

Ho:Cr:Tm:YAG

Introduction

Ho:Cr:Tm:YAG is a high efficient laser material which lases at 2.1 μm . It has wide applications in surgery, dentistry, atmospheric testing, etc.

Advantages of Ho:Cr:Tm:YAG Crystal

- High slope efficiency
- Pumped by flash lamp or diode
- Operates well at room temperature
- Operates in a relatively eye-safe wavelength range

Optical and Spectral Properties of Ho:Cr:Tm:YAG Crystals

Laser Transition	$^5I_7 \rightarrow ^5I_8$
Laser Wavelength	2.097 μm
Photon Energy	$9.55 \times 10^{-20}\text{J}$
Emission Cross Section	$7 \times 10^{-21}\text{cm}^2$
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

Specifications of Ho:Cr:Tm:YAG crystal from CASTECH

Dopant concentration	Ho:~0.35 at%, Tm:~5.8at%, Cr:~1.5at%
Wavefront Distortion	$\leq 0.125 \lambda / \text{inch} (@1064\text{nm})$
Extinction Ratio	$\geq 25 \text{ dB}$
Rod Sizes	Diameter:3~6mm,Length:50~120mm Upon request of customer
Dimensional Tolerances	Diameter:+0.00/-0.05mm, Length: $\pm 0.5\text{mm}$
Barrel Finish	Ground Finish: 400# Grit
Parallelism	$\leq 30''$
Perpendicularity	$\leq 5'$
Flatness	$\lambda / 10$
Surface Quality	10/5
Chamfer	$0.006'' \pm 0.002''$ at $45^\circ \pm 5^\circ$
AR Coating Reflectivity	$\leq 0.25\%$ (@2094nm)