

## QUARTZ (JGS2)

JGS2 is a synthetic fused silica manufactured using a patented, environmentally friendly process that results in a virtually Chlorine-free material of exceptional purity which is bubble and fluorescence free

### TYPICAL PROPERTIES

Transmission Range (Medium transmission ratio)	0.26~2.10um (Tavg>85%)
OH- Content	150 ppm
Fluorescence (ex 254nm)	Strong v-b
Impurity Content	20-40 ppm
Birefringence Constant	4-6 nm/cm
Melting Method	Oxy-hydrogen melting
Density	2.20g/cm <sup>3</sup>
Abbe Constant	67.6
Refractive Index (nd) at 588nm	1.4586
Hardness	5.5 - 6.5 Mohs' Scale 570 KHN 100
Design Tensile Strength	4.8x10 <sup>7</sup> Pa (N/mm <sup>2</sup> ) (7000 psi)
Design Compressive Strength	>1.1x10 <sup>9</sup> Pa (160,000 psi)
Bulk Modulus	3.7x10 <sup>10</sup> Pa (5.3x10 <sup>6</sup> psi)
Rigidity Modulus	3.1x10 <sup>10</sup> Pa (4.5x10 <sup>6</sup> psi)
Young's Modulus	7.2x10 <sup>10</sup> Pa (10.5x10 <sup>6</sup> psi)
Poisson's Ratio	0.17
Thermal Expansion	5.5x10 <sup>-7</sup> cm/cm.°C (20°C-320°C)
Thermal Conductivity	1.4 W/m.°C
Specific Heat	670 J/kg.°C
Softening Point	1683°C
Annealing Point	1215°C
Strain Point	1120°C
Electrical Receptivity	7x10 <sup>7</sup> ohm.cm (350°C)
Dielectric Properties (20°C and 1 MHz)	
Constant	3.75
Strength	5x10 <sup>7</sup> V/m
Loss Factor	< 4x10 <sup>-4</sup>
Dissipation Factor	< 1x10 <sup>-4</sup>
Velocity of Sound-Shear Wave	3.75x10 <sup>3</sup> m/s
Velocity of Sound/Compression Wave	5.90x10 <sup>3</sup> m/s
Sonic Attenuation	< 11 db/m MHz
Permeability Constants (cm <sup>3</sup> mm/cm <sup>2</sup> sec cm of Hg) (700°C)	
Helium 210x10 <sup>-10</sup>	Hydrogen 21x10 <sup>-10</sup>
Deuterium 17x10 <sup>-10</sup>	Neon 9.5x10 <sup>-17</sup>
Chemical Stability (except hydrofluoric)	High resistance to water and acids



