Pipe & Tank Insulation
Submittal Date

Description
Knauf Pipe and Tank Insulation 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.

Application
Knauf 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 fiber glass insulation.

Features and Benefits
Excellent Thermal Properties
- Low thermal conductivity 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.

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

Non-Corrosive
- Will not accelerate the corrosion of aluminum, steel or copper.

Specification Compliance
- ASTM C 795
- NRC 1.36
- MIL-I-24244C
- ASTM C 1136
  - Type I, II, III, IV (ASJ)
  - Type II, IV (FSK)
- HH-B-100B (jackets)
  - Type II, IV (FSK)
  - Type I, II, III, IV (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 water vapor transmission rate of .02 perms.

Puncture Resistance (TAPPI Test T803 (Beach Units))
- FSK facing: 25
- ASJ facing: 50

Surface Burning Characteristics
- Does not exceed 25 Flame Spread. 50 Smoke Developed when tested in accordance with ASTM E 84, NFPA 225 and UL 723.

Linear Shrinkage (ASTM C 356)
- Negligible.

Application and 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 (back page) 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.

Note
When using Knauf Pipe and Tank Insulation on below ambient piping, appropriate UL approved vapor retardant adhesives should be applied on all longitudinal and circumferential joints before tapping.

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 when 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 with organic materials. 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 must be replaced.

Notes
The chemical and physical properties of Knauf Pipe and Tank Insulation 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 sales representative to assure information is current.
Pipe & Tank Insulation

<table>
<thead>
<tr>
<th>Nominal Iron Pipe Size</th>
<th>Iron Pipe Outside Diameter</th>
<th>Thickness</th>
<th>1&quot; (25 mm)</th>
<th>1½&quot; (38 mm)</th>
<th>2&quot; (51 mm)</th>
<th>3&quot; (76 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10&quot; (254 mm)</td>
<td>10½&quot; (273 mm)</td>
<td></td>
<td>40½&quot; (1019 mm)</td>
<td>43½&quot; (1099 mm)</td>
<td>46½&quot; (1176 mm)</td>
<td>52½&quot; (1337 mm)</td>
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<td>12&quot; (305 mm)</td>
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<td>14&quot; (356 mm)</td>
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<td>50½&quot; (1280 mm)</td>
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<td>56½&quot; (1438 mm)</td>
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<tr>
<td>16&quot; (406 mm)</td>
<td>16&quot; (406 mm)</td>
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<td>56½&quot; (1438 mm)</td>
<td>59½&quot; (1518 mm)</td>
<td>62½&quot; (1597 mm)</td>
<td>69½&quot; (1756 mm)</td>
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<td>18&quot; (457 mm)</td>
<td>18&quot; (457 mm)</td>
<td></td>
<td>62½&quot; (1597 mm)</td>
<td>66½&quot; (1676 mm)</td>
<td>69½&quot; (1756 mm)</td>
<td>75½&quot; (1918 mm)</td>
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<td>20&quot; (508 mm)</td>
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<td>69½&quot; (1756 mm)</td>
<td>72½&quot; (1838 mm)</td>
<td>75½&quot; (1918 mm)</td>
<td>81½&quot; (2076 mm)</td>
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<td></td>
<td>75½&quot; (1918 mm)</td>
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<td>138½&quot; (3512 mm)</td>
<td>141½&quot; (3594 mm)</td>
<td>144½&quot; (3673 mm)</td>
<td>150½&quot; (3832 mm)</td>
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*Additional 2" (51 mm) to 4" (102 mm) should be added for lap.

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### Stretch-Outs*

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<tr>
<th>Mean Temperature (°F)</th>
<th>k</th>
<th>k (SI)</th>
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<tr>
<td>100°F (38°C)</td>
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<td>200°F (93°C)</td>
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<td>500°F (260°C)</td>
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<td>.108</td>
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### Thermal Efficiency (ASTM C 177)

<table>
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<th>Thickness (&quot;</th>
<th>Width</th>
<th>Length</th>
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<td>2&quot; (51 mm)</td>
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<tr>
<td>2½&quot; (64 mm)</td>
<td>19&quot; (5.79 m)</td>
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<td>3&quot; (76 mm)</td>
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<td>3½&quot; (89 mm)</td>
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<tr>
<td>4&quot; (102 mm)</td>
<td>12&quot; (3.66 m)</td>
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*Cut-to-length sizes also available.