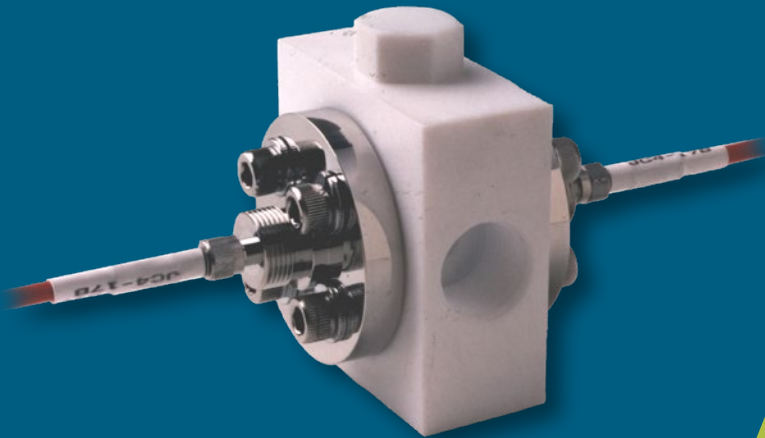


**PRODUCT DATASHEET**

# Teflon Process Flow Cell

Compatible with NIR and UV-VIS Analyzers



## More signal

---

## Less noise

---

## Lower detection limits

- For sample streams that are intolerant to metal contamination
- For corrosive streams containing strong acids, bases, peroxides, or halogenated compounds
- Suitable for liquids and vapors
- Reproducible pathlength permits servicing in the field

## Teflon Process Flow Cell

The GUIDED WAVE Teflon Flow Cell was developed for sample streams that are either extremely corrosive or intolerant to metal contamination. None of the cell's wetted parts are constructed of metal. Only smooth Teflon and sapphire surfaces contact the process stream. Corrosion-resistant stainless steel is used in the outer cell construction to maintain a rigid, stable optical path length. If a completely metal-free flow cell is required, then the Teflon PEEK/PFA Flow Cell should be used.

---

## A Simple, Serviceable Design

The Teflon Flow Cell is a convenient, compact, rugged sample interface that is easy to install and even easier to service. Teflon not only "cold flows" but has a very large temperature coefficient of expansion. To maintain the extremely important pathlength, stainless steel rods are embedded in the Teflon body. The windows and other precision optics are held rigidly in place by these rods. Thus, preventing even the slightest change to the critical pathlength during the normal expansion and contraction that naturally occurs with Teflon products. The measurement accuracy of the stream is therefore never compromised due to this or any other phenomena.

For convenience, the Teflon Flow Cell is equipped with a clean-out port that provides access to the windows for cleaning without disconnecting fibers or plumbing. If necessary, the cell can be completely disassembled for inspection or deep cleaning. The reassemble step is easily accomplished without changing the pathlength, a crucial parameter for repeatable measurements.

---

## Process-Resistant Flow Cell Construction

The Teflon Flow Cell is designed to withstand corrosive processes. Since no metal parts encounter the liquid stream, the design is ideal for processes where even parts per billion levels of metal contamination can create serious problems, such as in semiconductor fab etching and cleaning steps. The flow cell also performs well in the presence of extremely corrosive streams containing strong acids, bases, peroxides, or halogenated compounds. The other major components of the flow cell are Teflon o-rings. Elastomeric seals prevent leakage and protect the Teflon Flow Cell's vital internal optics.

---

## Dual Seal for Added Safety

Perhaps the most crucial aspect of any online sample interface design is the sealing approach. Since process fluid streams will be under pressure and the composition is often hazardous leaks are unacceptable. Additionally, moisture infiltration from the external environment adversely affects performance too. Our brand utilizes multiple o-ring seals that effectively address both issues. This protects the expensive internal optics.

---

## Exceptional Light Transmission

Like all our sample interfaces, the Teflon Flow Cell provides exceptional optical performance. Internal optics result in a collimated light beam for consistently accurate measurements. Typically, peak transmission exceeds 45%. That means more signal, less noise, and lower detection limits for the measurement. The optics on the Teflon Flow Cell are permanently aligned at the factory. As a result, there is no need for any optical adjustments in the field. Additionally, there is no chance for optical misalignment to occur under normal processing conditions or during servicing.

