



Atmosphere™ Duct Liner Wall and Ceiling Liner

Atmosphere Duct Liner is a flexible, mat-faced insulation with a tightly bonded mat to provide a smooth, tough surface that resists damage.

Wall and Ceiling Liner M with ECOSE® Technology is a brown flexible fiberglass blanket with a black mat facing adhered to one surface. It provides thermal & acoustical insulation while its surface resists damage during installation. It is intended to be mechanically fastened to walls and can be left exposed, covered with fabric or suspended above linear metal & metal pan ceiling systems to serve as a visual & acoustical treatment.



Performance dashboard

Features & functionality

- Greatly reduces noise
- Low VOC emission and formaldehyde-free
- Acoustical and visual barrier for walls and ceilings where a black surface is required
- For theaters, sound studios, public concourses and other areas where acoustical treatment is needed

Visit Knauf for more product information
[Wall and Ceiling Liner](#)
[Atmosphere™ Duct Liner](#)

Environment & materials

Improved by:

- Utilization of recycled glass
- Knauf's original bio-based ECOSE® binder technology
- Optimized compression packaging

Certification & rating systems:

- Declare, Red List Free
- UL GREENGUARD Gold certified
- UL Validated recycled content
- UL Validated formaldehyde-free
- Audited, European Certification Board for Mineral Wool Products exoneration process

MasterFormat® 23 07 13
Wall and Ceiling Liner [Guide Spec](#),
[Technical Data Sheet](#)
Atmosphere™ Duct Liner [Technical Data Sheet](#)
For spec help, [contact us](#) or call 317 421 8727

[See LCA, interpretation & rating systems](#)

[See materials, interpretation & rating systems](#)



SM Transparency Report (EPD)™ + Material Health Overview™

EPD LCA

3rd-party verified
Transparency Report (EPD)

3rd-party verified

Validity: 12/12/23 – 12/12/28
KNA – 12122023 – 004

MATERIAL HEALTH Material evaluation

Self-declared"

This environmental product declaration (EPD) was externally verified by Harmony Environmental, LLC, according to ISO 21930:2017; UL Part A; UL Part B for Building Envelope Thermal Insulation Products; and ISO 14025:2006.

Harmony Environmental, LLC
16362 W. Briarwood Ct.
Olathe, KS 66062
www.harmonyenviro.com
(913) 780-3328



SUMMARY

Reference PCR
UL Part B: Building Envelope Thermal Insulation v2.0

Regions; system boundaries
North America; Cradle-to-grave

Functional unit / ESL:
1 m² installed insulation material, packaging included, with thickness that gives average thermal resistance of R_{SI} = 1m²·K/W over an estimated service life (ESL) of 75 years

LCIA methodology: TRACI 2.1

LCA software; LCI database
LCA for Experts v10.7; LCA for Experts 2023

In accordance with ISO 14044 and the reference PCR, this life cycle assessment was conducted by Sustainable Minds and verified by Harmony Environmental, LLC.

Public LCA:
Knauf Insulation North America and Manson Insulation Products

Knauf Insulation, Inc.
One Knauf Drive
Shelbyville, IN 46176
www.knaufinsulation.us
317 398 4434

Contact us

LCA results & interpretation

Wall and Ceiling Liner & Atmosphere™ Duct Liner

Wall and Ceiling Liner

Atmosphere™ Duct Liner

EPD additional content

Material health

Scope and summary

- Cradle to gate Cradle to gate with options Cradle to grave

Application

Wall and Ceiling Liner is designed for use as an acoustical and visual barrier for walls and ceilings where a black surface is required. It is primarily used in theaters, sound studios, public concourses, and other areas where acoustical treatment is needed.

Functional unit

One square meter of installed insulation material, packaging included, with a thickness that gives an average thermal resistance of $R_{si} = 1m^2 \cdot K/W$ with a building service life of 75 years.

Reference service life: 75 years when installed per manufacturer's instructions
Reference flow: 0.992 kg of product, at a thickness of 0.0356 m to achieve the functional unit. (ASTM C518)

Manufacturing data

Reporting period: January 2022 – December 2022
Location: Shelbyville, IN

Default installation, packaging, and disposal scenarios

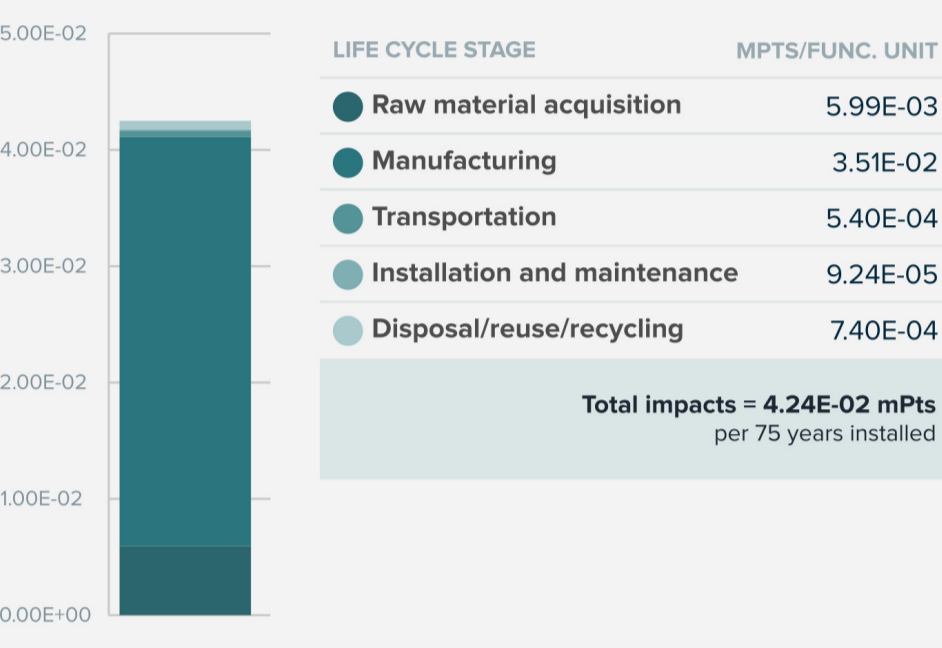
At the installation site, insulation products are unpackaged and installed. Staples may be used to install liner products. The potential impact of the staples is assumed to be negligible since their use is spread out over hundreds of pieces; therefore, they were not included in the model.

No material is assumed to be lost or wasted. Scraps are typically used to fill corners or crevices. Plastic packaging waste is disposed (9% to recycling, 68% to landfill, and 17% to incineration), paper-based packaging waste is disposed (68% to recycling, 20% to landfill, and 5% to incineration), and no maintenance or replacement is required over the life of the building. After removal, the insulation is assumed to be landfilled. Insulation and packaging waste are assumed to be transported 100 miles for disposal.

