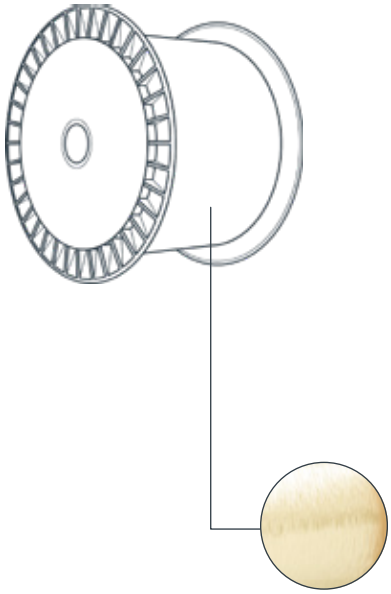
ofs
A Furukawa Company

lineasens®

LineaSens® Proprietary, Hydrogen Insensitive Core Graded-Index Multimode 50 µm Optical Fiber

PYROCOAT® K Coating: Part Number F80403



Features	Benefits
Improved Waveguide Resists Hydrogen Darkening	Minimizes permanent losses due to hydrogen ingression in harsh conditions
Graded-Index 50/125 Fiber Structure	Compatible with most commercially available Distributed Temperature Sensing (DTS) interrogators; can also be fusion spliced to similar hydrogen insensitive core optical fiber, and traditional lead-in optical fibers
PYROCOAT® K Coating Industry-Leading Thermal Stability	Thin, hard coating provides excellent thermal stability, plus chemical and abrasion resistance in a small cross-section of 155 µm

Product Description

This optical fiber is designed for distributed temperature sensing and communications in applications where hydrogen diffusion is a concern, and in temperatures up to 293 °C for long durations (~ up to 20 years, performance and reliability will vary depending on installation environment. Consult OFS for guidance). The waveguide features a proprietary, hydrogen insensitive core structure to minimize the effects of hydrogen darkening and also features a thin, hard, polyimide coating for excellent chemical resistance and thermal stability at elevated temperatures.

LineaSens® Proprietary, Hydrogen Insensitive Core GI MM 50 Optical Fiber (PYROCOAT® K Coating)

Specifications		
Item Number		**F80403**
Description		GEO50-H Geophysical Graded-Index Optical Fiber - Hydrogen Resistant, PYROCOAT* K
Type		Multimode Graded-Index
Numerical Aperture		0.20
Attenuation	@ 850 nm	≤ 4.0 dB/km
	@ 1300 nm	≤ 2.0 dB/km
Bandwidth	OFL @ 850 nm	≥ 400 Mhz-km
	OFL @ 1300 nm	≥ 400 Mhz-km
Core Diameter		50 ± 3 µm
Clad Diameter		125 ± 2 µm
Coating Diameter		155 ± 5 µm
Cladding Non-Circularity		≤ 2.0%
Core Non-Circularity		≤ 5.0%
Hermetic Carbon Layer		None
Operating Temperature		-198 to +340 °C
Short Term Excursions (24 hrs.)		Up to 450 °C
Coating Material		PYROCOAT K
Short-Term Bend Radius (Mechanical)		≥ 8 mm
Long-Term Bend Radius (Mechanical)		≥ 10 mm
Proof Test Level		200 kpsi (1.38 Gpa)

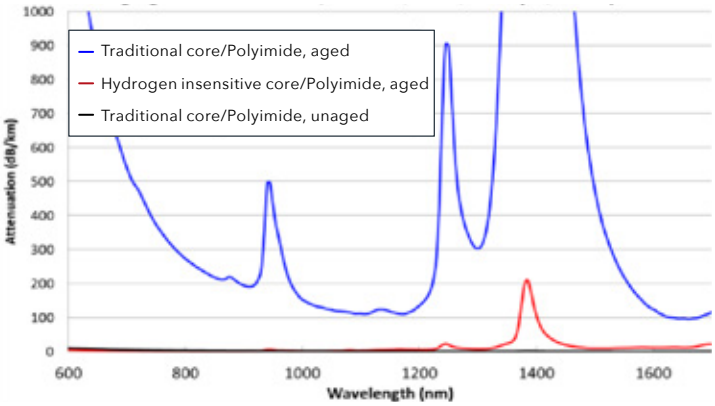
*** NOTE:** Hydrogen diffusion performance curve on right

Hydrogen Ingression Performance

Hydrogen Concentration	Partial Pressure (PSI)	Temperature (°C)	Duration (Days)	H_2 Induced Loss @ 1060 nm
5%	1,500	250	23	< 1.0 dB/km
5%	1,500	350	10	< 1.0 dB/km

Proprietary, Hydrogen Insensitive Core Optical Fibers - Lower Sensitivity to H_2

Aging Condition: 5% H_2/95% N_2, 1500 psi, 350 °C, 10 days



	Commercially Available Polyimide-Coated Fibers	PYROCOAT® K
Lifetime at 275 °C	4 years	80 years
Lifetime at 300 °C	0.8 years	13 years
Lifetime at 325 °C	70 days	2.2 years
Lifetime at 350 °C	18 days	160 days
20-year Continuous Upper Use Temperature	250 °C	293 °C
Fiber/Metal Interaction at 300 °C	Fiber sticks to metal	Fiber does not stick to metal
Aging in distilled water, 200°C, 2000 psi, 7 days	Coating material degrades	No coating degradation
Aging in sea water, 100°C, 2000 psi, 14 days	No coating degradation	No coating degradation
Aging in mineral oil, 250°C, 2000 psi, 10 days	No coating degradation	No coating degradation
Aging in isopropanol, 250°C, 1500 psi, 7 days	No coating degradation	No coating degradation

NOTE: The lifetimes are based on 25% loss of the initial coating mass criterion. For details, see A. A. Stolov, D. A Simoff, J. Li, Thermal Stability of Specialty Optical Fibers. *J. Lightwave Technol.*, 2008, V 26, N 20, P. 3443-3451.

For additional information please contact your sales representative.

You can also visit our website at **www.ofsoptics.com** or call 1-888-fiberhelp (1-888-342-3743) USA or 1-770-798-5555 outside the USA.

OFS Marketing Communications
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