



Data Sheet

BI-BT-DS

08-17

# ECOBATT<sup>®</sup>

Thermal/Acoustical Insulation

with **ECOSE<sup>®</sup>** TECHNOLOGY



## Think of it as green... only browner.



### **ECOBATT® INSULATION** with *ECOSE® Technology*

All Knauf Insulation products are sustainable. EcoBatt glass mineral wool insulation with ECOSE Technology takes that standard to a whole new level. It is based on rapidly renewable, bio-based material. ECOSE Technology is a revolutionary more sustainable binder that contains no phenol, formaldehyde, acrylics or artificial colors.

Knauf Insulation's EcoBatt insulation combines ECOSE Technology with sand—one of the world's most abundant resources—and a high degree of recycled bottle glass. EcoBatt insulation products deliver the same exceptional quality, handling and durability that you have come to expect from Knauf Insulation, with an even higher level of sustainability.



**EcoBatt insulation is naturally brown—**ensures no phenol, formaldehyde, acrylics or artificial colors are used in the manufacturing process.



**EcoBatt insulation ensures the professional touch—consistent quality, low dust and easy to cut—**handling characteristics that you've come to expect from Knauf Insulation.



**Knauf Insulation manufactures a full line of EcoBatt insulation—**a variety of widths, R-values, densities and facings.

### **LAB-TESTED, MOTHER NATURE APPROVED**

EcoBatt® insulation products are interior friendly. They are certified to the toughest indoor air quality certification in the industry, GREENGUARD Gold, and are certified to meet CHPS Low-Emitting Materials criteria section 01350. They also meet or exceed all applicable industry performance specifications and standards.

All Knauf Insulation products are inherently sustainable because of high recycled content. They save hundreds of times more energy in use than is required to manufacture them. EcoBatt insulation is even more sustainable because its ECOSE Technology helps reduce our carbon footprint further by eliminating the traditional non-renewable petroleum-based binder chemistry.

# EcoBatt® Insulation with ECOSE® Technology

## DESCRIPTION

Knauf Insulation EcoBatt glass mineral wool insulation made with ECOSE Technology contains a high concentration of one of the world's most abundant resources—sand—and a high degree of recycled bottle glass bonded with ECOSE Technology. The products are available unfaced or with kraft, foil or flame-rated FSK-25 (Foil-Scrim-Kraft) foil facings.

## ECOSE TECHNOLOGY

ECOSE technology is a revolutionary binder chemistry that enhances the sustainability of our products. The “binder” is the bond that holds our glass mineral wool product together and gives the product its shape and brown color. ECOSE Technology is a plant-based, sustainable chemistry that replaces the phenol/formaldehyde (PF) binder traditionally used in glass mineral wool products. Products using ECOSE technology are formaldehyde-free and have reduced global warming potential when compared to our products of the past.

## APPLICATION

Knauf Insulation EcoBatt batts and blankets are cost-effective thermal and acoustical barriers for energy-efficient construction. Their consistent quality, low dust, and easy-cutting resilient fibers make fabrication simple and installation fast. The products can be used in new and retrofit wood and metal frame applications in residential and commercial structures, as well as in manufactured housing applications. These applications include thermal and acoustical treatments to walls, ceilings and floors.

In addition, **High Density (HD)** EcoBatt batts are available where optimal thermal performance is required and space for insulation is limited. High Density EcoBatt batts for cathedral ceiling applications, for example, deliver greater R-value in less space, so builders can increase R-values and still maintain adequate space for ventilation.

Knauf Insulation **Staple-Free** EcoBatt insulation is flangeless kraft-faced batts which friction fit between wood studs, eliminating the need to staple in place. These batts are designed for use in wood framed construction where the stud spacing is no more than 16" on center.

## Residential Applications

Knauf Insulation offers a full line of standard and high-density EcoBatt batts and blankets with

a wide range of sizes and R-values. Available unfaced, or with kraft or flame-rated (FSK) foil facings, Knauf Insulation residential insulation can be used for cavity walls, floors, ceilings, attics, basements and crawlspaces. It is highly resilient, recovering quickly to full thickness. It also greatly reduces the transmission of noise.

## Light Commercial Applications

This full line of standard and high-density EcoBatt batts and blankets for wood and metal frame construction is available unfaced or with kraft, foil or flame-rated (FSK) foils facings. Knauf Insulation's commercial building insulation can be used for exterior and partition walls, floors, crawlspaces and a variety of ceiling applications.

