Corning® Single-Mode Optical Fiber

SMF-28™ Fiber

--- Product Information ---

The Standard For Performance

Corning® SMF-28™ single-mode fiber has set the standard for value and performance for telephony, cable television, submarine, and utility network applications. Widely used in the transmission of voice, data, and video services, SMF-28 fiber is manufactured to the most demanding specifications in the industry. SMF-28 fiber meets or exceeds ITU-T Recommendation G.652, TIA/EIA-492CAAA, IEC Publication 60793-2 and GR-20-CORE requirements.

Patented Quality Process

SMF-28 fiber is manufactured using the Outside Vapor Deposition (OVD) process, which produces a totally synthetic ultrapurpure fiber. As a result, Corning SMF-28 fiber has consistent geometrical properties, high strength, and low attenuation. Corning SMF-28 fiber can be counted on to deliver excellent performance and high reliability, reel after reel. Measurement methods comply with ITU recommendations G.650, IEC 60793-1, and Bellcore GR-20-CORE.

Features And Benefits

- Versatility in 1310 nm and 1550 nm applications.
- Outstanding geometrical properties for low splice loss and high splice yields.
- OVD manufacturing reliability and product consistency.
- Optimized for use in loose tube, ribbon, and other common cable designs.

Protection And Versatility

SMF-28 fiber is protected for long-term performance and reliability by the CPC coating system. Corning's enhanced, dual acrylate CPC coatings provide excellent fiber protection and are easy to work with. CPC coatings are designed to be mechanically stripped and have an outside diameter of 245 μm. They are optimized for use in many single- and multi-fiber cable designs including loose tube, ribbon, slotted core, and tight buffer cables.

The Sales Leader

Corning SMF-28 fiber is the world's best selling fiber. In 1994, SMF-28 fiber was deployed in over 43 countries around the world. All types of network providers count on this fiber to support network expansion into the 21st Century.

Optical Specifications

**Attenuation**

<table>
<thead>
<tr>
<th>Wavelength (nm)</th>
<th>Standard Attenuation Cells (dB/km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1310</td>
<td>≤0.35</td>
</tr>
<tr>
<td>1550</td>
<td>≤0.25</td>
</tr>
</tbody>
</table>

- *Lower attenuation available in limited quantities.

Point Discontinuity

No point discontinuity greater than 0.10 dB at either 1310 nm or 1550 nm.

Attenuation at the Water Peak

The attenuation at 1385 ± 3 nm shall not exceed 2.1 dB/km.

**Dispersion**

Zero Dispersion Wavelength (λ_0):

1301.5 nm ≤ λ_0 ≤ 1321.5 nm

Zero Dispersion Slope (S_0):

≤ 0.092 ps/(nm•km)

Dispersion = D(λ) = \frac{S_0}{4} \left( \frac{\lambda - \lambda_0}{\lambda} \right) \text{ps/(nm•km)},

for 1200 nm ≤ λ ≤ 1600 nm

λ = Operating Wavelength

Polarization Mode Dispersion

Fiber Polarization Mode Dispersion (PMD)

<table>
<thead>
<tr>
<th>Value (ps/km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>±0.1*</td>
</tr>
<tr>
<td>±0.2 *</td>
</tr>
</tbody>
</table>

* Complies with IEC SC 86A/WG1, Method 1, September 1997.

The PMD link value is a term used to describe the PMD of concatenated lengths of fiber (also known as the link quadrature average). This value is used to determine a statistical upper limit for system PMD performance. Individual PMD values may change when cabled. Corning's fiber specification supports emerging network design requirements for a 0.5 ps/km maximum PMD.

Environmental Specifications

<table>
<thead>
<tr>
<th>Environmental Test Condition</th>
<th>Induced Attenuation (dB/km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1310 nm</td>
<td>≤0.05</td>
</tr>
<tr>
<td>1550 nm</td>
<td>≤0.05</td>
</tr>
</tbody>
</table>

*Reference temperature = +25°C

Operating Temperature Range: -60°C to +85°C

| Temperature Humidity Cycling | ≤0.05 |
| 10°C to +40°C, up to 98% RH |

| Water Immersion, 23°C ± 2°C | ≤0.05 |
|                            |

| Heat Aging, 85°C ± 2°C | ≤0.05 |

| \*Reference temperature = +25°C |

**Cable Cutoff Wavelength (λ_c)

λ_c ≤ 1260 nm

**Mode-Field Diameter

9.2 ± 0.4 μm at 1310 nm

10.4 ± 0.8 μm at 1550 nm

Thus, Corning® SMF-28™ single-mode optical fiber is the ideal choice for high-performance network applications.
Performance Characterizations

Characterized parameters are typical values.

Core Diameter: 8.2 μm
Numerical Aperture: 0.14
Zero Dispersion Wavelength (λ₀): 1312 nm
Zero Dispersion Slope (S₀): 0.090 ps/(nm²•km)
Refractive Index Difference: 0.36%
Effective Group Index of Refraction (Nₑ₀): 1.4677 at 1310 nm
1.4682 at 1550 nm
Fatigue Resistance Parameter (α₀): 20
Coating Strip Force:
Dry: 0.6 lbs (2.7N)
Wet, 14-day room temperature: 0.6 lbs (2.7N)

Ordering Information

To order Corning® SMF-28® optical fiber, contact your sales representative, or call the Telecommunications Products Division Customer Service Department at 910-395-7659 (North America) and +1 607-974-7174 (International). Please specify the following parameters when ordering:

Fiber Type: Corning® SMF-28®
Fiber Attenuation Cell: dB/km
Fiber Quantity: km
Other: (Requested ship date, etc.)