SPRAY FOAM:
Improving Energy Efficiency with Environmentally Sustainable Solutions

Modern foam blowing agents improve sustainability and improve environmental impacts.[1] Not all chemicals and foam products are the same. The foam blowing agents used by the spray foam industry should not be classified or regulated as PFAS. They are more sustainable and environmentally preferable than the previous generation of foam blowing agents.

Closed-cell spray foam insulation and sealants are formulated with foam blowing agents that enable the foam to properly expand to conform to the surface and seal air leaks in the building envelope. These foam blowing agents are optimized to increase the thermal efficiency (R-value) of the foam to help increase the energy efficiency of the structure's thermal envelope. As a fundamental component in polyurethane foams, foam blowing agents enable the most efficient insulation performance resulting in significant greenhouse gas reductions.

Technology-based on foam blowing agents, like spray foam insulation, are key tools that help address climate change.

HFO and HCFO Foam Blowing Agents

The new generation foam blowing agents – based on hydrofluoroolefin (HFO) and hydrochlorofluoroolefin (HCFO) technology – are low-global warming potential (GWP), and essentially zero ozone-depleting potential (ODP) products.

ENVIRONMENTAL IMPACT OF HFO AND HCFO FOAM BLOWING AGENTS

The atmospheric chemistry of HFOs and HCFOs used as blowing agents in spray foam has been thoroughly studied. The foam blowing agents used by the spray foam industry have been deemed "acceptable" by the U.S. Environmental Protection Agency (EPA).[2]

HFO and HCFO foam blowing agents are **not** classified as persistent, bioaccumulative, or toxic (PBT).[3] The HFOs and HCFOs used as foam blowing agents have atmospheric lifetimes measured in days and are designed to readily breakdown in the atmosphere if released, forming compounds that occur naturally in the environment.[4,5]

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Environmental fate data on the HFO and HCFO foam blowing agents were reviewed under Section 612 of the Clean Air Act. By deeming HFO and HCFO foam blowing agents "acceptable," EPA has determined that HFO and HCFO foam blowing agents "reduce overall risk to human health and the environment compared to other substitutes for the particular end-use."

These HFO and HCFO foam blowing are not considered PFAS by EPA[6] and should not be classified or regulated as PFAS at the federal, state, or regional level.

BENEFITS OF SPRAY FOAM

Spray foam increases the energy efficiency of builders, reducing greenhouse gas emissions[7]

Spray foam makes buildings stronger[8]

Spray foam saves homeowners money[9]

[1] This document is in specific reference to: HCFO 1233zd(E) HFO-1234ze(E); HFO-1336mzz(Z); and HFO-1336mzz(E)

[2] Substitutes in Foam Blowing Agents. Available at: https://www.epa.gov/snap/substitutes-foam-blowing-agents

[3] ECHA PBT Assessment List: Available at: https://echa.europa.eu/fi/pbt.

[4] D.K. Pananastasiou, Atmospheric Chemistry of HFOs and HCFOs, DKV Annual Meeting, November 17-19, 2021, Dresden, Germany.

[5] Published evidence supports very low yield of TFA from most HFOs and HCFOs (August 2021). Available at: https://www.fluorocarbons.org/wp-content/uploads/2021/08/2021_08_EFCTC_Position-Paper_Published-evidence-supports-very-low-yields-of-TFA-from-most-HFOs-and-HCFOs_F.pdf

[6] National PFAS Testing Strategy: Identification of Candidate Per- and Polyfluoroalkyl Substances (PFAS) for Testing. Available at: https://www.epa.gov/system/files/documents/2021-10/pfas-natl-test-strategy.pdf

[7] Spray Foam: Contributing to Sustainability and Reducing Greenhouse Gas Emissions from Buildings. Available at: https://www.whysprayfoam.org/wp-content/uploads/2021/09/Spray-Foam-Contributing-to-Sustainability-and-Reducing-GHG-Emissions.pdf

[8] Spray Foam Insulation: Helping Create Stronger Buildings. Available at: https://www.whysprayfoam.org/wp-content/uploads/2021/09/Spray-Foam-Insulation-Helping-Create-Stronger-Buildings.pdf

[9] Air Sealing with Spray Polyurethane Foam

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