### Highlights
- Direct formed Near-Net-Shape ingot ➔ Production process cost optimized to maximize yield
- Fine ground on request
- Broad transmission range from the UV to the IR
- OH Content ≤ 250 ppm
- Low absorption* 
  Absorption at 1064 nm: ≤ 3 ppm/cm

### Index homogeneity

**Striation**
- No striations in the primary functional direction, i.e. striae class A according to MIL-G-174-B
- In the basic version the homogeneity of Suprasil® 313 is not specified and not measured (typically less than $10 \cdot 10^{-6}$).
- Index homogeneity can be custom tailored to specifications on request at additional cost.

**Index ($\Delta n$)**
- No striations in the primary functional direction, i.e. striae class A according to MIL-G-174-B
- In the basic version the homogeneity of Suprasil® 313 is not specified and not measured (typically less than $10 \cdot 10^{-6}$).
- Index homogeneity can be custom tailored to specifications on request at additional cost.

### Residual strain
- ≤ 5 nm/cm
- The residual strain value is specified over 90% of the diameter or edge length of a fine ground piece, or 80% of a raw formed ingot.

### Bubbles and inclusions 1)

**Bubble Grade**
- Grade 0 (according to DIN 58927)

**Bubbles according to DIN ISO 10110**
- 1 / 1*0.08 for 100 cm³

**Inclusions**
- None

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

### Application range
Suprasil® 313 may be used for optics requiring high transmission and low absorption from UV to IR combined with low bubble & inclusion content. Optics may include windows, lenses, laser debris shields and mirror substrates.
Typical transmission graph

(including reflection losses) for a wall thickness of 10 mm

Decadic absorption coefficient at 200 nm

\[ k_{200} \leq 0.0025 \text{ cm}^{-1} \quad (\text{typical}) \]
\[ k_{200} \leq 0.005 \text{ cm}^{-1} \quad (\text{specified}) \]

Internal transmission \( T = 10^{-kd} \)
and \( d \) = wall thickness

Infrared absorption (typical)*

* OH absorption
absorption at 1064 nm\(^{1, 2}\) \( \leq 3 \text{ ppm/cm} \)

1) Kondilenko & Co-Workers, Ginzton Lab, Stanford University, private communication, 2005
2) Dr. Mühlig, IPHT Jena

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

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