



Atmosphere™ Duct Wrap & KN Series

Knauf Insulation Atmosphere Duct Wrap and KN Series insulation are thermal and acoustical insulation blankets made from highly resilient, inorganic glass mineral wool bonded by ECOSE® technology.

The Atmosphere Duct Wrap is designed for external insulation on commercial or residential heating and air conditioning units, and is available unfaced, with a foil-scrim-kraft (FSK) jacket and with a white metalized polypropylene-scrim-kraft (PSK) jacket. The KN Series is used as utility thermal and/or acoustical insulation and is available unfaced. KN Series has been used as the insulation material in double walled ducts.



Performance dashboard

Features & functionality

- Low “k” factor significantly reduces heat gain or loss when applied with proper compression
- Flexible and lightweight
- Excellent acoustical properties
- Lowers operating and installation costs
- Low emitting for indoor air quality considerations and formaldehyde-free

Visit Knauf for more product information:
[Atmosphere Duct Wrap, KN Series](#)

CSI MasterFormat® #MF 07 21 16, 23 07 13

[Thermal Insulation Guide Specification](#)

For spec help, [contact us](#) or call 317 421 8727

Environment & materials

Improved by:

- Utilization of recycled glass
- Knauf’s original plant-based ECOSE binder technology

Optimized compression packaging

Certification & rating systems:

- Declare, Red List Free and HPD v2.1
- UL GREENGUARD Gold certified
- UL Validated recycled content & formaldehyde-free
- Audited, European Certification Board for Mineral Wool Products exoneration process

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

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



SM Transparency Report™ + Material Health Overview™

VERIFICATION LCA

3rd party reviewed

Transparency Report

3rd party verified

Material evaluation

Self-declared

This declaration was independently verified by NSF to the UL Environment PCR and ISO 14025.

NSF International
P.O Box 130140
789 N.Dixboro Road
Ann Arbor, MI 48105, USA
www.nsf.org
734 769 8010

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

Contact us

Validity: 11/07/17 – 11/07/22
KNA – 11072017 – 006



LCA & material health results & interpretation

Atmosphere™ Duct Wrap & KN Series

Life cycle assessment

Material health

Scope and summary

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

Application

External insulation on commercial or residential heating or air conditioning ducts. It is suitable for the exterior of rectangular or round sheet metal ducts and spaces or surfaces where temperature and condensation must be controlled. KN Utility Insulation is used as thermal and/or acoustical insulation in the appliance, equipment, industrial, commercial, and marine markets. KN Insulation has been successfully used as a Red List free and formaldehyde-free core in double wall duct systems.

Functional unit

Reference service life: 60 years. One square meter of insulation material, packaging included, with a thickness that gives an average thermal resistance of $R_{SI}=1m^2 \cdot K/W$ over a period of 60 years.

Manufacturing data

Reporting period: October 2015 – September 2016
Location: Shelbyville, IN; Lanett, AL; and Shasta Lake, CA

Default installation and maintenance phase scenario

At the installation site, insulation products are unpackaged and installed. No material is lost or wasted because scraps are typically used to fill corners or crevices. Packaging waste is sent to landfill, and no maintenance or replacement is required to achieve the product's life span.

What's causing the greatest impacts

All life cycle stages

The manufacturing stage dominates the results for all impact categories except for eutrophication, ozone depletion, and respiratory effects, where the raw materials acquisition stage dominates. Following these two stages, the next highest impacts come from transportation and disposal, which have a similar contribution. However, for non-carcinogenics, the disposal stage is the second highest contributor due to the landfilling of the product at end of life, and for smog, the transportation is the second highest contributor due to the use of trucks and rail transport. The impact of the raw material acquisition stage is mostly due to the borax and soda ash in the batch. The manufacturing stage shows major contributions to all impact categories. The landfilling of the discarded product contributes to the disposal stage. The only impacts associated with installation and maintenance are due to the disposal of packaging waste, which is the smallest contributor of all the stages.

Manufacturing stage

The energy required to melt the glass and produce the glass fibers is the largest contributor to the manufacturing stage for all impact categories.

