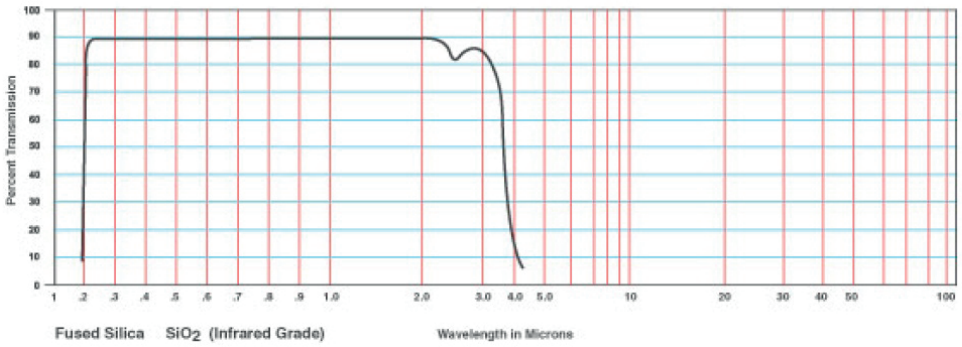
Optical material / crystals (Infrared)

Material / Specification: Quartz Crystal for 0.12µm to 7µm transmission
Range / Description: OPMI-QUARTZ CRYSTAL

Crystalline Quartz is used as a wave retardation medium. Its properties are of use in quarter-wave plates and in polarisers. Quartz is tough but should not be processed or used at temperatures greater than 490 °C

Internal Transmittance



Refractive Index n vs. Wavelength λ *no=Ordinary ne=extraordinary*																
λ, MKM	0.20	0.25	0.30	0.40	0.50	0.64	1.00	1.20	1.40	1.60	1.80	2.50	3.00	—-	—-	—-
no	1.64	1.60	1.57	1.55	1.54	1.54	1.53	1.53	1.52	1.52	1.52	1.51	1.49	—-	—-	—-
ne	1.66	1.61	1.58	1.56	1.55	1.55	1.54	1.54	1.53	1.53	1.53	1.51	1.50	—-	—-	—-

Optical Properties	
Transmission Range	0.4 to 3 ìm (also >40ìm)
Refractive Index	No 1.54421; Ne 1.55333 at
Refractive Loss	8.8% at 0.6 ìm
Crystal/Class Structure	Trigonal (hex)
Cleavage Plane	n/a

Thermal Properties	
Thermal Expansion	7.1 (para) 13.2 (perp) x 10^{-6}/°C
Thermal Conductivity	10.7 (para) 6.2 (perp) W m^{-1} K^{-1} at 323 K
Melting Point	1467 °C
Specific Heat Capacity	710 J Kg^{-1} K^{-1}

Mechanical Properties	
Density	2.649 g/cc
Hardness (Knoop)	741 with 500g indenter
Youngs Modulus	97.2 (para) 76.5 (perp) GPa
Shear Modulus	31.14 GPa
Bulk Modulus	36.4 GPa
Poisson Ratio	n/a
Elastic Limit	n/a
Molecular Weight	60.06

Chemical Properties	
Solubility	Insoluble in water