CeramOptec®

Innovative Fiber Optics...Every Step of the Way™

FOR IMMEDIATE RELEASE

CeramOptec Extends Fiber to the Mid-Infrared

November 30, 2006, East Longmeadow, MA. CeramOptec's Optran MIR fibers provide a solution for guiding signal light for mid-IR spectroscopy as well as guiding laser light from carbon dioxide and carbon monoxide lasers.

The Problem

At mid-IR wavelengths, directing light has been difficult. At UV, visible, and near-IR wavelengths, silica fibers are indispensable for connecting light sources, sensors, and detectors, but in the mid-IR (at wavelengths between 4 and 16 μm), silica becomes opaque.

This part of the spectrum has languished without an obvious choice of an optical fiber. Users of carbon-dioxide and carbon-monoxide lasers have had to resort to hollow waveguides and articulated arms to channel light in these regions. Although spectroscopy in the mid-infrared provides valuable information for process control, getting the signal from the sensing location to the spectrometer has been challenging.

The Solution

Silver-bromide (AgCl:AgBr) fibers provide the solution for applications in the mid-IR that require precise light-guiding. CeramOptec's Optran MIR fibers, which are available in diameters from 300 to 1000 μm, are flexible and do not readily absorb moisture from air. The fibers have large practical numerical apertures ranging from 0.13 to 0.5. For use with CO_2 lasers, the damage threshold is 10 kW/cm^2. The fiber, which comes in either clad or bare-core designs, is also available with reliable coupling accessories.

Medical applications include delivery of CO_2 laser light. Scientific applications include Fourier transform IR (FTIR) spectroscopy.

Industrial applications include spectroscopy as part of the process and quality control systems. These applications are also aided by the fiber's wide range of working temperatures from -60° to +110°C. Other industrial applications include pyrometry, laser marking, non-contact temperature control, IR imaging, and laser surface treatments.

The fibers are available fully terminated or in bundles to meet customer specification.

About CeramOptec Industries, Inc:

CeramOptec is a world leader in the production of specialty optical fiber and fiber optic-based products for industrial, scientific, medical, and dental applications. CeramOptec manufactures high quality specialty optical fiber, bundles, and spectroscopic accessories with unmatched delivery times.

CeramOptec produces stock and custom silica / silica, plastic-clad silica, and hard polymer-clad silica optical fibers; fused capillary tubing; DPSS lasers; diode modules; and low loss bundles and assemblies for UV, VIS, and IR transmission, medical laser delivery, sensors, plasma fusion, and spectroscopy.

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