Specialty Fiber Preforms for the Most Demanding Applications

Fluosil® preforms are fused silica core step index multimode preforms made using the Plasma Outside Deposition (POD) process. This process facilitates the creation of a highly fluorine doped cladding with a depressed index compared to fused silica. Fluosil® preforms are principally characterized by the core material properties, cladding thickness, and numerical aperture.

Examples of Applications
- Medical laser surgery (e.g., ablation of arterial blockage or vaporization of prostate tissue to treat BPH)
- Automotive applications (laser cutting and welding)
- Spectroscopy from UV, to VIS, to NIR ranges
- Specialty fiber bundles (e.g., beam homogenization for photo lithography and spot curing of UV adhesives)
Product code – Customized Solutions
The product code of our Fluosil® preforms is based on their properties and is explained in the following sections:

\[ e.g.: \text{S W U 1.2 H 25mm} \]

Fiber type – “S” is universal for our Step Index Profile

Core material – Your Choice
Second portion of the product code signifies the type of core material used. “S”, “B”, “X” or “O” identifies high OH materials mainly for UV applications, while “W” or “T” corresponds to low OH materials for broad wavelength applications.

Preform Types – Influence of Core Materials

<table>
<thead>
<tr>
<th>Preform Type</th>
<th>Core Material</th>
<th>Wavelength (nm)</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>High OH</td>
<td>SSU F100</td>
<td>180 ... 580, 670, 800, 1,030</td>
<td>Excellent transmission in UV</td>
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<tr>
<td></td>
<td>SBU DQ, 600, 800 ppm OH</td>
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<td>SSU: High radiation resistance to gamma irradiation at 800 nm</td>
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<tr>
<td></td>
<td>SXU F110</td>
<td>308 nm</td>
<td>SBU: Low deep-UV solarization, SXU: Low solarization at 308 nm</td>
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<tr>
<td></td>
<td>SOU Spectrolit</td>
<td>typ. 1000 ppm OH Cl-free</td>
<td>SOU: Price-sensitive applications</td>
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<tr>
<td>Low OH</td>
<td>SWU F300</td>
<td>500 ... 1,200</td>
<td>Excellent transmission in VIS – NIR</td>
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<tr>
<td></td>
<td></td>
<td>2,200</td>
<td>OH content &lt; 0.7 ppm, typ. 0.1 ppm</td>
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<tr>
<td></td>
<td>STU-D F320-0B</td>
<td>&lt; 1 ppm OH</td>
<td>High power laser transmission, Spectroscopy</td>
</tr>
</tbody>
</table>

Flexible fiber design &
Due to our broad range of production capabilities we are able to realize complex customized fiber designs with multiple layer structures or special shapes. These different structures can be achieved by POD or utilizing jacket tubes for thicker layers. Single step cladding structures are indicated by the letter “U”. Double or multiple cladding structures are indicated by an “S”.
The relative thickness of the different layers is described by the CCDR, the cladding to core diameter ratio. As a rule of thumb for low attenuation fibers, the cladding thickness should be ten times of the operational wavelength.

Numerical aperture (NA)
The nomenclature in the product code for NA is blank for standard NA (0.22 ± 0.02), “L” for low NA (< 0.2), “H” for high NA (0.26 ± 0.02) and “SH” for super high NA (> 0.26). With respect to F300 the highest achievable NAs are 0.29.

Final part of our product nomenclature is the preform diameter given in mm.

About us
Heraeus is the key global supplier of high purity synthetic fused silica products for optical fiber manufacturing. We have been a reliable partner in the world optical fiber industry since 1976.