



EcoBatt® Insulation

with ECOSE® Technology

Be sure your specs are up-to-date and include the technology that improves the sustainability of traditional glass mineral wool insulation.

www.knaufinsulation.us

BI-BT-BRA 8-13





Our Commitment To Sustainability

We are a leader in providing sustainable solutions for energy efficiency, productivity and comfort in the environments in which people live and work, providing products and services that conserve energy and preserve natural resources for a sustainable future.

As a family-owned company, we're proud of the Knauf Insulation name and what it stands for. Customers worldwide have put their trust in the quality, consistency and performance of our products and our business values. So, everyone who does business with us recognizes the importance that, in our quest to become more sustainable, there are certain principles that we will not compromise:

- The quality, consistency, and performance characteristics for which our products are known.
- Our ability to apply technological advances across all product lines.
- The safe and efficient manufacture of our products.
- Our goal of reducing emissions from plant operations.
- Our commitment to cost-effectively produce our products.

Driven by our mission and these principles, we are proud to produce glass mineral wool insulation with ECOSE® Technology.

ECOSE Technology is a revolutionary, more sustainable binder technology born from five years of intensive research and development.

ECOSE Technology features rapidly renewable bio-based materials rather than non-renewable petroleum-based chemicals such as phenol, formaldehyde and acrylics commonly used in traditional glass mineral wool insulation products.

ECOSE Technology is formaldehyde free and is validated by UL Environment. By reducing the binder embodied energy associated with these petroleum-based chemicals, up to 70% compared to our traditional glass mineral wool insulation binder, ECOSE Technology reduces both the expected Global Warming Potential and total embodied energy of Knauf Insulation products by approximately 4%.





Our new LEED-NC Gold Engineering and Development office building uses 30% less energy than a conventional office while accommodating 50 offices and housing a 126-seat classroom and training center.



Regenerative Thermal Oxidizers installed at our Shasta Lake and Shelbyville plants have reduced the amount of energy it takes to cure our products and reduced CO₂ emissions from the curing ovens by up to 90%.



All Knauf Insulation products are made from recycled, renewable and abundant resources, such as ECOSE[®] Technology, post-consumer recycled glass and sand.

Manufacturing improvements

- In our operations, we look for ways to advance our glass formulations to increase the use of post-consumer recycled bottle glass in all our products.
- To reclaim and reuse vented heat and to control emissions, we have invested millions of dollars in regenerative thermal oxidizers (RTOs) and the best available control technology (BACT) for pollution control.
- By converting our products to ECOSE Technology, we have eliminated chemicals like phenol and formaldehyde from the manufacturing process, eliminating their plant emissions. This has an additional benefit of reducing cost instability associated with those chemicals.

Achieving LEED Gold as we help others do the same

Our 24,860 square foot Engineering and Development office building earned a New Construction Leadership

in Energy and Environmental Design (LEED-NC) Gold certification from the U.S. Green Building Council and uses 30% less energy than a conventional office building.

A sustainable impact and legacy

All our products are made from recycled, renewable and abundant resources, such as post-consumer glass, ECOSE Technology and sand. And we're proud to be putting glass bottles back to work rather than into landfills. Knauf Insulation products now contain a minimum of 50% post-consumer recycled glass—about 26 million bottles each month, all collected at curbside.

Our insulation products have an inherent impact on energy consumption as they save hundreds of times more energy in use than is required to manufacture them.

Through the development of revolutionary solutions like ECOSE Technology, we continually focus our efforts on providing solutions that reduce energy consumption and save resources to positively affect the lives of people today and tomorrow.

Bottles



Sand

We Didn't Choose Brown, It Just Came Naturally.

EcoBatt® Glass Mineral Wool Insulation

It doesn't look like any insulation you've ever seen, but that's because its natural brown color represents a level of sustainability we've never before achieved.

Knauf Insulation EcoBatt glass mineral wool Insulation combines:

- Minimum of 50% post-consumer recycled bottle glass
- Sand, one of the world's most abundant resources
- ECOSE Technology, a revolutionary highly sustainable, plant-based binder

This is our most sustainable insulation ever.

Revolutionary ECOSE® Technology

EcoBatt Insulation's natural brown color comes from ECOSE Technology, a revolutionary more sustainable plant-based binder:

- Patented technology born from five years of intensive research and development.
- Featuring rapidly renewable plant-based materials rather than non-renewable petroleum-based chemicals commonly used in other insulation products.
 - Does not contain phenol or formaldehyde.
- Reduces binder embodied energy by up to 70%, and Global Warming Potential (GWP) and total embodied energy by an approximate 4% to reduce our carbon footprint.



residential/
non-residential



cathedral ceilings



attics



external walls



internal walls



floors



hvac



pipework



ductwork thermal



ductwork acoustical



Why Ecosse®?

