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Properties of Fused Silica JGS1

Properties	Value
Transmission Range (Medium transmission ratio)	0.17 ~ 2.10 um (Tavg >90%)
OH- Content	1200 ppm
Fluorescence (ex 254nm)	Virtually Free
Impurity Content	5 ppm
Birefringence Constant	2 - 4 nm/cm
Melting Method	Synthetic CVD
Density	2.20 g/cm^3
Abbe Constant	67.6
Refractive Index (nd) at 588nm	1.4586
Hardness	5.5 - 6.5 Mohs' Scale 570 KHN 100
Design Tensile Strength	4.8 × 10^7 Pa (N/mm^2) (7000 psi)
Design Compressive Strength	Greater than 1.1 × 109 Pa (160,000 psi)
Bulk Modulus	3.7 × 10^{10} Pa (5.3 × 106 psi)
Rigidity Modulus	3.1 × 10^{10} Pa (4.5 × 106 psi)
Young's Modulus	7.2 × 10^{-10} Pa (10.5 × 106 psi)
Poisson's Ratio	0.17
Coefficient of Thermal Expansion	5.5 × 10^{-7} 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	7 × 10^7 ohm.cm (350 °C)
Dielectric Properties (20°C and 1 MHz) Constant Strength Loss Factor Dissipation Factor	3.75 5 × 10^7 V/m Less than 4 × 10^{-4} Less than 1 × 10^{-4}
Velocity of Sound-Shear Wave	3.75 × 10^3 m/s
Velocity of Sound/Compression Wave	5.90 × 10^3 m/s
Sonic Attenuation	Less than 11 db/m MHz
Permeability Constants (cm^{3}mm/cm^2 sec cm of Hg) Helium Hydrogen Deuterium Neon	(700 °C) 210 × 10^{-10} 21 × 10^{-10} 17 × 10^{-10} 9.5 × 10^{-17}
Chemical Stability (except hydrofluoric)	High resistance to water and acids

Wavelength (um)	Refractive Index (n)	Wavelength (um)	Refractive Index (n)
0.2	1.55051	1	1.45042
0.22	1.52845	1.064	1.44962
0.25	1.50745	1.1	1.4492

0.3	1.48779	1.2	1.44805
0.32	1.48274	1.3	1.44692
0.36	1.47529	1.5	1.44462
0.4	1.47012	1.6	1.44342
0.45	1.46557	1.7	1.44217
0.488	1.46302	1.8	1.44087
0.5	1.46233	1.9	1.43951
0.55	1.46008	2	1.43809
0.588	1.4586	2.2	1.43501
0.6	1.45804	2.4	1.43163
0.633	1.45702	2.6	1.42789
0.65	1.45653	2.8	1.42377
0.7	1.45529	3	1.41925
0.75	1.45424	3.2	1.41427
0.8	1.45332	3.37	1.4099
0.85	1.4525	3.507	1.40566
0.9	1.45175	3.707	1.39936

