April 6, 2016

California Air Resources Board
C/o David Mehl, Manager, Energy Section
1001 I Street
Sacramento, CA 95841
david.mehl@arb.ca.gov

RE: California's Short-Lived Climate Pollutant Reduction Strategy & U.S. EPA's Proposed Rule to Reduce Emissions of Certain High-GWP Hydrofluorocarbons

Dear Board Members,

The purpose of this communication is to follow up on the letter dated October 26, 2015 from the American Chemistry Council's Center for the Polyurethanes Industry[1] (CPI) and Spray Foam Coalition[2] (SFC). The October 2015 letter is attached for your reference. We believe recent action by the U.S. Environmental Protection Agency (EPA) is relevant to the California Air Resources Board's (CARB) draft Short-Lived Climate Pollutant (SLCP) Reduction Strategy.

In our October 2015 letter, we expressed support for CARB's conclusion that federal regulations can provide more effective and efficient controls for certain SLCP emissions.[3] These emissions include certain high-global warming potential (GWP) hydrofluorocarbons (HFCs) used as blowing agents in the manufacture of polyurethane foam products.

We write to draw your attention to specific aspects of EPA's recently proposed rule (Rule 21) that is expected to further limit the use of HFCs in foam products like spray polyurethane foam.

[1] The Center for the Polyurethanes Industry (CPI) of the American Chemistry Council serves as the voice of the polyurethanes industry in North America, promoting its development and coordinating with polyurethane trade associations across the globe. CPI members are companies that produce and sell the raw materials and additives that are used to make polyurethane products, equipment used in the manufacture of polyurethanes, and companies engaged in end-use applications and the manufacture of polyurethane products.

[2] The Spray Foam Coalition (SFC) champions the use of spray polyurethane foam in U.S. building and construction applications and promotes its economic, environmental and societal benefits while supporting the safe manufacture, transport, and application of spray polyurethane foam. SFC consists of manufacturers of spray polyurethane foam systems as well as suppliers of raw materials and machinery used to apply the foam.

[3] *See* page 64 of CARB's Draft Short-Lived Climate Pollutant Reduction Strategy: http://www.arb.ca.gov/cc/shortlived/2015draft.pdf.

An EPA fact sheet on the proposed rule is attached. Additional details on the proposed rule can be found on the EPA website here: https://www.epa.gov/snap/proposed-rule-advanced-version-administrator-signed-march-29-2016.

EPA's recent action is important for several reasons. First, it is an example of how federal regulations can provide a backstop to the industry's voluntary efforts to transition away from high-GWP HFCs.[4] Secondly, the proposed rule includes potential regulations for end uses that were not previously covered by prior EPA rulemakings. This action could help eliminate gaps in federal regulations that were identified by CARB in earlier drafts of its SLCP Reduction Strategy.

Finally, we believe the proposed rule is further evidence that state-level regulations limiting the use of HFCs or other blowing agents in the manufacture of polyurethane foam products would be duplicative of existing and ongoing federal efforts. Additionally, state regulations that conflict with federal regulations may create confusion in the marketplace and place an undue burden on manufacturers that have prioritized reformulating products based on a federal regulatory scheme. We urge CARB to track EPA's rulemaking process and encourage the Board to maintain its deference to federal regulations for certain SLCP emissions.

Please do not hesitate to contact me at justin_koscher@americanchemistry.com, (202) 249-6617 with questions.

Kind Regards,

Justin Koscher, Director
Center for the Polyurethanes Industry
Spray Foam Coalition

Attachments (2)

[4] White House Fact Sheet: Obama Administration and Private-Sector Leaders Announce Ambitious Commitments and Robust Progress to Address Potent Greenhouse Gases, October 15, 2015. Available at: https://www.whitehouse.gov/the-press-office/2015/10/15/fact-sheet-obama-administration-and-private-sector-leaders-announce.