Insulation with ECOSE Technology Is Your Best Choice

It delivers:

- Improved sustainability:
 - Uses recycled and abundant resources
 - Contains an industry-leading percentage of post-consumer recycled glass
 - Replaces non-renewable resources with renewable ones
 - Eliminates phenol and formaldehyde
 - Reduces binder embodied energy
- Unsurpassed performance:
 - Cost-effective way to improve thermal and acoustical performance
 - Is interior-friendly—GREENGUARD Gold Certified and verified to be formaldehyde free
 - Helps projects achieve a variety of LEED certifications

EcoBatt Insulation— A More Sustainable solution

EcoBatt Insulation with ECOSE Technology embodies several key characteristics that define a more sustainable glass mineral wool insulation product:

High post-consumer recycled content:

- EcoBatt Insulation always contains a minimum of 50% post-consumer recycled glass.
- ALL the recycled glass we use is post-consumer glass collected at curbside—not pre-consumer or post-industrial.

Use of abundant resources:

- Sand is an abundant natural resource.
 - Man's total industrial consumption of sand is approximately 0.1 to 0.3 billion tons per year compared to about 5 billion tons generated every year through natural processes.¹

Binder avoids petroleum products:

- Features plant-based ingredients

Eliminates non-renewable petroleum-based chemicals:

- Significantly reduces or eliminates non-renewable petro-chemical binder ingredients such as phenol, urea and formaldehyde commonly used as glass mineral wool insulation binder for over 50 years²
- Some glass mineral wool insulation products are also made using a non-renewable petro-chemical based binder.

Reduces our embodied energy and carbon footprint:

- Reduces binder embodied energy by up to 70% compared to the traditional binder it replaced
- It is anticipated to reduce its Global Warming Potential (GWP) by approximately 4% which corroborates a similar reduction in EcoBatt Insulation total embodied energy by approximately 4%, a significant reduction in our carbon footprint.

Reduces workplace exposures and manufacturing emissions:

- By eliminating phenol and formaldehyde from our manufacturing process, workplace exposures and manufacturing emissions are consequently eliminated as well.

Interior-friendly:

- EcoBatt Insulation is certified to GREENGUARD Gold, the industry's most stringent IAQ standard, as well as California CHPS Section 01350. EcoBatt Insulation is also verified to be formaldehyde free.

Optimized packaging:

- EcoBatt Insulation is compression packed to increase pieces per package for reduction in shipping energy and packaging materials.

Cost competitive:

- EcoBatt Insulation is cost competitive to facilitate the market transformation to more sustainable construction.



The Answer Is Insulation

Why Energy Efficiency is Important in Building Design

- Buildings account for 40% of total U.S. energy consumption as well as 71% of electricity.
- Energy efficiency reduces the operating costs of a building for its entire life,
 - making it more affordable,
 - increasing its value per square foot,
 - while improving the comfort of its occupants.
- Using the energy we have more efficiently helps protect the world's vital, limited, energy resources—2/3 of which are in political jeopardy.
- The most cost-effective opportunity to make a building more thermally efficient is at the time of design and construction.

Why Sustainability is Important in Building Design

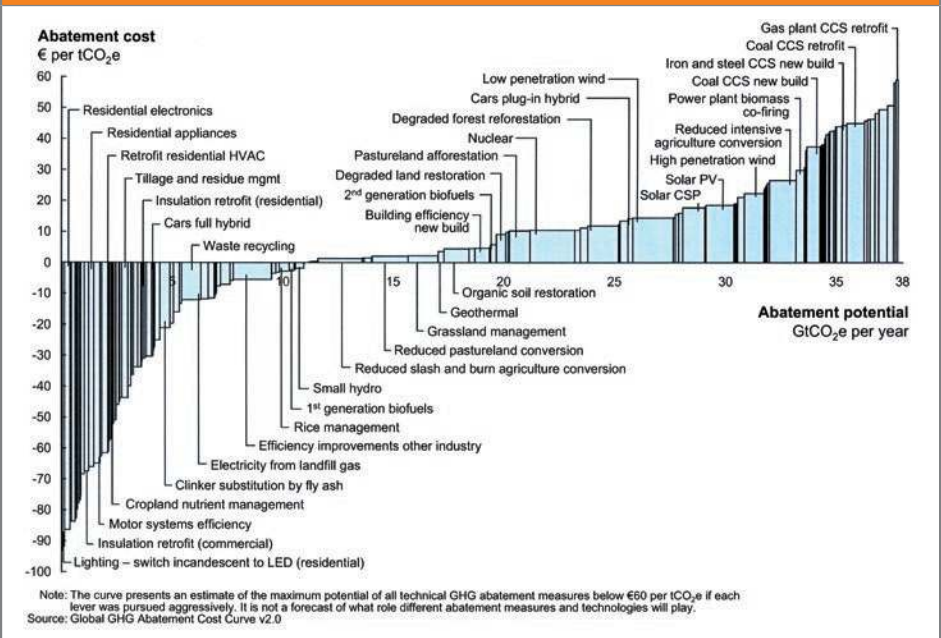
- Buildings contribute over 38% of total U.S. greenhouse gas emissions.
- Designing for sustainability means choosing building materials that minimize the impact on the environment, helping to preserve valuable natural resources while reducing emissions.
- Growth in new sustainable techniques as compared to conventional techniques means that now, more than ever, it is important to be sure your specs are up to date.

