Agency amends 40 CFR part 52 as set forth below:

PART 52—APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS

1. The authority citation for part 52 continues to read as follows:

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

Subpart R—Kansas

2. In §52.870(e) the table is amended by adding new entry (38) in numerical order at the end of the table to read as follows:

EPA-APPROVED KANSAS NONREGULATORY PROVISIONS

<table>
<thead>
<tr>
<th>Name of nonregulatory SIP provision</th>
<th>Applicable geographic or nonattainment area</th>
<th>State submittal date</th>
<th>EPA approval date</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(38) Section 110(a)(2) Infrastructure Requirements for the 2008 O₃ NAAQS.</td>
<td>Statewide ..........</td>
<td>3/19/2013</td>
<td>10/21/2014</td>
<td>This action addresses the following CAA elements: 110(a)(2)(A), (B), (C), (D)(i)(II) (prongs 3 and 4), (D)(ii), (E), (F), (G), (H), (J), (K), (L), and (M) except as noted.</td>
</tr>
</tbody>
</table>

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ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 82


RIN 2060–AG12

Protection of Stratospheric Ozone: Determination 29 for Significant New Alternatives Policy Program

AGENCY: Environmental Protection Agency (EPA).

ACTION: Determination of acceptability.

SUMMARY: This Determination of Acceptability expands the list of acceptable substitutes for ozone-depleting substances under the U.S. Environmental Protection Agency’s (EPA) Significant New Alternatives Policy (SNAP) program. This action lists as acceptable additional substitutes for use in the refrigeration and air conditioning, foam blowing, and fire suppression and explosion protection sectors.

DATES: This determination is effective on October 21, 2014.

ADDRESSES: EPA has established a docket for this action under Docket ID No. EPA–HQ–OAR–2003–0118 (continuation of Air Docket A–91–42). All electronic documents in the docket are listed in the index at www.regulations.gov. Although listed in the index, some information is not publicly available, i.e., Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Publicly available docket materials are available either electronically at www.regulations.gov or in hard copy at the EPA Air Docket (Nos. A–91–42 and EPA–HQ–OAR–2003–0118), EPA/DC, EPA West, Room 3334, 1301 Constitution Avenue NW., Washington, DC. The Public Reading Room 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: Margaret Sheppard by telephone at (202) 343–9163, by facsimile at (202) 343–2338, by email at sheppard.margaret@epa.gov, or by mail at U.S. Environmental Protection Agency, Mail Code 6205T, 1200 Pennsylvania Avenue NW., Washington, DC 20460. Overnight or courier deliveries should be sent to the office location at 1201 Constitution Avenue NW., Washington, DC 20004.

For more information on the agency’s process for administering the SNAP program or criteria for evaluation of substitutes, refer to the original SNAP rulemaking published in the Federal Register on March 18, 1994 (59 FR 13044). Notices and rulemakings under the SNAP program, as well as other EPA publications on protection of stratospheric ozone, are available at EPA’s Ozone Depletion Web site at www.epa.gov/ozone/strathome.html including the SNAP portion at www.epa.gov/ozone/snap/.

SUPPLEMENTARY INFORMATION:

I. Listing of New Acceptable Substitutes

A. Refrigeration and Air Conditioning

B. Foam Blowing

C. Fire Suppression and Explosion Protection

II. Section 612 Program

A. Statutory Requirements and Authority for the SNAP Program

B. EPA’s Regulations Implementing Section 612

C. How the Regulations for the SNAP Program Work

D. Additional Information About the SNAP Program

Appendix A—Summary of Decisions for New Acceptable Substitutes

I. Listing of New Acceptable Substitutes

This action presents EPA’s most recent decision to list as acceptable several substitutes in the refrigeration and air conditioning, foam blowing, and fire suppression and explosion protection sectors. New substitutes include trans-1-chloro-3,3,3-trifluoroprop-1-ene in non-mechanical heat transfer, and in flexible polyurethane foams; CO₂ in refrigerated transport; R–450A in a variety of foam blowing end-uses; and Powdered Aerosol D in the total flooding end-use. For copies of the full list of acceptable substitutes for ozone depleting substances (ODS) in all industrial sectors, visit EPA’s Ozone Layer Protection Web site at www.epa.gov/ozone/snap/lists/index.html.

The sections below discuss each substitute listing in detail. Appendix A contains tables summarizing today’s listing decisions for these new acceptable substitutes. The statements in the “Further Information” column in the tables provide additional information, but are not legally binding.
under section 612 of the Clean Air Act (CAA). In addition, the “Further Information” may not be a comprehensive list of other legal obligations you may need to meet when using the substitute. Although you are not required to follow recommendations in the “Further Information” column of the table to use a substitute consistent with section 612 of the CAA, some of these statements may refer to obligations that are enforceable or binding under federal or state programs other than the SNAP program. In many instances, the information simply refers to standard operating practices in existing industry and/or building-code standards. EPA strongly encourages you to apply the information in this column using these substitutes. Many of these recommendations, if adopted, would not require significant changes to existing operating practices.

You can find submissions to EPA for the substitutes listed in this document, as well as other materials supporting the decisions in this action in docket EPA–HQ–OAR–2003–0118 at www.regulations.gov.

A. Refrigeration and Air Conditioning

1. \begin{itemize}
\item Trans-1-chloro-3,3,3-trifluoroprop-1-ene (Solstice® 1233zd(E))
\item EPA’s decision: EPA finds trans-1-chloro-3,3,3-trifluoroprop-1-ene acceptable as a substitute for use in new equipment in non-mechanical heat transfer.
\item Solstice® 1233zd(E) has an ozone depletion potential (ODP) of 0.00024 to 0.00034. Estimates of this compound’s potential to deplete the ozone layer indicate that even with worst-case estimates of emissions, which assume that this compound would substitute for all compounds it could replace, the impact on global atmospheric ozone abundance would be statistically insignificant. Solstice® 1233zd(E) has a 100-year integrated global warming potential (100-yr GWP) reported as 1 to 7 and an atmospheric lifetime of approximately 26 to 31 days or less. Solstice® 1233zd(E) is excluded from the definition of volatile organic compounds (VOC) under CAA regulations (see 40 CFR 51.100(s)) addressing the development of state implementation plans (SIPs) to attain and maintain the National Ambient Air Quality Standards (NAAQS). The emissions of this refrigerant will be limited, given that it is subject to the venting prohibition under section 608(c)(2) of the CAA and EPA’s venting regulations codified at 40 CFR 82.154(a)(1).
\item Flammability information: Solstice™ 1233zd(E) is not flammable.
\item Toxicity and exposure data: Potential health effects of this substitute include serious eye irritation, skin irritation, and frostbite. It may cause central nervous system effects such as drowsiness and dizziness. The substitute could cause asphyxiation if air is displaced by vapors in a confined space.
\end{itemize}

The American Industrial Hygiene Association (AIHA) has established a Workplace Environmental Exposure Level (WEEL) of 800 ppm for trans-1-chloro-3,3,3-trifluoroprop-1-ene. EPA anticipates that Solstice™ 1233zd(E) will be used in a manner consistent with the recommendations specified in the manufacturer’s material safety data sheet (MSDS). EPA anticipates that users will be able to meet the WEEL and address potential health risks by following requirements and recommendations in the MSDS and in any other safety precautions common to the refrigeration and air conditioning industry.