Material composition greater than 1% by weight

PART	MATERIAL	%WT.
Batch	Cullet	25-30%
Batch	Sand	2-5%
Batch	Borates	2-5%
Batch	Soda ash	2-5%
Batch	Feldspar	1-2%
Batch	Limestone	1-2%
Batch	Oxides	<1%
Binder	Water	20-25%
Binder	Sugars	10-15%
Binder	Additives	8-10%
Facer	Black mat facer	10-15%
Packaging	Plastic	<1%
Packaging	Cardboard	1-2%

Total impacts by life cycle stages [mPts/per func unit]



LCA results

LIFE CYCLE STAGE	RAW MATERIAL ACQUISITION	MANUFACTURING	TRANSPORTATION	INSTALLATION AND MAINTENANCE	DISPOSAL/ REUSE/ RECYCLING
	(X) A1 Raw materials	(X) A3 Manufacturing	(X) A4 Distribution	(X) A5 Installation	(X) C1 Deconstruction
	(X) A2 Transportation			(X) B1 Use	(X) C2 Transportation
				(X) B2 Maintenance	(X) C3 Waste processing
				(X) B3 Repair	(X) C4 Disposal
				(X) B4 Replacement	
				(X) B5 Refurbishment	
				(X) B6 Operational energy use	
				(X) B7 Operational water use	

Information modules:
Included (X) | Excluded (MND)*

*Module D is also excluded from this system boundary (MND).

SM Single Score [Learn about SM Single Score results](#)

Impacts per 1 square meter of insulation material	5.99E-03 mPts	3.51E-02 mPts	5.40E-04 mPts	9.24E-05 mPts	7.40E-04 mPts
Materials or processes contributing >20% to total impacts in each life cycle stage	Batch material and binder material production.	Energy required to melt the glass and produce the glass fibers.	Truck and rail transportation used to transport product to building site.	Transportation to landfill and landfilling of packaging materials.	Transportation to landfill and landfilling of product at end of life.

TRACI v2.1 results per functional unit (Wall and Ceiling Liner - Shelbyville, IN)

LIFE CYCLE STAGE	RAW MATERIAL ACQUISITION	MANUFACTURING	TRANSPORTATION	INSTALLATION AND MAINTENANCE	DISPOSAL/ REUSE/ RECYCLING
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Ecological damage

Impact category	Unit	Raw Material Acquisition	Manufacturing	Transportation	Installation and Maintenance	Disposal/Reuse/Recycling
Global warming	kg CO ₂ eq	4.18E-01	2.38E+00	2.91E-02	1.44E-02	3.59E-02
Ozone depletion	kg CFC-11 eq	5.65E-12	2.00E-13	6.50E-17	5.73E-17	1.03E-15
Acidification	kg SO ₂ eq	1.04E-03	8.05E-03	1.49E-04	3.06E-05	1.50E-04
Eutrophication	kg N eq	5.51E-04	7.17E-04	1.28E-05	5.89E-06	9.24E-06

Human health damage

Impact category	Unit	Raw Material Acquisition	Manufacturing	Transportation	Installation and Maintenance	Disposal/Reuse/Recycling
Smog	kg O ₃ eq	1.68E-02	8.45E-02	5.13E-03	1.52E-04	2.94E-03
Respiratory effects	kg PM _{2.5} eq	5.98E-05	4.62E-04	7.31E-06	7.49E-07	1.01E-05

Additional environmental information

Impact category	Unit	Raw Material Acquisition	Manufacturing	Transportation	Installation and Maintenance	Disposal/Reuse/Recycling
Carcinogenics	CTU _h	59.5%	38.8%	0.1%	0.0%	1.5%
Non-carcinogenics	CTU _h	75.4%	22.5%	0.1%	0.1%	1.9%
Ecotoxicity	CTU _e	27.3%	71.0%	0.8%	0.0%	0.9%
Fossil fuel depletion	MJ surplus	1.08E+00	4.89E+00	5.46E-02	1.87E-03	7.01E-02

References

LCA Background Report

Knauf Insulation North America and Manson Insulation Products LCA Background Report (public version), Knauf Insulation North America (KINA) 2023; developed using the TRACI v2.1 and CML impact assessment methodologies, and LCA for Experts modeling software.

ISO 14025, "Sustainability in buildings and civil engineering works -- Core rules for environmental product declarations of construction products and services"

ISO 21930:2017 serves as the core PCR along with UL Part A.

UL Part A: Life Cycle Assessment Calculation Rules and Report Requirements v4.0

March, 2022. PCR review conducted by Lindita Bushi, PhD, Chair (Athena Sustainable Materials Institute), lindita.bushi@athensmi.org; Hugues Imbeault-Tétreault (Group AGECO); and Jack Geibig (Ecoform).

UL Part B: Building Envelope Thermal Insulation EPD Requirements, v2.0

April, 2018. PCR review conducted by Thomas Gloria, PhD, Chair (Industrial Ecology Consultants) t.gloria@industrial-ecology.com; Christoph Köffler, PhD (thinkstep); Andre Desjarlais (Oak Ridge National Laboratory).

UL Environment General Program Instructions v2.4, July 2018 (available upon request)

Download PDF SM Transparency Report / EPD

SM Transparency Reports (TR) are ISO 14025 Type III environmental declarations (EPD) that enable purchasers and users to compare the potential environmental performance of products on a life cycle basis. Environmental declarations from different programs (ISO 14025) may not be comparable. Comparison of the environmental performance of products using EPD information shall be based on the product's use and impacts at the building level, and therefore EPDs may not be used for comparability purposes when not considering the building energy use phases as instructed under this PCR. Full conformance with the PCR for Building Envelope Thermal Insulation allows EPD comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible. Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.

Rating systems

The intent is to reward project teams for selecting products from manufacturers who have verified improved life-cycle environmental performance.

LEED BD+C: New Construction | v4 - LEED v4

Building product disclosure and optimization

Environmental product declarations

- Industry-wide (generic) EPD ½ product
- Product-specific Type III EPD 1 product

LEED BD+C: New Construction | v4.1 - LEED v4.1

Building product disclosure and optimization

Environmental product declarations

- Industry-wide (generic) EPD 1 product
- Product-specific Type III EPD 1.5 product

Collaborative for High Performance Schools National Criteria

MW C5.1 – Environmental Product Declarations

- Third-party certified type III EPD 2 point

Green Globes for New Construction and Sustainable Interiors

Materials and resources

- NC 3.5.1.2 Path B: Prescriptive Path for Building Core and Shell
- NC 3.5.2.2 and SI 4.1.2 Path B: Prescriptive Path for Interior Fit-outs

BREEAM New Construction 2018

Mat 02 - Environmental impacts from construction products

Environmental Product Declarations (EPD)

- Industry-average EPD .5 point
- Multi-product specific EPD .75 points
- Product-specific EPD 1 point

SM Transparency Report (EPD)™ + Material Health Overview™

EPD	LCA
3rd-party verified	<input checked="" type="checkbox"/>
Transparency Report (EPD)	
3rd-party verified	<input checked="" type="checkbox"/>
Validity: 12/12/23 – 12/12/28	
KNA – 12122023 – 004	

MATERIAL HEALTH	Material evaluation
Self-declared"	<input checked="" type="checkbox"/>

This environmental product declaration (EPD) was externally verified by Harmony Environmental, LLC, according to ISO 21930:2017; UL Part A; UL Part B for Building Envelope Thermal Insulation Products; and ISO 14025:2006.

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SUMMARY

Reference PCR
UL Part B: Building Envelope Thermal Insulation v2.0

Regions; system boundaries
North America; Cradle-to-grave

Functional unit / ESL:
1 m² installed insulation material, packaging included, with thickness that gives average thermal resistance of $R_{si} = 1m^2 \cdot K/W$ over an estimated service life (ESL) of 75 years

LCIA methodology: TRACI 2.1

LCA software; LCI database
LCA for Experts v10.7; LCA for Experts 2023

In accordance with ISO 14044 and the reference PCR, this life cycle assessment was conducted by Sustainable Minds and verified by Harmony Environmental, LLC.

