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ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 98

[EPA-HQ-OAR-2009-0927; FRL-9902-52-OAR]

RIN 2060-AR78

Greenhouse Gas Reporting Program: Amendments and Confidentiality Determinations for Fluorinated Gas Production

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The EPA is proposing to amend certain provisions of the Fluorinated Gas Production source category of the Greenhouse Gas Reporting Rule. The proposed changes would reduce the level of detail in which emissions were reported, establish a new set of default global warming potentials, eliminate the mass-balance emission calculation method, and clarify the emission factor method. We are also proposing confidentiality determinations for the new and substantially revised reporting requirements of the Fluorinated Gas Production source category.

DATES: Comments. Comments must be received on or before [INSERT DATE 60 DAYS AFTER PUBLICATION OF THIS PROPOSED RULE IN THE FEDERAL REGISTER].

Public Hearing. The EPA does not plan to conduct a public hearing unless requested. To request a hearing, please contact the person listed in the following **FOR FURTHER INFORMATION CONTACT** section by [INSERT DATE 7 DAYS AFTER DATE OF PUBLICATION OF THIS PROPOSED RULE IN THE FEDERAL REGISTER]. Upon such request, the EPA will hold the hearing on [INSERT DATE 15 DAYS AFTER DATE OF

PUBLICATION OF THIS PROPOSED RULE IN THE FEDERAL REGISTER], in the Washington, DC area. The EPA will provide further information about the hearing on the GHGRP Web site, http://www.epa.gov/climatechange/emissions/ghgrulemaking.html if a hearing is requested.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA-HQ-OAR-2009-0927, by one of the following methods:

- Federal eRulemaking Portal: http://www.regulations.gov. Follow the online instructions for submitting comments.
- Email: GHGReportingFGHG@epa.gov. Include Docket ID No. EPA-HQ-OAR-2009-0927 in the subject line of the message.
- Fax: (202) 566–9744.
- Mail: Environmental Protection Agency, EPA Docket Center (EPA/DC), Mailcode 2822T, Attention Docket ID No. EPA-HQ- OAR-2009-0927, 1200 Pennsylvania Avenue, NW., Washington, DC 20004.
- Hand/Courier Delivery: EPA Docket Center, Public Reading Room, William Jefferson Clinton (WJC) West Building, Room 3334, 1301 Constitution Avenue, NW., Washington, DC 20004. Such deliveries are only accepted during the Docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

Instructions: Direct your comments to Docket ID No. EPA–HQ– OAR-2009-0927, Amendments and Confidentiality Determinations for Fluorinated Gas Production. The EPA's policy is that all comments received will be included in the public docket without change and may be made available online at http://www.regulations.gov, including any personal information provided, unless the comment includes information claimed to be confidential business information (CBI) or other information whose disclosure is restricted by statute. Should you choose to submit information that you claim to be CBI in response to this notice, clearly mark the part or all of the comments that you claim to be CBI. For information that you claim to be CBI in a disk or CD-ROM that you mail to EPA, mark the outside of the disk or CD-ROM as CBI and then identify electronically within the disk or CD-ROM the specific information that is

claimed as CBI. In addition to one complete version of the comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 CFR Part 2. Send or deliver information claimed as CBI to only the mail or hand/courier delivery address listed above, attention: Docket ID No. EPA-HQ-OAR-2009-0927.

If you have any questions about CBI or the procedures for claiming CBI, please consult the person identified in the **FOR FURTHER INFORMATION CONTACT** section. Do not submit information that you consider to be CBI or otherwise protected through http://www.regulations.gov or email. The http://www.regulations.gov Web site is an "anonymous access" system, which means the EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an email comment directly to the EPA without going through http://www.regulations.gov your email address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, the EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD–ROM you submit. If the EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, the EPA may not be able to consider your comment. Electronic files should be free of special characters, any form of encryption, and any defects or viruses.

Docket: All documents in the docket are listed in the http://www.regulations.gov index. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted

material, will be publicly available only in hard copy. Publicly available docket materials are available either electronically in http://www.regulations.gov or in hard copy at the Air Docket, EPA/DC, WJC West Building, Room 3334, 1301 Constitution Ave. NW., Washington, DC. This Docket Facility is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the Air Docket is (202) 566–1742.

FOR FURTHER INFORMATION CONTACT: Carole Cook, Climate Change Division, Office of Atmospheric Programs (MC-6207J), Environmental Protection Agency, 1200 Pennsylvania Ave. NW., Washington, DC 20460; telephone number: (202) 343-9263; fax number: (202) 343-2342; email address: GHGReportingRule@epa.gov. For technical information, please go to the Greenhouse Gas Reporting Rule Program Web site at http://www.epa.gov/climatechange/emissions/ghgrulemaking.html. To submit a question, select Rule Help Center, followed by Contact Us. To obtain information about the public hearing or to register to speak at the hearing, please go to http://www.epa.gov/climatechange/emissions/ghgrulemaking.html. Alternatively, contact Carole Cook at 202–343–9263.

Worldwide Web (WWW). In addition to being available in the docket, an electronic copy of this proposal will also be available through the WWW. Following the Administrator's signature, a copy of this action will be posted on the EPA's Greenhouse Gas Reporting Program Web site at http://www.epa.gov/climatechange/emissions/ghgrulemaking.html.

SUPPLEMENTARY INFORMATION:

Regulated Entities. The Administrator determined that this action is subject to the provisions of Clean Air Act (CAA) section 307(d). See CAA section 307(d)(1)(V) (the

provisions of section 307(d) apply to "such other actions as the Administrator may determine"). These are proposed amendments to existing regulations. If finalized, these amended regulations would affect producers of fluorinated gases. Regulated categories and examples of affected entities include those listed in Table 1 of this preamble:

Table 1. Example of Affected Entities by Category

Category	NAICS	Examples of affected facilities
Fluorinated Gas Production	325120	Industrial gases manufacturing facilities.

Table 1 of this preamble is not intended to be exhaustive, but rather lists the types of facilities that the EPA is now aware could be potentially affected by the reporting requirements. Other types of facilities not listed in the table could also be subject to reporting requirements. To determine whether you are affected by this action, you should carefully examine the applicability criteria found in 40 CFR part 98, subpart A or the relevant criteria in subpart L. If you have questions regarding the applicability of this action to a particular facility, consult the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

Acronyms and Abbreviations**.** The following acronyms and abbreviations are used in this document.

CAA	Clean Air Act
CBI	confidential business information
CFC	chlorofluorocarbon
CFR	Code of Federal Regulations
CH_4	methane
CO_2	carbon dioxide
CO_2e	CO_2-equivalent
DE	destruction efficiency
EAR	Export Administration Regulations
EF	emission factor

e-GGRT	electronic-GHG Reporting Tool
EPA	U.S. Environmental Protection Agency
FR	Federal Register
GHG	greenhouse gas
GHGRP	Greenhouse Gas Reporting Program
GWP	global warming potential
HCFC	hydrochlorofluorocarbon
HFC	hydrofluorocarbon
HFE	hydrofluoroether
ITAR	International Traffic in Arms Regulations
IPCC	Intergovernmental Panel on Climate Change
kg	kilograms
LCD	liquid crystal display
MEMS	micro-electro-mechanical systems
$MtCO_2e$	metric tons carbon dioxide equivalent
N_2O	nitrous oxide
NAICS	North American Industry Classification System
NF_3	nitrogen trifluoride
NODA	notice of data availability
NTTAA	National Technology Transfer and Advancement Act
OMB	Office of Management and Budget
PFC	perfluorocarbon
RFA	Regulatory Flexibility Act
RY	reporting year
SAR	Second Assessment Report
SF_6	sulfur hexafluoride
U.S.	United States
UMRA	Unfunded Mandates Reform Act of 1995
UNFCCC	United Nations Framework Convention on Climate Change
WWW	Worldwide Web

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I. Background

A. How is this preamble organized?

The first section of this preamble contains background information regarding the Greenhouse Gas Reporting Program (GHGRP), an overview of the proposed amendments, and information on when the amendments would become effective, how this rule affects confidentiality determinations, and how this proposed rule relates to other GHG reporting notices. This section also discusses the EPA's use of our legal authority under the Clean Air Act to collect data under the Greenhouse Gas Reporting Rule, hereinafter referred to as the "GHG Reporting Rule" or "Part 98."

The second section of this preamble describes in detail the changes that are being proposed, presents the EPA's rationale for the proposed changes, and identifies issues on which the EPA is particularly interested in receiving public comments.

Finally, the third section of the preamble discusses the various statutory and executive order requirements applicable to this proposed rulemaking.

B. Background on the GHG Reporting Rule

The GHG Reporting Rule was published in the Federal Register on October 30, 2009 (74 FR 56260). Part 98 became effective on December 29, 2009, and requires reporting of GHGs from certain facilities and suppliers. A subsequent notice finalizing reporting requirements for Fluorinated Gas Production was published on December 1, 2010 (75 FR 74774). (The final rule published on December 1, 2010 is hereinafter referred to as the "2010 Final Rule").

C. Legal Authority

The EPA is proposing these rule amendments under its existing CAA authority provided in CAA section 114. As stated in the preamble to the 2009 final rule (74 FR 56260, October 30, 2009), CAA section 114 provides the EPA broad authority to require the information proposed to

be gathered by this rule because such data would inform and are relevant to the EPA's carrying out a wide variety of CAA provisions.

In addition, the EPA is proposing confidentiality determinations under its authorities provided in sections 114, 301, and 307 of the CAA for the proposed new or substantially revised data elements that would be reported under this proposed rule. As mentioned above, CAA section 114 provides the EPA authority to obtain the information in Part 98. Section 114(c) requires that EPA make publicly available information obtained under section 114 except for information which is not emission data and which qualifies for confidential treatment. The Administrator has determined that this action (proposed amendments and confidentiality determinations) is subject to the provisions of section 307(d) of the CAA.

D. Summary of Proposed Amendments.

The EPA is proposing to amend certain provisions of the Greenhouse Gas Reporting Rule that affect fluorinated gas production facilities. The proposed amendments include the following changes:

- Revision of the reporting requirements to allow more aggregated reporting to address potential disclosure concerns (see Section II.A.1 of this preamble).
- Proposal of a revised set of default global warming potentials (GWPs) for fluorinated greenhouse gases (fluorinated GHGs).
- Removal of the option to use the mass-balance approach.
- Clarification of the emission factor approach.
- Various technical corrections.

E. When would these amendments apply?

These amendments would apply to reporting under 40 CFR part 98, subpart L (subpart L) that occurs in calendar year 2015 and subsequent years. This would include reporting of information for reporting year 2014 and subsequent reporting years. It would also include

reporting of certain information for reporting years 2011 and 2012, and to reporting of that information for reporting year 2013. We previously deferred the former under the rule titled "2012 Technical Corrections, Clarifying and Other Amendments to the Greenhouse Gas Reporting Rule, and Confidentiality Determinations for Certain Data Elements of the Fluorinated Gas Source Category" (77 FR 51477; August 24, 2012). We proposed to defer the latter under the rule titled, "2013 Revisions to the Greenhouse Gas Reporting Rule and Proposed Confidentiality Determinations for New or Substantially Revised Data Elements" (hereinafter referred to as the Proposed 2013 Revisions Rule; 78 FR 19802; April 2, 2013).

F. How would these amendments affect confidentiality determinations?

In this notice, we are proposing confidentiality determinations for proposed new or substantially revised subpart L data elements. The EPA has previously proposed confidentiality determinations for subpart L data elements (77 FR 1434, January 10, 2012), which did not cover the new or substantially revised data elements that the EPA is proposing in the present action. The proposed confidentiality determinations for these data elements together with our rationale are discussed in detail in Section II.D of this preamble. In addition, the proposed amendments would delete certain existing subpart L reporting requirements, while continuing to require that records be kept of these elements. Should the EPA finalize the deletion of these data elements, the EPA will not take final action on the previously proposed confidentiality determinations for the deleted data elements.

G. How does this proposed rule relate to the proposed rule titled, "Revisions to Reporting and Recordkeeping Requirements, and Proposed Confidentiality Determinations under the Greenhouse Gas Reporting Program?"

On September 11, 2013, the EPA proposed a rule titled, "Revisions to Reporting and Recordkeeping Requirements, and Proposed Confidentiality Determinations under the Greenhouse Gas Reporting Program" (78 FR 55994; hereinafter referred to as the proposed Inputs rule). In that proposed rule, the EPA proposed to add a requirement for certain reporters under 24 subparts, including subpart L, to use an EPA-provided inputs verification tool. For these subparts, the designated inputs to emission equations for which reporting was deferred to 2015 and disclosure concerns have been identified would be entered into the inputs verification tool. In addition, these inputs would be kept by the facilities as records for five years.

Both the proposed Inputs rule and this proposed rule are proposing changes to the subpart L reporting requirements. A redline/strikeout version of the subpart L regulatory text that reflects both sets of proposed changes is available in the docket for this rulemaking. While both sets of changes are intended to address disclosure concerns, the reporting elements that are proposed to be amended generally differ. The proposed Inputs rule would amend and/or remove a number of reporting elements that are inputs to emission equations. This proposed rule would amend and/or remove other reporting requirements. In some cases, the two proposed rules are proposing changes to the same provisions, e.g., because those provisions contain several data elements, some of which are inputs, and some of which are not. For example, the proposed Inputs rule is proposing to remove the data element "mass" from 40 CFR 98.126(b)(6) through (b)(8). This rule is proposing to remove these paragraphs altogether, because the remaining data elements (chemical formulas of reactants, products, and by-products) are no longer useful without the corresponding masses. (The rationale for these and the other proposed amendments to the subpart L reporting requirements is discussed in Section II.A.3 of this preamble.)

II. Proposed Amendments

A. Proposed Amendments to the Subpart L Reporting Requirements

1. Background of Proposed Amendments to Subpart L Reporting Requirements

On January 10, 2012, the EPA published proposed determinations regarding whether the Greenhouse Gas Reporting Program data elements in eight subparts of Part 98, including subpart L, would or would not be entitled to confidential treatment under the CAA (77 FR 1434). In that proposed rule, the EPA proposed that the chemical identities and quantities of the fluorinated GHG emissions at the process level, reported under subpart L, are "emission data." Under section 114(c) of the CAA, "emission data" are not eligible for confidential treatment and must be made publicly available.

The EPA received two comments on that proposed rule related to subpart L. These commenters, the American Chemistry Council and 3M Company, raised concerns that the release of certain data elements that the EPA proposed to classify as emission data (and that therefore would not be eligible for treatment as confidential business information), would reveal "trade secrets." Both commenters stated that the disclosure of the identity and quantities of the fluorinated GHGs emitted at the process level, from either process vents or fugitive sources, would reveal "trade secrets" regarding individual chemical production processes. 3M stated that process-level emission data provides specific information on reactants, by-products, and products that would provide competitors with a detailed understanding of 3M's manufacturing process. They noted that competitors with knowledge of fluorine chemistry could use such information to identify the particular manufacturing pathways used by 3M. They asserted that competitors could then duplicate these processes without having to incur research and development costs, putting 3M at a "competitive [dis]advantage."