Comparison to other substitutes in these end-uses: Solstice™ 1233zd(E) has an ODP of 0.00024 to 0.00034 and estimates of its maximum potential impact on the ozone layer indicate a statistically insignificant impact, comparable to that of other substitutes in the same end-uses that are considered to be non-ozone-depleting. Solstice™ 1233zd(E)’s GWP of 1 to 7 is lower than or comparable to those of other acceptable substitutes in the same end-uses, such as HFC–245fa, HFC–134a and HFC–125 (with GWPs ranging from 1,030 to 3,500). Its GWP is also well below those of CFC–113, HCFC–141b, HCFC–22, and HCFC–123 (with ODPs ranging from 0.10 to 0.8). Solstice™ 1233zd(E)’s GWPs of 1 to 7 is lower than or comparable to those of other acceptable substitutes in the same end-uses, such as HFC–245fa, HFC–134a and HFC–125 (with GWPs ranging from 1,030 to 3,500). Its GWP is also well below those of CFC–113, HCFC–141b, HCFC–22, and HCFC–123 (with GWPs ranging from 7 to 4.750).

Flammability risks are low as discussed above. Toxicity risks can be minimized by use consistent with the AIHA WEEL standard, the American Society for Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 15 and other industry standards, recommendations in the MSDS, and other safety precautions common in the refrigeration and air conditioning industry. The potential health effects of Solstice™ 1233zd(E) are common to many refrigerants, including many of those already listed as acceptable under SNAP. EPA thus

\begin{itemize}
\item Unless otherwise stated, all GWPs in this document are from EPA’s regulations at appendix A to subpart A of 40 CFR part 82.
\end{itemize}
finds trans-1-chloro-3,3,3-trifluoroprop-1-ene (Solstice™ 1233zd(E)) acceptable in the end-uses listed above, because the overall environmental and human health risk posed by trans-1-chloro-3,3,3-trifluoroprop-1-ene is lower than or comparable to the risks posed by other substitutes found acceptable in the same end-uses.

2. Carbon Dioxide (R–744)

EPA’s decision: EPA finds carbon dioxide acceptable as a substitute for use in new equipment in refrigerated transport. Carbon dioxide is also known as CO₂, CAS Reg. No. 124–38–9, or R–744 when used as a refrigerant.

You may find the redacted submission in docket EPA–HQ–OAR–2003–0118 at www.regulations.gov under the name, “SNAP Information Notice for CO₂ in Refrigerated Transport received 7/19/13.” EPA has performed an assessment to examine the health and environmental risks of this substitute. This assessment is available in document EPA–HQ–OAR–2003–0118 under the name, “Risk Screen on Substitutes for Use in Refrigerated Transport Substitute: Carbon Dioxide (CO₂).”

We have previously listed CO₂ as a refrigerant in a number of other refrigeration and air conditioning end-uses (e.g., January 13, 1995, 60 FR 3318; September 30, 2009, 74 FR 50129; June 6, 2012, 77 FR 33315; August 10, 2012, 77 FR 47768). Environmental information: CO₂ has an ODP of zero. The 100-yr GWP of CO₂ is 1.

EPA’s regulations codified at 40 CFR part 82, subpart F exempt CO₂ refrigerant from the venting prohibition under section 608(c)(2) of the CAA (see 69 FR 11946; March 12, 2004). This section and EPA’s venting regulations prohibit the intentional venting or release of substitutes for class I or class II ODS during the repair, maintenance, service or disposal of refrigeration and air conditioning appliances, unless EPA expressly exempts a particular substitute refrigerant from the venting prohibition, as for CO₂.

CO₂ is excluded from the definition of VOC under CAA regulations (see 40 CFR 51.100(s) addressing the development of SIPs to attain and maintain the NAAQS.

Flammability information: CO₂ is not flammable.

Toxicity and exposure data: Potential health effects of this substitute at lower concentrations include loss of concentration, headache and shortness of breath. The substitute may also irritate the skin or eyes or cause frostbite. At sufficiently high concentrations, it may cause central nervous system depression. The substitute could cause asphyxiation, if air is displaced by vapors in a confined space. For additional information concerning potential health risks of CO₂, see EPA’s final rule under the SNAP program for use of CO₂ as a refrigerant in motor vehicle air conditioning systems (77 FR 33315; June 6, 2012) and EPA’s risk screen in docket EPA–HQ–OAR–2003–0118.

To protect against these potential health risks, CO₂ has an 8 hour/day, 40 hour/week permissible exposure limit (PEL) of 5,000 ppm in the workplace required by the Occupational Safety and Health Administration (OSHA). It also has 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 recommends that users follow all requirements and recommendations specified in the MSDS, in ASHRAE standard 15, and we expect that users will meet OSHA’s PEL. EPA anticipates that users will be able to address potential health risks by complying with the PEL and by following requirements and recommendations in the MSDS, in ASHRAE 15, and by safety precautions common in the refrigeration and air conditioning industry. We also recommend that users of CO₂ adhere to NIOSH’s STEL and to ASHRAE 15, and we expect that users will meet OSHA’s PEL. EPA recommends that users follow all requirements and recommendations specified in the MSDS, in ASHRAE 15, and we expect that users will meet OSHA’s PEL. EPA anticipates that users will be able to address potential health risks by complying with the PEL and by following requirements and recommendations in the MSDS, in ASHRAE 15, and by safety precautions common in the refrigeration and air conditioning industry.

Comparison to other substitutes in the same end-use: CO₂ is non-ozone-depleting, comparable to a number of other acceptable non-ozone-depleting substitutes for these end-uses, including R–404A, R–407C, R–410A, and HFC–134a, and in contrast to the ODS CFC–12, HCFC–22 and R–502 (with ODPs ranging from 0.04 to 1.0). CO₂’s GWP of 1 is lower than or comparable to that of other non-ozone-depleting substitutes in the same refrigeration and air conditioning end-use for which we are finding it acceptable, such as R–404A, R–407C, R–410A and HFC–134a (with GWP’s ranging from 1.430 to 3.930). Furthermore, the GWP of CO₂ is well below those of ODS used in this end-use, including CFC–12, HCFC–22 and R–502 (with GWPs ranging from 1.810 to 10.900). Flammability risks are low, as discussed above. Toxicity risks can be minimized by use consistent with the OSHA PEL, ASHRAE 15, and other industry standards, recommendations in the MSDS, and other safety precautions common in the refrigeration and air conditioning industry. The potential health effects of CO₂ are common to many refrigerants, including many of those already listed as acceptable under SNAP. EPA thus finds CO₂ acceptable in the end-use listed above, because the overall environmental and human health risk posed by CO₂ is lower than or comparable to the risks posed by other substitutes found acceptable in the same end-use.

