherma are the most sold heat pump systems in Europe, with over 500,000 systems delivered to date.

FURTHER INFORMATION

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