Sensitivity analysis

KN Utility Insulation is an unfaced product, while Atmosphere Duct Wrap has the option of coming unfaced or with FSK facing. When FSK facing is added, there is an increased amount and different types of raw materials which impacts the raw material acquisition stage, except for respiratory effects. The increased mass of the product with FSK facing causes a slightly higher transportation impact. Other than for global warming and respiratory effects, there is also an increased impact during disposal due to the FSK facing materials being landfilled.

Multi-product weighted average

Results represent the weighted average using production volumes for the products covered. Variations of specific products for differences of 10–20% against the average are indicated in purple; differences greater than 20% are indicated in red. A difference greater than 10% is considered significant.

How we're making it greener

Knauf is committed to providing products that conserve energy and preserve natural resources.

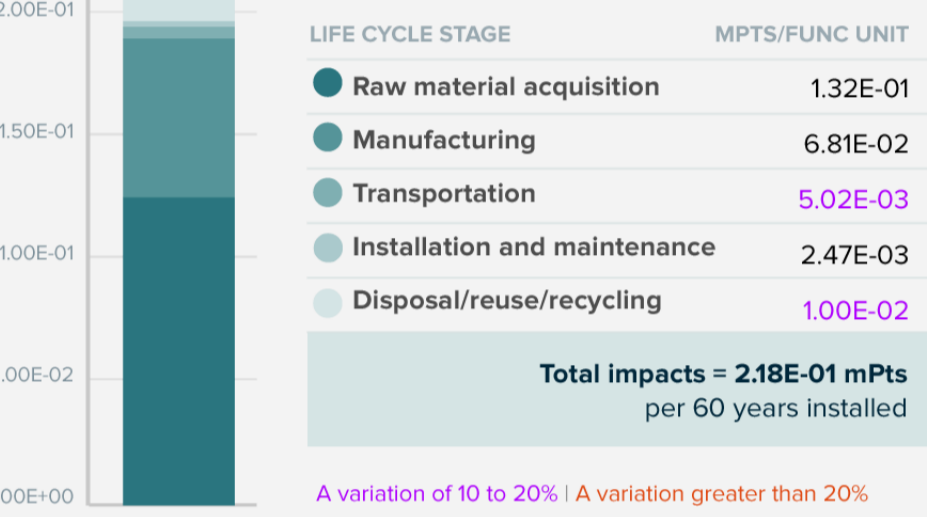
- These product uses ECOSE® Technology, which is a plant-based binder adhesive instead of a fossil fuel based binder. ECOSE Technology represents a fossil fuel avoidance equivalent of 100,000 barrels of oil a year for Knauf products.
- Our products contain a high degree of recycled content, which translates to 20% less glass melting energy and a 25% reduction in embodied carbon.
- Our utilization of recycled content reduces mining impacts by 60%. In fact, Knauf recycles 10 railcars of recycled glass a day.
- All glass fiber made by Knauf is audited by a 3rd party to ensure biosoluble chemistry from a health and safety standpoint.

[See how we make it greener](#)

Material composition greater than 1% by weight

PART	MATERIAL	AVG % WT.
Batch	Post-consumer cullet	48.0%
Batch	Internal cullet	8.8%
Batch	Sand	8.2%
Packaging	Plastic film	8.0%
Batch	Borax	6.5%
Facing	Facing (average)	5.2%
Facing	Facing adhesive	3.6%
Batch	Soda ash	3.3%
Batch	Sugars	2.3%
Batch	Limestone	1.9%
Batch	Dolomite	1.4%
Batch	Ammonium sulfate	1.1%
	Other	1.8%

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



LCA results

LIFE CYCLE STAGE	RAW MATERIAL ACQUISITION	MANUFACTURING	TRANSPORATION	INSTALLATION AND MAINTENANCE	DISPOSAL/REUSE/RECYCLING
Information modules: Included Excluded*	A1 Raw Materials	A3 Manufacturing	A4 Transporation/Delivery	A5 Construction/Installation	C1 Deconstruction/Demolition
*In the installation and maintenance phase, packaging waste in module A5 is the only contributor to the potential impacts.	A2 Transportation			B1 Use	C2 Transportation
				B2 Maintenance	C3 Waste Processing
				B3 Repair	C4 Disposal
				B4 Replacement	
				B5 Refurbishment	
				B6 Operational energy use	
				B7 Operational water use	

SM 2013 Learn about SM Single Score results

Impacts per 60 years of service	1.32E-01 mPts	6.81E-02 mPts	5.02E-03 mPts	2.47E-03 mPts	1.00E-02 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.