3. R–450A

EPA’s decision: EPA finds R–450A acceptable as a substitute for use in:

• Retail food refrigeration (new and retrofit equipment)
• Refrigerated transport (new and retrofit equipment)
• Vending machines (retrofit equipment only)
• Commercial ice machines (new and retrofit equipment)
• Water coolers (new and retrofit equipment)
• Cold storage warehouses (new and retrofit equipment)
• Industrial process refrigeration (new and retrofit equipment)
• Reciprocating, screw and scroll chillers (new and retrofit equipment)
• Centrifugal chillers (new and retrofit equipment)
• Household refrigerators and freezers (new and retrofit equipment)
• Industrial process air-conditioning (new and retrofit equipment)

R–450A, marketed under the trade name Solstice® N–13, is a weighted blend of 42 percent HFC–134a, which is also known as 1,1,1,2-tetrafluoroethane (CAS Reg. No. 811–97–2) and 58 percent HFC–1234ze(E), which is also known as trans-1,3,3,3-tetrafluoroprop-1-ene (CAS Reg. No. 29118–24–9).

You may find the redacted submission in Docket EPA–HQ–OAR–2003–0118 at www.regulations.gov under the name, “Solstice N–13 (R–450A) SNAP Information Notice.” EPA has performed assessments to examine the health and environmental risks of this substitute. These assessments are available in docket EPA–HQ–OAR–2003–0118 under the following names:

• “Risk Screen on Substitutes for Use in Retail Food Refrigeration, Vending Machines, and Commercial Ice Machines Substitute: R–450A”
• “Risk Screen on Substitutes for Use in Household Refrigerators and Freezers and Water Coolers Substitute: R–450A”
• “Risk Screen on Substitutes for Use in Chillers and Industrial Process Air Conditioning Substitute: R–450A”
• “Risk Screen on Substitutes for Use in Cold Storage Warehouses and Industrial Process Refrigeration Substitute: R–450A”
Risk Screen on Substitutes for Use in Refrigerated Transport Substitute: R–450A

Environmental information: R–450A has an ODP of zero. Its components, HFC–134a and HFO–1234ze(E), have GWPs of 1,430 and 1 to 6 \(^{11}\), respectively. If these values are weighted by mass percentage, then R–450A has a GWP of about 601. The components of R–450A are both excluded from the definition of VOC under CAA regulations (see 40 CFR 51.100(e)) addressing the development of SIPs to attain and maintain the NAAQS. The emissions of this refrigerant blend will be limited given it is subject to the venting prohibition under section 608(c)(2) of the CAA and EPA’s venting regulations codified at 40 CFR 82.154(a)(1), \(^{12}\) which limit emissions of refrigerant substitutes.

Flammability information: R–450A as formulated and in the worst-case fractionation formulation is not flammable.

Toxicity and exposure data: Potential health effects of this substitute include drowsiness or dizziness. The substitute may also irritate the skin or eyes or cause frostbite. At sufficiently high concentrations, the substitute may cause irregular heartbeat. The substitute could cause asphyxiation if air is displaced by vapors in a confined space. These potential health effects are common to many refrigerants.

The AIHA has established WEELs of 1,000 ppm and 800 ppm as an 8-hour time-weighted averages (TWAs) for HFC–134a and HFO–1234ze(E), the components of R–450A. EPA anticipates that users will be able to meet either of the AIHA WEELs and address potential health risks by following requirements and recommendations in the MSDS, in ASHRAE 15 and other industry standards, recommendations in the MSDS, and other safety precautions common in the refrigeration and air conditioning industry. The potential health effects of R–450A are common to many refrigerants, including many of those already listed as acceptable under SNAP. EPA thus finds R–450A acceptable in the end-uses listed above, because the overall environmental and human health risk posed by R–450A is lower than the risks posed by other substances found acceptable in the same end-uses.

B. Foam Blowing

1. Trans-1-chloro-3,3,3-trifluoroprop-1-ene (Solstice™ 1233zd(E))

EPA’s decision: EPA finds trans-1-chloro-3,3,3-trifluoroprop-1-ene acceptable as a substitute for use as a blowing agent in flexible polyurethane foams.

Trans-1-chloro-3,3,3-trifluoroprop-1-ene ((E)-1-chloro-3,3,3-trifluoroprop-1-ene, CAS Reg. No. 102687–65–0) is a chlorofluoroalkene marketed under the trade name Solstice™ 1233zd(E) for various foam blowing end-uses. You may find the redacted submission in docket EPA–HQ–OAR–2003–0118 at www.regulations.gov under the name “TSCA/SNAP Addendum for trans-1-chloro-3,3,3-trifluoroprop-1-ene in flexible foams.” EPA has performed an assessment to examine the health and environmental risks of this substitute. This assessment is available in docket EPA–HQ–OAR–2003–0118 under the name “Risk Screen on Substitutes for Use in Flexible Polyurethane Foams Substitute: Trans-1-chloro-3,3,3-trifluoroprop-1-ene”.

We have previously listed trans-1-chloro-3,3,3-trifluoroprop-1-ene as a foam blowing agent in a number of end-uses (August 10, 2012, 77 FR 47768).

Environmental information: The environmental information for this substitute is set forth in the “Environmental information” section in listing A.1.

Flammability information: Solstice™ 1233zd(E) is not flammable.

Toxicity and exposure data: The toxicity information for this substitute is set forth in the “Toxicity and exposure data” section in listing A.1.

The AIHA has established a WEEL of 800 ppm for trans-1-chloro-3,3,3-trifluoroprop-1-ene. EPA anticipates that Solstice™ 1233zd(E) will be used in a manner consistent with the recommendations specified in the manufacturer’s MSDS. EPA anticipates that users will be able to meet the WEEL and address potential health risks by following regulations and recommendations in the MSDS and in any other safety precautions common to the foam blowing industry.

Comparison to other substitutes in this end-use: Solstice™ 1233zd(E) has an ODP of 0.00024 to 0.00034 and estimates of its maximum potential impact on the ozone layer indicate a statistically insignificant impact, comparable to that of other substitutes in the same end-uses that are considered to be non-ozone-depleting.\(^{13}\) Solstice™ 1233zd(E)’s ODP is well below that of the ODS CFC–11 and HCFC–141b (with GWPs ranging from 0.11 to 1.0). Solstice™ 1233zd(E)’s GWP of 1 to 7 is lower than or comparable to that of other acceptable substitutes in the same end-use, such as HFC–134a, HFC–245fa and HFC–152a (with GWPs ranging from 124 to 1,430) and C3–C6 saturated light hydrocarbons \(^{14}\) (with GWPs less than 10). Its GWP is also well below those of CFC–11 and HCFC–141b (with GWPs ranging from 725 to 4,750).

