



ENVIRONMENTAL PROTECTION AGENCY

[EPA-HQ-OAR-2021-0044; FRL-10020-30-OAR]

Notice of Data Availability Relevant to the United States Hydrofluorocarbon Baselines and Mandatory Allocations

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of data availability.

SUMMARY: This Notice of Data Availability is to alert stakeholders of information from the Environmental Protection Agency regarding hydrofluorocarbon consumption and production in the United States for the years 2011, 2012, and 2013 and solicit stakeholder input. The Agency is providing this information in preparation for upcoming regulatory actions under the American Innovation and Manufacturing Act of 2020, included in the Consolidated Appropriations Act, 2021. Among other provisions, the Act directs the Environmental Protection Agency to develop production and consumption baselines and to phase down hydrofluorocarbon production and consumption relative to those baselines. This notice provides information related to total annual hydrofluorocarbon production and consumption between 2011 and 2013 reported to the Environmental Protection Agency's Greenhouse Gas Reporting Program as of March 30, 2020, which was the last reporting deadline for reporting year 2019 data. The notice identifies possible data gaps and requests comment on areas where additional information could improve the Agency's data on hydrofluorocarbon consumption and production in the United States for those three years. This notice also provides the Agency's initial information on hydrofluorocarbon use in applications that would receive mandatory allocations under the Act.

DATES: The Environmental Protection Agency (EPA) is interested in receiving comments on the data in this notice of data availability (NODA) to inform the Agency's regulatory process. To ensure that comments can be accounted for in an upcoming EPA proposed rule, please submit

comments to the Agency by **[INSERT DATE 14 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: You may send comments, identified by Docket ID No. **EPA-HQ-OAR-2021-0044**, by any of the following methods:

- Federal eRulemaking Portal: <https://www.regulations.gov/> (our preferred method).
Follow the online instructions for submitting comments.
- Mail: U.S. Environmental Protection Agency, EPA Docket Center, Air and Radiation Docket, Mail Code 28221T, 1200 Pennsylvania Avenue NW, Washington, DC 20460.
- Hand Delivery or Courier (by scheduled appointment only): EPA Docket Center, WJC West Building, Room 3334, 1301 Constitution Avenue, NW, Washington, DC 20004.
The Docket Center's hours of operations are 8:30 a.m. – 4:30 p.m., Monday – Friday (except Federal Holidays).

Instructions: All submissions received must include the Docket ID No. for this rulemaking. Comments received may be posted without change to <https://www.regulations.gov/>, including any personal information provided. Out of an abundance of caution for members of the public and our staff, the EPA Docket Center and Reading Room are closed to the public, with limited exceptions, to reduce the risk of transmitting COVID-19. Our Docket Center staff will continue to provide remote customer service via email, phone, and webform. We encourage the public to submit comments via <https://www.regulations.gov/> or email, as there may be a delay in processing mail and faxes. Hand deliveries and couriers may be received by scheduled appointment only. For further information on EPA Docket Center services and the current status, please visit us online at <https://www.epa.gov/dockets>.

FOR FURTHER INFORMATION CONTACT: Andy Chang, U.S. Environmental Protection Agency, Stratospheric Protection Division, telephone number: 202-564-6658; or email address: chang.andy@epa.gov. You may also visit EPA's website at www.epa.gov/ozone-layer-protection for further information.

SUPPLEMENTARY INFORMATION:

I. What should I consider as I prepare my comments?

You may find the following suggestions helpful for preparing your comments: Explain your views as clearly as possible; describe any assumptions that you used; provide any technical information or data you used that support your views; provide specific examples to illustrate your concerns; offer alternatives; and make sure to submit your comments by the comment period deadline identified. Please provide any published studies or raw data supporting your position. Confidential Business Information (CBI) should not be submitted through www.regulations.gov. Please work with the person listed in the **FOR FURTHER INFORMATION CONTACT** section if submitting a comment containing CBI.

II. Background

The Agency is providing information in preparation for upcoming regulatory actions under the American Innovation and Manufacturing Act of 2020 (AIM Act or Act), included in the Consolidated Appropriations Act, 2021. Among other provisions, the Act directs EPA to develop a U.S. production baseline and a U.S. consumption baseline and to phase down hydrofluorocarbon (HFC) production and consumption relative to those baselines.¹ The legislation specifies that the production and consumption baselines are equal to the sum of (1) the average annual quantity of all HFCs regulated under the Act that were produced or consumed, respectively, in the United States during the period beginning on January 1, 2011 and ending on December 31, 2013; (2) the quantity equal to the sum of 15 percent of the production or consumption, respectively, of hydrochlorofluorocarbons (HCFCs) in calendar year 1989; and (3) 0.42 percent of the production or consumption, respectively, of chlorofluorocarbons (CFCs) in calendar year 1989.

