

Teflon® PFA/PEEK Process Flow Cell

GUIDED WAVE'S Teflon PFA/PEEK Flow Cell was developed for sample streams that are incompatible with metal components, specifically HF semi-conductor baths. None of the cell's wetted parts are constructed of metal. Only smooth Teflon PFA and sapphire surfaces contact the process stream. Corrosion resistant PEEK is used in the outer cell construction to eliminate any possible metals contamination originating from this part. Other major components of the cell are Teflon PFA and Kalrez® 6375UP (ultra-pure) o-rings. The Teflon PFA/PEEK Flow Cell utilizes the same optical components as our popular Multi-Purpose Flow Cell.



Process-Resistant Construction

Since no metal parts come in contact with the liquid stream, the design is ideal for processes where even ppb levels of metal contamination can create serious problems, as in semiconductor fab etching and cleaning steps. The cell also performs well in the presence of extremely corrosive streams containing strong acids, bases, peroxides or halogenated compounds.

Quality is in the Design

GW designs quality into every probe and flow cell we build. Spectroscopic flow cell design requires stable and fixed optical path lengths, rigid optical alignment, high optical throughput, collimated (parallel) light through the sample, and smooth, turbulence free fluid flows. In addition, the flow cell materials must not contaminate the sample. The Teflon PFA/PEEK Flow Cell meets all of these requirements in a simple easy to maintain design.

The net result is a flow cell that offers high signal-to-noise measurements, low thermal drift, low flow noise characteristics, absorbance accuracy, and low vibration sensitivity.

Common Integration with Most Spectrometers

The Teflon PFA/PEEK Flow Cell is manufactured to facilitate full integration with any fiber optic system configured with SMA 905 connectors. The cell design provides optimal performance when used with fibers having a core diameter of 400 to 600 micron.

Operating Range

The Teflon PFA/PEEK Flow Cell operates at moderate temperatures and pressures. Specifically, safe upper limits for deployment are:

- Temperatures to 110 °C
- Pressures to 100 psi

The flow cell comes in four standard pathlengths 2, 5, 10 and 20 mm, but other custom paths are available by special order.

Exceptional Light Transmission

Like other Guided Wave optical probes, the Teflon PFA/PEEK Flow Cell provides exceptional optical performance. Excellent peak transmission is guaranteed to exceed 45%. This means more signal, lower measurement noise and lower detection limits. The flow cell can be completely dismantled, then reassembled without changing the sampling pathlength, an important feature when working with established NIR calibration models.

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Specifications

Wetted Materials	Teflon PFA, Sapphire, Kalrez® 6375UP (ultra-pure)
Windows	Sapphire
Non-Wetted Parts	Nylon / Torlon® / PEEK / Glass
Pathlengths	2, 5, 10, 20 mm
Spectral Range	400 – 2100 nm (200 - 1000 nm optional)
Efficiency	> 45% (800 – 1650 nm)
Maximum Continuous Operating Temperature	110 °C
Maximum Pressure	100 psi
Termination	SMA 905
Process Connection	3/8" FNPT

Compatible with All Guided Wave Analyzers

The sample interface is a crucial component of a complete fiber optic based analyzer system. For optimal performance, the probe must be "optically matched" with both the spectrophotometer and the fiber optic cable. The Teflon PFA/PEEK Flow Cell, just as is the case for all Guided Wave's probes, provides consistently high performance when used in combination with our analyzers and fiber. See the Guided Wave web site at www.guided-wave.com for information on our process analyzers, fiber and other products.

Guided Wave has a wide variety of probe designs to meet your process needs, including the SST Probe, O-ring SST Probe, Shuttle Probe, High Safety Flow Cell, Multi-Purpose Flow Cell, Teflon Flow Cell, Extruder Probe, Gas Cell, and laboratory probes. Call us for your custom and special probe needs.

Guided Wave Flow Cell Family (shown below)

