

# Blowing Agent Gases and Global Warming Potential in Rigid Foams

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\*SUPERSEDES EXISTING DOCUMENTS

Atlas Roofing Corporation is committed to ensuring we are using blowing agents with the lowest Global Warming Potential (GWP) available for each of our product technologies.

Blowing agents are gases used to create tiny cells in the manufacture of foam products. The gas can stay in the cell over long periods of time or can dissipate quickly. In general, the blowing agent gases are retained in polyisocyanurate, extruded polystyrene (XPS) and closed cell spray foams. The gases dissipate during or shortly after the manufacturing process for open cell spray foam and closed cell Expanded Polystyrene (EPS).

With the renewed focus on chemicals that contribute to global warming, some rigid foams are under increased regulation to reduce the GWP for their blowing agent gases. In particular, XPS faces regulation to reduce the GWP of their blowing agent gases by 2025.<sup>1</sup>

Regardless of being a retained blowing agent or a dissipated blowing agent, it is assumed the blowing agent eventually makes its way into the environment. The GWP of blowing agent gases is important as the higher the GWP, the more they contribute to climate change.

**Summary of rigid foam products and their blowing agent GWP**

Manufacturer	Atlas	Atlas	Atlas	BASF	Kingspan	Owens Corning	Dupont
Insulation Brand	ACFoam	EnergyShield	ThermalStar	Styrodur	GreenGuard GG25-LG	Foamular NGX	Styrofoam (ST100)
Materials	Polyiso	Polyiso	White EPS	Green XPS	Green XPS	Pink XPS	Gray XPS
Location	North America	North America	North America	Europe	North America	North America	North America
Blowing Agent Gas	Pentane	Pentane	Pentane	CO <sub>2</sub> (Since 1998)	Blend	Blend / R152a	Unknown
GWP <sup>2</sup>	<3*	<3*	<3*	1 <sup>†</sup>	<50 <sup>‡</sup>	<80 <sup>§</sup>	<150 <sup>+</sup>

<sup>1</sup> "EPA HFC Final Rule Fact Sheet 2023", Office of Air and Radiation, October 2023

<sup>2</sup> The unit for GWP is "kg CO<sub>2</sub> equivalent" for 100 years, with CO<sub>2</sub> having a GWP of 1

\* World Meteorological Organization, "Scientific Assessment of Ozone depletion 2018", Annex A, Summary of Abundances, Lifetimes, ODPs, Res, GWP, and GTPs

<sup>†</sup> E-CPB/FM 2205 BE Styrodur Sustainability Brochure

<sup>‡</sup> Kingspan-green-guard-xps-lg-brochure-sell-sheet-siding-applications-en-us-ca-v1, 02/2024

<sup>§</sup> Foamular NGX Extruded Polystyrene Insulation Health Product Declaration V2.3 2023-11-10

<sup>+</sup> <https://www.beyondblue.dupont.com/compliance.html>

EPS, Polyiso, and XPS can all be sourced with a low GWP (less than 10) blowing agents around the world. Unfortunately, a low GWP XPS product is not available in North America.

In North America, the use of Atlas rigid foam products provides a significant environmental benefit over XPS where higher GWP blowing agents are used.

