6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 82

[EPA-HQ-OAR-2019-0698; FRL-7826.1-02-OAR]

RIN 2060-AV31

Protection of Stratospheric Ozone: Listing of Substitutes under the Significant New Alternatives Policy Program; Supplemental Proposal

AGENCY: Environmental Protection Agency (EPA).

ACTION: Supplemental notice of proposed rulemaking.

SUMMARY: Pursuant to the U.S. Environmental Protection Agency's Significant New Alternatives Policy program, the Agency is proposing, as an additional option, to list for a limited period of time certain substances in the foamblowing sector, extruded polystyrene: boardstock and billet end-use, as acceptable, subject to narrowed use limits. This proposal supplements the Agency's June 12, 2020, proposal with respect to the proposed listings in the foam-blowing sector, taking into consideration public comments and information received since issuance of the initial proposal. In the June 12, 2020, proposal, EPA proposed to list three foam blowing agent blends as acceptable. In this supplemental proposal, EPA is proposing an additional approach to list these blends as acceptable, subject to narrowed use limits, in the foam blowing sector, extruded polystyrene: boardstock and billet end-use, from the effective date of a final rule based on this supplemental proposal until January 1, 2023. The Agency is providing an opportunity for public comment on this additional approach for the listings in the foam blowing sector, as well as reopening the public comment period for the proposed listings in the foam blowing sector in the June 12, 2020, proposal. The Agency is not reopening for comment those other portions of the June 12, 2020, proposal which are addressed in a separate final rule issued May 6, 2021.

DATES: Comments on this supplemental proposal must be received on or before **[INSERT**

DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]. Any party requesting a public hearing must notify the contact listed below under **FOR FURTHER INFORMATION CONTACT** by 5 p.m. Eastern Daylight Time on **[INSERT DATE 5 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. If a virtual hearing is held, it will take place on or before **[INSERT DATE 15 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]** and further information will be provided on EPA's Stratospheric Ozone website at *www.epa.gov/snap*.

ADDRESSES: You may send comments, identified by docket identification (ID) number EPA-HQ-OAR-2019-0698, to the *Federal eRulemaking Portal: http://www.regulations.gov*. Follow the online instructions for submitting comments. Once submitted, comments cannot be edited or withdrawn. EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. EPA will generally not consider comments or comment contents located outside of the primary submission (*i.e.*, on the web, cloud, or other file sharing system). For additional submission methods, EPA's full public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit *https://www.epa.gov/dockets/commenting-epa-dockets*. The EPA is temporarily suspending its Docket Center and Reading Room for public visitors, with limited exceptions, to reduce the risk of transmitting COVID-19. Our Docket Center staff will continue to provide remote customer service via email, phone, and webform. We encourage the public to submit comments via *https://www.regulations.gov* or email, as there may be a delay in processing mail and faxes. Hand deliveries and couriers may be received by scheduled appointment only. For further information on EPA Docket Center services and the current status, please visit us online at *https://www.epa.gov/dockets*.

FOR FURTHER INFORMATION CONTACT: Christina Thompson, Stratospheric Protection Division, Office of Atmospheric Programs (Mail Code 6205T), Environmental Protection Agency, 1200 Pennsylvania Ave. NW, Washington, DC 20460; telephone number: 202-564-0983; email address: *thompson.christina@epa.gov*. Notices and rulemakings under EPA's Significant New Alternatives Policy program are available on EPA's Stratospheric Ozone website at *https://www.epa.gov/snap/snap-regulations*.

SUPPLEMENTARY INFORMATION:

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I. General information

A. Executive summary and background

Pursuant to the Significant New Alternatives Policy (SNAP) program, EPA is proposing to list three foam blowing agent blends as acceptable, subject to narrowed use limits, in the foam blowing sector, extruded polystyrene: boardstock and billet end-use. This proposal supplements the Agency's June 12, 2020, Notice of Proposed Rulemaking (NPRM), hereafter referred to as the "2020 NPRM" (85 FR 35874), with respect to the proposal to list these blends as acceptable, taking into consideration public comments and information received since issuance of the initial proposal. In the 2020 NPRM, EPA proposed to list three foam blowing agent blends as acceptable. In this supplemental proposal, EPA is proposing an additional approach to list the following blends as acceptable, subject to narrowed use limits, for use in extruded polystyrene: boardstock and billet (XPS):

- Blends of 40 to 52 percent hydrofluorocarbon (HFC)-134a and the remainder hydrofluoroolefin (HFO)-1234ze(E);
- Blends of 40 to 52 percent HFC-134a with 40 to 60 percent HFO-1234ze(E) and 10 to 20 percent each water and carbon dioxide (CO_2); and
- Blends with maximum of 51 percent HFC-134a, 17 to 41 percent HFC-152a, up to 20 percent CO_2, and one to 13 percent water.

If the approach discussed in this supplemental proposal is finalized, all three blends would be acceptable subject to a narrowed use limit for use in XPS from the effective date of a final rule based on this supplemental proposal until January 1, 2023, where other alternatives are not technically feasible for reasons of performance or safety. EPA is taking comment on the proposed listings as well as the specific narrowed use limits discussed in this supplemental proposal. The Agency is also reopening the public comment period on the proposed acceptable listings for the same three foam blowing blends in the 2020 NPRM, in light of information that has become publicly available and included in the docket for this rulemaking after the comment period closed for that proposal.

In addition to listings for XPS, the 2020 NPRM included proposed listings of refrigerants

for use in certain refrigeration and air conditioning end-uses, as well as a proposal to remove Powdered Aerosol E from the list of fire suppression substitutes acceptable subject to use conditions in total flooding applications. EPA is not reopening the comment period for those other portions of the 2020 NPRM which were addressed in a separate final rule (May 6, 2021; 86 FR 24444). Rather, this supplemental proposal relates only to the XPS listings. EPA intends to respond to comments on the 2020 NPRM's proposed listings for XPS together with comments on this supplemental proposal in a future final rule.

This supplemental proposal is not EPA's response to the *Mexichem Fluor, Inc. v. EPA* decision of the United States Court of Appeals for the District of Columbia Circuit ("the D.C. Circuit").[1] In this supplemental proposal, as in the 2020 NPRM, EPA refers to listings made in a final rule issued on July 20, 2015. *See* 80 FR 42870 ("2015 Rule"). The 2015 Rule, among other things, changed the listings for certain HFCs and blends from acceptable to unacceptable in various end-uses in the aerosols, refrigeration and air conditioning, and foam blowing sectors. After a challenge to the 2015 Rule, the D.C. Circuit issued a partial vacatur of the 2015 Rule "to the extent it requires manufacturers to replace HFCs with a substitute substance"[2] and remanded the rule to EPA for further proceedings.[3] The D.C. Circuit also upheld EPA's listing changes as being reasonable and not "arbitrary and capricious."[4] EPA intends to respond to the D.C. Circuit's decision in a future action.

The SNAP program implements section 612 of the Clean Air Act (CAA). Background on the SNAP program is provided in the 2020 NPRM.

