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FACT SHEET

Final Rule - Protection of Stratospheric Ozone: Change of Listing Status for Certain Substitutes under the Significant New Alternatives Policy Program

EPA's Significant New Alternatives Policy Program

Under section 612 of the Clean Air Act (CAA), EPA reviews substitutes within a comparative risk framework. More specifically, section 612 provides that EPA must prohibit the use of a substitute where EPA has determined that there are other available substitutes or potentially available substitutes that pose less overall risk to human health and the environment. Thus, EPA's Significant New Alternatives Policy (SNAP) program, which implements section 612, does not provide a static list of alternatives but instead evolves the list as the EPA makes decisions informed by our overall understanding of the environmental and human health impacts as well as our current knowledge about available substitutes. In the more than twenty years since the initial SNAP rule was promulgated, EPA has modified the SNAP lists many times, most often by expanding the list of acceptable substitutes, but in some cases by prohibiting the use of substitutes previously listed as acceptable.

Global warming potential (GWP) is one of several criteria EPA considers in the overall evaluation of alternatives under the SNAP program. During the past two decades, the general science on climate change and the potential contributions of greenhouse gases (GHGs) such as HFCs to climate change have become better understood. HFCs are potent GHGs and although they represent a small fraction of the current total volume of GHG emissions, their warming impact is very strong. HFC emissions are projected to increase substantially and at an increasing rate over the next several decades if left unregulated. In the United States, emissions of HFCs are increasing more quickly than those of any other GHGs, and globally they are increasing 10-15% annually. At that rate, U.S. emissions are projected to double by 2020 and triple by 2030.

The President's Climate Action Plan

The President's June 2013 Climate Action Plan (CAP) states that, "to reduce emissions of HFCs, the United States can and will lead both through international diplomacy as well as domestic actions." Furthermore, the CAP states that EPA will "use its authority through the Significant New Alternatives Policy Program to encourage private sector investment in

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What?

- Changes the status of certain HFCs now that safer alternatives are available

Which industrial sectors are included?

- Aerosols
- Refrigeration & Air Conditioning
- Foam Blowing

Who is affected?

- Chemical producers and some manufacturers of equipment and products using aerosol propellants, refrigerants, and foam blowing agents

When?

- Starting in January 2016; see table for dates for all affected end-uses

low-emissions technology by identifying and approving climate-friendly chemicals while prohibiting certain uses of the most harmful chemical alternatives.” In our first effort to take a broader look at the SNAP lists, we have focused on those listed substitutes that have a high GWP relative to other alternatives in specific end-uses. In determining whether to change the status of these substitutes for particular end-uses, we performed a full comparative risk analysis, based on our criteria for review, with other available alternatives also listed as acceptable for these end-uses.

Today’s Action

Under this final rule, various HFCs and HFC-containing blends that were previously listed as acceptable alternatives will be listed as unacceptable in various end-uses in the aerosols, foam blowing, and refrigeration and air conditioning sectors where other alternatives are available or potentially available that pose lower overall risk to human health and the environment. Consistent with CAA section 612 as we have historically interpreted it under the SNAP program, EPA is making these modifications based on evaluation of the substitutes addressed in this action using the SNAP criteria for review and considering the current suite of other available and potentially available substitutes.

This action modifies the listings by sector and end-use, as summarized in the table below. For a more detailed table of the status changes by sector and end-use, consult the tables in the addendum to this document.

SUMMARY OF SECTORS MODIFIED BY THE FINAL RULE

End-Uses	Final Rule Change of Status Date*
Aerosol Propellants**	
HFC-125	January 2016
HFC-134a	One year from date of publication / January 2018
HFC-227ea and Blends	One year from date of publication
Foams***	
Rigid Polyurethane and Polyisocyanurate Laminated Boardstock	January 2017
Flexible Polyurethane	January 2017
Integral Skin Polyurethane	January 2017
Polystyrene Extruded Sheet	January 2017
Phenolic Insulation Board and Bunstock	January 2017
Rigid Polyurethane Slabstock and Other	January 2019
Rigid Polyurethane Appliance Foam	January 2020
Rigid Polyurethane Commercial Refrigeration and Sandwich Panels	January 2020
Polyolefin	January 2020
Polyurethane Marine Flotation Foam	January 2020
Polystyrene Extruded Boardstock and Billet (XPS)	January 2021
Rigid Polyurethane Spray Foam	No status change finalized
Closed Cell Foams	Applicability not finalized
Refrigeration and Air Conditioning – Motor Vehicle Air Conditioning	
HCFC & HFC Blends in New Light-Duty Systems	MY 2017
HFC-134a in New Light-Duty Systems	MY 2021****
Refrigeration and Air Conditioning – Retail Food Refrigeration	
Supermarket Systems (Retrofitted)	One year from date of publication

