

INSUL-TUBE® WHITE

Flexible, Closed-Cell Pipe Insulation
Designed for the HVAC/R Industry



DESCRIPTION

INSUL-TUBE® WHITE is designed for use where piping will be painted or left exposed. This product is ideal for super-market, hospital and school applications where a more hygienic appearance is preferred. INSUL-TUBE® WHITE meets all INSUL-TUBE® specifications and physical properties.

INSUL-TUBE® WHITE pipe insulation is an environmentally-friendly, CFC-free, flexible elastomeric thermal insulation. It is white in color and is available in unslit tubular form in wall thicknesses up to 2" in sizes ranging from 3/8" I.D. to 4 1/8" I.D. INSUL-TUBE® WHITE key physical properties are approved through supervision by Factory Mutual Research Corporation.

INSUL-TUBE® WHITE is non-porous, fiber-free and resists mold growth. An EPA-registered antimicrobial agent is incorporated into the product providing additional protection against mold, fungal and bacterial growth.

INSUL-TUBE® WHITE is GREENGUARD® certified as a low VOC material, meeting the requirements of the "Children & Schools" and "Indoor Air Quality" classifications.

APPLICATIONS

INSUL-TUBE® WHITE is used to retard heat gain and prevent condensation or frost formation on refrigerant lines, cold water plumbing and chilled water systems. It also retards heat flow for hot water plumbing, liquid heating, dual temperature piping and many solar systems. INSUL-TUBE® WHITE is designed for the HVAC and Refrigeration market.

INSUL-TUBE® WHITE is recommended for applications ranging from -297°F to 220°F (-183°C to 104°C). The expanded closed-cell structure makes INSUL-TUBE® WHITE an efficient insulator and provides effective moisture vapor resistance.

INSUL-TUBE® WHITE has a tough skin that withstands tearing, rough handling and severe environmental conditions, yet is flexible for easy installation. It can be covered easily with a white coating.

INSTALLATION

With a factory-applied coating of talc on the smooth inner surface, INSUL-TUBE® WHITE slides easily over pipe or tubing for quick installation. When applied to existing lines, tubing is slit lengthwise and fitted into place. All seams and butt joints should be sealed with an approved contact adhesive, making sure both surfaces to be joined are coated with adhesive. K-Fit® factory fabricated fittings are also available. ASTM C1710, Installation Guide for Flexible Closed Cell Foams, should be used as an installation guide.

OUTDOOR APPLICATIONS

INSUL-TUBE® WHITE is made from a UV-resistant elastomeric blend. For moderate UV exposure (residential applications), no additional protection is needed. For severe UV exposure (rooftop applications) or for optimum performance, K-FLEX® 374 Protective Coating or approved jacketing is required.

RESISTANCE TO MOISTURE VAPOR FLOW

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

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

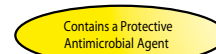
FLAME AND SMOKE RATING

INSUL-TUBE® WHITE in wall thicknesses of 2" (50 mm) and below has a flame spread rating of 25 or less and a smoke development rating of 50 or less as tested by ASTM E 84, "Surface Burning Characteristics of Building Materials". INSUL-TUBE® WHITE is acceptable for use in duct/plenum applications, meeting the requirements of NFPA 90A/B.

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), Grade 1
- ASTM D 1056-00-2B1
- New York City MEA 186-86-M Vol. IV
- USDA Compliant
- RoHS Compliant
- ASTM E 84 2" 25/50-tested according to UL 723 and NFPA 255
- Complies with requirements of CAN/ULC S102-03 FMRC Approval Guide Chapter 14 Pipe Insulation
- NFPA No. 101 Class A Rating
- NFPA 90A Sect. 2.3.3 for Supplementary Materials for Air Distribution Systems
- GREENGUARD certified under "Children & Schools" and "Indoor Air Quality" classifications



PHYSICAL PROPERTIES		INSUL-TUBE® WHITE	TEST METHODS
Thermal Conductivity (K)	90°F (32°C) Mean Temp	0.27 (0.039)	ASTM C 177/C 518
BTU - in/hr - Ft² - °F (W/mK)	75°F (24°C) Mean Temp	0.25 (0.036)	ASTM C 177/C 518
Density		3-6 PCF	ASTM D 1622/D 3575
Operating Temperature Range (Flexible to -40°F (-40°C))		-297°F (-182°C) to +220°F (104°C)	
Water Vapor Permeability Dry Cup. Perm-In		<0.06	ASTM E 96
Water Absorption % (Volume Change)		<0.20 by volume	ASTM C 209
Flame Spread / Smoke Developed (up to 2" wall)		<25/50	ASTM E 84
Ozone Resistance		Pass	ASTM D 1171
Chemical/Solvent Resistance		Good	
Mildew Resistance/Air Erosion		Pass	UL 181

THICKNESS RECOMMENDATIONS - TO CONTROL CONDENSATION				
PIPE SIZE	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"	3/8" (10 mm)	1/2" (13 mm)	1" (25 mm)	1" (25 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"	3/8" (10 mm)	3/8" (10 mm)	1/2" (13 mm)	3/4" (19 mm)
Severe Conditions (Max 90°F, 32°C - 80% RH)				
3/8" I.D. thru 1-1/8" I.D.	3/4" (19 mm)	3/4" (19 mm)	1-1/2" (38 mm)	1-1/2" (38 mm)
Over 1-1/8" I.D.	3/4" (19 mm)	1" (25 mm)	1-1/2" (38 mm)	1-1/2" (38 mm)

INSUL-TUBE® WHITE in thickness noted within the specified temperature ranges will prevent condensation on indoor piping under design conditions defined below. Thickness recommendations above 2" can be sleeved to achieve thickness desired. Normal: Maximum severity of indoor conditions rarely exceed 85°F (29°C) and 70% 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. NOTE: Thickness recommendations calculated using 0.2575 K-factor (0.25 plus 3% test error allowance).

PIPE "R" VALUES PER SQUARE FOOT					
NOMINAL INSULATION I.D.	1/2" WALL	3/4" WALL	1" WALL	1-1/2" WALL	2" WALL
3/8"	3.5	5.5	--	--	--
1/2"	3.3	5.2	--	--	--
5/8"	3.2	5.3	7.4	12.5	17.5
3/4"	3.0	5.3	7.3	11.8	16.5
7/8"	3.1	5.3	7.0	11.3	15.8
1-1/8"	3.1	5.5	7.1	10.8	15.5
1-3/8"	3.1	5.2	7.2	10.0	14.6
1-5/8"	3.1	5.2	7.1	9.8	14.4
1-1/2" IPS	3.0	5.0	6.7	9.3	13.6
2-1/8"	3.2	5.0	6.8	9.3	13.4
2" IPS	3.2	4.9	6.6	9.1	13.0
2-1/2" IPS	3.1	4.8	6.4	8.7	12.4
2-5/8"	3.2	4.8	6.5	8.8	12.7
3-1/8"	3.1	4.6	6.2	8.4	12.2
3" IPS	3.3	4.7	6.2	8.4	11.9
3-5/8"	3.2	4.6	6.0	8.2	11.8
4-1/8"	3.1	4.6	5.9	8.0	11.5

Note: "R" factors were calculated using a K factor of 0.2575 (0.25 +3% test error allowance at 75°F, 24°C mean temp.) and nominal wall thickness is each case. Lower operating temperatures will result in improved R values. Contact Technical Services for specific recommendations.



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