Public LCA:
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LCA results & interpretation

Wall and Ceiling Liner & Atmosphere™ Duct Liner

Wall and Ceiling Liner

Atmosphere™ Duct Liner

EPD additional content

Material health

Scope and summary

Cradle to gate Cradle to gate with options Cradle to grave

Application

Specifically designed for sheet metal ducts used in heating, ventilating, and air conditioning, Atmosphere™ Duct Liner provides an optimum combination of efficient sound absorption, low thermal conductivity, and minimal airstream surface friction.

Functional unit

One square meter of installed insulation material, packaging included, with a thickness that gives an average thermal resistance of $R_{si} = 1m^2 \cdot K/W$ with a building service life of 75 years.

Reference service life: 75 years when installed per manufacturer's instructions
Reference flow: 1.072 kg of product, at a thickness of 0.0353 m to achieve the functional unit. (ASTM C518)

Manufacturing data

Reporting period: January 2022 – December 2022
Location: Shelbyville, IN

Default installation, packaging, and disposal scenarios

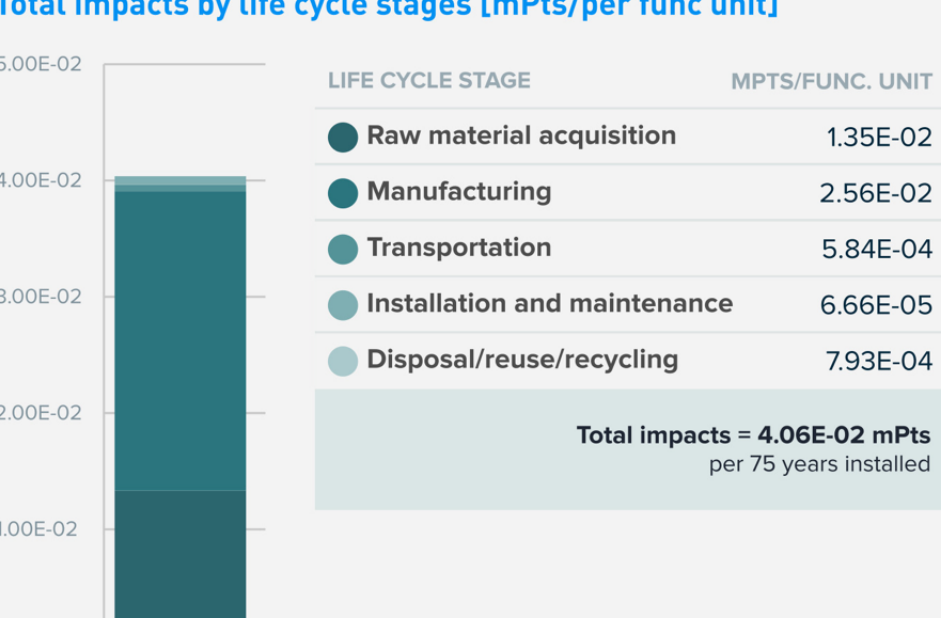
At the installation site, insulation products are unpackaged and installed. Staples may be used to install liner products. The potential impact of the staples is assumed to be negligible since their use is spread out over hundreds of pieces; therefore, they were not included in the model.

No material is assumed to be lost or wasted. Scraps are typically used to fill corners or crevices. Plastic packaging waste is disposed (9% to recycling, 68% to landfill, and 17% to incineration), paper-based packaging waste is disposed (68% to recycling, 20% to landfill, and 5% to incineration), and no maintenance or replacement is required over the life of the building. After removal, the insulation is assumed to be landfilled. Insulation and packaging waste are assumed to be transported 100 miles for disposal.

Material composition greater than 1% by weight

PART	MATERIAL	%WT.
Batch	Cullet	25-30%
Batch	Sand	2-5%
Batch	Borates	2-5%
Batch	Soda ash	2-5%
Batch	Feldspar	1-2%
Batch	Limestone	1-2%
Batch	Oxides	<1%
Binder	Water	20-25%
Binder	Sugars	10-15%
Binder	Additives	8-10%
Facer	Black mat facer	8-10%
Packaging	Plastic	1-2%
Packaging	Cardboard	1-2%

Total impacts by life cycle stages [mPts/per func unit]



LCA results

LIFE CYCLE STAGE	RAW MATERIAL ACQUISITION	MANUFACTURING	TRANSPORTATION	INSTALLATION AND MAINTENANCE	DISPOSAL/ REUSE/ RECYCLING
	(X) A1 Raw materials	(X) A3 Manufacturing	(X) A4 Distribution	(X) A5 Installation	(X) C1 Deconstruction
	(X) A2 Transportation			(X) B1 Use	(X) C2 Transportation
				(X) B2 Maintenance	(X) C3 Waste processing
				(X) B3 Repair	(X) C4 Disposal
				(X) B4 Replacement	
				(X) B5 Refurbishment	
				(X) B6 Operational energy use	
				(X) B7 Operational water use	

Information modules:
Included (X) | Excluded (MND)*

*Module D is also excluded from this system boundary (MND).

SM Single Score [Learn about SM Single Score results](#)

Impacts per 1 square meter of insulation material	1.35E-02 mPts	2.56E-02 mPts	5.84E-04 mPts	6.66E-05 mPts	7.93E-04 mPts
Materials or processes contributing >20% to total impacts in each life cycle stage	Batch material and binder material production.	Energy required to melt the glass and produce the glass fibers.	Truck and rail transportation used to transport product to building site.	Transportation to landfill and landfilling of packaging materials.	Transportation to landfill and landfilling of product at end of life.

TRACI v2.1 results per functional unit (Atmosphere™ Duct Liner - Shelbyville, IN)

LIFE CYCLE STAGE	RAW MATERIAL ACQUISITION	MANUFACTURING	TRANSPORTATION	INSTALLATION AND MAINTENANCE	DISPOSAL/ REUSE/ RECYCLING
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Ecological damage

Impact category	Unit	Raw Material Acquisition	Manufacturing	Transportation	Installation and Maintenance	Disposal/Reuse/Recycling
Global warming	kg CO ₂ eq	9.40E-01	2.40E+00	3.15E-02	1.22E-02	3.84E-02
Ozone depletion	kg CFC-11 eq	1.27E-11	2.58E-13	7.03E-17	9.29E-17	1.11E-15
Acidification	kg SO ₂ eq	2.34E-03	5.34E-03	1.62E-04	1.27E-05	1.61E-04
Eutrophication	kg N eq	1.24E-03	1.19E-03	1.38E-05	3.61E-06	9.90E-06

Human health damage

Impact category	Unit	Raw Material Acquisition	Manufacturing	Transportation	Installation and Maintenance	Disposal/Reuse/Recycling
Smog	kg O ₃ eq	3.78E-02	7.15E-02	5.54E-03	1.11E-04	3.15E-03
Respiratory effects	kg PM _{2.5} eq	1.35E-04	2.94E-04	7.90E-06	4.32E-07	1.09E-05

Additional environmental information

Impact category	Unit	Raw Material Acquisition	Manufacturing	Transportation	Installation and Maintenance	Disposal/Reuse/Recycling
Carcinogenics	CTU _h	66.3%	32.8%	0.1%	0.0%	0.8%
Non-carcinogenics	CTU _h	83.5%	15.4%	0.1%	0.0%	1.0%
Ecotoxicity	CTU _e	35.8%	63.0%	0.5%	0.0%	0.5%
Fossil fuel depletion	MJ surplus	2.43E+00	4.02E+00	5.91E-02	2.62E-03	7.51E-02

References

LCA Background Report

Knauf Insulation North America and Manson Insulation Products LCA Background Report (public version), Knauf Insulation North America (KINA) 2023; developed using the TRACI v2.1 and CML impact assessment methodologies, and LCA for Experts modeling software.

