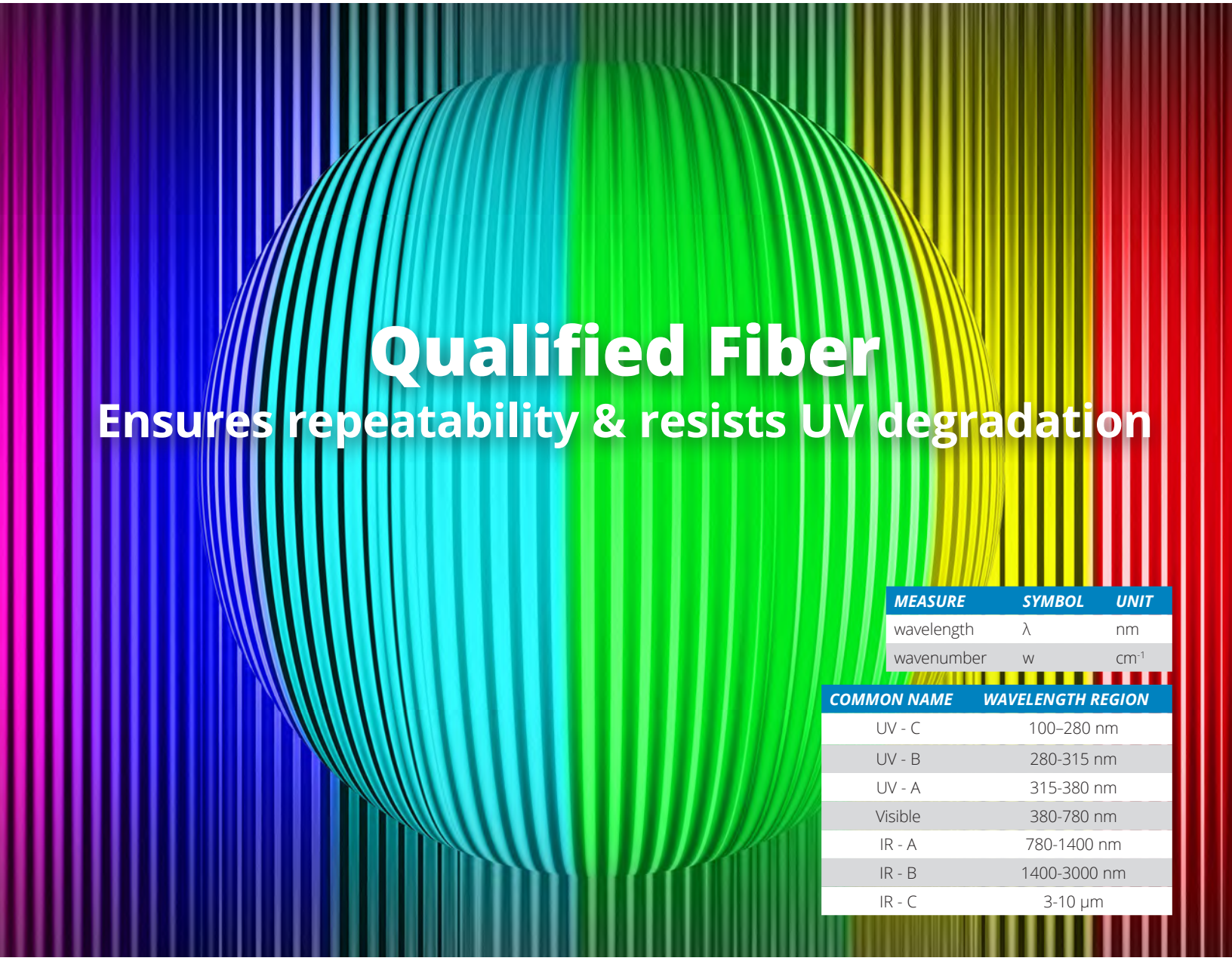
WORLD
PRECISION
INSTRUMENTS

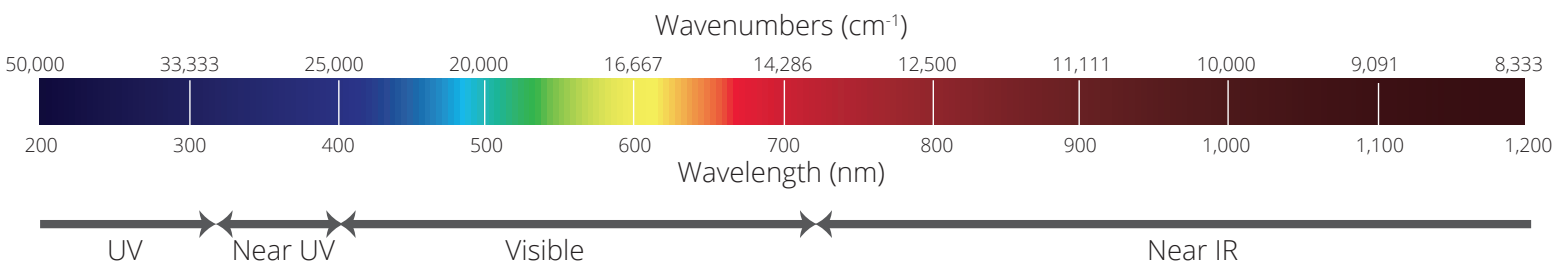
YOUR OEM PARTNER

For qualified fiber, assemblies, probes, flow cells & more



MEASURE	SYMBOL	UNIT
wavelength	λ	nm
wavenumber	w	cm^{-1}

COMMON NAME	WAVELENGTH REGION
UV - C	100–280 nm
UV - B	280-315 nm
UV - A	315-380 nm
Visible	380-780 nm
IR - A	780-1400 nm
IR - B	1400-3000 nm
IR - C	3-10 µm



TRUSTED PARTNER FOR RELIABLE MEASUREMENTS

WPI is dedicated to being your preferred OEM supplier for optical fiber products by offering the following:

- Quality Products and Expert Service – After over 50 years in business, we've learned that it takes more to be your partner than just great quality and fair prices. We have implemented measures such as our ISO-9001:2015 certification throughout our home office and production facility to improve our efficiency and ensure quality. We also have invested in six sigma certifications with continuing effort to improve processes within the organization.
- Personal Service – A dedicated OEM account manager and a seasoned optical engineering team with over 20 years of technical design experience make all the difference for our customers.
- Cost Effective Solutions – Quality optical fiber products at the highest value gives you more confidence for less. Our core values are driven by a desire to empower you to fulfill your scientific ideas.

PROPRIETARY QUALIFIED OPTICAL FIBERS FOR UV INSTRUMENTATION PRODUCTS

WPI - A BETTER CHOICE

UV Light Transmission for competitors' fiber varies from lot to lot and between manufacturers. WPI fibers are qualified!

Many competitors do not provide UV Basic Attenuation data by fiber length after manufacturing. WPI does. WPI provide real-use data!

Solarization induced loss describes additional induced UV loss of light while a fiber is in use. WPI qualified fiber resists UV degradation.

WPI is the only company offering DIN 58145:2017-01 certified, low solarization, UV fibers and assemblies for the 185 – 340 nm range.

WPI offers high unit to unit repeatability.

WPI has an experienced assembly team.

WPI also manufactures probes (<5 mm shaft), include filters or lenses in your complex assemblies.

BENEFITS

- Sterilizable by common methods (gamma radiation, H_2O_2, EtOH or autoclavable)
- Radiation resistance, dose dependent
- High quality silica/silica fiber uniquely engineered to provide superior transmission in the deep UV with excellent consistency over the length.