## Manufactured Housing Applications

Knauf Insulation Manufactured Housing products include a full line of EcoBatt batts and blankets with a wide range of R-values, lengths and widths. It is designed to work efficiently with pre-manufactured structures of all widths. Available unfaced in widths up to 192" (4,877 mm) or with kraft facing in widths up to 24" (610 mm), it can be used for cavity walls, partition walls, floors and ceiling applications.

## ACOUSTICAL PERFORMANCE

Knauf Insulation's EcoBatt insulation provides excellent acoustical properties and will reduce sound transmission when properly installed in partition walls and acoustical ceiling and floor systems. Knauf Insulation acoustical/thermal insulation can improve STC ratings in wood stud construction by 3 to 5 points and metal stud construction by 8 to 10 points depending upon the complexity of the wall configurations, R-values and layers of insulation. The STC Ratings table, right, illustrates the improved STC Ratings in a commercial application using Knauf Insulation acoustical/thermal insulation compared to no insulation.

## SUSTAINABILITY

Knauf Insulation's products used for thermal insulating purposes recover the energy that it took to make them in just hours or days, depending on the application. Once installed, the product continues to save energy and reduce carbon generation as long as it is in place.

Glass mineral wool insulation with ECOSE Technology contains three key ingredients:

- Recycled glass content, verified every six months by UL Environment
- Sand, one of the world's most abundant resources
- Our green chemistry initiative ECOSE Technology, which is validated to be formaldehyde-free

## INDOOR AIR QUALITY

- UL Environment
  - GREENGUARD certified
  - GREENGUARD GOLD certified
  - Validated to be formaldehyde-free
- Tested and certified to meet all the requirements of EUCEB

## SPECIFICATION COMPLIANCE

- ASTM C665 (facing)
  - Type I, Class A, (Unfaced)
  - Type II, Class C, Category 1 (Kraft)
  - Type III, Class A, Category 1 (FSK-25 foil)
  - Type III, Class B, Category 1 (Foil)
- California Energy Commission
- MEA #498-90-M
- State of Minnesota

## PRODUCT FEATURES

### Proven Performance

- Preferred by professional installers concerned with quality, appearance and productivity
- Excellent acoustical properties reduce sound transmission in the home when properly installed in partition walls and ceiling and floor systems

### Superior Handling

- All Knauf Insulation faced products feature an extra wide stapling flange for faster and easier installation.
- Highly resilient insulation recovers quickly to full thickness for a snug fit and superior finished aesthetics
- Consistent quality materials made of resilient fibers cut easily, install fast with low dust
- Durable facing resists tears and is marked in one-foot increments for faster field fabrication

### Superior Service and Support

- Prompt, on-time delivery helps control inventory costs and meet customer expectations
- Our committed network of distributors assures fast order fulfillment and faster inventory turns.
- 24/7 access to product submittals ensures product acceptance and helps meet quotation deadlines

### Convenient Packaging, Easier Handling

Knauf Insulation EcoBatt insulation is packaged in a strong, white poly bag that offers excellent protection from abuse, dust and moisture. Our packages feature complete installation instructions and a highly visible R-value label which follows industry standards and makes Knauf Insulation product sizes and specifications easy to read. Knauf Insulation's unitized packaging saves time at the jobsite and space in the warehouse. Master bag batt units ensure reduced handling costs with greater compression—more square feet per bag, more square feet per truckload, fewer trips to the job site and less warehouse space for storage.

### GLASS MINERAL WOOL AND MOLD

Glass mineral wool insulation will not sustain mold growth. However, mold can grow on almost any material when it becomes wet and contaminated. Carefully inspect any insulation that has been exposed to water. If it shows any sign of mold, it must be discarded. If the material is wet, but shows no evidence of mold, it should be dried rapidly and thoroughly. If it shows signs of facing degradation from wetting, it should be replaced.

### NOTES

The chemical and physical properties of Knauf Insulation EcoBatt insulation represent average values determined in accordance with accepted test methods. The data is supplied as technical service and is subject to change without notice. References to numerical flame spread ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions.

Check with your Knauf Insulation Territory Manager to ensure information is current.

Technical Data		
Property (Unit)	Test	Performance
Corrosion	ASTM C1617	Pass
Thermal Value	ASTM C518	See chart on next page
Water Vapor Permeance	ASTM E96	Kraft faced: 1.0 perms or less FSK foil faced: 0.04 perms Foil faced: 0.05 perms
Water Vapor Sorption (by weight)	ASTM C1104	Less than 5%
Combustibility	ASTM E136	Non-combustible (unfaced only)
Mold Growth	ASTM C1338	Pass
Surface Burning Characteristics (flame spread/smoke developed)	ASTM E84	Unfaced and flamed-rated FSK facings: 25/50 Kraft facing will burn and should not be left exposed.