TRACI v2.1 results per functional unit

A variation of 10 to 20% | A variation greater than 20%

LIFE CYCLE STAGE	RAW MATERIAL ACQUISITION	MANUFACTURING	TRANSPORATION	INSTALLATION AND MAINTENANCE	DISPOSAL/REUSE/RECYCLING
Ecological damage					
Impact category	Unit				
Acidification	kg SO ₂ eq	2.35E-03	5.38E-03	1.33E-03	3.09E-05
Eutrophication	kg N eq	3.77E-03	2.81E-04	1.06E-04	1.11E-05
Global warming	kg CO ₂ eq	4.29E-01	7.85E+00	2.49E-01	9.73E-03
Ozone depletion	kg CFC-11 eq	1.34E09	7.36E-10	1.72E-12	3.29E-14
Human health damage					
Impact category	Unit				
Carcinogenics	CTU _h	2.33E-10	4.46E-10	1.32E-10	2.59E-11
Non-carcinogenics	CTU _h	1.97E-08	2.69E-08	9.79E-09	3.51E-09
Respiratory effects	kg PM _{2.5} eq	2.27E-03	7.43E-04	6.94E-05	4.25E-05
Smog	kg O ₃ eq	3.65E-02	7.12E-02	4.46E-02	6.46E-04
Additional environmental information					
Impact category	Unit				
Ecotoxicity	CTU _e	6.58E-02	8.23E-02	3.10E-02	1.24E-03
Fossil fuel depletion	MJ surplus	8.64E-01	3.37E+00	4.72E-01	1.80E-02

See the additional EPD content required by the UL Environment PCR on page 4 of the [Transparency Report PDF](#).

References

LCA Background Report

Knauf Insulation Products LCA Background Report (public version), Knauf 2017

ULE PCR for Building Envelope Thermal Insulation and Mechanical Insulation

PCR review conducted by Wayne Trusty, Andre Desjarlais, and Susan Fredholm Murphy.

[Download PDF](#) SM Transparency Report/Material Health Overview, which includes the additional EPD content required by the UL Environment PCR.

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. They are designed to present information transparently to make the limitations of comparability more understandable. TRs/EPDs of products that conform to the same PCR and include the same life cycle stages, but are made by different manufacturers, may not sufficiently align to support direct comparisons. They therefore, cannot be used as comparative assertions unless the conditions defined in ISO 14025 Section 6.7.2. 'Requirements for Comparability' are satisfied.

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 1/2 product
- Product-specific Type III EPD 1 product

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
- C 3.5.2.2 and SI 4.1.2 Path B: Prescriptive Path for Interior Fit-outs

Collaborative for High Performance Schools National Criteria

MW 7.1 – Environmental Product Declarations

- Third-party certified type III EPD 2 points

SM Transparency Report™ + Material Health Overview™

VERIFICATION	LCA
3rd party reviewed	<input checked="" type="checkbox"/> NSF
Transparency Report	
3rd party verified	<input checked="" type="checkbox"/> NSF
Material evaluation	
Self-declared	<input checked="" type="checkbox"/>

Validity: 11/07/17 – 11/07/22
KNA – 11072017 – 006

This declaration was independently verified by NSF to the UL Environment PCR and ISO 14025.

NSF International
P.O. Box 130140
789 N. Dixboro Road
Ann Arbor, MI 48105, USA
www.nsf.org
734 769 8010



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

Contact us

LCA & material health results & interpretation

Atmosphere™ Duct Wrap & KN Series

Life cycle assessment

Material health

Evaluation programs

Declare

Declare labels are issued to products disclosing ingredient inventory, sourcing and end of life options. Declare labels are based on the Manufacturers Guide to Declare, administered by the International Living Future Institute.

How it works

Material ingredients are inventoried and screened against the [Living Building Challenge \(LBC\) Red List](#) which represents the 'worst in class' materials, chemicals, and elements known to pose serious risks to human health and the greater ecosystem.

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

Declare™

Inventory threshold: 100 ppm

Declare level:

The Declare product database and label are used to select products that meet the LBC's stringent materials requirements, streamlining the materials specification and certification process.

