



OzonAction Series of Fact Sheets relevant to the Kigali Amendment



OzonAction Kigali Fact Sheet 1
Introduction to the Kigali Amendment

Background

In October 2016 the Kigali Amendment was adopted by all Parties to the Montreal Protocol. The Kigali Amendment brings the future production and consumption of hydrofluorocarbons (HFCs) under the control of the Protocol and will make a major contribution towards the fight against climate change. Control of HFC production and consumption will add to the climate benefits already achieved by the Montreal Protocol through the phase-out of ozone-depleting substances (ODS) including CFCs and HCFCs.

Fluorocarbon chemicals, including HFCs, include many of the most powerful greenhouse gases. The release of 1 kg of certain fluorocarbons is typically between 1 000 and 10 000 times worse than the release of 1 kg of CO₂ in terms of impact on global warming. It has been shown that using alternatives to HFCs in key end-user markets, such as refrigeration and air-conditioning, is one of the most cost-effective ways of reducing greenhouse gas emissions. Under the Kigali Amendment, the global use of HFCs will be cut by around 85% before 2050. This phase-down in the global consumption of HFCs could save as much as 0.5 degrees centigrade of warming.

Type	Gas	GWP ¹	ODP ²
ODS	CFC-12	10 900	1.0
	HFC-22	1 810	0.055
HFC	HFC-404A	3 922	0
	HFC-134a	2 088	0
	HFC-32	675	0
HFO	HFO-1234yf	4	0
	Propane	3	0
Natural	CO ₂	1	0

Which markets are affected?

The biggest market for HFCs is refrigeration, air-conditioning and heat pumps (RACHP). Most applications of RACHP could be affected by the Kigali Amendment, for example, supermarket refrigeration, building air-conditioning and car air-conditioning. Other markets that will be affected include the manufacture of insulation foam, aerosols and fire protection equipment. See [Kigali Fact Sheet 2](#) for further details about current HFC applications.

How is the HFC phase-down process structured? The aim of the phase-down is to encourage use of low GWP alternatives and to reduce consumption and emissions of high GWP HFCs. To allow a flexible and customized response by individual Parties, the phase-down process is structured with a 'basket approach'. Progress is measured in terms of reducing the total 'tonnes CO₂ equivalent' of all the HFCs consumed. This favours the use of low GWP gases and low leakage technologies. However, it is worth noting that CFCs had even higher GWP's than HFCs. The phase-out of CFCs was carried out to protect the ozone layer, but it had a very positive secondary benefit in terms of reducing impact on climate change. To further build on this good progress, the Montreal Protocol Parties have agreed that reducing the consumption of HFCs is an important next step.

¹ See [Kigali Fact Sheet 2](#) for a complete list of fluorocarbons.
² GWP = global warming potential. GWP is used in the Kigali Fact Sheets from the amended Montreal Protocol text, Annex A, C and F, which is based on the 2019 IPCC AR6 assessment report and uses 100-year values.
³ ODP = ozone depletion potential.

In October 2016 the Parties to the Montreal Protocol adopted the Kigali Amendment. This brings the production and consumption of hydrofluorocarbons (HFC) under the control of the Protocol and offers to significantly contribute to the fight against climate change

UN Environment OzonAction has prepared a series of fact sheets to provide information to National Ozone Officers, relevant stakeholders, and end users on what changes and challenges the new Amendment brings as well as how to address these in order to meet and comply with the new phase-out target.

Below is the list of the nineteen (19) Kigali Fact Sheets. Click on the titles to read or download the document.

[OzonAction Kigali Fact Sheet No. 1
Introduction to the Kigali Amendment](#)

[OzonAction Kigali Fact Sheet No. 2
Current Use of HCFCs and HFCs](#)

[OzonAction Kigali Fact Sheet No. 3
GWP, CO₂\(e\) and the Basket of HFCs](#)

[OzonAction Kigali Fact Sheet No. 4
Low GWP Fluids and Technologies](#)

[OzonAction Kigali Fact Sheet No. 5
HFC Baselines and Phase-down Timetable](#)

[OzonAction Kigali Fact Sheet No. 6
Next Steps: HFC Phase-down Strategy](#)

[OzonAction Kigali Fact Sheet No. 7
Next Steps: Legislation and Administration](#)

[OzonAction Kigali Fact Sheet No. 8
Next Steps: Stakeholder Engagement](#)

[OzonAction Kigali Fact Sheet No. 9
Technical Issues: High Ambient Temperature](#)

[OzonAction Kigali Fact Sheet No. 10
Technical Issues: Flammability](#)

[OzonAction Kigali Fact Sheet No. 11
Barriers to Successful Implementation](#)

[OzonAction Kigali Fact Sheet No. 12
Interactions with Other Policy Measures](#)

[OzonAction Kigali Fact Sheet No. 13
Benefits of Rapid Action](#)

[OzonAction Kigali Fact Sheet No. 14
Glossary and References](#)

[OzonAction Kigali Fact Sheet No. 15
Substances \(Not\) Controlled Under the Montreal Protocol](#)

[OzonAction Kigali Fact Sheet No. 16
GWPs of Refrigerant Mixtures: Kigali Context](#)

[OzonAction Kigali Fact Sheet No. 17
Refrigerant Trends in Mobile Air-Conditioning](#)

[OzonAction Kigali Fact Sheet No. 18
Use of HFCs in Fire Protection Systems](#)

[OzonAction Kigali Fact Sheet No. 19
Phase-down Strategy: Impact of Gas Choices](#)

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