American Chemistry Council | Center for the Polyurethanes Industry

October 26, 2015

Submitted via Electronic Docket

California Air Resources Board
1001 I Street
Sacramento, CA 95841

RE: Public Comments on Draft Short-Lived Climate Pollutant Reduction Strategy

Dear Board Members,

The American Chemistry Council's Center for the Polyurethanes Industry[1] (CPI) and Spray Foam Coalition[2] (SFC) appreciate the opportunity to comment on the California Air Resources Board's (CARB) Draft Short-Lived Climate Pollutant (SCLP) Reduction Strategy (Draft Strategy). CPI and SFC represent the polyurethane industry value chain, including raw material suppliers and manufacturers of spray polyurethane foam (SPF) systems.

The polyurethane foam insulation industry is committed to continuing the manufacture of products that have low environmental impacts during the manufacturing process and provide energy and greenhouse gas (GHG) savings over their life cycle. This commitment includes using established research and development processes to transition to the use of low-global warming potential (GWP) blowing agents that meet product-specific technical requirements.

The Draft Strategy correctly notes that national and international agreements present the best ways to reduce SCLP emissions. Moreover, we agree with the conclusion in the Draft Strategy

[1] The Center for the Polyurethanes Industry (CPI) of the American Chemistry Council serves as the voice of the polyurethanes industry in North America, promoting its development and coordinating with polyurethane trade associations across the globe. CPI members are companies that produce and sell the raw materials and additives that are used to make polyurethane products, equipment used in the manufacture of polyurethanes, and companies engaged in end-use applications and the manufacture of polyurethane products.

[2] The Spray Foam Coalition (SFC) champions the use of spray polyurethane foam in U.S. building and construction applications and promotes its economic, environmental and societal benefits while supporting the safe manufacture, transport, and application of spray polyurethane foam. SFC consists of manufacturers of spray polyurethane foam systems as well as suppliers of raw materials and machinery used to apply the foam.

that any measures to restrict the use of high-GWP blowing agents for SPF products will be more effective and efficient at the Federal level.

As highlighted in the Draft Strategy, numerous national and international efforts are currently underway to reduce SLCP emissions, including emissions of hydrofluorocarbons (HFCs). For example, the U.S. Environmental Protection Agency (EPA) issued a final rule in July 2015 that restricts the use of high-GWP blowing agents in many end uses.[3] President Obama also recently praised the private-sector for "ambitious" voluntary commitments and "robust" progress to reducing HFC emissions.[4] It is evident that regulatory and voluntary actions are well underway to reduce SLCP emissions, and therefore we believe that any state-level restrictions on the use of high-GWP blowing agents in SPF end uses would be duplicative.

SPF products are a valuable building product and can help California meet other climate-focused goals. With respect to buildings, the state has set ambitious goals for improving energy efficiency. The California Energy Commission is working toward the goal of zero net energy for all new residential construction by 2020.[5] Governor Brown recently signed legislation aimed at increasing energy efficiency for existing buildings in the state.[6] SPF insulation is expected to play a central role in helping the construction market achieve these goals.

SPF products are typically selected for their excellent thermal performance and versatility as an air and vapor barrier. The energy savings resulting from use of these products over their life cycle can be many times greater than the amount of energy used to manufacture and produce the products. For example, closed-cell SPF insulation helps save the equivalent GHG emissions associated with its manufacturing process in as little as three to eight years by reducing the energy used to heat and cool homes.[7] CARB should carefully select its SLCP emission reduction strategies to ensure that actions do not have the unintended consequences of deselecting energy efficiency products like SPF insulation.

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[3] 40 CFR Part 82, Change of Listing Status for Certain Substitutes Under the Significant New Alternative Policy Program (Final Rule 20).

[4] White House Fact Sheet: Obama Administration and Private-Sector Leaders Announce Ambitious Commitments and Robust Progress to Address Potent Greenhouse Gases, October 15, 2015. Available at: https://www.whitehouse.gov/the-press-office/2015/10/15/fact-sheet-obama-administration-and-private-sector-leaders-announce.

[5] California's New Residential Zero Net Energy Action Plan. Available at: http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/eesp/res_zne_action+plan.htm.

[6] Clean Energy and Pollution Reduction Action of 2015 (SB-350).

[7] The payback period is based on a product manufactured with an HFC physical blowing agent installed in a typical residential home in three U.S. cities. A copy of the life-cycle analysis is available at: http://www.sprayfoam.org/files/docs/SPFA%20LCA%20Long%20Summary%20New.pdf.

