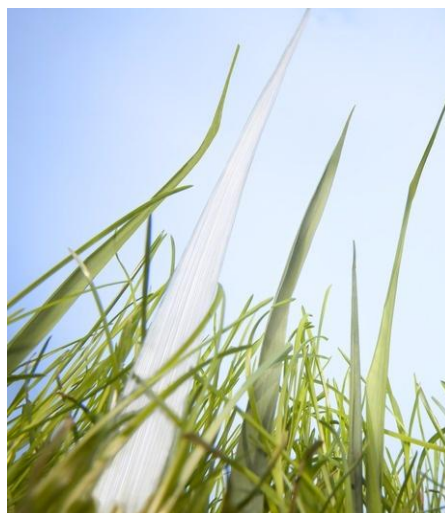


PURAVIS™ GOF85

Eco-friendly High Performance Glass Optical Fiber

SCHOTT is setting new standards for illumination fiber optics with PURAVIS™ premium quality glass optical fibers. Made from high purity optical glasses SCHOTT is utilizing its proprietary eco-friendly manufacturing process. PURAVIS™ fibers feature premium transmission with low solarization and excellent color rendering for all kind of illumination applications.

With its specific numerical aperture the PURAVIS™ GOF85 fiber is particularly well suited for applications which require a large amount of light in combination with a larger illuminated working area. Improved chemical stability enables long term-use, in particular in medical applications.



Technical Data PURAVIS™ GOF85

Numerical Aperture theoretical Value at 587 nm		0.64
Eff. Aperture Angle 2α measured for a 70 μm fiber at V(λ) Length 1 meter		> 80°
Optical Attenuation measured according to DIN 58151 Part 1 for 70 μm single fiber	at 450nm	< 500 dB/km
	at 553nm	< 280 dB/km
Material Core / Cladding		High Purity Optical Glass in particular without lead, arsenic and antimony
Biocompatibility According to DIN ISO 10993-5		Yes (Test certificate available)
Temperature Stability • Operational (epoxied end) • Operational (hot-fused end)		- 20°C to 200°C / - 4 F to 392 F - 20°C to 400°C / - 4 F to 752 F
Single Fiber Diameter		30 μm, 50 μm, 70 μm ± 4 μm 100 μm ± 4 μm (upon request)
Delivery Forms		see details on separate data sheet "Delivery Forms"

All technical data are subject to change without further notice.

Applications

Medical Illumination
Medical and Industrial Endoscopy
Medical and Industrial
Spectroscopy
Microscopy
Machine Vision Illumination
Sensor Applications
Surgical Microscopy

Please note...

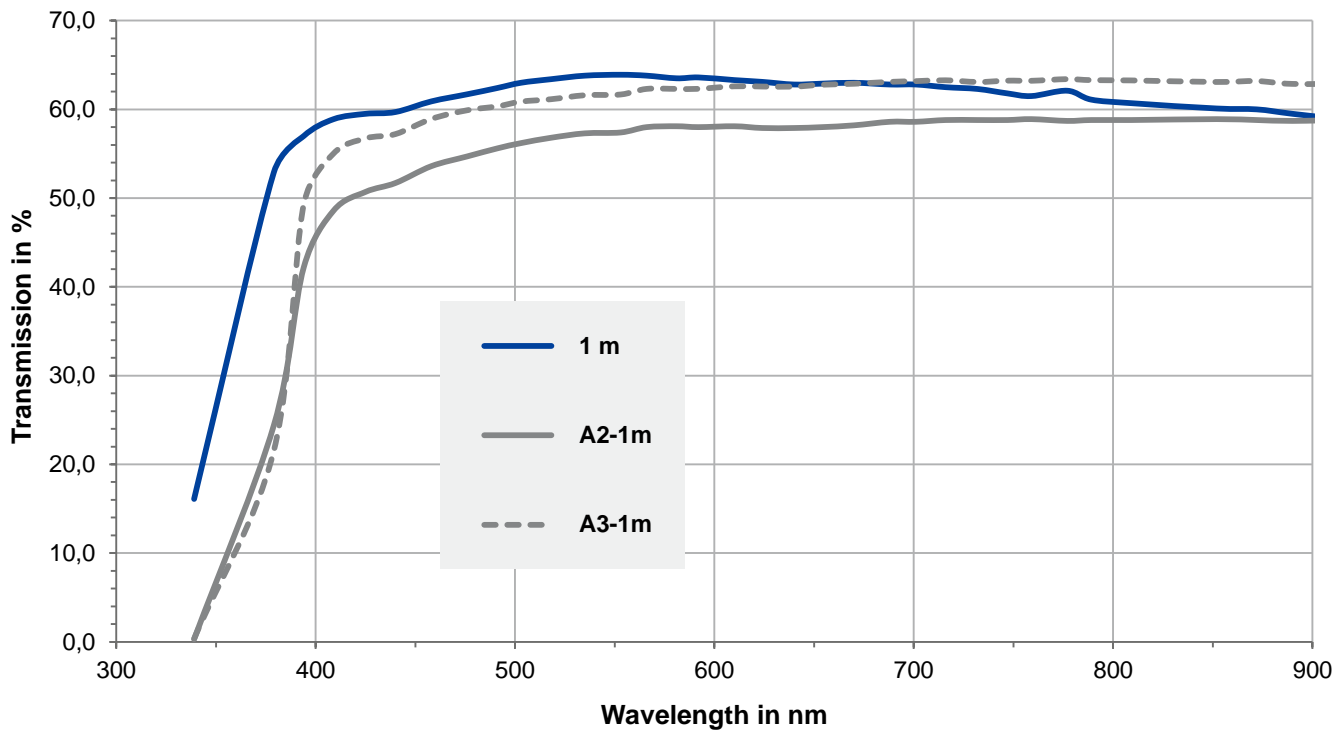
Data in this datasheet is shown in reference to the lead-containing SCHOTT A2-fiber, which will be subsequently replaced by SCHOTT's new premium fiber **PURAVIS™ GOF85**.

