

HUNTSMAN

BUILDING SOLUTIONS



Environmental Product Declaration

Introduction to Global Warming Potential (GWP)

Definitions:

Greenhouse Gases (GHG):

- Absorb energy and trap heat in the atmosphere, effectively warming it.
- Heat-trapping potential and atmospheric lifetime specific to each GHG.

Global Warming Potential (GWP):

- Metric that compares the global warming impact of those different GHGs.
- Measures how much energy the emissions of 1 ton of a GHG will absorb over a given period relative to 1 ton of CO₂; expressed in Carbon Dioxide Equivalent (CO₂-eq.).

The higher the GWP, the more a gas warms the planet compared to CO₂ over a period of 100 years.

Worldwide Issue: Global Warming

Two main types of carbon emissions (GHG) in buildings that contribute to the GWP:

- 1) Embodied carbon of construction materials
- 2) Operational carbon of buildings (e.g. HVAC)

PROBLEM:

Construction & Building Operations

- 38% of global annual GHG emissions

PROBLEM:

World's building stock expected to double by 2060

- ++ energy consumption; ++ carbon emissions

RESPONSE TO PROBLEM:

Paris Agreement's goals:

- Limit global warming to 2°, pref. 1.5° C from pre-industrial levels (IPCC AR5)
- 2030 » >50% carbon emission reductions
- 2050 » Zero Carbon

Addressing upfront carbon by changing the way buildings are designed, built, used and decommissioned will be a priority over the coming decades.

Global CO₂ Emissions by Sector

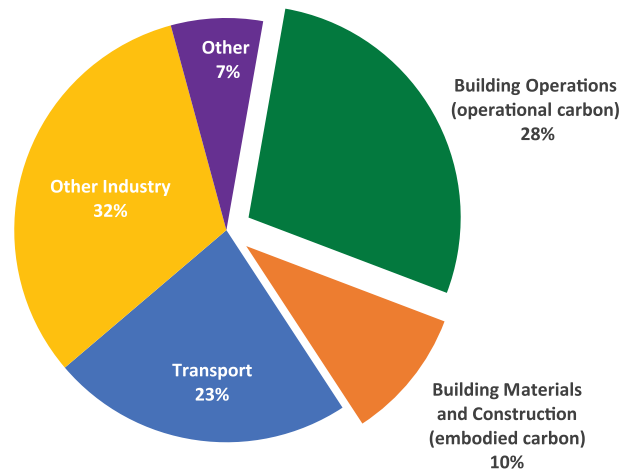


Chart source: © 2021 Huntsman Building Solutions. All rights reserved.
Data sources: UN Environment Global Status Report 2020;
IEA Energy Technology Perspectives 2020; IEA World Energy Balances 2020

HBS' SPF's Contribution to Reducing Construction And Buildings' Global CO₂ Emissions

- 1) Reduced embodied carbon of HBS products as demonstrated in HBS-specific EPD & LCA.
- 2) Reducing operational carbon of buildings through increased energy performance.



Environmental Product Declaration

- Heatlok Soya HFO: 1st SPF product with a product-specific Type III EPD, third-party made and externally verified by UL in accordance with ISO 14025, ISO 14044, ISO 21930 and EN 15804.
- Based on Cradle-to-Grave Life-Cycle Assessment which communicates transparent, objective and comparable information about the entire life-cycle environmental impact of products.
- HBS' proprietary polyol with recycled content & the new-generation Solstice HFO blowing agent with a GWP=1 responsible for diminished environmental impact.

