



Wafer-Level Optic Solutions

Applications

- Micro-optics and substrates for consumer electronics
- Refractive optical elements (ROEs)/ Diffractive optical elements (DOEs)
- RF components
- Industrial 3D sensors and optics
- Beam shaping elements
- Homogenizers
- Nanoimprint lithography substrates
- Hard disk masters
- Camera optics
- Molds
- Biomedical
- Blazed-wavelength and sub-wavelength gratings

Benefits of Corning HPFS® fused silica wafers

- Extraordinarily low refractive index variation leading to state-of-the-art homogeneity
- Low birefringence
- Exceptional transmittance from the deep ultraviolet through the infrared region
- Ultra-low coefficient of thermal expansion (CTE)

Electrical Properties @ 25 °C (10-50GHz)

Loss Tangent	<0.0003
Dielectric Constant	3.80

Thermal Properties

Thermal Expansion (ppm/C)

5 °C to 35 °C	0.52 x 10 ⁻⁶
0 °C to 200 °C	0.57 x 10 ⁻⁶
-100 °C to +200 °C	0.48 x 10 ⁻⁶

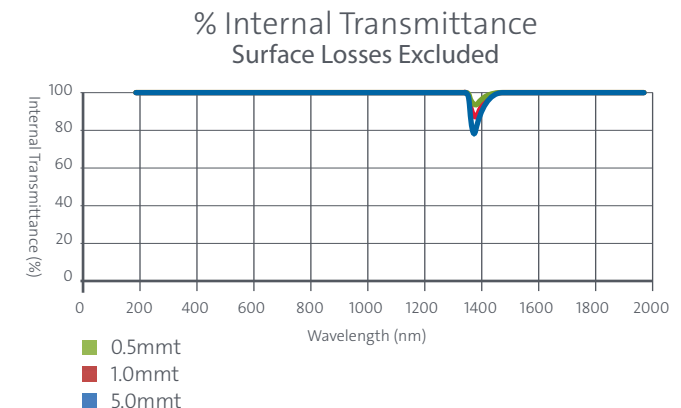
HPFS® 7980 Wafer Grade Material Properties

- Ultra-high purity: 100% SiO₂
- No inclusions detected under high-intensity illumination
- OH content: 800–1000ppm
- Typical diameter: 100/150/200/300mmd
- Tolerance +/- 20µm, Edge exclusion: ≤ 5mm
- Typical thickness: 0.30-20mmt, Tolerance +/- 25µm
- Available upon request: various sizes, semi notch/flat specifications, laser serialization
- Large volume capacity: up to 60k WPM
- Typical lead-time: 2-12 weeks
- Polish scratch/dig: 20/10 to 80/50
- State-of-the-art data provided: Tropel® FlatMaster® MSP (Multi-surface profiler)

TTV	≤ 1 µm to ≤ 5µm
Bow	≤ 5µm to ≤ 30µm
Warp	+/- 20µm to ± 40µm
Roughness	≤ 10Å
SORI	≤ 0.5µm to ≤ 1.5µm

Optical Properties

- Refractive index uniformity is 2.5X better than competitive fused silica
- No Striae, ISO 10110-4 Class 5
- Abbe Constants @ 632nm: Ve 67.6, Vd 67.8, nF'-nC' 0.006797
- Low birefringence @ 632nm: ≤ 1 nm/cm
- Stress optic coefficient @ 632nm: 35.0 nm/cm MPa
- Exceptional transmittance across a broad range



Precision Glass
Solutions

CORNING

Superior
Standards

HPFS[®] Fused Silica Wafers

Industry-leading fused silica with excellent refractive index uniformity, low birefringence and ultra low CTE for high-performance wafer-level optics applications

Corning pioneered the first fused silica in the 1930s. The same superior material properties that make Corning HPFS[®] fused silica ideal for extreme applications such as space shuttle windows, are now also ideal for precise 3D sensing devices. Using state-of-the-art metrology systems, Corning Wafer-Level Optic Solutions has demonstrated the capability to supply industry-leading HPFS[®] fused silica wafers with tight geometric tolerances in high volumes.

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