FIBER SELECTION GUIDE

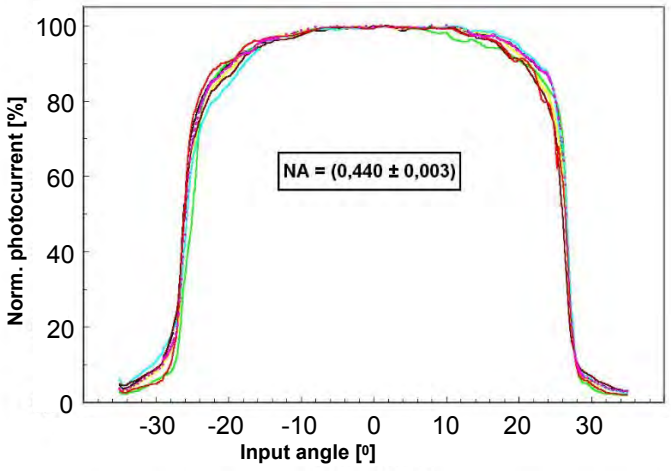
WPI offers standard, bifurcated and cross fiber assemblies of different core diameter and fiber length. Customization is also possible. For Y assemblies and X assemblies, the split point is approximately at 50 cm. The standard jacketing is silicone monocoil.

1x1 Standard – S Optical fibers with 2 connectors and furcation tubing

1x2 Bifurcated – Y Split or combines similar intensities by mixing different or same fiber type.

2x2 Cross – X Cross fiber assembly with mixed fiber types (call for details)

WPI FIBER PERFORMANCE



More Consistency, Better Optical Performance

www.wpiinc.com/qualifiedfo

LIQUID WAVEGUIDE CAPILLARY CELL

LONG PATHLENGTHS FOR SMALL SAMPLE VOLUMES

- 10–500 cm pathlength
- 10–500 fold sensitivity improvement in comparison to 1cm cuvette
- 0.55 mm ID for low sample volume sampling
- 2 mm ID for unfiltered liquid samples
- SMA 905 fiber optic connections
- 250 nm – 720 nm wavelength range with MilliPore water

Benefits

- Adapts to most fiber optic detection systems
- 20 years of manufacturing experience
- Low UV drift

Applications

- Trace detection of nutrients (nitrite, nitrate, phosphate, iron) in seawater
- Environmental and oceanographic monitoring
- Drinking water analysis
- Colored dissolved organic matter (CDOM)
- Process control

Your sample is the core of a light guide

LOW VOLUME FLOW CELL

For FIA, HPLC and process analysis

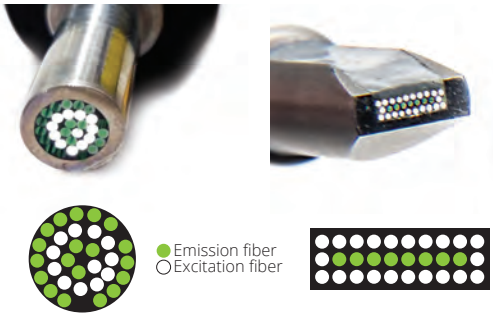
MicroLWCC is a fiber optic low volume flow cell for UV/VIS/NIR absorbance analysis. Based on WPI's established liquid core waveguide technology, the analyte solution functions as the core of a fluid filled light waveguide. Wetted parts in the sample cell light path are PEEK, fused silica and PTFE.

Internal Volume: 2.4 – 24 µL

FLUORESCENCE PROBE

WPI offers fluorescence probes to match your application, both single and double emission. These probes can be used for the detection of the transient response of free ion concentrations, like calcium, potassium, sodium or magnesium. Fluorescence probes can also be designed to detect pH or membrane potential. Auto-fluorescence like the detection of ATPase activity via NADH or FAD is another application.

To select the appropriate fluorescent probe, consider the detection principle and the dye to be used. All probes use fibers with 300 µm core diameter. Excitation fibers have 1000 µm SMA connectors for excitation and double emission probes, and 1500 µm SMA connectors for excitation and single emission probes. The standard probes come with a rectangular head (3 mm × 0.7 mm) or round head (2 mm diameter). The fibers that are used for such probes are highly flexible plastic fibers or fused silica fibers. *Custom fibers for your application may be designed with different core fiber diameters.*



(Left) Customized single emission round probe with a 5 mm diameter for one excitation and one emission wavelength.

(Right) Customized rectangular probe.