For additional information on the SNAP program, visit the SNAP portion of EPA's Ozone Layer Protection website at *www.epa.gov/snap.* Copies of the full lists of acceptable

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[1] 866 F.3d 451 (D.C. Cir. 2017).
[2] 866 F.3d at 462.
[3] Later, the court issued a similar decision on portions of a similar final rule issued December 1, 2016. 81 FR 86778 ("2016 Rule"). See *Mexichem Fluor, Inc. v. EPA*, Judgment, Case No. 17-1024 (D.C. Cir. Apr. 5, 2019), 760 F. App'x 6 (Mem).
[4] *Mexichem Fluor*, 866 F.3d at 462-63.

substitutes for ozone depleting substances (ODS) in all industrial sectors are available at *www.epa.gov/snap/substitutes-sector*. For more information on the Agency's process for administering the SNAP program or criteria for evaluation of substitutes, refer to the initial SNAP rulemaking published on March 18, 1994 (59 FR 13044), codified at 40 CFR part 82, subpart G. SNAP decisions and the appropriate *Federal Register* citations are found at *www.epa.gov/snap/snap-regulations*. Substitutes listed as unacceptable; acceptable, subject to narrowed use limits; or acceptable, subject to use conditions, are also listed in the appendices to 40 CFR part 82, subpart G.

B. Does this action apply to me?

The following list identifies regulated entities that may be affected by this proposed rule and their respective North American Industrial Classification System (NAICS) codes:

- All Other Basic Organic Chemical Manufacturing (NAICS 325199)
- Polystyrene Foam Product Manufacturing (NAICS 326140)

C. What acronyms and abbreviations are used in the preamble?

Below is a list of acronyms and abbreviations used in the preamble of this document:

AIHA—American Industrial Hygiene Association

ASTM—American Society for Testing and Materials

CAA—Clean Air Act

CAS Reg. No.—Chemical Abstracts Service Registry Identification Number

CBI—Confidential Business Information

CFR—Code of Federal Regulations

CO_2—Carbon Dioxide

ECCC—Environment and Climate Change Canada

EPA—United States Environmental Protection Agency

EPS—Expanded Polystyrene

EU—European Union

FR—Federal Register

FTOC—Rigid and Flexible Foams Technical Options Committee

GWP—Global Warming Potential

HF—Hydrofluoric acid

HFC—Hydrofluorocarbon

HFO—Hydrofluoroolefin

ICF—ICF International, Inc.

IPCC—Intergovernmental Panel on Climate Change

NAICS—North American Industrial Classification System

NFPA—National Fire Protection Association

NIOSH—National Institute for Occupational Safety and Health

NPRM—Notice of Proposed Rulemaking

NRC—National Research Council

ODP—Ozone Depletion Potential

ODS—Ozone Depleting Substances

OMB—United States Office of Management and Budget

OSHA—United States Occupational Safety and Health Administration

PEL—Permissible Exposure Limit

PIR—Polyisocyanurate

ppm—Parts Per Million

PRA—Paperwork Reduction Act

RFA—Regulatory Flexibility Act

SDS—Safety Data Sheet

SNAP—Significant New Alternatives Policy

STEL—Short-term Exposure Limit

UMRA—Unfunded Mandates Reform Act

UL—Underwriters Laboratories, Inc.

USGCRP—U.S. Global Change Research Program

VOC—Volatile Organic Compounds

WEEL—Workplace Environmental Exposure Limit

WMO—World Meteorological Organization

XPS—Extruded Polystyrene: Boardstock and Billet

II. What did EPA propose in the 2020 NPRM, including for extruded polystyrene: boardstock and billet?

In the 2015 Rule, EPA changed the status of HFC-134a for use in XPS, from "acceptable" to "acceptable subject to narrowed use limits for military or space- and aeronautics-related applications" and "unacceptable for all other uses as of January 1, 2021," and as "unacceptable for all uses as of January 1, 2022." In another final rule issued December 1, 2016 (81 FR 86778), among other things, EPA revised the change of status dates for XPS for space- and aeronautics-related applications, such that they are "acceptable subject to narrowed use limits from January 1, 2021, through December 31, 2024," and "unacceptable as of January 1, 2025." The December 1, 2016 final rule also applied unacceptability determinations for foam blowing agents to closed cell foam products and products containing closed cell foam.

In the 2020 NPRM, EPA proposed to list three blends containing HFC-134a as acceptable blowing agents in XPS: blends of 40 to 52 percent HFC-134a by weight and the remainder HFO-1234ze(E); blends of 40 to 52 percent HFC-134a with 40 to 60 percent HFO-1234ze(E) and 10 to 20 percent each water and CO_2 by weight; and blends with maximum of 51 percent HFC-134a, 17 to 41 percent HFC-152a, up to 20 percent CO_2 and 1 to 13 percent water. EPA also proposed to revise the unacceptable listing for blends of certain HFCs in XPS for consistency with the proposed acceptable listings for those blends of HFC-134a. Redacted

submissions and supporting documentation for these blends are provided in the docket for this proposed rule (EPA-HQ-OAR-2019-0698) at *https://www.regulations.gov*.[5,6,7]

In the 2020 NPRM, EPA proposed to list those three specific blends of HFC-134a as acceptable in XPS, stating that "[t]hese blends have higher [global warming potentials] GWPs and are otherwise comparable or lower in risk than other alternatives listed as acceptable; however, EPA is taking this action because the Agency believes that other acceptable alternatives are not generally available for most needs under this end-use." 85 FR 35888.

EPA also stated in the 2020 NPRM that, in order for substitutes to be "available" in the XPS end-use, they must be capable of blowing foam that meets the technical needs of XPS products including density and ability to meet testing requirements of building codes and standards, such as for thermal efficiency, compressive strength, and flame and smoke generation (85 FR 35888). Further, EPA noted that the company that initially submitted the three blends to the SNAP program for review indicated their difficulty meeting requirements for insulation value ("R-value") with neat[8] acceptable blowing agents such as HFO-1234ze(E), HFC-152a, and CO_2.[9] The submitter indicated that if in some cases it could meet R-value requirements with those neat blowing agents, these alternatives were not able to meet other requirements such as compressive strength, density and thickness, or fire test results. The submitter also identified challenges with meeting code requirements for XPS products manufactured with flammable substitutes (e.g., HFC-152a, light saturated hydrocarbons C3-C6, and methyl formate) and provided examples of

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[5] Supporting Documentation for SNAP Rule 23 Listing of Blends of 40 to 52 Percent HFC-134a by Weight and the Remainder HFO-1234ze(E) in Extruded Polystyrene: Boardstock and Billet. Submission Received July 20, 2017. Docket ID EPA-HQ-OAR-2019-0698-0023

[6] Supporting Documentation for SNAP Rule 23 Listing of Blends of 40 to 52 Percent HFC-134a with 40 to 60 Percent HFO-1234ze(E) and 10 to 20 Percent Each Water and CO_2 by Weight in Extruded Polystyrene: Boardstock and Billet. Submission Received September 24, 2018. Docket ID EPA-HQ-OAR-2019-0698-0024

[7] Supporting Documentation for SNAP Rule 23 Listing of Blends with Maximum of 51 Percent HFC-134a, 17 to 41 Percent HFC-152a, up to 20 Percent CO_2 and One to 13 Percent Water in Extruded Polystyrene: Boardstock and Billet. Submission Received November 7, 2019. Docket ID EPA-HQ-OAR-2019-0698-0025.

[8] Individual, unblended blowing agents.

[9] DuPont, 2019b. December 17, 2019 Letter from DuPont Performance Building Solutions to EPA. Docket ID EPA-HQ-OAR-2019-0698-0008

failed test results [10] (85 FR 35888).

Based on the evidence before the Agency at the time of the 2020 NPRM, EPA stated that it appeared that only one of the substitutes that the Agency believed at the time of the 2015 Rule would be available for use in XPS foam as of January 1, 2021, was in fact available, and that it likely could only be used to meet the needs for some portion of the XPS foams market.[11] Based on concerns about ensuring that the needs of the full XPS foams market in the United States could be met and not limiting the choice of acceptable substitutes to only one option, EPA proposed to list additional blowing agent options for XPS that have been proven to work for this end-use.