Furthermore, it is our understanding that U.S. EPA is considering additional measures to limit the use of high-GWP blowing agents in SPF end uses. EPA did not issue a final determination on SPF end uses in Rule 20 citing a need to conduct "a more extensive comparative risk analysis of the substitutes available before taking final action."[8] The SPF industry provided technical information to EPA's Significant New Alternatives Policy (SNAP) Program Office during the notice and comment process for Rule 20. Our comments to EPA detailed the process for commercializing new formulations using low-GWP alternatives – a process that can be iterative, time consuming, and likely vary between manufacturer and product type.[9] We plan to continue to engage SNAP staff and respond to requests for information as EPA considers additional action to reduce emissions of high-GWP blowing agents.

We commend the publication of the Draft Strategy for public comment and agree with CARB that any measures to restrict the use of high-GWP blowing agents for SPF products will be more effective and efficient at the Federal level.

If additional information regarding SPF products would assist in finalizing the SLCP strategy, please contact me at justin_koscher@americanchemistry.com, (202) 249-6617.

Kind regards,

Justin Koscher, Director
Center for the Polyurethanes Industry
Spray Foam Coalition

[8] 40 CFR Part 82, Change of Listing Status for Certain Substitutes Under the Significant New Alternative Policy Program (Final Rule 20).

[9] The industry's public comments are available on the electronic docket (EPA-HQ-OAR-2014-0198) at: http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2014-0198-0175.

FOR IMMEDIATE RELEASE:
March 29, 2016

www.epa.gov/snap

FACT SHEET

Proposed Rule - Protection of Stratospheric Ozone: New Listings of Substitutes; Changes of Listing Status; Reinterpretation of Unacceptability for Closed Cell Foam Products under the Significant New Alternatives Policy Program; and Revision of Clean Air Act Section 608's Venting Prohibition for Propane

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-two 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. Most 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.

Proposed Rule

What is EPA proposing?

- List as acceptable subject to use conditions, list as unacceptable, and change the status of several substances
- Exempt propane from the CAA's section 608 venting prohibition
- Clarify status of acceptable fire suppression alternative

Which industrial sectors are included?

- Refrigeration & Air Conditioning
- Fire Suppression & Explosion Protection
- Foam Blowing

Who is affected?

- Chemical producers, some manufacturers, and some end-users of equipment and products using refrigerants, fire suppressants, and foam blowing agents

When?

- Starting 30 days after publication of a final rule; see table for dates

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 low-emissions technology by identifying and approving climate-friendly chemicals while prohibiting certain uses of the most harmful chemical alternatives." Since the CAP was announced, EPA has taken a number of actions to both expand the list of acceptable alternatives under SNAP as well as to change the status of certain listed substitutes. On July 20, 2015 (80 FR 42870), EPA issued a final regulation that was our first effort to take a broader look at the SNAP lists, where we focused on those listed substitutes that have a high GWP relative to other alternatives in specific end-uses, while otherwise posing comparable levels of risk.

Today's Action

In this action, EPA is proposing to list a number of substances as acceptable, subject to use conditions; to list several substances as unacceptable; and to modify the listing status for certain substances from acceptable to unacceptable or acceptable, subject to narrowed use limits. Consistent with CAA section 612 as we have historically interpreted it under the SNAP program, EPA is proposing both initial listings and certain modifications to the current lists based on our evaluation of the substitutes addressed in this action using the SNAP criteria for evaluation and considering the current suite of other alternatives for the specific end-use at issue. For particular substances, EPA found significant potential differences in risk with respect to one or more specific criteria, such as flammability, toxicity, or local air quality concerns, while otherwise posing comparable levels of risk to those of other alternatives in specific end-uses. EPA is also proposing that the existing listing decisions for foam blowing agents apply to closed cell foam products and products containing closed cell foam. In addition to proposing to list propane as acceptable, subject to use conditions, as a refrigerant in new self-contained commercial ice machines, in new water coolers, and in new very low temperature refrigeration equipment, EPA is also proposing to exempt propane in these end-uses from the venting prohibition under CAA section 608. EPA is also proposing to list as acceptable, subject to use conditions, HFO-1234yf in newly manufactured medium-duty passenger vehicles (MDPVs), heavy-duty (HD) pickup trucks, and complete HD vans, and 2-bromo-3,3,3-trifluoropropene (2-BTP) in the fire suppression and explosion protection sector. Finally, this proposed rule would clarify the listing for Powdered Aerosol D (Stat-X®), which is currently listed as both "acceptable subject to use conditions" and "acceptable," by removing the earlier listing of "acceptable subject to use conditions."

