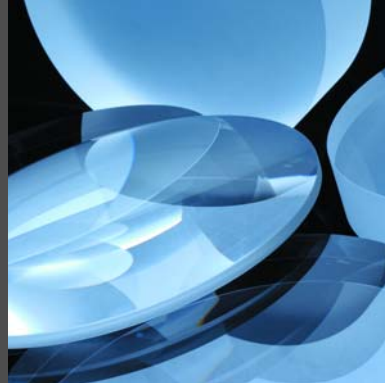


HPFS® Fused Silica Industrial Grade



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 °C (10 ^{7.6} poises)
Shear Modulus	31.4 GPa	Annealing Point	1042 °C (10 ¹³ poises)
Modulus of Rupture, abraded	52.4 MPa	Strain Point	893 °C (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 °C-35 °C
Knoop Hardness (100 g load)	522 kg/mm ²		0.57 ppm/K 0 °C-200 °C
			0.48 ppm/K -100 °C-200 °C

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 22° 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 / 100cm³

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 °C

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

Worldwide Accessibility

United States/Canada Sales Office

Corning Incorporated
Semiconductor Optics Business
334 County Route 16
Canton, NY 13617

t: 315.379.3600
f: 315.379.3317
e-mail: hpfs@corning.com

European Sales Office

Corning GmbH
Corning International
Abraham-Lincoln-Strasse 30
D-65189 Wiesbaden, Germany

t: 49.611.7366.100
f: 49.611.7366.143
e-mail: CIgermany@corning.com

Asia Sales Offices

Corning International K.K.
No. 35 Kowa Building, 3F
14-14, Akasaka 1-chome
Minato-Ku, Tokyo 107-0052
Japan

t: 81.3.3586.1052
f: 81.3.3587.0906

Corning International
1 Kim Seng Promenade
#12-12
GreatWorld City
West Tower
Singapore 237994
Republic of Singapore

t: 65.733.6511
f: 65.861.7310

Corning Korea Company Ltd.
10th Floor, Kukje Center Bldg.
191, Hangangro 2-Ka
Yongsan-Ku
Seoul, Korea 140-702

t: 82.2.796.9500
f: 82.2.796.9300

Corning Glass Taiwan Co. Ltd.
Room # 1023, 12F
No. 205
Tun Hua North Road
Taipei, Taiwan

t: 886.2.2716.0338
f: 886.2.2716.0339

Australia Sales Office

Corning International Australia
Suite 18
12, Tryon Road
Lindfield, NSW 2070
Australia

t: 61.2.9416.0492
f: 61.2.9416.0493

World Headquarters

Corning Incorporated
One Riverfront Plaza
Corning, New York 14831-0001
t: 607-974-9000

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.

Corning Incorporated

One Riverfront Plaza
Corning, NY 14831
607 974 9000

© Corning Incorporated 2003

HPFS® is a registered trademark of Corning Incorporated.

www.corning.com

September 30, 2003