



INTERNATIONAL INSTITUTE OF REFRIGERATION

SUMMARY SHEET | The Kigali Amendment to the Montreal Protocol

INTRODUCTION

The 28th Meeting of the Parties (MOP28) to the Montreal Protocol held in Kigali, Rwanda on October 15, 2016 led to an international agreement to phase-down of the production and consumption of hydrofluorocarbons (HFCs), often used to replace the CFCs initially targeted by the Protocol.

The Amendment will enter into force on January 1, 2019, provided that it is ratified by at least 20 Parties to the Montreal Protocol. If that condition is not met by that date, the Amendment will become effective on the 90th day following the date of ratification by the 20th party.

The Kigali Amendment to the Montreal Protocol proposes different HFCs phase-down schedules for developed countries and for developing countries (as defined in the article 5 of the Montreal Protocol).

The controlled substances mentioned in the annexes of the Montreal Protocol have also been amended by the Kigali Amendment.

RATIFICATION PROCESS

The process to ratify the Kigali Amendment involves three steps:

- Ratification at a national level, in accordance with the constitutional provisions of each Party.
- Execution of an instrument of ratification (i. e. acceptance or approval) by the Head of State, Head of Government, or Minister for Foreign Affairs of the Party. Model instruments are available on the [United Nation Treaty Collection website](#).
- Deposit of the instrument of ratification by delivering the relevant instrument, by hand or by mail, to the Treaty Section of the United Nations in New-York. The status of ratification of the Kigali amendment is regularly updated by the United Nations. The list of the Parties that have ratified is available [here](#).

PARTIES INVOLVED

The list of all 197 Parties to the Montreal Protocol is available following this [link](#). The Parties are divided as follows:

- **Developed countries (also called Article 2 Parties or Non-Article 5 Parties):** Andorra, Australia, Austria, Azerbaijan, Belarus, Belgium, Bulgaria, Canada, Croatia, Cyprus, Czech Republic, Denmark, Estonia, European Union, Finland, France, Germany, Greece, Holy See, Hungary, Iceland, Ireland, Israel, Italy, Japan, Kazakhstan, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, San Marino, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, Ukraine, United Kingdom of Great Britain and Northern Ireland, United States of America, Uzbekistan.



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- **Developing countries (also called Article 5 Parties):** They are divided into two groups:

Group 2	Group 1
Bahrain, India, Iran, Iraq, Kuwait, Oman, Pakistan, Qatar, Saudi Arabia, and the United Arab Emirates.	The 137 other Parties of the Montreal Protocol.

Table 1: Article 5 Parties

SCHEDULE

The HFCs phase down schedule depends on the level of development of each Party. It is summarised in the following table and graphs:

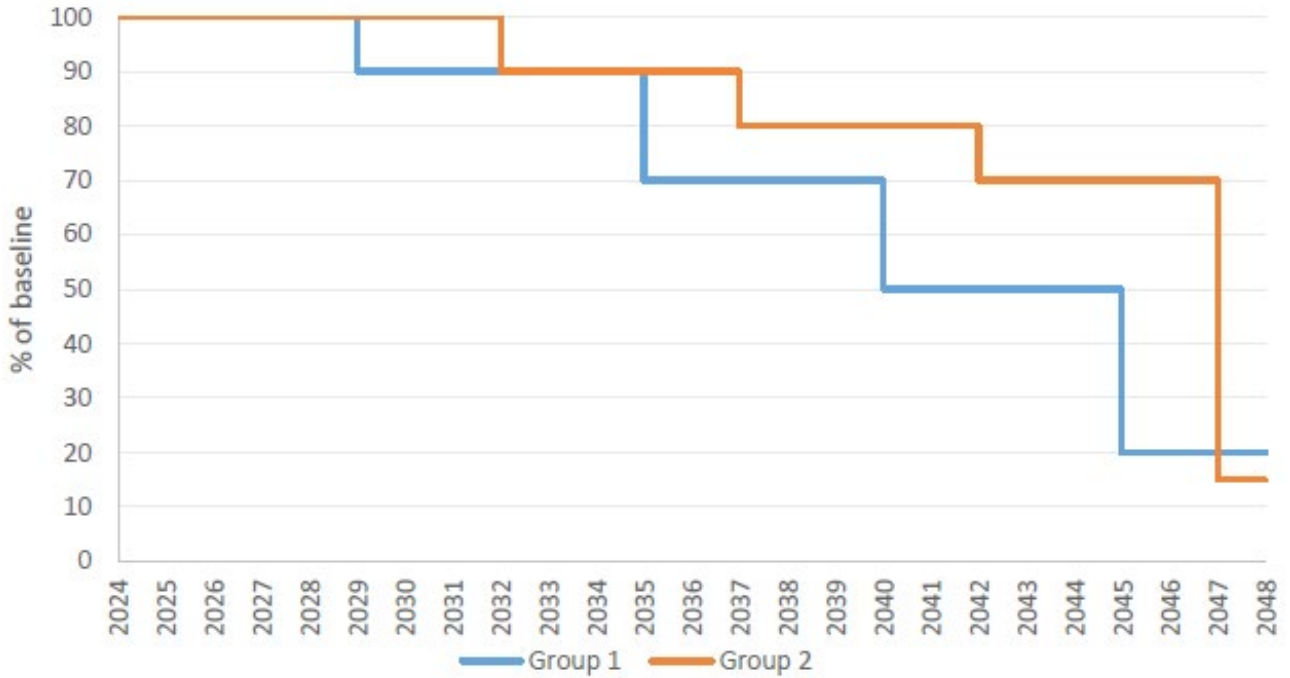
	Article 5: Group 1		Article 5 : Group 2		Non article 5 (Main group)		Non article 5 (exceptions ¹)	
Baseline formula	Average HFC consumption levels for 2020, 2021 & 2022 + 65% of HCFC baseline		Average HFC consumption levels for 2024, 2025 & 2026 + 65% of HCFC baseline		Average HFC consumption levels for 2011, 2012 & 2013 + 15% of HCFC baseline		Average HFC consumption levels for 2011, 2012 & 2013 + 25% of HCFC baseline	
Freeze	2024		2028					
Step 1	2029	-10%	2032	-10%	2019	-10%	2020	-5%
Step 2	2035	-30%	2037	-20%	2024	-40%	2025	-35%
Step 3	2040	-50%	2042	-30%	2029	-70%	2029	-70%
Step 4	2045	-80%	2047	-85%	2034	-80%	2034	-80%
Plateau					2036	-85%	2036	-85%

