

# QUARTZ CRYSTALLINE SiO2

## Crystallographic SiO2 ( Quartz Crystalline )

Syngony	Hexagonal
Symmetry Class	P3 <sub>2</sub> 21
Lattice Constants, Angstroms	a=4.9138 c=5.4052

## Optical SiO2 ( Quartz Crystalline )

Refractive Index at n <sub>0.436</sub>	n <sub>o</sub>	1.5538
	n <sub>e</sub>	1.5632
Thermal Coefficient of Refractive Index at l=340 nm, °C <sup>-1</sup> for +20,+100°C	n <sub>o</sub>	-5.01• 10 <sup>-6</sup>
	n <sub>e</sub>	-3.93• 10 <sup>-6</sup>
Transmission Range, microns (thickness 10mm)	0.15,3.3	
Transmittance t <sub>i</sub> (l) vs. wavelength l	Quartz Crystalline	

Refractive Index n vs. wavelength l SiO2 ( Quartz Crystalline )		
l, MKM	n(l)	
	n <sub>o</sub>	n <sub>e</sub>
0.2001	1.6493	1.6623
0.2503	1.6003	1.6114
0.3034	1.5770	1.5872
0.4047	1.5572	1.5667
0.5086	1.5482	1.5575
0.6438	1.5423	1.5513
1.0000	1.5350	1.5438
1.2000	1.5323	1.5410
1.4000	1.5297	1.5383
1.6000	1.5270	1.5355
1.8000	1.5241	1.5324
2.5000	1.5116	1.5195
3.0000	1.4996	1.5070

## Thermal SiO2 ( Quartz Crystalline )

Thermal Linear Expansion a <sub>t</sub> , °C <sup>-1</sup> for 0,+20°C	13.24• 10 <sup>-6</sup>	
Thermal Conductivity, W/(m •°C) at 25 °C	n <sub>o</sub>	6.82
	n <sub>e</sub>	11.43
Specific Heat Capacity, J/(kg •°C) for 25 °C	741	
Melting Point, °C	1470	

## Mechanical SiO2 ( Quartz Crystalline )

Density, g/cm <sup>3</sup> at 20 °C	2.649	
Mohs Hardness	7	
Vickers Microhardness , Pa	981• 10 <sup>7</sup>	
Young Modulus (E), Pa	n <sub>o</sub>	8.7• 10 <sup>10</sup>
	n <sub>e</sub>	10.5• 10 <sup>10</sup>

## Chemical SiO2 ( Quartz Crystalline )

Solubility
in water at 20 °C
g/100cm <sup>3</sup>
insoluble