K-FLEX SOLAR[®]

Closed-Cell, Flexible, Elastomeric Foam Insulation with a Flexible Co-extruded Jacketing, for Outdoor Use

DESCRIPTION

K-FLEX Solar is a flexible co-extruded jacketing material that can be applied to either the K-FLEX® Insul-Tube® or K-FLEX HT tubular insulation. It is a polymeric material that offers excellent flexibility, abrasion and weather resistance, making it ideal for outdoor applications. The product is made in K-FLEX USA's ISO 9001 certified manufacturing facility, in North Carolina.

AVAILABILITY

K-FLEX Solar is black in color and is available in ½", ¾" and 1" wall thicknesses, non-slit, 6' length tube form. It is available in diameter sizes ranging from ½" I.D. to 2-7/8", 2-3/8", and 1-5/8", respective to the aforementioned wall thicknesses.

APPLICATIONS

K-FLEX Solar can be used for outdoor applications with service temperatures ranging from -70F° to 300F°. The applications would be consistent with those recommended for K-FLEX Insul-Tube or K-FLEX HT tubing. The product is used to enhance the weather and abuse resistance of the insulation tubing. K-FLEX Solar Insul-Tube is ideal for use on HVAC linesets and flex hose applications. K-FLEX Solar HT is ideal for use on heat pumps and solar hot water heating.

OUTDOOR APPLICATIONS

K-FLEX Solar is designed specifically for outdoor applications. The co-extruded jacketing provides excellent abrasion resistance, UV resistance, and protection from weather.

INSTALLATION

K-FLEX Solar is durable (non-fracturing) and the skin is resistant to tearing from handling and the environment, safe to handle (nondusting and non-abrasive), and lightweight for an efficient installation.

K-FLEX recommends that insulation is installed on non-operational systems with clean, dry surfaces in ambient conditions between 40°F and 100°F.

Properly sized insulation tubing can be slid over piping (tubing should be pushed, not pulled). All seams, butt joints, termination points and open ends should be sealed with an approved contact adhesive (K-FLEX 420 Adhesive), making sure both surfaces to be joined are coated. Vapor stops should be installed as needed. ASTM C1710, *Installation Guide for Flexible Closed Cell Foams*, and the *K-FLEX Installation Manual* should be used as comprehensive installation guides.



RESISTANCE TO MOISTURE VAPOR FLOW

The expanded closed-cell structure and unique formulation inherently resists moisture vapor intrusion. K-FLEX Solar needs no additional protection.

FLAME AND SMOKE RATING

K-FLEX Solar, in wall thicknesses of 1" (25 mm) and below, has a flame spread rating of 25 or less and a smoke development rating of 450 or less, as tested to ASTM E84, "Surface Burning Characteristics of Building Materials," meeting the requirement of Class A.

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 E84 Class A: 25/450







PHYSICAL PROPERTIES	K-FLEX SOLAR (HT)	K-FLEX SOLAR (Insul-Tube)	TEST METHODS
Main Composition	Flame-retarded EPDM elastomeric foam	Flame-retarded NBR/PVC elastomeric foam	-
	with polyethylene film jacket	with polyethylene film jacket	
Thermal Conductivity (Btu-in/hr-Ft²_°F) 75°F (24°C) Mean Temp	0.263	0.245	ASTM C177
Density	3-6 lb/ft ³	3-6 lb/ft ³	ASTM D1667
Operating Temperature Range	-70°F* (-57°C) to +300°F (+150°C)	-70°F* (-57°C) to +220°F (+104°C)	ASTM C534
Water Vapor Permeability (Dry Cup) (Core Material Only)	0.2 perm-in	<0.01 perm-in	ASTM E96
Flame Spread / Smoke Development (up to 1" wall)	25 / 450	25 / 450	ASTM E84 - Class A
Dimensional Stability	<7% Linear Shrinkage	<7% Linear Shrinkage	ASTM C534
Corrosion Risk	pH neutral	pH neutral	DIN 1988
Leachable Chlorides	<30 ppm (EN 13468)	<0.05% water soluable chloride ions (DIN 1988)	Product Specific
UV Resistance (Artificial Aging) (Jacket Material)	Pass: Surface Remains without brilliance	Pass: Surface Remains without brilliance	EN 13859-1

*For applications below -40°F (-40°C), contact K-FLEX technical support.

THICKNESS RECOMMENDATIONS									
	TO PREVENT CONDENSATION		FOR ENERGY CONSERVATION (ASHRAE 90.1-2010)						
SERVICE TEMPERATURE	50°F (10℃)	-20°F (-29°C)	105°F - 139°F (40°C - 59℃)						
3/8" ID to 1-1/2" IPS	1/2"	1"	1"						
1-1/2" IPS to 2-7/8" IPS	1/2"	1"	1"						

Thickness listed for the specified ranges will prevent condensation on indoor piping under the defined design conditions. Normal: 85°F and 70% R.H.

PIPE "R" VALUES PER SQUARE FOOT (ALL SIZES ARE NOMINAL)									
NOMINAL INSULATION I.D.	1/2" WALL		3/4" WALL		1" WALL				
	HT	Insul-Tube	HT	Insul-Tube	HT	Insul-Tube			
1/2"	3.1	3.4	5.0	5.4	7.4	7.9			
5/8"	3.1	3.3	5.1	5.4	7.0	7.5			
3/4"	2.9	3.1	5.0	5.4	7.0	7.5			
7/8"	3.0	3.2	5.1	5.4	6.7	7.2			
1-1/8"	2.9	3.1	5.1	5.5	6.6	7.1			
1-3/8"	2.9	3.2	4.9	5.3	6.8	7.3			
1-5/8"	2.9	3.1	4.8	5.1	6.6	7.1			
1-1/2" IPS	2.8	2.6	4.6	4.4					
2-1/8"	2.8	3.0	4.5	4.9					
2" IPS	2.7	2.9	4.5	4.8					
2-1/2" IPS	2.8	3.0							
2-5/8"	2.9	3.1							