In the 2020 NPRM, EPA also proposed to revise the current unacceptable listing for blends of certain HFCs in XPS in appendix U to 40 CFR part 82, subpart G. The listing for unacceptable substitutes in XPS states that HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof; and Formacel TI, Formacel B, and Formacel Z-6 are "unacceptable as of January 1, 2021, except where allowed under a narrowed use limit." For consistency with the proposed acceptable listings, EPA proposed to revise this listing of unacceptable substitutes for XPS in appendix U to read that the substitutes are "Unacceptable as of January 1, 2021 except where allowed under a narrowed use limit or where blends are specifically listed as acceptable." The 2020 NPRM further stated that EPA was not opening up for comment other aspects of the existing listing (85 FR 35889).

The 2020 NPRM also included proposals that are not affected by this supplemental proposal. Those were proposals for listing three refrigerants as acceptable, subject to narrowed use limits, for use in retail food refrigeration—medium-temperature stand-alone units for new equipment and for listing six refrigerants as acceptable, subject to use conditions, in certain types

[10] DuPont, 2019b. *Op. cit.*

[11] In the 2020 NPRM, EPA further stated that the set of products that may be able to be manufactured with that substitute, HFC-152a, would account for a minority of the current market for XPS (85 FR 35888, footnote 54). As discussed further below, the statement that HFC-152a was being used alone may have been a misunderstanding.

of new equipment for residential and light commercial air conditioning and heat pumps, as well as a proposal to remove Powdered Aerosol E from the list of fire suppression substitutes that are "acceptable subject to use conditions" in total flooding applications (85 FR 35874-75). The comment period for those portions of the proposal ended on July 27, 2020. This supplemental proposal does not reopen the comment period for those portions of the 2020 NPRM which were addressed in a separate final rule issued on May 6, 2021 (86 FR 24444).

III. What public comments and publicly available information has EPA included in the docket with respect to the proposed XPS listings since issuing the 2020 NPRM?

During the public comment period for the 2020 NPRM, EPA received comments with respect to the proposal to list three blends containing HFC-134a as acceptable blowing agents in XPS. EPA also received and found information related to the role of codes and standards for residential insulation and the availability of alternative foam blowing agents. These comments and additional information supplement the information available to the Agency at the time of the 2020 NPRM and are available in the public docket.

A. Public comments

In this section of the preamble, EPA is summarizing certain relevant public comments that shared new information or suggested different approaches to listing the three proposed blends. EPA also received other public comments related to the proposed listings in the 2020 NPRM for three blends of HFC-134a for XPS that are not summarized below. The Agency intends to address all comments on the 2020 NPRM and on this supplemental proposal in any subsequent final rule.

Most of the public comments on foam blowing agents for XPS in the 2020 NPRM opposed listing the proposed blends as acceptable, while two manufacturers of XPS supported the proposed acceptable listings. Opposing commenters stated that there are other alternatives commercially available with lower GWP for use in XPS boardstock that are currently being used in other countries, such as Japan, Saudi Arabia, Canada, and member nations of the European

Union (EU); and those commenters provided links to further information. Those commenters included one manufacturer of XPS, manufacturers of competing types of foam insulation (e.g., polyisocyanurate [PIR] laminated boardstock, expanded polystyrene [EPS]) and their trade organizations, blowing agent producers, and environmental organizations. Two environmental organizations provided information on recent research into the use of CO_2 as a blowing agent for XPS. Some of the commenters also requested that EPA list additional blowing agents for XPS that were under the SNAP program's review at the time of the 2020 NPRM. In contrast, the submitter of the three proposed blends commented that because of differences in XPS manufacturing and code requirements across jurisdictions, comparing XPS blowing agents between the U.S., Canada, and the EU is not appropriate. That commenter stated that they had patented low-GWP blends for the Japanese market, but that those blends could not meet the stricter fire codes in the North American market. A different U.S. XPS manufacturer commented that they had been using Formacel Z-6, a blend of HFC-152a, HFC-134a, and HFC-134, and requested that EPA, if listing the three proposed blends as acceptable in its final rule, clarify that the version of the Formacel Z-6 blend used in the commenter's products is acceptable; at the time of the 2020 NPRM, EPA had incorrectly understood that this company was using neat HFC-152a as their blowing agent.[12]

Some commenters mentioned that certain states have adopted regulations that control HFCs.[13] The submitter of the proposed blends specifically mentioned timelines imposed by state

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[12] This misunderstanding was the basis for the Agency's statements in the 2020 NPRM that "one of the three manufacturers of XPS in the United States has had some success using neat HFC-152a as a blowing agent to manufacture some XPS products" and "only one of the substitutes that the Agency believed at the time of the 2015 Rule would be available for use in XPS foam as of January 1, 2021 is in fact available and likely could only be used to meet the needs for some portion of the XPS foams market." 85 FR at 35888. Subsequent to the 2020 NPRM, EPA has learned from public comments that, in fact, no U.S. XPS manufacturers are using neat HFC-152a.

[13] To provide additional context, EPA notes that several states have taken action to restrict the use of certain HFCs as foam blowing agents for XPS that would prohibit use of HFC-134a or blends thereof. To date, twelve of those states have issued final rules: California, Colorado, Delaware, Maine, Maryland, Massachusetts, New Jersey, New York, Rhode Island, Vermont, Virginia, and Washington. Maine, Rhode Island, Vermont and Virginia have established a compliance deadline of January 1, 2022; Delaware has a compliance deadline of September 1, 2021; Maryland has a compliance deadline of July 1, 2021; and the remaining six states have a compliance deadline of

regulations prohibiting certain blowing agents in XPS as a reason why they needed to use the proposed blends. An environmental group also noted in its comments that to be "fully compliant with the various state adoptions of the Significant New Alternatives Policy (SNAP) Program in the United States and Canadian Environmental Protection Act in Canada," as the submitter claims, the submitter would need to use already-approved substances.[14] Another manufacturer of XPS commented that the majority of the state laws that prohibit HFC-134a in XPS contemplate further regulatory action "to conform" state law to any federal SNAP requirement that approves a previously prohibited HFC blend for foam blowing. This commenter expressed concern that EPA's decisions in the rule could flow through to state law and that there could be inappropriate environmental and potentially anticompetitive impacts if EPA were to reach a conclusion (i.e., finalize the proposed listings for the three blends in the 2020 NPRM) without knowledge of all U.S. products available in the market.

Commenters disagree as to whether flammability of substitutes currently listed as acceptable was of concern. Some commenters commented that flammability risks of blowing agents already listed as acceptable, and particularly of HFO-1234ze(E), were not significantly different from flammability risks for HFC-134a. In contrast, the original submitter of the

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January 1, 2021.