End-Uses	Final Rule Change of Status Date*
Supermarket Systems (New)	January 2017
Remote Condensing Units (Retrofitted)	One year from date of publication
Remote Condensing Units (New)	January 2018
Stand-Alone Retail Food Refrigeration Equipment (Retrofitted)	One year from date of publication
Stand-Alone Retail Food Refrigeration Equipment (New)	January 2019 / January 2020
Refrigeration and Air Conditioning –Vending Machines	
Vending Machines (Retrofitted)	One year from date of publication
Vending Machines (New)	January 2019

* For more detailed tables of the status changes by sector and end-use, consult the addendum to this document or the Final Rule.

** Certain technical and medical uses remain acceptable.

*** Narrowed use limits apply until January 1, 2022 for military and space uses.

**** Narrowed use limits apply for export to countries without servicing infrastructure through model year (MY) 2025.

Addendum – Status Changes by Sectors and End-Uses

AEROSOLS – PROPELLANTS

Substitutes	Decision	Uses that Are Acceptable, Subject to Use Conditions
HFC-125	Unacceptable as of January 1, 2016.	None.
HFC-134a	Unacceptable as of one year from date of publication except for uses listed as acceptable, subject to use conditions.	<p>From one year from date of publication to January 1, 2018:</p> <ul style="list-style-type: none"> • acceptable, subject to use conditions for the following specific uses: <ul style="list-style-type: none"> • products for which new formulations require federal governmental review, and • products for smoke detector functionality testing. <p>As of one year from date of publication:</p> <ul style="list-style-type: none"> • acceptable, subject to use conditions for a number of additional uses specified in the rule.
HFC-227ea and blends of HFC-227ea and HFC-134a	Unacceptable as of one year from date of publication except for uses listed as acceptable, subject to use conditions.	<p>As of one year from date of publication:</p> <ul style="list-style-type: none"> • acceptable for FDA-approved MDIs for medical purposes.

FOAMS

End-use	Substitutes	Decision*
Rigid Polyurethane and Polyisocyanurate Laminated Boardstock	HFC-134a, HFC-245fa, HFC-365mfc and blends thereof	<p>Acceptable subject to narrowed use limits for military or space- and aeronautics-related applications* and unacceptable for all other uses as of January 1, 2017.</p> <p>Unacceptable for all uses as of January 1, 2022.</p>
Flexible Polyurethane	HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof	
Integral Skin Polyurethane	HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof; Formacel TI, and Formacel Z-6	
Polystyrene Extruded Sheet	HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof; Formacel TI, and Formacel Z-6	
Phenolic Insulation Board and Bunstock	HFC-143a, HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof	
Rigid Polyurethane Slabstock and Other	HFC-134a, HFC-245fa, HFC-365mfc and blends thereof; Formacel TI, and Formacel Z-6	<p>Acceptable subject to narrowed use limits for military or space- and aeronautics-related applications* and unacceptable for all other uses as of January 1, 2019.</p> <p>Unacceptable for all uses as of January 1, 2022.</p>
Rigid Polyurethane Appliance Foam	HFC-134a, HFC-245fa, HFC-365mfc and blends thereof; Formacel TI, and Formacel Z-6	<p>Acceptable subject to narrowed use limits for military or space- and aeronautics-related applications* and unacceptable for all other uses as of January 1, 2020.</p> <p>Unacceptable for all uses as of January 1, 2022.</p>
Rigid Polyurethane Commercial Refrigeration and Sandwich Panels	HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof; Formacel TI, and Formacel Z-6	
Polyolefin	HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof; Formacel TI, Formacel Z-6	

End-use	Substitutes	Decision*
Rigid Polyurethane Marine Flotation Foam	HFC-134a, HFC-245fa, HFC-365mfc and blends thereof; Formacel TI, and Formacel Z-6	
Polystyrene Extruded Boardstock and Billet (XPS)	HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof; Formacel TI, Formacel B, and Formacel Z-6	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. Unacceptable for all uses as of January 1, 2022.
Rigid Polyurethane Spray Foam	No status change finalized.	
Closed Cell Foams	Applicability to import not finalized.	

