SEALED OPTICS

Infrasil (IR grade fused silica)

Optical

Transmission Range :	250 nm to 3.5 µm
Refractive Index :	1.47012 at 400 nm
Reflection Loss :	7.0% at 400 nm (Losses from two surfaces)
Absorption Coefficient :	10×10^{-6} cm^{-1} at 1 µm

Physical

Density :	2.203 g/cm^3
Melting Point :	1600 °C
Thermal Conductivity :	1.38 W m^{-1} K^{-1}
Linear CTE :	5.5×10^{-7} /°C @ RT
Specific Heat Capacity :	703 J Kg^{-1} K^{-1}

Mechanical

Youngs Modulus (E) :	73.1 GPa
Shear Modulus (G) :	31.2 GPa
Bulk Modulus (K) :	36.7 GPa
Rupture Modulus :	55 Mpa
Hardness :	500 Knoop (200g indenter)
Poisson Ratio :	0.17

Chemical

Chemical Formula	SiO_2 amorphous
Solubility :	Insoluble in H_2O
Molecular Weight :	28.09 g/mole

Notes

Fused Silica is hard with very low expansion.
Fused silica is isotropic.
Normal grades of Fused Silica contain water which gives it strong absorption in the IR. Infrasil(tm) is post processed to remove water.