Optical Properties of PURAVIS™ GOF85

Transmission (Measured according to DIN 58 141 Part 2)

Transmission of a fiber bundle depends on attenuation of core glass, packing fraction of fibers, core/cladding surface ratio, quality of end polish and length of the fiber bundle.

The displayed transmission curves represent SCHOTT's typical manufacturing level for a fiber bundle of the GOF85 fiber with 70 µm single fiber in comparison to the A2 and A3 fibers.



Transmission of white Light

Today's demanding illumination applications require true white light transmission for optimum color rendering.

PURAVIS™ GOF85 features low discoloration even with longer length. This gives a more realistic appearance of the illuminated object.

Typical Data		Correlated Color Temperature CCT		Chromaticity Coordinates	
L	Standard Illuminant:	"A" (2856 K)	"D65" (6500K)	"D65"	
1 m	GOF85	2860 K	6300 K	x = 0.3156	y = 0.3151
	A2	2820 K	6100 K	x = 0.3396	y = 0.3392
5 m	GOF85	2850 K	5740 K	x = 0.3263	y = 0.3559
	A2	2730 K	5200 K	x = 0.3410	y = 0.3714
10 m	GOF85	2840 K	5280 K	x = 0.3392	y = 0.3805
	A2	2650 K	4490 K	x = 0.3660	y = 0.4063

Numerical Aperture (Measured according to DIN 58 141 Part 3)

