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Reducing HFCs

[CONTACT US <https://epa.gov/climate-hfcs-reduction/forms/contact-us-about-reducing-hfcs>](https://epa.gov/climate-hfcs-reduction/forms/contact-us-about-reducing-hfcs)

HFC Data Hub

The American Innovation and Manufacturing (AIM) Act directs EPA to phase down production and consumption of hydrofluorocarbons (HFCs) in the United States by 85 percent from baseline levels by 2036. This phasedown is consistent with the U.S. schedule under the Kigali Amendment to the Montreal Protocol [🔗 <https://ozone.unep.org/treaties/montreal-protocol/annex-f-hydrofluorocarbons>](https://ozone.unep.org/treaties/montreal-protocol/annex-f-hydrofluorocarbons). To promote data transparency and accountability, this page includes information on the following:

- Calculated HFC Production and Consumption
- HFC Allowance Allocations and Expenditures
- HFC End-of-Year Inventory

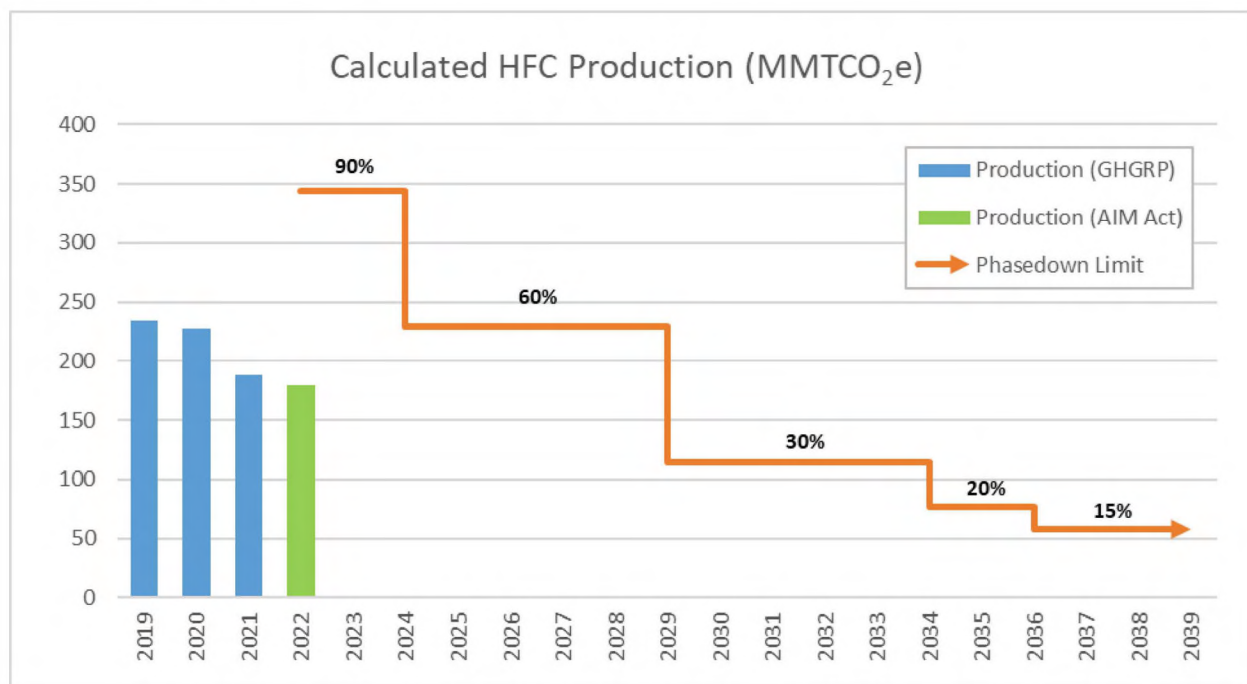
Calculated HFC Production and Consumption

Starting January 1, 2022, the amount of HFC production and consumption allowed in the United States was limited through an allowance allocation program. The figures and table below summarize production and consumption of regulated HFCs based on activity data reported under 40 CFR Part 84. Calculated production is equal to the amount of a regulated substance manufactured from a raw material or feedstock chemical (excluding the amount produced for transformation) minus destruction. Calculated consumption is equal to calculated production plus imports minus exports. Shown below are the data through May 29, 2024. All reported data are certified by the reporting entity to be true, accurate, and complete. EPA continues to review and verify these data and may revise figures shown on this website as appropriate. All values are presented in metric tons or million metric tons of carbon dioxide equivalent (MTCO_{2e} or MMTCO_{2e}) using 100-year global warming potentials

