

INSUL-LOCK® II



Self-Seal Pipe Insulation Flexible Closed Cell Insulation

Made in America
Designed for the HVAC/R Industry



DESCRIPTION

INSUL-LOCK® II Self-Seal Pipe Insulation is an environmentally friendly, CFC-free, flexible elastomeric insulation, pre-slit with a factory-applied pressure sensitive adhesive. It is black in color and marked in gold ink. This superior closed cell insulation is designed to retard heat flow and prevent condensation when properly installed. INSUL-LOCK® II Self-Seal Pipe Insulation is pre-slit with a factory applied specially formulated bonding adhesive applied to both seam surfaces and comes with convenient built-in release liners which allow for easy installation. It is available in wall thicknesses of 3/8" through 1" and in sizes ranging from 3/8" to 4" IPS. **INSUL-LOCK® II key physical properties are approved through supervision by Factory Mutual Research Corporation.** INSUL-LOCK® II is non-porous, non-fibrous and resists mold growth.

APPLICATIONS

INSUL-LOCK® II has the same excellent insulation properties as standard INSUL-TUBE® 180 and is used on similar applications such as refrigerant lines, cold water plumbing, and chilled water systems. INSUL-LOCK® II is recommended for applications ranging from -40°F to 200°F (-19°C to 93°C) for both new and existing applications. INSUL-LOCK® II can be used with heat tracing/heat tapes. For best results,

store and install INSUL-LOCK® II at temperatures above 40°F (4°C).

INSUL-LOCK® II's self-seal closure system is designed to save labor costs. It greatly reduces the use of contact adhesives, thus allowing for improved working conditions and compliance with OSHA requirements. **INSUL-LOCK® II has superior cold weather flexibility.**

INSTALLATION

INSUL-LOCK® II is pre-slit with convenient built-in tabs for easy installation: slip on the tube, pull the tab, and pinch it shut. The seam should be positioned on the bottom of the pipe.

All butt joints must be sealed with an approved contact adhesive. Fittings are fabricated from miter-cut tubular sections or from INSUL-SHEET®.

OUTDOOR APPLICATIONS

INSUL-LOCK® II Pipe Insulation is made from a UV resistant elastomeric blend. For moderate UV exposure, no additional protective coating needed. However, for severe UV exposure (rooftop applications) or where optimum performance is required, 374 UV protective coating or approved jacketing or cladding should be used. For best appearance, two coats are recommended. *For more detailed information refer to the Application Guide.*

UNDERGROUND

For buried lines above the water table use a clean fill such as sand (3"-5" layer) to protect INSUL-LOCK® II before backfilling. It is recommended that materials to be buried are properly sealed at all seams and butt joints with an approved contact adhesive. For optimum performance, the lines should be encased in a conduit to protect them from problems associated with ground water.

RESISTANCE TO MOISTURE VAPOR FLOW

The closed-cell structure and unique formulation of INSUL-LOCK® II effectively retards the flow of moisture vapor, and is considered a low transmittance vapor retarder. For most applications, INSUL-LOCK® II needs no additional protection.

Additional vapor barrier protection may be necessary for INSUL-LOCK® II when installed on low temperature surfaces that are exposed to continuous high humidity.

FLAME AND SMOKE RATING

INSUL-LOCK® II Self-Seal Pipe Insulation in wall thicknesses of 3/8" (10 mm) through 1" (25 mm) has a flame spread rating of 25 or less and a smoke development rating of 50 or less as tested by ASTM E 84 Method of Testing entitled: "Surface Burning Characteristics of Building Materials." INSUL-LOCK® II Self-Seal Pipe Insulation is acceptable for use in duct/plenum applications meeting the requirements of NFPA 90A.

Numerical flammability ratings alone may not define the performance of products under actual fire conditions. They are provided only for use in the selection of products to meet limits specified, when compared to a known standard.

SPECIFICATION COMPLIANCE

ASTM C 534 Type 1 (Tubing)

ASTM D 1056-00-2C1

ASTM C 1534-02

New York City MEA 186-86-M Vol. IV
USDA Requirements

UL 94-5V Flammability Classification
(Recognition No. E147665)

ASTM E 84 1" 25/50-tested
according to UL 723 and NFPA 255
Complies with requirements of
CAN/ULC S102-M88

Meets requirements of NFPA 90A
Sect. 2.3.3 for Supplementary Materials for
Air Distribution Systems

Meets requirements of ASTM C 411
(Test Method for Hot Surface Performance
of High Temperature Thermal Insulation)

Meets requirements of UL 181
sections 11.0 and 16.0
(Mold Growth/Air Erosion)