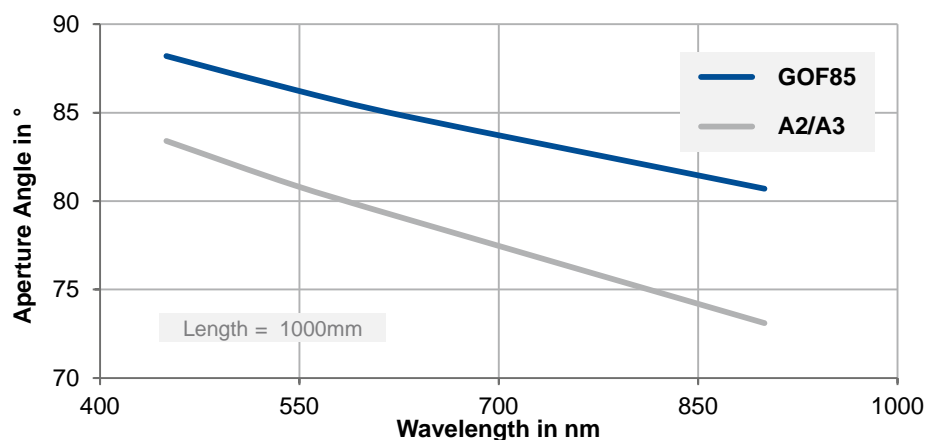
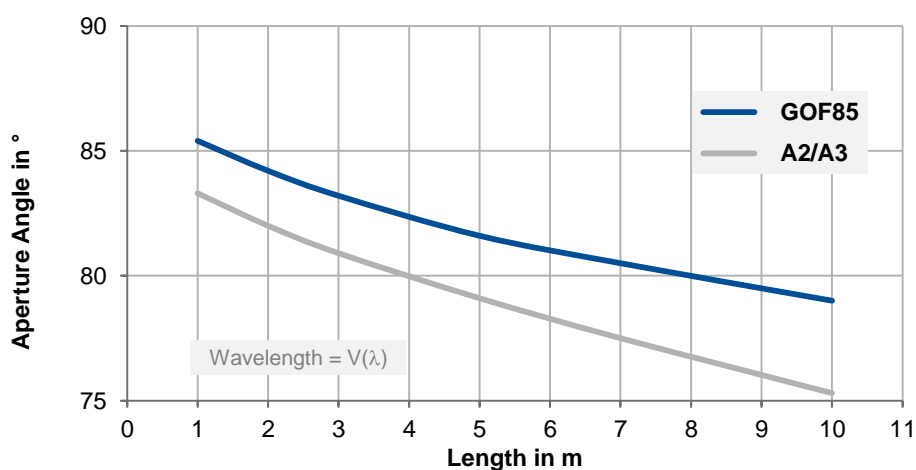
The numerical aperture of an optical fiber results out of the ratio of the refractive indices of core and cladding.

For PURAVIS™ GOF85 the theoretical value of the NA at $\lambda = 587.6 \text{ nm}$ is 0.64 corresponding to an aperture angle of $> 80^\circ$ for a $70 \mu\text{m}$ fiber.

The first graph shows the dependence of the aperture angle over length of the light guide. The effective aperture angle decreases with longer length.

The second graph shows the dispersion of the aperture angle.

The PURAVIS™ GOF85 shows a lower dispersion than the A2-Fiber. This results in an improved color homogeneity of the illumination in the far field.

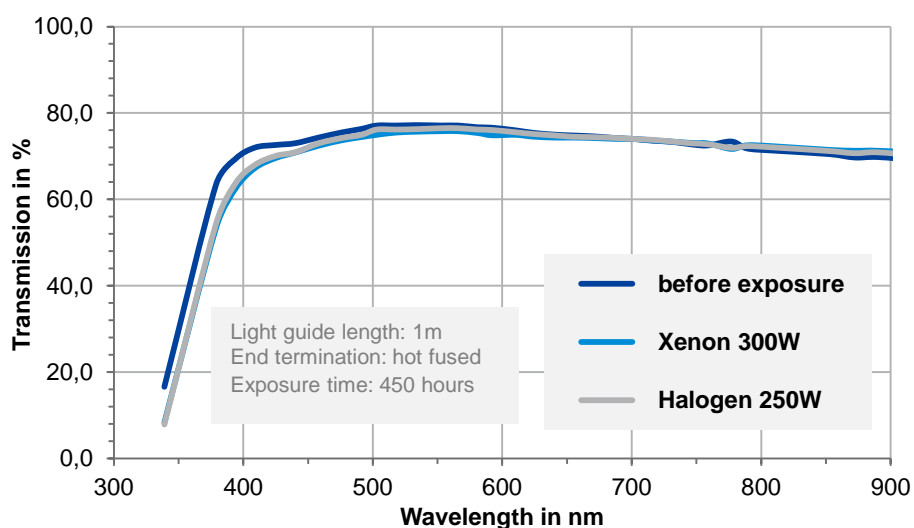


Long Term Stability of Optical Parameter – Solarization Stability

Solarization stability was tested with different light sources over a time period of 450 hours.

The PURAVIS™ GOF85 shows low solarization with the tested light sources.

Depending on intensity level and individual spectrum other light sources must be tested individually.



Long Term Stability of PURAVIS™ GOF85

PURAVIS™ GOF85 Glass Optical Fibers feature significantly improved chemical stability. Core and cladding glasses have high chemical resistance, which ensure long-term stability over lifetime under repeated reprocessing cycles.