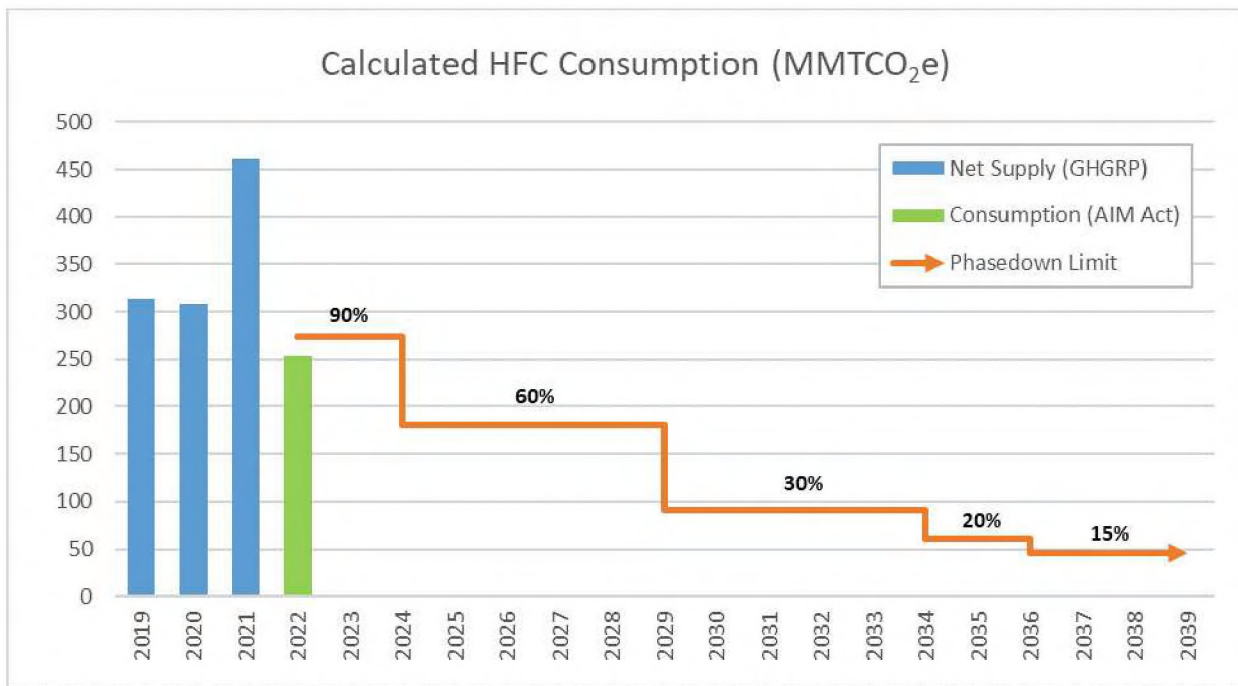
(GWPs) listed in the 2007 Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report [↗ <https://archive.ipcc.ch/publications_and_data/ar4/wg1/en/errataserrata-errata.html#table214>](https://archive.ipcc.ch/publications_and_data/ar4/wg1/en/errataserrata-errata.html#table214).

HFC Production and Consumption Relative to the Phasedown Limit

The following figures depict the calculated level of HFC production and consumption relative to the AIM Act HFC phasedown schedule.¹ Additional historical HFC data going back to 2010 are available on EPA’s Greenhouse Gas Reporting Program (GHGRP) webpage [<https://epa.gov/ghgreporting/ghgrp-data-relevant-aim-act>](https://epa.gov/ghgreporting/ghgrp-data-relevant-aim-act).



Note: Pre-2022 data were collected per requirements under the GHGRP, while data shown in the figure for 2022 were reported in accordance with regulations established under the AIM Act. Values represent calculated production.



Note: Pre-2022 data were collected per requirements under the GHGRP for "net supply," while data shown in the figure for 2022 were reported in accordance with regulations established under the AIM Act. Values represent calculated consumption. "Net supply" is near equivalent but not equal to the term "consumption."

