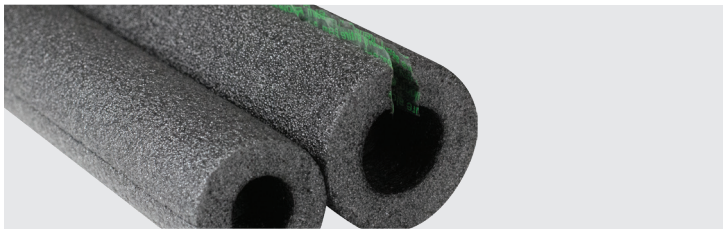
K-FLEX® PE

SEMI SLIT SEAM SEAL



DESCRIPTION

K-FLEX® PE is a polyethylene based closed cell, flexible foam insulation meeting the requirements of ASTM C1427. It is environmentally-friendly as it is free of CFCs, HFCs, HCFCs, PBDEs, formaldehyde and fibers. K-FLEX® PE contains no halogens. The product is made in K-FLEX® USA's ISO 90001:2008-certified manufacturing facility in North Carolina. K-FLEX® PE has excellent thermal, physical, and chemical resistance properties as exhibited by its low thermal conductivity and low water absorption and water vapor permeability values.

AVAILABILITY

K-FLEX® PE is black in color and is available in both semi-slit and seam-seal 6' lengths in wall thickness of 3/8", 1/2", 3/4" and 1" and diameter sizes ranging from 3/8" ID to 4-1/2" ID. The self-seal version is quick and easy to install.

APPLICATIONS

K-FLEX® PE is recommended for applications with service temperatures ranging from -200°F (-129°C) to +200°F (93°C). The product is used to retard heat gain or loss and prevent condensation on below-ambient applications including cold water plumbing, chilled water, and industrial process lines, among others. It also can be used to prolong the time to freezing and can be used with heat tracing tapes. It also retards heat loss from medium hot systems, including hot water plumbing. K-FLEX® PE is used in both residential and commercial applications.

INSTALLATION

K-FLEX® PE is flexible (even at low temperatures), durable (non-fracturing and skin is resistant to tearing from handling and environment), safe to handle (non-dusting and non-abrasive) and lightweight for an efficient installation. K-FLEX® recommends that insulation be installed on nonoperational systems with clean, dry surfaces in ambient conditions between 40°F and 110°F. Properly sized tubing can be slid over piping and copper fittings or can be applied to existing lines using the seam-seal product. All butt joints, termination points, and open ends should be sealed with an approved contact adhesives, i.e. K-FLEX® 320, 620, 720, or 1120 depending on the requirements of the application, making sure both surfaces to be joined are coated. Longitudinal seams should faced downward and vapor stops should be installed as needed. Fittings (elbows, tees, and p-traps) and special parts (flanges, valves, etc) can be field-fabricated from insulation tubes and sheet. ASTM C1710, Installation Guide for Flexible Closed Cell Foams, and the K-FLEX® Installation Manual should be used as comprehensive installation guides.

OUTDOOR APPLICATION

K-FLEX® PE is designed for indoor or outdoor use. For UV exposure (rooftop applications) K-FLEX® PE must be protected with an approved coating or jacketed. Installation of outdoor insulation shall comply with all applicable state and local code requirements. Coating (where coatings are allowed) or jacketing of K-FLEX® PE should be done immediately after installation to minimize the possibility of melting due to concentrated light that can occur in the vicinity of reflective surfaces. Contact K-FLEX® USA Technical Support for coating recommendations.

UNDERGROUND APPLICATION

K-FLEX® PE is acceptable for use in buried applications when installed above the water table. Below the water table, lines must be encased in a conduit to protect them from problems associated with ground water intrusion and compaction. Refer to K-FLEX® technical support.

RESISTANCE TO MOISTURE VAPOR

The closed cell structure and unique formulation inherently resists moisture vapor intrusion. For most indoor applications, K-FLEX® PE needs no additional protection. Additional vapor barrier protection may be necessary when installed on cold systems located in high humidity environments.

FLAME AND SMOKE RATING

K-FLEX® PE in wall thicknesses of 1" (25mm) and below has a flame spread rating of 25 or less and a smoke development rating of 50 or less when tested per ASTM E84, "Surface Burning Characteristics of Building Materials". 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 specified limits.

SPECIFICATION COMPLIANCE

- ASTM C1427 Type I Pipe, Type II Sheet (Specification for Extruded Preformed Flexible Cellular Polyolefin Thermal Insulation in Sheet and Tubular Form.)
- ASTM E84 25/50 rated (to 1") – tested according to UL 723. NFPA 255 NFPA 90A/B – Acceptable for plenum applications
- UL 94 HF-1 Flammability Classification (#E300774)
- UL Greenguard Gold Certified (#116441-420)
- Contains no halogens
- Fiber Free
- Non-dusting

The K-FLEX® USA website contains the most recent version of all K-FLEX® USA literature.
Please refer to the website for current versions of K-FLEX® USA literature at **www.kflexusa.com**