Flammability risks are low, as discussed above. Toxicity risks can be minimized by use consistent with the AIHA WEEL, recommendations in the MSDS, and other safety precautions common in the foam blowing industry. The potential health effects of Solstice™ 1233zd(E) are common to many foam blowing agents, including many of those already listed as acceptable under SNAP. EPA thus finds trans-1-chloro-3,3,3-trifluoroprop-1-ene acceptable in the end-use listed above, because the overall environmental and human health risk posed by trans-1-chloro-3,3,3-trifluoroprop-1-ene is lower than or comparable to the risks posed by other substitutes found acceptable in the same end-use.

2. Methylal (Dimethoxymethane)

EPA’s decision: EPA finds methylal acceptable as a substitute for use as a blowing agent in:


\(^{12}\) For more information, including definitions, see 40 CFR part 62, subpart F.

\(^{13}\) Wang et al., 2011 and Patten and Wuebbles, 2010. Op cit.

\(^{14}\) That is, unsaturated hydrocarbons with 3 to 6 carbons, such as propane, butane, pentane, isopentane, and cyclopentane.
• Rigid polyurethane and polyisocyanurate laminated boardstock
• Rigid polyurethane appliance
• Rigid polyurethane commercial refrigeration and sandwich panels
• Rigid polyurethane slabstock and other
• Flexible polyurethane
• Integral skin polyurethane

Methylal is also called dimethoxymethane, CAS 109–87–5. It belongs to a class of chemicals referred to as acetals.

You may find the redacted submission in Docket EPA–HQ–OAR–2003–0118 at www.regulations.gov under the name “SNAP Information Notice for methylal received 4/18/14.” EPA has performed an assessment to examine the health and environmental risks of this substitute. This assessment is available in docket EPA–HQ–OAR–2003–0118 under the name “Risk Screen on Substitutes for Use in Rigid Polyurethane Appliance Foam; Commercial and Sandwich Panels; Rigid Polyurethane & Polyisocyanurate Laminated Boardstock; Rigid Polyurethane Slabstock; Flexible Polyurethane; Integral Skin Polyurethane Substitute: Methylal (Dimethoxymethane).” EPA’s review of this substitute is pending for spray foam.

Environmenal information: Methylal has an ODP of zero. The 100-yr GWP of methylal is less than three. Methylal is a VOC under CAA regulations (see 40 CFR 51.100(s)) addressing the development of SIPs to attain and maintain the NAAQS.

Flammability information: Methylal is flammable. Under the Globally Harmonized System of Classification and Labelling of Chemicals, it is classified as a Class II flammable liquid and under OSHA’s regulations at 29 CFR 1910.106, it is classified as a Class IB flammable liquid. Some specific blends of methylal with other blowing agents are flammable as formulated and should be handled with proper precautions, as specified by the manufacturer. EPA recommends that users follow all requirements and recommendations specified in the MSDS and other safety precautions for use of flammable blowing agents used in the foam blowing industry.

The potential health effects of methylal are common to many foam blowing agents, including many of those already listed as acceptable under SNAP. The EPA thus finds methylal acceptable in the end uses listed above, because the overall environmental and human health risk posed by methylal is lower than or comparable to the risks posed by other substitutes found acceptable in the same end uses.

3. HFO–1336mzz(Z) (Formacel® 1100)

EPA’s decision: EPA finds HFO–1336mzz(Z) acceptable as a substitute for use as a blowing agent in:
• Rigid polyurethane appliance foam
• Rigid polyurethane commercial refrigeration and sandwich panels
• Flexible polyurethane
• Integral skin polyurethane
• Rigid polyurethane slabstock and other
• Rigid polyurethane and polyisocyanurate laminated boardstock
• Phenolic insulation board and busstock

HFO–1336mzz(Z) is a hydrofluoroolefin or unsaturated hydrofluorocarbon. It is also called (Z)-1,1,1,4,4-hexafluorobut-2-ene or cis-1,1,1,4,4-hexafluorobut-2-ene (CAS Reg. No. 692–49–9) and also goes by the trade names FE-1100 or Formacel® 1100.

You may find the redacted submission in Docket EPA–HQ–OAR–2003–0118 at www.regulations.gov under the name, “SNAP Information Notice for FE-1100 as a Foam Blowing Agent Received 8/3/11.” EPA has performed an assessment to examine the health and environmental risks of this substitute. This assessment is available in docket EPA–HQ–OAR–2003–0118 under the name “Risk Screen on Substitutes for Use in Rigid Polyurethane Appliance Foam; Rigid Polyurethane and Polyisocyanurate Laminated Boardstock; Rigid Polyurethane Commercial Refrigeration and Sandwich Panels; Rigid Polyurethane Slabstock and Other; Flexible Polyurethane; Integral Skin Polyurethane; and Phenolic Insulation Board and Busstock: HFO–1336mzz(Z) (Formacel® 1100).” EPA’s review of this substitute is pending for spray foam.

Environmental information: HFO–1336mzz(Z) has an ODP of zero. It has a 100-yr GWP of about 9.16 HFO–

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15 50 FR at 13084. “The Agency has determined that because of the potential for formation and emission of decomposition products in rigid closed cell foams, notification and review under SNAP is required for blends of chemical alternatives in foam end-uses that encompass residential products where chronic consumer exposure could occur. These end-uses are: polyurethane rigid laminated boardstock, polystyrene extruded boardstock and billet foams, phenolic foams, and polyolefin foams.”

1336mzz(Z) is a VOC. The manufacturer has petitioned the EPA to exempt HFO–1336mzz(Z) from the definition of VOC under CAA regulations (see 40 CFR 51.100(s)) addressing the development of SIPs to attain and maintain the NAAQS based on its claim that the chemical exhibits low photochemical reactivity.

Flammability information: HFO–1336mzz(Z) is not flammable.

Toxicity and exposure data: Potential health effects of this substitute include skin or eye irritation or frostbite. At sufficiently high concentrations, the substitute may cause irregular heartbeat. The substitute could cause asphyxiation if air is displaced by vapors in a confined space. These potential health effects are common to many foam blowing agents. The EPA anticipates that HFO–1336mzz(Z) will be used consistent with the recommendations specified in the MSDS. The manufacturer recommends an acceptable exposure limit (AEL) for the workplace on an 8-hour TWA. The EPA anticipates that users will be able to meet the manufacturer’s AEL and address potential health risks by following requirements and recommendations in the MSDS and other safety precautions common to the foam blowing industry.

Comparison to other foam blowing agents: HFO–1336mzz(Z) has an ODP of zero, comparable to a number of other acceptable non-ozone-depleting substitutes for these end uses such as HFC–134a, HFC–245fa, HFC–152a, and C3–C6 saturated light hydrocarbons and in contrast to CFC–11, CFC–113, HFCF–141b, and HCFC–22 (with ODPs ranging from 0.04 to 1.0). HFO–1336mzz(Z)’s GWP of about 9 is lower than or comparable to those of other acceptable substitutes in the same end uses for which we are finding it acceptable, such as HFC–134a, HFC–245fa, and HFC–152a (with GWPs ranging from 124 to 1,430), C3–C6 saturated light hydrocarbons (with GWPs less than 10), and Solstice–1233zd(E) with a GWP of 1 to 7 (see listing B.1 above and 77 FR 47777). Further, the GWP of HFO–1336mzz(Z) is less than those of CFC–11, CFC–113, HFCF–141b, and HCFC–22, with GWPs ranging from 725 to 4,750. Flammability risks are low, as discussed above. Toxicity risks can be minimized by use consistent with the manufacturer’s recommended AEL.

