



Micro-Lok® Fiber Glass Pipe Insulation

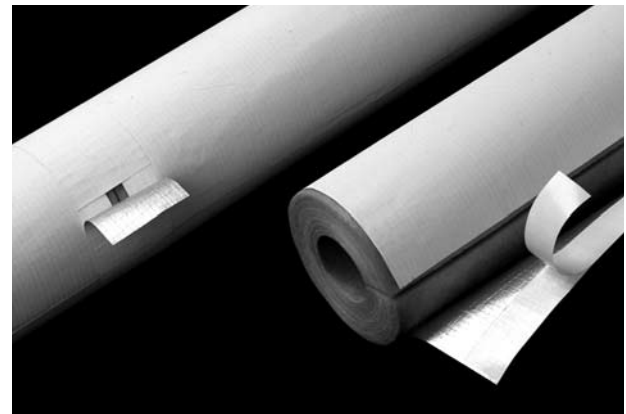
Description

Micro-Lok fiber glass pipe insulation is made from glass fibers bonded with a thermosetting resin and produced in 36" (0.92 m) lengths. Jacketed with a reinforced vapor retarder facing and a factory-applied, longitudinal acrylic adhesive closure system, Micro-Lok is designed for application temperatures from 0°F to 850°F (-18°C to 454°C). Section joints are sealed with butt strips which are supplied from the factory. **Micro-Lok** may be painted with a latex paint after installation.

The factory-installed tape system permits installation at ambient temperatures down to 20°F (-7°C), and will not soften or separate when exposed to high ambient temperatures and humidity.

Uses

Micro-Lok fiber glass pipe insulation is suitable for installation over hot, cold, concealed and exposed piping systems with operating temperatures up to 850°F (454°C). Weather-protective jacketing is required for outdoor applications. Pipes operating below ambient temperatures require all joints to be sealed with the factory-applied, self-seal lap and butt strips.



Operating Temperature Limits: 0°F to 850°F (-18°C to 454°C)

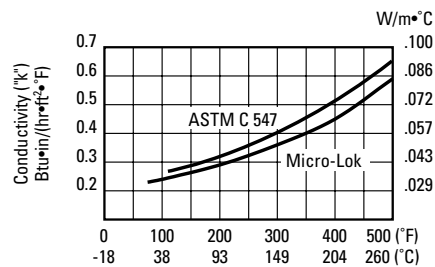
Specification Compliance

ASTM C 1136 (Jacketing) (Replaces HH-B-100B, Type I & II)
ASTM C 547 Type I (Replaces HH-I-558B, Form D, Type III, Class 12, Class 13 up to 850°F [454°C])
MIL-I-22344C
New York City MEA # 330-85-M
NFPA 90A & 90B, FHC 25/50

Physical Properties

| | |
|---|---|
| Service Temp. Range | 0°F to 850°F (-18°C to 454°C) |
| Moisture Sorption | <5% by weight |
| Alkalinity | <0.6% expressed as Na ₂ O |
| Corrosivity | Does not accelerate |
| Capillarity | Negligible (after 24 hours) |
| Shrinkage | None |
| Fungi & Bacteria Resistance | Does not breed or promote |
| Surface Burning Characteristics | Composite FHC 25/50 per ASTM E 84, UL 723, NFPA 255, CAN/ULC S102-M88 |
| Limited Combustibility | NFPA 259 |
| Jacketing | ASTM C 1136 (Type I) |
| Water Vapor Permeance (ASTM E 96 - Procedure A) | .02 perms max. |
| Burst Strength (ASTM D 774) | 50 Beach Units (1.5 Joules min.) |
| Tensile Strength (ASTM D 828) | 45 lbs./in. (7.9N/mm) width min. (MD) 30 lbs./in. (5.23N/mm) width min. (CD) |

Thermal Conductivity ("k")



| Mean Temperature | °F | °C | 75 | 100 | 200 | 300 | 400 | 500 |
|---------------------------|----|----|------|------|------|------|------|------|
| Btu•in/(hr•ft²•°F) | | | .23 | .24 | .29 | .36 | .45 | .59 |
| W/m•°C | | | .033 | .035 | .042 | .052 | .065 | .085 |

ASTM Test Methods & Guidelines

- C 356 Linear Shrinkage
- C 411 Hot Surface Performance
- C 547 Pipe Insulation
- C 585 Simplified Dimensional Standards for Nesting [Except 3/8" (20 mm) IPS, 1" (25 mm) IPS, and 1 5/8" (41mm) CT]
- C 1136 Vapor Barrier Jacketing (Type I)

