

FUSED SILICA QUARTZ SPECIFICATIONS FOR QUARTZ PLATES

Measured at 20°C Unless Otherwise Noted

OZ INGOT AVERAGE IMPURITY CONTENTS

Elements	PPM by Wt.	MAX
Aluminum (Al)	40	53
Calcium (Ca)	2.5	3.5
Copper (Cu)	0.50	0.08
Hydroxyl (OH)	150	180
Iron (Fe)	0.9	1.2
Lithium (Li)	0.06	0.08
Magnesium (Mg)	0.3	0.45
Manganese (Mn)	0.03	0.04
Potassium (K)	1.7	2.3
Sodium (Na)	2.5	3.8
Titanium (Ti)	0.8	1.0

TRANSMISSION (THICKNESS 10mm)

Wavelength (NM)	Percent (%)
220	23.6
230	60.8
240	69.2
250	78.8
260	89.1
270	91.9
280	92.2
290	92.4
300	92.5

PHYSICAL & MECHANICAL PROPERTIES

	Natural
Specific Gravity	2.203
Mohs Hardness (Mohs)	5 to 7
Micro Hardness (kg/cm ²)	800 to 1000
Knoop Hardness (100g*load, kg/mm ²)	590 to 620
Young's Modulus (kg/cm ²)	743 X 10 ³
Rigidity Modulus (kg/cm ²)	318 X 10 ³
Poisson's Ratio	0.17
Compressive Strength (kg/cm ²)	11,500
Tensile Strength (kg/cm ²)	500
Bending Strength (kg/cm ²)	700
Torsional Strength (kg/cm ²)	300
Velocity of Sound for	5,720
Compressional Wave (m/sec)	
Shear Wave (m/sec)	3,620

THERMAL PROPERTIES

	Natural
Strain Point (°C)	1,070
Annealing Point (°C)	1,140
Softening Point (°C)	1,630
MAX Temperature (°C)	
Continuous	1,000
Limited Life	1,300
Coefficient of Expansion	Approx. 5 X 10 ⁻⁷
Thermal Conductivity (Cal/cm ² sec°C)	
at 0°C	0.0032
at 100°C	0.0037
Specific Heat (cal/gm°C)	
at 20°C	0.213
at 100°C	0.273

DISPERSION OF GLASS

Wavelength (A)	dn/dλ
3000	-2.471 X 10 ⁻⁵
4000	-1.102 X 10 ⁻⁵
5000	-0.512 X 10 ⁻⁵
6000	-0.350 X 10 ⁻⁵
7000	-0.163 X 10 ⁻⁵

REFRACTIVE INDEX OF QUARTZ GLASS

Wavelength (μ)	Refractive Index	Wavelength (μ)	Refractive Index
0.20	1.54727	0.80	1.45337
0.25	1.50745	0.90	1.45180
0.30	1.48594	1.00	1.45047
0.34	1.47867	1.30	1.44698
0.40	1.46968	1.60	1.44349
0.48(F)	1.46318	2.00	1.43317
0.55	1.46013	2.40	1.43173
0.59(d)	1.45845	2.80	1.42389
0.65(c)	1.45640	3.10	1.41694
0.70	1.45517	3.50	1.40601