## Pathlengths and Operating Range

The Teflon Flow Cell is available in four standard pathlengths (2, 5, 10, and 20 mm), and in UV-VIS and NIR versions. It operates over the following temperature and pressure ranges:

- Temperature: 0 °C to 150 °C (o-ring material dependent)
- Pressure: 0 to 100 psi [690 kPa]

---

## Optically Matched with All Our Analyzers and Compatible with Most Other Spectrometer Brands

The sample interface is a crucial component of a complete fiber optic-based analyzer system. For maximum performance, the probe or flow cell must be optically matched with both the analyzer (spectrometer) and the fiber that transmits the spectral signal. All our sample interfaces, analyzers, and fiber optic cables are optically matched, so when used in combination they achieve the highest possible consistency and performance. The Teflon Flow Cell is also manufactured to facilitate full integration with any fiber optic system configured with SMA 905 connectors. This includes FT-NIR analyzers. When choosing a sample interface for an FT-NIR analyzer the current fiber core size must be taken into consideration. The Teflon Flow Cell design works best when used with fibers having a core diameter of 400 to 600 micron.

One of the primary advantages of UV-VIS and NIR process spectroscopy is the utilization of intrinsically safe fiber optic cables to remotely locate the analyzer relative to the sample interface (probe or flow cell) installed in the process. Get the full power of this technology and choose the Teflon Flow Cell along with one of our optically matched analyzers and process grade fiber optic cables – *for control you can measure!*

---

Specifications	
<b>Optical Pathlength:</b>	2 mm; 5 mm; 10 mm; 20 mm
<b>Spectral Range:</b>	UV-VIS (200 – 800 nm); NIR (800- 2100 nm)
<b>Fiber Connector:</b>	SMA 905
<b>Optical Efficiency:</b>	>45% transmission from 800 – 1650 nm (%T)
<b>Temperature Range:</b>	0 to 150 °C (o-ring material dependent)
<b>Pressure Range:</b>	0 to 100 psi [690 kPa]
<b>Body Material:</b>	Teflon
<b>O-Ring Material:</b>	Teflon
<b>Process Connection:</b>	3/8 or 1/2 inch FNPT (pathlength dependent), pillar fittings

---

## Large Variety of Configurable Designs

Process Insights offers a large variety of probes, flow cells, and process grade fiber optic cables that meet the harsh demands of the process environment. Several have auxiliary features. All the sample interfaces (probes and flow cells) can be optimized for the UV-VIS and NIR spectral regions or supplied with custom fiber diameters and connectors to match the optical requirements. Many include optional accessories for easy adaptation to different process installation configurations.

## GAIN REAL-TIME INSIGHT INTO YOUR PROCESS

Process Insights manufactures and delivers premium sensors, monitors, detectors, analyzers, instrumentation, and software that are mission-critical to keep your operations, personnel, and the environment safe – every day across the globe.

Get the most reliable, precision analytical technologies available on the market today. We will work to match your needs and budget, and provide the optimal, and most stable process analysis solution for your application.

---

## CENTERS OF EXCELLENCE | PROVIDING PROVEN SOLUTIONS

Process Insights is committed to solving our customers' most complex analytical, process, and measurement challenges everyday.

### Process Insights – The Americas

4140 World Houston Parkway Suite 180, Houston, TX 77032, USA +1 713 947 9591

### Process Insights – EMEA

ATRICOM, Lyoner Strasse 15, 60528 Frankfurt, Germany +49 69 20436910

### Process Insights – APAC


Wujiang Economic and Technology, Development Zone, No. 258 Yi He Road, 215200 Suzhou, Jiangsu Province, China +86 400 086 0106

---

For a complete range of products, applications, systems, and service options, please contact us at: [info@process-insights.com](mailto:info@process-insights.com)

For a complete list of sales & manufacturing sites, please visit: <https://www.process-insights.com/about-us/locations/>

COSA Xentaur, Tiger Optics, Extrel, Alpha Omega Instruments, ATOM Instrument, MBW Calibration, MGA, Guided Wave, ANALECT and LAR TOC Leader are trademarks of Process Insights, Inc.



REVOLUTIONIZING MEASUREMENT

**EVERYWHERE**