Micro-Lok®

Fiber Glass Pipe Insulation

Size Availability

| Insulation Thickness | | Iron Pipe Size Range | | Copper Tubing Size Range | |
|----------------------|-----|-------------------------|----------|--------------------------|----------|
| in. | mm | in. | mm | in. | mm |
| 1/2 | 13 | 1/2 - 6 | 13 - 152 | 5/8 - 4 1/8 ⁵ | 16 - 105 |
| 1 | 25 | 1/2 - 24 | 13 - 610 | 5/8 - 6 1/8 | 16 - 156 |
| 1 1/2 | 38 | 1/2 - 24 | 13 - 610 | 5/8 - 6 1/8 | 16 - 156 |
| 2 | 51 | 1/2 - 24 | 13 - 610 | 1 1/8 - 6 1/8 | 29 - 156 |
| 2 1/2 | 64 | 1 - 24 | 25 - 610 | 1 3/8 - 6 1/8 | 35 - 156 |
| 3 | 76 | 1 - 24 | 25 - 610 | 1 3/8 - 6 1/8 | 35 - 156 |
| 3 1/2 | 89 | 1 1/2 - 24 ¹ | 38 - 610 | — | — |
| 4 | 102 | 3 - 24 ² | 76 - 610 | — | — |
| 4 1/2 | 114 | 3 - 24 ³ | 76 - 610 | — | — |
| 5 | 127 | 3 - 20 ⁴ | 76 - 508 | — | — |

Notes:

- ¹ 2 1/2" and 23" IPS not available in this insulation thickness.
- ² 22" and 23" IPS not available in this insulation thickness.
- ³ 21", 22" and 23" IPS not available in this insulation thickness.
- ⁴ 19" IPS not available in this insulation thickness.
- ⁵ 3 5/8" CTS not available in this insulation thickness.

Qualifications for Use

A sufficient thickness of insulation must be used to keep the maximum surface temperature of Micro-Lok below 150°F (66°C). In addition, at operating temperatures above 500°F (260°C), Micro-Lok pipe insulation must be applied in a thickness ranging from 2" (51 mm) minimum to 6" (152 mm) maximum.

During initial heat-up to operating temperatures above 350°F (177°C), an acrid odor and some smoke may be given off as the organic binders used in the fiber glass pipe insulation begin to decompose. When this occurs, caution should be exercised to ventilate the area well. This loss of binder does not directly affect the thermal performance of the pipe insulation, but the compressive strength and resiliency of the product are reduced. For applications with excessive physical abuse or vibration at high temperatures, consult your local Performance Materials Division Market Development Manager for alternate material recommendations.

Application Recommendations.*

Micro-Lok Pipe Insulation and Butt Strips.

1. Do not apply Micro-Lok if air temperature is below 20°F (-7°C) or above 130°F (54°C) due to the effect of temperature on tape performance. We recommend stapling when application falls outside this temperature range.

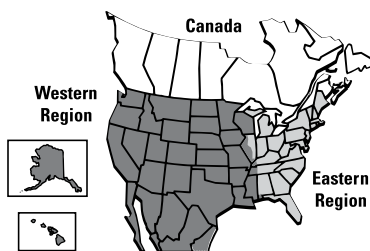
When stapling, we recommend mastic be applied over staples to prevent moisture penetration.

2. If stored below 20°F (-7°C) or above 130°F (54°C), insulation cartons should stand within the recommended temperature range for 24 hours prior to application.

3. Once release paper is removed, both adhesive and lap must be kept free of dirt and water, and the lap sealed immediately.

4. When adhered, the lap and butt strips must be pressurized by rubbing firmly with a plastic squeegee or the back of a knife blade to ensure positive closure.

* For complete application recommendations and installation instructions, see Micro-Lok brochure, CI-32.



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Performance Materials Division

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The physical and chemical properties of Micro-Lok® fiber glass pipe insulation represent typical, average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Numerical flame spread and smoke developed ratings are not intended to reflect hazards presented by this or any other materials under actual fire conditions. Check with the Regional Sales Office nearest you to assure current information. **All Johns Manville products are sold subject to Johns Manville's Limited Warranty and Limitation of Remedy. For a copy of the Johns Manville Limited Warranty and Limitation of Remedy, and information on other Johns Manville thermal insulations and systems, call (800) 654-3103.**