

EPA issues final rule regarding the phasedown of Hydrofluorocarbons Region: United States of America

INTENDED AUDIENCE

This Regulatory Alert is intended for IAEG members who produce, import, export, destroy, reclaim, package, or distribute hydrofluorocarbons (HFCs) in the United States.

EXECUTIVE SUMMARY

On 5 October 2021, the United States Environmental Protection Agency (EPA) published a final rule to set out the methodology for phasing down HFCs over the next two years. HFCs are potent greenhouse gases that are used as refrigerants, solvents, fire suppressants, foam blowing agents, aerosols, and propellants. The final rule is the first ruling under the American Innovation and Manufacturing (AIM) Act of 2020 to implement the HFC phasedown. It incorporates EPA's provisions that were given in the proposed rule. It also implements a request from industry groups to seek a larger time frame for setting baseline HFC allowances.

The final rule sets out the baseline HFC production and consumption levels and caps emissions at 90% of those levels until the end of 2023. Future regulations will implement further HFC reductions up to 2036; an 85% reduction in the production and consumption of 18 types of HFCs by 2036 is required.

EPA will also issue "application-specific allowances" for six essential uses specified under the AIM Act. An electronic tracking system has also been established to ensure compliance with the phasedown requirement by tracking the movement of HFCs through commerce.

BACKGROUND ON REGULATION

AIM Act of 2020 was signed on 27 December 2020 as part of the H.R. 133 Consolidated Appropriations Act 2021. The Act authorizes EPA to implement a phasedown of HFCs by 85% by the end of 2036, in line with the Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol). The AIM Act aims to achieve that goal by establishing an HFC allowance allocation program for the production and consumption by the producers and importers of HFCs. The AIM Act implements Section 113 (Federal enforcement), 114 (Recordkeeping, inspections, monitoring, and entry), 304 (Citizen suits), and 307 (Administrative proceedings and judicial review) of the Clean Air Act, Title VI - Stratospheric Ozone Protection. The EPA used their experience with Title VI - Stratospheric Ozone Protection, which outlines the phase out of ozone depleting substances under the Montreal Protocol, to develop the HFC allowance allocation and trading program in this rule. The US has not yet ratified the Kigali Amendment of the Montreal Protocol but announced in January 2021 that it plans to do so.

To implement the phasedown of HFCs, the EPA published a final rule on 5 October 2021 that contains provisions for determining the national production and consumption baselines, the precise schedule that the phasedown will follow, the approach for transferring allowances, and the record and reporting requirements. The rulemaking

also includes provisions for a compliance and enforcement system for the regulatory requirements for the phasedown of HFCs in the US.

Appendix A to the final rule contains the list of substances that are regulated under the AIM Act. The list of regulated substances with CAS numbers are included below.

APPLICABILITY

The final rule applies to any person that produces, transforms, destroys, imports, exports, sells or distributes, offers for sale or distribution, recycles for fire suppression, or reclaims a regulated substance. This rule also applies to end-users in the following six application-specific categories:

- » metered dose inhalers;
- » self-defense sprays such as pepper or bear spray;
- » structural composite preformed polyurethane foam used in marine and trailer applications;
- » in the etching of semiconductor material or wafers and the cleaning of chemical vapor deposition chambers within the semiconductor manufacturing sector;
- » mission-critical military end uses, such as developing and maintaining military vessels or equipment; and
- » on-board aerospace fire suppression.

Exemptions are given for essential uses where a suitable alternative is not available, for export-bound domestic manufacturing, and in feedstocks and process agents.

RELEVANT DATES

- » Final rule published: 5 October 2021
- » Final rule effective: 4 November 2021
- » Request for set-aside allocation: 6 December 2021
- » Prohibition on production of regulated HFCs above allowance issued by authority: 1 January 2022¹
- » Prohibition on import of bulk regulated HFCs: 1 January 2022
- » Prohibition on production/import of regulated HFCs above application-specific allowance issued by authority: 1 January 2022
- » Restriction on international transfer of HFC production allowance: 1 January 2022
- » Prohibition on sale/offer to sale/distribution of containers without adequate labelling/markings: 1 January 2022
- » First audits (for year 2023) due: 31 May 2024
- » EPA Review on HFC allowance allocations and trading: 2024
- » Prohibition on import or filling of HFCs in disposable cylinders: 1 January 2025
- » Prohibition on the sale or offer for sale of HFCs in disposable cylinders: 1 January 2027

¹ The regulated substances that are produced must be consumed or destroyed under 40 CFR 84.29 within 30 days (if destruction technology is located at the production facility) or 120 days (if destruction technology is not located at the production facility).

