



Elevated Temperature Board 1000°

with ECOSE® Technology



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Description

Knauf 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 new binder chemistry that makes Knauf Insulation products even more sustainable than ever. It is based on rapidly renewable bio-based materials rather than non-renewable petroleum-based chemicals traditionally used in fiberglass insulation products. ECOSE Technology reduces binder embodied energy and does not contain phenol, formaldehyde, acrylics or artificial colors.

Application

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

Features and Benefits

Excellent Thermal Properties

- Reduces operating cost.

Low Installed Cost

- Lightweight.
- Easy to fabricate.
- Sizes up to 4' x 10' available.

Polybag and Sleeve Packaging

- Damage resistant.
- Reduces storage space.

Resilient Fiber Glass

- Maintains integrity at elevated temperatures.

Indoor Air Quality Excellence

- Certified for indoor air quality as a low emitting product by The GREENGUARD Environmental Institute to both the GREENGUARD Certification ProgramSM and the more stringent GREENGUARD Children and SchoolsSM standard.

Sustainability

- Carbon-negative - meaning: Knauf insulation products used for thermal insulating purposes recover the energy that it took to make them in just hours or a few days, depending on the application. Once installed, the product continues to save energy and reduce carbon generation as long as it is in place.
- Fiber glass insulation with ECOSE Technology contains three primary ingredients:
 - Sand, one of the world's most abundant and renewable resources
 - Post-consumer recycled bottle glass
 - ECOSE Technology which reduces binder embodied energy by up to 70% and total product embodied energy by up to 4%.

Specification Compliance

In U.S.:

- UL Classified
- ASTM C 612; Type IA, IB, II
- ASTM C 795
- GREENGUARD Indoor Air Quality Certified®
- GREENGUARD Children & SchoolsSM
- HH-I-558C (Amend. 3); Form A, Class 1, 2, 3
- USCG 164.109/15/0
- NRC 1.36 (Certification needs to be specified at time of order)
- MIL-I-22023D, Type III
- MIL-I-24244C

In Canada:

- ULC Classified, CAN/ULC S102-M88
- CCG F1-315
- CGSB 51-GP-10M

Technical Data

Surface Burning Characteristics

- UL/ULC Classified
- Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84, CAN/ULC S102-M88, NFPA 90A and 90B, NFPA 255 and UL 723.

Temperature Limitation (ASTM C 411)

- Up to 1000°F (538°C).

Alkalinity (ASTM C 871)

- Less than 0.6% as Na₂O.
- pH between 7.5 and 12.0.

Corrosiveness (ASTM C 665)

- Does not accelerate corrosion on steel, copper or aluminum.

Corrosion (ASTM C 1617)

- The corrosion rate in mils/yr will not exceed that of the 1 ppm chloride solution.

Resists Microbial Growth (ASTM C 1338, G21)

- Does not support microbial growth.

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.



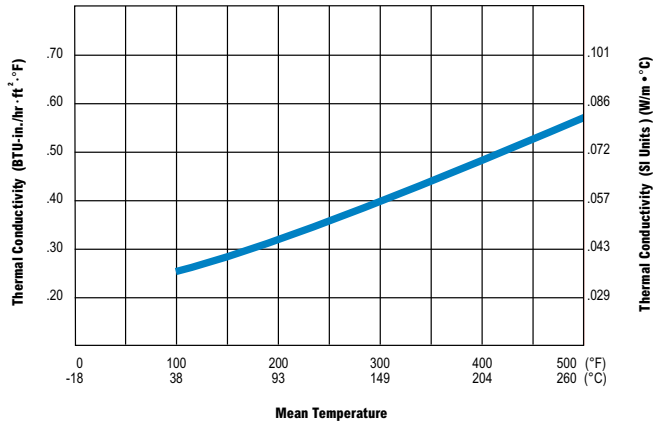
Application

- 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 ET Board 1000° is designed to be applied over welded pins and/or studs up to 1/2" (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 or NAIMA 3E Plus program.
- Finish surface with metal cover, or with insulating cement and canvas.

Caution

Fiber glass 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.

Thermal Efficiency (ASTM C 177)



| Mean Temperature | k | k(SI) |
|------------------|-----|-------|
| 100°F (38°C) | .25 | .036 |
| 200°F (93°C) | .33 | .048 |
| 300°F (149°C) | .40 | .058 |
| 400°F (204°C) | .49 | .071 |
| 500°F (260°C) | .57 | .082 |

Forms Available

| Thickness | Width | Length |
|-------------|--------------------------------------|---------------------------------------|
| 1" (25 mm) | 24" (610 mm) and 48" (1219 mm) | 24" (1219 mm) to 120" (3048 mm) |
| 1½" (38 mm) | | |
| 2" (51 mm) | | |
| 2½" (64 mm) | | |
| 3" (76 mm) | | |
| 3½" (89 mm) | | |
| 4" (102 mm) | | |

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Fiber Glass and Mold

Fiber glass 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 Elevated Temperature Board 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 sales representative to assure information is current.



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



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The GREENGUARD INDOOR AIR QUALITY CERTIFIED Mark is a registered certification mark used under license through the GREENGUARD Environmental Institute.