The American Chemistry Council and 3M Company also expressed concern that the disclosure of the identity and quantity of emissions at the process level could violate export control regulations. Specifically, the commenters stated that the release of some data elements would make available to the public information that is subject to Export Administration Regulations (EAR) and International Traffic in Arms Regulations (ITAR) that prohibit public disclosure for reasons of "national security, anti-terrorism, nuclear non-proliferation, and chemical and biological weapons security." The commenters stated that the EAR and ITAR control not only export of products, but also export of technical knowledge, such as the design of a product and production information, and that the release of process-level emission data may provide such insight into the design of a product or production information that is export-controlled. The commenters stated that if the EPA attempted to protect export-controlled information from disclosure by implementing "an export control plan," this would be in conflict with EPA's position that emission data cannot be withheld from the public under the CAA.

Following receipt of the public comments on the proposed CBI determinations, the EPA proposed and promulgated temporary, less detailed reporting requirements for reporting years 2011 and 2012 (77 FR 51477, August 24, 2012).[1] This was intended to allow the EPA additional time to evaluate the concerns raised by the commenters and to consider how the rule might be changed to balance these concerns with the EPA's need to obtain the data necessary to inform the development of future GHG policies and programs. The EPA presented several reporting options, along with some of their advantages and disadvantages, in a memorandum ("Potential Future Subpart L Options") that was placed in the docket to that rulemaking when the temporary reporting requirements were proposed (EPA–HQ–OAR–2011-0147). The options presented in

[1] The EPA subsequently proposed to extend the temporary provisions through reporting year 2013 under the Proposed 2013 Revisions Rule.

the memorandum were based on reporting emissions at varying levels of aggregation for both the source of the emissions (ranging from reporting by process and by emission type to reporting at the facility level) and the chemicals emitted (ranging from reporting by speciated fluorinated GHG to reporting in CO2e).

The EPA received two written comments on the alternatives presented in the memorandum. In addition, the EPA discussed alternative reporting options with fluorinated gas producers and other stakeholders. These comments and discussions are summarized further in the "Rationale" Section II.A.3 of this preamble.

2. Summary of Proposed Amendments to Subpart L Reporting Requirements

Following review of the comments submitted on the proposed confidentiality determinations (77 FR 1434, January 10, 2012) and the memorandum entitled "Potential Future Subpart L Options," and considering discussions with stakeholders, the EPA is proposing to permanently amend the subpart L reporting requirements to require reporting at a less aggregated level beginning in calendar year 2015. Specifically, we are proposing to require owners and operators of facilities producing fluorinated gases to report (1) emissions by fluorinated GHG group (chemical type) at the process level for each generically defined production or transformation process, and (2) emissions by chemical at the facility level for certain fluorinated GHG emissions.

Fluorinated GHG emissions would be reported by chemical at the facility level when (a) the fluorinated GHG was emitted in quantities above 1,000 mtCO2e and the facility produced more than one fluorinated gas product,[2] or (b) for facilities that produced only one fluorinated gas product, the fluorinated GHG emitted was a major fluorinated GHG constituent of a

[2] We are proposing to define fluorinated gas product as the product of the process, including isolated intermediates.

fluorinated gas product and the fluorinated gas product was sold or otherwise transferred to another person. (Other fluorinated GHG emissions at the facility level would be reported by chemical type.) Where the emission factor or emission calculation factor approaches are used, facilities would be required to further disaggregate process emissions by emission type, i.e., into vented vs. leaked emissions.

These changes would apply only to emissions from production and transformation processes; emissions from venting of container heels and destruction of previously produced fluorinated GHGs would be reported by chemical and by process as required by the 2010 Final Rule.

In addition to the changes above, we are proposing to replace the requirements to report process-specific emission factors, activity data, and destruction efficiencies with a requirement to identify, as a range, the level by which the emissions of each process are reduced or controlled, e.g., by destruction devices. We are also proposing to remove the requirement that facilities report the following data elements: the contents, locations, and functions of the streams analyzed under the scoping speciation (40 CFR 98.126(a)(3) and (a)(4)). In addition, we are proposing to revise the set of default GWPs used to calculate and report CO_2e emissions under subpart L. We are also proposing to amend several provisions of subpart A to be consistent with the revised subpart L reporting requirements for purposes of reporting emissions monitored under subpart L.

As discussed in Section II.A.7 of this preamble, all of these changes would apply to (previously deferred) reporting for Reporting Years 2011, 2012, and 2013, as well as to reporting in future years. The amendments would not change other requirements of Part 98, including the requirement under 40 CFR 98.3(g) that data used to calculate GHG emissions for each process be retained as records.

The EPA is also proposing to remove the option to use a mass-balance approach from the calculation and monitoring requirements of the rule. No facilities are currently using this approach. With this change, facilities would still be able to use the emission factor and emission calculation factor approaches to monitor, calculate, and report their fluorinated GHG emissions.

3. Rationale

As discussed above in Section II.A.1 of this preamble, certain subpart L reporters have raised concerns regarding reporting and potential disclosure of "trade secrets" and "business sensitive information." We believe that these reporters have raised legitimate concerns regarding the potential disclosure of this information and the possible consequences to the reporting businesses. Based on our evaluation of these concerns and potential reporting alternatives, we are proposing amendments to subpart L that would address these concerns while continuing to collect the data necessary to inform the development of future GHG policies and programs. To enable the EPA to evaluate future GHG policies and programs, reporting should allow the EPA to understand the magnitudes and growth rates of emissions of different chemicals from different sources and to identify and analyze potential approaches to reducing emissions of these chemicals from these sources. In addition, reporting should enable the EPA to verify reported emissions. The proposed amendment would continue to meet these objectives, while at the same time addressing the potential disclosure concerns discussed above.

The EPA has considered a range of reporting options including varying levels of aggregation for the source of the emissions and for the fluorinated GHGs (chemicals) emitted. The levels of aggregation considered for the emission source included reporting by process and emissions type, by process type and subtype, and by facility. The levels of aggregation considered for the fluorinated GHGs included reporting by speciated fluorinated GHG, by

fluorinated GHG group, or in terms of total CO_2e only. In addition, the EPA considered implementing various combinations of these options.

As discussed further in Sections II.A.3.a and II.A.3.b of this preamble, both process-specific and chemical-specific reporting are important to understanding sources of emissions and assessing approaches to reduce emissions. Process-specific emissions information allows the EPA to identify processes with high potential for emission reductions as well as measures to achieve those reductions.[3] Chemical-specific information allows the EPA, as well as the public and the international community, to better understand the atmospheric impacts of U.S. emissions, to compare U.S. emissions to atmospheric measurements and, if inconsistencies between emissions and atmospheric measurements are found, to better understand the magnitudes and causes of those inconsistencies.

In their comments on the proposed confidentiality determinations and in subsequent communications, fluorinated gas producers have repeatedly stated that reporting, and subsequent disclosure, of chemical-specific emissions at the process level would provide insight into manufacturing methods that would enable competitors to gain a competitive advantage. After careful consideration of these comments, the EPA agrees with the fluorinated gas producers' assertion that chemical-specific, process-specific emissions may in some cases provide a detailed chemical "fingerprint" of a process that could enable competitors to deduce how that process works to produce a particular product. One producer (3M) explained that, for example, a competitor with expertise in fluorine chemistry may be able to analyze speciated emissions and

[3] In the rule finalizing Part 98, the EPA cited the following benefits of process-specific reporting, among others: "Process-level reporting also provides information that will be useful in identifying processes that have reduced emissions over time and processes at specific plants that have the most potential for future reductions in emissions. In addition, the process-level reporting may provide information that can be used to improve methodologies for specific processes under future programs and to identify processes that may use a technology that could be the basis for an emission standard at a later time" (74 FR 56311, October 30, 2009).

identify reactants, by-products, intermediates, and products. By examining the ratios of these emissions, the competitor may be able to deduce process conditions (e.g., reaction temperatures or whether or not a catalyst was used) based on publicly available equilibrium constant data.

To address this concern while continuing to meet the objectives of the GHG Reporting Rule, the EPA is proposing to replace the current reporting of chemical-specific emissions at the process level with a reporting requirement that combines two levels of reporting. The proposed two-level reporting, which is discussed in more detail below, would avoid the potential disclosure concerns discussed above while retaining reporting of important information on emissions at both the process and chemical levels.

We believe that this proposal, by addressing the business-related concerns raised by commenters, would also address the concerns they raised regarding export control requirements. We request comment on whether or not this is the case.

a. Reporting by generically identified process, emission type, and fluorinated GHG group

The first level of proposed reporting is reporting of emissions by generically identified process (as discussed below), emission type (i.e., vents vs. leaks), and fluorinated GHG group. While such reporting would provide less detail than the 2010 Final Rule on the chemicals emitted, the product of each process, and emissions from individual process vents, it would preserve key data to inform the development of GHG policies and programs. First, such reporting would enable the EPA to identify processes and emission types with high or quickly changing emissions. As stated in the 2009 Final Rule (74 FR 56311), identifying such processes is important because they may have the most potential for future reductions. Second, reporting by process, emission type, and fluorinated GHG group would help the EPA to identify and analyze reduction options. This is because reduction options are implemented at the process level

and for specific emission types. Finally, process-level reporting is helpful for verifying emissions because it can allow comparison of emission rates among similar processes and because it can facilitate duplication of emissions calculations, which are performed at the process level.

Because the EPA agrees with commenters' concern that reporting the product of each process could lead to the disclosure of the identity of intermediates, and that such disclosure could in turn reveal information on how certain products are made, the EPA is proposing to identify processes generically rather than by the product of the process.[4] This identification would include three pieces of information for each process. First, the reporter would identify the process as a production process, a transformation process where no fluorinated GHG reactant is produced at another facility, or a transformation process where one or more fluorinated GHG reactants are produced at another facility. Second, within these categories, the reporter would further identify the process as a reaction, distillation, or packaging process, or as a combination of these. Third, the reporter would tag the process with an identifier chosen by the facility (e.g., a letter or number) that would remain constant from year to year to permit year-to-year comparisons of emissions from that process.

This method for identifying each process would supply useful information on the nature of the process without actually identifying the product of the process. For example, reporting the process type would enable the EPA to ascertain whether and how emission levels may vary across process types and thereby enable us to identify particular process types as having more potential for reductions. It would also permit the tracking of emissions from the same process from year to year. Moreover, it is generally consistent with the definition of "process" in subpart

[4] For example, if the product of the process were emitted, as is frequently the case, its identity might be considered emissions data. This could lead to disclosure of its identity where the product was an intermediate whose identity would otherwise remain unknown to competitors.

L.[5] That definition includes "any, all, or a combination of reaction, recovery, separation, purification, or other activity, operation, manufacture, or treatment which are used to produce a fluorinated gas product." Because the term "distillation" may encompass recovery, separation, and purification, the EPA's preference is not to create separate classifications for recovery, separation, and purification. However, the EPA requests comment on whether the proposed classifications are sufficiently clear and comprehensive, or whether they should be expanded.

One drawback of generically identifying processes is that this approach would not allow the EPA to compare processes making the same product (including intermediates) across different facilities. While some products are produced at only one facility, several are produced at multiple facilities. The EPA believes that the proposed amendment is nevertheless appropriate despite this drawback, because the information that can be obtained by comparisons of types of processes across different facilities remains useful for the purposes of the GHGRP. Nevertheless, the EPA requests comment on alternative identification strategies that would avoid this drawback.

The EPA is proposing to establish five chemical types or groups into which facilities would sort emissions for reporting at the process level. These groups are based primarily on chemical structure, which is correlated with atmospheric lifetime and GWP. Each group possesses a significantly different set of GWPs. The EPA believes that using these groups for reporting would avoid the potential disclosure concerns discussed above while still providing

[5] The definition of "process" in subpart L reads in part, "Process means all equipment that collectively functions to produce a fluorinated gas product, including an isolated intermediate (which is also a fluorinated gas product), or to transform a fluorinated gas product. A process may consist of one or more unit operations. For the purposes of this subpart, process includes any, all, or a combination of reaction, recovery, separation, purification, or other activity, operation, manufacture, or treatment which are used to produce a fluorinated gas product."

useful data that could inform technical and policy analysis. The groups are the same as those that we are proposing as the basis for default GWPs and include the following:

Fully fluorinated GHGs. This group would be defined as it currently is in the temporary subpart L reporting provisions. Fully fluorinated GHGs are fluorinated GHGs that contain only single bonds and in which all available valence locations are filled by fluorine atoms. This group includes but is not limited to saturated perfluorocarbons, SF_6, NF_3, SF_5CF_3, fully fluorinated linear, branched and cyclic alkanes, fully fluorinated ethers, fully fluorinated tertiary amines, fully fluorinated aminoethers, and perfluoropolyethers. Fully fluorinated GHGs have lifetimes of over 500 to several thousand years and GWPs of 6,290 to 22,800.

Saturated hydrofluorocarbons. This group would include hydrofluorocarbons (HFCs) that contain only single bonds (i.e., hydrofluoroalkanes such as HFC-134a). Saturated HFCs generally have atmospheric lifetimes from 1 to 55 years and GWPs from 100 to 5,000, though there are exceptions at both extremes. The average GWP of saturated HFCs is approximately 2,200, based on GWPs in AR4 and in the article "Global Warming Potentials and Radiative Efficiencies of Halocarbons and Related Compounds: A Comprehensive Review (hereinafter referred to as the "Comprehensive Review"[6]). Because the range of lifetimes and GWPs spanned by the saturated HFCs is quite large, we are also considering the option of breaking saturated HFCs into two sets based on atmospheric lifetime. Saturated HFCs have lifetimes from 0.3 years to 270 years and GWPs from 12 to 14,800. Breaking the saturated HFCs out into two sets would reduce these ranges considerably and would thereby provide more precise information regarding the atmospheric behavior of each group. For example, the average GWP

[6] Hodnebrog, Ø., M. Etminan, J. S. Fuglestvedt, G. Marston, G. Myhre, C. J. Nielsen, K. P. Shine, and T. J. Wallington, "Global Warming Potentials and Radiative Efficiencies of Halocarbons and Related Compounds: A Comprehensive Review," Reviews of Geophysics, Accepted manuscript online: 24 APR 2013. This article is discussed in more detail in Section II.A.4 of this preamble.

of the saturated HFCs with atmospheric lifetimes above 20 years is approximately 5,700, while the average GWP of the saturated HFCs with atmospheric lifetimes below 20 years is approximately 600. Moreover, information on the atmospheric lifetimes of emissions helps to inform policies that distinguish among chemicals based on their atmospheric lifetimes and GWPs.[7] However, one drawback of breaking out saturated HFCs by atmospheric lifetime is that it requires reporters to know the atmospheric lifetimes of the HFCs being reported as part of each saturated HFC group. While EPA could include this information in Table A-1 for the HFCs that are already on Table A-1, this information is not likely to be available for many HFCs that are not on Table A-1. Another drawback of breaking out saturated HFCs by atmospheric lifetime is that it would disaggregate reporting further than the proposed approach, potentially leading to disclosure concerns where process-specific reporting overlaps with facility-wide reporting. (This overlap is discussed in more detail in Section II.A.3.b. of this preamble.) To some extent, this concern could be mitigated by grouping saturated HFCs with lifetimes greater than or equal to 20 years with saturated HFEs with lifetimes greater than or equal to 20 years, and by creating a similar grouping for saturated HFCs and saturated HFEs with atmospheric lifetimes of less than 20 years. The EPA requests comment on the option of breaking out saturated HFCs by atmospheric lifetime for purposes of reporting emissions by fluorinated GHG group.