ISO 14025, "Sustainability in buildings and civil engineering works -- Core rules for environmental product declarations of construction products and services"

ISO 21930:2017 serves as the core PCR along with UL Part A.

UL Part A: Life Cycle Assessment Calculation Rules and Report Requirements v4.0

March, 2022. PCR review conducted by Lindita Bushi, PhD, Chair (Athens Sustainable Materials Institute), lindita.bushi@athenasmi.org; Hugues Imbeault-Tétreault (Group AGECO); and Jack Geibig (Ecoform).

UL Part B: Building Envelope Thermal Insulation EPD Requirements, v2.0

April, 2018. PCR review conducted by Thomas Gloria, PhD, Chair (Industrial Ecology Consultants) t.gloria@industrial-ecology.com; Christoph Koffler, PhD (thinkstep); Andre Desjarlais (Oak Ridge National Laboratory).

UL Environment General Instructions v2.4, July 2018 (available upon request)

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Rating systems

The intent is to reward project teams for selecting products from manufacturers who have verified improved life-cycle environmental performance.

LEED BD+C: New Construction | v4 - LEED v4

Building product disclosure and optimization

Environmental product declarations

<input type="radio"/> Industry-wide (generic) EPD	1/2 product
<input checked="" type="radio"/> Product-specific Type III EPD	1 product

LEED BD+C: New Construction | v4.1 - LEED v4.1

Building product disclosure and optimization

Environmental product declarations

<input type="radio"/> Industry-wide (generic) EPD	1 product
<input checked="" type="radio"/> Product-specific Type III EPD	1.5 product

Collaborative for High Performance Schools National Criteria

MW C5.1 – Environmental Product Declarations

<input checked="" type="radio"/> Third-party certified type III EPD	2 point
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Green Globes for New Construction and Sustainable Interiors

Materials and resources

<input checked="" type="radio"/> NC 3.5.1.2 Path B: Prescriptive Path for Building Core and Shell	
<input checked="" type="radio"/> NC 3.5.2.2 and SI 4.1.2 Path B: Prescriptive Path for Interior Fit-outs	

BREEAM New Construction 2018

Mat 02 - Environmental impacts from construction products

Environmental Product Declarations (EPD)

<input type="radio"/> Industry-average EPD	.5 point
<input type="radio"/> Multi-product specific EPD	.75 points
<input checked="" type="radio"/> Product-specific EPD	1 point

SM Transparency Report (EPD)™ + Material Health Overview™

EPD LCA

3rd-party verified

Transparency Report (EPD)

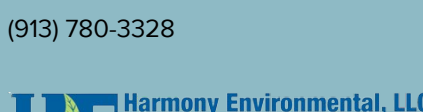
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MATERIAL HEALTH

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Public LCA:
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Contact us

EPD additional content

Wall and Ceiling Liner & Atmosphere™ Duct Liner

Wall and Ceiling Liner	Atmosphere™ Duct Liner	EPD additional content	Material health
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Data

Background This product-specific plant-specific declaration was created by collecting production data from the Shelbyville, IN production locations. Secondary data sources include those available in LCA for Experts 2023 databases.

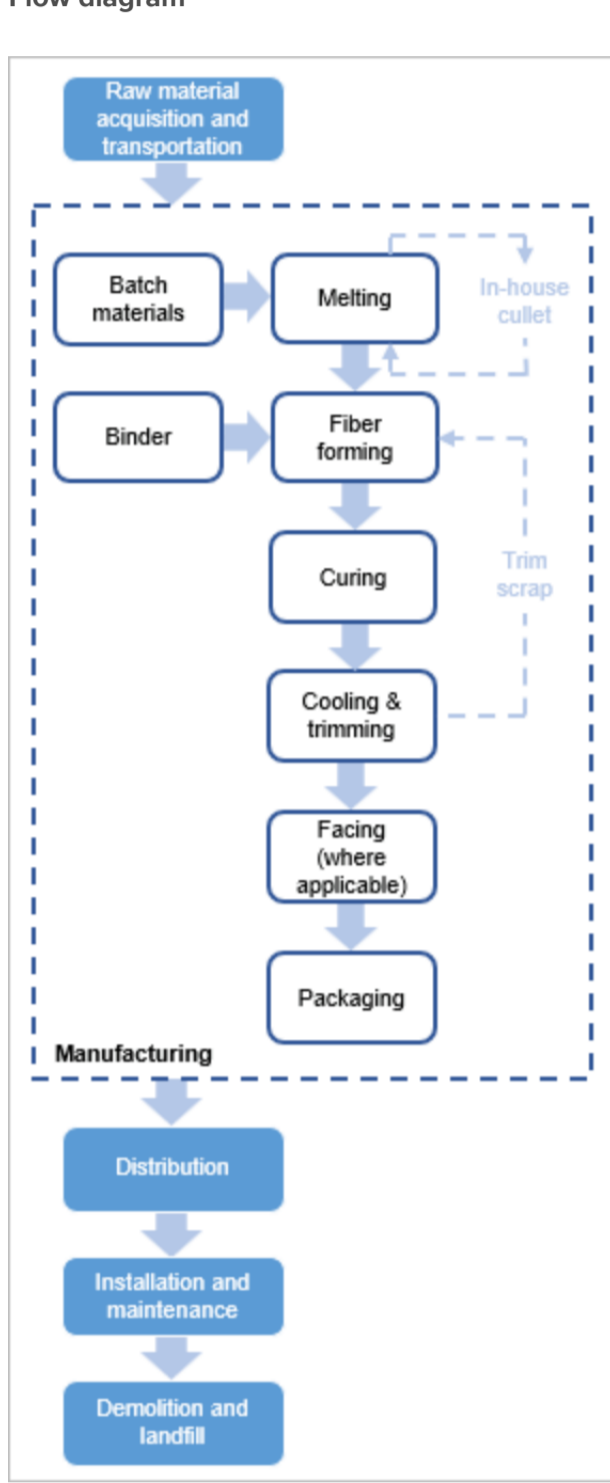
Allocation The PCR prescribes where and how allocation occurs. Since only facility-level data were available, allocation among the facilities' other co-products was necessary to determine the input and output flows associated with the product. Allocation of batch materials and energy was done on a product output mass basis, binder materials were allocated based on the mass calculated from the bill of materials and binder formulations, facers were allocated based on product area, and packaging was allocated based on mass per package of product. Allocation of transportation was based on either weight or volume, depending on which was found to restrict the amount of cargo; the limiting factor was used in allocating transportation.

Cut-off criteria for the inclusion of mass and energy flows are 1% of renewable primary resource (energy) usage, 1% nonrenewable primary resource (energy) usage, 1% of the total mass input that unit process, and 1% of environmental impacts. The total of neglected input flows per module does not exceed 5% of energy usage, mass, and environmental impacts. The only exceptions to these criteria are substances with hazardous and toxic properties, which must be listed even when the given process unit is under the cut-off criterion of 1% of the total mass. No known flows are deliberately excluded from this declaration; therefore, these criteria have been met. Biogenic carbon is included in reported results.