The proposed documentation may be viewed at the WEEL Committee of the Occupational Alliance for Risk Science had proposed, but not yet finalized, a WEE of 500 ppm for HFO–1336mzz(Z). The proposed documentation may be viewed at www.tera.org/OARS/HFO-1336mzz- Z%20public%20comments%209-18-14.pdf.
Abort switches located near an exit from the protected space be employed.

In the “Further Information” column of the tables summarizing today’s listing decisions, EPA recommends the following for establishments manufacturing Powdered Aerosol D and filling containers to be used in total flooding applications:

—Workers should use appropriate safety and protective equipment (e.g., protective gloves, tightly sealed goggles, protective work clothing, and particulate-removing respirators using NIOSH type N95 or better filters) consistent with OSHA guidelines.

—A local exhaust system should be installed and operated to provide adequate ventilation to reduce airborne exposure to Powdered Aerosol D constituents.

—An eye wash fountain and quick drench facility should be close to the production area.

—Training for safe handling procedures should be provided to all employees that would be likely to handle the containers of the agent or extinguishing units filled with the agent.

—Workers responsible for cleanup should allow particulates to settle before reentering area and wear appropriate personal protective equipment.

—All spills should be cleaned up immediately in accordance with good industrial hygiene practices.

EPA expects that procedures identified in the MSDS for Powdered Aerosol D and good manufacturing practices will be adhered to, and that the appropriate safety and personal protective equipment (PPE) consistent with OSHA guidelines will be used during installation, servicing, post-discharge clean-up and disposal of total flooding systems using Powdered Aerosol D. The manufacturer should provide guidance upon installation of the system regarding the appropriate time after which workers may re-enter the area for disposal to allow the maximum settling of all particulates.

Comparison to other substitutes in this end use: Powdered Aerosol D has zero ODP, both prior to and after activation. In comparison, Halon 1301 has an ODP of 12 and other acceptable substitutes used in this end use, such as HCFC Blend A, HFC–227ea, and HFC–125 have ODPS of about 1.550, 3.220, and 3.500, respectively. Toxicity risks can be minimized by use consistent with the NFPA 2010 standard, recommendations in the MSDS, and other safety precautions common in the fire suppression industry. The potential health effects of Powdered Aerosol D are common to many fire suppressants, including many of those already listed as acceptable under SNAP. EPA thus finds Powdered Aerosol D acceptable in the total flooding end-use because it does not pose a greater overall risk to human health and the environment than other acceptable substitutes in this end-use.

II. Section 612 Program

A. Statutory Requirements and Authority for the SNAP Program

Section 612 of the CAA requires EPA to develop a program for evaluating alternatives to ozone-depleting substances. EPA refers to this program as the Significant New Alternatives Policy (SNAP) program. The major provisions of section 612 are:

1. Rulemaking

Section 612(c) requires EPA to promulgate rules making it unlawful to replace any class I substance (e.g., chlorofluorocarbon, halon, carbon tetrachloride, methyl chloroform, and hydrobromofluorocarbon) or class II substance (e.g., dichlorodifluoromethane) with any substitute that the Administrator determines may present adverse effects to human health or the environment where the Administrator has identified an alternative that (1) reduces the overall risk to human health and the environment, and (2) is currently or potentially available.

2. Listing of Unacceptable/Acceptable Substitutes

Section 612(c) requires EPA to publish a list of the substances unacceptable for specific uses and to publish a corresponding list of acceptable alternatives for specific uses. The list of “acceptable” substitutes is found at www.epa.gov/ozone/snap/lists and the lists of “unacceptable,” “acceptable subject to use conditions,” and “acceptable subject to narrowed use limits” substitutes are found in the appendices to 40 CFR part 82, subpart G.

3. Petition Process

Section 612(d) grants the right to any person to petition EPA to add a substance to, or delete a substance from, the lists published in accordance with section 612(c). The agency has 90 days to grant or deny a petition. Where the agency grants the petition, the EPA must publish the revised lists within an additional six months.

B. EPA’s Regulations Implementing Section 612

On March 18, 1994, EPA published the original rulemaking (59 FR 13044) which established the process for administering the SNAP program and issued EPA’s first lists identifying acceptable and unacceptable substitutes in the major industrial use sectors (subpart G of 40 CFR part 82). These sectors are the following: Refrigeration and air conditioning; foam blowing; solvents cleaning; fire suppression and explosion protection; sterilants; aerosols; adhesives, coatings and inks; and tobacco expansion. These sectors comprise the principal industrial sectors that historically consumed the largest volumes of ODS.

Section 612 of the CAA requires EPA to list as acceptable those substitutes that do not present a significantly greater risk to human health and the environment as compared with other substitutes that are currently or potentially available.
C. How the Regulations for the SNAP Program Work

Under the SNAP regulations, anyone who plans to market or produce a substitute to replace a class I substance or class II ozone-depleting compound, including but not limited to any product that depletes the ozone layer, in one of the eight major industrial use sectors must provide the Agency with notice and the required health and safety information on the substitute at least 90 days before introducing it into interstate commerce for significant new use as an alternative. 40 CFR 82.176(a). While this requirement typically applies to chemical manufacturers as the person likely to be planning to introduce the substitute into interstate commerce, it may also apply to importers, formulators, equipment manufacturers, and end-users when they are responsible for introducing a substitute into commerce. The 90-day SNAP review process begins once EPA receives the submission and determines that the submission includes complete and adequate data. 40 CFR 82.180(a).

The CAA and the SNAP regulations, 40 CFR 82.174(a), prohibit use of a substitute earlier than 90 days after notice has been provided to the Agency. The agency has identified four possible decision categories for substitute submissions: acceptable; acceptable subject to use conditions; acceptable subject to narrowed use limits; and unacceptable. 40 CFR 82.180(b). Use conditions and narrowed use limits are both considered “use restrictions” and are explained below. Substitutes that are deemed acceptable without use conditions may be used for all applications within the relevant end-uses within the sector and without limits under SNAP on how they may be used. Substitutes that are acceptable subject to use restrictions may be used only in accordance with those restrictions. Substitutes that are found to be unacceptable may not be used after the date specified in the rulemaking.

A substitute for which the EPA has completed the SNAP program decision, these statements are not necessary to list alternatives that are deemed acceptable with no restrictions. As described in the preamble to the rule implementing the SNAP program (59 FR 13044; March 18, 1994), EPA does not believe that rulemaking procedures are necessary to list alternatives that are acceptable without restrictions because such listings neither impose any sanction nor prevent anyone from using a substitute.