Saturated hydrofluoroethers. This group would include hydrofluoroethers (HFEs) that contain only single bonds (i.e., hydrofluoroethers such as HFE-134). Saturated HFCs generally have atmospheric lifetimes from several months to 30 years and GWPs from 100 to 5,000, although, as for saturated HFCs, there are exceptions at both extremes. The average GWP of saturated HFCs is approximately 1,600 (based on AR4 and Comprehensive Review GWPs). As

[7] For example, the Climate and Clean Air coalition to Reduce Short-Lived Climate Pollutants Initiative primarily focuses on chemicals with atmospheric lifetimes of less than 50 years.

is the case for HFCs, the range of atmospheric lifetimes and GWPs spanned by the saturated HFEs is quite large, and breaking these HFEs into two sets based on atmospheric lifetime would provide more precise information regarding the atmospheric behavior of each group. For example, the average GWP of the saturated HFEs with atmospheric lifetimes above 20 years is approximately 5,700, while the average GWP of the saturated HFCs with atmospheric lifetimes below 20 years is approximately 600. However, there are drawbacks associated with breaking the saturated HFEs into two groups that are similar to the drawbacks cited above for breaking the saturated HFCs into two groups. The EPA requests comment on the option of breaking the saturated HFEs into two groups based on atmospheric lifetime.

Unsaturated PFCs, unsaturated HFCs, unsaturated HCFCs, unsaturated HFEs, and fluorinated ketones. This group would include very short-lived compounds including unsaturated PFCs (e.g., hexafluoropropylene and tetrafluoroethylene), unsaturated HFCs (e.g., HFC-1234yf and perfluorobutyl ethene), unsaturated HCFCs, unsaturated HFEs (e.g., fluoroxene), and fluorinated ketones. According to the Comprehensive Review, these GHGs have lifetimes of a few days to weeks. The average GWPs of unsaturated PFCs, unsaturated HFCs, unsaturated HFEs, and fluorinated ketones are approximately 0.4, 0.3, 0.2, and 0.1 respectively. Most individual chemicals of these types have GWPs of less than one.

The EPA considered including fluorinated acetates and fluorinated formates in this group. However, the fluorinated acetates whose atmospheric lifetimes and GWPs have been studied often have lifetimes of months rather than days and GWPs in the 10s, significantly different from those of the compounds that would be included in this group. Fluorinated formates have still larger atmospheric lifetimes and GWPs. Thus, the EPA is proposing to include fluorinated acetates and fluorinated formates in the "other fluorinated GHG" group discussed below.

While multiple studies have indicated that unsaturated HFCs have short atmospheric lifetimes and low GWPs, fewer studies have been performed on unsaturated HCFCs, unsaturated HFEs and fluorinated ketones. Thus, the lifetimes and GWPs of unsaturated HCFCs, unsaturated HFEs, and fluorinated ketones are less certain. The EPA requests comment on the likely variability of the lifetimes and GWPs of unsaturated HCFCs, unsaturated HFEs and fluorinated ketones and on whether or not these compounds should be included in the very-short-lived group or in the "Other fluorinated GHG" group, discussed below.

Other fluorinated GHGs. This group includes the fluorinated GHGs that do not fall into any of the four sets defined above. To ensure that the gas groups are both distinct (i.e., do not overlap) and comprehensive (i.e., cover all fluorinated GHGs), this gas group is a catch-all. Based on the list of compounds and GWPs included in the Comprehensive Review, the EPA's understanding is that this group would consist of fluorinated acetates, fluorinated formates, carbonofluoridates, and fluorinated alcohols with lifetimes ranging from a few weeks to a few years and GWPs ranging from less than five to the hundreds. The EPA requests comment on which chemicals would fall into this group and on their atmospheric lifetimes and GWPs. The EPA also requests comment on whether this group should be combined with the group of very short-lived compounds discussed above (Unsaturated PFCs, unsaturated HFCs, unsaturated HCFCs, unsaturated HFEs, and fluorinated ketones). Keeping the groups separate allows for a more precise assessment of each group's atmospheric impacts, particularly since the "other" group, due to its necessarily open-ended definition, could eventually include fluorinated GHGs with relatively long lifetimes and high GWPs. Keeping the groups separate would also be consistent with the approach proposed for setting default GWPs, discussed further below.

However, if the number of GHGs in both groups is small, combining the groups would both simplify reporting and reduce potential disclosure concerns.

The advantage of requiring reporting by these fluorinated GHG groups is that it would address the disclosure concerns described above by avoiding the disclosure of the identities of the individual species that are emitted from production and transformation processes while still providing general information on the GWPs and atmospheric lifetimes of the emissions. General knowledge of the GWPs of the chemicals emitted is critical for distinguishing between processes emitting many tons of a low-GWP chemical and processes emitting a few tons (or kilograms) of a high-GWP chemical. While the CO_2-equivalent emissions of both processes may be the same, appropriate emission reduction strategies, and their cost effectiveness, may differ. As noted above, general information on the atmospheric lifetimes of emissions also helps to inform policies that focus on either short- or long-lived chemicals. Grouping by chemical structure is also consistent with current international conventions that address chemicals with impacts on the global atmosphere (e.g., UNFCCC, Montreal Protocol). Commenters supported the establishment of fluorinated GHG groups similar to those above.

In comments on the Options Memorandum, 3M expressed concern that reporting of emissions by generically identified process, emission type, and fluorinated GHG group could still disclose "trade secret information." 3M was specifically concerned that such reporting could reveal the number and types of process steps associated with a product when a facility made only one product or when a facility added a product between one year and the next. In the former case, the commenter stated that a competitor could determine production throughput based on the CO2e information that is reported under subpart OO. In the latter case, 3M argued that competitors could deduce the number of process steps associated with the new product or with

manufacturing improvements by comparing reports between one year and the next. The commenter further stated that similar comparisons of data reported under subpart OO would yield information on the new product volume. Where manufacturing improvements changed the number of processes, 3M maintained that competitors could use this information to understand how the facility had changed its overall manufacturing process.

While the EPA takes these concerns very seriously, some of the commenter's concerns appear to stem from competitors' potential use of the subpart L data in combination with production volumes reported under subpart OO. Production volumes reported under subpart OO have been determined to be CBI[8] and therefore will not be publicly released by the EPA. In the absence of chemical-specific reporting or any identification of the product of each process, the EPA believes that the number of process steps, assuming this could be deduced from reporting, could not by itself reveal detailed information on manufacturing techniques. Moreover, where a facility produced multiple fluorinated gas products, changes in the number of processes reported from one year to the next could be caused either by the introduction of new products or by changes to the manufacturing techniques used to make current products, as pointed out by the commenter. The identity and number of products whose manufacturing techniques might have changed would remain unknown. Thus, the link between the changed number of process steps and any particular new product or improvement would be uncertain at best. The EPA requests comment on this issue, particularly on why or how the disclosure of the number of process steps would raise a concern (in the absence of data reported under subpart OO by product and facility, which will not be publicly released). Information that would be helpful to the Agency includes the specific information identified on page 81368 in the Call for Information: Information on

[8] 76 FR 30782; May 26, 2011.

Inputs to Emission Equations Under the Mandatory Reporting of Greenhouse Gases Rule (75 FR 81366, December 27, 2010).

If the concern regarding the number of process steps relates to the characterization of each process as a reaction, distillation, or packaging process, one option would be to drop this characterization and to identify the process only as a production process, a transformation process where no fluorinated GHG reactant is produced at another facility, or a transformation process where one or more fluorinated GHG reactants are produced at another facility. The process would still be tagged with a letter or number that could be used to identify it from year to year. One disadvantage of this approach is that it would not show whether or how emission levels varied by process subtype. It would, however, still provide information on how emission levels varied by process type. Going further, the identification of the process as a production process or as one of the two types of transformation processes could also be dropped. However, if facilities did not identify emissions that come from transformation processes that transform fluorinated GHGs produced at other facilities, we would lose our ability to distinguish between these "downstream" emissions and the "upstream" emissions that result from the production and transformation of fluorinated gases produced on site. This would interfere with our ability to analyze the impacts of upstream vs. downstream policies. Nevertheless, we would retain critical information on the magnitudes and trends of emissions from each process. We request comment on these options.

In the event that disclosing the number of process steps is demonstrated to be a concern even if processes are identified only by a letter or a number, the EPA is requesting comment on the option of requiring facilities to report total emissions, by fluorinated GHG group, only for each emission type (i.e., reporting facility-level emissions by fluorinated GHG group,

distinguishing between vented and leaked emissions). This approach would maintain information on emissions type, but would not allow the EPA to identify processes with high or quickly changing emissions or to analyze reduction options. The EPA requests comment on this approach, particularly on whether any reduction in the sensitivity of the data that would be reported under it would justify the loss of the process-specific data that would be reported under the first option.

b. Reporting by Chemical at the Facility Level for Fluorinated GHGs with Emissions Above a Threshold.

The second part of the proposed approach, reporting by chemical at the facility level, would supplement the process-specific reporting discussed above with chemical-specific reporting of fluorinated GHGs emitted from fluorinated gas production in quantities above a certain threshold. As explained in more detail below, the EPA is proposing a threshold of 1,000 mtCO2e but is seeking comment on other options. In general, reporting of emissions under the GHGRP is chemical-specific. For Part 98 generally, information on the identities and characteristics of GHGs is important for assessing their impacts on the atmosphere and informing policies that distinguish among chemicals based on their atmospheric lifetimes and GWPs.

For subpart L, information on the identities and characteristics of GHGs is particularly important. First, the range of GWPs and atmospheric lifetimes spanned by the fluorinated GHGs is large. Lifetimes range from a few days (e.g., for several unsaturated fluorocarbons) to thousands of years (e.g., for saturated perfluorocarbons), while GWPs range from less than one (e.g., for several unsaturated fluorocarbons) to above 20,000 (e.g., for SF_6). Often, the same fluorinated gas production facility may emit fluorinated GHGs at both ends of the GWP and

lifetime ranges. Knowledge of the lifetimes of the chemicals is key to understanding how emissions from different processes would fit into policies that focus particularly on short-lived or long-lived GHGs.

Second, chemical-specific reporting at the facility level would provide a useful check on the CO_2e emissions reported at the process or process type level. Under today's proposed rule, facilities would report process-level emissions in CO_2e only, introducing the possibility of errors in the assignment of GWPs (either arithmetic or in the choice of the GWP). Chemical-specific reporting at the facility level would allow the EPA to apply the appropriate GWP to each chemical and verify that the CO_2e summed across chemicals matched the CO_2e summed across processes.

Third, fluorinated gas producers are a significant source for many fluorinated GHGs, and for some fluorinated GHGs, they are the only source. This makes them especially important in efforts to verify national and global emissions using atmospheric measurements. (Most fluorinated GHGs lack significant natural sources.)

Finally, chemical-specific reporting is consistent with GHG Inventory reporting under the United Nations Framework Convention on Climate Change (UNFCCC), which encourages chemical-specific reporting. Under the UNFCCC, other countries report chemical-specific emissions from comparable fluorinated gas production facilities. For example, in 2013 and previous years, Belgium's GHG inventory reported emissions from "an electrochemical synthesis (electro-fluorination) plant, which emits, or has emitted SF_6, CF_4, C_2F_6, C_3F_8, C_4F_{10}, C_5F_{12} and C_6F_{14} as well as fluorinated greenhouse gases not covered by the Kyoto Protocol (among which CF_3SF_5, C_7F_{16}, C_8F_{18} and $C_8F_{16}O$)."[9] From this plant, Belgium reported 2011

[9] Belgium's Greenhouse Gas Inventory (1990-2011): National Inventory Report submitted under the United Nations Framework Convention on Climate Change and the Kyoto Protocol, p. 122, and Table

emissions of CF_4, C_4F_{10}, C_5F_{12}, and C_6F_{14} in tons of each gas. France and Italy have also reported chemical-specific emissions from their fluorinated gas production facilities.

In comments on the Options Memorandum and in discussions with the EPA, fluorinated gas producers stated that even at the facility level, chemical-specific reporting could disclose "trade secret . . . information." Several producers cited the (relatively rare) case in which a fluorinated gas production facility produces only one final product, in which case facility-level information may be the same as process-specific information. One producer, 3M, noted that even for facilities producing multiple products, chemical-specific reporting at the facility level could provide information to competitors on process inputs since some of the chemicals could be unique and obviously attributable to a specific product.

On the other hand, 3M observed that for some facilities and under some reporting approaches, it was possible that chemical-specific reporting of certain chemicals would not be a concern. 3M pointed to Belgium's reporting of emissions from its electrochemical synthesis plant as an example. 3M observed that the plant reports chemical-specific emissions for certain fluorinated GHGs, including those covered by the Kyoto Protocol and the Intergovernmental Panel on Climate Change (IPCC).[10] However, the plant reports emissions of other fluorinated GHGs in aggregate as a separate group. (3M also stated that Belgium aggregates emissions from more than one fluorinated gas producer in its GHG inventory, although this is inconsistent with Belgium's description of the emissions in its National Inventory Report.)

2(II)s2, Common Reporting Format (CRF) Tables submitted by Belgium, April 2013. See http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/7383.php

[10] 3M may have meant the UNFCCC, which covers HFCs, PFCs, and SF6 but not other fluorocarbons.

While the EPA believes that reporting of chemical-specific emissions at the facility level would in most cases address the potential disclosure concerns described above associated with reporting of chemical-specific emissions at the process level, the EPA finds it plausible that in some cases, individual reporting of the full suite of emitted fluorinated GHGs at the facility level could disclose detailed process information. To address disclosure concerns associated with reporting all emissions by chemical while retaining information on fluorinated GHGs that are emitted in significant quantities, the EPA is proposing that facilities be required to report emissions of a fluorinated GHG by chemical when emissions of that fluorinated GHG exceed 1,000 mtCO2e for the facility as a whole. Emissions of fluorinated GHGs that do not exceed 1,000 mtCO2e would be reported by fluorinated GHG group at the facility level. This would reduce the number of speciated fluorinated GHGs that would be identified and would therefore reduce the chemical-specific information potentially available to competitors. During discussions between EPA and industry, one fluorinated gas producer indicated that chemicals emitted in quantities greater than one ton accounted for the vast majority of one facility's emissions, while accounting for a small fraction of the total number of chemicals emitted.[11]

A cutoff of 1,000 mtCO2e correlates to a cutoff of 0.1 tons of fully fluorinated GHG (assuming a GWP of 10,000), 0.5 tons of saturated HFCs (assuming a GWP of 2,200), and 1,000 tons of unsaturated HFCs (assuming a GWP of 1). A GWP-weighted cutoff has the advantage of accounting for the potential atmospheric impact of each fluorinated GHG's emissions, but the EPA could also set the cutoff in terms of tons of chemical, e.g., at half a ton or one ton. The latter approach would be slightly simpler. Our goal would be to set any such cutoff at a level that

[11] This producer was nevertheless concerned that a quantity threshold could reveal detailed process information because chemicals that fell below the threshold one year and exceeded it the next would be identified in the second year, indicating that the scale or nature of one or more processes at the facility had changed. This concern is similar to the one expressed regarding the number of process steps being revealed by process-specific reporting, and EPA has similar questions regarding it.

would ensure we have chemical-specific information for the chemicals that are responsible for the bulk of CO_2-equivalent emissions from the facility. The EPA requests comment on the proposed magnitude of the cutoff.