[14] EPA is aware of Canadian regulations (the Ozone-Depleting Substances and Halocarbon Alternatives Regulations) which as of January 1, 2021, prohibit the import and the manufacture of a plastic foam or a rigid foam product in which a listed HFC (including HFC-134a) is used as a foaming agent (i.e., blowing agent) if the GWP of the foaming agent is greater than 150. (Additional information is available about these regulations online at *https://pollution-waste.canada.ca/environmental-protection-registry/regulations/view?Id=129.*) The regulations include provisions to issue essential purpose permits that would allow for the manufacture or import of a foam product if the product will be used for an essential purpose and if a permit is specifically issued under the regulations for that purpose. Environment and Climate Change Canada (ECCC) issued essential purpose permits for the import and/or manufacture of three companies' brands of extruded polystyrene foam insulation boardstock with a foaming agent containing HFCs and with a GWP below specified value. One of these was an essential purpose permit expiring on December 31, 2022 for XPS using a foam blowing agent containing HFCs and with a GWP of 750 or less manufactured by DuPont; this description corresponds with the blends proposed in the 2020 NPRM and in this supplemental proposal for XPS. ECCC also issued essential purpose permits expiring on December 31, 2021 for XPS manufactured by Owens Corning and by Kingspan Insulation. The information pertaining to essential purpose permits issued by ECCC is available online at: *https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/permits/authorizations-ozone-depleting-substances.html*.

proposed blends commented that during use of HFO-1234ze(E) without HFC-134a, they had "industrial hygiene" events where excessive hydrofluoric acid (HF) was generated due to decomposition of the blowing agent under heat and more cases of "unplanned combustion"; they reported that these problems were resolved when using HFC-134a in the blend.

Multiple commenters representing manufacturers of EPS or of PIR foam insulation questioned statements in the preamble to the 2020 NPRM concerning codes and standards and how they relate to having sufficient options for the XPS end-use. For example, representatives of the EPS industry commented that the specifications of American Society for Testing and Materials (ASTM) Standard C578 are only required by building codes in certain situations, such as use above-grade. Commenters from the EPS industry stated that XPS products could still be sold as a different type classification of insulation under the ASTM C578 standard if they failed to meet the specifications for the type classifications for which XPS typically is used (e.g., multiple types requiring an R-value of at least 5 per inch). Manufacturers of XPS foam responded to such comments in a presentation given to EPA,[15] stating that a change to a different type classification would impact their ability to fill their customer's specific application needs and reductions in R-value force an increase in product thicknesses to comply with building energy codes. A commenter from the EPS industry stated that there are a variety of flammability-related tests for insulation foam, including both testing for flame and smoke generation that is required by building codes (ASTM E84 or Underwriters Laboratories [UL] 723) and others "for which alternative solutions exist in the code if the product fails these tests, such as FM [Factory Mutual] 4880, NFPA [National Fire Protection Association] 286, UL 1715, etc."

One commenter suggested that a sunset date be included for any "Acceptable" formulations that include high-GWP chemicals. This commenter stated that that they recognize that change takes time and suggested that the blends proposed in the 2020 NPRM provide a

[15] DuPont, 2020a. August 23, 2020. DuPont Performance Building Solutions. SNAP Rule 23 Discussion with EPA.

phased approach to eventually eliminate high-GWP HFC foaming agents from XPS products in the United States. The commenter also suggested that if the EPA decides the three proposed blends should be added to the "Acceptable" list, the corresponding "Unacceptable" list should be updated to include a deadline for these formulas and not be left open ended. The submitter of the three proposed blends also mentioned timing as a concern in their comments on the 2020 NPRM, stating non-flammable blowing agent blends are necessary because of state regulatory timelines for transition away from prohibited components of blowing agents in XPS in some cases as early as January 1, 2021. That commenter stated that products that meet qualification testing with flammable blowing agents require longer development lead times. The submitter of the three proposed blends subsequently sent EPA a late comment, noting the other comment concerning a sunset date or deadline for the proposed blends and stating that they would support the inclusion of a two-year deadline for the blends in the final rule, where the blends would no longer be "acceptable" after the deadline. In this late comment, the submitter of the three proposed blends said "[i]ncluding a deadline in the final rule could alleviate many of the concerns raised by commenters, as a deadline would significantly limit the scope of any alleged impacts of the rule." They also stated that they are "committed and actively working to find solutions with further reduced [GWP]," and that they "view the SNAP Rule 23 blends as a critical, but not permanent, step in [their] GWP phasedown plan."[16] The EPA will address all comments received regarding these three blends in the XPS end-use on the 2020 NPRM and on this supplemental proposal in considering any final action on them.

B. Additional information

The Agency has obtained additional information since issuance of the 2020 NPRM. Some of this is information provided by commenters, such as the names and websites of XPS manufacturers in Europe and Asia using low-GWP blowing agents and a link to a report, "Final

[16] DuPont, 2020b. November 20, 2020 Letter from J. Hansbro, DuPont Performance Building Solutions, to C. Grundler and C. Newberg, EPA. Available in docket EPA-HQ-OAR-2019-0698

Scientific Report for DOE/EERE, A New Generation of Building Insulation by Foaming Polymer Blend Materials with CO_2" (Industrial Science & Technology Network, Inc. 2016).[17] The information on the XPS manufacturers in Europe and Asia indicates that a number of XPS manufacturers globally are using foam-blowing agents that comply with regulations restricting their GWP to 150 or less; however, there is not corresponding information indicating that the same industry standards or code requirements apply in these countries as in the United States. The DOE/EERE report concerns an experimental technology for using CO_2 in XPS with improved thermal insulation values. The report indicates that the technology is not yet commercially available. EPA also has learned that the company Soprema, which manufactures XPS in Europe using CO_2, now operates a facility in Canada that uses a blowing agent with a GWP less than 50 to manufacture XPS.[18]

Other publicly available information included in the docket for this rulemaking after the 2020 NPRM includes the 2018 report of the Rigid and Flexible Foams Technical Options Committee (FTOC 2018). FTOC 2018 states that some reasons why CO_2 could not be adopted universally as a blowing agent include the following:

- Processing difficulties with CO_2 and even CO_2/oxygenated hydrocarbon or CO_2/hydrocarbon blends;
- The higher gaseous thermal conductivity leading to poorer thermal efficiency of the foam;
- Costs of conversion—including licensing constraints resulting from patents; and
- Loss of processing flexibility ruling out some board geometries completely.

FTOC 2018 also states,

> CO_2-based blends are now dominant in the European extruded polystyrene (XPS) industry either alone or blended with other blowing agents…. In North America where the lower lambda [i.e., with higher thermal resistance and energy

[17] This report is in the docket for this rulemaking, EPA-HQ-OAR-2019-0986, and is available online at *https://www.osti.gov/servlets/purl/1244652*.

[18] *https://blog.soprema.ca/en/whats-new-with-sopra-xps*

> efficiency] product is required, HFCs still dominate. By contrast, much of the European XPS market is targeted at requirements, such as floor insulation, where its moisture resistance is particularly valuable. In these applications, board geometries are less critical.

In addition, since issuance of the 2020 NPRM, EPA has continued our review of submissions for new substitutes for use in XPS. On December 11, 2020, the Agency listed blends of 10 to 99 percent by weight HFO-1336mzz(Z) and the remainder HFC-152a as acceptable for use in XPS (85 FR 79863). Those blends have an ozone depletion potential (ODP) of zero, range in GWP from about three to 110, contain chemicals that are excluded from the definition of volatile organic compounds (VOC), are flammable depending on the specific composition of the blend, and are able to be used consistent with the workplace environmental exposure limits (WEELs) for HFC-152a and for HFO-1336mzz(Z). For more detailed information on the human health and environmental effects of these blends, see "Protection of Stratospheric Ozone: Determination 36 for Significant New Alternatives Policy Program" (85 FR 79863) and public docket EPA-HQ-OAR-2003-0118 at *www.regulations.gov*. In addition, since issuance of the 2020 NPRM, EPA's SNAP program has received and is continuing its technical review of additional submissions of foam blowing agents for use in XPS.

