HOD® – High Purity Fused Silica Diffusor

Highlights

- Diffuse reflection / transmission
- Chemical and mechanical stability (long term and in UV)
- Easy to clean
- Wafer processing possible
- Machinable

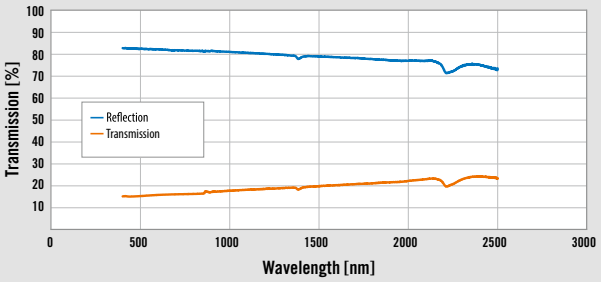
Applications

- Calibration standards
- White balance
- Laser cavity, integrating spheres
- Attenuator
- Space applications

Physical Properties

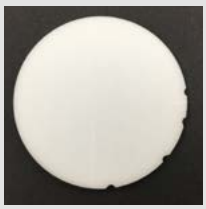
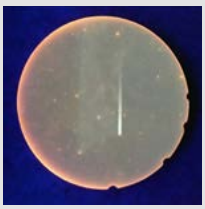
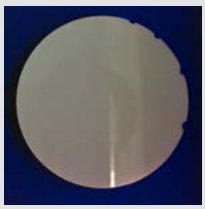
Density	2.15 g/cm³
Porosity	< 2.3 %
Pore size	< 20 µm
Water permeability	no open porosity
Thermal stability	up to 1000 °C
Young's modulus	70 kN/mm²
Bending strength (4 point)	115 N/mm²

Hemispherical Reflection and Transmission for 3 mm HOD®

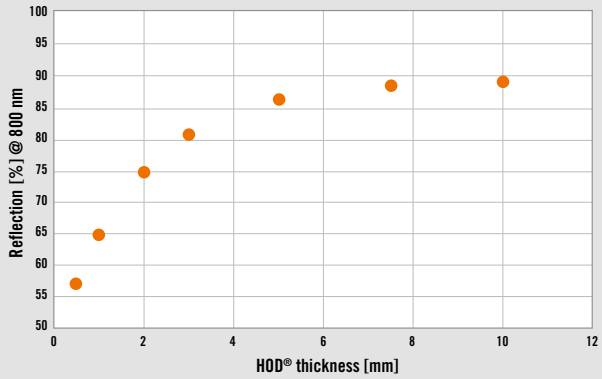


HOD® Cleaning Example

Test with crack finding spray (red, UV fluorescence)

				
Clean HOD®	Application of crack finding liquid	Some residual color after rinse with water	Dye fluorescence observed with 254 nm illumination	Fluorescence check after ethanol bath

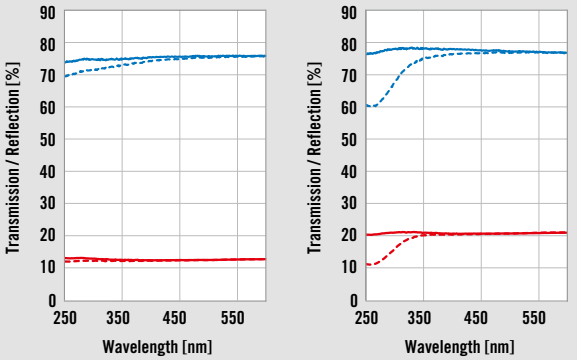
Thickness dependent hemispherical Reflection



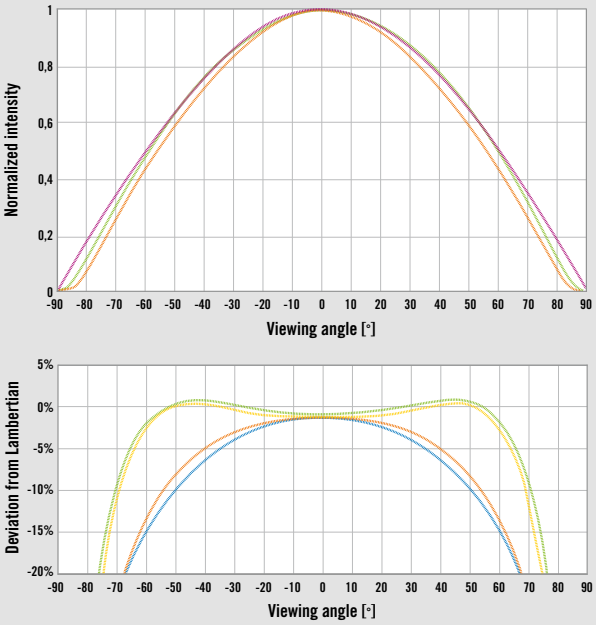
Example of specially treated HOD®'s UV Resistance

UV resistent HOD®, fire polished
thickness 7.5 mm

Standard fused silica diffusor, fire polished
thickness 3 mm



BTDF of HOD® and Comparison to ideal Lambertian Diffusor



Measured @ 550 nm, 0° incident.

Gegenbauer Parameters

To allow simulations of HOD components with a ray tracing software, please use the following:

Refractive index of fused silica	1.46 @ 500 nm
Assumed transmittance	0.9999 @ 550 nm
Mean Free Path [mm]	0.0556834479
G anisotropy factor	0.8235482639
Alpha anisotropy factor	0.3268505949
Particle transmittance	0.9998926408

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