Calculated HFC Production and Consumption for 2022

For more detail on calculated production, see here <<https://epa.gov/climate-hfcs-reduction/hfc-data-hub/expanded-hfc-data#production>>. For more detail on calculated consumption, see here <<https://epa.gov/climate-hfcs-reduction/hfc-data-hub/expanded-hfc-data#consumption>>.

Search all columns: <input type="text"/>			
Chemical	Calculated Production (MTCO ₂ e)	Calculated Consumption (MTCO ₂ e)	GWP*
HFC-125	67,115,021	140,079,747	3,500
HFC-134	565,688	456,326	1,100
HFC-134a	87,768,927	73,940,271	1,430
Total	179,651,209	254,037,337^a	NA

Chemical	Calculated Production (MTCO₂e)	Calculated Consumption (MTCO₂e)	GWP*
HFC-143	0	0	353
HFC-143a	-27,137	5,497,410	4,470
HFC-152	0	0	53
HFC-152a	3,677,203	3,930,930	124
HFC-227ea	4,265,637	1,130,488	3,220
HFC-23	77,197	1,537,218	14,800
HFC-236cb	0	0	1,340
HFC-236ea	44,673	57,725	1,370
HFC-236fa	0	2,650,510	9,810
HFC-245ca	0	0	693
HFC-245fa	4,184,584	5,119,928	1,030
HFC-32	11,977,388	18,066,593	675
HFC-365mfc	0	881,119	794
HFC-41	2,028	4,098	92
HFC-43-10mee	0	684,974	1,640
Total	179,651,209	254,037,337^a	NA

NA = Not Applicable.

Note: Negative values occur when destruction exceeds production.

* All values are calculated using the 100-year GWPs listed in the 2007 IPCC Fourth Assessment Report, which are

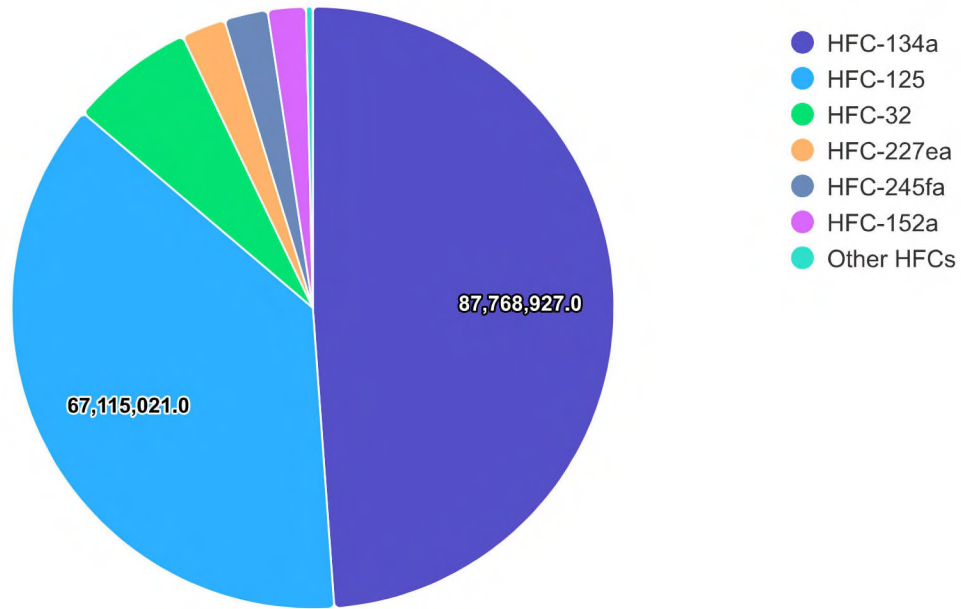
numerically equal to the exchange values listed in the AIM Act.

^a Due to rounding and continued data verification, this value could vary by up to 2% of the 2022 AIM Act consumption limit.