Summary of Proposed Regulatory Provisions

PROPOSED ACCEPTABLE ALTERNATIVES, WITH USE CONDITIONS

End-Uses	Substitutes	Proposed Effective Date
Refrigeration		
Commercial ice machines (new)	Propane	30 days after publication of a final rule
Water coolers (new)	Propane	30 days after publication of a final rule
Very low temperature refrigeration equipment (new)	Propane	30 days after publication of a final rule
Motor Vehicle Air Conditioning (MVAC)		
Medium-duty passenger vehicles (MDPVs), heavy-duty (HD) pickup trucks, and complete HD vans (newly manufactured)	HFO-1234yf	30 days after publication of a final rule
Fire Suppression and Explosion Protection		
Total flooding agent for use in engine nacelles and auxiliary power units (APUs) on aircraft	2-BTP	30 days after publication of a final rule
Streaming agent for use in aircraft	2-BTP	30 days after publication of a final rule

PROPOSED UNACCEPTABLE ALTERNATIVES

End-Uses	Substitutes	Proposed Effective Date
Air Conditioning (AC)		
Residential and light commercial AC and heat pumps – unitary split AC systems and heat pumps (retrofit)	All ASHRAE Flammability Class 3 Refrigerants[a]	30 days after publication of a final rule
Residential and light commercial AC and heat pumps (new)	Propylene, R-443A	30 days after publication of a final rule
Centrifugal chillers and positive displacement chillers (new)	Propylene, R-443A	30 days after publication of a final rule
Refrigeration		
Cold storage warehouses (new)	Propylene, R-443A	30 days after publication of a final rule

[a] All refrigerants identified as and meeting the criteria for flammability Class 3 in American National Standards Institute (ANSI)/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 34–2013. All refrigerants meeting the criteria for flammability Class 3 include, but are not limited to, refrigerant products sold under the names R-22a, 22a, Blue Sky 22a refrigerant, Coolant Express 22a, DURACOOL-22a, EC-22, Ecofreeeze EF-22a, EF-22a, Envirosafe 22a, ES-22a, Frost 22a, HC-22a, Maxi-Fridge, MX-22a, Oz-Chill 22a, Priority Cool, and RED TEK 22a.

PROPOSED CHANGE OF LISTING STATUS

End-Uses	Substitutes	Proposed Effective Date
Air Conditioning		
Centrifugal chillers (new)	FOR12A, FOR12B, HFC-134a, HFC-227ea, HFC-236fa, HFC-245fa, R-125/134a/600a (28.1/70/1.9), 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-423A, R-424A, R-434A, R-438A, R-507A, RS-44 (2003 composition), and THR-03	Unacceptable, except as otherwise allowed under a narrowed use limit, as of January 1, 2024
Centrifugal chillers (new)	HFC-134a for military marine vessels and for human-rated spacecraft and related support equipment	Acceptable, subject to narrowed use limits, as of January 1, 2024
Centrifugal chillers (new)	R-404A for human-rated spacecraft and related support equipment	Acceptable, subject to narrowed use limits, as of January 1, 2024
Positive displacement chillers (new)	FOR12A, FOR12B, HFC-134a, HFC-227ea, KDD6, R-125/134a/600a (28.1/70/1.9), 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-424A, R-434A, R-437A, R-438A, R-507A, RS-44 (2003 composition), SP34E, and THR-03	Unacceptable, except as otherwise allowed under a narrowed use limit, as of January 1, 2024
Positive displacement chillers (new)	HFC-134a for military marine vessels and for human-rated spacecraft and related support equipment	Acceptable, subject to narrowed use limits, as of January 1, 2024
Positive displacement chillers (new)	R-404A for human-rated spacecraft and related support equipment	Acceptable, subject to narrowed use limits, as of January 1, 2024
Refrigeration		
Cold storage warehouses (new)	HFC-227ea, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407A, R-407B, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-423A, R-424A, R-428A, R-434A, R-438A, R-507A, and RS-44 (2003 composition)	Unacceptable, as of January 1, 2023