Many SNAP listings include “comments” or “further information” to provide additional information on substitutes. Since this additional information is not part of the regulatory decision, these statements are not binding for use of the substitute under

18 As defined at 40 CFR 82.104, “interstate commerce” means the distribution or transportation of any product between one state, territory, possession or the District of Columbia, and another state, territory, possession or the District of Columbia, or the sale, use or manufacture of any product in more than one state, territory, possession or District of Columbia. The entry points for which a product is introduced into interstate commerce are the release of a product from the facility in which the product was manufactured, the entry into a warehouse from which the domestic manufacturer releases the product for sale or distribution, and at the site of United States Customs clearance.

19 As defined at 40 CFR 82.172, “end-use” means processors, users or classes of specific applications within major industrial sectors where a substitute is used to replace an ODS.

20 The SNAP regulations also include “pending,” referring to submissions for which the EPA has not reached a determination, under this provision.
the SNAP program. However, regulatory requirements so listed are binding under other regulatory programs (e.g., worker protection regulations promulgated by OSHA). The “further information” classification does not necessarily include all other legal obligations pertaining to the use of the substitute. While the items listed are not legally binding under the SNAP program, EPA encourages users of substitutes to apply all statements in the “further information” column in their use of these substitutes. In many instances, the information simply refers to sound operating practices that have already been identified in existing industry and/or building codes or standards. Thus many of the statements, if adopted, would not require the affected user to make significant changes in existing operating practices.

D. Additional Information about the SNAP Program

For copies of the comprehensive SNAP lists of substitutes or additional information on SNAP, refer to the EPA’s Ozone Depletion Web site at: www.epa.gov/ozone/snap. For more information on the agency’s process for administering the SNAP program or criteria for evaluation of substitutes, refer to the SNAP final rulemaking published March 18, 1994 (59 FR 13044), codified at 40 CFR part 82, subpart G. A complete chronology of SNAP decisions and the appropriate citations are found at: www.epa.gov/ozone/snap/chron.html.

List of Subjects in 40 CFR Part 82

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

Sarah Dunham,
Director, Office of Atmospheric Programs.

Appendix A: Summary of Acceptable Decisions

<table>
<thead>
<tr>
<th>End-use</th>
<th>Substitute</th>
<th>Decision</th>
<th>Further information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refrigeration and Air Conditioning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Centrifugal chillers (retrofit and new)</td>
<td>R–450A (Solstice ® N–13)</td>
<td>Acceptable</td>
<td>R–450A has a 100-year global warming potential (GWP) of approximately 604. This substitute is a blend of HFC–134a, which is also known as 1,1,1,2-tetrafluoroethane (CAS Reg. No. 811–97–2), and HFO–1234ze(E), which is also known as trans-1,3,3,3-tetrafluoroprop-1-ene (CAS Reg. No. 29118–24–9). This blend is nonflammable. The American Industrial Hygiene Association (AIHA) has established workplace environmental exposure limits (WEELs) of 1,000 ppm and 800 ppm (8-hr TWA) for HFC–134a and HFO–1234ze(E).</td>
</tr>
<tr>
<td>Reciprocating, screw and scroll chillers (retrofit and new)</td>
<td>R–450A (Solstice ® N–13)</td>
<td>Acceptable</td>
<td>R–450A has a 100-year GWP of approximately 604. This substitute is a blend of HFC–134a, which is also known as 1,1,1,2-tetrafluoroethane (CAS Reg. No. 811–97–2) and HFO–1234ze(E) which is also known as trans-1,3,3,3-tetrafluoroprop-1-ene (CAS Reg. No. 29118–24–9). This blend is nonflammable. The AIHA has established WEELs of 1,000 ppm and 800 ppm (8-hr TWA) for HFC–134a and HFO–1234ze(E).</td>
</tr>
<tr>
<td>Industrial process refrigeration (retrofit and new)</td>
<td>R–450A (Solstice ® N–13)</td>
<td>Acceptable</td>
<td>R–450A has a 100-year GWP of approximately 604. This substitute is a blend of HFC–134a, which is also known as 1,1,1,2-tetrafluoroethane (CAS Reg. No. 811–97–2) and HFO–1234ze(E) which is also known as trans-1,3,3,3-tetrafluoroprop-1-ene (CAS Reg. No. 29118–24–9). This blend is nonflammable. The AIHA has established WEELs of 1,000 ppm and 800 ppm (8-hr TWA) for HFC–134a and HFO–1234ze(E).</td>
</tr>
<tr>
<td>Industrial process air conditioning (retrofit and new)</td>
<td>R–450A (Solstice ® N–13)</td>
<td>Acceptable</td>