Where a facility produces only one fluorinated gas, the EPA is proposing that it be required to report emissions only by fluorinated GHG group unless the emissions consist of a major fluorinated GHG constituent of the fluorinated GHG product and that product is sold or transferred to another person. In this case, the facility would be required to report emissions of the major fluorinated GHG constituents of the product, which the EPA proposes to define as constituents of the product that individually account for more than 1 percent of the product by mass. The EPA is proposing this exception because where products are sold or otherwise transferred to other persons, those persons, who could presumably include competitors, could identify the major constituents of the product simply by chemically analyzing it. Thus, identifying the chemical species of the major constituents of the product when they are emitted would not provide any additional information to competitors on the product or the methods used to produce it. The EPA is proposing to limit this reporting to major constituents because information on constituents that comprise less than 1 percent of the product is (1) more difficult to obtain through chemical analysis, and (2) more likely to disclose detailed information regarding reactants, intermediates, and by-products of the processes used to make the product. This is because such reactants, intermediates, and by-products may occur as low-concentration impurities in the product. The EPA requests comment on this proposal and on whether and how it might disclose detailed information about the process.

The EPA also requests comment on whether this exception from chemical-specific reporting should be expressed in terms of the number of processes at a facility rather than the

number of products, since a facility that produced one fluorinated gas product but also transformed one or more fluorinated gases would be reporting emissions from multiple processes.

Possible interaction between reporting by chemical type at the process level and reporting by chemical at the facility level. If there is only one process at a facility that emits a particular chemical type, and if emissions of one or more of the chemicals in that chemical type exceed the 1,000 $mtCO_2e$ threshold, then reporting by chemical at the facility level would allow competitors to deduce at least a subset of the chemicals that are being emitted by that process. We request comment on whether this situation actually arises in practice. Various ways of reducing the probability of this situation include increasing the threshold for chemical-specific reporting (e.g., up to 10,000 mtCO2e) and/or reducing the number of separate fluorinated GHG groups (e.g., to "fully fluorinated GHGs, saturated HFCs and saturated HFEs, and other"). If the situation would still occur even with these changes, another way to address it would be to allow facilities that encounter it to report process-level emissions only as CO_2e, without any designation of the chemical type. Affected facilities would continue to report facility emissions by chemical. As discussed above, process-level information on chemical type is important because it provides insight into potential reduction options; thus, we would prefer not to pursue this last approach. However, reporting in CO_2e only would still permit us to understand the magnitudes and trends of emissions from each process. We request comment on the extent to which increasing the threshold for chemical-specific reporting and/or reducing the number of chemical types would address any revealing overlap between the chemicals reported at the facility level and chemical types reported at the process level. We also request comment on the option of allowing facilities

affected by this overlap to report process-level emissions without identifying the chemical type emitted.

4. Proposal to Revise the Set of Default GWPs Used to Convert Fluorinated GHG Emissions into CO_2e.

The 2010 Final Rule and the temporary subpart L reporting provisions both include default GWPs that enable fluorinated gas production facilities to calculate and report emissions in CO_2e for fluorinated GHGs that are not on Table A-1. Such fluorinated GHGs account for approximately 20 percent of the CO_2e emissions reported under subpart L. The 2010 Final Rule includes one default GWP (2,000), while the temporary reporting provisions include two (10,000 for fully fluorinated GHGs; 2,000 for all other fluorinated GHGs).

We are proposing to replace these default GWPs with five default GWPs that would significantly increase the precision and accuracy of the CO_2e emissions calculated and reported under subpart L. The new default GWPs would also replace best-estimate GWPs that some facilities have used to report their CO_2e emissions under the subpart L temporary reporting provisions. The default GWPs would be calculated and assigned based on fluorinated GHG group, and would be included in a new Table L-1. The default GWPs would be based on the AR4 values for the compounds currently listed in Table A-1[12], and, for fluorinated GHGs that are not included in Table A-1, on additional GWPs in the recent peer-reviewed literature, specifically the Comprehensive Review. As indicated by its name, the Comprehensive Review consolidates and updates the GWPs found in the peer-reviewed literature for numerous halogenated compounds, including approximately 100 fluorinated GHGs that are not included in Table A-1. The Comprehensive Review GWPs are likely to be the basis of updated GWPs in the IPCC Fifth Assessment Report (AR5), which is expected to be completed this year.

[12] For sevoflurane, which is not included in AR4, they would be based on the Table A-1 value.

The default GWPs would be assigned to the fluorinated GHG groups the EPA is proposing for process-specific reporting : (1) fully fluorinated GHGs, (2) saturated HFCs, (3) saturated HFEs and saturated HCFEs, (4) unsaturated PFCs, unsaturated HFCs, unsaturated HCFCs, unsaturated HFEs, and fluorinated ketones, and (5) other GHGs. The proposed default GWPs for these fluorinated GHG groups are listed in Table 2 of this preamble.

Table 2: Default GWPs Proposed for Inclusion in Table L-1 as Default GWPs by Fluorinated GHG Group

Fluorinated GHG group	Proposed Global warming potential (100 yr.)
Fully fluorinated GHGs	10,000
Saturated hydrofluorocarbons (HFCs)	2,200
Saturated hydrofluoroethers (HFEs) and saturated hydrochlorofluoroethers (HCFEs)	1,600
Unsaturated PFCs, unsaturated HFCs, unsaturated HCFCs, unsaturated HFEs, and fluorinated ketones	1
Other fluorinated compounds	100

As discussed in Section II.A.3.a of this preamble, the compounds within each group exhibit similar atmospheric lifetimes and radiative behavior, meaning that their GWPs fall into a relatively limited range. This permits default GWPs to be established with more precision than is possible with larger or more diverse sets of fluorinated GHGs.

For each group, we have taken the average GWP of the group, rounding it to one or two significant figures. For example, to determine the default GWP for fully fluorinated GHGs, we determined the average GWP of all fully fluorinated fluorocarbons in either the revised Table A-1, or, for compounds not included in the revised Table A-1, in the Comprehensive Review. The average GWP for the fully fluorinated fluorocarbons is equal to 9,857. This provided the default GWP of 10,000 for fully fluorinated compounds.

This approach is expected to result in an unbiased estimate of the GWP of each fluorinated GHG group because, at the present time, the GWPs of the fluorinated GHGs on

Table A-1 are not expected to be any lower or higher, on average, than the GWPs of the fluorinated GHGs that are not on Table A-1. However, for the "Other fluorinated GHG" group, which is a "catch-all" category for fluorinated GHGs that do not fit into any other group, it is possible that newly synthesized types of compounds could have GWPs significantly different from the GWPs of the types of compounds that are currently in the group. Given this uncertainty, we are requesting comment on two alternatives. One option would be to establish a default GWP for this group that is equal to the average of the known GWPs of the current members of this group plus one standard deviation. This would result in a default GWP of 300 rather than 100 for the "Other fluorinated GHG" group. Another option would be to adopt a default GWP for this group based on the average of the GWPs of all fluorinated GHGs, i.e., 2000. This would recognize that the uncertainty associated with the GWPs of newly synthesized compound types may exceed that associated with the GWPs of the compound types currently identified as belonging to the "other fluorinated GHG" group. However, while adopting a GWP of 2000 would decrease the likelihood of underestimating the GWPs of new types of compounds, it would significantly overestimate the GWPs of the compound types that have been identified as belonging to this group to date.

For the group including very short-lived, unsaturated compounds, we are proposing to establish a default GWP of one to simplify calculations, although the average GWP for the group is actually 0.4.[13] Using a default GWP of one would lead to an overestimate of CO_2e emissions, but this overestimate would be extremely small in most cases. We request comment on this approach.

[13] The Comprehensive Review rounded the GWPs of many short-lived compounds to "1" or "0." In these cases, EPA calculated the exact GWP based on the radiative efficiency and atmospheric lifetime provided for the compound in the Comprehensive Review. The exact GWPs are included in "Analysis of Potential Default GWPs for Fluorinated GHGs and HTFs Reported under the GHGRP."

The EPA also requests comment on the sets of chemicals selected as the bases for the default GWPs. First, we are requesting comment on the fluorinated GHG groups proposed here. Do they capture most of the variability in GWPs exhibited by fluorinated GHGs? If not, what alternative fluorinated GHG groups would capture this variability? Could facilities easily determine to which fluorinated GHG group a particular fluorinated compound belonged?

Second, we are requesting comment on the individual chemicals whose GWPs are used to establish GWPs for each fluorinated GHG group. We are specifically interested in comments on how to treat compounds with relatively high or low GWPs for their groups (i.e., outliers). Within the group of fully fluorinated GHGs, relatively high GWPs are generally a consequence of a compound's radiative efficiency (or, more precisely, the ratio of the compound's radiative efficiency to its molecular weight), which is in turn influenced by the compound's inclusion of bonds other than C-F bonds (e.g., S-F or N-F bonds in SF_6, SF_5CF_3, and NF_3) or by a cyclic structure (as for c-C_3F_6). Within the other fluorinated GHG groups, relatively high-GWP compounds are those that are relatively long-lived, such as HFC-23 among the saturated HFCs and HFE-125 and HFE-134 among the saturated HFEs, while relatively low-GWP compounds are those that are short-lived, such as HFC-152a among the saturated HFCs.

To develop the proposed defaults, we have included outliers where we could not rule out the possibility that such outliers may also occur among the fluorinated GHGs whose GWPs we wish to estimate through the use of defaults. Thus, to estimate the default GWP for fully fluorinated GHGs, the EPA did not include SF_6 or NF_3, because the definition of "fluorinated GHG" does not include any other compounds whose radiatively important bonds consist exclusively of S-F or N-F bonds. However, we did include SF_5CF_3, because the definition of "fluorinated GHG" does include fluorocarbons, which may include S-F and N-F bonds in

addition to C-F bonds. We also included cyclic fluorinated GHGs for the same reason. An analysis of how the default GWPs change based on the inclusion or exclusion of outliers (Analysis of Potential Default GWPs for Fluorinated GHGs Reported Under the GHGRP) is included in the docket for this rulemaking. For fully-fluorinated GHGs, the inclusion of SF_6 and NF_3 would increase the default from 10,000 to 11,000, while the exclusion of c-C3F6 would decrease the default to 9,000.

We are also requesting comment on whether fluorinated GHGs that contain chlorine should be included in the "other fluorinated GHG" group or in the fluorinated GHG groups in which chemically similar fluorinated GHGs that do not contain chlorine are included. While most chlorine-containing GHGs are regulated under the EPA's Stratospheric Ozone Protection Regulations and are therefore excluded from the definition of "fluorinated GHG" (and the requirements of Subpart L), some chlorine-containing GHGs are included in the definition of "fluorinated GHG." These include, for example, a few hydrochlorofluoroethers (HCFEs) and unsaturated hydrochlorofluorocarbons (HCFCs). In the future, other chlorine-containing fluorinated GHGs may be emitted (e.g., unsaturated chlorofluorocarbons and unsaturated hydrobromofluorocarbons). In developing the proposed default GWPs, we have included current chlorine-containing compounds in the same groups as similar compounds without chlorine (grouping HCFEs with HFEs and unsaturated HCFCs with unsaturated HFCs), because the atmospheric lifetimes and GWPs of the chlorine-containing compounds are similar to those of the similar compounds without chlorine. The alternative would be to include the chlorine-containing compounds in the "Other fluorinated GHG group," but this approach would lead to the use of less accurate default GWPs for the chlorine-containing compounds.

As discussed above, the Comprehensive Review GWPs are likely to be the basis of the GWPs in the IPCC Fifth Assessment Report (AR5), which is expected to be completed this year. To the extent that AR5 updates or corrects the GWPs for some GHGs that are included in the Comprehensive Review (but are not included in Table A-1), we are proposing to use those updated values in our calculations of default GWPs for the final rule. (If AR5 includes GWPs rounded to zero, one, or two, we would use the corresponding updated radiative efficiencies and/or atmospheric lifetimes to calculate more precise updated GWPs and use those more precise GWPs to calculate the relevant default(s).) We request comment on this approach.

Differences between proposed default GWPs and the default GWPs in the subpart L temporary reporting provisions. The approach proposed in today's action differs from the approach taken under the temporary subpart L reporting provisions in two respects. First, the temporary subpart L reporting provisions give facilities the option to use their best estimate of a GWP for a compound lacking a GWP on Table A-1, as long as that estimate is based on the information described in 40 CFR 98.123(c)(1)(vi)(A)(3) and is documented. Under the approach proposed in this action, facilities and suppliers would not have this option, but would use the appropriate default GWP. Second, the temporary subpart L reporting provisions include default GWPs for just two fluorinated GHG groups, "fully fluorinated GHGs" and "other," while this proposed rule includes five default GWPs for five fluorinated GHG groups.

There are several reasons why we are not proposing to allow facilities to use best-estimate GWPs in today's action. When we promulgated the temporary provisions, we had not collected as much information on the GWPs of fluorinated GHGs as we now have. Since we have collected this additional information and issued a NODA seeking public comment on potential chemical-specific GWPs, we now have a stronger basis for making generalizations

regarding the atmospheric impacts of fluorinated GHG groups, particularly the five for which we are proposing default GWPs in this action. Dividing the set of fluorinated compounds into five rather than two sets also allows us to set default GWPs with more precision. Thus, the key reason for allowing facilities to develop and apply their own GWPs, which is that such estimates could be significantly more accurate and precise than default GWPs, no longer applies to the extent that it once did. Furthermore, the use of best-estimate GWPs has significant drawbacks.

These drawbacks include the lack of transparency of best-estimate GWPs to EPA and the public and the lack of consistency of best-estimate GWPs across facilities emitting the same chemical. These drawbacks were acceptable in the context of the temporary reporting provisions, which were intended only to provide interim emissions estimates while the EPA addressed the disclosure issues raised by commenters, but they pose significant concerns for long-term reporting. Under the temporary provisions, neither best-estimate GWPs nor the data and analysis used to support them are reported to the EPA; thus, the reliability of this data and analysis, and the accuracy of the resulting GWPs, are difficult to ascertain. This could lead to the use of poorly supported, incorrect GWPs. In addition, allowing facilities to use their own best estimates of GWPs could result in different facilities using different GWPs for the same compound, reducing the comparability of emissions estimates across facilities. In contrast, establishing consistent default GWPs for compounds for use by multiple facilities would allow the EPA to compare emissions across facilities and to better characterize emission trends.