Made in USA

K-FLEX® PE ▸ TECHNICAL DATA

Physical properties	K-FLEX® PE	Test methods	Required	Pass/Fail
Nominal Density, pcf	1.5 +/- 0.5	ASTM D1622		
Specification		ASTM C1427, Type I, Type II		
*Upper Use Limit, °F (°C)	200 (93)	ASTM C411	200 (93)	Pass
Lower Use Limit, °F (°C)	-200 (-129)		-150 (-101)	Pass
Thermal Conductivity, Btu·in./hr·ft² °F (W/(m·K)) 75°F (24°C) Mean Temp 100°F (38°C) Mean Temp 120°F (49°C) Mean Temp	 .27 (.039) 0.28 (0.040) .295 (.042)	ASTM C177 OR C518	 <0.35 (.050) <0.36 (0.051) <0.37 (.053)	 Pass Pass Pass
Water Vapor Permeability	<0.05	ASTM E96	0.05 max	Pass
Water Absorption Max %	<0.20	ASTM C209	% by volume (0.20 max)	Pass
Linear Shrinkage at Max Use Temp (200°F)	-1.2%	ASTM C1427	% change (2.0 max)	Pass
** Flame/Smoke Rating (max)* Up to and including 1" Thickness	25/50	ASTM E84	25/50	Pass
VOC Content	< 0,22 mg/m³	CDPH Standard Method v 1.2	< 0,5 mg/m³	Pass
Microbial Resistance	Excellent	ASTM G21	No Growth	Pass
Fungi Resistance	Excellent	UL 181	No Growth	Pass
Odor Emission	None	ASTM C1304	None	Pass
Corrosion Resistance (Steel, Copper, AL)	None	ASTM C665	None	Pass
Ozone Resistance (50 mPa)	No Cracks	ASTM D1171	No Cracks	Pass

* Meets the requirements of NFPA 90A/90B when tested at 250°F (125°C)
** Numerical flammability ratings alone may not define the performance of products under actual fire conditions. They are provided only for the use in the selection of products

K-FLEX® PE ▸ THICKNESS RECOMMENDATIONS - TO PREVENT CONDENSATION

SERVICE TEMPERATURE	50°F (10°C)			35°F (2°C)			0°F (-18°C)			-20°F (-29°C)		
Pipe Size	Mild	Normal	Severe	Mild	Normal	Severe	Mild	Normal	Severe	Mild	Normal	Severe
3/8" ID to 1-1/8 ID	3/8"	3/8"	3/4"	3/8"	1/2"	3/4"	1/2"	3/4"	–	1/2"	1"	–
1-3/8 ID to 4-1/2" ID	3/8"	3/8"	3/4"	3/8"	3/4"	1"	1/2"	1"	–	3/4"	–	–

Thickness listed for the specified ranges will prevent condensation on indoor piping under the defined design conditions. Normal 85°F and 70% R.H. Mild: Most air conditioned spaces and arid climates: 80°F and 50% R.H. Severe: Areas where excessive moisture is introduced or in poorly ventilated areas where the temperature may be depressed below the ambient: 90°F and 80% R.H. Contact K-FLEX® Technical Support for additional information.

RANGE

Wall Thickness (nominal)	3/8", 1/2", 3/4", and 1" - (10, 13, 19 and 25 mm)
Inside Diameter, Tubular Form	3/8" - 4-1/2" ID - (10 mm ID to 114 mm ID)
Length of Sections, Tubular Form	6' (1.83m)

K-FLEX® PE ▸ "R" VALUES

Nominal insulation I.D.	Copper tube size (nom. I.D. plumbing)	Copper tube size (O.D. HVAC/R)	IPS nominal	3/8"	1/2"	3/4"	1"
3/8"	1/4"	3/8"	1/8"	2.6	3.5	5.5	8.4
1/2"	3/8"	1/2"	1/4"	2.5	3.3	5.2	7.9
5/8"	1/2"	5/8"	3/8"	2.9	3.2	5.3	7.4
3/4"	5/8"	3/4"	1/2"	2.3	3.0	5.3	7.3
7/8"	3/4"	7/8"	–	2.2	3.1	5.3	7.0
1"	–	–	3/4"	2.2	3.1	5.2	7.2
1-1/8"	1"	1-1/8"	–	2.2	3.0	5.4	6.9
1-1/4"	1-1/8"	1-1/4"	–	2.2	3.2	5.3	6.8
1-3/8"	1-1/4"	1-3/8"	1"	2.1	3.1	5.1	7.2
1-5/8"	1-1/2"	1-5/8"	1-1/4"	2.4	3.0	5.0	6.9
2"	–	–	1-1/2"	2.3	2.9	4.8	6.6
2-1/8"	2"	2-1/8"	–	2.3	2.9	4.8	6.5
2-3/8"	–	–	2"	2.3	2.9	4.7	6.4
2-5/8"	2-1/2"	2-5/8"	–	2.2	3.0	4.6	6.2
2-7/8"	–	–	2-1/2"	2.2	3.0	4.5	6.1
3-1/8"	3"	3-1/8"	–	2.2	3.0	4.5	6.1
3-1/2"	–	–	3"	2.3	3.0	4.5	6.0
3-5/8"	3-1/2"	3-5/8"	–	2.3	3.1	4.5	6.0
4-1/8"	4"	4-1/8"	–	2.2	3.1	4.5	5.8
4-1/2"	–	–	4"	2.3	3.1	4.6	5.9

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