

# Special Fibers

## “Mid Infra-Red”

- Sapphire fibers for transmission from 0,75 to 3,5 $\mu\text{m}$
- Silver halide fibers for transmission from 4 to 18 $\mu\text{m}$
- Chalcogenide fibers for transmission from 2 to 6 $\mu\text{m}$

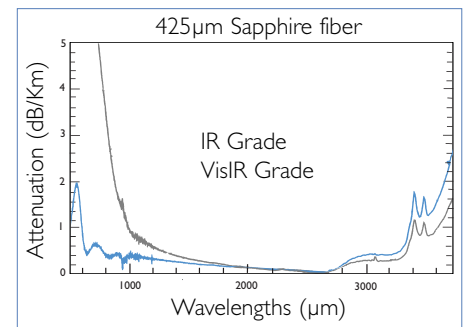
### Sapphire fibers : 0,75 to 3,5 $\mu\text{m}$

Sapphire optical fibers have a crystalline structure and transmit over a wide wavelength range from 0.75 to 3.5 $\mu\text{m}$ , and can be used at T° up to 2000°C. They have also a very high hardness compared to quartz fibers.

Applications : spectral analysis, sensors in harsh environments and laser delivery at 2.94 $\mu\text{m}$  (Er:YAG).

- High strength
- High melting point : 2035°C.
- Biocompatible, nontoxic, USP Class VI approved
- Biologically inert, autoclavable
- Transmission per meter 80%
- effective NA 0,12
- Maximum length 2m (4m on special request)

Codes	SPH150	SPH250	SPH325	SPH425
Fiber core diameter ( $\mu\text{m}$ )	150	250	325	425
Buffer diameter ( $\mu\text{m}$ )	400	450	650	750
Minimum bend radius (mm)	20	30	60	80



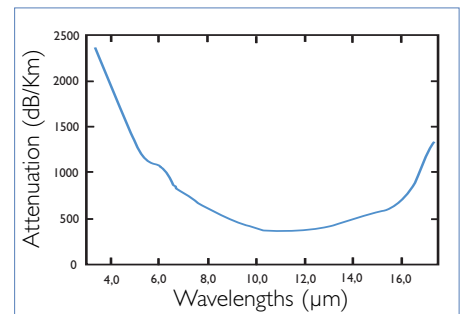
### Silver halide fibers : 4 to 18 $\mu\text{m}$

The Polycrystalline Infra-Red fibers (PIR) are non toxic, very flexible, transparent across a broad spectral region from 4 $\mu\text{m}$  to 18 $\mu\text{m}$  and capable of operating over the wide T° range of -200°C up to +250°C.

Applications : flexible delivery system for CO and CO2 laser up 50W, IR imaging systems, fiber probes for IR spectroscopy, non contact pyrometry

- Core / Clad diameter 400/500, 630/700, 900/1000 $\mu\text{m}$
- Numerical Aperture 0.25
- Attenuation at 10.6 $\mu\text{m}$  0.1 - 0.5 dB/m
- Melting point 415°C
- Minimum bending radius (fixed) 10 x fiber diameter
- Fiber lengths up to 20 m

AR coating on request, for reduced reflection.



### Chalcogenide fibers : 1,5 to 6 $\mu\text{m}$

Chalcogenide InfraRed (CIR) glasses based on As-S composition are the best for transmission in 2 - 6 $\mu\text{m}$  range of spectrum. CIR-fibers are drawn in core-clad structure with double polymer coating and characterized by a low optical losses and high flexibility. The attenuation spectrum is free from OH-absorption band at 3 $\mu\text{m}$  and thus it enables CIR-fibers to be used for Er:YAG laser power delivery and probes for IR spectroscopy

Core / Clad diameter 200/700 or 300/800 $\mu\text{m}$

Numerical Aperture 0,35

