Overview

Crystal Products

- Laser Crystals
- Non-Linear Optical Crystals
- Birefringent Crystals
- IR Crystals

Glass Optics

- Laser Optics
- Telecom Optics
- Surveying Optics
- Display Optics
- Medical & Biomedical Optics
- Instrument Optics

Fiber Optics and Subs

- Pigtails
- Collimators
- Isolators
- Fused Fiber couplers and WDMs
- Micro-Optics components : In-line Isolators / Free-space Isolators / Hybrid Devices
- Opto-mechanical(MOM) fiber optic switches
- Variable Optical Attenuators (VOAs)

Coatings

- DUV coating

Glass Components

- Ferrules and Sleeves
- Glass Substrates

Overview

Crystal Growing

Chromium Doped Yttrium Aluminium Garnet (Cr^4: YAG) Crystals

Passive Q-Switching is preferred for simplicity of manufacturing and operation, low cost, and reduced system size and weight. Cr^4+: YAG ($Y_3Al_5O_{12}$) crystals are excellent for passive Q-Switching diode pumped or lamp-pumped Nd: YAG, Nd: YLF, Yb: YAG or other Nd and Yb doped lasers at wavelengths from 1.0 to 1.2mm. Because they are chemically stable, durable, UV resistant, have good thermal conductivity, have a high damage threshold (>500mW/cm^2) and ease of operation, they will replace traditional materials such as LiF, organic dye and color centers.

Basic Properties of Cr^4+:YAG

Formula	Cr^4: $Y_3AI_5O_{12}$
Crystal Structure	Cubic Garnet
Dopant Level	0.03 mol% - 0.05 mol%
Hardness	8.5 (Mohs)

Damage Threshold	>500MW/cm^2
Refractive Index	1.82 @1064nm

Capability

ATTRIBUTE	COMMERCIAL	HIGH PRECISION
Flatness	λ/4	λ/10
Wavefront Distortion	λ/4	λ/10
Surface Quality	20-10 scratch and dig	10-5 scratch and dig

AR coatings and HR coatings are also available. The initial transmission (To) can be controlled from 10% to 95% according to customer requirements. Standard size Cr^4+:YAG crystals of 3x3mm^2 with To=80% or 90% are in stock and available for immediate delivery.

Preliminary experiments done on Casix's Cr:YAG crystals show that the pulse width of passively Q-switched lasers can be as short as 9ns for diode pumped Nd:YAG lasers with repetition as high as 10kHz for diode pumped Nd:YVO_4 lasers. Furthermore, an efficient green output @532nm and UV output@355nm and 266nm were generated after a subsequent intra-cavity SHG in KTP for diode pumped and passive Q-switched Nd:YAG and Nd:YVO_4 lasers.

Cr:YAG is also a laser crystal with tunable output from 1.35um to 1.6um. It can generate ultrashort pulse lasers (to fs pulsed) when pumped by Nd:YAG lasers at 1.064um.

Note: When ordering Cr^4+:YAG crystals, please specify the aperture, initial transmission (To) and coatings.

Product Categories

- Crystal Products
- Glass Optics
- Fiber Optics and Subs
- Coatings
- Glass Components

Crystal Products

Laser Crystals

Nd: YVO4 Crystal

Nd: GdVO4 Crystal

DPM Crystal

Nd: YAG Crystal

CR4: YAG Crystal

Non-Linear Optical Crystals

Birefringent Crystals

IR Crystals