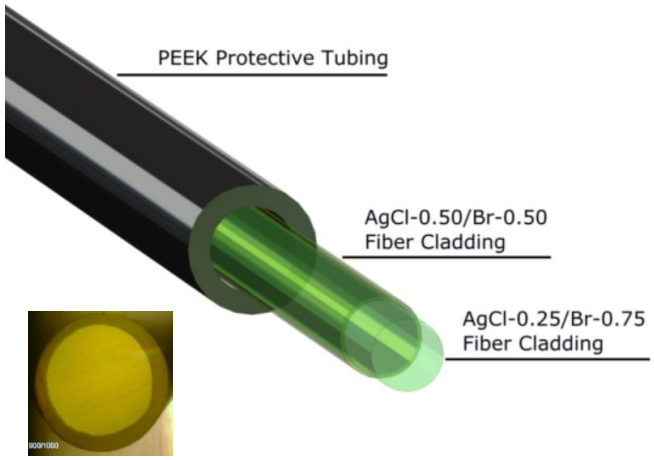
Polycrystalline InfraRed (PIR-) fiber

art photonics
Broad Spectra Optical Fiber Solutions

art photonics developed a volume production technology of the unique product – Polycrystalline InfraRed (PIR-) Core/Clad fibers – transparent over a broad spectral range 3 – 18 µm. The highest performance PIR Core/Clad fibers are extruded with the core diameters span from 240 to 860 µm. Continuously improved extrusion process provides PIR-fibers with a superior optical quality and high mechanical strength.
Low optical losses without absorption peaks over the mentioned spectral range ensure a successful use of PIR-fibers in a broad range of applications.



Applications:

- Mid IR spectroscopy
- Flexible IR pyrometry
- Flexible IR-Imaging systems
- Power delivery for Quantum Cascade Lasers
- Power delivery for CO- and CO_2-Lasers

Features:

- High transmittance in the range 3 – 18 µm*
- Low optical losses of about 0.2 – 0.3 dB/m in the range 9 – 13 µm
- Core/Clad structure with core diameters span from 240 to 860 µm
- Minimal aging effect
- Non-hydroscopic and non-toxic

* See transmission data

Parameters of standard Polycrystalline fibers

Code	Type	Core, µm	Cladding, µm	Protective Jacket, µm	NA	Min. bending Radius, mm
PIR240/300	Step Index Multimode	240±15	300+0/-15	no	0.30±0.03	45
PIR400/500	Step Index Multimode	410±15	500+0/-15	no	0.30±0.03	75
PIR600/700	Step Index Multimode	600±20	700+0/-15	no	0.30±0.03	100
PIR900/1000	Step Index Multimode	860±20	1000+0/-25	no	0.30±0.03	150

art photonics GmbH
Rudower Chaussee 46
12489 Berlin, Germany

+49 (0) 30-6779 887-0
www.artphotonics.com
sales@artphotonics.com

QAS Int.- certified
DIN EN ISO 9001:2015
Certificate No. A1887GER

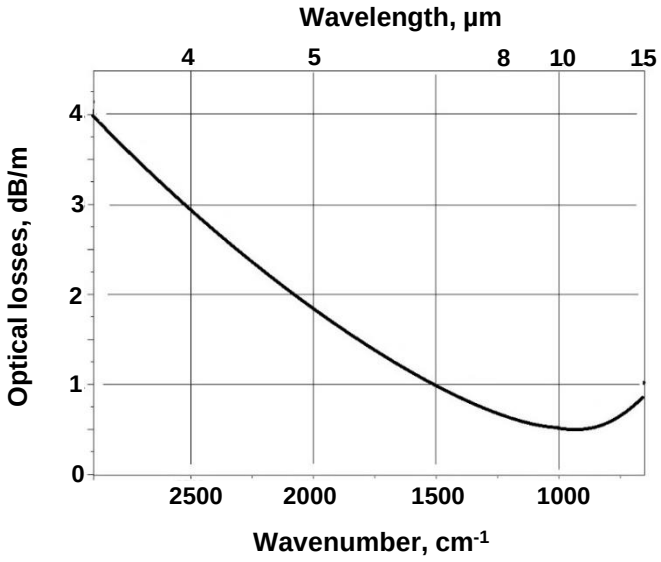
Polycrystalline InfraRed (PIR-) fiber

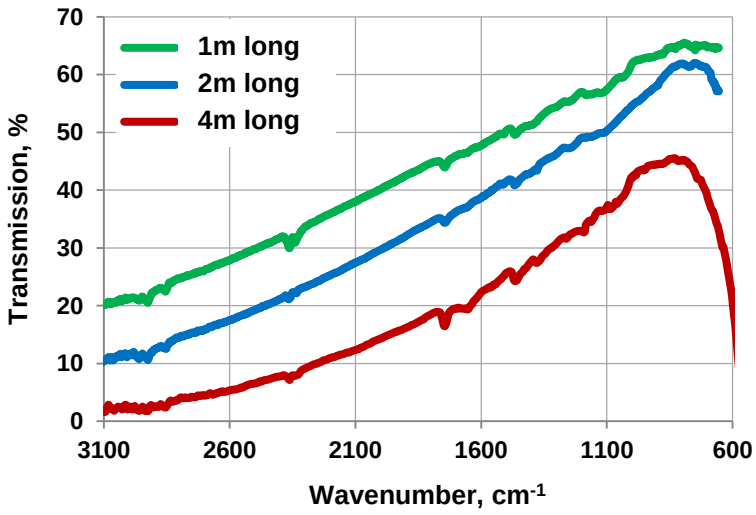
art photonics
Broad Spectra Optical Fiber Solutions

Specifications

Core/Clad composition	AgCl:AgBr
Spectral Range	3 – 18 µm
Core Refractive Index	2.15
Fresnel Reflection Losses	25%
Attenuation at 10.6 µm	0.2 – 0.4 dB/m
Effective Numerical Aperture NA	0.35 +/- 0.05
Melting Point	410 °C
Operating Temperature	–273°C to +140°C
Core/Clad Diameter (standard)	see table above
Laser Damage Threshold for CW CO_2-Laser	>12 kW/cm²
Tensile Strength	> 70 MPa
Minimum Bending Radius (fixed)	5x [Fiber Diameter]
Minimum Elastic Bending Radius	150x [Fiber Diameter]

Optical Losses and Transmission Spectra of PIR-fiber cables





art photonics GmbH
Rudower Chaussee 46
12489 Berlin, Germany

+49 (0) 30-6779 887-0
www.artphotonics.com
sales@artphotonics.com

QAS Int.- certified
DIN EN ISO 9001:2015
Certificate No. A1887GER