Cr:BeALO2

DESCRIPTION

CRYLINK's Cr:BeAlO2 crystal products, also known as Alexandrite. It is a broadband tunable laser gain medium with excellent comprehensive performance. It is widely used in dermatology, laser cosmetology, radar technology and other fields. The product has the characteristics of long fluorescence life, high saturation energy density and wide absorption bandwidth. It can be used in medical laser, alexandrite Q laser, laser radar, alexandrite laser treatment instrument products.

FEATURES

- Excellent quality
- Good uniformity
- Large crystal size
- Strong double refraction
- High damage threshold
- The coating threshold is high
- Small section (high saturation flux)
- Wavelength coverage: 500nm-3000nm
- Low symmetry (orthogonal crystal structure)
- Absorption range 380-630 nm, peak at 410 nm and 590 nm
- Performance is enhanced at higher temperatures (90-150 ℃)
- Tuning ranges from 700 nm to 860 nm (main laser wavelength 755 nm)

APPLICATIONS

- Laser beauty
- Photochemistry
- Nonlinear optics
- Radar technology
- Defense applications
- Laser medical equipment
- Photoelectric confrontation
- Remote sensing technology
- High-resolution spectroscopy
- Mainly used for long pulses or Q switch 755nm lasers
- Material handling - Alexandrite laser punching, semi-conductor treatment

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PHYSICAL AND CHEMICAL PROPERTIES

Chemical Formula	Be(Al1-xCrx)2O4
Crystal Lattice	Orthorhombic
Lattice Constant	a=5.476Å per ASTM 10-32 b=9.404 Å c=4.427 Å
X-ray Density	3.7g/cm3
Melting Point	1870 °C
Thermal Expansion	∥a 5.9×10-6 K-1 ∥b 6.1×10-6 K-1 ∥c 6.7×10-6 K-1
Thermal Conductivity	0.23 W·cm-1·K-1
Hardness (Vickers)	2000 kg·mm-2
Yang's Modulus	469 GPa
Fracture Stress	0.457-0.948 GPa
Heat Shock Resistance	35-74W/cm

STANDARD SPECIFICATIONS

Diameter Tolerance	+.000"/-.002"
Clear Aperture	≥98%
Chamfer	0.005"± 0.003"@45°
Roll Finish	55±5 μinches
Perpendicularity	<5'
Parallelity	<30"
Flatness	λ/10@633nm
Surface Finish	10-5 scratch-dig per MIL-O-13830
Wavefront Distortion	Less than λ/2 per inch (measured in 1 micron)
End Coating	Single-layer MgF2 Single wavelength, broadband AR coating
Cr Doping	Reflection standard range: 0.10--0.17 at.% Optimal chromium concentration: 0.83/d at.% (diameter in mm)

DOPING PARAMETERS

Chromium Concentration Range	0.01-0.2 at.%
Chromium Ion Concentration (0.1 at.%)	3.51×10cm-3
Refractive Index (750 nm)(Two-axis)	E ||a = 1.7367 E ||b = 1.7421 E ||c = 1.7346
Doping Position Symmetry	78% mirror (laser active) 22% inversion
Nonlinear Refractive Index, n2	~10-13 esu
Findlay-Clay Insertion Loss	<0.3% cm-1
Refractive Index Temperature Change	8×10-6 K-1

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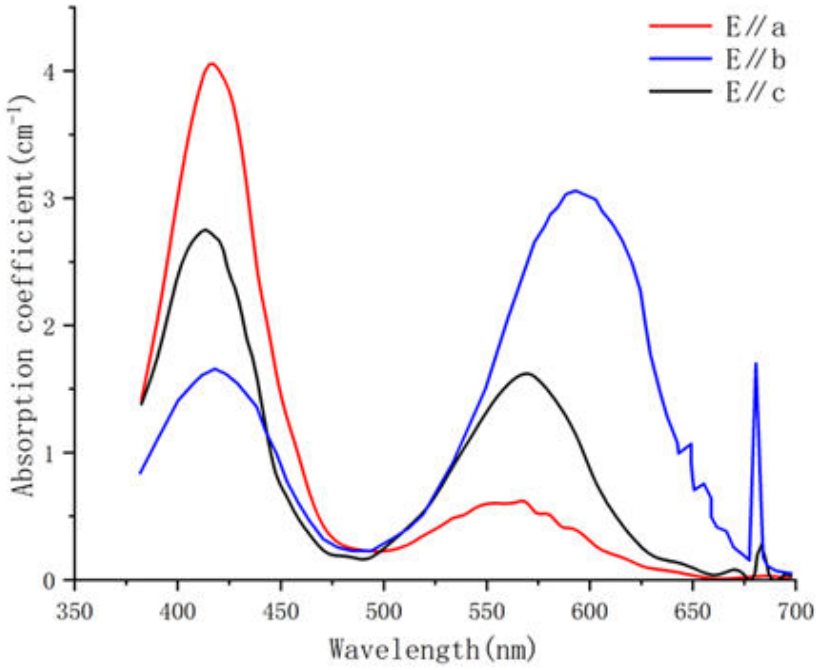
SPECTTROGRAM



Absorption spectra of alexandrite crystals with Cr^{3+} doping concentration of 0.063 at.%