Future Changes to Default GWPs. While the EPA would reserve the right to update the default GWPs as chemical-specific GWPs were evaluated or reevaluated for new or existing fluorinated GHGs in each fluorinated GHG group, we do not expect that such updates would be frequent. This is because the sets of fluorinated GHGs whose GWPs we are using as the basis for

each default are relatively large, meaning that the addition or change of a few GWPs is not likely to have a large impact on the average.

5. Other Changes to Reporting Requirements

Categorization of Effective Destruction Efficiencies: In addition to the changes above, we are proposing to replace the requirements to report process-specific activity data (including the mass of product produced[14]), emission factors, and destruction efficiencies with a requirement to identify, as a range, the level by which the emissions of each process are reduced or controlled, e.g., by a destruction device. In the proposed Inputs rule, we proposed to remove the requirements to report process-specific activity data, emission factors, and destruction efficiencies; in this action we are proposing to remove the requirement to report the mass of product produced. As discussed in an analysis supporting the proposed Inputs rule ("Evaluation of Competitive Harm from Disclosure of "Inputs to Equations" Data Elements Deferred to March 31, 2015," available in Docket EPA-HQ-OAR-2010-0929), we have identified potential disclosure concerns associated with reporting of exact activity data, emission factors, and destruction efficiencies at the process level under subpart L.

With respect to subpart L, the proposed Inputs rule addresses the use of activity data, emission factors, and destruction efficiencies as inputs to emissions calculations. In addition to being used as inputs, these data elements provide information that is useful for policy analysis for the fluorinated gas production source category. Specifically, they help EPA to identify processes with a large potential for future reductions and reduction technologies that are highly effective. On the one hand, processes that are relatively uncontrolled are likely to have a larger

[14] Even if the mass of product produced is not used by a facility to estimate its emissions, it may be used in analyses of that facility's emission data to develop an "implied emission factor" that can be used to compare emission rates per mass of product produced across processes and facilities.

potential for future reductions than those that are already highly controlled. On the other hand, high levels of control imply the use of highly effective reduction technologies. Destruction efficiencies indicate the level of control directly, while emission factors (and the activity data from which such factors can be deduced) can do so indirectly (because very low emission factors often result from high levels of control). While the magnitude of emissions from a process may provide some indication of whether or not that process is controlled, this is not always the case. For example, large (i.e., high-production) processes that emit gases with very high GWPs may be controlled but still have higher CO_2e emissions than smaller, uncontrolled processes that emit gases with lower GWPs. The wide range of GWPs of the gases that are emitted from fluorinated gas production facilities introduce a source of uncertainty into data from these facilities that is generally absent from the data from other types of facilities.[15]

The proposed requirement for facilities to report, as a range, the level of control of each process would directly address this issue. We are proposing four ranges into which facilities would bin the level of control of processes. These ranges are shown in Table 3 of this preamble.

Table 3: Proposed Ranges for Reporting Reduction Levels

Range of Reductions	**Range of Uncontrolled Emissions Associated with Emissions of 1,000 mtCO_2e (mtCO_2e)**
>99%	100,000 to >10,000,000*
95% to 99%	20,000 to 100,000
75% to 95%	4,000 to 20,000
0% to 75%	1,000 to 4,000

*The 10 million figure assumes a reduction of 99.99 percent (e.g., destruction to "four nines"); higher reduction percentages would lead to higher upper bounds.

The ranges are designed to provide useful information on the level of control for each process while also protecting detailed information regarding the mass of material removed from the process (e.g., as one or more by-products) and vented to the destruction device or

[15] Note that reporting process emissions by chemical type would reduce but not eliminate this uncertainty.

atmosphere. Each range of reductions corresponds to a range of uncontrolled emissions that spans a factor of four or more, resulting in a large zone of uncertainty around the masses of vented process streams. At the same time, however, the ranges are small enough to distinguish between highly controlled processes, processes with intermediate levels of control, and processes that are relatively uncontrolled.

The uncertainty created by the ranges of reduction levels would be in addition to the uncertainty around the masses of vented process streams that would result from reporting emissions by fluorinated GHG group rather than by individual chemical. The GWPs for each fluorinated GHG group have relative standard deviations ranging from 40 percent (for fully fluorinated GHGs) to over 100 percent (for all the other fluorinated GHG groups), resulting in similar uncertainty ranges for chemical-specific emissions (both controlled and uncontrolled). Given the uncertainty associated with reporting by fluorinated GHG group, we are considering requiring facilities to report their precise level of reduction for each process rather than the range of that reduction. This would provide more detailed information regarding the reduction and may actually be simpler than placing the level of reduction in a range. One potential issue regarding this approach is that the level of uncertainty (around the masses of vented process streams) that results from reporting emissions by fluorinated GHG group is relatively low (i.e., a relative standard deviation of less than 50%) for some groups (e.g., fully fluorinated GHGs), which could result in disclosure concerns for facilities that make one product. We request comment on this alternative.

The EPA also considered requiring facilities to indicate simply whether or not each process is controlled. However, for processes that are completely uncontrolled, this approach raises issues similar to those raised by reporting the precise level of reduction. This is because,

for uncontrolled processes, the level of reduction would be precisely specified as zero. In the approach we are proposing, a facility with uncontrolled emissions from a process would bin that process in the zero- to 75-percent controlled category, whose corresponding uncontrolled emissions span a factor of four. However, we request comment on requiring facilities to indicate only whether or not each process is controlled.

To calculate the level of reductions, we are proposing that facilities consider both the destruction efficiency (DE) and the downtime (or uptime) of the destruction device. Downtime can have a large impact on the effective destruction efficiency of destruction devices; for example, a device with a nominal DE of 99.99 percent that experiences 5 percent downtime will have an effective destruction efficiency of 95 percent. The level of reductions or effective destruction efficiency would be equated to one minus the ratio between the actual emissions from the process (i.e., accounting for any controls) and the uncontrolled emissions from the process (i.e., the emissions that would have occurred in the absence of controls), expressed in CO_2e. This calculation would not require facilities to gather any additional data, and we anticipate that it would be automated through the inputs verification tool, meaning that there would be essentially no additional burden associated with it for reporters. However, to the extent that some burden may exist, we request comment on the option of requiring reporting of effective destruction efficiencies only for processes with emissions over a certain threshold, e.g., 10,000 $mtCO_2e$.

Because we are proposing to remove the option to use the mass-balance approach, and because very few facilities have used this approach to date, our preference is not to require reporting of the effective destruction efficiency for processes whose emissions were estimated using the mass-balance approach. However, we request comment on this.

Reporting for scoping speciation. We are also proposing to remove the requirements that facilities report the contents, location, and function of the streams analyzed under the scoping speciation (40 CFR 98.124(a)). Facilities would simply keep records of this information as currently required under 40 CFR 98.127(b). We agree with the comments on the proposed CBI determinations that the contents of emitted streams, which we had proposed to be emission data, would reveal the same types of process information as would be revealed by chemical-specific reporting of process level emissions under 40 CFR 98.126. In view of this concern, we reviewed the role of this data element in the GHGRP. The contents, location, and function of tested streams provide background on emission estimates that is analogous to the background provided by emissions test data. (Facilities are currently required to keep records of, but not report, emissions test data under 40 CFR 98.127(d)(4).) This background information is important for ensuring that facilities have correctly complied with subpart L's monitoring requirements, but it is not essential to verify emission calculations or to inform policy. Thus, we are proposing to require recordkeeping as opposed to reporting of the contents, location, and function of tested streams, consistent with the approach we have taken with emissions test data under 40 CFR 98.127(d)(4).

6. Reporting emissions from destruction of previously produced fluorinated GHGs and from venting of residual fluorinated GHGs from containers

In addition to emissions from fluorinated gas production and transformation processes, facilities covered by subpart L are required to report emissions of each fluorinated GHG from destruction of previously produced fluorinated GHGs and from venting of residual fluorinated GHGs from containers (40 CFR 98.126(g) and (h)). The commenters did not include these data elements among those that they identified as posing a risk of revealing trade secrets or violating

export control laws regulations. Therefore, the EPA is not proposing to amend the reporting of these emissions. The EPA notes that these data elements would include the identification of the fluorinated GHG products being destroyed or vented. As discussed above, competitors can assess the contents of a fluorinated gas producer's final products (unlike intermediates) simply by purchasing the products and analyzing their contents.

7. Submission of Full GHG Reports for Reporting Year 2011, 2012, and 2013

In the final rule published on August 24, 2012, the EPA deferred detailed reporting of reporting year (RY) 2011 and 2012 emissions under subpart L until March 31, 2014 (or, if the data element was deferred under the Inputs rule, until the date set forth for that data element at 40 CFR 98.3(c)(4)(vii) and Table A-7 of subpart A). In the Proposed 2013 Revisions Rule, we proposed to further defer detailed reporting of RY 2011, 2012, and 2013 emissions until March 31, 2015. Instead of requiring facilities to report their RY 2011, 2012, and 2013 emissions at the level of detail specified in the 2010 Final Rule, we are today proposing to require facilities to report those emissions at the level of detail specified in this rule.

When subpart L reporters submit their full annual reports for RY 2011, 2012, and 2013, we are also proposing to require them to report emissions using the Table A-1 GWPs in effect on the reporting deadline as specified in 40 CFR 98.3(b), and the default GWPs established through this rulemaking. This would ensure that the emissions reported under subpart L for RY 2011, 2012, and 2013 are based on the same GWPs as emissions reported for subsequent reporting years, avoiding the appearance of trends that are caused solely by inconsistent GWPs. In the Proposed 2013 Revisions Rule, the EPA proposed to apply the GWPs proposed in that rule to emissions reported for Reporting Years 2010, 2011, and 2012. However, as noted in the Proposed 2013 Revisions Rule, we cannot apply revised GWPs with any precision to the less

detailed subpart L reports received under the August 24, 2012 rule that deferred full subpart L reporting, because those reports do not include chemical-specific emissions data (78 FR 19834).[16] Moreover, we are proposing that facilities submit RY 2011, 2012, and 2013 reports with the level of detail specified in this action. Since the subpart L facilities would be submitting their reports with the level of detail specified in this action, the incremental burden associated with applying the GWPs established in the 2013 Revisions Rule and in this rulemaking to the previously deferred RY 2011, 2012, and 2013 reports would be negligible, while the benefit, a consistent time series, would be considerable.

B. Proposal to Remove the Mass-Balance Approach from Subpart L

The 2010 Final Rule included three methods for calculating emissions of fluorinated GHGs from fluorinated gas production:

(1) The process-vent specific emission factor method, which requires facilities to conduct emissions testing to determine an emission factor for the vent;

(2) The process-vent specific emission calculation factor method, which requires facilities to use certain engineering calculation or assessment methods to calculate an emission factor for the vent and which may be applied to batch processes and to continuous process vents with emissions of less than 10,000 mtCO2e, and

(3) The mass-balance method, which requires facilities to track and measure the fluorine-containing compounds that are added to or removed from the process, including reactants, by-products and products, to determine emissions from the process.

[16] Applying revised GWPs to the emissions reported under this proposed rule would also involve uncertainty, as many emitted chemicals are likely to fall under the proposed threshold for chemical-specific reporting.

We are proposing to remove the mass-balance method. As observed in the preamble to the 2009 proposed rule and 2010 Final Rule, the mass-balance method requires very precise and accurate concentration and flow measurements in order to provide a reasonably precise and accurate estimate of emissions. For this reason, facilities that wish to use the mass-balance method are required to review the accuracy and precision of their measurement systems and to calculate the absolute and relative errors of the estimates that they would develop using the mass-balance method. If these calculations show that the absolute and relative errors would fall above certain limits for a process, facilities are not allowed to use the mass-balance method for that process. However, at least one facility that believed it was eligible to use the mass-balance method calculated an impossible result (negative emissions) when it attempted to use this method. This indicates that the error limits (which should have prohibited such a result) may be difficult to calculate and apply. Without the error limits, the mass-balance method is not viable. Finally, only two facilities reporting emissions in 2012 or 2013 indicated that they had used the mass-balance method to estimate emissions from any process, and both facilities indicated that they were no longer using this method when contacted by the EPA. Thus, we do not expect that the removal of this method will result in a significant burden for subpart L reporters. However, we request comment on this issue, on the proposed removal of the mass-balance method, and on the rationale presented here.

Our intent is that facilities submitting reports in 2015 of RY 2011, 2012, 2013, or 2014 emissions estimated using the mass-balance method would be able to refer to its provisions even after it is removed from subpart L. We are proposing to revise subpart L to inform interested parties that the full text of the mass-balance method is available as part of the 2010 final rule (75 FR 74774, 74832-74837, 74843-74845). Another option would be to include the full text of the

mass-balance method as an appendix to part 98. We are seeking comment on whether that option would have any advantages over referring interested parties to the 2010 final rule.

Because two facilities have used the mass-balance method to estimate their emissions during previous reporting years, we are proposing to retain certain reporting requirements associated with that approach (i.e., for purposes of reporting RY 2011, 2012, 2013, and 2014 emissions in 2015) as well as the corresponding recordkeeping requirements. However, we are proposing to remove several other reporting elements for the mass-balance method. In some cases, we are proposing to remove these elements because they involve reporting emissions by chemical and by process, and, as discussed above, we are proposing to replace such reporting with less detailed reporting under subpart L. The data elements that fall into this category include the masses and chemical formulas for the fluorinated GHG reactants, products, and by-products emitted. In other cases, we are proposing to remove these elements because they would no longer be useful given the proposed removal of the requirement to report associated data elements under the proposed Inputs rule. The data elements that fall into this category include the chemical formulas for the fluorine-containing reactant fed or removed, for the product produced or removed, and for the by-product removed; and the fractions of the mass emitted that consist of fluorine-containing reactants, products, and by-products.

C. Clarifications to the Emission Factor Approach of Subpart L.

The EPA is proposing to amend subpart L to clarify that facilities using the emission factor approach to estimate their emissions are required, in future testing, to test for any fluorinated GHG identified in the scoping speciation, and to report emissions of all fluorinated GHGs that are identified in the scoping speciation. Emissions that fall below the detection limit of the measurement technology would be required to be reported at one half of that limit. (Note that if

the emissions of a particular fluorinated GHG fell below 1,000 mtCO2e for the facility as a whole, those emissions would be reported in CO_2e only.) This change would be implemented by removing references to fluorinated GHGs that "occur in more than trace concentrations" and replacing them with references to fluorinated GHGs "identified under the initial scoping speciation."