– We can help you stay current.

The Important Role of Insulation

- By increasing the level of insulation, buildings can be made significantly more energy efficient, sustainable and functional—all while giving you new design options. Insulation is often specified “to code”, and its real benefits are overlooked.
- Energy conservation through improved insulation is one of the least expensive and most secure forms of energy available to us.
 - It also has one of the biggest impacts on reducing greenhouse gases, cutting carbon dioxide emissions by up to 780 million tons each year, which is equivalent to the annual electricity use of over 90 million homes.
 - The most economically beneficial way to minimize energy consumption during a building's lifetime is to install optimum amounts of insulation in all required areas during initial construction.
 - Increased insulation allows you to
 - Increase window area to meet day lighting objectives, reducing building operating costs and improving occupant productivity and comfort.
 - Reduce HVAC equipment size, and deliver conditioned air more efficiently for greater comfort and reduced operating costs.
 - Insulation can have a significant impact on your project in regard to green building standards, LEED Certification or other certifications.

Global GHG Abatement Cost Curves Beyond Business-As-Usual – 2030



Properly insulating commercial buildings is one of the most effective ways available to address ambitious targets for reducing Greenhouse Gases across the globe.



Knauf Insulation's Residential, Commercial and Industrial Products

Superior Products for Sustainability, Thermal and Acoustical Efficiency, and Installer Productivity

Commercial Building Insulation Products with ECOSE® Technology

Knauf Insulation offers a full range of insulation products for your commercial building needs—cost-effective solutions for both the thermal envelope and as an acoustical treatment for interior walls and ceilings.

- EcoBatt® Glasswool Insulation
- Insulation Board
- Black Acoustical Board
- Wall & Ceiling Liner M

Our quality Commercial and Industrial products with ECOSE Technology

Air Handling Insulation provides quiet, efficient air delivery, cost-effective energy conservation, and quality indoor environments.

- Friendly Feel® Duct Wrap
- Sonic XP® Duct Liner
- Rigid Plenum Liner
- Eclipse® Air Duct Board

Knauf Insulation offers a full line of Pipe & Equipment products to control temperature, sound, and condensation in commercial facilities.

- Earthwool® 1000° Pipe Insulation
- Earthwool® RediKlad® 1000° Pipe Insulation
- Insulation Board
- Friendly-Feel® Duct Wrap
- Elevated Temperature Insulation
- Pipe & Tank Insulation

Insulation with ECOSE Technology is the best choice you can make for your projects.

Specify it today!



Contribution to LEED Requirements		
LEED Credit Category	Contribution	Points
Materials and Resources		
MR Credit 4.1 Recycled Content: 10%	All Knauf Insulation glass mineral wool insulation products are manufactured using a minimum of 50% "post-consumer" recovered materials.	1 point
MR Credit 4.2 Recycled Content: 20%	All Knauf Insulation glass mineral wool insulation products are manufactured using a minimum of 50% "post-consumer" recovered materials.	1 point in addition to MR Credit 4.1
MR Credit 5.1 Regional Materials: 10% Extracted, Processed and Manufactured Regionally	All Knauf Insulation glass mineral wool insulation products are produced in Shelbyville, IN, Lanett, AL or Shasta Lake, CA which may be within 500 miles of the project.	1 point
MR Credit 5.2 Regional Materials: 20% Extracted, Processed and Manufactured Regionally	All Knauf Insulation glass mineral wool insulation products are produced in Shelbyville, IN, Lanett, AL or Shasta Lake, CA which may be within 500 miles of the project.	1 point in addition to MR Credit 5.1
Energy and the Atmosphere		
EA Credit 1 Optimize Energy Performance	All Knauf Insulation glass mineral wool insulation products help reduce building energy demand and compliance with energy codes.	1-10 points
Indoor Environmental Quality		
EQ Prerequisite 3 Acoustical Performance	Knauf Insulation building and HVAC insulations are critical components for reducing noise and improving room sound quality.	Prerequisite
EQ Credit 3.2 Indoor Air Quality	All Knauf Insulation glass mineral wool insulation products are GREENGUARD Certified for low VOC emissions.	1 point
EQ Credit 7.1 Thermal Comfort	Knauf Insulation building and HVAC distribution insulations are critical components for increased thermal comfort.	1 point
EQ Credit 9 Enhanced Acoustical Performance	Knauf Insulation building and HVAC insulations are critical components for reducing noise and improving room sound quality.	1-2 points
EQ Credit 10 Mold Prevention	Knauf Insulation glass mineral wool insulation products do not promote mold growth when tested according to ASTM C 1338.	1 point
Innovation and Design		
ID Credit 1-1.4 Innovation in Design	GREENGUARD Gold Certified and verified to be formaldehyde free. Knauf Insulation products can be used in innovative designs that have both environmental and health benefits.	1 point

