Elevated Temperature Board 1000°

with ECOSE® Technology

Submittal Date _____

DESCRIPTION

Knauf Insulation Elevated Temperature Board 1000° with ECOSE Technology is a lightweight insulation (2.8 pcf, 44.9 kg/m³) bonded with ECOSE Technology. It is a semi-rigid, board-like form with superior handling properties and insulating effectiveness at minimum cost.

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 Elevated Temperature Board 1000° with ECOSE Technology is used for boiler walls, hot precipitators, hot ductwork, cylindrical tanks, prefabricated panel systems towers, stacks and industrial ovens.

PRODUCT FEATURES

- Reduces operating costs
- Lightweight, easy to fabricate
- Damage resistant
- Reduces storage space
- Maintains integrity at elevated temperatures
- 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.

- Conforms to Marine Equipment European 1408/13
- ASTM C612; Type IA, IB, II- category 1, III
- HH-I-558C (Amend. 3); Form A, Class 1, 2, 3
- ASTM C1139; Type III
- MIL-I-22023D; Type III (except for pH requirements)
- USCG 164 109/15/1
- **ASTM C795**
- **MIL-I-24244**
- **NRC Reg. Guide 1.36. (Certification needs to be specified at time of order)**

In Canada

- ULC Classified,
- CAN/ULC S102
- CGSB 51-GP-10M

INDOOR AIR QUALITY

- UL Environment
  - GREENGUARD Certified
  - GREENGUARD Gold
  - Formaldehyde-free
  - UL/ULC Classified (UL 723)
- Complies with Oregon Revised Statue 453.085 and contains less than 0.10% decabromdiphenyl ether (DecaBDE) by mass
- Tested and certified to meet all requirements of EUCEB

APPLICATION AND SPECIFICATION GUIDELINES

Precaution

- 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. Cartons are not designed for outside storage. Vacuum packaged material can be stored outside if care is taken not to puncture the polybag.

Preparation

- Apply the product on clean, dry surfaces.

Application

- All insulation joints must be firmly butted. Mount flush against surfaces to 1000° F (538° C) or use in panels mounted away from operating surface.
- Knauf Insulation Elevated Temperature Board 1000° F is designed to be applied over welded pins and/or studs up to ½" (13 mm) in diameter. The board is to be held in place by speed washers, tension clips or metal mesh reinforcement.
- Installation method should not compress material beyond maximum of 5% at any point.
- 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.
- In temperatures over 550° F (288° C) and designed thickness over 3" (76 mm) dual layer application with staggered joints is recommended. Install thickness recommended by Knauf Insulation or NAIMA 3E Plus program.
- Finish surface with metal cover, or with insulating cement and canvas.

PACKAGING

Vacuum packaging Knauf Insulation Elevated Temperature Board will reduce some mechanical properties of the insulation. By ordering vacuum packaged products, the customer acknowledges these reduced properties and assumes responsibility for the fitness for use in their application.

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 Insulation Elevated Temperature Board 1000° F 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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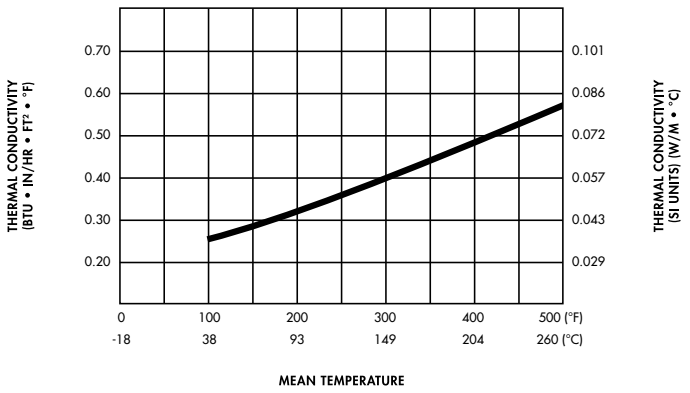
Submittal Sheet

Thermal Efficiency | ASTM C177



Mean Temperature	k	k(SI)
100° F (38° C)	0.25	0.036
200° F (93° C)	0.33	0.048
300° F (149° C)	0.40	0.058
400° F (204° C)	0.49	0.071
500° F (260° C)	0.57	0.082

Technical Data

Property (Unit)	Test	Performance
Corrosiveness	ASTM C665	Does not accelerate corrosion of steel
Corrosion	ASTM C1617	Pass
Maximum Service Temperature	ASTM C411	1000° F (538° C)
Mold Growth	ASTM C1338	Pass
Surface Burning Characteristics (flame spread/smoke developed)	ASTM E84, NFPA 255, UL 723, CAN/ULC S102	25/50

Forms Available

Thickness	Width	Length
1" (25 mm)	24" (610 mm) and 48" (1,219 mm)	24" (1,219 mm) to 120" (3,048 mm)
1½" (38 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.

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