

TECHNICAL UPDATE - TU-6013

SUBJECT: Effects of High Temperature on Unitherm Thermal Insulation

Products insulated with fibrous glass thermal insulation are occasionally used at temperatures above the normal 400°F rating given most preinsulated products. There has been concern voiced over the effect of the increased temperature on the viability of this insulation.

Our fibrous glass thermal insulation material is fabricated from high temperature chopped borosilicate fiber strands. These strands are formed into a glass “paper” and held together with organic binders.

The binder will begin to turn brown as the core temperature approaches 400°F. The insulation will darken as heating continues, until all of the binder is pyrolyzed. It will then return to its normal white color, but will be free of any binder.

The only purpose of the binder is to hold the glass fibers together during processing.

They have no thermal insulation properties of their own, in fact the insulation properties of the glass improves slightly when the binder is eliminated.

The loss of the binder also has little effect on the mechanical integrity of the insulation. Testing has shown that the insulation is still intact after aging at high temperatures. It did not fall apart or clump and did not pour out of the end of the bundle when the bundle was cut. It still provided the support and spacing necessary to maintain insulating properties.

The maximum continuous operating temperature of the fibrous glass material used in this insulation is about 1300°F (704°C). Dekoron - Unitherm restricts the use of this material to temperatures of 1100°F (593°C) or less.

Bundles using this insulation have been in continuous service operating at 1000°F (538°C) and greater for years with no reduction in properties