Effects of Operating Temperature on K-FLEX PE Polyethylene Insulation

K-Flex PE closed cell flexible insulation is an extruded polyethylene that is expanded with isobutane. K-Flex PE is a non-cross linked thermoplastic material. General recommended use temperature ranges are published as -200°F to +200°F. K-Flex PE is susceptible to physical property changes when exposed to extreme temperatures, but these changes do not affect the thermal performance of the product.

When the products are exposed to low temperatures, they become stiff and eventually rigid as the temperature falls below -40°F. This change in state does not affect the thermal performance of the product. The material will also shrink based on its coefficient of linear thermal expansion (COLTE). These physical property changes are reversible as the ambient temperature increases.

When K-Flex PE is exposed to elevated temperatures, there may be some initial shrinkage due to relaxing of the tension placed on the material during the manufacturing process. For this reason, it is recommended that K-Flex PE be installed under slight compression to compensate for this initial shrinkage. K-Flex PE may also exhibit increased compression at pipe supports as any thermoplastic material will soften at elevated temperatures. K-Flex PE should be properly supported to prevent insulation compression in clamps and saddles. If the insulation thickness is reduced due to compression, the R-value will be reduced proportionately. K-Flex PE will also expand based on its COLTE after the one time shrinkage has occurred.