IV. What is EPA proposing in this supplemental proposal?

Taking into consideration the information discussed in the 2020 NPRM, the public comments received on the 2020 NPRM and information available to EPA since issuance of that initial proposal, EPA is proposing to list the following three blends of HFC-134a as "acceptable, subject to narrowed use limits," in XPS from the effective date of a final rule based on this supplemental proposal until January 1, 2023:

- Blends of 40 to 52 percent HFC-134a and the remainder HFO-1234ze(E);
- Blends of 40 to 52 percent HFC-134a with 40 to 60 percent HFO-1234ze(E) and 10 to 20 percent each water and CO_2; and
- Blends with maximum of 51 percent HFC-134a, 17 to 41 percent HFC-152a, up to 20

percent CO_2 and one to 13 percent water.

These are the same three blowing agent blends of HFC-134a that EPA proposed to list as "acceptable" in the 2020 NPRM. Through this supplemental proposal, EPA is offering an opportunity for comment on modifications to the listings for these three blends proposed in the 2020 NPRM as well as the specific narrowed use limits. As noted above, in light of information that has become publicly available and included in the docket after the comment period closed for the 2020 NPRM, we are also reopening the public comment period on the proposed listings in the 2020 NPRM for these same three blends—i.e., listing the three proposed blends as "acceptable" and changing the unacceptability listing for HFC blends in XPS to allow for specific "acceptable" listings. You may find the proposed regulatory text at the end of this document.

A. Listing of three blends of HFC-134a as acceptable, subject to narrowed use limits

Under SNAP, listings of substitutes as "acceptable, subject to narrowed use limits," permit a narrowed range of use of a substitute within an end-use or sector. As described in the 1994 SNAP Framework Rule (Mar. 18, 1994) (59 FR 13044 at 13051), where EPA narrows uses, a substitute will be acceptable for use only in certain applications under SNAP, as where other alternatives are not technically feasible due to performance or safety requirements. Thus, narrowed use limits define in which end-uses and applications an otherwise unacceptable substitute may be used under SNAP.

In this supplemental proposal, EPA is proposing to list the three HFC-134a blends as "acceptable, subject to narrowed use limits," because publicly available information that EPA has included in the docket supports consideration of this additional option as an alternative to the proposal to list them as "acceptable" without restriction in the 2020 NPRM. This information indicates that a new blowing agent is potentially available and others are likely to be available in the future that would result in overall risk to human health and the environment comparable to currently acceptable substitutes and lower than the overall risks of the proposed blends. Since

issuance of the 2020 NPRM, EPA has listed another blowing agent as acceptable for use in XPS: blends of 10 to 99 percent by weight HFO-1336mzz(Z) and the remainder HFC-152a. In addition, as commenters have noted, other blowing agents such as HFO-1234ze(E) and CO_2 are being used successfully for manufacturing XPS in other countries where there are requirements to use blowing agents with a GWP less than 150. Accordingly, EPA is proposing to include a narrowed use limit in the listing that would allow use under SNAP of the proposed blends in XPS from the effective date of a final rule based on this supplemental proposal until January 1, 2023, where other alternatives are not technically feasible for reasons of performance or safety. At the same time, EPA is proposing to list the three blends of HFC-134a as acceptable, subject to narrowed use limits, because we understand that U.S. XPS manufacturers are in the process of transitioning to other lower GWP blowing agents, and we understand that additional technical work is needed. For example, if an XPS manufacturer has not been using highly or moderately flammable blowing agents in the past, it will require additional time to test and adjust engineering controls to address the higher degree of flammability and the greater amount of HF that would be generated with the more flammable blowing agents. In addition, even with non-flammable blowing agents such as CO_2, additional time would be required to test and, if necessary, to adjust formulations or manufacturing processes, in order to meet performance requirements. Based on a late comment from one XPS manufacturer, we expect that it will take no more than two years from the original change of status date of January 1, 2021, for that work to be complete, such that these other blowing agents will be available and can meet the needs met by current XPS products.

EPA is proposing that the three proposed blends would be acceptable from the effective date of the final rule associated with this supplemental notice of proposed rulemaking—which we anticipate would be 30 days after publication of a final rule in the *Federal Register*—until January 1, 2023, to allow a limited time for fine-tuning of new formulations currently in development. This timing would also be consistent with a time period suggested in a late

comment from the submitter of the three blends. We note that we may issue a final rule with a different time period e.g., 18 or 36 months after January 1, 2021, for example, if comments and information submitted during the public comment period on this supplemental proposal indicate that a different time period would be reasonable.

The existing SNAP rules pertaining to narrowed use limits provide that users intending to adopt a substitute "acceptable with narrowed use limits" must ascertain that other alternatives are not technically feasible and document the results of their evaluation that showed the other alternatives to be not technically feasible and maintain that documentation in their files. 40 CFR 82.180(b)(3). This documentation, which does not need to be submitted to EPA unless requested to demonstrate compliance, "shall include descriptions of substitutes examined and rejected, processes or products in which the substitute is needed, reason for rejection of other alternatives, e.g., performance, technical or safety standards, and the anticipated date other substitutes will be available and projected time for switching to other available substitutes." 40 CFR 82.180(b)(3).

EPA is also reopening comment on the proposed "acceptable" listings for these three blends of HFC-134a from the 2020 NPRM, in light of information that has become publicly available and included in the public docket after the comment period closed for that proposal, including the listing of another blowing agent as acceptable for use in XPS (blends of 10 to 99 percent by weight HFO-1336mzz(Z) and the remainder HFC-152a).[19] Further, EPA requests comment on whether there are likely to be adequate options available by January 1, 2023, that would reduce overall risks to human health and the environment, and whether those options would prove to be technically feasible and sufficient in supply by that date to serve the full needs of the XPS foam market. If, taking all the relevant and available information into account, EPA were to conclude that there would not be adequate options, or that the options would not prove to be technically feasible or sufficient in supply, an acceptable, unrestricted listing without a sunset

[19] In this regard, EPA notes that section IV.B of this supplemental proposal discusses the three proposed HFC-134a blends and how they compare to other foam blowing agents in the same end-use, including the most recently listed acceptable alternative.

date, as proposed in the 2020 NPRM, might be more appropriate than a listing as "acceptable subject to narrowed use limits" or an "acceptable" listing with a sunset date.

In the 2015 Rule, EPA changed the status of certain HFCs and HFC blends from "acceptable" to "unacceptable" in XPS as of January 1, 2021, including HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof.[20] Recognizing that multiple steps needed to be taken to transition to other blowing agents, including research and testing, EPA provided several years for those actions prior to the change of status date of January 1, 2021. The Agency now anticipates that sufficient alternatives will be available and technically feasible for XPS by January 1, 2023. Thus, EPA is proposing to list additional blowing agent options for XPS that have been proven to work for this end-use on a limited basis by listing them as "acceptable, subject to narrowed use limits" from the effective date of a final rule based on this supplemental proposal until January 1, 2023.

EPA is taking comment on the proposed listings as well as the specific narrowed use limits discussed above. In particular, EPA requests comment on the appropriate time period for listing the blends as "acceptable, subject to narrowed use limits." We also request comment on whether January 1, 2023, is a reasonable date or whether, as noted above, the Agency should consider an earlier or later date in the range of July 1, 2022 to January 1, 2024, and why. In addition, EPA is considering whether there are other possible approaches to issuing a time-limited acceptable listing for these three blends for use in the XPS end-use, such as adding an "acceptable" listing with a sunset date in the same range to the SNAP listings in 40 CFR part 82, subpart G (e.g., listing as "acceptable from the effective date of the final rule to January 1, 2023"). This alternative approach would have the effect of listing these three blends as acceptable for a similar, limited time as for the proposal to list the blends as "acceptable, subject to narrowed use limits," but the time limitation would not be expressed as a narrowed use limit.