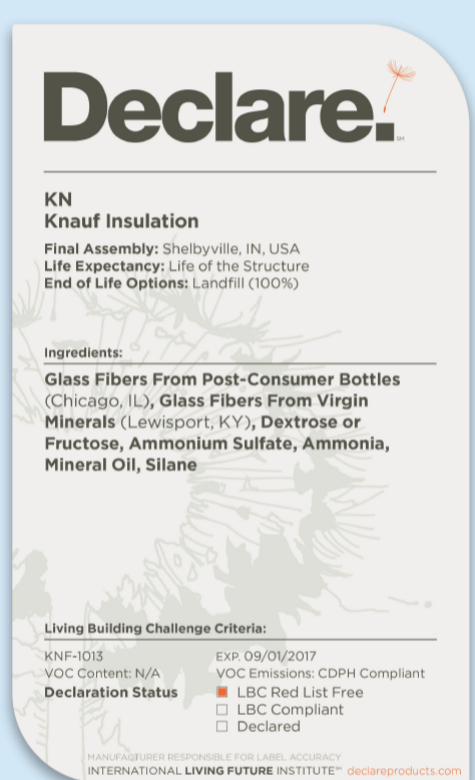
- LBC Red List Free ?
- LBC Compliant ?
- Declared ?



Click the label to see the full declaration.

● Unfaced Duct Wrap

● KN Insulation



What's in this product and why

Declare level

The base fibers of both Atmosphere™ Duct Wrap and KN Utility Insulation have no Red List chemicals. The Red List is a list of chemicals that are not allowed in Living Building Challenge buildings. Being Red List free is our design benchmark at Knauf.

Because of stringent fire performance requirements for this class of product, fire retardants are used in the foil scrim kraft (FSK) product variant. Those fire retardants are on the Red List. A health product declaration (HPD) is provided for the FSK variant.

What's in the product and why

The ingredients of the unfaced variants avoid the 800+ chemicals of the Living Building Challenge Red List. This is primarily because of its bio-based binder adhesive chemistry known as ECOSE® Technology. ECOSE is based on dextrose or high fructose corn syrup instead of phenol and formaldehyde. Dextrose and fructose can be used interchangeably. The ECOSE binder allows the product to be validated by the UL Environment as formaldehyde-free. Formaldehyde is a Red List chemical.

Atmosphere Duct Wrap with the FSK facer does not meet Red List free status because the facer contains a halogenated fire retardant (HFR). This is why we disclose the ingredients as an HPD rather than Declare used for all other product variants.

Red List free is our development benchmark and we constantly challenge ourselves on elimination of Red List chemicals. An HFR is used on the FSK variant because the product is for exposed applications and must meet stringent fire performance requirements. We are very aware of the concerns associated with HFRs and continually work with vendors on this issue. At the same time, fire performance is critical and current events relating to fire performance of building materials only support the importance of fire-safe products.

What's been done in the design and manufacture in consideration of the potential human health impacts in the use stage

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.

Where it goes at the end of its life

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](#)

Health Product Declaration®

Atmosphere Duct Wrap with FSK Facer

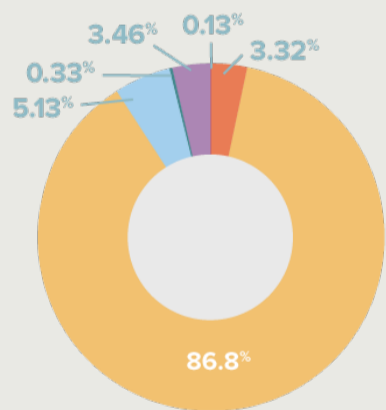
Inventory threshold: 100 ppm

Full disclosure known hazards: Yes

Based on the selected content inventory threshold:

- Characterized Screened Identified

TOTAL INTENTIONAL INGREDIENTS



GreenScreen® List Translator Scores

- List Translator Likely Benchmark 1 / Benchmark 1 ?
- List Translator Possible Benchmark 1 ?
- List Translator Benchmark Unknown ?
- Benchmark 3 ?
- 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.

