

# CIP/SIP ATR Fiber Probe for Bioprocess (Shaft-in-shaft design)



art photonics

## FlexiSpec®

Fiber assembly is easy detachable.

No need to retract the whole probe out of the fermenter, just pull the fiber assembly out of the operational shaft and store it separately.

Sealing the operational shaft is possible for the sterilization, cleaning, deactivation or any other treatment.

Sterilizable ATR Fiber Probe is a new product of art photonics' *FlexiSpec*® product line. These ATR Probes are produced with any type of ATR element and for any type of FTIR spectrometers.

Unique Shaft-in-Shaft design enables use of *FlexiSpec*® ATR Probe in Bio process where sterilization is required without having to forgo the renowned advantages of Mid-IR FTIR spectroscopy.

### Applications:

- Reaction Monitoring in real time
- Process Analytical Technologies (PAT)
- Remote Polymerization Control
- Crystallization Process Screening
- In-situ IR-Spectroscopy for PAT in Chemical, Petrochemical, Atomic, Biopharmaceutical & Food Industry



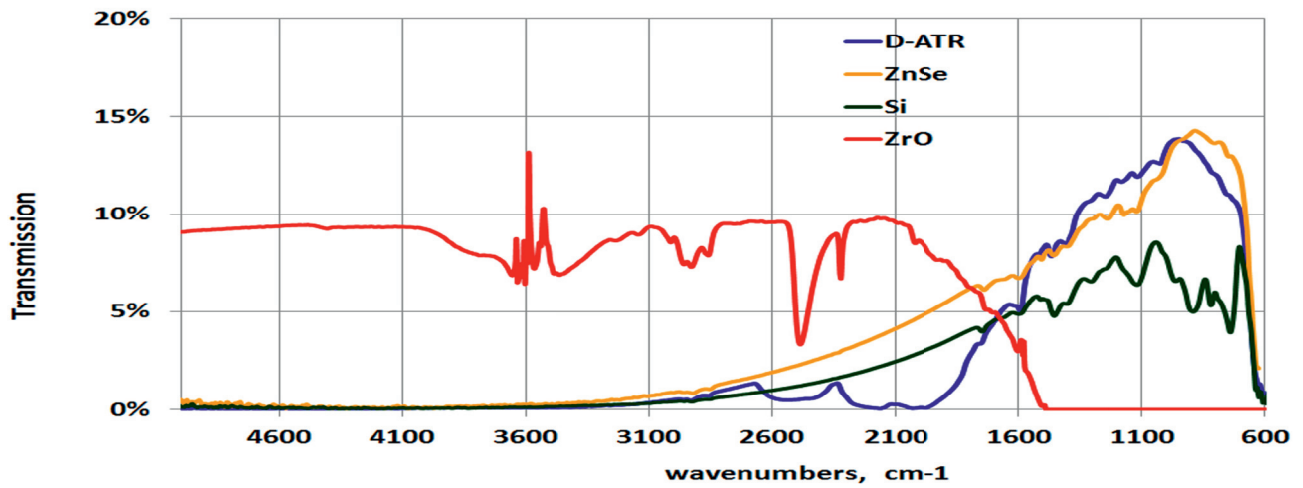
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Transmission spectra of ATR probes. Probe length 1.5m



Specification of Fiber Optic Immersion ATR-Probes *FlexiSpec*<sup>®</sup>

Probe type	Diamond ATR	ZnSe ATR	Silizium ATR	Cubic Zirconium ATR
Transmission range	5.2-17 $\mu$ m (600-1900cm <sup>-1</sup> )	3.2-17 $\mu$ m (600-3100cm <sup>-1</sup> )	3.2-17 $\mu$ m (600-3100cm <sup>-1</sup> )	1.1-6.5 $\mu$ m (650-9000cm <sup>-1</sup> )
Fiber type	PIR-900/1000	PIR-900/1000	PIR-900/1000	CIR-500/550
Temperature range	-150°C / + 140°C	-150°C / + 140°C	-150°C / + 140°C	-150°C / + 90°C
Pressure (max)	200Bar, 300 Bar on request	10Bar	100Bar	100Bar

Common Parameters of Fiber Optic ATR-Probes *FlexiSpec*<sup>®</sup>

Total Length	1.5m (opt.: 1m to 5m)*
Shaft Length	300mm (opt.: 100mm to 700mm)*
Shaft Diameter	12mm, 6.3mm*
Shaft Material	Hastelloy C22
Length of Legs	500mm (opt.: 500mm)
Protective Tube Material	Liquid Tight SS-Conduit, KOPEX-Tube
Minimal Bending Radius	130mm
Input / Output Connectors	Long SMA (opt.: any other type)



\*Customized dimensions are available on request.