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[20] As noted above, the D.C. Circuit partially vacated and remanded the 2015 Rule while also upholding EPA's listing changes as being reasonable and not "arbitrary and capricious." *Mexichem Fluor*, 866 F.3d at 462-63. This supplemental proposal is not EPA's response to the court's decision.

Under this alternative approach, the user would not need to ascertain further that other alternatives are not technically feasible, document the results of their evaluation that showed the other alternatives to be not technically feasible, or maintain that documentation in their files, unlike with narrowed use limits.[21] EPA solicits comments on this alternative approach.

B. What are the three proposed HFC-134a blends and how do they compare to other foam blowing agents in the same end-use?

EPA notes that the information in this section is similar to that provided in the 2020 NPRM (85 FR at 35887), but is updated to reflect the most recent listing of acceptable substitutes for XPS (December 11, 2020; 85 FR 79863). In addition, EPA has updated GWP values to use the 100-year GWP from the *Assessment of Ozone Depletion: 2018* (WMO, 2018) for certain compounds that did not have a GWP value published in the International Panel on Climate Change's Fourth Assessment Report (e.g., HFOs, methyl formate).

EPA is proposing to list as "acceptable subject to narrowed use limits" (1) blends of 40 to 52 percent HFC-134a by weight and the remainder HFO-1234ze(E) for use in XPS (hereafter referred to as "HFC-134a/HFO-1234ze(E) blends"); (2) blends of 40 to 52 percent HFC-134a with 40 to 60 percent HFO-1234ze(E) and 10 to 20 percent each water and CO_2 by weight for use in XPS (hereafter referred to as "CO_2/water/HFC-134a/HFO-1234ze(E) blends"); and (3) blends with maximum of 51 percent HFC-134a, 17 to 41 percent HFC-152a, up to 20 percent CO_2 and 1 to 13 percent water (hereafter referred to as "HFC-134a/HFC-152a/CO_2/water blends"). The components of the blends are co-blown and component percentages are by weight.

HFC-134a is also known as 1,1,1,2-tetrafluoroethane (CAS Reg. No. 811-97-2). HFC-152a, also known as 1,1, difluoroethane, has CAS Reg. No. 75-37-6. HFO-1234ze is also known as HFC-1234ze, HFO-1234ze(E) or *trans*-1,3,3,3-tetrafluoroprop-1-ene (CAS Reg. No. 29118-24-9). CO_2 has CAS Reg. No. 124-38-9, and water has CAS Reg. No. 7732-18-5.

[21] I.e., under the alternative approach, it would not be necessary to meet the requirements of 40 CFR 82.180(b)(3).

Redacted submissions and supporting documentation for these blends are provided in the docket related to this supplemental proposal (EPA-HQ-OAR-2019-0698) at *https://www.regulations.gov.* EPA performed assessments to examine the health and environmental risks of these substitutes. These assessments are available in the docket related to this supplemental proposal.[22] [23] [24]

Environmental information: The substitutes have ODPs of zero. Their components, HFC-134a, HFC-152a, HFO-1234ze(E), CO_2, and water have GWPs of 1,430,[25] 124,[26] one,[27] one,[28] and less than one,[29] respectively. If these values are weighted by mass percentage, then the blends range in GWP from about 580 to 750.[30] HFC-134a, HFC-152a, HFO-1234ze(E), CO_2, and water—components of the blends—are excluded from EPA's regulatory definition of VOC under CAA regulations that address the development of state implementation plans to attain and maintain the National Ambient Air Quality Standards. *See* 40 CFR 51.100(s).

Flammability information: The component HFC-152a is moderately flammable. The

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[22] ICF, 2020a. Risk Screen on Substitutes in Extruded Polystyrene Boardstock and Billet Foam; Substitute: Blends of 40 to 52 Percent HFC-134a by Weight and the Remainder HFO-1234ze(E) (HFC-HFO Co-blowing Agents).
[23] ICF, 2020b. Risk Screen on Substitutes in Extruded Polystyrene Boardstock and Billet Foam; Substitute: Blends of 40 to 52 Percent HFC-134a with 40 to 60 Percent HFO-1234ze(E) and 10 to 20 Percent Each Water and CO_2 by Weight (Co-blowing Blends).
[24] ICF, 2020c. Risk Screen on Substitutes in Extruded Polystyrene Boardstock and Billet Foam; Substitute: Blends with Maximum of 51 Percent HFC-134a, 17 to 41 Percent HFC-152a, up to 20 Percent CO_2 and One to 13 Percent Water (Blends for Foam Blowing)
[25] IPCC, 2007. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Solomon, S., Qin, D., Manning, M., Chen, Z., Marquis, M., Averyt, K.B., Tignor, M., and Miller, H.L. (eds.). Cambridge University Press. Cambridge, United Kingdom and New York, NY, USA. Available online at: *www.ipcc.ch/publications_and_data/ar4/wg1/en/contents.html*
[26] IPCC, 2007.
[27] WMO (World Meteorological Organization), *Scientific Assessment of Ozone Depletion: 2018*, Global Ozone Research and Monitoring Project – Report No. 58, 588 pp., Geneva, Switzerland, 2018. Available at: *https://ozone.unep.org/sites/default/files/2019-05/SAP-2018-Assessment-report.pdf*. In this action, the 100-year GWP values are used.
[28] IPCC, 2007.
[29] Sherwood et al 2018. This paper estimated that water vapor emitted near Earth's surface due to anthropogenic sources (e.g. irrigation) would have a GWP of -10^{-3} to 5×10^{-4}. "The global warming potential of near-surface emitted water vapour," Steven C Sherwood, Vishal Dixit and Chryséis Salomez. *Environ. Res. Lett.* 13 (2018) 104006.
[30] A GWP of 580 corresponds to formulations containing approximately 40 percent HFC-134a and the remainder either HFO-1234ze(E); HFO-1234ze(E), CO_2, and water; or HFC-152a, CO_2, and water. A GWP of 750 corresponds to formulations containing 52 percent HFC-134a and the remainder either HFO-1234ze(E); HFO-1234ze(E), CO_2, and water; or alternatively containing 51 percent HFC-134a and the remainder HFC-152a, CO_2, and water.

other components of the blends are non-flammable at standard temperature and pressure using the standard test method ASTM E681. However, at higher temperatures, such as the temperatures typical for extruding XPS, HFC-134a and HFO-1234ze(E) may be flammable, particularly at higher humidity levels.[31] The XPS manufacturer submitting the blends has found that blends containing 50 percent or more HFC-134a have acceptable flammable process stability under conditions of use (i.e., XPS extrusion).[32]

Toxicity and exposure data: Potential health effects of these substitutes at lower concentrations include headache, nausea, drowsiness, and dizziness. The substitutes may also irritate the skin or eyes or cause frostbite. At sufficiently high concentrations, they may cause central nervous system depression and affect respiration. The substitutes could cause asphyxiation, if air is displaced by vapors in a confined space. These health effects are common to many foam blowing agents.

The American Industrial Hygiene Association (AIHA) has established WEELs of 1,000 ppm as an eight-hour time-weighted average for HFC-134a and HFC-152a and 800 ppm for HFO-1234ze(E). CO_2 has an eight hour/day, 40 hour/week permissible exposure limit (PEL) of 5000 ppm in the workplace required by the Occupational Safety and Health Administration (OSHA), and a 15-minute recommended short-term exposure limit (STEL) of 30,000 ppm established by the National Institute for Occupational Safety and Health (NIOSH). EPA anticipates that users will be able to meet the AIHA WEELs, OSHA PEL, and NIOSH STEL and address potential health risks by following requirements and recommendations in the manufacturer's safety data sheets (SDSs) and other safety precautions common to the foam blowing industry.

