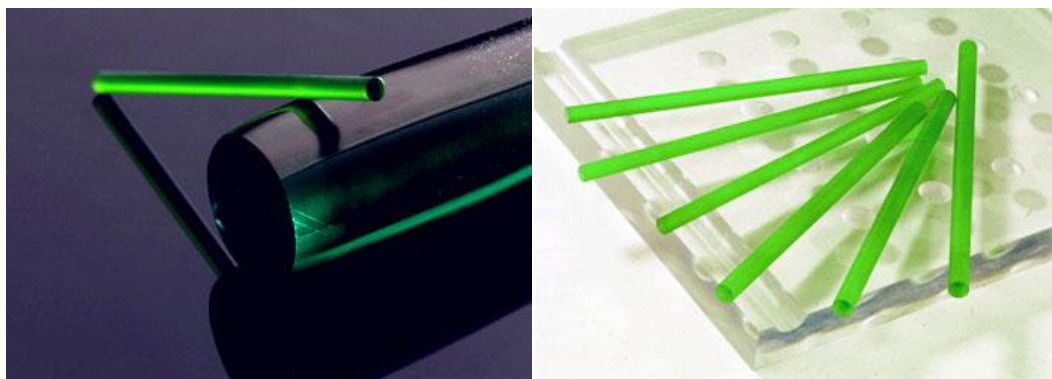


CTH:YAG Crystals

- High efficiency 2.1 μ m source
- LD pumping source at 780nm for Tm³⁺ ion absorption line
- Output eye-safe wavelength laser light

Cr:Tm:Ho:YAG is a kind of excellent laser crystal emitting at 2.1 μ m wavelength. Due to its advantages: high slope efficiency, excellent operation at room temperature and output eye-safe wavelength laser light, CTH:YAG are widely used in medical laser systems, such as surgery, dentistry, therapeutic and others. Hangzhou Shalom EO offers the **CTH:YAG rods** with coating upon customer's request.



SPECIFICATIONS

| Specifications | |
|---|-----------------|
| Cr Concentration | 0.85% |
| Tm Concentration | 5.90% |
| Ho Concentration | 0.36% |
| Wavefront Distortion (Per inch of rod length) | <1/2 |
| End Face Parallelism | <10 arc seconds |

CTH: YAG Advantages

High-efficiency 2 μ m source

- Cr-Tm transfer quantum efficiency
- Operates well at room temperature
- May be flashlamp or diode pumped

LD pumping sources can be pump the strong 780nm Tm³⁺ ion absorption line

- Chromium doping not necessary for diode-pumped applications
- Pump linewidth of 4nm; 4 times wider than the corresponding Nd:YAG diode-pump linewidth

Operates in a relatively eye-safe wavelength range

- Should lead to military and scientific applications in coherent radar and range-finding

Basic Properties

| Physical and optical properties | |
|-------------------------------------|---|
| Crystal Structure | Cubic |
| Lattice Parameters | 12.01 Å |
| Melting Point | 1970C° |
| Moh Hardness | 8.5 |
| Density | 4.56g/cm ³ |
| Specific Heat (0-20) | 0.59J/g.cm ³ |
| Modulus of Elasticity | 310GPa |
| Poisson Ratio | 0.3(est.) |
| Tensile Strength | 0.13~0.26GPa |
| Thermal Expansion Coefficient | [100]Direction:8.2x10 ⁻⁶ /C°(0~250C°) |
| | [110]Direction:7.7x10 ⁻⁶ /C°(0~250C°) |
| | [111]Direction:7.8x10 ⁻⁶ /C°(0~250C°) |
| Thermal Conductivity | 14W/m/K(@20C°) |
| | 10.5W/m/K(@100C°) |
| Thermal Optical Coefficient (dn/dT) | 7.3x10 ⁻⁶ /C° |
| Thermal Shock Resistance | 790W/m |
| Solubility | Water: Insoluble; Common Acids: Slightly |
| Laser Transition | ⁵ I ₇ - ⁵ I ₈ |
| Laser Wavelength | 2.097 μm |
| Photon Energy | 9.55 x 10 ⁻²⁰ J |
| Emission Cross Section | 7 x 10 ⁻²¹ cm ² |
| Fluorescence Lifetime | 8.5 ms |
| Index of Refraction | 1.80 @2.08 μm |
| Absorption Linewidth | 4 nm |
| Diode Pump Band | 781 nm |
| Major Pump Bands | 400~800 nm |

Application Notes

- Surgery
- Dentistry
- Atmospheric Testing