Fused Silica (7980)

Precision Glass and Optics
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Description:

Corning's Fused Silica offers the same thermal, physical and mechanical properties which are typical of all fused silica, including being colorless and having excellent transmission in the UV. This material is ideal for optical reference flats, test plates, structural members and high temperature view ports where fused silica properties such as low CTE are desired. It is available in substrate and optical (higher homogeneity) grades.

Available Thicknesses: Wide variety – per quotation.

Sheet Size: Up to 18" x 25" x 6", depending on variables

Properties:

Refractive Index: n_d (λ = 589.3 nm) = 1.45840

Homogeneity:

Substrate Grade
Not specified

Optical Grade F
5 x 10-6 (higher grades available on request)

Transmission: (estimated at 2 mm thick)

@185nm	88.2%	@310nm	92%
@200nm	89.4%	@390nm	92.7%
@230nm	91.1%	@400- 1240nm	92%+

Transmittance at varying levels from 1250 nm to 4400 nm

Bubble Inclusion Class Number 0 upon request

(Max. cross-section of any single bubble or inclusion = 0.004")

(Total cross-section of inclusions /100 cm^3 = 0.03 mm^2)

Chemical:

Solution	Time (Hrs)	Temp	Wt. Loss (mg/cm^2)
5% NaOH	6	25°C	0.70
5% Na_2CO_3	6	25°C	0.02
5% HCl	24	25°C	<0.01

Mechanical and Thermal:

Density	2.20 gm/cm^3
Young's Modulus	7.24 GPa @ 25°C
Thermal Coefficient of Expansion	(0-200°C) = 5.7 x 10^{-7}/°C
Thermal Conductivity (25°C)	1.38 W/m°C
Specific Heat (25°C)	0.177 cal/gm°C
Thermal Diffusivity (25°C)	7.5 x 10^{-3} cm^2/sec.

Viscosity:

Softening Point ($10^{7.6}$ poises)	1585°C
Annealing Point (10^{13} poises)	1075°C
Strain Point ($10^{14.5}$ poises)	990°C

Dispersion:

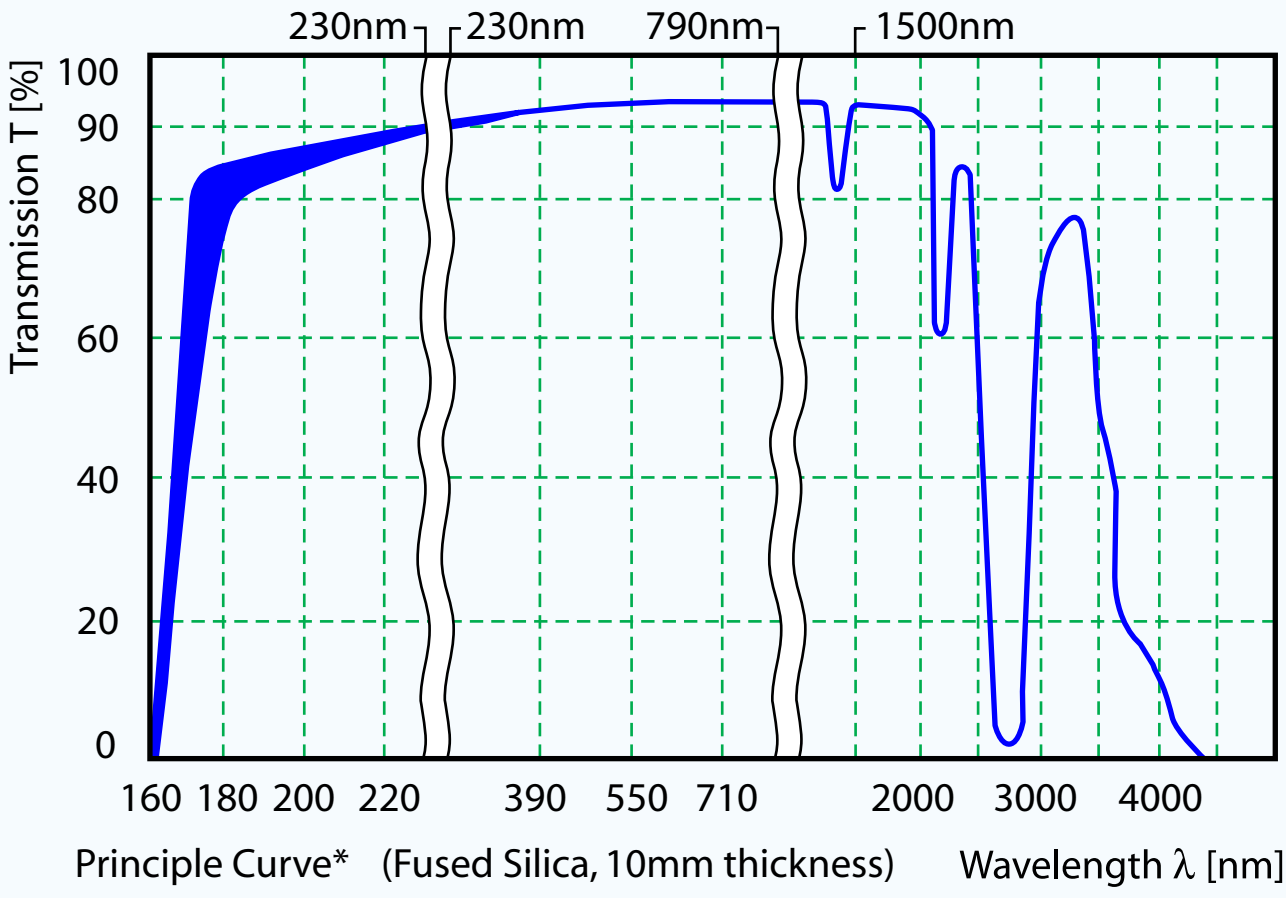
v_d = 67.79

Electrical:

Log_{10} Volume Resistivity @250°C	11.8 ohm-cm
Dielectric Constant (20° C, 1 MHz)	3.80
Loss tangent (20° C, 1 MHz)	0.0010%

Applications:

Fused silica can be used where resistance to radiation darkening is required, such as in space or as long-term passive energy collectors.
Flatness, parallelism, cutting tolerances, roughness, cosmetic defects and visual inspection all conform to the specifications to be agreed upon by Precision Glass & Optics and the customer.



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