

MATERIAL DATASHEET  
**HIGH PURITY  
FUSED SILICA**



# High Purity Fused Silica

## **High Purity amorphous SiO<sub>2</sub>**

very low trace metal content  
very good chemical purity

virtually bubble and inclusion free

transmission > 90% @ 200..2000 nm

used in semiconductor, optical and other applications

---



## Impurities

< 1 ppm metallic impurities

OH content 800..1000 ppm

## Mechanical Properties

Density [g/cm <sup>3</sup> ]	2.20
Knoop Hardness N/mm <sup>2</sup>	5,100
Modulus of elasticity (at 25°C) N/mm <sup>2</sup>	73,000
Poisson's Ratio	0.16
Compressive strength (approx.) N/mm <sup>2</sup>	1,140
Tensile strength (approx.) N/mm <sup>2</sup>	54
Shear Modulus (N/mm <sup>2</sup> )	31,000

## Thermal Properties

Thermal Data	
Softening temperature °C	1585
Annealing Temperature °C	1042
Strain Temperature °C	839

<b>Heat Conductivity [W/m*K] @ 25 °C</b>	1.38
--	------

Mean thermal expansion coefficient [K <sup>-1</sup> ]	
-100 ... 200 °C	4.8 x 10 <sup>-7</sup>
5... 35 °C	5.2 x 10 <sup>-7</sup>
0 ... 200 °C	5.7 x 10 <sup>-7</sup>

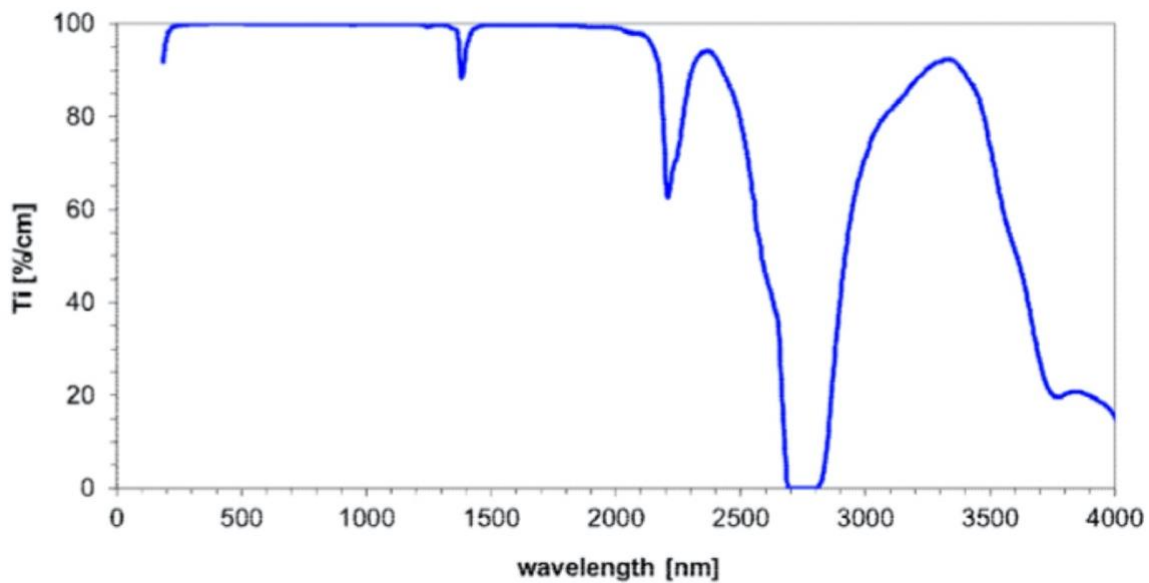
<b>Mean specific heat [J/kg K]</b>	770
------------------------------------	-----

---

## Optical Properties

<b>Refractive Index <math>n_d</math></b>	1.46
--	------

### Optical transmission (5 mm sample thickness)



Internal transmittance only – no reflection losses considered (up to 4% per side)

Thinner wafers (< 1 mm) will show higher transmission.

Absorption at about 1400 nm will virtually disappear which will lead to a transmission of > 90% from about 200 to 2000 nm wavelength.

## Electrical Properties

<b>Dielectric constant (<math>\epsilon</math>)</b>	
20 °C    0 ... 10 <sup>6</sup> Hz	3.8



**Disclaimer:**

The above data has been taken from the original raw material specification of the raw material producer. Completeness and validity cannot be guaranteed.

**CONTACT:**

Plan Optik AG  
Ueber der Bitz 3  
56479 Elsoff  
Germany

Phone: +49 2664 5068-0  
Fax: +49 2664 5068-91

Mail: [info@planoptik.com](mailto:info@planoptik.com)  
Web: [www.planoptik.com](http://www.planoptik.com)

01/22

**WAFFER UNIVERSE**

a brand of  
Plan Optik AG  
Über der Bitz 3  
56479 Elsoff / Germany

**Phone** +49 2664 239 929 0  
**Mail** [sales@waferuniverse.com](mailto:sales@waferuniverse.com)  
**Web** [www.waferuniverse.com](http://www.waferuniverse.com)