Quality Temporal and technological representativeness are considered to be high. Geographical representativeness is considered to be high. All relevant process steps for the product system were considered and modeled. The process chain is considered sufficiently complete with regards to the goal and scope of this study. The product system was checked for mass balance and completeness of the inventory. Capital goods were excluded since they are assumed not to significantly affect the conclusions of the LCA. Otherwise, no data were knowingly omitted. For more information on data quality, see the LCA background report.

LCIA impact factors required by the PCR are global warming, ozone depletion, acidification, eutrophication, smog, and fossil fuel depletion; "These six impact categories are globally deemed mature enough to be included in Type III environmental declarations. Other categories are being developed and defined and LCA should continue making advances in their development. However, the EPD users shall not use additional measures for comparative purposes."

Flow diagram



Scenarios and additional technical information

PARAMETER	VALUE	UNIT
Transport to the building site [A4]		
Vehicle type	Truck and trailer	-
Fuel type	Diesel	-
Average distance from manufacturing to installation site	161	km
Capacity utilization	27	%
Gross density	24.0	kg/m³
Capacity utilization volume factor	1	-

Installation into the building [A5]		
Wall and Ceiling Liner		
Mass of plastic packaging waste	0.00887	kg
Biogenic carbon content of packaging	0.0198	kg CO ₂
Atmosphere™ Duct Liner		
Mass of plastic packaging waste	0.0168	kg
Biogenic carbon content of packaging	0.0234	kg CO ₂

End of life [C1-C4]		
Assumptions for scenario development	Following manual removal of the insulation, it was assumed to be transported 100 miles to disposal. The PCR prescribes that 100% of the insulation is sent to landfill, where no prior waste processing is required.	
Wall and Ceiling Liner		
Collection process	Collected with mixed construction waste	0.971 kg
Disposal	Product for final deposition in landfill	0.971 kg
Atmosphere™ Duct Liner		
Collection process	Collected with mixed construction waste	1.04 kg
Disposal	Product for final deposition in landfill	1.04 kg

Technical properties	
Wall and Ceiling Liner	
Dimensions/quantities delivered to installation site	Wall and Ceiling Liner is sold in rolls. One master bag contains 4 plastic bags, and each bag contains 1 roll of the product. The dimensions for the product are 1" – 2" thick, 48" in width, and 50' – 100' in length.
ASTM or ANSI product specification	ASTM C1071; Type I ASTM C 665
Corrosiveness	ASTM C665; Does not accelerate corrosion on steel
Corrosion	ASTM C1617; Pass
Surface burning characteristics (flame spread/smoke developed)	ASTM E84, UL 723, NFPA 90A and 90B (IB), CAN/ULC S102 (IB); 25/50
Atmosphere™ Duct Liner	
Dimensions/quantities delivered to installation site	Atmosphere™ Duct Liner is sold in rolls. One master bag contains 4 plastic bags, and each bag contains 1 roll of the product. The dimensions for the product are 1" – 2" thick, 48" – 59" in width, and 50' – 100' in length.
ASTM or ANSI product specification	ASTM C1071; Type I ASTM C 665
Corrosiveness	ASTM C665; Does not accelerate corrosion on steel
Corrosion	ASTM C1617; Pass
Water Vapor Sorption (by weight)	ASTM C1104; Less than 3%
Mold Growth	ASTM C1338, UL 2824, ASTM G21, ASTM G22; Pass
Surface burning characteristics (flame spread/smoke developed)	ASTM E84, UL 723, NFPA 90A and 90B (IB), CAN/ULC S102 (IB); 25/50

Major system boundary exclusions	
<ul style="list-style-type: none"> Capital goods and infrastructure; maintenance of operation and support equipment; Manufacture & transport of packaging materials not associated with final product; Human labor and employee transport; Building operational energy and water use not associated with final product. 	

Major assumptions and limitations	
<ul style="list-style-type: none"> Due to the nature of fiberglass insulation, it is anticipated that it will last for the lifetime of the building, so the reference service life (RSL) is considered to be the same as the building estimated service life (ESL) of 75 years. Generic data sets used for material inputs, transport, and waste processing are considered good quality, but actual impacts from material suppliers, transport carriers, and local waste processing may vary. The impact assessment methodology categories do not represent all possible environmental impact categories. Characterization factors used within the impact assessment methodology may contain varying levels of uncertainty. LCA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks. 	

Wall and Ceiling Liner produced in Shelbyville, IN: LCIA results, resource use, output and waste flows, and carbon emissions & removals per functional unit

Parameter	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	Total
LCIA results										
Global warming	kg CO ₂ eq	2.80E+00	2.91E-02	1.44E-02	0	0	1.56E-02	0	2.03E-02	2.88E+00
Ozone depletion	kg CFC-11 eq	5.85E-12	6.50E-17	5.73E-17	0	0	3.48E-17	0	9.98E-16	5.85E-12
Acidification	kg SO ₂ eq	9.09E-03	1.49E-04	3.06E-05	0	0	4.26E-05	0	1.08E-04	9.42E-03
Eutrophication	kg N eq	1.27E-03	1.28E-05	5.89E-06	0	0	4.52E-06	0	4.72E-06	1.30E-03
Smog	kg O ₃ eq	1.01E-01	5.13E-03	1.52E-04	0	0	9.73E-04	0	1.96E-03	1.10E-01
Respiratory effects	kg PM _{2.5} eq	5.22E-04	7.31E-06	7.49E-07	0	0	1.83E-06	0	8.31E-06	5.40E-04
Additional environmental information										
Carcinogenics	CTUh	98.3%	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	1.5%	100%
Non-carcinogenics	CTUh	97.9%	0.1%	0.1%	0.0%	0.0%	0.1%	0.0%	1.8%	100%
Ecotoxicity	CTUe	98.3%	0.8%	0.0%	0.0%	0.0%	0.4%	0.0%	0.4%	100%
Fossil fuel depletion	MJ surplus	5.97E+00	5.46E-02	1.87E-03	0	0	2.92E-02	0	4.09E-02	6.09E+00
Resource use indicators										
Renewable primary energy used as energy carrier (fuel)	MJ, LHV	9.12E+00	1.61E-02	2.34E-03	0	0	8.59E-03	0	3.80E-02	9.18E+00
Renewable primary resources with energy content used as material	MJ, LHV	8.84E-06	-1.33E-12	5.08E-13	0	0	-7.11E-13	0	7.58E-12	8.84E-06
Non-renewable primary resources used as an energy carrier (fuel)	MJ, LHV	5.50E+01	4.13E-01	1.79E-02	0	0	2.21E-01	0	3.25E-01	5.60E+01
Non-renewable primary resources with energy content used as material	MJ, LHV	2.22E-07	1.64E-09	4.74E-11	0	0	8.79E-10	0	8.10E-10	2.26E-07
Secondary materials	kg	2.32E-01	0.00E+00	0.00E+00	0	0	0.00E+00	0	0.00E+00	2.32E-01
Renewable secondary fuels	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0	0	0.00E+00	0	0.00E+00	0.00E+00
Non-renewable secondary fuels	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0	0	0.00E+00	0	0.00E+00	0.00E+00
Recovered energy	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0	0	0.00E+00	0	0.00E+00	0.00E+00
Use of net fresh water resources	m³	3.78E-01	5.58E-05	1.33E-05	0	0	2.99E-05	0	4.03E-05	3.78E-01
Abiotic depletion potential, fossil	MJ, LHV	4.83E+01	4.10E-01	1.60E-02	0	0	2.19E-01	0	3.15E-01	4.92E+01
Output flows and waste category indicators										
Hazardous waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0	0	0.00E+00	0	0.00E+00	0.00E+00
Non-hazardous waste disposed	kg	1.37E-01	0.00E+00	4.82E-02	0	0	0.00E+00	0	8.69E-01	1.05E+00
High-level radioactive waste	kg	2.52E-06	1.20E-09	8.00E-10	0	0	6.42E-10	0	4.02E-09	2.53E-06
Intermediate- and low-level radioactive waste, conditioned, to final repository	kg	2.37E-03	1.01E-06	6.73E-07	0	0	5.42E-07	0	3.59E-06	2.37E-03
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0	0	0.00E+00	0	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	6.27E-02	0	0	0.00E+00	0	0.00E+00	6.27E-02
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0	0	0.00E+00	0	0.00E+00	0.00E+00
Exported energy	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0	0	0.00E+00	0	0.00E+00	0.00E+00
Carbon emissions and removals										
Biogenic carbon removal from product	kg CO ₂	2.82E-01	0.00E+00	0.00E+00	0	0	0.00E+00	0	0.00E+00	2.82E-01
Biogenic carbon emission from product	kg CO ₂	1.44E-01	0.00E+00	0.00E+00	0	0	0.00E+00	0	1.67E-03	1.46E-01
Biogenic carbon removal from packaging	kg CO ₂	2.49E-02	0.00E+00	0.00E+00	0	0	0.00E+00	0	0.00E+00	2.49E-02
Biogenic carbon emission from packaging	kg CO ₂	0.00E+00	0.00E+00	2.58E-03	0	0	0.00E+00	0	0.00E+00	2.58E-03
Biogenic carbon emission from combustion of waste	kg CO ₂	0.00E+00	0.00E+00	8.67E-04	0	0	0.00E+00	0	0.00E+00	8.67E-04
Calcination carbon emissions	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0	0	0.00E+00	0	0.00E+00	0.00E+00
Carbonation carbon removals	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0	0	0.00E+00	0	0.00E+00	0.00E+00
Carbon emissions from combustion of waste from renewable sources used in production processes +	kg CO ₂	0.00E+00	0.00E+00	0.00E+00	0	0	0.00E+00	0	0.00E+00	0.00E+00
Carbon emissions from combustion of waste from non renewable sources used in production processes										