STC Ratings				
	With insulation	No insulation	With insulation	No insulation
<b>Wood Frame, 2 x 4 (3½"– 4" Batt)</b>	<b>(with ½" gypsum wallboard both sides)</b>		<b>(with ⅝" gypsum wallboard both sides)</b>	
Single studs/Single layer gypsum	38	35	38	34
Single studs/Resilient channel	47	39	52	40
Staggered studs/Single layer gypsum	49	39	51	43
Double stud walls/Single layer gypsum	57	46	56	45
<b>Steel Frame (2½" studs) (2½"– 2⅝" Batt)</b>	<b>(with ½" gypsum wallboard both sides)</b>		<b>(with ⅝" gypsum wallboard both sides)</b>	
Single layer gypsum	45	36	47	39
Double layer gypsum one side/Single layer gypsum other side	50	39	52	44
Double layer both sides	56	45	57	48
<b>Steel Frame (3⅝" studs) (3½"– 4" Batt)</b>	<b>(with ½" gypsum wallboard both sides)</b>		<b>(with ⅝" gypsum wallboard both sides)</b>	
Single layer gypsum	47	39	50	39
Double layer gypsum one side/Single layer gypsum other side	52	42	55	47
Double layer both sides	56	50	58	52

## Forms Available

### Wood Frame Construction

R-Value	Thickness	Unfaced	Kraft	FSK Foil	Standard Foil
R-11	3½"	11"*, 15¼", 19", 23¼"	15"*, 23"	-	-
R-13	3½"	11"*, 15", 23"	11"*, 15"*, 23"	-	-
R-15HD	3½"	15"*, 23"*	15"*, 23"*	-	-
R-19	6¼"	12"*, 15", 15¼", 19"*, 23¼"*	11"*, 15"*, 19"*, 23"	-	-
R-20	5½"	15"*	15"*	-	-
R-21HD	5½"	15", 23"	15", 23"	-	-
R-22	6½"	23"*	15"*	-	-
R-23HD	5½"	15"*	-	-	-
R-25	8"	16", 24"	15", 23"*	-	-
R-30	10"	16", 19¼", 24"	12"*, 16", 19"*, 24"	-	-
R-30HD	8¼"	15"*, 23"	15"*, 23"*	-	-
R-38	12"	16", 19"*, 24"	16", 19"*, 24"	-	-
R-38HD	10¼"	15", 23"	15"*, 23"	-	-
R-49	13¾"	16"*, 24"	16"*, 19"*, 24"*	-	-

### Metal Frame Construction

R-8	2½"	16", 24"	-	-	-
R-11	3½"	16", 24"	16"*, 24"*	16"*	16"*
R-13	3½"	16", 24"	16"*, 24"*	16"*	16"*
R-15HD	3½"	16"*	16", 24"*	-	-
R-19	6¼"	16", 24"	16", 24"*	16"*, 24"*	16", 24"*
R-21HD	5½"	16", 24"	16"*	16"*	-
R-22	6½"	16"*	-	-	-
R-30	10"	-	-	24", 24" E.F.**	24"*
R-38	12"	-	-	16"*, 24"*	-

### Manufactured Housing Rolls

R-5	1½"	15"	-	-	-
R-7	2¼"	15", 16" 42", 48", 90", 96"	-	-	-
R-11	3½"	15", 48", 72", 84", 90"*, 96"*	15"	-	-
R-13	3½"	15"*	15"	-	-
R-14	3½"	72"	-	-	-
R-19	6¼"	15", 48", 91½"*	15", 23"*	-	-
R-22	7"	84"*	-	-	-

HD = High Density Insulation

E.F. = Extended Flange

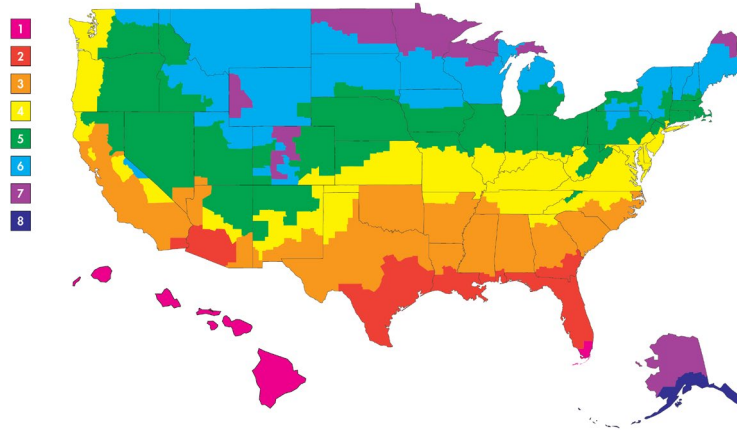
\* = Standard or Non-standard in East region, but certain lengths are Custom in West region