¹ The AIM Act defines consumption as the quantity produced and imported in the United States minus the quantity exported from the United States.

EPA is seeking comment on the accuracy of the data and analyses presented in this notice and the draft reports in the docket to this notice and welcomes input on those data and potential data gaps. Data is available in this notice and will be available in the docket, and additional data will be added to the docket on February 8, 2021. Data from 2011 through 2013 will be helpful in developing the U.S. HFC baselines for production and consumption. Readers should note that EPA will only consider comments about the data presented in this notice and the draft reports provided in the docket and is not soliciting comments on any other topic through this notice. The Agency is also not seeking comment on the historic HCFC and CFC consumption and production values as the Agency already has those data and no further information is needed. Based on feedback provided through this NODA process and other stakeholder engagement, EPA intends to revise and release updated numbers for 2011-2013 at the same time the Agency issues a proposed rule to establish baselines and an HFC allocation system consistent with the AIM Act.

EPA is also providing separate documents in the docket related to the applications for which section (e)(4)(B)(iv) of the AIM Act directs the Administrator to allocate the full quantity of allowances necessary, based on projected, current, and historical trends. Similar to the data being provided related to the consumption and production baselines, EPA is providing the public with reports related to the applications listed for these mandatory allocations so that the public can view what data EPA currently has, comment on currently available information, and provide information on potential data gaps. The docket to this NODA contains documents for the following statutorily-established applications: 1) propellants in metered dose inhalers (MDIs); 2) defense sprays; 3) structural composite preformed polyurethane foam for marine use and trailer use; 4) the etching of semiconductor material or wafers and the cleaning of chemical vapor deposition (CVD) chambers within the semiconductor manufacturing sector; and 5) on board aerospace fire suppression. These reports describe EPA's current awareness of the use of HFCs and provide information on EPA's current knowledge on projected, current, and historical trends

of HFC related to these statutorily identified applications. EPA requests comment on the data and analysis in these documents.

As stated throughout this notice, EPA plans to undergo a future notice and comment rulemaking process, which will be a separate action, that will outline the Agency's approach to calculating HFC production and consumption baselines, allocating allowances in furtherance of the HFC phasedown, and defining applications for mandatory allocations. EPA will solicit public feedback on these issues through that separate notice and comment process, and therefore is not accepting public comment on these matters through this NODA. Public comments that pertain to issues beyond the scope of this NODA will not be considered. To the extent such comments are relevant to the previously referenced future and separate rulemaking, those comments should be resubmitted through that future rulemaking process in order to ensure that they are duly considered by the Agency. The list of companies in Table 2 is provided solely as an illustration of the sources of the net supply data currently in the Greenhouse Gas Reporting Program (GHGRP) for the years 2011, 2012, and 2013. The list should not be interpreted as any indication concerning future Agency decisions about the companies that will be allocated allowances pursuant to AIM Act regulations, since those are the three years defined in the AIM Act for calculating the baseline numbers. Use of AIM Act terminology in this NODA is for communication purposes only and should not be viewed as indications of how EPA will define these terms in future rulemaking actions.

The AIM Act will be implemented over time. EPA intends to provide more information on the status of rulemakings and stakeholder interaction, including opportunities for submitting public comment, on the Agency's website.

III. What data are available?

EPA is announcing the availability of data related to the U.S. HFC production and consumption baselines as defined in the AIM Act. Data contained in this NODA and the associated docket is derived from EPA's GHGRP for the years 2011-2013. Some data will be

provided in this notice and posted in the docket as of the date of publication of this NODA.

Additional data that is denoted with an asterisk in tables provided later in this notice will be uploaded to the docket on February 8, 2021.

