

# Elevated Temperature Batt 1000° and HD Blanket 1000°

with ECOSE® Technology

Submission Date \_\_\_\_\_



## DESCRIPTION

Knauf Insulation ET Batt 1000° and Knauf Insulation ET HD Blanket 1000° with ECOSE® Technology are semi-rigid thermal insulations (1.6 PCF, 25.6 kg/m<sup>3</sup>) bonded with ECOSE Technology.

## 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 ET Batt 1000° and Knauf Insulation ET HD Blanket 1000° with ECOSE Technology are used in high-temperature marine applications, industrial furnaces, boilers, vessels and industrial ovens, where lighter-weight insulation is needed or flexible and/or semi-rigid high-temperature insulations are needed for irregular surfaces.

## PRODUCT FEATURES

- Low thermal conductivity
- Increase system efficiency and decrease fuel usage
- Lightweight, easy to handle and fabricate
- Flexibility makes them ideal for flat or irregular surfaces
- More resistant to abuse than standard ET blankets
- Tough and resilient, resists damage in shipment and during and after installation
- All items are available in made-to-order sizes.
- Low emitting for indoor air quality considerations

## 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

## SPECIFICATION COMPLIANCE

### In U.S.

- ASTM C553, Type I, II, V, VI
- ASTM C1139; Type I Grade 3, Type 2 Grade 3
- Conformity for Marine Equipment IMO 1408/13
- USCG 164.109/18/1

- **ASTM C795**
- **MIL-I-24244**
- **NRC Reg. Guide 1.36. (Certification needs to be specified at time of order)**

### In Canada

- CAN/ULC S102

## PRODUCT FEATURES

- UL Environment
  - GREENGUARD certified
  - GREENGUARD Gold certified
  - Validated to be formaldehyde-free
  - UL/ULC Classified (UL 723)
- Does not contain polybrominated diphenyl ethers (PBDE) such as: Penta-BDE, Octa-BDE or Deca-BDE
- EUCEB

## APPLICATION & SPECIFICATION GUIDELINES

### Precautions

- During initial heat-up to operating temperatures above 350°F (177°C), a slight odor and some smoke may be given off as a portion of the bonding material used in the insulation begins to undergo a controlled decomposition.
- If natural convection is not adequate in confined areas, forced ventilation should be provided in order to protect against any harmful fumes and vapors that might be generated.

### Storage

- Protect material from water damage or other abuse. Protect from welding sparks and open flame. The material may be stored outside if the packaging is not damaged.

### Preparation

- Apply the product on clean, dry surfaces.

### Application

- There is no heat-up cycle required for Knauf ET Batt 1000° and Knauf ET HD Blanket 1000°.
- The product should be secured with welded pins or studs and covered with sheet metal. An alternate method entails covering the insulation with a metal mesh and insulating cement, canvassing and painting.
- Pins and studs shall be located a maximum of 4" (102 mm) from each edge and spaced no greater than 16" (406 mm) on center.
- Care should be taken to avoid over compressing the insulation with the retaining washer.

- For application of Knauf Insulation ET Batt 1000° and Knauf ET HD Blanket 1000° over 500° F (260° C), double layer application is recommended with staggered joints.
- When using the products at 1000° F (538° C), it is recommended that no more than 6" (152 mm) thickness should be used. For thicknesses in excess of 6", contact your Knauf Insulation Territory Manager.

## CERTIFICATIONS

- UL Environment
  - GREENGUARD
  - GREENGUARD Gold
  - Formaldehyde-Free
  - UL/ULC Classified
- USGBC LEED
- USCG
- EUCEB

## CAUTION

Glass mineral wool may cause temporary skin irritation. Wear long-sleeved, loose-fitting clothing, head covering, gloves and eye protection when handling and applying material. Wash with soap and warm water after handling. Wash work clothes separately and rinse washer. A disposable mask designed for nuisance type dusts should be used where sensitivity to dust and airborne particles may cause irritation to the nose or throat.

## 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 ET Batt 1000° and Knauf ET HD Blanket 1000° with ECOSE® Technology represent typical average values determined in accordance with accepted test methods. The data is subject to normal manufacturing variations. The data is supplied as a 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.



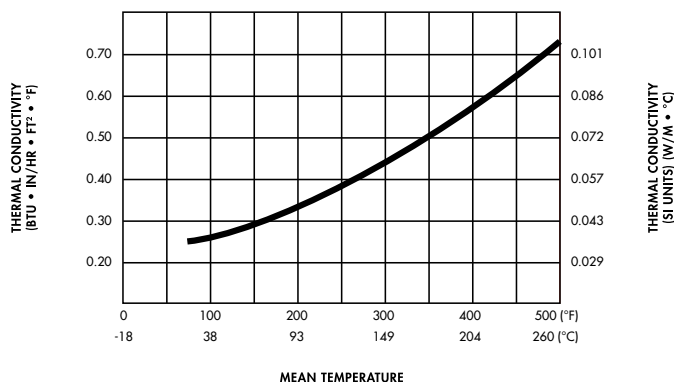
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## Thermal Efficiency | ASTM C177



Mean Temperature	k	k(SI)
100° F (38° C)	0.24	0.035
200° F (93° C)	0.33	0.048
300° F (149° C)	0.44	0.063
400° F (204° C)	0.57	0.082
500° F (260° C)	0.72	0.104

## Technical Data

Property (Unit)	Test	Performance
Corrosiveness	ASTM C665	Does not accelerate corrosion of steel
Corrosion	ASTM C1617	Pass
Water Vapor Sorption (by weight)	ASTM C1104	Less than 5%
Maximum Service Temperature	ASTM C411	1000° F (538° C)
Mold Growth	ASTM C1338	Pass
Surface Burning Characteristics (flame spread/smoke developed)	ASTM E84, NFPA 90A and 90B, UL 723, CAN/ULC S102	25/50

### HD Blanket 1000° Forms Available

Thickness	Width	Length
1½" (38 mm)	48" (1,219 mm)	120' (36.6 m)
2" (51 mm)		80' (24.4 m)
2½" (64 mm)		70' (21.3 m)
3" (76 mm)		60' (18.3 m)
3½" (89 mm)		50' (15.2 m)
4" (102 mm)		40' (12.2 m)

### ET Batt 1000° Forms Available

Thickness	Width	Length
1½" (38 mm)	24" (610 mm)	48" (1,219 mm)
2" (51 mm)		
2½" (64 mm)		
3" (76 mm)		
3½" (89 mm)		
4" (102 mm)		

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).



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