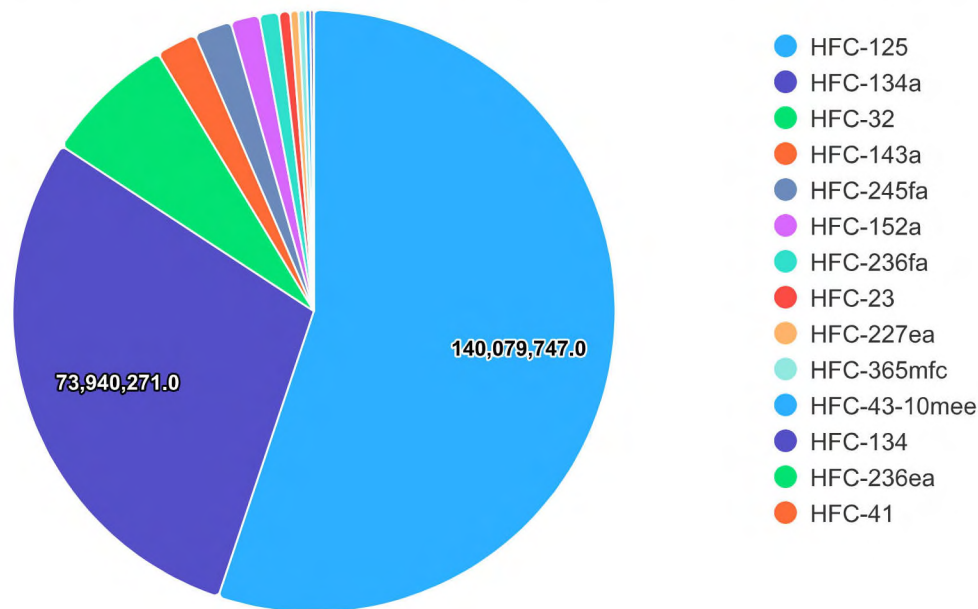
Download the data here:  2022 Calculated HFC Production and Consumption (xlsx)

<https://www.epa.gov/system/files/documents/2024-05/hfc-data-hub_2022-calculated-hfc-production-and-consumption_5.2.2024.xlsx> (18.5 KB)