Under 40 CFR Part 98, the GHGRP requires reporting of greenhouse gas (GHG) data and other relevant information from large GHG emission sources, fuel and industrial gas suppliers, and suppliers of carbon dioxide (CO₂). The GHGRP also requires producers of HFCs and importers or exporters that supply a total of 25,000 metric tons carbon dioxide equivalent (CO₂e) or more of fluorinated GHGs (including HFCs), nitrous oxide, and carbon dioxide to report their supplies to EPA annually. Suppliers include producers, importers, exporters, and destroyers of HFCs (who report under 40 CFR part 98, subpart OO) and importers and exporters of pre-charged equipment (e.g., window air conditioners) and closed-cell foams that contain HFCs (who report under 40 CFR part 98, subpart QQ). Under subpart OO, producers are required to report the quantities that they produce, transform (unless the transformed feedstock is produced onsite), destroy, or send off-site for transformation or destruction. Importers of bulk HFCs are required to report the quantities that they import, destroy, or send off-site for transformation or destruction.² Exporters of bulk HFCs are required to report the quantities that they export.

For the years 2011-2013, 42 companies reported HFC supply data under Subpart OO via the GHGRP (some of which owned multiple facilities). EPA anticipates at this time that the GHGRP data that will be used the most to inform the U.S. production and consumption baselines are the supplies of HFCs listed as regulated substances in the AIM Act that are reported under Subpart OO of the GHGRP.

The AIM Act states that for purposes of establishing the baselines and in implementing the statutorily required HFC phasedown, EPA shall use the statutorily provided exchange values for each regulated substance (i.e., HFCs), HCFCs, and CFCs. These exchange values are

² Under the GHGRP, bulk with respect to industrial GHG suppliers and CO₂ suppliers, means the transfer of a product inside containers, including but not limited to tanks, cylinders, drums, and pressure vessels.

numerically identical to the global warming potentials (GWPs) for those substances provided in the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.³ Because the GHGRP collects and reports information using GWPs, for the purposes of this notice and the reports provided in the docket, the terms “exchange values” and “GWP” have equivalent meaning and the terms are used interchangeably. The HFCs listed as regulated substances in the AIM Act, and the exchange values that are assigned to them, are listed in Table 1.

Table 1: HFCs Listed as Regulated Substances in the AIM Act		
HFC	Chemical Formula	Exchange Value
HFC-134	CHF ₂ CHF ₂	1,100
HFC-134a	CH ₂ FCF ₃	1,430
HFC-143	CH ₂ FCHF ₂	353
HFC-245fa	CHF ₂ CH ₂ CF ₃	1,030
HFC-365mfc	CF ₃ CH ₂ CF ₂ CH ₃	794
HFC-227ea	CF ₃ CHF ₂ CF ₃	3,220
HFC-236cb	CH ₂ FCF ₂ CF ₃	1,340
HFC-236ea	CHF ₂ CHF ₂ CF ₃	1,370
HFC-236fa	CF ₃ CH ₂ CF ₃	9,810
HFC-245ca	CH ₂ FCF ₂ CHF ₂	693
HFC-43-10mee	CF ₃ CHFCH ₂ CF ₂ CF ₃	1,640
HFC-32	CH ₂ F ₂	675
HFC-125	CHF ₂ CF ₃	3,500
HFC-143a	CH ₃ CF ₃	4,470
HFC-41	CH ₃ F	92
HFC-152	CH ₂ FCH ₂ F	53
HFC-152a	CH ₃ CHF ₂	124
HFC-23	CHF ₃	14,800

EPA is providing as much data as possible while respecting confidentiality determinations finalized through previous GHGRP rulemakings. Many of the data elements reported to subpart OO of the GHGRP were determined to be, and are treated as, confidential by EPA. The data presented in Tables 3 and 4, collected under subpart OO from producers, importers, and exporters of HFCs, are aggregations that shield the underlying CBI from public disclosure. On June 9, 2014, EPA issued a Federal Register notice (79 FR 32948) describing the

³ IPCC, 2007. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.

criteria used to confirm that an aggregation protects underlying CBI data. Combined, the criteria ensure that publishing aggregated values that meet the criteria would not inadvertently disclose facility- or supplier-level CBI. The June 9, 2014 FR notice also describes the circumstances and procedures used to notify individual reporters of EPA's intent to aggregate confidential data based on Agency's CBI regulations found in 40 CFR Part 2.

