

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, 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 (1-1/2" skin-2-side). 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 hot 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 50 lb. steam lines with design temperatures up to 300°F (1" thickness minimum). Used under these conditions a comparable 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 since it does not contain no 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.

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 agreement
- ABS & Lloyd's Certified
- ASTM E 84 25/50-rated flame/smoke rated up to 3/8" wall thickness
- UL 94 V-0, 5VA Flammability Classification (Recognition # E300774)



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 Seam-Seal) -297°F (-70°F with Seam-Seal)	
Density		4.5 lbs/cu. Ft.	ASTM D-1056
Optical Smoke Density		<150	ASTM E-662
Water Vapor Permeability		Excellent (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
ABS (American Bureau of Shipping) and 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 3/8"	EB 4013 ASTM E 84
*Operating Temperature			