\*\* = Standard or Non-standard in West region, but Custom in East region

This chart is meant as a quick reference guide for standard and non-standard products in the East regions. Items not listed are deemed to be custom products.

Please check with your sales representative for a full product offering and to inquire about ordering custom products.

## 2012 International Energy Conservation Code Climate Zones



### New Wood-Framed Houses

Zone	Heating System	Attic	Cathedral Ceiling	Wall		Floor
				Cavity	Insulation Sheathing	
1	All	R-30 to R-49	R-22 to R-38	R-13 to R-15	None	R-13
2	Gas, oil, heat pump	R-30 to R-60	R-22 to R-38	R-13 to R-15	None	R-13, R-19, R-25
	Electric furnace					
3	Gas, oil, heat pump	R-30 to R-60	R-22 to R-38	R-13 to R-15	None	R-25
	Electric furnace				R-2.5 to R-5	
4	Gas, oil, heat pump	R-38 to R-60	R-30 to R-38	R-13 to R-15	R-2.5 to R-6	R-25 to R-30
	Electric furnace				R-5 to R-6	
5	Gas, oil, heat pump	R-38 to R-60	R-30 to R-38	R-13 to R-15	R-2.5 to R-6	R-25 to R-30
	Electric furnace		R-30 to R-60	R-13 to R-21	R-5 to R-6	
6	All	R-49 to R-60	R-30 to R-60	R-13 to R-21	R-5 to R-6	R-25 to R-30
7	All	R-49 to R-60	R-30 to R-60	R-13 to R-21	R-5 to R-6	R-25 to R-30
8	All	R-49 to R-60	R-30 to R-60	R-13 to R-21	R-5 to R-6	R-25 to R-30

### Existing Wood-Framed Houses

Zone	Add Insulation to Attic		Floor
	Uninsulated Attic	Existing 3-4 Inches of Insulation	
1	R-30 to R-49	R-25 to R-30	R-13
2	R-30 to R-60	R-25 to R-38	R-13 to R-19
3	R-30 to R-60	R-25 to R-38	R-19 to R-25
4	R-30 to R-60	R-38	R-25 to R-30
5-8	R-49 to R-60	R-38 to R-49	R-25 to R-30

Wall Insulation - Whenever exterior siding is removed on an

Uninsulated wood-frame wall:

- Drill holes in the sheathing and blow insulation into the empty wall cavity before installing the new siding, and
- Zones 3-4: Add R5 insulative wall sheathing beneath the new siding.
- Zones 5-8: Add R5 to R6 insulative wall sheathing beneath the new siding.

Insulated wood frame wall:

- For Zones 4-8: Add R5 insulative sheathing before installing the new siding

Reference: DOE/CE-0180 2008. Insulation Fact Sheet



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**UL Environment GREENGUARD Certification Program**  
EcoBatt Insulation is certified to UL Environment GREENGUARD standards for low chemical emissions into indoor air during product usage.

**UL Environment GREENGUARD Gold Certification Program**  
Knauf Insulation has achieved UL Environment GREENGUARD Gold Certification for EcoBatt Insulation.

**UL Environment Validated Formaldehyde-Free**  
Knauf Insulation has achieved a UL Environment validation that EcoBatt Insulation is formaldehyde-free.

**UL Environment Certified EPD**  
Knauf Insulation has achieved an Environmental Product Declaration certification from UL Environment for EcoBatt Insulation. EPD Certification is documentation fully disclosing a product's environmental impact.

For more information, visit [ul.com/spot](http://ul.com/spot).

**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.



**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.

**LEED v2009**

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

**LEED v4**

Knauf Insulation offers several products for both envelope and mechanical systems that have ingredient disclosure and transparency. Please contact [transparency@knaufinsulation.com](mailto:transparency@knaufinsulation.com) for products that currently contribute to MR credits.



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



This product is covered by one or more U.S. and/or other patents. See patent [www.knaufinsulation.us/patents](http://www.knaufinsulation.us/patents)