EPA's CBI regulations require us to offer the opportunity to make a CBI claim to "any business which, although it has not asserted a [CBI] claim, might be expected to assert a claim if it knew EPA proposed to disclose the information." (40 CFR 2.204(c)(2)). For the GHGRP, EPA considers aggregations for which a reporter might be expected to make a claim that the aggregated value discloses CBI, and are therefore notified of the opportunity to do so, as "small-scale aggregations." Generally, small-scale aggregations will include data from fewer than 20 unique corporate owners, but the cut-off may be higher or lower depending on whether a business might be expected to assert a CBI claim for the individual aggregation under particular circumstances. In contrast, "large-scale aggregations" of GHGRP data are those for which a business is not expected to make a CBI claim due to the larger number of unique corporate owners (generally 20 or more), and reporters therefore are not typically notified of the opportunity to assert a claim through the notification procedures described in the June 9, 2014 FR notice. GHGRP data presented in Tables 3 and 4 in this notice are from large-scale aggregations.

In notifying GHGRP reporters of small-scale aggregations and per the June 9, 2014 FR notice, reporters are given 10 days to file for judicial review, per 40 CFR 2.205(f)(2). EPA's practice typically allows 10 business days for response or action by reporters upon notification. However, because the June 9, 2014 FR notice did not specify "business days" or "calendar days" and due to the expeditious nature of this NODA and the desire to include as much data as possible either within this notice or in the accompanying record, EPA notified reporters to respond or take action in 10 calendar days. Further, this release is similar to aggregated data

released by the Agency from this business sector in the past, to which EPA has never received any concerns from submitters. Data aggregations that are currently going through the above outlined notification process are denoted with an asterisk in Tables 3 and 4 in this notice. EPA intends to add them to the docket for this NODA on February 8, 2021 after allowing reporters adequate time to review and respond to the aggregation notification.

Table 2: List of Companies that Reported Production, Import, Export, or Destruction to the GHGRP for any AIM-Listed HFC during 2011-2013			
Company Name	Imported	Exported	Produced and/or Destroyed
3M Company	X	X	X
Advanced Specialty Gases	X		
A-Gas	X		X
Air Liquide	X	X	
Airgas Refrigerants, Inc.	X	X	
Airgas Specialty Gases	X	X	
Altair Partners LP	X		
Arkema Inc.	X	X	X
Automart Dist.	X		
AutoZone Parts, Inc.	X		
BMP International Inc.	X		
Brooks Automation, Inc.		X	
Chemours	X	X	X
Combs Gas, Inc.	X		
Covestro LLC		X	
Daikin America Inc. /MDA Manufacturing	X		
Electronic Fluorocarbons	X	X	
First Continental International	X		
FSD Group LLC	X		
General Motors LLC	X		
GlaxoSmithKline LLC	X		
Honeywell International Inc.	X	X	X
Hudson Technologies Company	X		
ICOR International Inc.	X	X	
Kidde Fenwal, Inc.		X	
Kivlan & Company, Inc.	X		
Lenz Sales & Dist., Inc.	X		
Linde Electronics & Specialty Gases	X	X	
Matheson Tri-Gas, Inc.		X	
Mexichem Fluor Inc.	X	X	X
Mondy Global, Inc.	X	X	
National Refrigerants, Inc.	X	X	
Ninhua Group Co Ltd	X		
Old World Industries, LLC	X		
Praxair Inc.	X	X	
Refricenter of Miami Inc.	X		

Solvay Fluorides, LLC	X		
Technical Chemical Co	X		
Tulstar Products, Inc.	X	X	
USA Refrigerants	X		
Wal-Mart Stores, Inc.	X		
Weitron, Inc.	X		

A. Data presented related to HFC Production

As explained previously, the GHGRP collects and reports data related to the production of HFCs. Subpart OO defines “produce” as follows: “To produce a fluorinated GHG means to manufacture a fluorinated GHG from any raw material or feedstock chemical. Producing a fluorinated GHG includes the manufacture of a fluorinated GHG as an isolated intermediate for use in a process that will result in its transformation either at or outside of the production facility. Producing a fluorinated GHG also includes the creation of a fluorinated GHG (with the exception of HFC-23) that is captured and shipped off site for any reason, including destruction. Producing a fluorinated GHG does not include the reuse or recycling of a fluorinated GHG, the creation of HFC-23 during the production of HCFC-22, the creation of intermediates that are created and transformed in a single process with no storage of the intermediates, or the creation of fluorinated GHGs that are released or destroyed at the production facility before the production measurement at §98.414(a).” 40 CFR § 98.410(b).