Atmosphere™ Duct Liner produced in Shelbyville, IN: LCIA results, resource use, output and waste flows, and carbon emissions & removals per functional unit

Parameter	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	Total
LCIA results										
Global warming	kg CO ₂ eq	3.34E+00	3.15E-02	1.22E-02	0	0	1.67E-02	0	2.17E-02	3.43E+00
Ozone depletion	kg CFC-11 eq	1.30E-11	7.03E-17	9.29E-17	0	0	3.73E-17	0	1.07E-15	1.30E-11
Acidification	kg SO ₂ eq	7.68E-03	1.62E-04	1.27E-05	0	0	4.57E-05	0	1.15E-04	8.02E-03
Eutrophication	kg N eq	2.43E-03	1.38E-05	3.61E-06	0	0	4.84E-06	0	5.06E-06	2.45E-03
Smog	kg O ₃ eq	1.09E-01	5.54E-03	1.11E-04	0	0	1.04E-03	0	2.10E-03	1.18E-01
Respiratory effects	kg PM _{2.5} eq	4.29E-04	7.90E-06	4.32E-07	0	0	1.96E-06	0	8.90E-06	4.48E-04
Additional environmental information										
Carcinogenics	CTUh	99.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	100%
Non-carcinogenics	CTUh	98.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	100%
Ecotoxicity	CTUe	98.9%	0.5%	0.0%	0.0%	0.0%	0.3%	0.0%	0.3%	100%
Fossil fuel depletion	MJ surplus	6.45E+00	5.91E-02	2.62E-03	0	0	3.13E-02	0	4.38E-02	6.58E+00
Resource use indicators										
Renewable primary energy used as energy carrier (fuel)	MJ, LHV	1.27E+01	1.74E-02	3.80E-03	0	0	9.21E-03	0	4.08E-02	1.27E+01
Renewable primary resources with energy content used as material	MJ, LHV	1.99E-05	-1.44E-12	8.59E-13	0	0	-7.62E-13	0	8.12E-12	1.99E-05
Non-renewable primary resources used as an energy carrier (fuel)	MJ, LHV	6.19E+01	4.46E-01	2.70E-02	0	0	2.36E-01	0	3.48E-01	6.29E+01
Non-renewable primary resources with energy content used as material	MJ, LHV	3.32E-07	1.78E-09	7.00E-11	0	0	9.42E-10	0	8.68E-10	3.36E-07
Secondary materials	kg	2.50E-01	0.00E+00	0.00E+00	0	0	0.00E+00	0	0.00E+00	2.50E-01
Renewable secondary fuels	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0	0	0.00E+00	0	0.00E+00	0.00E+00
Non-renewable secondary fuels	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0	0	0.00E+00	0	0.00E+00	0.00E+00
Recovered energy	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0	0	0.00E+00	0	0.00E+00	0.00E+00
Use of net fresh water resources	m³	8.32E-01	6.03E-05	2.23E-05	0	0	3.20E-05	0	4.32E-05	8.32E-01
Abiotic depletion potential, fossil	MJ, LHV	5.32E+01	4.43E-01	2.34E-02	0	0	2.35E-01	0	3.37E-01	5.42E+01
Output flows and waste category indicators										
Hazardous waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0	0	0.00E+00	0	0.00E+00	0.00E+00
Non-hazardous waste disposed	kg	1.48E-01	0.00E+00	6.11E-02	0	0	0.00E+00	0	9.39E-01	1.15E+00
High-level radioactive waste	kg	3.13E-06	1.30E-09	1.51E-09	0	0	6.89E-10	0	4.31E-09	3.14E-06
Intermediate- and low-level radioactive waste, conditioned, to final repository	kg	3.01E-03	1.09E-06	1.27E-06	0					

LCA & material health results & interpretation

Wall and Ceiling Liner & Atmosphere™ Duct Liner

Wall and Ceiling Liner

Atmosphere™ Duct Liner

EPD additional content

Material health

Evaluation programs

The Health Product Declaration®

The HPD Open Standard provides a consistent, and transparent format to accurately disclose the material contents and associated hazard classifications for a building product.

How it works

Material ingredients are screened and categorized according to the hazards that international governmental bodies and toxicology experts have associated with them, based on two listings:

- Authoritative lists maintained or recognized by government bodies
- Screening lists, which include chemicals that government bodies determined need further scrutiny, as well as chemical lists not recognized by any government body.

Assessment scope and results

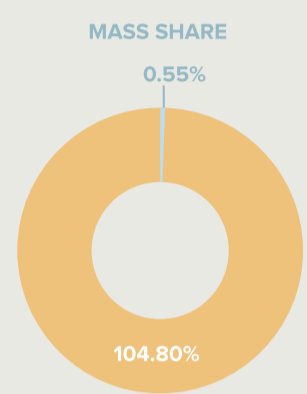
Health Product Declaration®

Atmosphere™ Duct Liner

Full disclosure known hazards: Yes

Based on the selected content inventory threshold:

Characterized Screened Identified



GreenScreen® List Translator Scores

- List Translator Likely Benchmark 1 / Benchmark 1 [?](#)
- List Translator Possible Benchmark 1 [?](#)
- List Translator Benchmark Unknown [?](#)
- Benchmark 2 [?](#)
- Benchmark 3 [?](#)
- Benchmark 4 [?](#)
- No GS data available [?](#)

[Learn about the GreenScreen® List Translator](#)

Total VOC Content[?]

