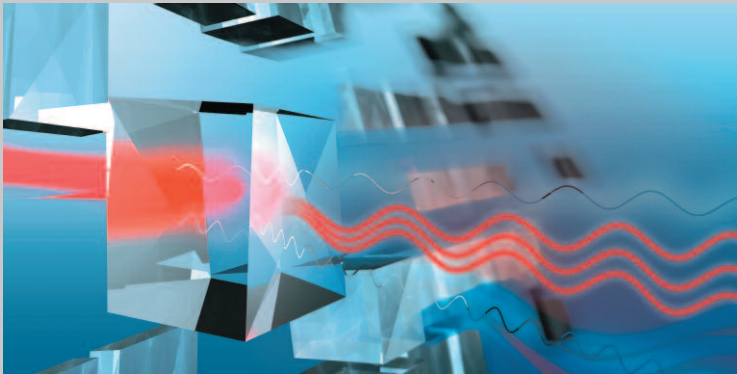


SUPRASIL® 3001 and 3002



Product highlights

- **Low OH-content**
OH-content ~ 1 ppm OH
- **Low absorption***
Absorption at 1064 nm: 0.25 ppm/cm
Absorption at 1319 nm: 1 ppm/cm

Index homogeneity

Striation

SUPRASIL 3001:

- No striations in all three dimensions, i.e. superior to striae class A according to MIL-G-174-B

SUPRASIL 3002:

- No striations in the primary functional direction, i.e. striae class A according to MIL-G-174-B
- Weak striations, if any, are parallel to the major faces

Index homogeneity (Δn)

Specified over 90% of the diameter or of the side length of a ground piece, respectively 80% for raw ingots.

SUPRASIL 3001:

- In three dimensions $\Delta n \leq 4 \cdot 10^{-6}$
on request $\Delta n \leq 1 \cdot 10^{-6}$
- Maximum weight approximately 15 kg,
bigger unit weight on request

SUPRASIL 3002:

- In primary functional direction $\Delta n \leq 5 \cdot 10^{-6}$
on request $\Delta n \leq 1 \cdot 10^{-6}$
- Dimensions and weight are practically not limited.

Residual strain

SUPRASIL 3001 and 3002:

- 5 nm/cm over 70% of the diameter or of the side length
- 6 nm/cm over 80% of the diameter
- 5 – 15 nm/cm within the peripheral zone

Bubbles and inclusions¹⁾

Bubble grade

- Superior to 0 (according to DIN 58927 2/70)
- The sum of the cross sections of all bubbles within a piece is 0.03 mm² and is related to 100 cm³ of a volume (TBCS-value).

Bubbles according to DIN ISO 10110

SUPRASIL 3001: 1/2*0.10 unit weight < 6 kg

SUPRASIL 3002: 1/1*0.16 unit weight < 6 kg

1/1*0.25 unit weight 6–30 kg

¹⁾ Bubbles and inclusions < 0.08 mm diameter are not counted.

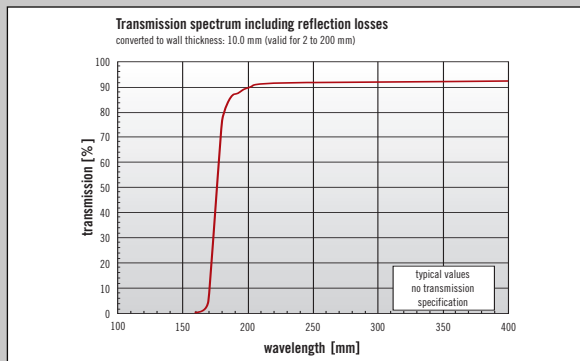
Inclusions

- none

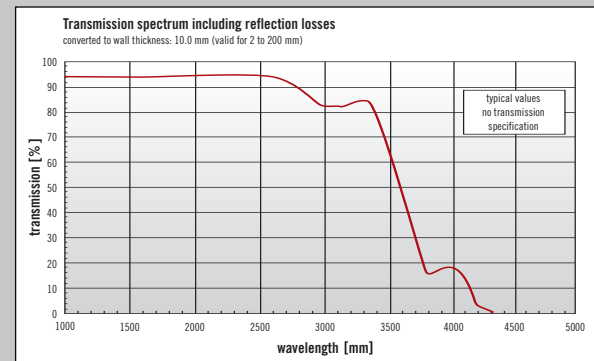
Spectral transmission

Typical transmission graph (including Fresnel reflection losses) for a wall thickness of 10 mm

Broadband transmission covers 190 nm – 2600 nm



NIR transmission covers all NIR lasers from 800 – 2600 nm



Decadic absorption coefficient at 200 nm

$$k_{200} < 0.005 \text{ cm}^{-1} \quad (\text{typical})$$

$$k_{200} < 0.01 \text{ cm}^{-1} \quad (\text{specified})$$

$$\text{Internal transmission } T = 10^{-kd}$$

and d = wall thickness

Infrared absorption*

- Practically no OH absorption

Absorption at 1064 nm typical: 0.25 ppm/cm

Absorption at 1319 nm typical: 1 ppm/cm

Kondilenko & Co-Workers, Ginzton Lab,
Stanford University, private communication, 2005

Fluorescence: light blue

At stimulation with light at a wavelength of $\lambda = 254 \text{ nm}$ (Hg low pressure lamp and Schott UG 5 filter) and visual inspection.

* Data was taken under laboratory conditions. Actual data may differ.
Customer is recommended to test under his own environmental conditions.

The data given here is correct for May 2006.
We reserve the right to make technical alterations as necessary.

Application range

- Ideally suited for high power NIR lasers
- Medical Science e. g. 940 nm lasers
- Material handling e. g. Nd-YAG lasers
- Telecommunications
- Spectroscopy

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