This definition is similar to, but not identical to, the AIM Act definition of “produce.” The AIM Act defines the term *produce* as “the manufacture of a regulated substance from a raw material or feedstock chemical (but not including the destruction of a regulated substance by a technology approved by the Administrator).” The term produce “does not include-(i) the manufacture of a regulated substance that is used and entirely consumed (except for trace quantities) in the manufacture of another chemical; or (ii) the reclamation, reuse, or recycling of a regulated substance.” Although the definitions of “produce” under the GHGRP and the AIM Act are not identical, there is sufficient overlap between the terms that information collected and reported through the GHGRP can be helpful in developing the baseline figures used in future AIM Act regulations.

The GHGRP also collects data related to the destruction of HFCs. Destroyed HFCs are typically byproducts of a chemical process and are either destroyed on site or captured and shipped to a separate facility for destruction. Hazardous waste facilities also destroy HFCs that have been recovered from equipment or are otherwise used. The GHGRP has required facilities that produce or import HFCs to report the quantities that they destroy since 2010.⁴ In 2018, the requirement to report the quantities destroyed was extended to facilities that destroy more than 25,000 metric tons CO₂e of fluorinated GHGs but that do not produce or import them.

Six companies have reported production and/or destruction of HFCs listed in the AIM Act to the GHGRP in 2011, 2012, and 2013. The companies are listed in Table 2. EPA requests comment on whether this is the complete listing of companies who produced or destroyed HFCs in those years. The docket also contains data on the quantity equal to production minus destruction minus transformation of the AIM HFCs (other than HFC-23) on a GWP-weighted basis for 2011, 2012, and 2013. EPA is presenting aggregated information from producers and destruction facilities given the approach to releasing CBI under the GHGRP.⁵

Data Gaps

EPA has identified possible data gaps for HFC production and destruction in the United States for 2011, 2012, and 2013. First, the GHGRP does not collect data on the production of HFC-23 that is used, for example, in very low temperature refrigeration, blast chillers, semiconductor etching, and as a fire suppression agent.

Second, as discussed above, the GHGRP data on the destruction of HFCs during 2011, 2012, and 2013 may be incomplete, because facilities that destroyed but that did not produce or import fluorinated GHGs were not required to report the quantities destroyed in those years.

⁴Subpart OO of the GHGRP covers neither production nor destruction of HFC-23.

⁵ EPA notes that the data presented in this NODA may differ from the data provided on the Agency's website. This is because (1) some reporters have provided updated data, and (2) the GHGRP website displays the net supply of "saturated HFCs, except HFC-23" which does not completely align with the list of regulated substances under the AIM Act. For purposes of this NODA, and its associated docket, EPA is presenting GHGRP data that may be relevant to future AIM Act regulatory actions.

EPA specifically encourages comment and submission of data on these potential data gaps and whether there are other gaps that the Agency has not considered.

B. Data Presented Related to HFC Consumption

The AIM Act defines consumption as “a quantity equal to the difference between (A) a quantity equal to the sum of- (i) the quantity of that regulated substance produced in the United States; and (ii) the quantity of the regulated substance imported into the United States; and (B) the quantity of the regulated substance exported from the United States.” In more general terms, the net supply of a substance to the United States, as that term is understood under the GHGRP, may be helpful in developing consumption baselines under the AIM Act.

Under the GHGRP, each importer and exporter of HFCs must submit an annual report that includes total mass in metric tons of each HFC imported and exported, including each HFC in a product that makes up more than 0.5 percent of the product by mass. Each importer of HFCs must also report the total mass sold or transferred for use in processes resulting in the transformation or destruction of the HFC. HFCs are also imported and exported in equipment such as pre-charged air conditioners or in foams. Subpart QQ of the GHGRP collects data on these imports and exports.

Thirty-eight companies have reported importing and nineteen companies have reported exporting HFCs to the GHGRP in the years 2011, 2012, and 2013. These companies are listed in Table 2. EPA requests comment on whether this is the complete listing of companies to have imported and exported HFCs in those years.

The data presented in Tables 3 and 4 are large-scale aggregations of data. Data aggregations not included in the tables are denoted with an asterisk. EPA intends to provide updated data in the docket for this NODA on February 8, 2021, after providing reporters time to review and respond to the aggregation notification.

Table 3: Net Supply of AIM-Listed HFCs (excluding HFC-23) Reported to GHGRP in Years 2011-2013 (Million Metric Tons CO₂e)

Reporting Year	Net Supply ^a	Production minus Destruction minus Transformation	Imports (98.416(c)(1))	Exports (98.416(d)(1))
2011	244	*	*	*
2012	235	*	*	*
2013	288	*	*	*

^a Net supply means Production minus Destruction minus Transformation plus Imports minus Exports. “Production,” “Transformation,” and “Destruction” are used as defined in the GHGRP. See 40 CFR 98.416(a)(1), 98.416(a)(3), (c)(8), and 98.416(c)(8), respectively.