References

Declare

[Unfaced Duct Wrap KN Insulation](#)

Manufacturer's Guide to Declare

A comprehensive guide providing information about the program, the assessment methodology, how to submit material data to obtain a Declare label and how they are used to meet the Health & Happiness and Materials Petals of the Living Building Challenge.

Health Product Declaration®

[Atmosphere Duct Wrap with FSK Facer](#)

Health Product Declaration Open Standard v2.1 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

Living Building Challenge 3.0

Materials petals imperatives

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

Well Building Standard®

Air and Mind Features

Air, 26. Enhanced Material Safety

- Mind, 97. Material Transparency Mind, 98. Organizational Transparency

Collaborative for High Performance Schools National Criteria MW 10.1 – Building Product Health Related Information Reporting

- Product Health Related Information Report

1 point

SM Transparency Report™ + Material Health Overview™

VERIFICATION

Self-declared

Material evaluation



KNA – 11072017 – 006

The material health evaluation is self-declared and done in accordance with the HPD Open Standard 2.1

HPD Collaborative
401 Edgewater Place,
Suite 600
Wakefield, MA 01880
www.hpd-collaborative.org
781.876.8871



The material health evaluation is self-declared and done in accordance with the Manufacturers Guide to Declare.

International Living Future Institute
501 East Madison St.
Seattle, WA 98122
www.living-future.org
206.223.2028



Knauf Insulation, Inc.
One Knauf Drive
Shelbyville, IN 46176
www.knaufinsulation.us
317.398.4434

Contact us

How we make it greener

Atmosphere™ Duct Wrap & KN Series

Collapse all

See LCA results by life cycle stage

RAW MATERIAL ACQUISITION

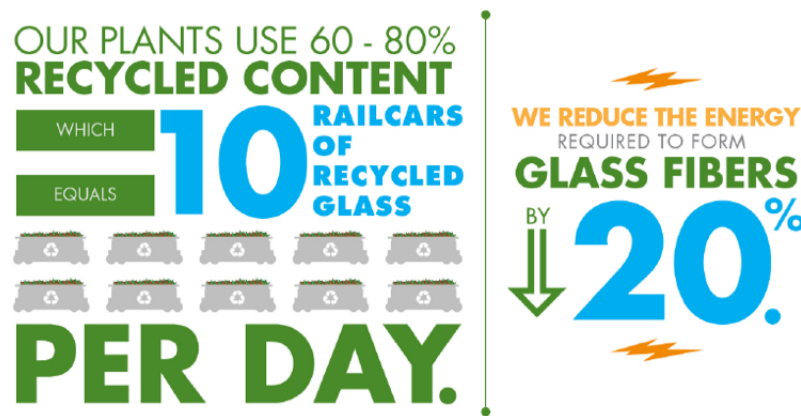


Utilize recycled content

Our plants use 60 – 80% recycled content – which translates to about 10 railcars of recycled glass cullet a day. By leveraging so much recycled content, we reduce the energy required to form glass fibers by 20%. If we use even 60% recycled content, then mining impacts are reduced proportionately.

Pursue sequestration potential

Knauf's bio-based ECOSE Technology is derived from corn. The Knauf Family Farm produces the same amount of corn we use on an annual basis, which is equal to 15,000 acres. While growing our own corn is not currently part of the life cycle assessment of our products in North America, we have the potential of growing the very corn that we use in our products. Life cycle analysis suggests about a 9% reduction in our manufacturing operation from the sequestration impacts of the corn growth cycle. If that corn and stubble were completely used in our ECOSE formulation, then corn absorption of carbon might be a plausible approach to help meet the zero carbon goals of our company.