Comparison to other substitutes in this end-use: HFC-134a/HFO-1234ze(E) blends,

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[31] Bellair and Hood, 2019. Comprehensive evaluation of the flammability and ignitability of HFO-1234ze, R.J. Bellair and L. Hood, *Process Safety and Environmental Protection* 132 (2019) 273-284. Available online at *doi.org/10.1016/j.psep.2019.09.033*

[32] DuPont, 2019a. August 23, 2019. Letter from DuPont Performance Building Solutions to EPA. Docket ID EPA-HQ-OAR-2019-0698-0007.

CO_2/water/HFC-134a/HFO-1234ze(E) blends, and HFC-134a/HFC-152a/CO_2/water blends have ODPs of zero, comparable to all other acceptable substitutes in this end-use, such as blends of 10 to 99 percent by weight HFO-1336mzz(Z) and the remainder HFC-152a[33] (hereafter called "HFO-1336mzz(Z)/HFC-152a blends"), HFC-152a, HFO-1234ze(E), methyl formate, and CO_2.

The GWPs of 580 to 750 for the HFC-134a/HFO-1234ze(E) blends, the CO_2/water/HFC-134a/HFO-1234ze(E) blends, and HFC-134a/HFC-152a/CO_2/water blends are higher than those for acceptable alternatives such as HFC-152a, HFO-1234ze(E), HFO-1336mzz(Z)/HFC-152a blends, light saturated hydrocarbons C3-C6[34] and methyl formate, with respective GWPs of 124, less than one, [35] three to 110,[36] less than one,[37] and 11.[38]

Information regarding the flammability and toxicity of other acceptable alternatives is provided in the listing decisions previously made (see *https://www.epa.gov/snap/substitutes-polystyrene-extruded-boardstock-and-billet*). Flammability and toxicity risks of the HFC-134a/HFO-1234ze(E), the CO_2/water/HFC-134a/HFO-1234ze(E) blends, and HFC-134a/HFC-152a/CO_2/water blends are comparable to or lower than flammability and toxicity risks of other available substitutes in the same end-use. Toxicity risks can be minimized by use consistent with the AIHA WEELs, OSHA PEL, NIOSH STEL, recommendations in the manufacturer's SDSs, and other safety precautions common in the foam-blowing industry.

C. Status of specific HFC blends

The existing SNAP listings in appendix U to 40 CFR subpart G include an unacceptable listing for XPS for "HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof; Formacel TI, Formacel B, and Formacel Z-6" under which those alternatives are "unacceptable as of January 1, 2021, except where allowed under a narrowed use limit." In the 2020 NPRM, EPA proposed

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[33] These blends range in composition from 10 percent HFO-1336mzz(Z) and 90 percent HFC-152a to 99 percent HFO-1336mzz(Z) and 1 percent HFC-152a.
[34] That is, alkanes with three to six carbons such as butane, n-pentane, isopentane, and cyclopentane.
[35] WMO, 2018.
[36] HFO-1336mzz(Z) and HFC-152a, have GWPs of about two (WMO, 2018) and 124 (IPCC, 2007), respectively. If these values are weighted by mass percentage, then the blends range in GWP from about three to about 110.
[37] WMO, 2018.
[38] WMO, 2018.

to revise this listing of unacceptable substitutes for XPS to add an exception to the unacceptability of blends of HFC-134a, HFC-245fa, or HFC-365mfc for cases "where blends are specifically listed as acceptable." 85 FR 35889. That change was proposed to allow for consistency between the proposed acceptable listings for these blends for XPS in the 2020 NPRM and the existing unacceptable listing for HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof; and Formacel TI, Formacel B, and Formacel Z-6. EPA notes that if we finalize the proposed change of listing the three blends of HFC-134a as "acceptable, subject to narrowed use limits," no change would be needed to appendix U for consistency, as the existing listing already includes the text "except where allowed under a narrowed use limit."

V. 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 a significant regulatory action that was submitted to the Office of Management and Budget (OMB) for review. Any changes made in response to OMB recommendations have been documented in the docket.

B. Paperwork Reduction Act (PRA)

This action does not impose any new information collection burden under the PRA. OMB has previously approved the information collection activities contained in the existing regulations and has assigned OMB control number 2060-0226. The approved Information Collection Request includes five types of respondent reporting and recordkeeping activities pursuant to SNAP regulations: submission of a SNAP petition, filing a Toxic Substances Control Act/SNAP Addendum, notification for test marketing activity, recordkeeping for substitutes acceptable subject to use restrictions, and recordkeeping for small volume uses. This rule contains no new requirements for reporting or recordkeeping.

C. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial

number of small entities under the RFA. This action will not impose any requirements on small entities. The companies that may consider using the proposed blends, manufacturers of XPS products, are not small businesses.

D. Unfunded Mandates Reform Act (UMRA)

This action does not contain any unfunded mandate as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. The action imposes no enforceable duty on any state, local, or tribal governments, or the private sector.

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.

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

This action does not have tribal implications as specified in Executive Order 13175. It will not have substantial direct effects on tribal governments, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes, as specified in Executive Order 13175. Thus, Executive Order 13175 does not apply to this action. EPA periodically updates tribal officials on air regulations through the monthly meetings of the National Tribal Air Association and will share information on this rulemaking through this and other fora.

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

This action is not subject to Executive Order 13045 because it is not economically significant as defined in Executive Order 12866, and because EPA does not believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. The EPA has not conducted a separate analysis of risks to infants and children associated with this rule. Any risks to children are not different than the risks to the general population. This action's health and risk assessments are contained in the comparisons of toxicity

for the various substitutes, as well as in the risk screens for the substitutes that are proposed to be listed. The risk screens are in the docket for this rulemaking.

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

This action is not a "significant energy action" because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. The blowing agents proposed in this action would enable the continued manufacture of insulation foam that maintain current levels of thermal efficiency.

I. National Technology Transfer and Advancement Act

This rulemaking does not involve technical standards.

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

A regulatory action may involve potential environmental justice concerns if it could (1) create new disproportionate impacts on minority populations, low-income populations, and/or indigenous peoples; (2) exacerbate existing disproportionate impacts on minority populations, low-income populations, and/or indigenous peoples; or (3) present opportunities to address existing disproportionate impacts on minority populations, low-income populations, and/or indigenous peoples through the action under development.

In EPA's 2009 and 2016 Endangerment Findings, the Administrator considered climate change risks to minority populations and low-income populations, finding that certain parts of the population may be especially vulnerable based on their characteristics or circumstances, including the poor, the elderly, the very young, those already in poor health, the disabled, those living alone, and/or indigenous populations dependent on one or limited resources due to factors including but not limited to geography, access, and mobility. More recent assessment reports by the U.S. Global Change Research Program (USGCRP), the Intergovernmental Panel on Climate Change (IPCC), and the National Research Council of the National Academies (NRC) demonstrate that the potential impacts of climate change raise environmental justice issues.

These reports concluded that poorer communities can be especially vulnerable to climate change impacts because they tend to have more limited adaptive capacities and are more dependent on climate-sensitive resources such as local water and food supplies. In corollary, some communities of color—specifically, populations defined jointly by both ethnic/racial characteristics and geographic location—may be uniquely vulnerable to climate change health impacts in the United States. Native American tribal communities possess unique vulnerabilities to climate change, particularly those impacted by degradation of natural and cultural resources within established reservation boundaries and threats to traditional subsistence lifestyles. Tribal communities whose health, economic well-being, and cultural traditions that depend upon the natural environment will likely be affected by the degradation of ecosystem goods and services associated with climate change.

