

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

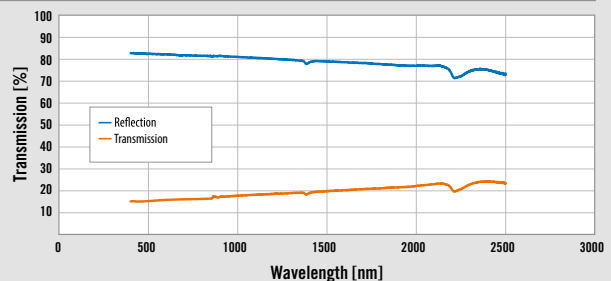
- Calibration standards
- White balance
- Laser cavity, integrating spheres
- Attenuator
- Space applications



Physical Properties

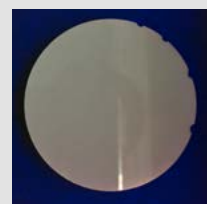
| | |
|----------------------------|------------------------|
| Density | 2.15 g/cm ³ |
| Porosity | < 2.3 % |
| Pore size | < 20 μm |
| Water permeability | no open porosity |
| Thermal stability | up to 1000 °C |
| Young's modulus | 70 kN/mm ² |
| Bending strength (4 point) | 115 N/mm ² |

Hemispherical Reflection and Transmission for 3 mm HOD®



HOD® Cleaning Example

Test with crack finding spray (red, UV fluorescence)



Clean HOD®

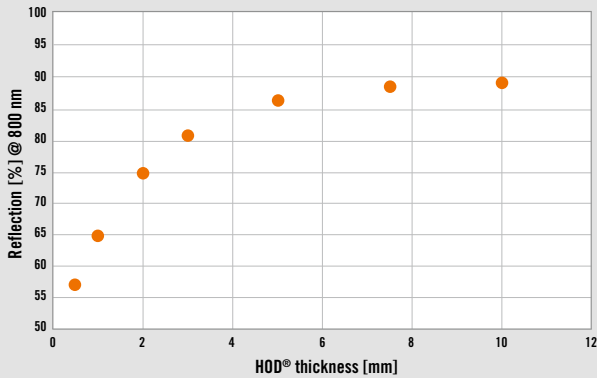
Application of crack finding liquid

Some residual color after
rinse with water

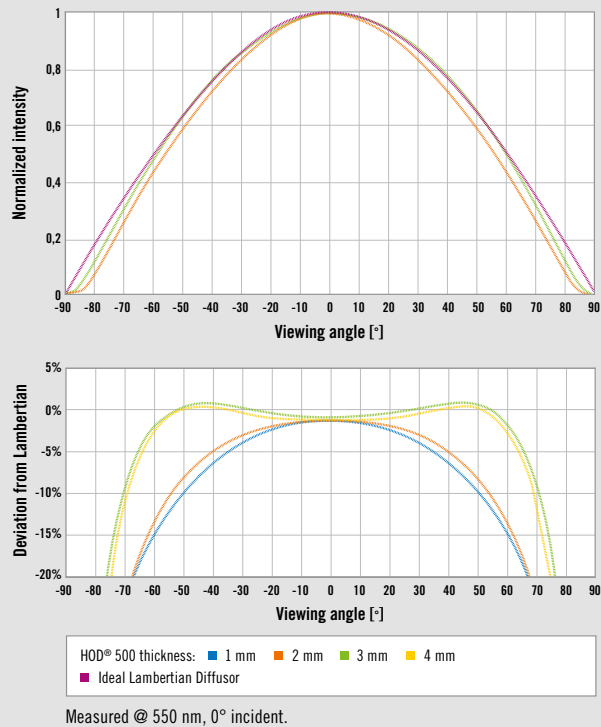
Dye fluorescence observed with
254 nm illumination

Fluorescence check after
ethanol bath

Thickness dependent hemispherical Reflection

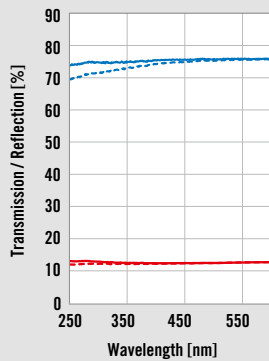


BTDF of HOD® and Comparison to ideal Lambertian Diffusor

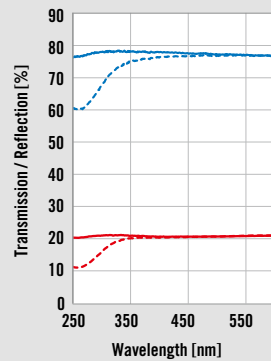


Example of specially treated HOD®'s UV Resistance

UV resistant HOD®, fire polished
thickness 7.5 mm



Standard fused silica diffusor, fire polished
thickness 3 mm



— Reflection before irradiation — Transmission before irradiation
 - - Reflection after irradiation* - - Transmission after irradiation*
 * Total UV dose 15.3 kJ/cm²; VUV dose 4 kJ/cm²

HOD® is a registered trademark of Heraeus in the European Union (EU), USA, China and Switzerland; registrations in other countries are pending.

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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