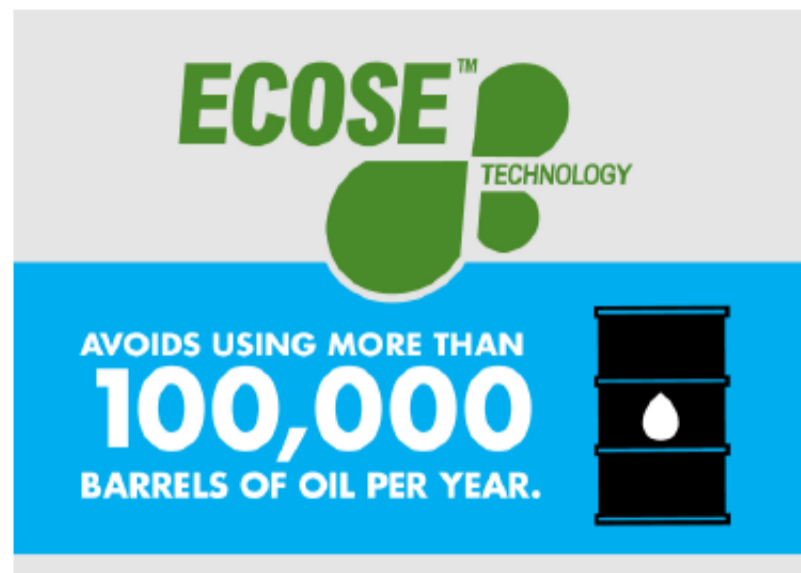


MANUFACTURING

Develop bio-based formaldehyde-free binder

In 2008, Knauf Insulation launched perhaps the nation's largest formaldehyde-free green chemistry initiative called ECOSE Technology. Offering this into the building materials marketplace quickly transformed the entire glass mineral fiber industry toward bio-based chemistries. Today phenol-formaldehyde (PF) based resins are largely a thing of the past with regard to large volume mineral fiber based insulation products. Knauf has also launched a new business venture to assist other industries in accessing ECOSE Technology for their processes.

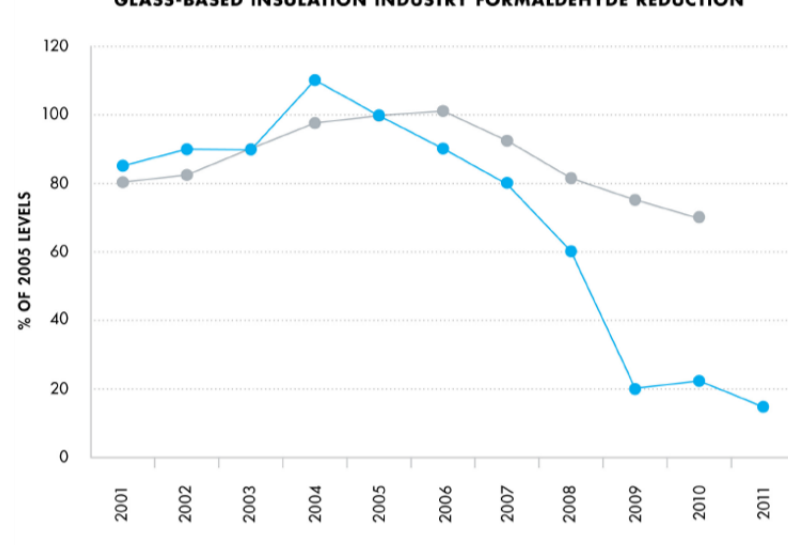
In a given year, using corn-based ECOSE Technology instead of phenol & formaldehyde avoids the equivalent of more than 100,000 barrels of oil in North America alone.



Lead green chemistry efforts

Following the launch of our ECOSE Technology in 2009, we had transformed all of our products and processes to this new technology. Using our bio-based ECOSE Technology has removed phenol and formaldehyde from our stack emissions. By 2012, the entire industry had followed our lead. This initiative not only established Knauf Insulation in a leadership position, but it had a transformative impact on our industry in general.

