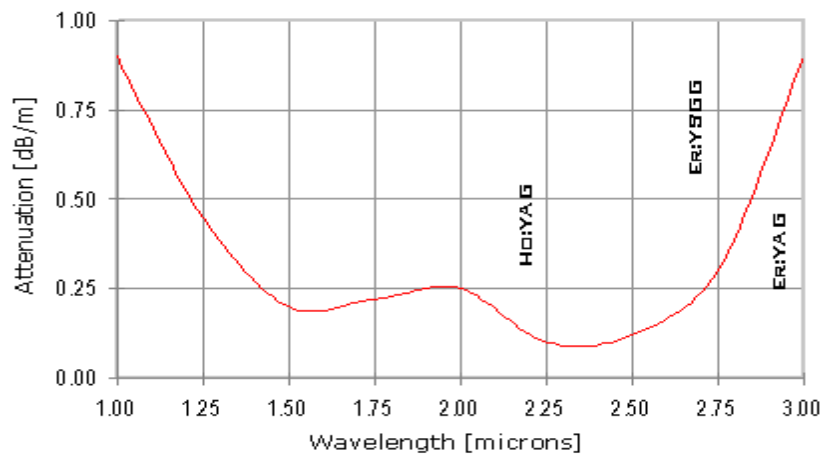
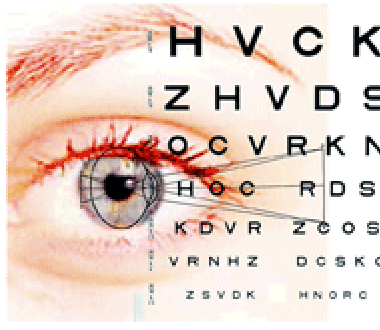


医用光纤的传输特性

While laser surgery for ophthalmic applications has become more common, many common procedures are still done with scalpels or ultrasound. The problem - they can be imprecise, painful and time consuming.

For example cataracts are typically removed by using ultrasound to break up the tissue and a specialized "vacuum" to remove the pieces. And vitreal strands - a condition commonly associated with diabetes - are removed today with a scalpel. Both procedures would be quicker, cleaner and more exact if done with a laser.

Under a grant from the National Institute of Health, we are currently working with Johns Hopkins to develop a version of its HP fiber for use in the world of ophthalmic surgery. We're taking our production-grade HP fiber and modifying it to meet new requirements - that it be robust enough to survive multiple short bursts of high-power laser, and that it work with the specialized handpieces and probes needed for eye surgery.



**Features:**

- GeO<sub>2</sub> - based glass
- High Power Handling
- Excellent Flexibility and Strength
- Glass Clad - No Bending Loss
- Low Optical Loss
- Non-Toxic

A key component to the Er:YAG, YSGG or Ho:YAG mid-infrared laser system is the optical fiber, which is used to transmit the laser power from the laser to the patient. Since conventional silica glass fibers cannot transmit in the infrared, a special fiber (HP™ fiber) made from Germanium Oxide (GeO<sub>2</sub>) - based glass. Fiber can handle up to 20 Watts of laser power for applications in dermatology, dentistry, ophthalmology, orthopedics and general surgery.

**Typical Specifications:**

- Input Power @10 Hz - 20 watts
- Loss at 2.94 μm - 0.70 dB/m
- Loss in visible region - 1.00 dB/m (or less)
- Output NA - 0.12 (@ input NA=0.08)
- Max acceptance NA - 0.25
- Available Core sizes - 100 - 700 μm
- Toxicity - Passes Agar Overlay cytotoxicity and Dermal Sensitization tests

**Core sizes:**

- 150 μm - Minimum Bend Radius .5 cm
- 400 μm - Minimum Bend Radius 2.5 cm
- 500 μm - Minimum Bend Radius 4.0 cm