

# Chalcogenide Mid-InfraRed Fiber

Chalcogenide As-S glass fiber transmits IR-radiation in the spectral range of 1.1 - 6.5 $\mu\text{m}$ . High performance CIR core/clad fiber are drawn with core diameters span from 8 $\mu\text{m}$  to 500 $\mu\text{m}$ . Advanced drawing process with double polymer jacket provides a superior mechanical strength and high flexibility of CIR- fibers.

Low optical losses and small absorption peaks over the mentioned spectral range ensure a successful use of CIR-fiber for a wide range of applications.

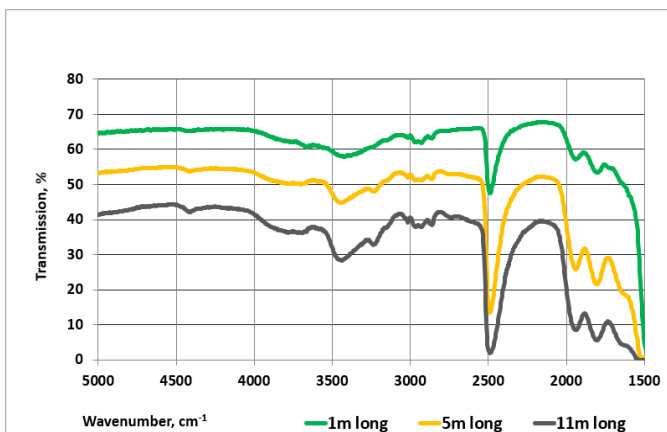


## Applications:

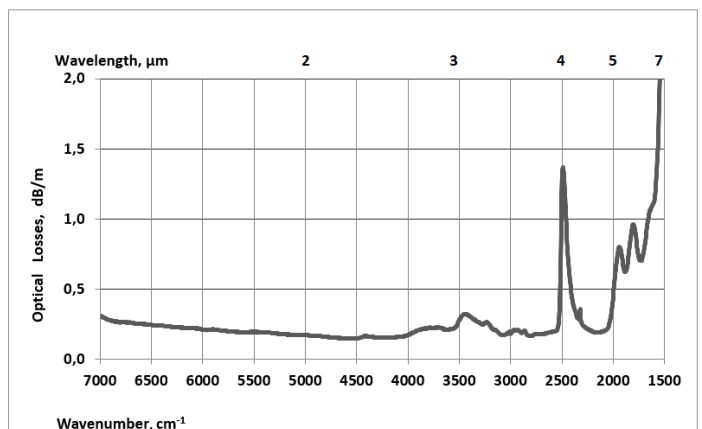
- ✓ Mid IR spectroscopy
- ✓ Flexible IR pyrometry
- ✓ Flexible IR-Imaging systems
- ✓ Power delivery for Quantum Cascade Lasers

## Features:

- ✓ High transmittance in 1.1 - 6.5  $\mu\text{m}$  range
- ✓ Low optical losses 0.2 - 0.3 dB/m at 2.5 - 4  $\mu\text{m}$  and 4.5 - 5  $\mu\text{m}$
- ✓ Core/Clad structure with core diameters span from 8 to 500  $\mu\text{m}$
- ✓ Double polymer coating for high flexibility



Transmission Spectra of CIR-Fibers of Different Length

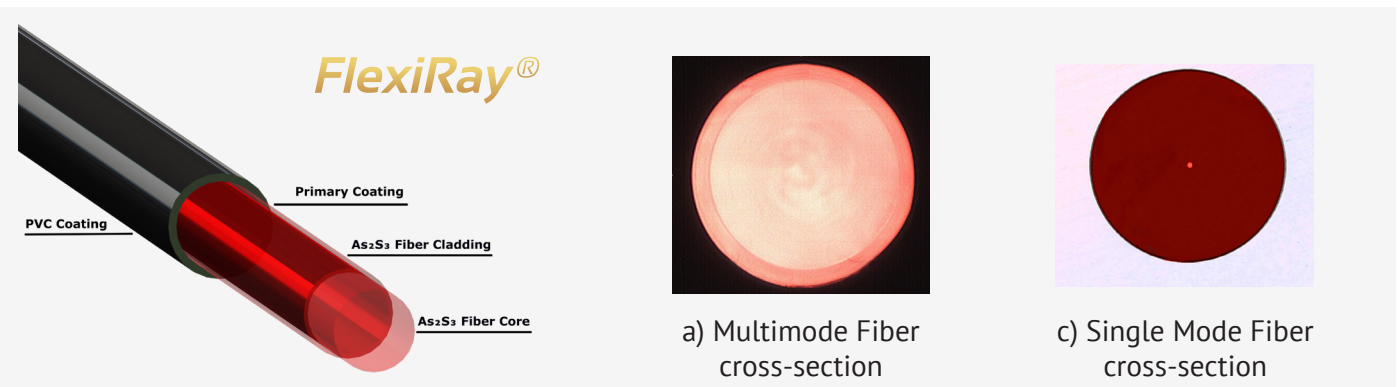


Optical Losses Spectrum of CIR- Fiber



## Specifications

Core/Cladding Composition	As <sub>2</sub> S <sub>3</sub>
Spectral Range	1.1 - 6.5 μm
Core Refractive Index	2.42
Fresnel Reflection Losses	31%
Attenuation at 3 - 4 μm & 4.5μm – 5μm	0.2 - 0.4 dB/m
Effective Numerical Aperture NA	see table above
Glass Transition Temperature, T <sub>g</sub>	185 °C
Operating Temperature	-273 to +90°C
Core/Clad Diameter (standard)	see table above
Protective Jacket	Fluoro polymer + PVC
Tensile Strength	> 70 MPa
Minimum Bending Radius (fixed)	100 [Fiber Diameter]
Minimum Elastic Bending Radius	200 [Fiber Diameter]



## Parameters of standard Chalcogenide fibers

Code	Type	Core, μm	Cladding, μm	Protective Jacket, μm	NA	Min. bending Radius, mm
CIR8/300	Step Index Singlemode	8 ± 1	300 ± 15	400 ± 20	0.25 ± 0.02	60
CIR50/250	Step Index few modes	50 ± 3	250 ± 10	410 ± 20	0.13 ± 0.02	50
CIR250/300	Step Index Multimode	250 ± 10	300 ± 15	400 ± 30	0.30 ± 0.03	60
CIR340/400	Step Index Multimode	340 ± 10	400 ± 15	510 ± 30	0.30 ± 0.03	80
CIR500/550	Step Index Multimode	500 ± 10	550 ± 15	700 ± 30	0.30 ± 0.03	100