VOC Content data is not applicable for this product category.

What's in this product and why

Atmosphere™ Duct Liner utilize a bio-based binder chemistry derived from corn that is formaldehyde-free and more interior friendly than phenol-formaldehyde (P/F) systems. This product transformed the industry, moving away from P/F systems and toward bio-based binder adhesive systems for these types of products. Atmosphere Duct Liner was the first of its type to be designated as bio-based and formaldehyde-free. Today, our competitors have followed this benchmark.

Knauf led the industry in bio-based development to avoid phenol and formaldehyde in our processes beginning in 2008. This development was likely the largest green chemistry disruption of our era. Today, our competitors have followed or are striving to meet this benchmark.

The primary ingredient in this product is recycled glass. While recycled content may vary from year to year, the recycled content is currently greater than 60% by weight. The second largest content is silica sand which is sourced as locally as possible. The third largest ingredient is corn-based syrup (dextrose or fructose). As a result of using plant-based binders, the VOC profile of this product is very interior friendly.

The emission from our factories is also much better for our communities. We ensure our glass formulations have no serious health concerns by allowing our processes to be audited to meet European Certification Board for Mineral Wool Products (EUCEB) biosolubility requirements.

At this time, the product is landfilled at end of life. We take extended producer responsibility very seriously and have active programs to address end of life. There is no option other than landfills at this time.

How we're making it healthier

Knauf engages very closely with its vendors to eliminate and avoid chemicals of concern. No competitor has as many Red List free products as Knauf Insulation. We continually reduce our environmental impacts through recycled content and optimize our products by designing them to be transformative.

[See how we make it greener](#)

References

Health Product Declaration®
Atmosphere Duct Liner

Health Product Declaration Open Standard v2.2

The standard provides guidance to accurately disclose the material contents of a building product using a standard, consistent, and transparent format.

Rating systems

LEED BD+C: New Construction | v4 - LEED v4

Building product disclosure and optimization

Material Ingredients

Credit value options 1 product each

1. Reporting 2. Optimization 3. Supply Chain Optimization

LEED BD+C: New Construction | v4.1 - LEED v4.1

Materials and resources

Material Ingredients

Credit value options 1 product each

1. Reporting 2. Optimization 3. Supply Chain Optimization

Living Building Challenge

Materials petals imperatives

10. Red List Free 12. Responsible Industry 13. Living Economy Sourcing

WELL Building Standard®

Air and Mind Features

X07 Materials Transparency

X08 Materials Optimization

Collaborative for High Performance Schools National Criteria

EQ C7.1 Material Health Disclosures

Performance Approach 2 points

Prescriptive Approach 2 points

SM Transparency Report (EPD)™ + Material Health Overview™

EPD	LCA
3rd-party verified <input checked="" type="checkbox"/>	
Transparency Report (EPD)	
3rd-party verified <input checked="" type="checkbox"/>	
Validity: 12/12/23 – 12/12/28 KNA – 12122023 – 004	
MATERIAL HEALTH	Material evaluation
Self-declared™ <input checked="" type="checkbox"/>	

This environmental product declaration (EPD) was externally verified by Harmony Environmental, LLC, according to ISO 21930:2017; UL Part A; UL Part B for Building Envelope Thermal Insulation Products; and ISO 14025:2006.

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Olathe, KS 66062
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SUMMARY

Reference PCR

UL Part B: Building Envelope Thermal Insulation v2.0

Regions; system boundaries
North America; Cradle-to-grave

Functional unit / ESL:

1 m² installed insulation material, packaging included, with thickness that gives average thermal resistance of R_{si} = 1m²·K/W over an estimated service life (ESL) of 75 years

LCIA methodology: TRACI 2.1

LCA software; LCI database
LCA for Experts v10.7; LCA for Experts 2023

In accordance with ISO 14044 and the reference PCR, this life cycle assessment was conducted by Sustainable Minds and verified by Harmony Environmental, LLC.

Public LCA:

Knauf Insulation North America and Manson Insulation Products

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317 398 4434

Contact us

How we make it greener

Wall and Ceiling Liner & Atmosphere™ Duct Liner

Collapse all

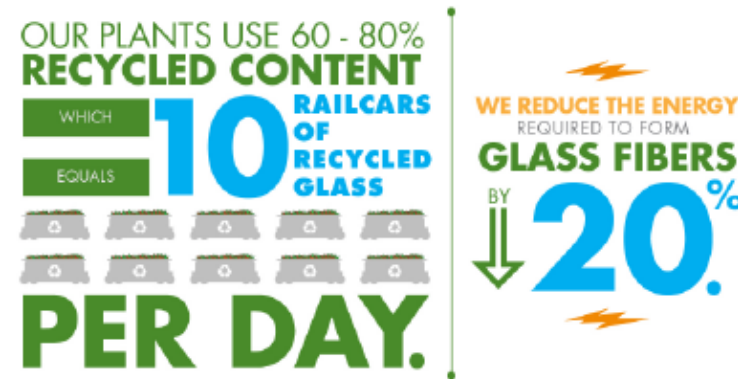
RAW MATERIALS ACQUISITION



Utilize recycled content

By leveraging recycled content, we reduce the energy required to form glass fibers.

- We use about 10 railcars of recycled glass per day.



MANUFACTURING

Lead green chemistry efforts

Following the launch of our ECOSE® Technology in 2008, we had transformed most of our products and processes to this new technology. Using our bio-based ECOSE® Technology has removed phenol and formaldehyde from our stack emissions. This initiative not only established Knauf Insulation North America in a leadership position, but it had a transformative impact on our industry in general.

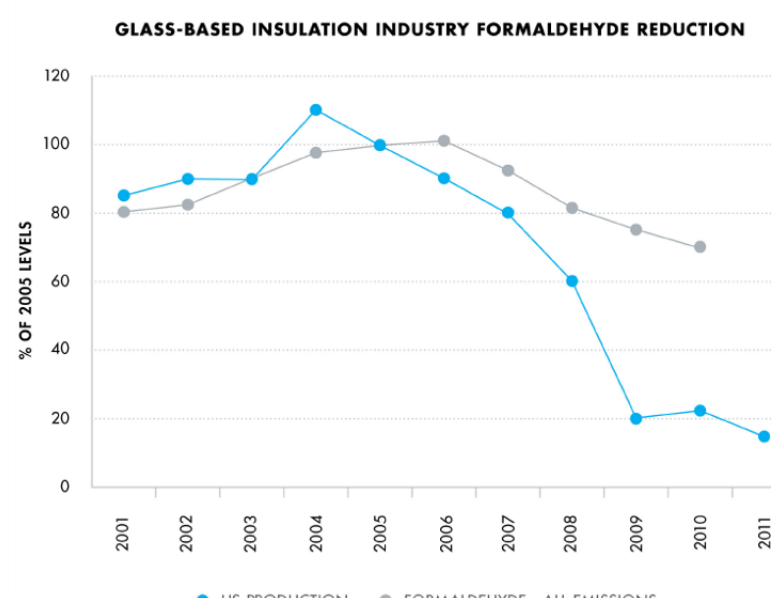


Reduce scrap generation and energy consumption

Continuous improvement is the methodology we utilize to engage the entire Knauf team in our manufacturing excellence and sustainability journey.

