



Knauf Data Sheet

PE-DS-7e 5-10

Pipe & Tank Insulation

with ECOSE® Technology



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Description

Knauf Pipe and Tank Insulation with ECOSE Technology is a semi-rigid fiber glass board in roll form faced with a factory applied FSK or ASJ vapor retarder or a glass mat facing. The glass fibers are adhered perpendicular to the jacketing, for flexibility and easy installation.

ECOSE Technology

ECOSE Technology is a revolutionary new binder based on rapidly renewable bio-based materials rather than non-renewable petroleum-based chemicals such as phenol, formaldehyde or acrylics. ECOSE Technology reduces Knauf binder embodied energy and contains no phenol, formaldehyde, acrylics or artificial colors found in traditional fiber glass insulation.

Application

Knauf Pipe and Tank Insulation with ECOSE Technology is typically used on tanks, vessels and large-diameter pipes. It can be used for any curved or irregular surfaces that require finished characteristics of rigid fiber glass insulation.

Features and Benefits

Excellent Thermal Properties

- Temperature ratings to 850°F (454°C).

Low-Cost Installation

- Flexible.
- Easy to handle and fabricate.

Inventory Savings

- No need to stock multiple sizes.
- Various thicknesses available to meet all your pipe and tank insulation needs.

Resists Damage

- Tough and durable.
- Resists damage in shipment, during and after installation.

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%

Specification Compliance

- ASTM C 795
- NRC Reg. Guide 1.36. (Certification to be specified at time of order)
- MIL-I-24244C
- ASTM C 1136
 - Type I, II, III, IV (ASJ)
 - Type II, IV (FSK)
- ASTM C 1393, Category 1
- HH-B-100B (jackets)
 - Type I and II (ASJ)
 - Type II (FSK)
- HH-I-558C; Form A, Class 3

Technical Data

Temperature Range (ASTM C 411)

- Operating temperature to 850°F (454°C).

Compressive Strength (ASTM C 165)

- Not less than 150 PSF (7.18 kPa) at 10% deformation for 2" (51 mm) thickness.
- Not less than 275 PSF (13.2 kPa) at 10% deformation for 3" (76 mm).

Water Vapor Transmission (ASTM E 96, Procedure A)

- Both FSK and ASJ vapor retarders have a maximum vapor transmission rate of .02 perms.

Puncture Resistance (TAPPI Test T803) (Beach Units)

- FSK Facing: 25
- ASJ facing: 50

Resists Microbial Growth

- Does not promote the growth of fungi or bacteria.
- Will not rot.
- Will not sustain vermin.

Corrosiveness (ASTM C 665)

- Does not accelerate corrosion on steel.

Corrosion (ASTM C 1617)

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

Surface Burning Characteristics

- Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84, CAN/ULC S102-M88, NFA 90A and 90B, NFPA 255 and UL723.

Linear Shrinkage (ASTM C 356)

- Negligible.

Application & Specification Guidelines

Precautions

- ASJ and FSK jackets should not be used if outer-surface temperature exceeds 150°F (66°C).
- 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.
- Care must also be taken when using sealants, solvents or flammable adhesive during installation.

Storage

- Protect stored insulation from water damage or other abuse.
- Protect from welding sparks and open flame.
- Cartons are not designed for outside storage.

Preparation

- Apply Knauf Pipe and Tank Insulation on clean, dry surfaces.

Application

For easy installation of Knauf Pipe and Tank Insulation simply follow these guidelines.

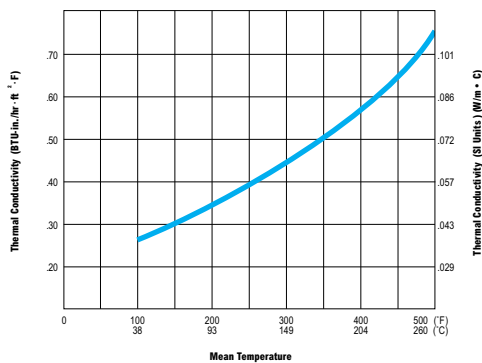
- Refer to the Stretch-out Chart (right) to find the appropriate length to cut for the specific pipe size. Be sure to add an additional 2" (51 mm) to 4" (102 mm) for your staple flap.
- Cut your stretchout length and wrap the material around the iron pipe to ensure the proper fit.
- Staple the lap on 3" (76 mm) centers with outward clinching staples.
- Butt edges shall be firmly secured, and butt strips matching the jacket shall be applied at each joint.

