



Chalcogenide Fiber Cable

Chalcogenide fiber cables are assembled with Mid Infrared transmitting chalcogenide glass fiber.

Standard cables are assembled with SMA or FC/PC connectors and flexible PEEK or protective metal tubing to protect the fiber from mechanical damage.

Specification of CIR Cable Materials

Material of the fiber	Arsenic sulphide glass
Protective tubing	PEEK or metal with PVC coating
SMA connectors	Brass
FC/PC connectors	Brass

Caution! The chalcogenide fiber can withstand no more than 80°C. Please avoid over heating the cable.

1. Handling Instructions

Handle CIR cable with care.

The cable contains chalcogenide fiber which is flexible but can be damaged through shock of the connector or fiber protective sleeve. Also the bending radius of these fibers is limited, i.e., not less than

15cm diameter for CIR340/400 fiber cable

10cm diameter for CIR 250/300 fiber cable.

Caution! The bending of the cable to a lesser diameter can result in the fiber breaking.



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- Do not bend the cable less than specified diameter
- Put protective caps onto both ends of the cable when not in use
- Plug/unplug the cable by gripping the connector, not the cable jacket.
- Hold the cable at both ends when carrying
- Prevent dropping the cable onto any surface
- Prevent springing of the connectors onto any hard surface.
- Avoid any scratches and notches of the PEEK protective tubing
- Keep the cable in the original box when not in use



Take care to insert the cable into the FC/PC adapter properly according the position key as shown in the photo

2. Cleaning of CIR Cables

Dust can be cleaned off with a soft paint brush.

The fiber ends of SMA connectors can be cleaned using lint-free tissue with Isopropyl alcohol. After cleaning, wipe off the fiber end carefully.

Wipe also the side surface of the connectors as dust from the side surface can reach the fiber end face.

Do not touch fiber ends with any hard tools, even through tissue or cloth.

3. Storage

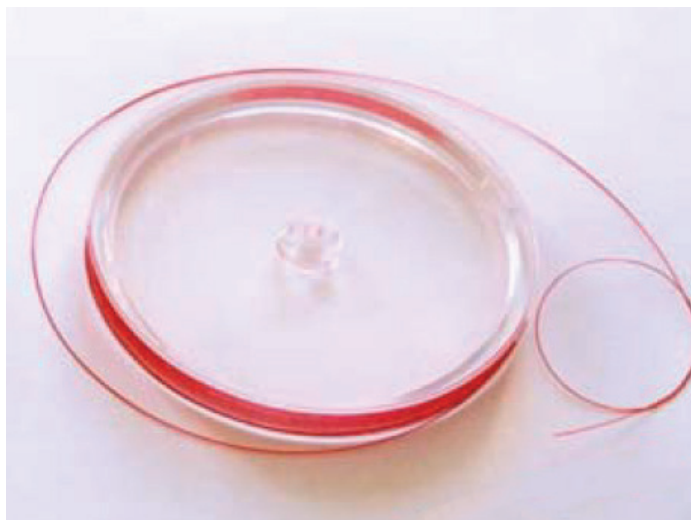
When you are done using the CIR cable, carefully remove the cable from adaptors. Place protective caps onto the connectors and store the cable in the original box.



Chalcogenide Mid-InfraRed Fiber

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

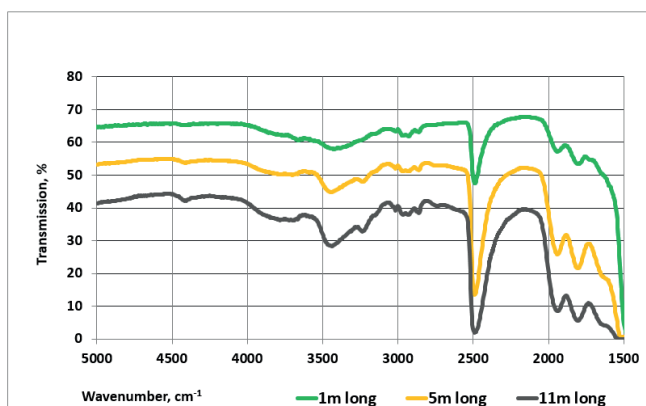


Applications:

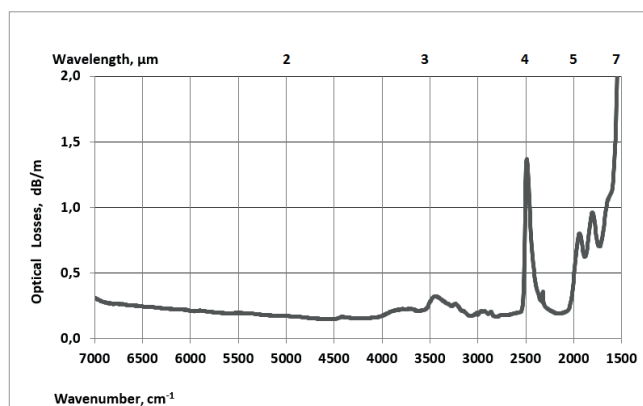
- ✓ Mid IR spectroscopy
- ✓ Flexible IR pyrometry
- ✓ Flexible IR-Imaging systems
- ✓ Power delivery for Quantum Cascade Lasers

Features:

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



Transmission Spectra of CIR-Fibers of Different Length



Optical Losses Spectrum of CIR-Fiber



Specifications

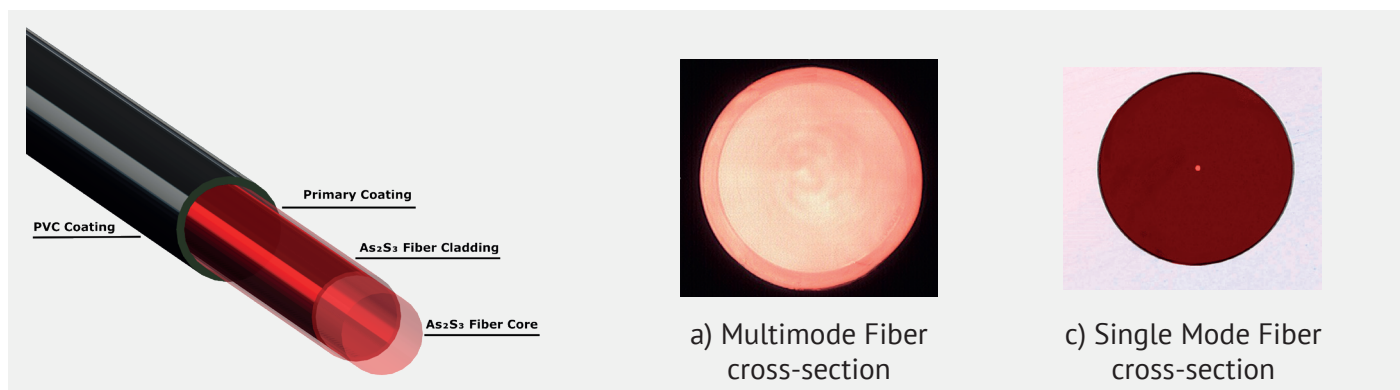


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Core/Cladding Composition	As ₂ S ₃
Spectral Range	1.1 - 6.5 μm
Core Refractive Index	2.42
Fresnel Reflection Losses	31%
Attenuation at 3 - 4 μm & 4.5μm – 5μm	0.2 - 0.4 dB/m
Effective Numerical Aperture NA	see table above
Glass Transition Temperature, T _g	185 °C
Operating Temperature	-273 to +90°C
Core/Clad Diameter (standard)	see table 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