GLASS-BASED INSULATION INDUSTRY FORMALDEHYDE REDUCTION

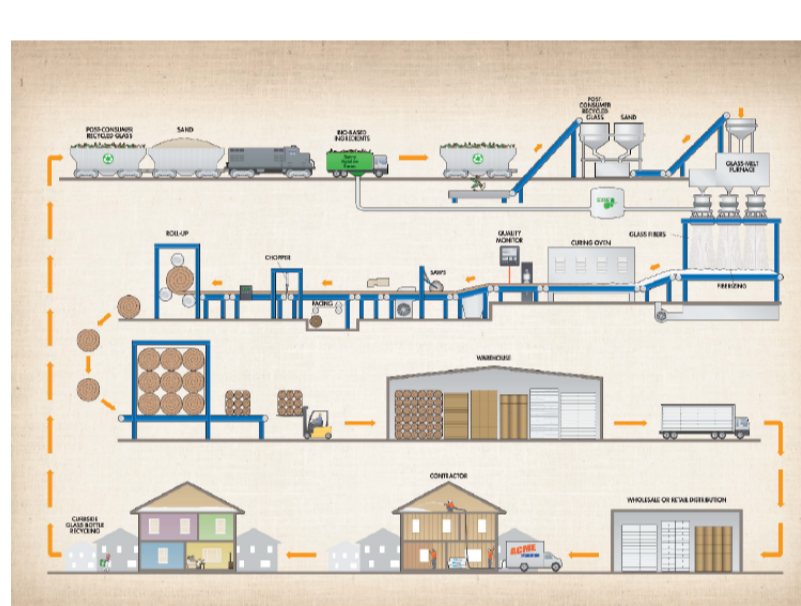
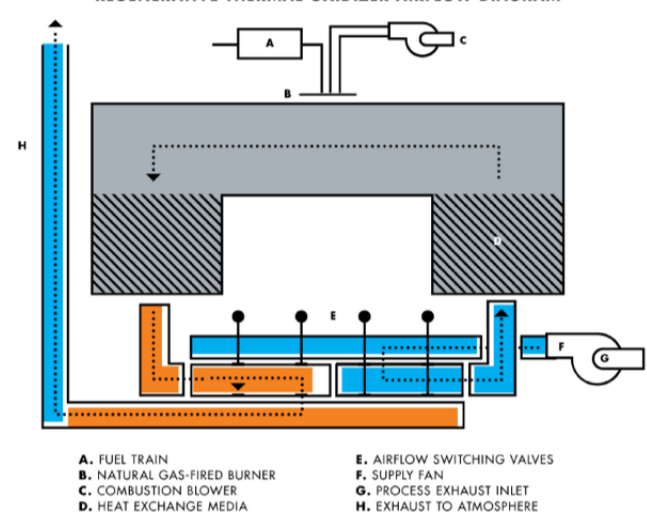


Green manufacturing Processes

1. Regenerative thermal oxidizers Knauf Insulation uses regenerative thermal oxidizers (RTO) to capture and recycle much of the energy we used 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.

2. Recycling As you can see below, everything we do starts with recycling. Our plant uses as much as 80% recycled content. While our only option is to landfill our products at end of life, that doesn't stop us from encouraging consumers to recycle other products, particularly glass bottles.

REGENERATIVE THERMAL OXIDIZER AIRFLOW DIAGRAM



Continuous Improvement

Continuous improvement is key to our sustainable development. Globally, our company maintains the following Bureau Veritas certifications: ISO 9000, 14000, and 50001. These certifications relate to quality management systems, energy management and environmental management efforts. For more information on our current continuous improvement efforts, please review the Knauf Insulation global sustainability report.

TRANSPORTATION

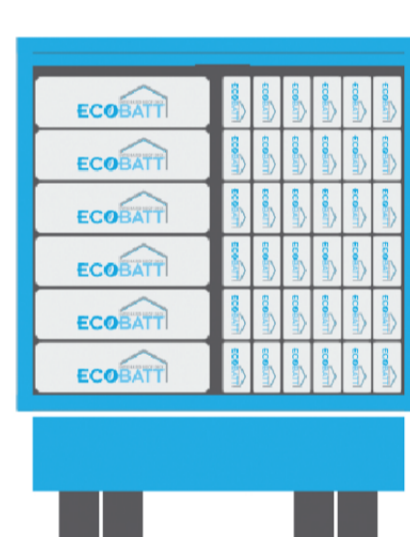


Leverage compression packaging

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. This compression means:

- More material can fit on one truck when compared to other insulation materials
- Fewer packages on a job
- Fewer deliveries needed

WE COMPRESS OUR INSULATION TO FIT UP TO **5X** MORE PRODUCT ON EVERY TRUCK.



INSTALLATION AND MAINTENANCE



Be confident in glass mineral wool'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, glass mineral wool has been exonerated entirely. Glass mineral wool 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 glass mineral wool 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 was 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. Today, we have the largest offering of interior friendly products available in the mineral fiber market, meeting the GREENGUARD Gold designation. The formaldehyde-free claim is third party validated by UL Environment.