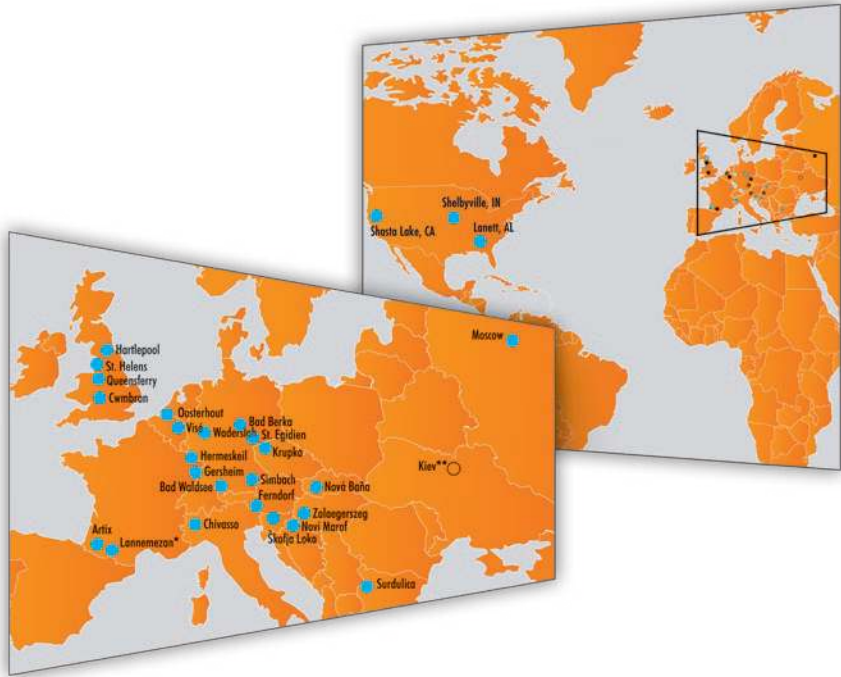
Note: Mechanical insulation products such as pipe insulation must be bid outside of the mechanical contract in order to isolate their economic value for calculation of credit contribution.

For more information call (800) 825-4434

or visit us online at www.knaufinsulation.us

KNAUF INSULATION

it's time to save energy



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Knauf Insulation—A World Leader

With nearly 5,000 employees in more than 50 countries, Knauf Insulation is the fastest growing and one of the largest insulation manufacturers in the world. In the United States, we manufacture a wide range of insulation materials to meet North America's growing demands for energy efficiency and acoustic performance. Since our founding 35 years ago in Shelbyville, Indiana, we have grown to become an industry leader by creating products that make the world a better place today and for future generations. That growth has been driven by our commitment to sustainable products, operations, and corporate responsibility.



At Knauf Insulation, we manufacture a wide variety of products that serve a common goal, helping to make the most of our planet's energy resources. A family-owned global company, we understand and are committed to high standards in quality, performance, and environmental responsibility. Every step we take today toward energy conservation helps ensure better lives for generations to come.

Declare.

Declare is a voluntary self-disclosure program aiming to transform the building materials industry towards healthier and more ecological products through ingredient transparency.

Participating in Declare means this product has voluntarily self-disclosed all ingredients in order to promote transparency.

Living Building Challenge Compliant means this product meets the requirements of the Red-List Imperative of the Living Building Challenge due to a temporary exception.

Living Building Challenge Red List Free means this product does not contain any ingredients on the Living Building Challenge's Red List.



GREENGUARD Gold

Knauf Insulation achieved GREENGUARD Gold Certification and is verified to be formaldehyde free.

GREENGUARD Certification Program

Products are certified to GREENGUARD standards for low chemical emissions into indoor air during product usage. For more information, visit ul.com/gg.

Knauf Insulation has achieved a UL Environment claim validation for over 50% post-consumer recycled glass content in our insulation products.



LEED Eligible Product

Use of this product may help building projects meet green building standards as set by the Leadership in Energy and Environmental Design (LEED) Green Building Rating System.

MR Credit 4.1 - 4.2 Recycled Content
MR Credit 5.1 - 5.2 Regional Materials



This product has been tested and is certified to meet the EUCEB requirements.

ECOBATT

insulation bonded with nature

