

**Submittal Date** \_\_\_\_\_

**Description**

Knauf Insulation Earthwool Pipe and Tank Insulation with ECOSE Technology is a semi-rigid, glass mineral wool board in roll form, faced with a factory applied FSK or ASJ+ vapor retarder or a glass mat facing. The glass mineral wool is adhered perpendicularly to the jacketing for flexibility, compression strength, and easy installation.

**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 Earthwool Pipe and Tank Insulation 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 glass mineral wool 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 are 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.
- Glass mineral wool insulation with ECOSE Technology contains three primary ingredients:
  - Sand, one of the world’s most abundant and renewable resources
  - A minimum of 50% recycled post-consumer glass content and UL Environment verification every 6 months
  - Reduced binder embodied energy by up to 70%
    - It is anticipated to reduce its Global Warming Potential (GWP) by approximately 4%, a significant reduction in our carbon footprint

**Specification Compliance**

- ASTM C795
- NRC Reg. Guide 1.36. (Certification to be specified at time of order)
- MIL-I-24244C
- ASTM C1136
  - Type I, II, III, IV (ASJ+)
  - Type II, IV (FSK)
- ASTM C1393, Category 1
  - Type I, II, IIA
- HH-B-100B (jackets)
  - Type I and II (ASJ+)
  - Type II (FSK)
- HH-I-558C; Form A, Class 3

**Technical Data**

**Temperature Range (ASTM C411)**

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

**Compressive Strength (ASTM C165)**

- Not less than 120 PSF (5.75 kPa) at 10% deformation

**Water Vapor Transmission (ASTM E96, 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: 120

**Resists Microbial Growth**

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

**Corrosiveness (ASTM C665)**

- Does not accelerate corrosion on steel

**Corrosion (ASTM C1617)**

- 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 E84, CAN/ULC S102-M88, NFA 90A and 90B, NFPA 255 and UL723

**Linear Shrinkage (ASTM C356)**

- Negligible

**Product Features**

**Oregon Revised Statute**

- This product complies with Oregon Revised Statute 453.085 and contains less than 0.10% decabromdiphenyl ether (DecaBDE) by mass.

**EUCEB**

- Tested and certified to meet all requirements of EUCEB.

**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 Insulation Earthwool Pipe and Tank Insulation on clean, dry surfaces.

**Application**

For easy installation of Knauf Insulation Earthwool 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 stretch-out 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.

**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.



Stretch-Outs*		Thickness					
Nominal Iron Pipe Size	Iron Pipe Outside Diameter	1"	1½"	2"	3"		
		(25 mm)	(38 mm)	(51 mm)	(76 mm)		
10" (254 mm)	10¾" (273 mm)	40⅞" (1019 mm)	43¼" (1099 mm)	46⅝" (1178 mm)	52⅝" (1337 mm)		
12" (305 mm)	12¾" (324 mm)	46⅝" (1178 mm)	49½" (1257 mm)	52¾" (1340 mm)	59" (1499 mm)		
14" (356 mm)	14" (356 mm)	50⅝" (1280 mm)	53½" (1359 mm)	56⅝" (1438 mm)	62⅞" (1597 mm)		
16" (406 mm)	16" (406 mm)	56⅝" (1438 mm)	59¾" (1518 mm)	62⅞" (1597 mm)	69⅞" (1756 mm)		
18" (457 mm)	18" (457 mm)	62⅞" (1597 mm)	66" (1676 mm)	69¼" (1756 mm)	75½" (1918 mm)		
20" (508 mm)	20" (508 mm)	69⅞" (1756 mm)	72⅞" (1838 mm)	75½" (1918 mm)	81¾" (2076 mm)		
22" (559 mm)	22" (559 mm)	75½" (1918 mm)	78⅞" (1997 mm)	81¾" (2076 mm)	88" (2235 mm)		
24" (610 mm)	24" (610 mm)	81¾" (2076 mm)	84⅞" (2156 mm)	88" (2235 mm)	94⅝" (2397 mm)		
26" (660 mm)	26" (660 mm)	88" (2235 mm)	91⅞" (2315 mm)	94⅝" (2397 mm)	100⅞" (2556 mm)		
28" (711 mm)	28" (711 mm)	94⅝" (2397 mm)	97½" (2477 mm)	100⅞" (2556 mm)	106⅞" (2715 mm)		
30" (762 mm)	30" (762 mm)	100⅞" (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)	122⅞" (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)	144⅞" (3673 mm)		
42" (1067 mm)	42" (1067 mm)	138¼" (3512 mm)	141½" (3594 mm)	144⅞" (3673 mm)	150⅞" (3832 mm)		

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

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)
3" (76 mm)		16' (4.88 m)

† Cut-to-length sizes also available.

**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 Earthwool 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 territory manager to assure information is current.



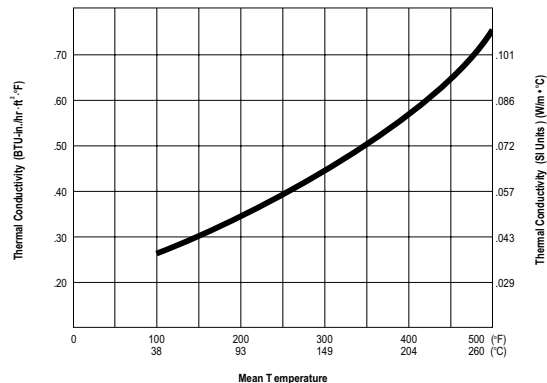
**UL Environment GREENGUARD Gold**  
 Knauf Insulation achieved UL Environment GREENGUARD Gold Certification.

**UL Environment Validated Formaldehyde Free**  
 Earthwool products are formaldehyde free.

**UL Environment Recycled Content**  
 Earthwool products contain Claim Validated Post Consumer and Pre Consumer recycled content.

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

**Thermal Efficiency (ASTM C177)**



Mean Temperature	k	k (SI)
100°F (38°C)	0.26	0.037
200°F (93°C)	0.35	0.050
300°F (149°C)	0.45	0.065
400°F (204°C)	0.57	0.082
500°F (260°C)	0.75	0.108

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).