Stretch-Outs

Nominal Iron Pipe Size	Iron Pipe Outside Diameter	Thickness			
		1" (25 mm)	1½" (38 mm)	2" (51 mm)	3" (76 mm)
10" (254 mm)	10¾" (273 mm)	40⅞" (1019 mm)	43¼" (1099 mm)	46⅜" (1178 mm)	52⅝" (1337 mm)
12" (305 mm)	12¾" (324 mm)	46⅜" (1178 mm)	49½" (1257 mm)	52¾" (1340 mm)	59" (1499 mm)
14" (356 mm)	14" (356 mm)	50⅜" (1280 mm)	53½" (1359 mm)	56⅝" (1438 mm)	62⅞" (1597 mm)
16" (406 mm)	16" (406 mm)	56⅝" (1438 mm)	59¼" (1518 mm)	62⅞" (1597 mm)	69⅞" (1756 mm)
18" (457 mm)	18" (457 mm)	62⅞" (1597 mm)	66" (1676 mm)	69⅞" (1756 mm)	75½" (1918 mm)
20" (508 mm)	20" (508 mm)	69⅞" (1756 mm)	72⅜" (1838 mm)	75½" (1918 mm)	81¾" (2076 mm)
22" (559 mm)	22" (559 mm)	75½" (1918 mm)	78⅝" (1997 mm)	81¾" (2076 mm)	88" (2235 mm)
24" (610 mm)	24" (610 mm)	81¾" (2076 mm)	84⅞" (2156 mm)	88" (2235 mm)	94⅜" (2397 mm)
26" (660 mm)	26" (660 mm)	88" (2235 mm)	91⅞" (2315 mm)	94⅜" (2397 mm)	100⅝" (2556 mm)
28" (711 mm)	28" (711 mm)	94⅜" (2397 mm)	97½" (2477 mm)	100⅝" (2556 mm)	106⅞" (2715 mm)
30" (762 mm)	30" (762 mm)	100⅝" (2556 mm)	103¾" (2635 mm)	106⅞" (2715 mm)	113⅞" (2873 mm)
32" (813 mm)	32" (813 mm)	106⅞" (2715 mm)	110" (2794 mm)	113⅞" (2873 mm)	119½" (3035 mm)
34" (864 mm)	34" (864 mm)	113⅞" (2873 mm)	116¼" (2953 mm)	119½" (3035 mm)	125¾" (3194 mm)
36" (914 mm)	36" (914 mm)	119½" (3035 mm)	122⅝" (3115 mm)	125¾" (3194 mm)	132" (3353 mm)
38" (965 mm)	38" (965 mm)	125¾" (3194 mm)	128⅞" (3273 mm)	132" (3353 mm)	138¼" (3512 mm)
40" (1016 mm)	40" (1016 mm)	132" (3353 mm)	135⅞" (3432 mm)	138¼" (3512 mm)	144⅝" (3673 mm)
42" (1067 mm)	42" (1067 mm)	138¼" (3512 mm)	141½" (3594 mm)	144⅝" (3673 mm)	150⅞" (3832 mm)

* Additional 2" (51 mm) to 4" (102 mm) should be added for lap.

Thermal Efficiency (ASTM C 177)



Mean Temperature	k	k (Si)
100°F 38°C	0.26	.037
200°F 93°C	0.35	.050
300°F 149°C	0.45	.065
400°F 204°C	0.57	.082
500°F 260°C	0.75	.108

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Forms Available

Thickness	Width [†]	Length
1" (25 mm)	36" (914 mm)	48' (14.63 m)
1½" (38 mm)		32' (9.75 m)
2" (51 mm)		24' (7.32 m)
2½" (64 mm)		19' (5.79 m)
3" (76 mm)		16' (4.88 m)
3½" (89 mm)		14' (4.67 m)
4 (102 mm)		12' (3.66 m)

[†] Cut-to-length sizes also available.

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.

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 Pipe and Tank Insulation 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. Credit 4.1 - 4.2 Recycled Content
Credit 5.1 - 5.2 Regional Materials



Knauf Pipe & Tank Insulation with ECOSE Technology products are 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. www.greenguard.org.

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