Red List Free Since 2012, Knauf Insulation North America has used the Living Building Challenge (LBC) Red List as our developmental benchmark. The Red List is a list of chemicals that are avoided in material imperative for the construction of LBC buildings. Formaldehyde is just one of about 800 chemicals on the Red List. Today, no other insulation company comes close to the sustainable development achieved by Knauf in this regard.

EUCEB tested Glass fiber is perhaps the most widely studied building material available today. 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 serious health concerns. While competing insulation technologies other than glass and rock fiber might claim they are safer, the reality is that they have not been tested. We consider the scrutiny once given our technology to be a differentiator.

Green building rating systems

Our products offer a vast array of potential credits for major green building rating systems, including: WELL, LEED v4, Green Building Certification 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 Knauf Insulation products.

Green building rating system credits

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

Learn more

DISPOSAL



Promote Recycling

Knauf is a recycling advocate. We take every opportunity to advocate for recycling and voluntarily support the Glass Recycling Coalition (GRC). We feel that a comprehensive understanding of the benefits of recycling will lead to greater recycling adoption and more promotion by state and local governments. While our only option is to landfill our products at end of life, that doesn't stop us from encouraging consumers to recycle other products, particularly glass bottles.



SM Transparency Report™ + Material Health Overview™

VERIFICATION	LCA
3rd party reviewed	NSF
Transparency Report	
3rd party verified	NSF
Material evaluation	
Self-declared	

This declaration was independently verified by NSF to the UL Environment PCR and ISO 14025.

NSF International
P.O. Box 130140
789 N. Dixboro Road
Ann Arbor, MI 48105, USA
www.nsf.org
734 769 8010

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

Contact us

Validity: 11/07/17 – 11/07/22
KNA – 11072017 – 006



Additional EPD content required by:
ULE PCR for Building Envelope Thermal Insulation and Mechanical Insulation

Atmosphere Duct Wrap and
KN Utility Insulation

Environmental parameters derived from LCA
per functional unit

Total material resources

Parameter	Unit	Total
Non-renewable material resources	kg	5.12
Renewable material resources	kg	16.9

Total primary energy

Parameter	Unit	Total
Non-renewable, fossil	MJ	8.87
Non-renewable, coal	MJ	14.4
Non-renewable, natural gas	MJ	23.4
Non-renewable, uranium	MJ	6.42
Renewable, biomass	MJ	5.35E-04
Renewable, geothermal	MJ	0.0949
Renewable, hydro power	MJ	0.551
Renewable, solar power	MJ	2.04
Renewable, wind power	MJ	0.540

Total water

Parameter	Unit	Total
Fresh water	L	1219

Waste

Parameter	Unit	Total
Non hazardous waste	kg	0.720
Hazardous waste	kg	0
Waste to energy	kg	0

A variation of 10 to 20% | A variation greater than 20%

TRACI v2.0 acidification results per functional unit

Parameter	Unit	Raw material acquisition	Manufacturing	Transportation	Installation and maintenance	Disposal/reuse/recycling
Acidification, TRACI 2.0	mole H+ eq	1.16E-01	2.85E-01	7.56E-02	1.67E-03	1.70E-02

A variation of 10 to 20% | A variation greater than 20%

Scenarios and additional technical information

PARAMETER	VALUE	UNIT
-----------	-------	------

Transport to the building site [A4]

Average distance from Shelbyville to installation site	680	mi
Average distance from Lanett to installation site	580	mi
Average distance from Shasta Lake to installation site	884	mi
Capacity utilization by mass	27	%

Installation into the building [A5]

Distance from installation site to landfill	100	mi
---	-----	----

Disposal/reuse/recycling [C1-C4]

Distance from installation site to landfill	100	mi
---	-----	----

SM Transparency Report™ + Material Health Overview™

VERIFICATION	LCA
3rd party reviewed	
Transparency Report	
Verified	
Material evaluation	
Self-declared	

This declaration was independently
verified by NSF to the UL
Environment PCR and ISO 14025.

NSF International
789 N. Dixboro Road
Ann Arbor, MI 48105, USA
www.nsf.org
734 769 8010

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

Contact us



Validity: 11/07/17 – 11/07/22
KNA – 11072017 – 005