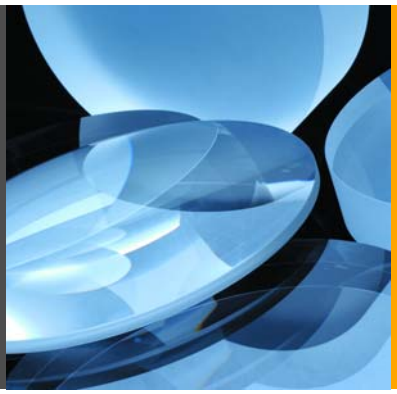
HPFS® Fused Silica Industrial Grade

CORNING
Discovering Beyond Imagination



Semiconductor Optics

Corning Industrial Grade Fused Silica is a synthetic amorphous silicon dioxide manufactured by flame hydrolysis. The noncrystalline, transparent, silica glass is an excellent choice for many optical applications in the visible wavelength range as well as tooling applications.

Corning Industrial Grade Fused Silica is available in large bulk forms or can be cut to specific size requirements upon request. Please call one of our sales offices for more information.

Forms Available

- Round boules: top surface fire polished, bottom surface 60 grit ground flat or as cast, edges as cast.
- Remnant.
- Cut parts; discs and rectangles.

Mechanical and Thermal Properties

Elastic (Young's) Modulus	72.7 GPa		Softening Point	1585 ºC ($10^{7.6}$ poises)
Shear Modulus	31.4 GPa		Annealing Point	1042 ºC (10^{13} poises)
Modulus of Rupture, abraded	52.4 MPa		Strain Point	893 ºC ($10^{14.5}$ poises)
Bulk Modulus	35.4 GPa		Thermal Conductivity	1.30 W/m K
Poisson's Ratio	0.16		Thermal Diffusivity	0.0075 cm^2/s
Density	2.201 g/cm^3	Average C.T.E.	0.52 ppm/K	5 ºC-35 ºC
Knoop Hardness (100 g load)	522 kg/mm^2		0.57 ppm/K	0 ºC-200 ºC
			0.48 ppm/K	-100 ºC-200 ºC

Optical Properties

Birefringence constant	
35.0 nm/cm MPa	Abbe Number = 67.8
	Glass type no. 458/678 (Mil-G-174)

Refractive Index and Dispersion

Data in 22º C in 760mm Hg dry nitrogen gas

Wavelength [air] λ [nm]	Refractive index n	Wavelength [air] λ [nm]	Refractive index n	Wavelength [air] λ [nm]	Refractive index n
1128.64	1.448870	656.27 n_C	1.456370	486.13 n_F	1.463132
1064.00	1.449633	643.85 $n_{C'}$	1.456707	479.99 $n_{F'}$	1.463509
1060.00	1.449681	632.80 n_{He-Ne}	1.457021	435.83 n_g	1.466701
1013.98 n_t	1.450245	589.29 n_D	1.458406	404.66 n_h	1.469628
852.11 n_s	1.452469	587.56 n_d	1.458467	365.01 n_i	1.474555
706.52 n_r	1.455149	546.07 n_e	1.460082		

Inclusions

Typical Inclusion Size	<1.27 mm
Maximum Average Inclusion Size*	<0.6 / 100cm^3
Maximum Inclusion Size**	2.5 mm

** There may be some gaseous inclusion clusters.*

*** There may be a few gaseous inclusions exceeding this limit.*

Impurities

Typical OH Content	800 – 1000 ppm

NOTE: Unless otherwise stated, all values represent typical data @ 25 ºC

Notes:

We are here to help you specify the best product for your application. For further information, please contact:

Worldwide Accessibility

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The information contained herein is based upon data considered to be accurate. However, no warranty is expressed or implied regarding the performance of this product. The only applicable warranties are those that are set out in a contract or purchase.

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