<td>R–450A has a 100-year GWP of approximately 604. This substitute is a blend of HFC–134a, which is also known as 1,1,1,2-tetrafluoroethane (CAS Reg. No. 811–97–2) and HFO–1234ze(E) which is also known as trans-1,3,3,3-tetrafluoroprop-1-ene (CAS Reg. No. 29118–24–9). This blend is nonflammable. The AIHA has established WEELs of 1,000 ppm and 800 ppm (8-hr TWA) for HFC–134a and HFO–1234ze(E).</td>
</tr>
<tr>
<td>Cold storage warehouses (retrofit and new)</td>
<td>R–450A (Solstice ® N–13)</td>
<td>Acceptable</td>
<td>R–450A has a 100-year GWP of approximately 604. This substitute is a blend of HFC–134a, which is also known as 1,1,1,2-tetrafluoroethane (CAS Reg. No. 811–97–2) and HFO–1234ze(E) which is also known as trans-1,3,3,3-tetrafluoroprop-1-ene (CAS Reg. No. 29118–24–9). This blend is nonflammable.</td>
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<tr>
<td>End-use</td>
<td>Substitute</td>
<td>Decision</td>
<td>Further information</td>
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<tr>
<td>Refrigerated transport (new only)</td>
<td>Carbon dioxide (CO₂ or R-744)</td>
<td>Acceptable ........</td>
<td>The AIHA has established WEELs of 1,000 ppm and 800 ppm (8-hr TWA) for HFC–134a and HFO–1234ze(E).</td>
</tr>
<tr>
<td>Refrigerated transport (retrofit and new)</td>
<td>R–450A (Solstice ® N–13)</td>
<td>Acceptable ........</td>
<td>R–450A has a 100-year GWP of approximately 604. This substitute is a blend of HFC–134a, which is also known as 1,1,1,2-tetrafluoroethane (CAS Reg. No. 811–97–2) and HFO–1234ze(E) which is also known as trans-1,3,3,3-tetrafluoroprop-1-ene (CAS Reg. No. 29118–24–9). This blend is nonflammable. The AIHA has established WEELs of 1,000 ppm and 800 ppm (8-hr TWA) for HFC–134a and HFO–1234ze(E).</td>
</tr>
<tr>
<td>Retail food refrigeration (retrofit and new)</td>
<td>R–450A (Solstice ® N–13)</td>
<td>Acceptable ........</td>
<td>R–450A has a 100-year GWP of approximately 604. This substitute is a blend of HFC–134a, which is also known as 1,1,1,2-tetrafluoroethane (CAS Reg. No. 811–97–2) and HFO–1234ze(E) which is also known as trans-1,3,3,3-tetrafluoroprop-1-ene (CAS Reg. No. 29118–24–9). This blend is nonflammable. The AIHA has established WEELs of 1,000 ppm and 800 ppm (8-hr TWA) for HFC–134a and HFO–1234ze(E).</td>
</tr>
<tr>
<td>Vending machines (retrofit only)</td>
<td>R–450A (Solstice ® N–13)</td>
<td>Acceptable ........</td>
<td>R–450A has a 100-year GWP of approximately 604. This substitute is a blend of HFC–134a, which is also known as 1,1,1,2-tetrafluoroethane (CAS Reg. No. 811–97–2) and HFO–1234ze(E) which is also known as trans-1,3,3,3-tetrafluoroprop-1-ene (CAS Reg. No. 29118–24–9). This blend is nonflammable. The AIHA has established WEELs of 1,000 ppm and 800 ppm (8-hr TWA) for HFC–134a and HFO–1234ze(E).</td>
</tr>
<tr>
<td>Commercial ice machines (retrofit and new)</td>
<td>R–450A (Solstice ® N–13)</td>
<td>Acceptable ........</td>
<td>R–450A has a 100-year GWP of approximately 604. This substitute is a blend of HFC–134a, which is also known as 1,1,1,2-tetrafluoroethane (CAS Reg. No. 811–97–2) and HFO–1234ze(E) which is also known as trans-1,3,3,3-tetrafluoroprop-1-ene (CAS Reg. No. 29118–24–9). This blend is nonflammable. The AIHA has established WEELs of 1,000 ppm and 800 ppm (8-hr TWA) for HFC–134a and HFO–1234ze(E).</td>
</tr>
<tr>
<td>Water coolers (retrofit and new)</td>
<td>R–450A (Solstice ® N–13)</td>
<td>Acceptable ........</td>
<td>R–450A has a 100-year GWP of approximately 604. This substitute is a blend of HFC–134a, which is also known as 1,1,1,2-tetrafluoroethane (CAS Reg. No. 811–97–2) and HFO–1234ze(E) which is also known as trans-1,3,3,3-tetrafluoroprop-1-ene (CAS Reg. No. 29118–24–9). This blend is nonflammable. The AIHA has established WEELs of 1,000 ppm and 800 ppm (8-hr TWA) for HFC–134a and HFO–1234ze(E).</td>
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<tr>
<td>End-use</td>
<td>Substitute</td>
<td>Decision</td>
<td>Further information 1</td>
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</tr>
<tr>
<td>Household refrigerators and freezers (retrofit and new).</td>
<td>R–450A (Solstice® N–13)</td>
<td>Acceptable</td>
<td>R–450A has a 100-year GWP of approximately 604. This substitute is a blend of HFC–134a, which is also known as 1,1,1,2-tetrafluoroethane (CAS Reg. No. 811–97–2) and HFC–1234ze(E) which is also known as trans-1,3,3,3-tetrafluoroprop-1-ene (CAS Reg. No. 29118–24–9). This blend is nonflammable. The AIHA has established a WEEL of 1,000 ppm and 800 ppm (8-hr TWA) for HFC–134a and HFC–1234ze(E).</td>
</tr>
<tr>
<td>Non-mechanical heat transfer (new only).</td>
<td>Trans-1-chloro-3,3,3-trifluoroprop-1-ene (Solstice™ 1233zd(E)).</td>
<td>Acceptable</td>
<td>Trans-1-chloro-3,3,3-trifluoroprop-1-ene (CAS Reg. No. 102687–65–0) has an ODP of approximately 0.00024 to 0.00034. It has a 100-year GWP of 1 to 7. This compound is nonflammable. The AIHA has established a WEEL of 800 ppm (8-hr TWA) for trans-1-chloro-3,3,3-trifluoroprop-1-ene.</td>
</tr>
</tbody>
</table>

