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

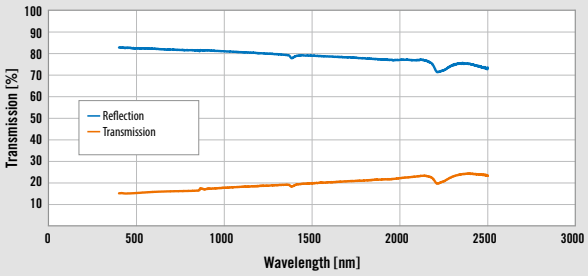
Applications

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

Physical Properties

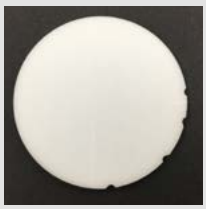
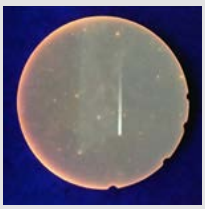
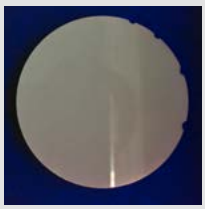
Density	2.15 g/cm³
Porosity	< 2.3 %
Pore size	< 20 µm
Water permeability	no open porosity
Thermal stability	up to 1000 °C
Young's modulus	70 kN/mm²
Bending strength (4 point)	115 N/mm²

Hemispherical Reflection and Transmission for 3 mm HOD®



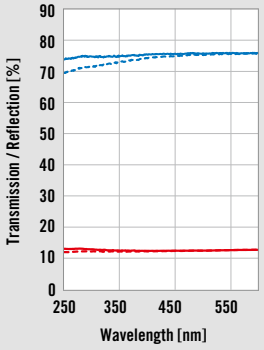
HOD® Cleaning Example

Test with crack finding spray (red, UV fluorescence)

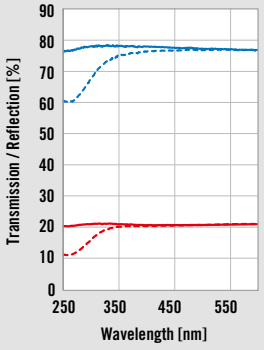
				
Clean HOD®	Application of crack finding liquid	Some residual color after rinse with water	Dye fluorescence observed with 254 nm illumination	Fluorescence check after ethanol bath

Example of specially treated HOD®'s UV Resistance

UV resistent HOD®, fire polished
thickness 7.5 mm

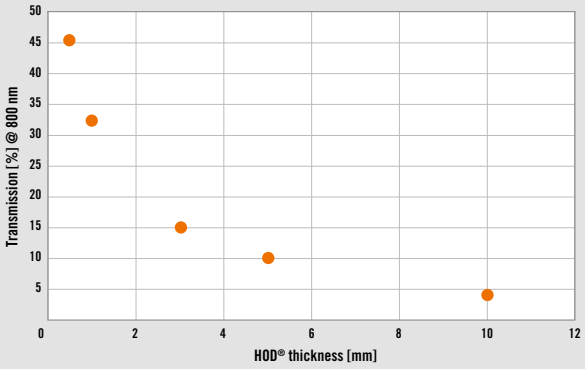


Standard fused silica diffusor, fire polished
thickness 3 mm

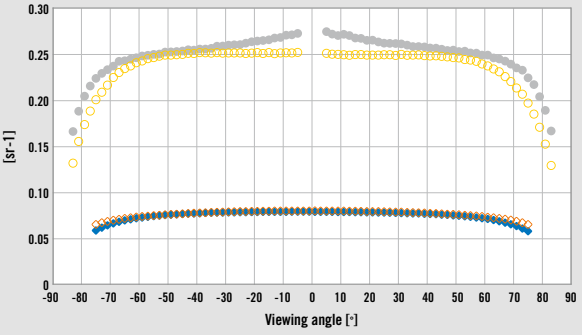


— Reflection before irradiation — Transmission before irradiation
-- Reflection after irradiation* -- Transmission after irradiation*
* Total UV dose 15.3 kJ/cm²; VUV dose 4 kJ/cm²

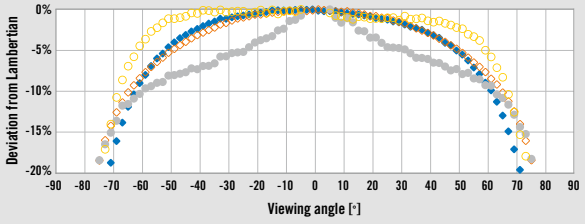
Thickness dependent hemispherical Transmission



BTDF and BRDF of HOD® and Comparison to ideal Lambertian Diffusor



◆ BTDF non-specular facing incident ◇ BTDF specular facing incident
● BRDF non-specular facing incident ○ BRDF specular facing incident



◆ BTDF dev non-specular facing incident ◇ BTDF dev specular facing incident
● BRDF dev non-specular facing incident ○ BRDF dev specular facing incident

Sample thickness 5.3 mm, specular side fire polished. Measured @ 532 nm, 0° incident.

Germany

Heraeus Quarzglas
GmbH & Co. KG
Optics
Quarzstraße 8
63450 Hanau
Phone +49 (6181) 35-62 85
Fax +49 (6181) 35-62 70
sales.hqs.optics.de@heraeus.com

USA

Heraeus
Tenevo LLC
Optics
100 Heraeus Blvd.
Buford, GA 30518
Phone +1 (678) 714-4350
Fax +1 (678) 714-4355
sales.hqs.optics.us@heraeus.com

UK

Heraeus Quartz
UK Ltd.
Neptune Road, Wallsend
Tyne & Wear NE28 6DD
United Kingdom
Phone +44 (191) 259 8454
Fax +44 (191) 263 8040
sales.hqs.optics.uk@heraeus.com

China

Heraeus (China)
Investment Co., Ltd.
Building 5,
No. 406 Guilin Road, Xuhui District,
Shanghai 200233
Telefon +86 (21) 3357 5173
Fax +86 (21) 3357 5230
sales.hqs.optics.cn@heraeus.com

www.optics.heraeus-quarzglas.com

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