OPTICAL OXYGEN SENSOR

Now you can detect oxygen in small sample in living tissues using the phase shift between a reference signal and a measured signal. BioOxy is a new and innovative technology for measuring oxygen in gaseous and aqueous phase. BioOxy is an optical oxygen sensor with important advantages over using common Clark type electrodes. These sensors have a rapid response time with the t90 ≤ 3 seconds (in gas phase). No oxygen is consumed making measurements. These sensors are perfect for bioprocess control and making oxygen measurement in small samples.

BIOOXY SPECIFICATIONS	
OXYGEN MEASUREMENT	Gaseous & Dissolved O_2
PROBE SIZE	240 µm with active area ~50 µm Retractable 10 mm
MEASUREMENT RANGE	0 – 100 % O_2, 0 – 1000 hPa
LIMIT OF DETECTION	0.05 % Oxygen
RESOLUTION	± 0.09 % O_2 or better
ACCURACY @ 20 °C	± 0.4 % O_2 @ 20.9 % O_2, ± 0.05 % O_2 @ 0.2 % O_2
MEASUREMENT TEMP RANGE	0 to + 80 °C
RESPONSE TIME (T_{90})	< 3 sec. (in gas phase)

WHY CHOOSE WPI?
QUALIFIED OPTICAL FIBERS

Not all fibers are created equal. When your research is on the line, the choice is clear. Because, *WPI optical fibers are qualified for your next project.*

What does that mean?

Think of it this way–it is optical fiber that finally addresses the lingering issue of fiber performance variability. Qualified fiber ensures repeatability from one fiber cable to the next.

But how?

Let me explain. Other attributes of a complete spectroscopic system have been addressed to ensure repeatability and accuracy from one system to the next. However, given the inherent nature of working with light and with the process of making multimode UV optical fiber, optical fibers have been a limiting factor for product designers. Historically, this critical component of a system WAS an inherent vulnerability. Not anymore.

Okay! Tell me more? This is confusing.

1. WPI provides product developers, and researchers with *UV basic attenuation data by fiber length* after manufacturing for starters.

2. The proprietary formulation of WPI fiber *resists UV degradation to allow for deep UV (180nm)* solutions to be designed around regardless of the fiber length. It is well known that ultraviolet light degrades silica fiber. Fiber manufacturers correct for this by doping silica with -OH. Over time this specialty solarized fiber degrades and must still be replaced. Typical UV-VIS solarized fibers are also limited to the 220 nm range, with some UV fiber down even further in the UV ~210nm, but with the same degradation problem.

3. The proprietary formulation of WPI fiber allows for *excellent transmission of UV light in longer length fiber* than has been feasible in the past. This is primarily because of the degradation of the fiber itself over time. WPI's QUALIFIED OPTICAL FIBERS let you easily clear this hurdle in designing your next product.

Do you have data to back up these claims?

Absolutely! Contact Contact your OEM Account Manager, and we will gladly provide the data you need.

TIANA L. RUCHTI
OEM Sales Manager
tianar@wpiinc.com

WORLD PRECISION INSTRUMENTS
175 Sarasota Center Blvd.
Sarasota, FL 34240-9258
www.wpiinc.com
P (941) 371-1003
M (941) 350-8332

...for wherever science takes you

WORLD PRECISION INSTRUMENTS

USA: 175 Sarasota Center Boulevard, Sarasota FL 34240-9258 USA
Tel: (941) 371-1003 • **Fax:** (941) 377-5428 • wpi@wpiinc.com • www.wpiinc.com

UK: 1 Hunting Gate, Hitchin, Hertfordshire SG4 0TJ England • 44 (0)1462 424700 • wpiuk@wpi-europe.com
Germany: Saarstraße 23, D-61169 Friedberg (Hesson) • Tel: +49 (0)6031 1602171 • Fax: +49 (0)6031 1602180 • wpide@wpi-europe.com
China & Hong Kong: Rm 18A, No8 Donfang Rd., Pudong District, Shanghai 200120 PRC • +86 688 85517 • ChinaSales@china.wpiinc.com
Brazil: Conselheiro Nabias, 756 sala2611, Santos-São Paulo 11045-002 Brazil • info@brazil.wpiinc.com

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