

QUARTZ

Typical electrical property values for clear fused quartz include:

Electrical Resistance: 0.7×10^9 ohm-cm at 350oC

Dielectric Loss Factor: Less than 0.0004 at 20oC, 1 MHz

Dielectric Constant: 3.75 at 20oC, 1 MHz

Specific Resistivity: 10^{18} ohm/cm³ at 20oC

Dissipation Factor: Less than 0.0001 at 20oC. 1 MHz

One of the most important properties of fused quartz is its extremely low coefficient of expansion: 5.5×10^{-7} mm °C (20-320oC). Its coefficient is 1/34 that of copper and only 1/7 of borosilicate glass. This makes the material particularly useful for optical flats, mirrors, furnace windows and optical applications which require minimum sensitivity to thermal changes.

Mechanical properties of fused quartz are much the same as those of other glasses. The material is extremely strong in compression, with design compressive strength of better than 1.1×10^9 Pa (160,000 psi).