

APPLICATION SHEET

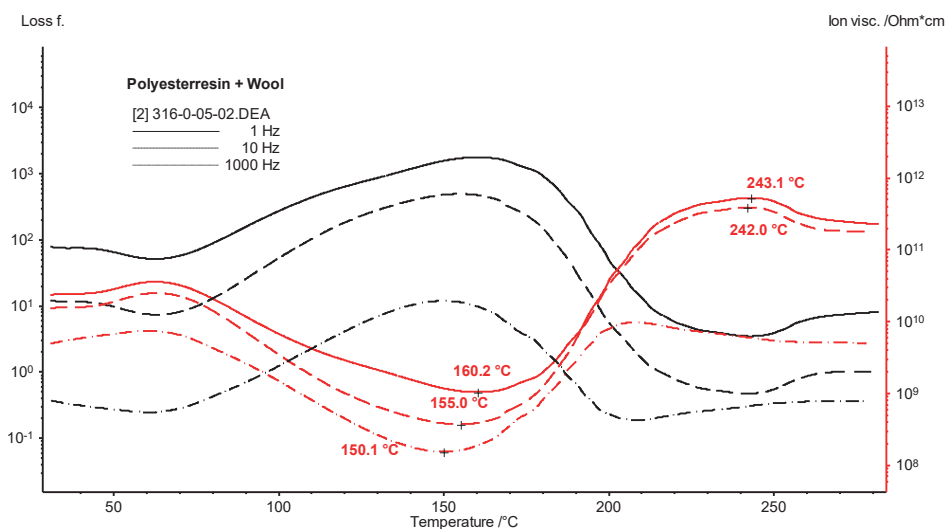
Organics · Building Materials
DEA 288 Ionic

Polyester Resin on Mineral Wool

Introduction

Mineral wool means fibers made of minerals or metal oxides. This includes fiberglass, ceramic fibers and also rockwool, also known as stone wool or rock wool. Mineral wool is an inorganic substance used for insulation and filtering. A common mistake is to believe that fiberglass and ceramic fibers are NOT mineral wools, but they are by virtue of their consisting of minerals or metal oxides. Mineral

(rock) wool is a product of molten rock, produced at a temperature of approx. 1600°C by blowing steam or air through the melt. More high-tech production techniques are based on spinning molten rock (lava) on high-speed spinning wheels. For insulation applications, the fibers are generally bonded together with a resin to form a block of material with more or less well defined dimensions and with reduced release of fiber dust.



Test Conditions

Temperature range: 25°C ... 275°C
Heating rates: 5 K/min
Atmosphere: Air, static
Sensor: IDEX
Frequencies: 1 ... 1000 Hz

Test Results

For the DEA measurement, an IDEX sensor was pressed on the mineral wool infiltrated with the uncured resin.

Presented in the figure is the logarithm of the ion viscosity and loss factor of the polyester resin on the wool versus temperature. During heating, the ion viscosity decreases above approximately 60°C and the loss factor increases in the same temperature range. A possible explanation for this could be softening of the dried resin. Above 150°C to 160°C (depending on the test frequency), the ion viscosity increases up to approximately 242°C. This indicates a decrease in ion mobility and therefore, the curing process of the resin. Above 242°C, the curing process was finished and only slight decreases in the ion viscosity can be seen.