REGULATORY OBLIGATIONS – RESTRICTIONS

The provisions in the rulemaking can be divided into the following areas:

1) Production and consumption baselines

- » the production and consumption baselines, from which the phasedown is to be measured, were calculated and determined to be 382.6 and 303.9 million metric tons of exchange value equipment (MMTEVe), respectively
- » HFC production and consumption phasedown schedule is provided in the table to the right

Year	% of baseline
2023	90
2028	60
2033	30
2035	20
2036	15

2) Allocation allowances

- » there are three types of allowances: production allowances, consumption allowances, and application-specific allowances
- » the total HFC production allowance for 2022 and 2023 is 344.3 MMTEVe and the total HFC consumption allowance for 2022 and 2023 is 273.5 MMTEVe
- » by 1 October 2021 EPA is expected to issue the 2022 allocations to active HFC producers and importers in 2020 based on the three highest years of production or consumption between 2011 and 2019. The allowances for 2024 and thereafter will be reviewed two years after this rulemaking

3) Application-specific allowances

- » these allowances can be expended for either production or import of HFCs
- » end users in these applications may not know in advance how they will procure HFCs and will benefit from the flexibility offered by these allowances
- » EPA issued application-specific allowances for the following essential-use applications:
 - propellants in metered dose inhalers;
 - self-defense sprays such as pepper or bear spray;
 - structural composite preformed polyurethane foam used in marine and trailer applications;
 - in the etching of semiconductor material or wafers and the cleaning of chemical vapor deposition chambers within the semiconductor manufacturing sector;
 - mission-critical military end uses; and
 - on-board aerospace fire suppression.

4) Set-aside allowances

- » a small portion (< 3%) of the 2022 allowance, 7.5 MMTEVe, will be set aside for companies that are end users in currently unidentified application-specific sectors, qualifying importers of HFCs who have not yet been identified, and new importers
- » companies in the above-mentioned categories should submit allowance applications by 6 December 2021

5) HFC-23 (CHF₃) controls

- » given that HFC-23 is more difficult to destroy than other HFCs, entities creating HFC-23 have the option to destroy it using approved technology or to expend the production and consumption allowances to capture, refine, and sell it for further consumption (e.g., semiconductor etching)
- » after 1 January 2022, no more than 0.1% of HFC-23 produced on a facility line may be emitted

6) Enforcement and compliance system

- » non-compliance will result in administrative consequences for allowance recipients
- » the sale or distribution or offer to sell or distribute HFCs contained in non-refillable cylinders or those not meeting the certification ID requirements is prohibited
- » the EPA will increase their oversight of HFC imports including transshipments and HFCs imported for transformation
- » establishment of a certification ID tracking system using QR codes for the import, sale, and distribution of containers containing HFCs
- » external audits for all entities that received application-specific allowances

The production and consumption data on HFCs provided to EPA by companies will be released to the public to increase transparency.

The following substances are listed as Regulated Substances in the AIM Act.

HFC	Chemical formula	CAS Number*
HFC-134	CHF ₂ CHF ₂	359-35-3
HFC-134a	CH ₂ FCF ₃	811-97-2
HFC-143	CH ₂ FCHF ₂	430-66-0
HFC-245fa	CHF ₂ CH ₂ CF ₃	460-73-1
HFC-365mfc	CF ₃ CH ₂ CF ₂ CH ₃	406-58-6
HFC-227ea	CF ₃ CHF ₂ CF ₃	431-89-0
HFC-236cb	CH ₂ FCF ₂ CF ₃	677-56-5
HFC-236ea	CHF ₂ CHF ₂ CF ₃	431-63-0
HFC-236fa	CF ₃ CH ₂ CF ₃	690-39-1
HFC-245ca	CH ₂ FCF ₂ CHF ₂	679-86-7
HFC-43-10mee	CF ₃ CHFCH ₂ CF ₂ CF ₃	138495-42-8
HFC-32	CH ₂ F ₂	75-10-5
HFC-125	CHF ₂ CF ₃	354-33-6
HFC-143a	CH ₃ CF ₃	420-46-2
HFC-41	CH ₃ F	593-53-3
HFC-152	CH ₂ FCH ₂ F	624-72-6
HFC-152a	CH ₃ CHF ₂	75-37-6
HFC-23	CHF ₃	75-46-7

* CAS numbers were not provided in the Final Rule but have been added here.

RISKS TO AEROSPACE AND DEFENSE

Violation of this regulation may result in banning the company and its owner(s) from receiving future allowances from EPA resulting in disruption to the business. Companies may not have identified all uses of a regulated substance, and furthermore may not have identified a use as fitting within one of the six categories of application-specific allowance. Although a company may not be directly impacted by this regulation, the site may be impacted by future limited availability of a product.

Risk mitigation:

- » determine where regulated HFCs are present in the supply chain
- » determine if your company is regulated under any of the six application-specific categories
- » communicate with the Department of Defense to determine if they have a process in place to comply with mission-critical military end uses
- » communicate with site programs and engineering groups to understand where products containing the regulated HFCs are used

USEFUL LINKS

[Phasedown of HFCs Final Rule](#)

[IAEG WG9 Regional HFC Alert](#)

[Kigali Amendment to the Montreal Protocol](#)

[The Montreal Protocol on Substances that Deplete the Ozone Layer](#)

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