Table 4: Imports of AIM-Listed HFCs Reported to GHGRP in Years 2011-2013 (Million Metric Tons CO₂e)				
Reporting Year	HFC-134a	HFC-125	HFC-32	All Other AIM-Listed HFCs, Excluding HFC-23
2011	16.7	*	*	*
2012	19.1	17.1	2.63	*
2013	17.3	31.3	5.33	*

EPA has also reviewed some of the publicly available import and export data that are available for purchase. EPA is not relying on such sources for this analysis. However, EPA is interested in understanding the extent to which trade data is publicly available. EPA encourages commenters to provide information concerning any additional publicly available data sources on imports of which they are aware.

Data Gaps

EPA has identified at least two possible data gaps with respect to HFC imports and exports into the United States for 2011, 2012, and 2013. First, companies that import or export less than 25,000 metric tons CO₂e of HFCs annually are not required to report to the GHGRP. Second, there appear to be companies that imported or exported more than 25,000 metric tons CO₂e of HFCs annually that have failed to report their imports or exports to the GHGRP. If these data gaps remain, it could adversely impact EPA’s awareness on the amount of historic HFC imports and exports and thus could affect the U.S. consumption baseline being established in future AIM Act regulatory processes. EPA specifically encourages submission of data and comments related to how to fill these data gaps and whether there are other gaps that the Agency has not identified.

C. Data Presented Related to Sectors Identified for AIM Act Mandatory Allocations

EPA is also seeking comment on documents in the docket related to the applications for which section (e)(4)(B)(iv) of the AIM Act directs the Administrator to allocate the full quantity of allowances necessary, based on projected, current, and historical trends. The docket to this NODA contains documents presenting data related to the following applications: 1) propellants in MDIs; 2) defense sprays; 3) structural composite preformed polyurethane foam for marine use and trailer use; 4) the etching of semiconductor material or wafers and the cleaning of CVD chambers within the semiconductor manufacturing sector; and 5) on board aerospace fire suppression. The descriptions below reflect EPA's current understanding of these applications, but EPA intends to further consider how to define these applications in its future proposal under the AIM Act.

- MDIs are handheld pressurized inhalation systems that deliver small, precisely measured therapeutic doses of medication directly to the airways of a patient, such as when a patient requires medication to relieve exacerbations of asthma. The pharmaceutical industry historically used CFCs as the propellant for MDIs before introducing HFC⁶ propellants, specifically HFC-134a and HFC-227ea, along with not-in-kind medical treatments.
- Defense sprays are aerosol sprays intended for self-defense, including pepper spray and animal deterrent sprays (e.g., bear and dog sprays). They contain a chemical irritant and a propellant. Defense sprays utilize four different delivery methods, including streaming, foam, fog, and vapor sprays. The defense spray industry historically used ozone-depleting substances, such as CFCs, as a propellant before transitioning to HFCs, specifically HFC-134a.
- Structural composite preformed polyurethane foam uses a process that fills a precast fabric into shape with expanding foam and provides reinforcement with fibers and resin to make composite materials in building equipment such as boats and on-road trailers.

⁶ HFC propellants used in MDIs are often referred to as HFAs (hydrofluoroalkanes).

The foam blowing agent used in this process historically was HCFC-22 and more recently has been HFC-134a.

- Semiconductor manufacturers utilize HFCs, primarily HFC-23, in two critical processes: to create intricate circuitry patterns on silicon wafers (dry etching) and to rapidly clean CVD chambers.
- For onboard aerospace fire suppression, EPA is providing information on HFCs used in onboard civil aviation fire suppression systems, including on mainline and regional passenger and freighter aircraft. These systems have historically used ozone-depleting halons, although HFCs, specifically HFC-236fa and HFC-227ea, are used in lavatory trash receptacle systems in new aircraft. EPA encourages comments specifically on other relevant onboard aerospace fire suppression applications that the Agency has not identified.

The reports in the docket describe EPA's current awareness of the use of HFCs and provide information on EPA's current knowledge on projected, current, and historical trends of HFC related to these statutorily identified applications. EPA requests comment on the data and analysis in these documents.

Hans Christopher Grundler,

Director, Office of Atmospheric Programs.

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