Calculated HFC Production for 2022 in MTCO₂e

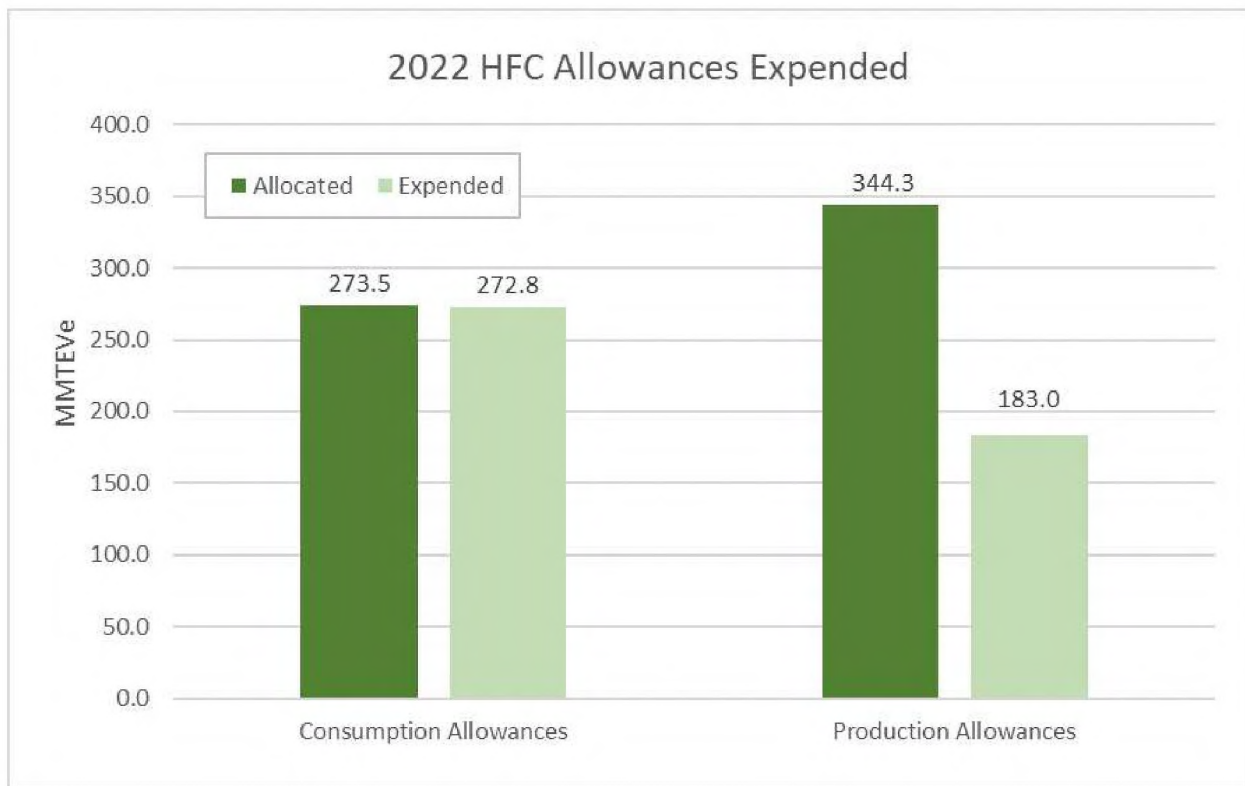


Calculated HFC Consumption for 2022 in MTCO₂e



HFC Allowances Allocated and Expended

To phase down production and consumption of HFCs in the United States, EPA has established a methodology for allocating HFC production and consumption allowances under the authority of the AIM Act. The figure below shows production and consumption allowances expended for 2022 based on reported data.² Allowances are presented on an exchange value (EV)-weighted basis. Exchange values for the HFCs are numerically equal to the 100-year GWPs listed in the 2007 IPCC Fourth Assessment Report, thus EV-weighted production and consumption used for the allowance program are the same as CO₂ equivalents.



Note: Application-specific allowances are included in the above graphic.

The tables below present the information summarized by the graphic above in greater detail. Consumption and production allowances allocated to each entity for 2022 are shown. The tables also summarize each entity’s unused allowances.³

HFC Consumption Allowance Activity for 2022

For more detail on consumption allowance activity, see here <<https://epa.gov/climate-hfcs-reduction/hfc-data-hub/expanded-hfc-data#consumption-allowance>>.

Search all columns:

Entity	Number of Consumption Allowances Issued (MTEVe)	Unused Allowances (MTEVe)
Honeywell International ^a	82,360,553.5	-9,266,218.2 < https://epa.gov/climate-hfcs-reduction/administrative-consequences-under-hfc-allocation-rule >
Bluon ^a	33,404.3	-469,193.6 < https://epa.gov/climate-hfcs-reduction/administrative-consequences-under-hfc-allocation-rule >
American Air Components ^a	200,000.0	-209,523.0 < https://epa.gov/climate-hfcs-reduction/administrative-consequences-under-hfc-allocation-rule >
Electronic Fluorocarbons ^a	104,116.0	-64,931.9 < https://epa.gov/climate-hfcs-reduction/administrative-consequences-under-hfc-allocation-rule >
FluoroFusion Specialty Chemicals ^a	2,548,297.7	-11,010.5 < https://epa.gov/climate-hfcs-reduction/administrative-consequences-under-hfc-allocation-rule >
Application-specific allowances^b	5,859,934.4	3,044,202.0
Total	273,498,314.9	710,773.8

Entity	Number of Consumption Allowances Issued (MTEVe)	Unused Allowances (MTEVe)
AFK & Co. ^a	193,335.9	-5,701.9 < https://epa.gov/climate-hfcs-reduction/administrative-consequences-under-hfc-allocation-rule >
Artsen ^a	1,025,866.3	-346.7 < https://epa.gov/climate-hfcs-reduction/administrative-consequences-under-hfc-allocation-rule >
ChemPenn, LLC ^a	0	-32.6
USSC Acquisition Corp ^a	131,451.0	-2.3
Altair Partners	2,913,887.9	0
IGas Holdings	25,901,569.7	0.5
Refrigerants, Inc.	26,506.8	0.6
Chemp Technology	200,000.0	1.8
Meraki Group	200,000.0	2.6
Transocean Offshore Deepwater Drilling	16.7	3.8
Fireside Holdings (DBA American Refrigerants)	199,978.5	10.0
Application-specific allowances^b	5,859,934.4	3,044,202.0
Total	273,498,314.9	710,773.8

Entity	Number of Consumption Allowances Issued (MTEVe)	Unused Allowances (MTEVe)
USA United Suppliers of America DBA USA Refrigerants	200,000.0	10.0
RTR Suppliers	198,000.0	12.5
EDX Industry	200,000.0	14.5
Creative Solution	200,000.0	15.3
SDS Refrigerant Services	200,000.0	15.7
ComStar International	373,443.3	44.5
Freskoa USA	200,000.0	44.8
Wesco HMB	200,000.0	48.5
Automart Distributors DBA Refrigerant Plus	200,000.0	61.8
ACT Commodities	77.8	77.8
Saalok	200,000.0	81.1
Nature Gas Import and Export	818,264.6	83.2
Harp USA	764,303.8	84.3
Advance Auto Parts	190,699.1	108.7
Application-specific allowances^b	5,859,934.4	3,044,202.0
Total	273,498,314.9	710,773.8