* Under the narrowed use limit, use is limited to military or space- and aeronautics-related applications where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements.

MOTOR VEHICLE AIR CONDITIONING - NEW LIGHT-DUTY SYSTEMS

Substitutes	Decision
HFC-134a	<ul style="list-style-type: none"> Unacceptable as of Model Year (MY) 2021, except where allowed under a narrowed use limit through MY 2025. Acceptable, subject to narrowed use limits, for vehicles exported to countries with insufficient servicing infrastructure to support other alternatives, for MY 2021 through MY 2025. Unacceptable for all newly manufactured vehicles as of MY 2026.
R-406A, R-414A (HCFC Blend Xi, GHG-X4), R-414B (HCFC Blend Omicron), HCFC Blend Delta (Free Zone), Freeze 12, GHG-X5, HCFC Blend Lambda (GHG-HP), R-416A (FRIGC FR-12, HCFC Blend Beta), SP34E, R-426A (RS-24, new formulation)	Unacceptable as of MY 2017.

RETAIL FOOD REFRIGERATION

End-use	Substitutes	Decision
Supermarket Systems (Retrofit)	R-404A, R-407B, R-421B, R-422A, R-422C, R-422D, R-428A, R-434A, R-507A	Unacceptable as of one year from date of publication of final rule
Supermarket Systems (New)	HFC-227ea, R-404A, R-407B, R-421B, R-422A, R-422C, R-422D, R-428A, R-434A, R-507A	Unacceptable as of January 1, 2017
Remote Condensing Units (Retrofit)	R-404A, R-407B, R-421B, R-422A, R-422C, R-422D, R-428A, R-434A, R-507A	Unacceptable as of one year from date of publication of final rule
Remote Condensing Units (New)	HFC-227ea, R-404A, R-407B, R-421B, R-422A, R-422C, R-422D, R-428A, R-434A, R-507A	Unacceptable as of January 1, 2018

End-use	Substitutes	Decision
Stand-Alone Units (Retrofit)	R-404A, R-507A	Unacceptable as of one year from date of publication of final rule
Stand-Alone Medium Temperature Units ¹ with a compressor capacity below 2,200 Btu/hour and not containing a flooded evaporator (New)	FOR12A, FOR12B, HFC-134a, HFC-227ea, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407A, R-407B, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-426A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-24 (2002 formulation), RS-44 (2003 formulation), SP34E, THR-03	Unacceptable as of January 1, 2019
Stand-Alone Medium Temperature Units with a compressor capacity equal to or greater than 2,200 Btu/hour and Stand-Alone Medium Temperature Units containing a flooded evaporator (New)	FOR12A, FOR12B, HFC-134a, HFC-227ea, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407A, R-407B, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-426A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-24 (2002 formulation), RS-44 (2003 formulation), SP34E, THR-03.	Unacceptable as of January 1, 2020
Stand-Alone Low-Temperature Units ² (New)	HFC-227ea, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407A, R-407B, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-44 (2003 formulation)	Unacceptable as of January 1, 2020

VENDING MACHINES

End-use	Substitutes	Decision
Retrofit	R-404A, R-507A	Unacceptable as of one year from date of publication of final rule
New	FOR12A, FOR12B, HFC-134a, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407C, R-410A, R-410B, R-417A, R-421A, R-422B, R-422C, R-422D, R-426A, R-437A, R-438A, R-507A, RS-24 (2002 formulation), SP34E	Unacceptable as of January 1, 2019

HYDROCHLOROFLUOROCARBONS (HCFCs)

Sector and End-use	Substitutes	Decision
Aerosols—Propellants	HCFC-22 and HCFC-142b	Unacceptable as of 60 days from date of publication of final rule
Aerosols—Solvents	HCFC-141b and blends thereof	
Foams—All End-uses	HCFC-141b, HCFC-142b, HCFC-22, and blends thereof	
Fire Suppression – Total Flooding	HCFC-22	
Sterilants	Blends containing HCFC-22	
Adhesives, Coatings, and Inks—All End-uses	HCFC-141b and blends thereof	

¹ “Medium temperature” refers to equipment that maintains food or beverages at temperatures above 32°F (0 °C).

² “Low temperature” refers to equipment that maintains food or beverages at temperatures at or below 32°F (0 °C).