1 Observe recommendations in the manufacturer’s MSDS and guidance for all listed refrigerants.

**FOAM BLOWING AGENTS**

<table>
<thead>
<tr>
<th>End-use</th>
<th>Substitute</th>
<th>Decision</th>
<th>Further information 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rigid polyurethane and polyisocyanurate laminated boardstock.</td>
<td>Methylal (dimethoxymethane)</td>
<td>Acceptable</td>
<td>Methylal (CAS Reg. No. 109–87–5) has a 100-yr global warming potential (GWP) of less than three. This substitute is flammable and meets the definition of a flammable Class IB fluid under the Occupational Safety and Health Administration’s (OSHA’s) regulations at 29 CFR 1910.106. The American Conference of Governmental Industrial Hygienists (ACGIH) has established a Threshold Limit Value (TLV) of 1,000 ppm (8-hr time-weighted average (TWA)) for methylal (dimethoxymethane).</td>
</tr>
<tr>
<td>Rigid polyurethane appliance.</td>
<td>Methylal (dimethoxymethane)</td>
<td>Acceptable</td>
<td>Methylal (CAS Reg. No. 109–87–5) has a 100-yr GWP of less than three. This substitute is flammable and meets the definition of a flammable Class IB fluid under OSHA’s regulations at 29 CFR 1910.106. The ACGIH has established a TLV of 1,000 ppm (8-hr TWA) for methylal (dimethoxymethane).</td>
</tr>
<tr>
<td>Rigid polyurethane commercial refrigeration and sandwich panels.</td>
<td>Methylal (dimethoxymethane)</td>
<td>Acceptable</td>
<td>Methylal (CAS Reg. No. 109–87–5) has a 100-yr GWP of less than three. This substitute is flammable and meets the definition of a flammable Class IB fluid under OSHA’s regulations at 29 CFR 1910.106. The ACGIH has established a TLV of 1,000 ppm (8-hr TWA) for methylal (dimethoxymethane).</td>
</tr>
<tr>
<td></td>
<td>HFO–1336mzz(Z) ((Z)-1,1,1,4,4,4-hexafluorobut-2-ene, Formacel® 1100).</td>
<td>Acceptable</td>
<td>HFO–1336mzz(Z) (CAS Reg. No. 692–49–9) has no ozone depletion potential (ODP) and a 100-year GWP of roughly 9. This compound is nonflammable. The manufacturer recommends an acceptable exposure limit of 500 ppm over an 8-hour TWA for HFO–1336mzz(Z).</td>
</tr>
<tr>
<td></td>
<td>HFO–1336mzz(Z) ((Z)-1,1,1,4,4,4-hexafluorobut-2-ene, Formacel® 1100).</td>
<td>Acceptable</td>
<td>HFO–1336mzz(Z) (CAS Reg. No. 692–49–9) has no ozone depletion potential (ODP) and a 100-year GWP of roughly 9. This compound is nonflammable. The manufacturer recommends an acceptable exposure limit of 500 ppm over an 8-hour TWA for HFO–1336mzz(Z).</td>
</tr>
<tr>
<td></td>
<td>HFO–1336mzz(Z) ((Z)-1,1,1,4,4,4-hexafluorobut-2-ene, Formacel® 1100).</td>
<td>Acceptable</td>
<td>HFO–1336mzz(Z) (CAS Reg. No. 692–49–9) has no ODP and a 100-year GWP of roughly 9. This compound is nonflammable. The manufacturer recommends an acceptable exposure limit of 500 ppm over an 8-hour TWA for HFO–1336mzz(Z).</td>
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<tr>
<td>End-use</td>
<td>Substitute</td>
<td>Decision</td>
<td>Further information¹</td>
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<tr>
<td>Rigid polyurethane slabstock and other.</td>
<td>Methylal (dimethoxymethane)</td>
<td>Acceptable .......\nMethylal (CAS Reg. No. 109–87–5) has a 100-yr GWP of less than three. This substitute is flammable and meets the definition of a flammable Class IB fluid under OSHA’s regulations at 29 CFR 1910.106. The ACGIH has established a TLV of 1,000 ppm (8-hr TWA) for methylal (dimethoxymethane).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HFO–1336mzz(Z) ((Z)-1,1,1,4,4,4-hexafluorobut-2-ene, Formacel® 1100).</td>
<td>Acceptable .......\nHFO–1336mzz(Z) (CAS Reg. No. 692–49–9) has no ODP and a 100-year GWP of roughly 9. This compound is nonflammable. The manufacturer recommends an acceptable exposure limit of 500 ppm over an 8-hour TWA for HFO–1336mzz(Z).</td>
<td></td>
</tr>
<tr>
<td>Flexible polyurethane</td>
<td>Methylal (dimethoxymethane)</td>
<td>Acceptable .......\nMethylal (CAS Reg. No. 109–87–5) has a 100-yr GWP of less than three. This compound is flammable and meets the definition of a flammable Class IB fluid under OSHA’s regulations at 29 CFR 1910.106. The ACGIH has established a TLV of 1,000 ppm (8-hr TWA) for methylal (dimethoxymethane).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HFO–1336mzz(Z) ((Z)-1,1,1,4,4,4-hexafluorobut-2-ene, Formacel® 1100).</td>
<td>Acceptable .......\nHFO–1336mzz(Z) (CAS Reg. No. 692–49–9) has no ODP and a 100-year GWP of roughly 9. This compound is nonflammable. The manufacturer recommends an acceptable exposure limit of 500 ppm over an 8-hour TWA for HFO–1336mzz(Z).</td>
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</tr>
<tr>
<td></td>
<td>Trans-1-chloro-3,3,3-trifluoroprop-1-ene (Solstice™ 1233zd(E)).</td>
<td>Acceptable .......\nTrans-1-chloro-3,3,3-trifluoroprop-1-ene (CAS Reg. No. 102687–65–0) has an ODP of approximately 0.00024 to 0.00034. It has a 100-year GWP of 1 to 7. This compound is nonflammable. The American Industrial Hygiene Association has established a workplace environmental exposure limit of 800 ppm (8-hr TWA) for trans-1-chloro-3,3,3-trifluoroprop-1-ene.</td>
<td></td>
</tr>
<tr>
<td>Integral skin polyurethane</td>
<td>Methylal (dimethoxymethane)</td>
<td>Acceptable .......\nMethylal (CAS Reg. No. 109–87–5) has a 100-yr GWP of less than three. This substitute is flammable and meets the definition of a flammable Class IB fluid under OSHA’s regulations at 29 CFR 1910.106. The ACGIH has established a TLV of 1,000 ppm (8-hr TWA) for methylal (dimethoxymethane).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HFO–1336mzz(Z) ((Z)-1,1,1,4,4,4-hexafluorobut-2-ene, Formacel® 1100).</td>
<td>Acceptable .......\nHFO–1336mzz(Z) (CAS Reg. No. 692–49–9) has no ODP and a 100-year GWP of roughly 9. This compound is nonflammable. The manufacturer recommends an acceptable exposure limit of 500 ppm over an 8-hour TWA for HFO–1336mzz(Z).</td>
<td></td>
</tr>
<tr>
<td>Phenolic insulation board and bunstock.</td>
<td>HFO–1336mzz(Z) ((Z)-1,1,1,4,4,4-hexafluorobut-2-ene, Formacel® 1100).</td>
<td>Acceptable .......\nHFO–1336mzz(Z) (CAS Reg. No. 692–49–9) has no ODP and a 100-year GWP of roughly 9. This compound is nonflammable. The manufacturer recommends an acceptable exposure limit of 500 ppm over an 8-hour TWA for HFO–1336mzz(Z).</td>
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</table>

¹ Observe recommendations in the manufacturer’s MSDS and manufacturer’s guidance for using all listed foam blowing agents.

**FIRE SUPPRESSION AND EXPLOSION PROTECTION**

<table>
<thead>
<tr>
<th>End-use</th>
<th>Substitute</th>
<th>Decision</th>
<th>Further information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total flooding (occupied and unoccupied areas).</td>
<td>Powdered Aerosol D (Aero-K®, Stat-X®).</td>
<td>Acceptable .......\nUse of this agent should be in accordance with the safety guidelines in the latest edition of the National Fire Protection Association 2010 standard for Aerosol Extinguishing Systems. For establishments manufacturing the agent or filling, installing, or servicing containers or systems to be used in total flooding applications, EPA recommends the following:</td>
<td></td>
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</tbody>
</table>
SUMMARY: In this document, the Commission eliminates certain waivers of the telecommunications relay service (TRS) requirements that are no longer necessary, given advances in communications technology. At the same time, it extends certain existing waivers of mandatory minimum standards for specific providers for which the provision of certain TRS features is technologically infeasible at this time. The Commission also eliminates certain TRS requirements that are either not applicable or technically not feasible, while ensuring that TRS consumers continue to have access to communications services that are functionally equivalent to voice telephone services. Lastly, the Commission eliminates an annual reporting requirement for TRS providers. These actions provide regulatory clarity and reduce administrative burdens on both TRS providers and the Commission and ensure that the TRS mandatory minimum standards are applicable and technologically appropriate for each type of TRS.

DATES: Effective December 22, 2014, except for terminations of waivers of §§ 64.604(a)(3)(vi)(B) and (C) of the Commission’s rules, which shall become effective on October 21, 2014.

FOR FURTHER INFORMATION CONTACT: Eliot Greenwald, Consumer and Governmental Affairs Bureau, Disability Rights Office, at (202) 418–2235 or email Eliot.Greenwald@fcc.gov.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission’s Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities: Waiver of iTRS Mandatory Minimum Standards Report and Order, Order, document FCC 14–125, adopted on August 20, 2014, and released on August 22, 2014, in CG Docket No. 03–123. In document FCC 14–125, the Commission also seeks comment in an accompanying Further Notice of Proposed Rulemaking (FNPRM), which is summarized in a