Entity	Number of Consumption Allowances Issued (MTEVe)	Unused Allowances (MTEVe)
Mondy Global	318,178.2	112.2
AFS Cooling	200,000.0	117.0
Perfect Score Too DBA Perfect Cycle	37,876.0	134.0
O23 Energy Plus	200,000.0	181.1
Hungry Bear	200,000.0	200.0
Summit Refrigerants	200,000.0	210.0
Golden Refrigerant	200,000.0	267.4
Wilhelmsen Ships Service	40,325.5	285.5
Tulstar Products	732,893.0	306.0
RGAS LLC	1,285,781.5	332.7
AW Product Sales & Marketing	194,183.0	364.2
Iofina Chemical	1,262.8	434.5
ICool USA	3,401,343.4	436.8
AllCool Refrigerant Reclaim	200,000.0	500.0
TradeQuim	200,000.0	500.0
Application-specific allowances^b	5,859,934.4	3,044,202.0
Total	273,498,314.9	710,773.8

Entity	Number of Consumption Allowances Issued (MTEVe)	Unused Allowances (MTEVe)
A.C.S. Reclamation & Recovery	200,000.0	539.5
Lina Trade	200,000.0	715.6
Tyco Fire Products	200,000.0	857.0
SynAgile Corporation	1,125.1	1,125.1
Ability Refrigerants	200,000.0	1,648.9
Lenz Sales & Distribution	1,108,477.1	2,168.1
Matheson Tri-Gas, Inc.	0	2,904.4
Waysmos USA	633,451.9	3,984.1
Metalcraft Inc	161,000.0	4,040.0
Cross World Group	200,000.0	4,186.1
Advanced Specialty Gases	284,841.1	4,683.9
IsleChem by Aceto	0	5,331.6
North American Refrigerants	200,000.0	5,945.0
Hudson Technologies	2,983,100.1	6,065.5
CC Packaging	194,000.0	6,085.3
Application-specific allowances^b	5,859,934.4	3,044,202.0
Total	273,498,314.9	710,773.8

Entity	Number of Consumption Allowances Issued (MTEVe)	Unused Allowances (MTEVe)
Kidde-Fenwal	200,000.0	6,800.0
GlaxoSmithKline	535,478.0	6,813.1
RMS of Georgia	1,618,586.9	7,506.4
Sciarra Laboratories	8,700.0	8,700.0
Solvay Fluorides	1,100,630.1	9,185.9
Reclamation Technologies	200,000.0	10,001.0
National Refrigerants	19,773,949.5	14,799.6
Weitron	6,327,828.6	24,986.9
Resonac America, Inc.	73,344.7	73,344.7
First Continental International	768,560.8	80,565.9
AutoZone Parts	2,482,538.7	148,483.1
Technical Chemical	972,523.8	161,313.9
Linde	531,619.8	171,980.6
Daikin America	3,115,754.2	174,042.9
Certified Refrigerant Services	200,000.0	200,000.0
Application-specific allowances^b	5,859,934.4	3,044,202.0
Total	273,498,314.9	710,773.8

Entity	Number of Consumption Allowances Issued (MTEVe)	Unused Allowances (MTEVe)
Air Liquide USA	497,703.2	228,382.3
A-Gas	3,203,908.1	322,751.8
Mexichem Fluor DBA Koura	25,437,610.7	525,538.3
Walmart	2,276,799.3	604,380.0
Arkema	31,023,931.5	1,802,766.2
Chemours	33,327,301.0	3,055,806.4
Application-specific allowances^b	5,859,934.4	3,044,202.0
Total	273,498,314.9	710,773.8

^a Negative values in the unused allowances column occur when an entity has reported HFC consumption that exceeds the number of allowances available to the entity as of December 31 of that year after factoring in amounts allocated, allowances expended, and transactions throughout the year, such as requests for additional consumption allowances and transfers. Such negative values could result in EPA pursuing administrative consequences under 40 CFR Part 84 <<https://epa.gov/climate-hfcs-reduction/administrative-consequences-under-hfc-allocation-rule>> and enforcement action <<https://epa.gov/enforcement/enforcement-american-innovation-and-manufacturing-act-2020>>.

