

INSUL-TUBE® WHITE

Pipe Insulation

Flexible Closed Cell Insulation

Designed for the HVAC/R Industry



WHITE ELASTOMERIC INSULATION

INSUL-TUBE® WHITE is designed for exposed piping areas or areas to be painted. INSUL-TUBE® WHITE is suitable for supermarket, hospital and school applications where a more hygienic appearance is preferred. INSUL-TUBE® WHITE meets all INSUL-TUBE® specifications and thermal properties.

DESCRIPTION

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, non-fibrous and resists mold growth. An EPA-registered antimicrobial agent is incorporated into the product providing additional protection against mold, fungal and bacterial growth.

K-Flex USA elastomeric insulation products are GREENGUARD® certified as low VOC materials, meeting the requirements of the "Children and Schools" classification, the most stringent requirements. Additionally, all K-Flex USA elastomeric insulation products are GREENGUARD® listed for mold resistance and meet the "mold resistant" criteria.

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 industries.

INSUL-TUBE® WHITE is recommended for applications ranging from -70°F to 220°F (-57°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 very tough skin which withstands tearing, rough handling and severe environmental conditions, and yet is quite flexible for easy installation. Its white color allows it to 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 available for elbows, tees and grooved fittings.

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 pipe insulation in wall thicknesses of 2" (38 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 Method of Testing entitled: "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 us 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 1056-00-2C1
New York City MEA 186-86-M Vol. IV
USDA Requirements

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.

INSUL-TUBE® WHITE Pipe Insulation

PRODUCT DATA

Physical Properties		INSUL-TUBE® WHITE Insulation	Test Methods
Thermal Conductivity (K)	90°F (32°C) Mean Temp	.27 (.039)	ASTM C 177/C 518
BTU -in/hr - Ft ² - °F (W/mK)	75°F (24°C) Mean Temp	.25 (.036)	ASTM C 177/C 518
Density		3-6 PCF	ASTM D 1622/D 3575
Operating Temperature Range	Upper	220°F (104°C)	
Flexible to -40°F (-40°C)	Lower	-70°F (-57°C)	
Water Vapor Permeability Dry Cup. Perm-In		<0.06	ASTM E 96
Water Absorption %		<0.20 by volume	ASTM C 209
Flame Spread (up to 2" wall)		Not greater than 25	ASTM E 84
Smoke Developed (up to 2" wall)		Not greater than 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	Line Temp 50°F 10°C		Line Temp 35°F 2°C		Line Temp 0°F -18°C		Line Temp -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	1-1/4"	32 mm	1-1/4"	32 mm
Over 1-1/8"	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 1" can be sleeved to achieve thickness desired.
Normal: Maximum severity of indoor conditions seldom 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 higher humidity, additional thickness of insulation may be required.

NOTE: Thickness recommendations calculated using 0.2575 K-factor (0.25 plus 3% test error allowance)

INSUL-TUBE® "R" Values

Pipe O.D. or Nominal Insulation I.D.		R Value 1/2" (13 mm) Wall	R Value 3/4" (19 mm) Wall	R Value 1" (25 mm) Wall	R Value 1 1/2" (38 mm) Wall	R Value 2" (50 mm) Wall
3/8"	10 mm	3.5	5.5	—	—	—
1/2"	13 mm	3.3	5.2	—	—	—
5/8"	16 mm	3.2	5.3	7.4	12.5	17.5
3/4"	19 mm	3.0	5.3	7.3	11.8	16.5
7/8"	22 mm	3.1	5.3	7.0	11.3	15.8
1-1/8"	29 mm	3.1	5.5	7.1	10.8	15.5
1-3/8"	35 mm	3.1	5.2	7.2	10.0	14.6
1-5/8"	41 mm	3.1	5.2	7.1	9.8	14.4
1-1/2" IPS	48 mm	3.0	5.0	6.7	9.3	13.6
2-1/8"	54 mm	3.2	5.0	6.8	9.3	13.4
2" IPS	60 mm	3.1	4.9	6.6	9.1	13.0
2-1/2" IPS	64 mm	3.2	4.8	6.4	8.7	12.4
2-5/8"	67 mm	3.2	4.8	6.5	8.8	12.7
3-1/8"	79 mm	3.1	4.6	6.2	8.4	12.2
3" IPS	89 mm	3.3	4.7	6.2	8.4	11.9
3-5/8"	92 mm	3.2	4.6	6.0	8.2	11.8
4-1/8"	105 mm	3.1	4.6	5.9	8.0	11.5

Note: "R" factors were calculated using a K factor of 0.2575 (0.25 plus 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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