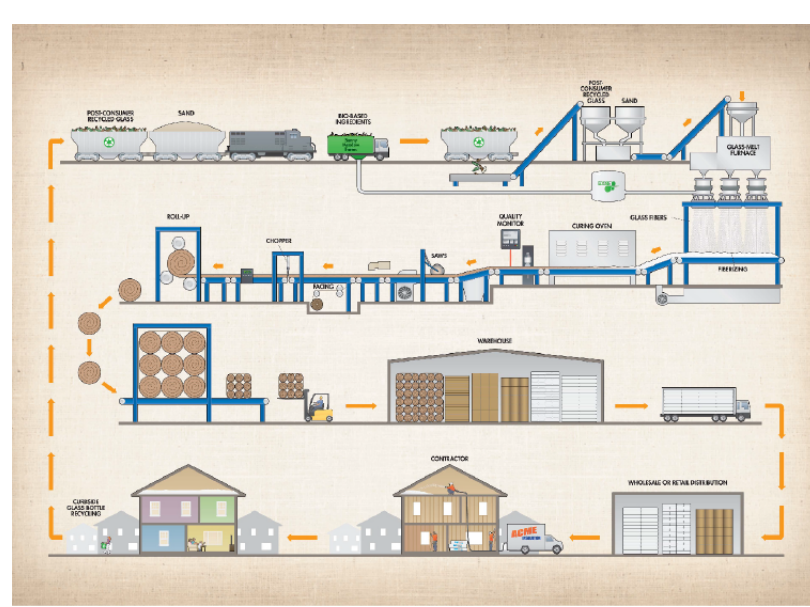
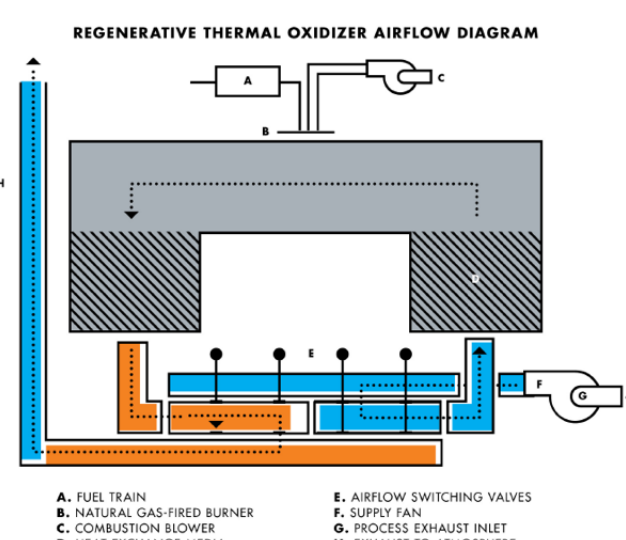
Knauf Insulation, comprised of Knauf Insulation North America (KINA) and Knauf Insulation Europe, Middle East, Asia, Asia Pacific (KI EMEA & APAC), share an overall global certification for ISO 45001 Health & Safety, ISO 14001 Environmental, ISO 50001 Energy, and ISO 9001 Quality through a third-party Certification Body.

Our Continuous Improvement Program, with all its tools and systems associated with it, provide a formal process where we are constantly monitoring our manufacturing and sustainability Key Performance Indicators (KPIs) with an eye towards improvement. This Continuous Improvement centric management system has proven to be effective in improving our sustainability by reducing scrap generation and energy consumption.



Green manufacturing Processes

Regenerative thermal oxidizers We use regenerative thermal oxidizers (RTO) to capture and recycle much of the energy we use to cure our products. RTO is equipment used for the treatment of exhaust air. Our ovens exhaust into a ceramic heat exchange media to capture and reuse the heat in the exhausted air. Therefore, the amount of energy required to cure our product is reduced substantially.



TRANSPORTATION



Leverage compression packaging

Glass is a high modulus material, which helps to facilitate compression packaging. We compress our insulation to fit up to five times more product on every truck, thereby reducing the amount of deliveries that need to be made, which saves time and emissions from transportation.



INSTALLATION AND MAINTENANCE



Be confident in glass fiber's safety

In the past, a label regarding the carcinogenic potential of insulation made from glass fibers was required on all packaging. Following forty years of research, fiberglass has been exonerated entirely. Our fiberglass is comprised of fibers that are biosoluble, meaning that the fibers dissolve in the body in a short period of time and exit the body with normal bodily functions. The scrutiny fiberglass has undergone is now seen as proof of its safety.

Meet and exceed green standards

GREENGUARD certified On the forefront of indoor air quality, Knauf Insulation North America had the first GREENGUARD certified product in 2002. This achievement led us to understand the impact our formaldehyde-free products could have on the indoor environment. The formaldehyde-free claim is third party validated by UL Environment.

3rd Party UL Environmental Claim Validation states that Knauf Insulation products manufactured in North America contain an average of 61% recycled content, consisting of 20% post-consumer and 41% pre-consumer recycled glass.

EUCEB tested Glass fiber is a widely studied building material. All of our processes and formulations are voluntarily third-party audited for compliance with the health and safety exonerated criteria for glass and rock based fiber through the European Certification Board for Mineral Wool Products (EUCEB) exonerated process. This guarantees the formulations are biosoluble and pose no health concerns. Having over 35 years of research behind its safety, fiberglass products have been thoroughly evaluated and therefore we believe it is one of the safest building materials available today.



Green building rating systems

Our products offer a vast array of potential credits for major green building rating systems, including: WELL, LEED v4, International Green Construction Code, Green Guide for Health Care, NAHB Green Building Standard, and more.

Visit the [green building rating systems page](#) to see all the credits you can earn using Manson and Knauf Insulation products

Green building rating system credits

Find out all the credits you can earn with Knauf products.

[Learn more](#)

DISPOSAL



Promote Recycling

By taking a comprehensive approach of the benefits of recycling, Knauf Insulation North America advocates and promotes local recycling initiatives as well as actively participates in state and local government policy development. In addition, as a member of the North American Insulation Manufacturers Association (NAIMA) and Glass Recycling Coalition (GRC), we encourage regulatory and legislative initiatives that focus on glass recycling infrastructure deployment to increase the availability of post-consumer recycled glass.



SM Transparency Report (EPD)™ + Material Health Overview™

EPD	LCA
3rd-party verified	✓
Transparency Report (EPD)	
3rd-party verified	✓
Validity: 12/12/23 – 12/12/28 KNA – 12122023 – 004	
MATERIAL HEALTH	Material evaluation
Self-declared	✓

This environmental product declaration (EPD) was externally verified by Harmony Environmental, LLC, according to ISO 21930:2017; UL Part A; UL Part B for Building Envelope Thermal Insulation Products; and ISO 14025:2006.

Harmony Environmental, LLC
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SUMMARY

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LCIA methodology: TRACI 2.1

LCA software; LCI database
LCA for Experts v10.7; LCA for Experts 2023

In accordance with ISO 14044 and the reference PCR, this life cycle assessment was conducted by Sustainable Minds and verified by Harmony Environmental, LLC.

Public LCA:
Knauf Insulation North America and Manson Insulation Products

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