As noted in the April 12, 2010 proposed rule, one of the purposes of the scoping speciation is "to identify by-products to measure in subsequent emissions testing to develop emission factors" (75 FR 18674). However, the regulatory text in the 2010 Subpart L Final Rule did not explicitly require facilities to include the fluorinated GHGs identified under the scoping speciation in the testing. This amendment would address that oversight. Due to the high GWPs of many fluorinated GHGs, even fluorinated GHGs that are emitted only at trace concentrations (i.e., in concentrations of less than 0.1 percent of the emissions stream) can account for significant CO_2e emissions from the facility. Thus, it is important to include them in emissions testing and emissions estimates.

Other proposed amendments to subpart L and proposed harmonizing amendments to subpart A. As discussed in Section II.A.4 of this preamble, the EPA is proposing to revise the set of default GWPs applied to fluorinated GHGs that do not have GWPs in Table A-1. To implement those changes, we are proposing additional revisions to subpart L. We are proposing a revision to 40 CFR 98.123(a) regarding the default GWPs that should be used when Table A-1 GWPs are not available for fluorinated GHGs emitted from a process. We are proposing to delete the use of a default GWP of 2,000 and proposing to add use of the appropriate default from Table L-1 for the fluorinated GHG group to which the compound would belong. We are proposing similar changes to 40 CFR 98.123(c)(1)(v) and 98.124(c)(2). We are also proposing to delete the last

sentence in 40 CFR 98.123(a), which states that fluorinated GHGs should not be reported under 40 CFR 98.3(c)(4) of subpart A when the GWP is not listed in Table A-1.

In addition, we are proposing to remove and reserve 40 CFR 98.123(c)(1)(vi), which establishes a process under which facilities may request, for fluorinated GHGs whose GWPs are not included in Table A-1, to use provisional GWPs for their preliminary calculation of emissions under 40 CFR 98.123(c)(1). We established this process in recognition of the fact that the default GWP value that is currently provided for these calculations, 2000, would overestimate emissions from process vents in some cases, inappropriately requiring facilities to perform stack tests for these vents. With the establishment of five default GWPs, which would allow considerably more precise estimates of CO_2e emissions than the previous single default value of 2000, we have concluded that this provision would no longer be necessary. However, we request comment on this. If we were to retain the provision, we would amend it to replace the February 2011 due date for requests to use a provisional GWP with a more general due date that allows facilities to request provisional GWPs in the future. Specifically, facilities would be required to submit their requests by February 28 of the reporting year for those emissions they wish to estimate using the emission calculation factor approach.

We are also proposing a technical correction to Equation L-33 of subpart L. Equation L-33 is used to determine the mass of fluorinated GHG emitted from venting of residual fluorinated GHGs in containers, when pressure is the monitored parameter. Although the current Equation L-33 includes the appropriate basis for the estimate, i.e., a form of the ideal gas law, the equation is not solved for the desired variable, the mass of residual gas in the container, in kilograms. The EPA is proposing a new Equation L-33 that directly calculates this variable. Because the

amended equation is based on the same input parameters as the current equation, the correction does not result in additional requirements.

In addition, the EPA is proposing a technical clarification to 40 CFR 98.124(c)(2) of subpart L. Paragraph (c)(2) includes a term or acronym, "RSD," that is not defined within the rule. The EPA has added the term "relative standard deviation (RSD)" in the second sentence in 40 CFR 98.124(c)(2) to clarify the meaning of the term in the regulatory text.

We are also proposing changes to subpart A to harmonize subpart A reporting with subpart L reporting for fluorinated gas production facilities. These include changes to 40 CFR 98.2(b)(1), which establishes the set of gases to include in the threshold calculation, 40 CFR 98.2(b)(4), which includes Equation A-1 for calculating CO_2e, 40 CFR 98.3(c)(4)(iii)(E), which establishes the set of gases to include in annual reporting of emissions in tons of chemical, and 40 CFR 98.3(c)(4)(vi), which establishes the set of gases to include in annual reporting of emissions in CO_2e.

D. Overview and Approach to Proposed CBI Determinations

In this action, the EPA is proposing confidentiality determinations for each of the 15 reporting data elements proposed to be added or substantially revised, as previously discussed in Section II.A of this preamble. To make these determinations, the EPA is using the same approach that the EPA previously used for the 2011 final CBI rule (76 FR 30782, May 26, 2011). Specifically, the EPA is assigning each of these 15 data elements to one of 11 direct emitter data categories[17], based on the type and characteristics of the data elements. For a description of each data category and the type and characteristics of data elements assigned to each category, see Sections II.C and II.D of the July 7, 2010 CBI proposal preamble (75 FR 39106–39130).

[17] Since subpart L is a direct emitter source category, the data elements are assigned to the direct emitter data categories.

Based on its evaluation of these 15 data elements, the EPA is proposing that each data element be assigned to one of the following direct emitter data categories:

- Emissions.
- Calculation Methodology and Methodological Tier.
- Facility and Unit Identifier Information.
- Unit/Process "Static" Characteristics that are Not Inputs to Emission Equations.
- Unit/Process Operating Characteristics That are Not Inputs to Emission Equations

In the 2011 final CBI rule (76 FR 30782, May 26, 2011), the EPA made categorical determinations that all data elements assigned to the "Emissions," "Calculation Methodology and Methodological Tier," and "Facility and Unit Identifier Information" data categories meet the definition of "emission data" in 40 CFR 2.301(a)(2)(i) and, thus, are not entitled to confidential treatment. Among the 15 proposed new or substantially revised reporting data elements, the EPA is proposing, as shown in Table 4A of this preamble, that seven data elements be assigned to the "Emissions" data category, four data elements be assigned to the "Calculation Methodology and Methodological Tier" category, and 1 data element be assigned to the "Facility and Unit Identifier Information" data category, thereby applying the categorical confidentiality determinations made for these categories in the 2011 final CBI rule to each of these reporting data elements. This proposal is not changing, nor soliciting comment on, the determination that these three data categories are "emission data," as finalized in the 2011 CBI rule. Should the EPA finalize the category assignment for these data elements, they will be considered "emission data" and, as such, not entitled to confidential treatment.

Table 4A. Data Elements Proposed to Be Assigned To the "Emissions," "Calculation Methodology and Methodological Tier," and "Facility and Unit Identifier Information" Data Categories

Proposed Citation	Proposed New or Substantially Revised Data Element
"Emissions" Data Category	

Proposed Citation	Proposed New or Substantially Revised Data Element
40 CFR 98.126(a)(3)	For facilities with multiple fluorinated gas products: For each generically-identified process and each fluorinated GHG group, total GWP-weighted emissions of all fluorinated GHGs in that group emitted from the process, in metric tons CO_2e.
40 CFR 98.126(a)(4)(i)	For facilities with multiple fluorinated gas products: For each fluorinated GHG with emissions of 1,000 metric tons of CO2e or more from the facility as a whole, the total mass in metric tons of the fluorinated GHG emitted from the facility as a whole.
40 CFR 98.126(a)(4)(ii)	For facilities with multiple fluorinated gas products: Aggregated total GWP-weighted emissions of all other fluorinated GHGs by fluorinated GHG group for the facility as a whole, in metric tons of CO2e.
40 CFR 98.126(a)(5)	For facilities that produce only one fluorinated gas product: Aggregated total GWP-weighted emissions of fluorinated GHGs by fluorinated GHG group for the facility as a whole, in metric tons of CO_2e.
40 CFR 98.126(a)(5)	Where facilities produce only one fluorinated gas product but emissions consist of a major fluorinated GHG constituent of that fluorinated gas product, and the product is sold or transferred to another person: Total mass in metric tons of each fluorinated GHG emitted that is a major fluorinated GHG constituent of the product.
40 CFR 98.126(c)(3)	For the emission factor and emission factor calculation method: For each fluorinated GHG group, the total GWP-weighted mass of all fluorinated GHGs in that group emitted from all process vents combined, in metric tons of CO2e.
40 CFR 98.126(c)(4)	For the emission factor and emission factor calculation method: For each fluorinated GHG group, the total GWP-weighted mass of all fluorinated GHGs in that group emitted from equipment leaks, in metric tons of CO2e.
Calculation Methodology and Methodological Tier" Data Category	

Proposed Citation	Proposed New or Substantially Revised Data Element
40 CFR 98.126(a)(2)(iv)	For each generically-identified fluorinated gas production and transformation process and each fluorinated GHG group at the facility: The methods used to determine the mass emissions of that fluorinated GHG group from that process from process vents.
40 CFR 98.126(a)(2)(v)	For each generically-identified fluorinated gas production and transformation process and each fluorinated GHG group at the facility: The methods used to determine the mass emissions of that fluorinated GHG group from that process from equipment leaks.
40 CFR 98.126(b)(1)	For the mass-balance approach: The overall absolute and relative errors calculated for the process under paragraph §98.123(b)(1), in tons and decimal fraction, respectively.
40 CFR 98.126(b)(2)	For the mass-balance approach: The method used to estimate the total mass of fluorine in destroyed or recaptured streams (specify §98.123(b)(4) or (15)).
"Facility and Unit Identifier Information" Data Category	
40 CFR 98.126(a)(2)(i)	For each generically-identified production and transformation process at the facility: A number, letter, or other identifier for the process.

The EPA is proposing to assign two proposed new data elements to the "Unit/Process 'Static' Characteristics that are Not Inputs to Emission Equations" category and one proposed new data element to the "Unit/Process Operating Characteristics That are Not Inputs to Emission Equations" category. In the 2011 final CBI rule, the EPA determined that the data elements in these categories are not "emission data" (as defined at 40 CFR 2.301(a)(2)(i)). However, instead of categorical determinations, the EPA made confidentiality determinations for individual data elements assigned to these categories. In proposing these determinations, the EPA considered the confidentiality criteria at 40 CFR 2.208, in particular whether release of the data is likely to cause substantial harm to the business's competitive position. See 40 CFR 2.208(e)(1). The EPA

is therefore following the same approach in this action for the proposed new reporting elements assigned to these categories.

Table 4B of this preamble lists the proposed new data elements that the EPA proposes to assign to these data categories and presents the EPA's rationale for proposing to determine that none of these data elements qualifies as CBI.

Table 4B. Proposed Confidentiality Determinations for Proposed New Data Elements Assigned to the "Unit/Process 'Static' Characteristics that Are Not Inputs to Emission Equations" and the "Unit/Process Operating Characteristics That are Not Inputs to Emission Equations" Data Categories

Citation	Data Element	Confidentiality Determination	Proposed Rationale for Confidentiality Determination
Unit/Process 'Static' Characteristics that Are Not Inputs to Emission Equations			
40 CFR 98.126(a)(2)(ii)	For each generically-identified production and transformation process at the facility: Indication of whether the process is a fluorinated gas production process, a fluorinated gas transformation process where no fluorinated GHG reactant is produced at another facility, or a fluorinated gas transformation process where one or more fluorinated GHG reactants are produced at another facility.	Not CBI	This data element would reveal only general information about the type of operation, which would not reveal any information about the production process (e.g., number of process steps, manufacturing efficiencies, novel productions methods) that would allow competitors to gain a competitive advantage.
40 CFR 98.126(a)(2)(iii)	For each generically-identified production and transformation process at the facility: Indication of whether the process could be characterized as reaction, distillation, or packaging.	Not CBI	This data element would reveal only a general description of the type of production process, which would not reveal any information about the process (e.g., number of process steps, manufacturing efficiencies, novel productions methods) that would allow competitors to gain a competitive

Citation	Data Element	Confidentiality Determination	Proposed Rationale for Confidentiality Determination
			advantage.
Unit/Process Operating Characteristics That are Not Inputs to Emission Equations			
40 CFR 98.126(a)(7)	For each generically identified process, the range in Table L-1 that encompasses the effective destruction efficiency, $DE_{effective}$, calculated for that process using Equation L-35, based on CO2e.	Not CBI	This data element would place the effective destruction efficiency for the process in a range. For any given level of emissions, this range would correspond to a range of masses vented to the destruction device that spanned a factor of four or more. Thus, even if competitors had a rough estimate of the quantity of the product produced (e.g., from sources other than the GHGRP), this information would not reveal any information about the process (e.g., manufacturing efficiencies) that would allow competitors to gain a competitive advantage.

The EPA is requesting comment on two aspects of these confidentiality determinations. First, the EPA seeks comment on the proposed data category assignment for each of these data elements in Tables 4A and 4B. We specifically seek comments identifying which proposed new data elements may be incorrectly assigned, a detailed explanation of why they may be incorrectly assigned, and a recommendation regarding the data category to which they should be assigned.

Second, for those data elements assigned to the direct emitter data category without categorical confidentiality determinations (i.e., the data elements in Table 4B), the EPA seeks comment on the individual confidentiality determinations we are proposing for these data elements. We specifically request comment, including detailed rationale and supporting information, on whether the data element does or does not qualify for confidential treatment.

III. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This action is not a "significant regulatory action" under the terms of Executive Order 12866 (58 FR 51735, October 4, 1993) and is therefore not subject to review under Executive Orders 12866 and 13563 (76 FR 3821, January 21, 2011).

B. Paperwork Reduction Act

This action does not increase information collection burden. These proposed amendments to subpart L reduce the level of detail with which emissions are reported and therefore could potentially reduce the reporting burden. The OMB has previously approved the information collection requirements for subpart L under 40 CFR part 98 under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 et seq., and has assigned OMB control number 2060-0629.

Further information on the EPA's assessment on the impact on burden can be found in the 2013 Amendments to the Greenhouse Gas Reporting Rule for the Fluorinated Gas Production Source Category Cost Memo in docket number EPA-HQ-OAR-2009-0927.

C. Regulatory Flexibility Act (RFA)

The RFA generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of this proposed rule on small entities, small entity is defined as: (1) a small business as defined by the Small Business Administration's regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of these proposed rule amendments on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. This rule affects fluorinated gas producers, none of which are small entities.

Further, the EPA took several steps to reduce the impact of 40 CFR part 98 on small entities when developing the final GHG Reporting Rules in 2009 and 2010. For example, the EPA determined appropriate thresholds that reduced the number of small businesses reporting. In addition, the EPA conducted several meetings with industry associations to discuss regulatory options and the corresponding burden on industry, such as recordkeeping and reporting. Finally, the EPA continues to conduct significant outreach on the GHG reporting program and maintains an "open door" policy for stakeholders to help inform the EPA's understanding of key issues for the industries.

D. Unfunded Mandates Reform Act (UMRA)

The proposed rule amendments do not contain a Federal mandate that may result in expenditures of $100 million or more for State, local, and tribal governments, in the aggregate, or the private sector in any one year. Thus, the proposed rule amendments are not subject to the requirements of section 202 and 205 of the UMRA. This rule is also not subject to the

requirements of section 203 of UMRA because it contains no regulatory requirements that might significantly or uniquely affect small governments. Facilities subject to the rule include fluorinated gas producers. None of the facilities currently known to undertake these activities is owned by a small government. Therefore, this action is not subject to the requirements of section 203 of the UMRA.

E. Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. For a more detailed discussion about how Part 98 relates to existing state programs, please see Section II of the preamble to the final Greenhouse Gas Reporting Rule (74 FR 56266, October 30, 2009).

