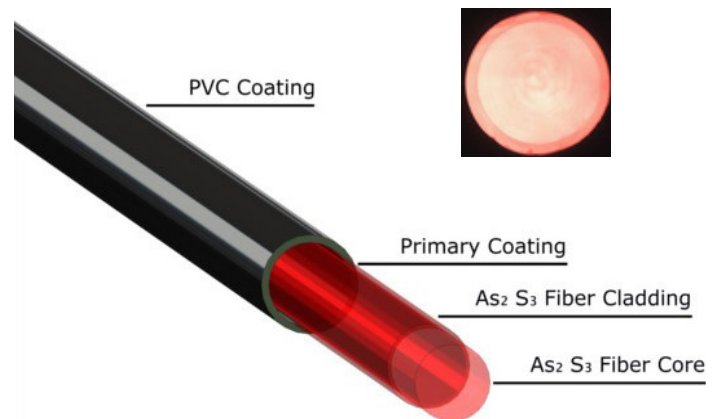


Chalcogenide InfraRed CIR-fiber

Chalcogenide As-S glass fiber transmits IR-radiation in the spectral range of 1.1 - 6.5 μ m. High performance CIR core/clad fiber are drawn with core diameters span from 8 μ m to 500 μ 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:

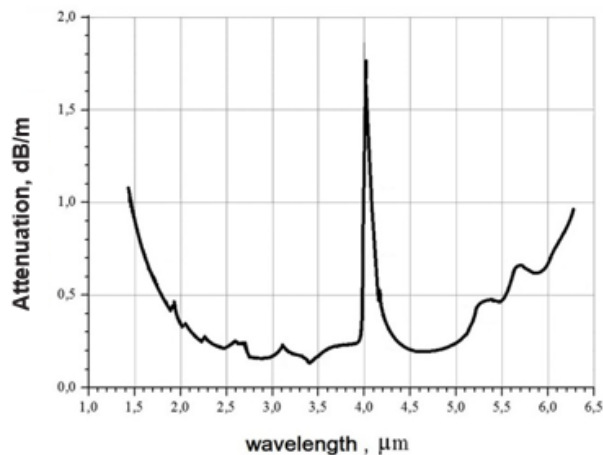
- ✓ High transmittance in 1.1 - 6.5 μ m range
- ✓ Low optical losses 0.2 - 0.3 dB/m at 2.5 - 4 μ m and 4.5 - 5 μ m
- ✓ Core/Clad structure with core diameters span from 8 to 500 μ m
- ✓ Double polymer coating for high flexibility

Parameters of standard Chalcogenide fibers

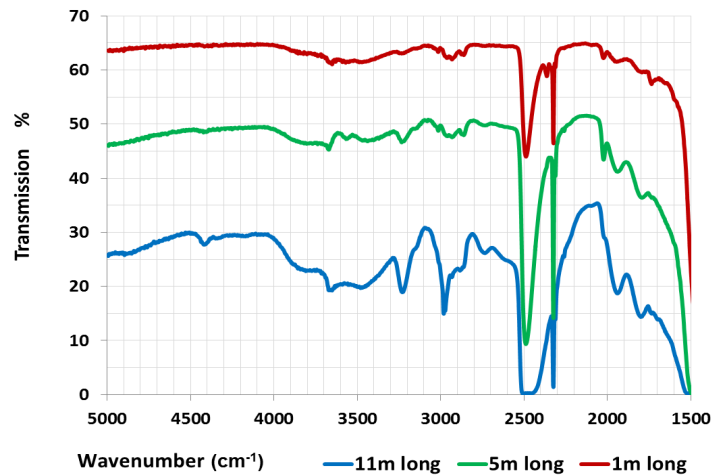
Code	Type	Core, μ m	Cladding, μ m	Protective Jacket, μ m	NA	Min. bending Radius, mm
CIR8/300	Step Index Singlemode	8 \pm 1	300 \pm 15	400 \pm 20	0.25 \pm 0.02	60
CIR50/250	Step Index few modes	50 \pm 3	250 \pm 10	410 \pm 20	0.13 \pm 0.02	50
CIR250/300	Step Index Multimode	250 \pm 10	300 \pm 15	400 \pm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

Specifications

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



Attenuation vs wavelength in CIR-fibers



Transmission vs Wavenumber in As-S CIR fiber of different length