# Corning® SMF-28® Ultra Optical Fiber

# **Product Information**

# **CORNING**

ColorPro™ Identification

in colored and ringmarked

identification technology. Corning fibers with ColorPro™

identification technology

variants, enabled by ColorPro™

deliver better efficiency in cable manufacturing, simplify inventory

management, and leverage an enhanced fiber product offering.

SMF-28 Ultra fiber is also available

Technology

**How to Order** 

Contact your sales

representative, or call

Service Department: Ph: 1-607-248-2000 (U.S./Can.)

the Optical Fiber Customer

Email: cofic@corning.com

attenuation, and quantity

when ordering.

Please specify the fiber type,

+44-1244-525-320 (Europe)



Corning® SMF-28® Ultra optical fiber was the first to market to combine the benefit of industryleading attenuation and improved macrobending performance while maintaining compatibility with the existing installed fiber base. This full-spectrum, all-in-one fiber is operational in regional, longhaul, metro, access, mobile, and fiber to the home (FTTH) applications. SMF-28 Ultra fiber has bend performance that exceeds Recommendation ITU-T G.657.A1, and is compatible and fully compliant with Recommendation ITU-T G.652.D.

### **Optical Specifications**

#### **Maximum Attenuation**

Wavelength (nm)	Maximum Value* (dB/km)
1310	≤ 0.32
1383**	≤ 0.32
1490	≤ 0.21
1550	≤ 0.18
1625	≤ 0.20

<sup>\*</sup>Alternate attenuation offerings available upon request.

#### Attenuation vs. Wavelength

Range	Ref. $\lambda$	Max. $\alpha$ Difference
(nm)	(nm)	(dB/km)
1285 – 1330	1310	0.03
1525 – 1575	1550	0.02

The attenuation in a given wavelength range does not exceed the attenuation of the reference wavelength ( $\lambda$ ) by more than the value  $\alpha$ .

#### **Macrobend Loss**

Mandrel Radius (mm)	Number of Turns	Wavelength (nm)	Induced Attenuation* (dB)
10	1	1550	≤ 0.50
10	1	1625	≤ 1.5
15	10	1550	≤ 0.05
15	10	1625	≤ 0.30
25	100	1310, 1550, 1625	≤ 0.01

<sup>\*</sup>The induced attenuation due to fiber wrapped around a mandrel of a specified radius.

### **Point Discontinuity**

Wavelength (nm)	Point Discontinuity (dB)
1310	≤ 0.05
1550	≤ 0.05

#### Cable Cutoff Wavelength ( $\lambda_{cc}$ )

λ<sub>cc</sub> ≤ 1260 nm

#### **Mode Field Diameter**

Wavelength	Mode Field Diameter
(nm)	(μm)
1310	9.2 ± 0.4
1550	10.4 ± 0.5

#### Dispersion

Wavelength (nm)	Dispersion Value [ps/(nm•km)]
1550	≤ 18
1625	≤ 22

Zero Dispersion Wavelength ( $\lambda_0$ ): 1304 nm  $\leq \lambda_0 \leq$  1324 nm Zero Dispersion Slope ( $S_0$ ):  $\leq 0.092 \text{ ps/(nm}^2 \cdot \text{km)}$ 

#### **Polarization Mode Dispersion (PMD)**

Value (ps/√km) PMD Link Design Value ≤ 0.04\* Maximum Individual Fiber PMD ≤ 0.1

The PMD link design value is a term used to describe the PMD of concatenated lengths of fiber (also known as PMD<sub>Q</sub>). This value represents a statistical upper limit for total link PMD. Individual PMD values may change when fiber is cabled.



<sup>\*\*</sup>Attenuation values at this wavelength represent post-hydrogen aging performance.

<sup>\*</sup>Complies with ITU-T G.650-2 Appendix IV, (m = 20, Q = 0.01%), August 2015.

# **Dimensional Specifications**

**Glass Geometry** 

#### **Coating Geometry**

Fiber Curl	≥ 4.0 m radius of curvature
Cladding Diameter	125.0 ± 0.7 μm
Core-Clad Concentricity	≤ 0.5 μm
Cladding Non-Circularity	≤ 0.7%

Coating Diameter	242 ± 5 μm
Coating-Cladding Concentricity	< 12 μm

### **Environmental Specifications**

Environmental Test	Test Condition	Induced Attenuation 1310 nm, 1550 nm, and 1625 nm (dB/km)
Temperature Dependence	-60°C to +85°C*	≤ 0.05
Temperature Humidity Cycling	-10°C to +85°C up to 98% RH	≤ 0.05
Water Immersion	23°C ± 2°C	≤ 0.05
Heat Aging	85°C ± 2°C	≤ 0.05
Damp Heat	85°C at 85% RH	≤ 0.05

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

# **Mechanical Specifications**

#### **Proof Test**

The entire fiber length is subjected to a tensile stress ≥ 100 kpsi (0.69 GPa). Higher proof test levels are available.

#### Length

Fiber lengths available up to 50.4 km/spool.

### **Performance Characterizations**

Characterized parameters are typical values.

Core Diameter	8.2 μm
Numerical Aperture	0.14  NA is measured at the one percent power level of a one-dimensional far-field scan at 1310 nm.
Effective Group Index of Refraction (n <sub>eff</sub> )	1310 nm: 1.4676 1550 nm: 1.4682
Fatigue Resistance Parameter (n <sub>d</sub> )	20
Coating Strip Force	Dry: 0.6 lbs. (3 N) Wet, 14-day room temperature: 0.6 lbs. (3 N)
Rayleigh Backscatter Coefficient (for 1 ns Pulse Width)	1310 nm: -77 dB 1550 nm: -82 dB

<sup>\*</sup>Reference temperature = +23°C