End-Uses	Substitutes	Proposed Effective Date
Retail food refrigeration – refrigerated food processing and dispensing equipment (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, 2021
Household refrigerators and freezers (new)	FOR12A, FOR12B, HFC-134a, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, 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, and THR-03	Unacceptable, as of January 1, 2021
Foam Blowing		
Rigid polyurethane (PU) high-pressure two-component spray foam	HFC-134a, HFC-245fa, and blends thereof; blends of HFC-365mfc with at least four percent HFC-245fa, and commercial blends of HFC-365mfc with 7 to 13 percent HFC-227ea and the remainder HFC-365mfc; and Formacel TI[a]	• Unacceptable for all uses, except military or space-and aeronautics–related applications, as of January 1, 2020 • Acceptable, subject to narrowed use limits, for military or space-and aeronautics–related applications, as of January 1, 2020 • Unacceptable for military or space-and aeronautics–related applications as of January 1, 2025
Rigid PU low-pressure two-component spray foam	HFC-134a, HFC-245fa, and blends thereof; blends of HFC-365mfc with at least four percent HFC-245fa, and commercial blends of HFC-365mfc with 7 to 13 percent HFC-227ea and the remainder HFC-365mfc; and Formacel TI[b]	• Unacceptable for all uses, except military or space-and aeronautics–related applications, as of January 1, 2021 • Acceptable, subject to narrowed use limits, for military or space-and aeronautics–related applications, as of January 1, 2021 • Unacceptable for military or space-and aeronautics–related applications as of January 1, 2025
Rigid PU one-component foam sealants	HFC-134a, HFC-245fa, and blends thereof; blends of HFC-365mfc with at least four percent HFC-245fa, and commercial blends of HFC-365mfc with 7 to 13 percent HFC-227ea and the remainder HFC-365mfc; and Formacel TI[c]	Unacceptable, as of January 1, 2020
All foam blowing end-uses except for rigid PU spray foam	All HFCs and HFC blends previously listed as unacceptable for space-and aeronautics–related applications as of January 1, 2022	Unacceptable for space-and aeronautics–related applications as of January 1, 2025
Flexible PU foam	Methylene chloride	Unacceptable, as of 30 days after publication of a final rule
Integral skin PU foam	Methylene chloride[d]	Unacceptable, as of January 1, 2017
Polyolefin foam	Methylene chloride[e]	Unacceptable, as of January 1, 2020
Fire Suppression and Explosion Protection		
Total flooding	Perfluorocarbons (PFCs) (C_3F_8 and C_4F_{10})	Unacceptable, as of one year after publication of a final rule

End-Uses	Substitutes	Proposed Effective Date

[a] Closed cell foam products and products containing closed cell foams manufactured on or before January 1, 2020, may be used after that date.
[b] Closed cell foam products and products containing closed cell foams manufactured on or before January 1, 2021, may be used after that date.
[c] Closed cell foam products and products containing closed cell foams manufactured on or before January 1, 2020, may be used after that date.
[d] Closed cell foam products and products containing closed cell foams manufactured on or before January 1, 2017, may be used after that date.
[e] Closed cell foam products and products containing closed cell foams manufactured on or before January 1, 2020, may be used after that date.

OTHER PROPOSED CHANGES

End-Uses	Proposed Changes
All Foam Blowing End-Uses	Prohibit use of closed cell foam products and products that contain closed cell foam manufactured with an unacceptable foam blowing agent on or after the later of: 1) one year after publication of a final rule, or 2) the date when the foam blowing agent is unacceptable.
Fire Suppression and Explosion Protection – Total Flooding	Clarify the listing for Powdered Aerosol D (Stat-X®), which is currently listed as both "acceptable" and "acceptable subject to use conditions," by removing the listing as "acceptable subject to use conditions" 30 days after publication of a final rule