The proposed amendments apply to facilities that produce fluorinated gases. They would not apply to governmental entities unless the governmental entity owns a facility that produces fluorinated gases. We are not aware of any governmental entities that would be affected. This regulation also does not limit the power of States or localities to collect GHG data and/or regulate GHG emissions. Thus, Executive Order 13132 does not apply to this action.

Although section 6 of Executive Order 13132 does not apply to this action, the EPA did consult with State and local officials or representatives of State and local governments in developing subpart L, promulgated on December 1, 2010. A summary of the EPA's consultations with State and local governments is provided in Section VIII.E of the preamble to the 2009 final rule.

In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between the EPA and State and local governments, the EPA specifically solicits comment on this proposed action from State and local officials.

F. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments

This action does not have tribal implications, as specified in Executive Order 13175 (65 FR 67249, November 9, 2000). The proposed amendments apply to facilities that produce fluorinated gases. They would not have tribal implications unless the tribal entity owns a facility that produces fluorinated gases. We are not aware of any tribal facilities that would be affected. Thus, Executive Order 13175 does not apply to this action.

G. Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks

The EPA interprets Executive Order 13045 (62 FR 19885, April 23, 1997) as applying only to those regulatory actions that concern health or safety risks, such that the analysis required under section 5-501 of the Executive Order has the potential to influence the regulation. This action is not subject to Executive Order 13045 because it does not establish an environmental standard intended to mitigate health or safety risks.

H. Executive Order 13211: Actions that Significantly Affect Energy Supply, Distribution, or Use

This action is not subject to Executive Order 13211 (66 FR 28355, May 22, 2001), because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law No. 104-113 (15 U.S.C. 272 note) directs the EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with

applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. NTTAA directs the EPA to provide Congress, through OMB, explanations when the EPA decides not to use available and applicable voluntary consensus standards.

This proposed rulemaking does not involve technical standards. Therefore, the EPA is not considering the use of any voluntary consensus standards.

J. Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898 (59 FR 7629, February 16, 1994) establishes Federal executive policy on environmental justice. Its main provision directs Federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

The EPA has determined that this proposed rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it does not affect the level of protection provided to human health or the environment because it is a rule addressing information collection and reporting procedures.

List of Subjects in 40 CFR Part 98

Environmental protection, Administrative practice and procedure, Greenhouse gases, Reporting and recordkeeping requirements.

Dated: November 7, 2013

Gina McCarthy,
Administrator.

For the reasons stated in the preamble, part 98 of title 40, chapter I, of the Code of Federal Regulations is proposed to be amended as follows:

PART 98—MANDATORY GREENHOUSE GAS REPORTING

1. The authority citation for part 98 continues to read as follows:

Authority: 42 U.S.C. 7401, *et seq*.

Subpart A—GENERAL PROVISION

2. Section 98.2 is amended by revising paragraphs (b)(1) and (b)(4).

The revisions read as follows:

§ 98.2 Who must report?

* * * * *

(b) * * *

(1) Calculate the annual emissions of CO_2, CH_4, N_2O, and each fluorinated GHG in metric tons from all applicable source categories listed in paragraph (a)(2) of this section. The GHG emissions shall be calculated using the calculation methodologies specified in each applicable subpart and available company records. Include emissions of only those gases listed in Table A–1 of this subpart, except fluorinated gas production facilities must calculate and report CO_2e for all fluorinated GHGs whose emissions they are required to report under subpart L of this part. For fluorinated GHGs that are not included on Table A-1, fluorinated gas production facilities must use the default GWP provided in Table L-1 to subpart L of this part for the fluorinated GHG group of which the GHG is a member.

* * * * *

(4) Sum the emissions estimates from paragraphs (b)(1), (b)(2), and (b)(3) of this section for each GHG and calculate metric tons of CO_2e using Equation A–1 of this section.

$$CO_2e = \sum_{i=1}^{n} GHG_i \times GWP_i \text{ `} \qquad \text{(Eq. A-1)}$$

Where:

CO_2e = Carbon dioxide equivalent, metric tons/year.
GHG_i = Mass emissions of each greenhouse gas, metric tons/year.
GWP_i = Global warming potential for each greenhouse gas from Table A–1 of this subpart. For each fluorinated GHG not listed in Table A-1, fluorinated gas production facilities reporting under subpart L of this part must use the default GWP provided in Table L-1 to subpart L of this part for the fluorinated GHG group of which the GHG is a member.
n = The number of greenhouse gases emitted.

* * * * *

3. Section 98.3 is amended by revising paragraphs (c)(4)(iii)(E); and (c)(4)(vi).

The revisions read as follows:

§ 98.3 What are the general monitoring, reporting, recordkeeping, and verification requirements of this part?

* * * * *

(c) * * *

(4) * * *

(iii) * * *

(E) Each fluorinated GHG (as defined in §98.6), including those not listed in Table A–1 of this subpart, except fluorinated gas production facilities must comply with §98.126(a) rather than this paragraph (c)(4)(iii)(E).

* * * * *

(vi) When applying paragraph (c)(4)(i) of this section to fluorinated GHGs and fluorinated heat transfer fluids, calculate and report CO_2e for only those fluorinated GHGs listed

in Table A–1 of this subpart, except fluorinated gas production facilities must calculate and report CO_2e for all fluorinated GHGs whose emissions they are required to report under subpart L of this part. For fluorinated GHGs that are not included on Table A-1 of this subpart, fluorinated gas production facilities must use the default GWP provided in Table L-1 to subpart L of this part for the fluorinated GHG group of which the GHG is a member.

* * * * *

Subpart L—FLUORINATED GAS PRODUCTION

4. Section 98.122 is amended by:

a. Revising paragraph (c); and

b. Adding paragraphs (d), (e) and (f).

The revisions and additions read as follows:

§ 98.122 GHGs to report.

* * * * *

(c) Process level. You must report, for each fluorinated GHG group, the total GWP-weighted mass of all fluorinated GHGs in that group (in metric tons CO_2e) emitted from:

(1) Each fluorinated gas production process.

(2) Each fluorinated gas transformation process that is not part of a fluorinated gas production process and where no fluorinated GHG reactant is produced at another facility.

(3) Each fluorinated gas transformation process that is not part of a fluorinated gas production process and where one or more fluorinated GHG reactants are produced at another facility.

(d) Facility level, multiple products. If your facility produces more than one fluorinated gas product, you must report the emissions (in metric tons) for the facility as a whole of each

fluorinated GHG that is emitted from the facility as a whole in quantities of 1,000 metric tons of CO_2e or more. Aggregate and report emissions of all other fluorinated GHGs by fluorinated GHG group for the facility as a whole, in metric tons of CO_2e.

(e) Facility level, one product only. If your facility produces only one fluorinated gas product, aggregate and report the GWP-weighted emissions of fluorinated GHGs by fluorinated GHG group for the facility as a whole, in metric tons CO_2e, with the following exception: Where emissions consist of a major fluorinated GHG constituent of a fluorinated gas product, and the product is sold or transferred to another person, report the total mass of each fluorinated GHG emitted that is a major fluorinated GHG constituent of the product (in metric tons).

(f) You must report the total mass of each fluorinated GHG emitted (in metric tons) from:

(1) Each fluorinated gas destruction process that is not part of a fluorinated gas production process or a fluorinated gas transformation process and all such fluorinated gas destruction processes combined.

(2) Venting of residual fluorinated GHGs from containers returned from the field.

5. Section 98.123 is amended by:

a. Revising introductory text;

b. Revising paragraph (a);

c. Revising paragraph (b) introductory text;

d. Removing paragraphs (b)(1) through (b)(16);

e. Revising paragraph (c)(1)(v);

f. Removing and reserving paragraph (c)(1)(vi);

g. Redesignating paragraphs (e)(i) and (e)(ii) as paragraphs (e)(1) and (e)(2), respectively;

h. Revising paragraph (g)(1);

i. Revising paragraph (g)(2)(ii);

j. Revising paragraph (g)(2)(iv); and

k. Adding paragraph (h).

The revisions and additions read as follows:

§ 98.123 Calculating GHG emissions.

For fluorinated gas production and transformation processes, you must calculate the fluorinated GHG emissions from each process using the emission factor or emission calculation factor method specified in paragraphs (c), (d), and (e) of this section, as appropriate. For destruction processes that destroy fluorinated GHGs that were previously "produced" as defined at §98.410(b), you must calculate emissions using the procedures in paragraph (f) of this section. For venting of residual gas from containers (e.g., cylinder heels), you must calculate emissions using the procedures in paragraph (g) of this section.

(a) Default GWP value. For fluorinated GHGs that do not have GWPs listed in Table A–1 to subpart A of this part, use the default GWP provided for the fluorinated GHG group of which the GHG is a member in Table L-1 of this subpart in your calculations under paragraph (c)(1) of this section, in §98.124(c)(2), and if you used the mass balance method to calculate emissions from the process for reporting years 2011, 2012, 2013, or 2014.

(b) Mass balance method. The mass balance method was available for reporting years 2011, 2012, 2013, and 2014 only. It may be found at 75 FR 74774, 74832-74837 (December 1, 2010).

(c) * * *

(1) * * *

(v) GWPs. To convert the fluorinated GHG emissions to CO_2e, use Equation A–1 of §98.2.

(vi) [Reserved]

* * * * *

(g) * * *

(1) Measuring contents of each container. If you weigh or otherwise measure the contents of each container before venting the residual fluorinated GHGs, use Equation L-32 of this section to calculate annual emissions of each fluorinated GHG from venting of residual fluorinated GHG from containers. Convert pressures to masses as directed in paragraph (g)(2)(ii) of this section.

$$E_{Cf} = \sum_{1}^{n} H_{Bfj} - \sum_{1}^{n} H_{Efj} \qquad \text{(Eq. L-32)}$$

Where:

E_{Cf} = Total mass of each fluorinated GHG f emitted from the facility through venting of residual fluorinated GHG from containers, annual basis (metric tons/year).
H_{Bfj} = Mass of residual fluorinated GHG f in container j when received by facility (metric tons).
H_{Efj} = Mass of residual fluorinated GHG f in container j after evacuation by facility (metric tons). (Facility may equate to zero.)
n = Number of vented containers for each fluorinated GHG f.

(2) * * *

(ii) Measurement of residual gas. The residual weight or pressure you use for paragraph (g)(1) of this section must be determined by monitoring the mass or the pressure of your cylinders/containers according to §98.124(k). If you monitor the pressure, convert the pressure to mass using a form of the ideal gas law, as displayed in Equation L-33 of this section, with an appropriately selected Z value.

$$m_R = \frac{p * V * MW}{Z * R * T * 10^6} \qquad \text{(Eq. L-33)}$$

Where:

m_R = Mass of residual gas in the container (metric ton)
p = Absolute pressure of the gas (Pa)
V = Volume of the gas (m^3)
MW = Molecular weight of the fluorinated GHG f (g/gmole)
Z = Compressibility factor
R = Gas constant (8.314 Pa m^3/Kelvin mole)
T = Absolute temperature (K)
10^6 = Conversion factor (10^6 g/metric ton)

* * * * *

(iv) Calculate annual emissions of each fluorinated GHG from venting of residual fluorinated GHG from containers using Equation L-34 of this section.

$$E_{Cf} = \sum_{j=1}^{n} h_{fj} * N_{fj} * F_{fj} \qquad \text{(Eq. L-34)}$$

Where:

E_{Cf} = Total mass of each fluorinated GHG f emitted from the facility through venting of residual fluorinated GHG from containers, annual basis (metric tons/year).
h_{fj} = Facility-wide gas-specific heel factor for fluorinated GHG f (fraction) and container size and type j, as determined in paragraph (g)(2)(iii) of this section.
N_{fj} = Number of containers of size and type j returned to the fluorinated gas production facility.
F_{fj} = Full capacity of containers of size and type j containing fluorinated GHG f (metric tons).
n = Number of combinations of container sizes and types for fluorinated GHG f.

(h) Effective destruction efficiency for each process. If you used the emission factor or emission calculation factor method to calculate emissions from the process, use Equation L-35 to calculate the effective destruction efficiency for the process, including each process vent:

$$DE_{Effective} = 1 - \frac{\sum_{1}^{w}\left(\sum_{1}^{o}\sum_{1}^{v} E_{PVf}\right) \times GWP_f}{\sum_{1}^{w}\left(\sum_{1}^{o}\sum_{1}^{v} ECF_{PV-Uf} \times \left(Activity_U + Activity_C\right)\right) \times GWP_f + \sum_{1}^{w}\left(\sum_{1}^{o}\sum_{1}^{v} EF_{PV-Uf} \times \left(Activity_U + Activity_C\right)\right) \times GWP_f}$$

(Eq. L-35)

Where:

$DE_{Effective}$	=	Effective destruction efficiency for process i (fraction).
E_{PVf}	=	Mass of fluorinated GHG f emitted from process vent v from process i, operating scenario j, for the year, calculated in Equation L-21, L-22, L-26, or L-27 of this section (kg).
GWP_f	=	Global warming potential for each greenhouse gas from Table A-1 to subpart A of this part or Table L-1 of this subpart. If the GHG has a GWP listed in Table A-1, use that GWP. Otherwise, use the default GWP provided in Table L-1 for the fluorinated GHG group of which the GHG is a member.
$ECF_{PV\_}Uf$	=	Emission calculation factor for fluorinated GHG f emitted from process vent v during process i, operating scenario j during periods when the process vent is not vented to the properly functioning destruction device, as used in Equation L-21; or Emission calculation factor for fluorinated GHG f emitted from process vent v during process i, operating scenario j, as used in Equation L-26 or L-27 (kg emitted/activity) (e.g., kg emitted/kg product), denoted as "ECF_{PV}" in those equations.
$EF_{PV\_}Uf$	=	Emission factor (uncontrolled) for fluorinated GHG f emitted from process vent v during process i, operating scenario j, as used in in Equation L-22 (kg emitted/activity) (e.g., kg emitted/kg product).
$Activity_U$	=	Total process feed, process production, or other process activity during the year for which the process vent is not vented to the properly functioning destruction device (e.g., kg product).
$Activity_C$	=	Total process feed, process production, or other process activity for process i, operating scenario j, during the year for which emissions are vented to the properly functioning destruction device (i.e., controlled).
o	=	Number of operating scenarios for process i.
v	=	Number of process vents in process i, operating scenario j.
w	=	Number of fluorinated GHGs emitted from the process.

6. Section 98.124 is amended by:

a. Revising paragraph (b) introductory text;

b. Removing paragraphs (b)(1) through (b)(8);

c. Revising paragraph (c)(1);

d. Revising paragraph (c)(2);

e. Revising paragraph (c)(5);

f. Redesignating paragraph (c)(7) as paragraph (c)(6);

g. Redesignating paragraph (c)(8) as paragraph (c)(7); and

h. Redesignating paragraph (c)(9) as paragraph (c)(8);

The revisions and additions read as follows:

§ 98.124 Monitoring and QA/QC requirements.

