

## HIGH TEMPERATURE USE LIMITS FOR K-FLEX ELASTOMERIC INSULATION

**K-Flex USA** elastomeric insulation materials are flexible closed cell insulation materials designed to retard heat flow and prevent condensation when properly installed.

High temperature use limits for NBR/PVC based products such as K-Flex Insul-Tube, Insul-Sheet and K-Flex Duct Liner Gray are 220°F for tube and sheet when applied with contact adhesive, and 200°F for PSA self-seal tubular or sheet products.

K-Flex ECO is a flexible, closed-cell, non-halogenated, NBR based elastomeric insulation material available in tube and sheet form. The high temperature use limits for K-Flex ECO are 250°F when applied with contact adhesive and 200°F for PSA self-seal tubular or sheet products. K-Flex ECO is ASTM E84 25/50 rated up to ¾" wall or sheet thickness.

K-Flex HT is a flexible, closed-cell EPDM based elastomeric insulation material available in tube and sheet form. The high temperature use limits for K-Flex HT are 300°F when applied with contact adhesive and 200°F for PSA self-seal tubular or sheet products. K-Flex HT is ASTM E84 25/50 rated up to 1" wall or sheet thickness.

Elastomeric materials are termed thermoset. Thermoset materials have a gradual failure mode related to the temperature and time of exposure. These products gradually begin to lose their elasticity and become harder. Their high temperature service limit is based on past application performance. Brief temperature spikes above their recommended use temperature will not result in catastrophic failure. This hardening occurs on the heat side of the insulation and will not affect the thermal performance of the insulation.

In contrast, some insulation materials are termed thermoplastic and begin to soften as they reach their high temperature service limit. Their high temperature service limit is based on the melting point of the specific resin. When this temperature is reached, even for a very short period of time, the product melts, resulting in a catastrophic failure. Thermoplastic materials such as polyethylene, expanded polystyrene and extruded polystyrene are very susceptible to brief periods or spikes of temperatures above their recommended use limit.

In applications where high temperatures (spikes) may occur, elastomeric insulation should be used, i.e., some hot water heating systems (including solar) and systems with hot gas defrost cycles. For applications above 220°F, K-Flex ECO or K-Flex HT elastomeric insulation, with maximum operating temperatures of 250 and 300°F, respectively can be used, subject to compliance with applicable code requirements.