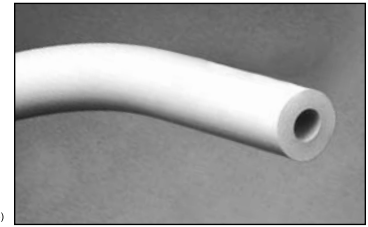


K-FLEX™ LS WHITE PIPE INSULATION

Flexible closed cell elastomeric pipe insulation
Designed for the professional contractor



Protected by the
Bio-Guard™ System

UL 94
(Recognition No. E147665)
UV resistant Refer to K-Flex USA L.L.C.
Technical Bulletin
(Outdoor Applications) for More Information

WHITE ELASTOMERIC INSULATION

K-FLEX™ LS WHITE PIPE INSULATION is designed for use where piping will be painted or left exposed. K-FLEX™ LS WHITE PIPE INSULATION is suitable for supermarket, hospital and school applications where a more hygienic appearance is preferred. K-FLEX™ LS WHITE PIPE INSULATION meets all K-FLEX™ LS TUBE specifications and physical properties.

DESCRIPTION

K-FLEX™ LS 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 of 1/2", 3/4" and 1" in sizes ranging from 3/8" I.D. to 4 1/8" I.D. K-FLEX™ LS WHITE PIPE INSULATION key physical properties are approved through supervision by Factory Mutual Research Corporation. K-FLEX™ LS WHITE PIPE INSULATION is non-porous, non-fibrous and resists mold growth. K-FLEX™ LS closed cell structure inherently resists mold growth. The Bio-Guard™ antimicrobial system provides added protection against mold, fungal and bacterial growth. The active ingredient in Bio-Guard™ is registered with the EPA.

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

K-FLEX™ LS WHITE PIPE INSULATION 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. K-FLEX™ LS WHITE PIPE INSULATION is designed for the professional contractor.

K-FLEX™ LS WHITE PIPE INSULATION is recommended for applications ranging from -70°F to 220°F (-57°C to 104°C). The expanded closed cell structure makes K-FLEX™ LS TUBULAR WHITE an efficient insulator and provides effective moisture vapor resistance.

K-FLEX™ LS WHITE PIPE INSULATION 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, K-FLEX™ LS WHITE PIPE INSULATION 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-FLEX™ LS WHITE PIPE INSULATION is intended for indoor use. If used outdoors, appropriate protective coating or jacketing is required to protect it from UV and mechanical abuse.

RESISTANCE TO MOISTURE VAPOR FLOW

The closed-cell structure of K-FLEX™ LS WHITE PIPE INSULATION effectively retards the flow of moisture vapor, and is considered a low transmittance vapor retarder. For most indoor applications, K-FLEX™ LS WHITE PIPE INSULATION needs no additional protection.

Additional vapor barrier protection may be necessary for K-FLEX™ LS WHITE PIPE INSULATION when installed on low temperature surfaces that are exposed to continuous high humidity.

FLAME AND SMOKE RATING

K-FLEX™ LS WHITE PIPE INSULATION in wall thicknesses of 1" (25 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." K-FLEX™ LS WHITE PIPE INSULATION 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 1056-00-2C1
New York City MEA 186-86-M Vol. IV
USDA Requirements

ASTM E 84 1-1/2" 25/50-tested
according to UL 723 and NFPA 255
Complies with requirements of
CAN/ULC S102-03

FMRC 2006 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

K-FLEX™ LS WHITE PIPE INSULATION

PRODUCT DATA

Physical Properties		K-FLEX™ LS WHITE PIPE 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
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 1-1/2" wall)		Not greater than 25		ASTM E 84
Smoke Developed (up to 1-1/2" 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		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"	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

*K-FLEX™ LS WHITE PIPE INSULATION 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)

Pipe "R" Values				
Pipe O.D. or Nominal Insulation I.D.		R Value	R Value	R Value
		1/2" (13 mm) Wall	3/4" (19 mm) Wall	1" (25 mm) Wall
3/8"	10 mm	3.3	5.2	—
1/2"	13 mm	3.1	5.0	—
5/8"	16 mm	3.0	5.0	7.2
3/4"	19 mm	3.0	5.0	7.2
7/8"	22 mm	3.0	5.0	7.0
1-1/8"	29 mm	2.9	5.1	6.6
1-3/8"	35 mm	2.9	4.9	6.8
1-5/8"	41 mm	2.9	4.8	6.6
2-1/8"	54 mm	2.8	4.5	6.1
2-5/8"	67 mm	2.7	4.3	5.8
3-1/8"	79 mm	—	4.1	5.6
3-5/8"	92 mm	—	4.1	5.5
4-1/8"	105 mm	—	4.1	5.4

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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