* * * * *

(b) Mass balance monitoring. Mass balance monitoring was available for reporting years 2011, 2012, 2013, and 2014 only. The mass balance monitoring provisions may be found at 75 FR 74774, 74843-74845 (December 1, 2010).

(c) * * *

(1) Process vent testing. Conduct an emissions test that is based on representative performance of the process or operating scenario(s) of the process, as applicable. Include in the emission test any fluorinated GHG that was identified in the initial scoping speciation or is otherwise known to occur in the vent stream. You may include startup and shutdown events if the testing is sufficiently long or comprehensive to ensure that such events are not overrepresented in the emission factor. Malfunction events must not be included in the testing. If you do not detect a fluorinated GHG that was identified in the scoping speciation or is otherwise known to occur in the vent stream, assume that fluorinated GHG was emitted at one half of the detection limit.

(2) Number of runs. For continuous processes, sample the process vent for a minimum of 3 runs of 1 hour each. If the relative standard deviation (RSD) of the emission factor calculated based on the first 3 runs is greater than or equal to 0.15 for the emission factor, continue to

sample the process vent for an additional 3 runs of 1 hour each. If more than one fluorinated GHG is measured, the RSD must be expressed in terms of total CO_2e. For fluorinated GHGs whose GWPs are not listed in Table A–1 to subpart A of this part, use the default GWP provided for the fluorinated GHG group of which the GHG is a member in Table L-1 of this subpart in the RSD calculation.

* * * * *

(5) Emission test results. The results of an emission test must include the analysis of samples, number of test runs, the results of the RSD analysis, the analytical method used, determination of emissions, the process activity, and raw data and must identify the process, the operating scenario, the process vents tested, and the fluorinated GHGs that were included in the test. The emissions test report must contain all information and data used to derive the process-vent-specific emission factor, as well as key process conditions during the test. Key process conditions include those that are normally monitored for process control purposes and may include but are not limited to yields, pressures, temperatures, etc. (e.g., of reactor vessels, distillation columns).

* * * * *

7. Section 98.126 is amended by:

a. Revising paragraph (a);

b. Revising paragraph (b) introductory text;

c. Revising paragraph (b)(1);

d. Removing paragraphs (b)(2)-(b)(12);

e. Revising paragraph (b)(13);

f. Redesignating paragraph (b)(13) as paragraph (b)(2);

g. Revising paragraph (c) introductory text;

h. Removing and reserving paragraph (c)(1);

i. Revising paragraph (c)(3);

j. Revising paragraph (c)(4);

k. Revising paragraph (e);

l. Revising paragraph (h)(1); and

m. Adding paragraph (k).

The revisions and additions read as follows:

§ 98.126 Data reporting requirements.

(a) All facilities. In addition to the information required by §98.3(c), you must report the information in paragraphs (a)(2) through (a)(7) of this section according to the schedule in paragraph (a)(1) of this section, except as otherwise provided in paragraph (j) of this section or in §98.3(c)(4)(vii) and Table A-7 of subpart A of this part.

(1) Frequency of reporting under paragraph (a) of this section. The information in paragraphs (a)(2), (3), (4), (5), (6), and (7) of this section must be reported annually.

(2) Generically-identified process. For each production and transformation process at the facility, you must:

(i) Provide a number, letter, or other identifier for the process.

(ii) Indicate whether the process is a fluorinated gas production process, a fluorinated gas transformation process where no fluorinated GHG reactant is produced at another facility, or a fluorinated gas transformation process where one or more fluorinated GHG reactants are produced at another facility; and

(iii) Indicate whether the process could be characterized as reaction, distillation, or packaging (include all that apply).

(iv) For each generically-identified process and each fluorinated GHG group, report the methods used to determine the mass emissions of that fluorinated GHG group from that process from vents, i.e., mass-balance, process-vent-specific emission factor, or process-vent-specific emission calculation factor.

(v) For each generically-identified process and each fluorinated GHG group, report the method(s) used to determine the mass emissions of that fluorinated GHG group from that process from equipment leaks, unless you used the mass balance method for that process.

(3) Process level, multiple products. If your facility produces multiple fluorinated gas products, for each generically identified process and each fluorinated GHG group, report the total GWP-weighted emissions of all fluorinated GHGs in that group emitted from the process, in metric tons CO_2e.

(4) Facility level, multiple products. If your facility produces multiple fluorinated gas products, you must report the information in paragraphs (a)(4)(i) and (a)(4)(ii) of this section, as applicable.

(i) For each fluorinated GHG with emissions of 1,000 metric tons of CO_2e or more from the facility as a whole, you must report the total mass in metric tons of the fluorinated GHG emitted from the facility as a whole.

(ii) Aggregate and report the total GWP-weighted emissions of all other fluorinated GHGs by fluorinated GHG group for the facility as a whole, in metric tons of CO_2e.

(5) Facility level, one product only. If your facility produces only one fluorinated gas product, aggregate and report the total GWP-weighted emissions of fluorinated GHGs by

fluorinated GHG group for the facility as a whole, in metric tons of CO_2e, with the following exception: Where emissions consist of a major fluorinated GHG constituent of a fluorinated gas product, and the product is sold or transferred to another person, report the total mass in metric tons of each fluorinated GHG emitted that is a major fluorinated GHG constituent of the product.

(6) Destruction processes and container heel venting. You must report the total mass in metric tons of each fluorinated GHG emitted from:

(i) Each fluorinated gas destruction process that is not part of a fluorinated gas production process or a fluorinated gas transformation process and all such fluorinated gas destruction processes combined.

(ii) Venting of residual fluorinated GHGs from containers returned from the field.

(7) Effective destruction efficiency. For each generically identified process, use Table L-2 of this subpart to report the range that encompasses the effective destruction efficiency, $DE_{effective}$, calculated for that process using Equation L-35 of this subpart. The effective destruction efficiency must be reported on a CO_2e basis.

(b) Reporting for mass balance method for reporting years 2011, 2012, 2013, and 2014. If you used the mass-balance method to calculate emissions for any of the reporting years 2011, 2012, 2013, or 2014, you must conduct mass balance reporting for that reporting year. For processes whose emissions were determined using the mass-balance method under the former §98.123(b), you must report the information listed in paragraphs (b)(1) and (b)(2) of this section for each process on an annual basis.

(1) If you calculated the relative and absolute errors under the former §98.123(b)(1), the overall absolute and relative errors calculated for the process under the former §98.123(b)(1), in tons and decimal fraction, respectively.

(2) The method used to estimate the total mass of fluorine in destroyed or recaptured streams (specify the former §98.123(b)(4) or (15)).

(c) Reporting for emission factor and emission calculation factor approach. For processes whose emissions are determined using the emission factor approach under §98.123(c)(3) or the emission calculation factor under §98.123(c)(4), you must report the following for each generically-identified process.

(1) [Reserved]

* * * * *

(3) For each fluorinated GHG group, the total GWP-weighted mass of all fluorinated GHGs in that group emitted from all process vents combined, in metric tons of CO_2e.

(4) For each fluorinated GHG group, the total GWP-weighted mass of all fluorinated GHGs in that group emitted from equipment leaks in metric tons CO_2e.

* * * * *

(e) Reporting of destruction device excess emissions data. Each fluorinated gas production facility that destroys fluorinated GHGs must report the excess emissions that result from malfunctions of the destruction device, and these excess emissions must be reflected in the fluorinated GHG estimates in the former §98.123(b) and in §98.123(c). Such excess emissions would occur if the destruction efficiency was reduced due to the malfunction.

* * * * *

(h) * * *

(1) The mass of the residual fluorinated GHG vented from each container size and type annually (metric tons).

* * * * *

(k) Submission of complete reporting year 2011, 2012, and 2013 GHG reports. By March 31, 2015, you must submit annual GHG reports for reporting years 2011, 2012, and 2013 that contain the information specified in paragraphs (a) through (h) of this section. The reports must calculate CO_2e using the GWPs in Table A-1 to subpart A of this part (as in effect on January 1, 2015) and Table L-1 of this subpart (as applicable). Prior submission of partial reports for these reporting years under paragraph (j) of this section does not affect your obligation to submit complete reports under this paragraph.

8. Section 98.127 is amended by:

a. Revising paragraph (a)(1);

b. Revising paragraph (a)(2);

c. Adding paragraph (a)(3);

d. Adding paragraph (a)(4);

e. Revising paragraph (b);

f. Revising paragraph (c) introductory text; and

g. Revising paragraph (c)(3).

The revisions and additions read as follows:

§ 98.127 Records that must be retained.

* * * * *

(a) * * *

(1) Identify all products and processes subject to this subpart. Include the unit identification as appropriate, along with the generic process identification reported for the process under §98.126(a)(2)(i)through (iii); which product the process is associated with;

whether the process is a reaction, distillation, or packaging process (include all that apply); and whether the process is a production process, a transformation process where no fluorinated GHG reactant is produced at another facility, or a transformation process where one or more fluorinated GHG reactants are produced at another facility.

(2) Monthly and annual records, as applicable, of all analyses and calculations conducted as required under §98.123, including the data monitored under §98.124, and all information reported as required under §98.126.

(3) Identify all fluorinated GHGs with emissions of 1,000 metric tons CO_2e or more from the facility as a whole, and identify all fluorinated GHGs with total emissions less than 1,000 metric tons CO_2e from the facility as a whole.

(4) Calculations used to determine the total GWP-weighted emissions of fluorinated GHGs by fluorinated GHG group for each process, in metric tons CO_2e.

(b) Scoping speciation. Retain records documenting the information collected under §98.124(a).

(c) Mass-balance method. Retain the following records for each process for which the mass-balance method was used to estimate emissions in reporting years 2011, 2012, 2013, or 2014. If you used an element other than fluorine in the mass-balance equation pursuant to the former § 98.123(b)(3), substitute that element for fluorine in the recordkeeping requirements of this paragraph.

* * *

(3) The data and calculations used to determine the fractions of the mass emitted consisting of each reactant (FER_d), product (FEP), and by-product (FEB_k), including the preliminary calculations in the former §98.123(b)(8)(i).

* * * * *

9. Section 98.128 is amended by:

a. Adding, in alphabetical order, the definition for Fluorinated GHG group;

b. Adding, in alphabetical order, the definition for Fluorinated GHG product;

c. Adding, in alphabetical order, the definition for Generically-identified process;

d. Adding, in alphabetical order, the definition for Major fluorinated GHG constituent;

e. Adding, in alphabetical order, the definition for Other fluorinated GHGs;

f. Adding, in alphabetical order, the definition for Saturated hydrochlorofluoroethers (HCFEs);

g. Adding, in alphabetical order, the definition for Saturated hydrofluorocarbons (HFCs);

h. Adding, in alphabetical order, the definition for Saturated hydrofluoroethers (HFEs);

i. Adding, in alphabetical order, the definition for Unsaturated hydrochlorofluorocarbons (HCFCs);

j. Adding, in alphabetical order, the definition for Unsaturated hydrofluorocarbons (HFCs);

k. Adding, in alphabetical order, the definition for Unsaturated hydrofluoroethers (HFEs); and

l. Adding, in alphabetical order, the definition for Unsaturated perfluorocarbons (PFCs).

The additions read as follows:

§ 98.128 Definitions.

* * * * *

Fluorinated GHG group means one of the following sets of fluorinated GHGs: Fully fluorinated GHGs; Saturated hydrofluorocarbons; Saturated hydrofluoroethers and saturated hydrochlorofluoroethers; Unsaturated PFCs, unsaturated HFCs, unsaturated HCFCs, unsaturated HFEs, and fluorinated ketones; or Other fluorinated GHGs.

Fluorinated GHG product means the product of the process, including isolated intermediates.

* * * * *

Generically-identified process means a process that is (1) identified as a production process, a transformation process where no fluorinated GHG reactant is produced at another facility, or a transformation process where one or more fluorinated GHG reactants are produced at another facility; (2) further identified as a reaction, distillation, or packaging process, or a combination thereof; and (3) tagged with a discrete identifier, such as a letter or number, that remains constant from year to year.

* * * * *

Major fluorinated GHG constituent means a fluorinated GHG constituent of a fluorinated GHG product that occurs in concentrations greater than 1 percent by mass.

* * * * *

Other fluorinated GHGs means fluorinated GHGs that are none of the following: fully fluorinated GHGs, saturated hydrofluorocarbons, saturated hydrofluoroethers, saturated hydrochlorofluoroethers, unsaturated perfluorocarbons, unsaturated hydrofluorocarbons, unsaturated hydrochlorofluorocarbons, unsaturated hydrofluoroethers, or fluorinated ketones.

* * * * *

Saturated hydrochlorofluoroethers (HCFEs) means fluorinated GHGs in which two hydrocarbon groups are linked by an oxygen atom; in which two or more, but not all, of the hydrogen atoms in the hydrocarbon groups have been replaced by fluorine atoms and chlorine atoms; and which contain only single bonds.

Saturated hydrofluorocarbons (HFCs) means fluorinated GHGs that are hydrofluorocarbons and that contain only single bonds.

Saturated hydrofluoroethers (HFEs) means fluorinated GHGs in which two hydrocarbon groups are linked by an oxygen atom; in which one or more, but not all, of the hydrogen atoms in the hydrocarbon groups have been replaced by fluorine atoms; and which contain only single bonds.

* * * * *

Unsaturated hydrochlorofluorocarbons (HCFCs) means fluorinated GHGs that contain only carbon, chlorine, fluorine, and hydrogen and that contain one or more bonds that are not single bonds.

Unsaturated hydrofluorocarbons (HFCs) means fluorinated GHGs that are hydrofluorocarbons and that contain one or more bonds that are not single bonds.

Unsaturated hydrofluoroethers (HFEs) means fluorinated GHGs in which two hydrocarbon groups are linked by an oxygen atom; in which one or more, but not all, of the hydrogen atoms in the hydrocarbon groups have been replaced by fluorine atoms; and which contain one or more bonds that are not single bonds.

Unsaturated perfluorocarbons (PFCs) means fluorinated GHGs that are perfluorocarbons and that contain one or more bonds that are not single bonds.

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10. Adding Tables L-1 and L-2 to subpart L to read as follows:

TABLE L-1 TO SUBPART L - DEFAULT GLOBAL WARMING POTENTIALS FOR COMPOUNDS THAT DO NOT APPEAR ON TABLE A-1 TO SUBPART A OF PART 98

Fluorinated GHG group	Proposed Global warming potential (100 yr.)
Fully fluorinated GHGs	10,000
Saturated hydrofluorocarbons (HFCs)	2,200
Saturated hydrofluoroethers (HFEs) and saturated hydrochlorofluoroethers (HCFEs)	1,600
Unsaturated PFCs, unsaturated HFCs, unsaturated HCFCs, unsaturated HFEs, and fluorinated ketones	1
Other fluorinated GHGs	100

TABLE L-2 TO SUBPART L – RANGES OF EFFECTIVE DESTRUCTION EFFICIENCY

Range of Reductions
≥99%
≥95% to <99%
≥75% to <95%
≥0% to <75%

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