ENVIRONMENTAL PRODUCT DECLARATION

HEATLOK HFO AND HEATLOK SOYA HFO

HUNTSMAN BUILDING SOLUTIONS



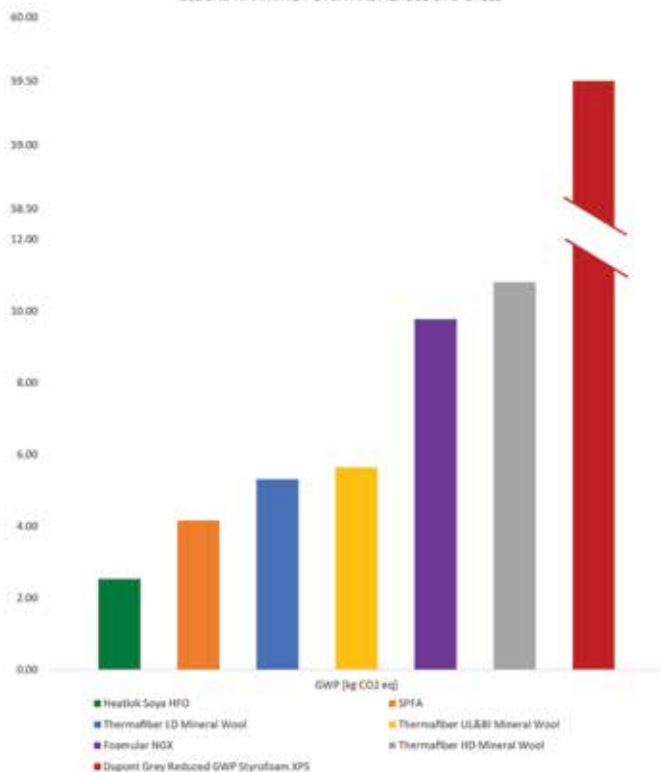
HUNTSMAN BUILDING SOLUTIONS

Huntsman Building Solutions is a global leader in the manufacture and supply of open-cell and closed-cell spray polyurethane foam (SPF) insulation and coatings. Formed in May 2020 through the combination of the Demilec and Icynene-Lapolla SPF businesses, Huntsman Building Solutions is a business unit of Huntsman Corporation and has a combined heritage of more than 110 years. Through the application of innovative technology and advanced science,

Huntsman Building Solutions focuses on meeting market demands for more energy-efficient products and serves a range of industries, including residential, commercial, industrial, institutional, and agricultural. For more information, visit www.huntsmanbuildingsolutions.com.



GLOBAL WARMING POTENTIAL ACROSS LIFE-CYCLE



Heatlok Soya HFO's GWP Comparison to Other Insulation Types

- 39% lower than the spray foam industry average (SPFA);
- 74% and 96% lower than HFO extruded polystyrene;
- 77% lower than heavy density mineral wool;
- 52% lower than light density mineral wool;
- 55% lower than unbonded loosefill & blown-in mineral wool

Chart source: © 2021 Huntsman Building Solutions. All rights reserved.
Data sources: Products' respective EPDs.

Assembly Comparisons

Wall assembly with only Heatlok Soya HFO vs assemblies insulated with mineral wool, HFO extruded polystyrene board stock and fiber glass insulation. By simply replacing all insulation and membranes in assemblies A and B by the single product Heatlok Soya HFO at an equivalent R-value, assembly's GWP nearly cut in half.

A/B » C = 45% GWP

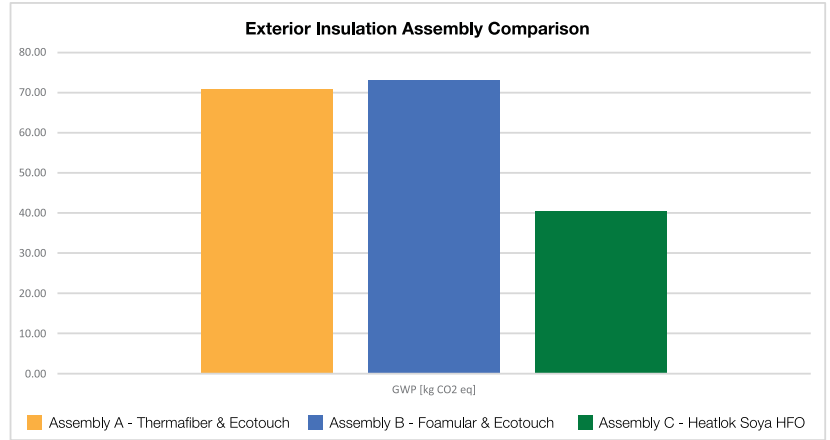
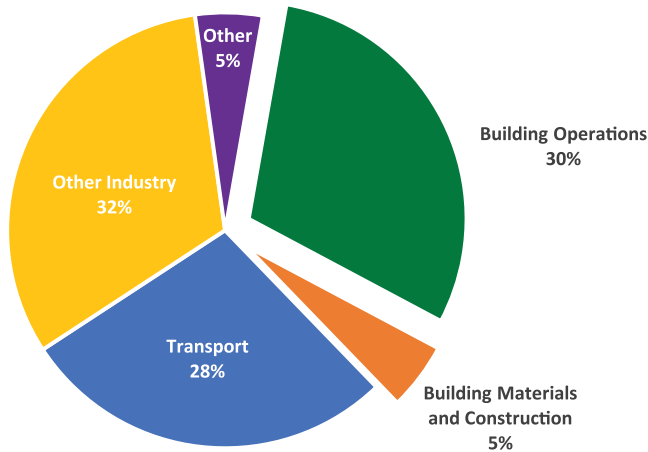


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Data sources: Products' respective EPDs.



Global Energy Use by Sector



Energy Efficiency

- Building Operations: 30% of global annual energy use
- HBS' SPF: Inherently seamless and higher thermal insulation, vapor and air barrier properties increase energy savings, reduce HVAC loads & lower building operational carbon emissions.
- Using spray foam in place of other products could reduce annual home heating and cooling-related carbon emissions by 30% (American Chemistry Council)

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