Compared to regular light guides, PURAVIS® offers superior light performance over an enlarged wavelength spectrum allowing to shorten treatment time and to enable fluorescence diagnostic applications.

Create your individual light guide design — PURAVIS® multi-component glass can be shaped according to your needs: Bents for better access to the treatment area, cone shape to increase illuminance or imprints on the light guide (e.g. for your brand logo).

Comply with the latest regulatory requirements – our fiber optic light guides are not only long term RoHS compliant but are also fully autoclavable and chemically resistant to ensure a safe and hygienic device throughout the complete product life cycle.

Good for the environment – good to save costs. As a proprietary invention of SCHOTT, PURAVIS® is not only eco-friendly, since it is produced without the use of lead, arsenic or antimony but also features an enhanced break resistance for a safe installation and a maximum lifetime.

### Multi Core Rods (MCR): PURAVIS® MCR-85
- Consist of multiple fused core/clad systems for best light performance even after bending the rod.

### Applications:
- Dental Curing
- Caries Detection
- Oral Cancer Screening
- Diode Laser Applications

### Single Core Rods (SCR): PURAVIS® SCR-85
- Consist of one single high index core with a low index cladding.

### Applications:
- Homogenization of the light beam

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### Technical Data:

<table>
<thead>
<tr>
<th>Description</th>
<th>PURAVIS® SCR-85</th>
<th>PURAVIS® MCR-85C</th>
<th>PURAVIS® MCR-85B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Type</td>
<td>single</td>
<td>multi</td>
<td>multi</td>
</tr>
<tr>
<td>Color Outer Clad</td>
<td>clear</td>
<td>clear</td>
<td>black</td>
</tr>
<tr>
<td>Numerical Aperture</td>
<td>(λ = 587 nm)</td>
<td>0.68</td>
<td>0.68</td>
</tr>
<tr>
<td>Effective Acceptance Angle</td>
<td>according to DIN 58 141 Part 3</td>
<td>Theoretical value at λ = 546 nm</td>
<td>85°</td>
</tr>
<tr>
<td>Eco-Friendliness</td>
<td>Compliant to RoHS directive EU 2011/65 EU without using the exception according appendix III and IV.</td>
<td>without -lead -arsenic - antimony</td>
<td>without -lead -arsenic - antimony</td>
</tr>
<tr>
<td>Biocompatibility</td>
<td>According to DIN ISO 10993-5</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Temperature</td>
<td>Operational (glass rod only) Storage/Transport</td>
<td>- 20°C/-4°F ...+350°C/662°F</td>
<td>- 20°C/-4°F ...+70°C/158°F</td>
</tr>
</tbody>
</table>
Typical Transmission  (Measured in accordance with DIN 58 141 Part 2)

The transmission curves displayed below represent SCHOTT’s typical manufacturing level for SCHOTT PURAVIS® MCR-85 and SCR-85 and is monitored in the wavelength range between 460 and 660 nm.

Larger Numerical Aperture of PURAVIS® MCR-85/SCR-85

PURAVIS® fiber rods feature a larger numerical aperture (NA) and thus a larger acceptance angle compared to conventional fiber rods.

This allows for a solid angle benefit and thus a better utilization of LED beam characteristics.

Typical Dependence of Transmission on Bending Angle

The transmission of a straight PURAVIS® MCR changes after bending. The effect depends on the bending angle as displayed in the graph to the right.
Long Term Stability of SCHOTT PURAVIS® Glass

SCHOTT PURAVIS® features high chemical stability. Core and cladding glasses have high chemical resistance, which ensure long-term stability over lifetime under repeated autoclave 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 acetic acid 5%

Sample preparation:
- SCHOTT® MCR-85C rods
- Diameter: 10 mm
- Length: 85.6 mm (Straight)

![Graph showing relative transmission over number of cycles for PURAVIS® MCR-85 and conventional glass MCR-4 / MCR-7]

Test Conditions

<table>
<thead>
<tr>
<th>Autoclave</th>
<th>Lautenschläger Protocert 839</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autoclaving program</td>
<td>Temperature/pressure: 134 °C at 3 bar</td>
</tr>
<tr>
<td></td>
<td>Sterilization time: 10 min</td>
</tr>
<tr>
<td></td>
<td>Cycle time: 17 min</td>
</tr>
</tbody>
</table>
Design Options for SCHOTT PURAVIS® MCR-85

Straight Rods

- Length: 2.5 mm .... 1000 mm
- Diameter: 1 .... 14 mm

Fiber Optic Cones

Straight SCHOTT PURAVIS® MCR can be drawn into a cone shape to increase intensity in a smaller spot diameter. **Please note:** Changing the diameter from input to output changes the original acceptance angle of the rod material.
- Examples of typical cones: 13 to 8 mm, 8 to 4 mm, 6 to 2 mm diameter

Bent Rods

Straight or conical-shaped SCHOTT PURAVIS® MCR can be bent into angled shapes. Most common are bends of up to 60°. Depending on the diameter of the raw rod radii of the bent rods range from 5 to 12 mm.
- Common rod diameters: 4, 6, 8, 10, 13 mm
- Design recommendation for minimum length of short leg “A”:

<table>
<thead>
<tr>
<th>Diameter</th>
<th>B = 50°</th>
<th>B = 60°</th>
<th>B = 70°</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 to 6 mm</td>
<td>13 ± 2</td>
<td>13 ± 2</td>
<td>13 ± 2</td>
</tr>
<tr>
<td>8 mm</td>
<td>14 ± 2</td>
<td>14 ± 2</td>
<td>15 ± 2</td>
</tr>
<tr>
<td>10 mm</td>
<td>16 ± 2</td>
<td>16 ± 2</td>
<td>17 ± 2</td>
</tr>
<tr>
<td>13 mm</td>
<td>19 ± 2</td>
<td>20 ± 2</td>
<td>20 ± 2</td>
</tr>
</tbody>
</table>

Ferrules

- Customer specified ferrules, made from stainless steel, German silver or polymers, can be glued onto the rod.
- Polymer ferrules can be added directly onto the rod with an injection molding process.

Printing

Customer specific information can be printed onto the rods. Different colors are available.

Coating

Anti-reflective coatings on end surfaces are available upon request.