The EPA believes that this action does *not* have disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, and/or indigenous peoples, as specified in Executive Order 12898 (February 16, 1994; 59 FR 7629). In light of the controls on production and consumption of HFCs under the American Innovation and Manufacturing Act (December 27, 2020; Pub. L.116-260), if the proposed listings were finalized, they would not be expected to change the overall amount of HFCs manufactured or imported in the United States or to adversely impact the climate. Additionally, this limited action does not present a meaningful opportunity to address existing disproportionate impacts.

EPA's analysis indicates that other environmental impacts and human health impacts of the proposed substitutes are comparable to or less than those of other substitutes that are listed as acceptable for the same end-use. For EPA's analysis of the human health and environmental impacts of these substitutes, see the risk screens in the public docket for this rulemaking (ICF, 2020a; ICF, 2020b; ICF, 2020c). The limited period of time for the proposed listings in this supplemental proposal would further reduce any impacts compared to the proposed listings for XPS in the 2020 NPRM. Based on these considerations, EPA expects that, if this supplemental

proposal becomes final as proposed, the effects on minority populations, low-income populations, and/or indigenous peoples would not be disproportionately high and adverse.

VI. References

Unless specified otherwise, all documents are available electronically through the Federal Docket Management System, Docket number EPA-HQ-OAR-2019-0698.

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DuPont, 2019b. December 17, 2019 Letter from DuPont Performance Building Solutions to EPA. Docket ID EPA-HQ-OAR-2019-0698-0008.

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DuPont, 2020b. November 20, 2020 Letter from J. Hansbro, DuPont Performance Building Solutions, to C. Grundler and C. Newberg, EPA.

FTOC, 2018. 2018 Report of the Rigid and Flexible Foams Technical Options Committee. 2018 Assessment Report. Available online at *https://ozone.unep.org/science/assessment/teap.*

ICF, 2020a. Risk Screen on Substitutes in Extruded Polystyrene Boardstock and Billet Foam; Substitute: Blends of 40 to 52 Percent HFC-134a by Weight and the Remainder HFO-1234ze(E) (HFC-HFO Co-blowing Agents).

ICF, 2020b. Risk Screen on Substitutes in Extruded Polystyrene Boardstock and Billet Foam; Substitute: Blends of 40 to 52 Percent HFC-134a with 40 to 60 Percent HFO-1234ze(E) and 10 to 20 Percent Each Water and CO_2 by Weight (Co-blowing Blends).

ICF, 2020c. Risk Screen on Substitutes in Extruded Polystyrene Boardstock and Billet Foam; Substitute: Blends with Maximum of 51 Percent HFC-134a, 17 to 41 Percent HFC-152a, up to 20 Percent CO_2 and One to 13 Percent Water (Blends for Foam Blowing).

Industrial Science & Technology Network, Inc. 2016. Final Scientific Report for DOE/EERE, A New Generation of Building Insulation by Foaming Polymer Blend Materials with CO_2. Industrial Science & Technology Network, Inc. Available online at: *https://www.osti.gov/servlets/purl/1244652.*

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Sherwood et. al. 2018. Sherwood, S. C, Vishal, D., and Salomez, C. (2018) The global warming potential of near-surface emitted water vapour. Environ. Res. Lett.,13 104006. Available online at *https://iopscience.iop.org/article/10.1088/1748-9326/aae018/pdf*.

WMO (World Meteorological Organization), *Scientific Assessment of Ozone Depletion: 2018*, Global Ozone Research and Monitoring Project – Report No. 58, 588 pp., Geneva, Switzerland, 2018. Available at: *https://ozone.unep.org/sites/default/files/2019-05/SAP-2018-Assessment-report.pdf*.

List of Subjects in 40 CFR Part 82

Environmental protection, Administrative practice and procedure, Air pollution control, Reporting and recordkeeping requirements, Stratospheric ozone layer.

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Michael S. Regan,
Administrator.

For the reasons set forth in the preamble, EPA proposes to amend 40 CFR part 82 as follows:

PART 82—PROTECTION OF STRATOSPHERIC OZONE

1. The authority citation for part 82 continues to read as follows:

Authority: 42 U.S.C. 7414, 7601, 7671-7671q.

Subpart G–Significant New Alternatives Policy Program

2. In appendix W to subpart G of part 82:

a. Revise the heading for appendix W to subpart G of part 82.

b. Add a table titled "Foam Blowing Agents—Substitutes Acceptable Subject to Narrowed Use Limits" after the table titled "Refrigerants—Substitutes Acceptable Subject to Use Conditions".

The addition and revision read as follows:

Appendix W to Subpart G of Part 82—Substitutes Listed in the May 6, 2021 Final Rule and the [Date of publication of final rule in the Federal Register] Final Rule—Effective June 7, 2021 and [Date 30 days after date of publication of the final rule in the Federal Register]

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FOAM BLOWING AGENTS—SUBSTITUTES ACCEPTABLE SUBJECT TO NARROWED USE LIMITS

End-use	Substitute	Decision	Narrowed use limits	Further Information
Extruded Polystyrene: Boardstock and Billet	Blends of 40 to 52 percent HFC-134a by weight and the remainder HFO-1234ze(E)	Acceptable Subject to Narrowed Use Limits	Acceptable from [insert date 30 days after date of publication of final rule] until January 1, 2023: only for use where reasonable efforts have been made to ascertain that other alternatives are not yet technically feasible for reasons of performance or safety. Users are required to document and retain the results of their technical investigation of alternatives for the purpose of demonstrating compliance. Information shall include descriptions of: • Process or product in which the substitute is needed;	

			• Substitutes examined and rejected; • Reason for rejection of other alternatives, e.g., performance, technical or safety standards; and/or • Anticipated date other substitutes will be available and projected time for switching.	
Extruded Polystyrene: Boardstock and Billet	Blends of 40 to 52 percent HFC-134a with 40 to 60 percent HFO-1234ze(E) and 10 to 20 percent each water and CO_2 by weight	Acceptable Subject to Narrowed Use Limits	Acceptable from [insert date 30 days after date of publication of final rule] until January 1, 2023: only for use where reasonable efforts have been made to ascertain that other alternatives are not yet technically feasible for reasons of performance or safety. Users are required to document and retain the results of their technical investigation of alternatives for the purpose of demonstrating compliance. Information shall include descriptions of: • Process or product in which the substitute is needed; • Substitutes examined and rejected; • Reason for rejection of other alternatives, e.g., performance, technical or safety standards; and/or • Anticipated date other substitutes will be available and projected time for switching.	
Extruded Polystyrene: Boardstock and Billet	Blends with maximum of 51 percent HFC-134a, 17 to 41 percent HFC-152a, up to 20 percent CO_2 and one to 13 percent water	Acceptable Subject to Narrowed Use Limits	Acceptable from [insert date 30 days after date of publication of final rule] until January 1, 2023 only for use where reasonable efforts have been made to ascertain that other alternatives are not yet technically feasible for reasons of performance or safety. Users are required to document and retain the results of their technical investigation of alternatives for the purpose of demonstrating compliance. Information shall include descriptions of: • Process or product in which the substitute is needed; • Substitutes examined and rejected; • Reason for rejection of other alternatives, e.g., performance, technical or safety standards; and/or • Anticipated date other substitutes will be available and projected time for switching.	

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