^b See Application-specific Allowance Allocations <<https://epa.gov/climate-hfcs-reduction/phasedown-hydrofluorocarbons-hfcs-issuing-allowance-allocations-2022#application-specific-allowances>>.

Download the data here:  2022 HFC Consumption Allowance Activity (xlsx)

<https://www.epa.gov/system/files/documents/2024-05/hfc-data-hub_2022-hfc-consumption-allowance-activity_5.2.2024.xlsx> (20.7 KB)

HFC Production Allowance Activity for 2022

For more detail on production allowance activity, see here <<https://epa.gov/climate-hfcs-reduction/hfc-data-hub/expanded-hfc-data#production-allowance>>.

Search all columns:

Entity	Number of Production Allowances Issued (MTEVe)	Unused Allowances (MTEVe)
Iofina Chemical	1,756.3	416.6
IsleChem by Aceto	0	5,331.6
Mexichem Fluor DBA Koura	50,481,897.5	11,688,684.0
Arkema	40,821,168.5	18,577,387.7
Chemours	75,606,548.8	43,962,212.1
Honeywell International	171,527,851.5	84,052,809.2
Application-specific allowances^a	5,859,934.4	3,044,202.0
Total	344,299,157.0	161,331,043.2

^a See Application-specific Allowance Allocations <<https://epa.gov/climate-hfcs-reduction/phasedown-hydrofluorocarbons-hfcs-issuing-allowance-allocations-2022#application-specific-allowances>>.

Download the data here:  2022 HFC Production Allowance Activity (xlsx)

<https://www.epa.gov/system/files/documents/2024-05/hfc-data-hub_2022-hfc-production-allowance-activity_5.2.2024.xlsx> (18 KB)

HFC End-of-Year Inventory

The following table summarizes the total quantity of each regulated HFC held in inventory by HFC producers, importers, exporters, fire suppression agent recyclers, and reclaimers, as of December 31, 2022.


HFC End-of-Year Inventory for 2022

Search all columns:

Chemical	End-of-Year Inventory (MT)	End-of-Year Inventory (MTCO ₂ e)	GWP*
HFC-125	55,644.4	194,755,360.3	3,500
HFC-134	374.7	412,137.0	1,100
HFC-134a	52,193.9	74,637,217.4	1,430
HFC-143	192.2	67,852.1	353
HFC-143a	20,507.1	91,666,642.2	4,470
HFC-152	0	0	53
HFC-152a	5,076.9	629,534.4	124
HFC-227ea	1,008.4	3,247,042.4	3,220
HFC-23	303.1	4,486,584.8	14,800
HFC-236cb	0	0	1,340
HFC-236ea	29.9	40,906.9	1,370
HFC-236fa	207.6	2,036,953.9	9,810
HFC-245ca	0	0	693
HFC-245fa	1,624.2	1,672,951.4	1,030
HFC-32	20,962.8	14,149,869.2	675
HFC-365mfc	0	0	794
HFC-41	26.7	2,453.4	92
HFC-43-10mee	102.6	168,188.6	1,640
Total	158,254.5	387,973,694.0	NA

NA = Not Applicable.

* All values are calculated using the 100-year GWPs listed in the 2007 IPCC Fourth Assessment Report, which are numerically equal to the exchange values listed in the AIM Act.

Download the data here:  2022 HFC End-of-Year Inventory (xlsx)

<https://www.epa.gov/system/files/documents/2024-05/hfc-data-hub_2022-hfc-end-of-year-inventory_5.2.2024.xlsx>
(18.6 KB)

¹ The HFC phasedown schedule is relative to the production and consumption baselines, which are set out in 40 CFR 84.7.

² Data are current as of May 29, 2024. All reported data are certified by the reporter to be true, accurate, and complete. EPA continues to review and verify these data and may revise and update these data, as appropriate.

³ Unused allowances are allowances that were available to the entity as of December 31, 2022, but not used. Allowances are valid between January 1 and December 31 of a given year. They cannot be expended, transferred, or conferred after December 31 of the year for which they were issued.

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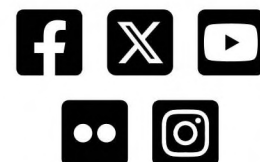
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