Table 2: HFCs phase-down schedule

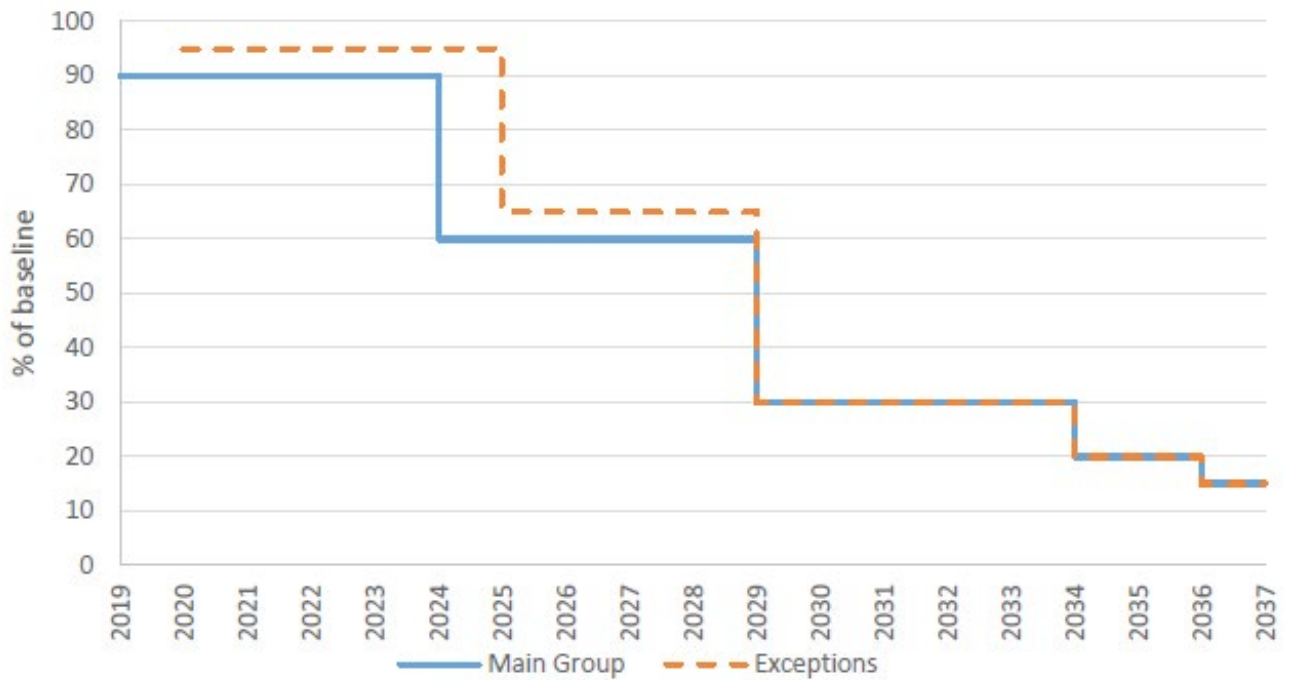


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Graph 1: Article 5 parties HFCs phase-down schedule



Graph 2: Non-Article 5 parties HFCs phase-down schedule



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CONTROLLED SUBSTANCES ADDED

Some refrigerants were added to the Montreal Protocol following the Kigali amendment. They mostly are HFCs, but some HCFCs and CFCs were also added to the previous list of controlled substances. The global warming potential (GWP) values were incorporated, both for the substances that were added and for those already listed in the Montreal Protocol. The following table lists the controlled substances added to the Montreal Protocol and their 100-year GWP values, expressed in CO₂ equivalent.

HFCs		HCFCs	
Substance	100-year GWP value	Substance	100-year GWP value
HFC-134	1 100	HCFC-21	151
HFC-134a	1 430	HCFC-22	1 810
HFC-143	353	HCFC-123	77
HFC-245fa	1 030	HCFC-124	609
HFC-365mfc	794	HCFC-141b	725
HFC-227ea	3 220	HCFC-142b	2 310
HFC-236cb	1 340	HCFC-225ca	122
HFC-236ea	1 370	HCFC-225cb	595
HFC-236fa	9 810	CFCs	
HFC-245ca	693	CFC-11	4 750
HFC-43-10-mee	1 640	CFC-12	10 900
HFC-32	675	CFC-13	6 130
HFC-125	3 500	CFC-114	10 000
HFC-143a	4 470	CFC-115	7 670
HFC-41	92		
HFC-152	53		
HFC-152a	124		
HFC-161	12		
HFC-23	14 800		

Table 3: Controlled substances added to the Montreal Protocol

[Kigali Amendment full text](#)

[Montreal Protocol full text \(2016\)](#)