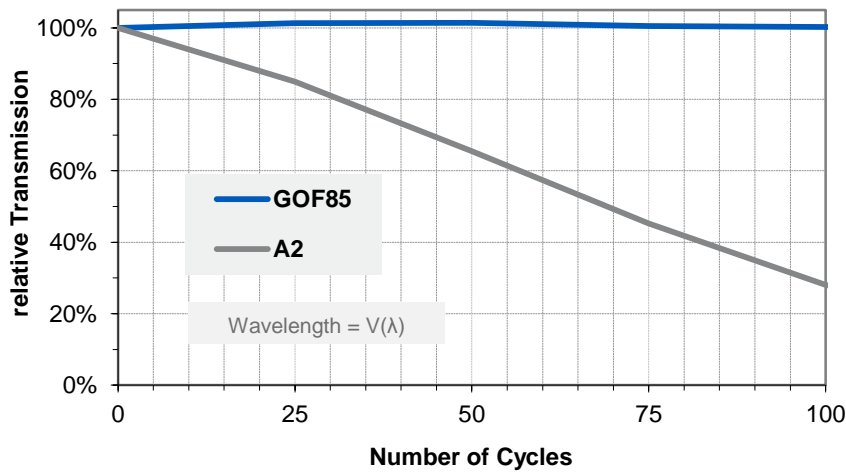
Validation of long-term Stability by Optical Measurement

- Relative Transmission measured in accordance with DIN 58 141 Part 2
- Aperture of light beam: 0.1
- Measurement wavelength: $\lambda = 535 \text{ nm}$
- Prior to each measurement: Cleaning of end surface with ethanol
- Sample preparation: Fiber bundle $\varnothing 2,4\text{mm} \times 100 \text{ mm}$ bonded into stainless steel tube

Chemical Resistance Classes

- Acid resistance Class: **SR 1.0** (acc. to ISO 8424: 1996 [2])
- Alkali resistance class: **AR 1.0** (acc. to ISO 10629: 1996[3])
- Climatic resistance class: **CR 1.0** (acc. to proposed standard ISO/CD13384 [1])
- Stain resistance class: **FR 0**
- For further details see SCHOTT publication TIE-30 “Chemical properties of optical glass”

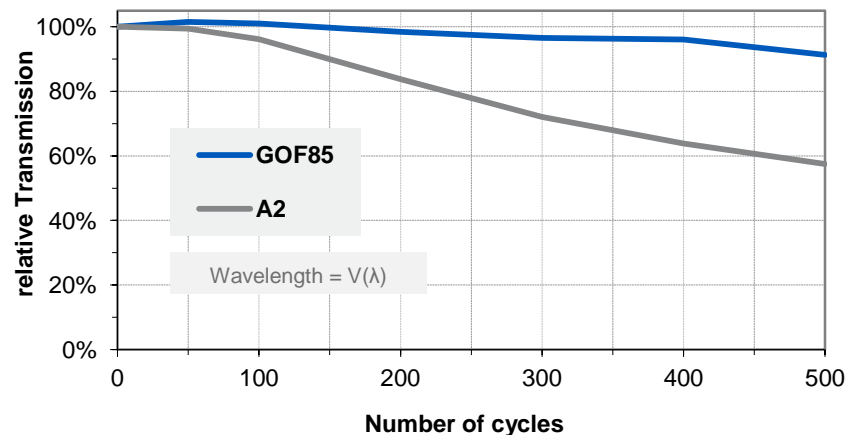
Thermal Disinfection Stability PURAVIS™ GOF85



Test Conditions

Unit	• Miele Disinfektor Automatic G7735
Cleaning program	• Standard program “Sesin” 95°C/10min.
Detergent	• Neodisher MA Dental, 30 ml dil. in 10 l Water (pH11)
Regeneration	• Neodisher Mielclear

Autoclaving Stability PURAVIS™ GOF85



Test Conditions

Autoclave	• Lautenschläger Protocert 839
Autoclaving program	• 134 °C (3 bar), 10 min. sterilization time, 40 min. cycle time

All specifications are subject to change without prior notice. This datasheet or any extracts thereof may only be used in other publications with express permission of SCHOTT.
© SCHOTT North America, Inc.

Lighting and Imaging
SCHOTT North America, Inc.
122 Charlton Street
Southbridge, MA 01550
USA

Phone: +1 (508)765-9744
Fax: +1 (508)764-6273
Lightingimaging@us.schott.com
www.us.schott.com/lightingimaging

SCHOTT
glass made of ideas