INSUL-LOCK® II Self-Seal Pipe Insulation

PRODUCT DATA

Physical Properties		INSUL-LOCK® II Insulation	Test Methods
Thermal Conductivity (K)	90°F (32°C) Mean Temp	.270 (.039)	ASTM C 177
BTU - in/hr - Ft ² - °F (W/mK)	75°F (24°C) Mean Temp	.265 (.038)	ASTM C 177
	50°F (10°C) Mean Temp	.260 (.037)	ASTM C 177
Operating Temperature Range		200°F (93°C)	
	Upper		
	Lower	-40°F (-40°C)	
Water Vapor Permeability Dry Cup. Perm-In		.10	ASTM E 96
Water Absorption %		.02 by volume	ASTM C 209
Ozone Resistance		Pass	ASTM D 1171
Chemical/Solvent Resistance		Good	
Mildew Resistance/Air Erosion		Pass	UL 181

Thickness Recommendations* - To Control Condensation								
Pipe Size	Line Temp		Line Temp		Line Temp		Line Temp	
	50°F	10°C	35°F	2°C	0°F	-18°C	-20°F	-29°C
Normal Conditions (Max 85°F, 29°C - 70% R.H.)								
3/8" I.D. thru 1-3/8" I.D.	3/8"	10 mm	1/2"	13 mm	3/4"	19 mm	1"	25 mm
Over 1-3/8" thru 3" IPS	3/8"	10 mm	1/2"	13 mm	1"	25 mm	1"	25 mm
Over 3" IPS thru 4" IPS**	1/2"	13 mm	1/2"	13 mm	1"	25 mm	1-1/4"	32 mm
Over 4" IPS	1/2"	13 mm	3/4"	19 mm	1"	25 mm	1-1/4"	32 mm
Mild Conditions (Max 80°F, 26°C - 50% R.H.)								
3/8" I.D. thru 2-1/8" I.D.	3/8"	10 mm	3/8"	10 mm	1/2"	13 mm	1/2"	13 mm
Over 2-1/8" thru 3" IPS	3/8"	10 mm	3/8"	10 mm	1/2"	13 mm	3/4"	19 mm
Over 3" IPS thru 4" IPS**	1/2"	13 mm	1/2"	13 mm	3/4"	19 mm	3/4"	19 mm
Over 4" IPS	1/2"	13 mm	1/2"	13 mm	3/4"	19 mm	3/4"	19 mm
Severe Conditions (Max 90°F, 32°C - 80% R.H.)								
3/8" I.D. thru 1-1/8" I.D.	3/4"	19 mm	3/4"	19 mm	1-1/4"	32 mm	1-1/4"	32 mm
Over 1-1/8" thru 4" IPS	3/4"	19 mm	1"	25 mm	1-1/2"	38 mm	1-1/2"	38 mm

*INSUL-LOCK® II in thickness noted within the specified temperature ranges will prevent condensation in indoor piping under design conditions defined below.

Thickness recommendations above 1" can be sleeved to achieve thickness desired.

Normal: Maximum severity of indoor conditions seldom exceed 85° F and 79% R.H. in United States.

Mild: Typical conditions are most air-conditioned spaces and arid climates.

Severe: Generally found in areas where excessive moisture is introduced or in poorly ventilated areas where the temperature may be depressed below the ambient.

Under conditions of high humidity, additional thickness of insulation may be required.

**Not available in INSUL-LOCK® II size, use INSUL-TUBE® or INSUL-SHEET®.

INSUL-LOCK® II "R" Values per square foot					
Pipe O.D. or Normal Insulation I.D.		R Value	R Value	R Value	R Value
		3/8" (10 mm) wall	1/2" (13 mm) wall	3/4" (19 mm) wall	1" (25 mm) wall
3/8"	10 mm	2.5	3.0	5.1	—
1/2"	13 mm	2.4	3.1	5.1	—
5/8"	16 mm	2.4	3.1	5.2	6.7
3/4"	19 mm	2.3	3.1	5.1	6.5
7/8"	22 mm	2.2	3.1	5.1	6.5
1-1/8"	29 mm	2.1	3.1	5.3	6.8
1-3/8"	35 mm	2.2	3.1	5.1	6.7
1-5/8"	41 mm	2.2	3.1	4.9	6.4
1-1/2" IPS	—	2.3	2.9	4.7	6.9
2-1/8"	54 mm	2.2	3.0	4.7	6.3
2" IPS	—	2.2	3.0	4.6	6.2
2-1/2" IPS	64 mm	2.2	3.0	4.5	6.0
2-5/8"	67 mm	2.2	3.0	4.5	6.0
3-1/8"	79 mm	2.2	2.9	4.4	5.9
3" IPS	—	2.2	2.9	4.4	5.8
3-5/8"	92 mm	—	2.9	4.4	—
4-1/8"	105 mm	—	2.9	4.3	—
4" IPS	—	—	4.3	5.8	—

Note: "R" factors were calculated using a K factor of .264 (75°F, 24°C mean temp.) and nominal wall thickness in each case. Lower operating temperatures will result in improved R values. Contact Technical Services for specific recommendations.



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