

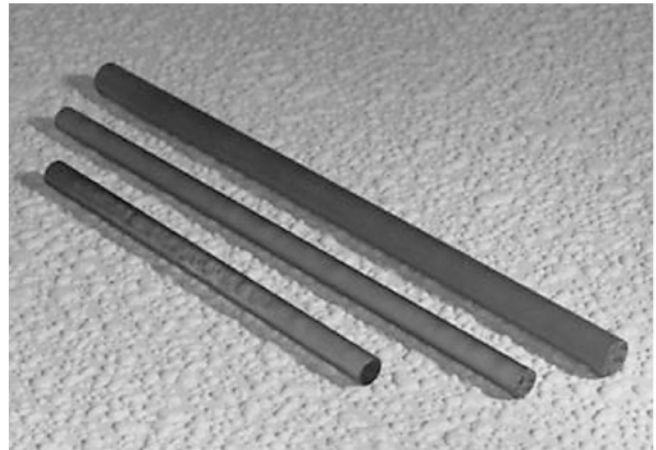
Alexandrite (710-800 nm)

Features

- Broad wavelength tuning range (710-800nm)
- Most robust solid-state laser materials

Applications

- Dermatology
- Lithotripsy
- Spectroscopy
- Materials processing
- Atmospheric lidar
- Testing of fiber optics and photodetectors
- Pumping of dye lasers



Specifications

%Cr Concentration	0.13% (0.1-0.2% available)
Wavefront Distortion (per inch of rod length)	$\lambda / 2$
End Face Parallelism	<30 arc seconds
Available Rod Lengths	3mm - 152.4mm
Available Rod Diameters	2mm - 12.7mm

Dimensional / Mechanical Specifications

Diameter	+0.000" / -0.002"
Chamfer	+0.005" \pm 0.003" @45°
Barrel Finish	55 \pm 5 μ inches
Perpendicular	within 5 arc minutes
Parallelism	30 arc-seconds or less
Rod End Face Flatness	within $\lambda / 10$ at 632nm
Surface Quality	10-5 scratch-dig per MIL-O-13830A

Material Properties

Formula	Be (Al _{1-x} Cr _x) ₂ O ₄
Crystal Structure	Orthorhombic
Unit Cell Dimension (A)	5.476(a) x 9.40(b) x 4.427(c)
Thermal Expansion (x 10⁻⁶ °C⁻¹)	5.9(a) x 6.1(b) x 6.7(c)
Index of Refraction at 750 nm	1.7367(a) x 1.7241(b) x 1.7346(c)
Melting Point	1870°C
Vickers Hardness	2000 kg mm ⁻²
Density	3.7 g/cm ³
Thermal Conductivity	0.23 W cm ⁻¹ k ⁻¹
Young's Modulus	469 GPa
Thermal Shock Resistance	35-74 W/cm
dn/dT	8 x 10 ⁻⁶ K ⁻¹

