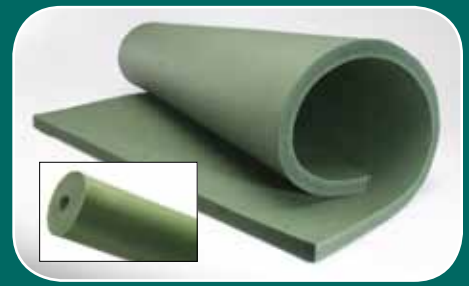


K-FLEX ECO™

Flexible, Closed-Cell Halogen-Free Insulation
Tubes, Sheets, Fittings



DESCRIPTION

K-FLEX ECO™ is a halogen-free, closed-cell elastomeric insulation. It is green in color and is available in tube, sheet (with or without PSA), and fitting form. Tube sizes range from 3/8" inside diameter to 8" iron pipe size, in 1/2", 3/4" and 1" wall thickness. Sheets and rolls are available in 1/2", 3/4" and 1" thickness. The fittings range from 3/8" to 6-5/8" inside diameter in 1/2", 3/4" and 1" wall thickness. K-FLEX ECO™ does not contain carbon black in accordance with *United States Navy Environmental Department* standards. Additionally, K-FLEX ECO™ does not contain fibers, PVC, or CFCs.

APPLICATIONS

K-FLEX ECO™ was developed for applications where corrosive smoke and environmental issues (toxicity) are critical. It is suitable for piping, vessels, and duct work on United States Naval Ships, the general maritime industry, and other industrial applications. K-FLEX ECO™ is certified to *Electric Boat Corporation Specification EB 4013* and meets the requirements specified by the *International Maritime Organization*, meeting IMO specifications per the SOLAS Agreement.

K-FLEX ECO™ is used to insulate piping up to 300°F (1" thickness minimum). It can be used as an alternative to low-temperature fiberglass, calcium silicate and polyimide insulation. K-FLEX ECO™ can be used on dual temperature piping systems and 50 lb. steam lines with design temperatures up to 300°F (1" thickness minimum). Used under these conditions, a thin layer of discolored hardened material in the inner wall will form. This constitutes a normal reaction and does not in any way adversely affect the insulation

properties of the foam.

K-FLEX ECO™ is also used on cruise ships and other commercial vessels. It is suitable for use in industrial and commercial areas as well, including clean rooms and food / beverage manufacturing facilities where a fiber-free environment is specified.

K-FLEX ECO™ is well-suited for stainless steel applications as it does not contain halogens that are known to contribute to corrosion problems.

INSTALLATION

K-FLEX ECO™ is applied following the guidelines used for all K-FLEX USA elastomeric insulation products. Tubing slides easily over piping, or for existing lines, tubing is slit lengthwise and sealed into place. All seams and joints should be sealed with an approved contact adhesive. K-FLEX® 720 LVOC Contact Adhesive is a halogen-free contact adhesive suitable for use with K-FLEX ECO™.

When K-FLEX ECO™ is applied to vessels and duct work, use 100% coverage of an approved contact adhesive. Both surfaces to be joined should be coated and then joined after the adhesive is dry to the touch. Compression joints with adhesive



applied should be used on all butt edges. For detailed installation procedures, reference the K-FLEX USA Insulation Installation Guide.

OUTDOOR APPLICATIONS

K-FLEX ECO™ is made from a UV-resistant elastomeric blend. For severe UV exposure or for optimum performance, K-FLEX® 374 Protective Coating, approved jacketing or K-FLEX Clad® is required.

RESISTANCE TO MOISTURE VAPOR FLOW

The closed-cell structure and unique formulation of K-FLEX ECO™ effectively retards the flow of moisture vapor, and is considered a diffusion resistant insulation. For most applications, K-FLEX ECO™ requires no additional protection. Additional vapor barrier protection may be necessary for K-FLEX ECO™ when installed on low temperature surfaces in combination with continuous high humidity conditions.

SPECIFICATION COMPLIANCE

- ASTM C534 Type 1 (Tubing), Grade 3
- ASTM C534 Type 2 (Sheet), Grade 3 US Navy EB4013
- IMO SOLAS Approved
- Lloyd's Certified
- ASTM E 84 25/50-rated flame/smoke rated up to 3/4" wall thickness
- UL 94 V-0, 5VA Flammability Classification (Recognition # E300774)
- ASTM C 795



PHYSICAL PROPERTIES

ATTRIBUTES	K-FLEX ECO™		TEST METHODS
THERMAL CONDUCTIVITY (K) BTU/HR/SQ FT/°F/IN (W/MK)	90°F (32°C) Mean Temp 75°F (24°C) Mean Temp 50°F (10°C) Mean Temp	0.282 (.041) 0.270 (.039) 0.263 (.038)	ASTM C-177 ASTM C-177 ASTM C-177
Operating Temperature Range Upper (1" thickness minimum) Lower	300°F (200°F with PSA or Seam-Seal) -297°F (-70°F with PSA or Seam-Seal)		
Density	4.5 lbs/cu. Ft.		ASTM D-1056
Optical Smoke Density	<150		ASTM E-662
Water Vapor Permeability	0.03 perm-in		ASTM E-96
Toxicity	Halogen/Dioxin/CFC Free		EB 4013
Flexibility	Excellent		EB 4013
Meets IMO (International Maritime Organization) SOLAS Agreement	Yes		MSC 61 (67), A 653
Lloyd's Certified	Yes		SOLAS Agreement (IMO)
Flame and Smoke	Meets U.S. Navy Standard for Shipboard Approved by US Navy (BBN) for up to 50 lbs. steam use 25/50-rated up to 3/4"		EB 4013 ASTM E 84
Use on austenitic stainless steel	Cl (<.001%); F (<.001%); Na (<.005%); Si (<.005%)		ASTM C 795

PIPE "R" VALUES PER SQUARE FOOT

NOMINAL INSULATION I.D.	1/2" WALL	3/4" WALL	1" WALL
3/8"	3.2	5.0	7.6
1/2"	2.9	4.7	7.0
5/8"	2.7	4.6	6.5
3/4"	2.5	4.6	6.4
7/8"	2.6	4.6	6.2
1-1/8"	2.5	4.7	6.1
1-3/8"	2.6	4.5	5.8
1-5/8"	2.5	4.3	5.5
1-1/2" IPS	--	3.8	5.0
2-1/8"	1.8	4.1	5.2
2" IPS	1.7	4.2	5.3
2-1/2" IPS	1.5	4.1	5.1
2-5/8"	--	4.2	5.8
3" IPS	1.3	4.4	5.4
3-1/2" IPS	1.9	4.0	4.9
4" IPS	1.5	3.9	4.7
5" IPS	2.6	3.8	4.9
6" IPS	2.6	3.8	4.8
8" IPS	2.5	3.7	4.7

Note: "R" factors were calculated using a K factor of 0.27 (at 75°F, 24°C mean temp.) and nominal wall thickness in each case. Lower operating temperatures will result in improved R values. Contact Technical Services for specific recommendations.