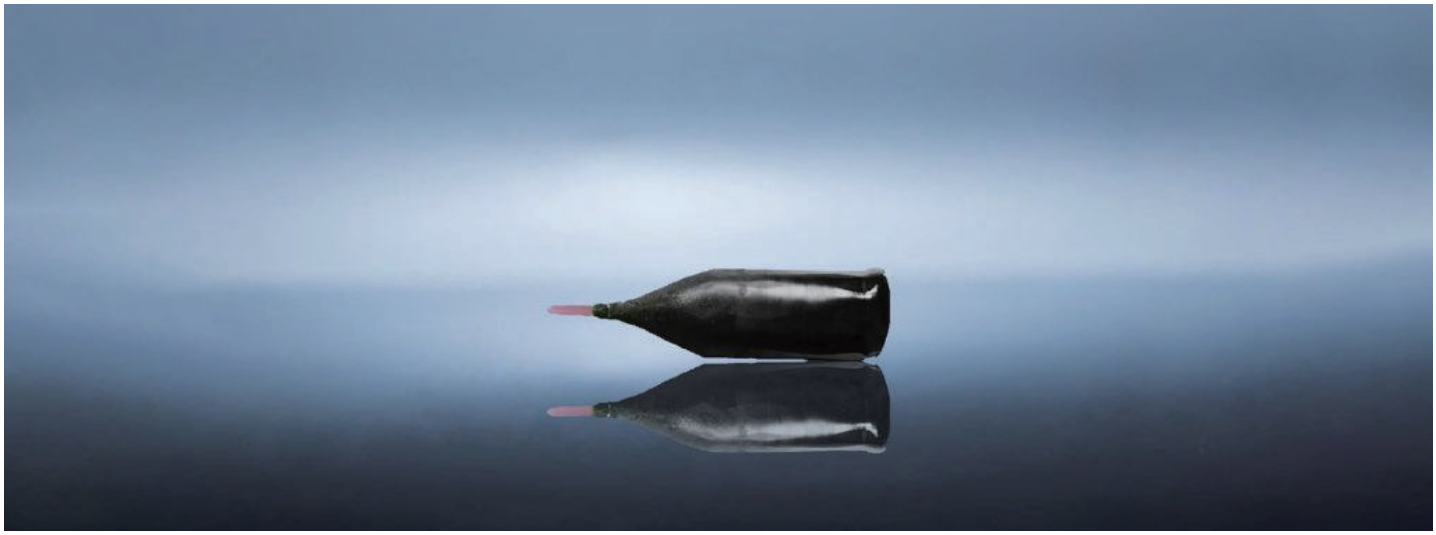
Er,Cr:YSGG



DESCRIPTION

In the Er,Cr:YSGG crystal, Cr^{3+} replaces the Ga^{3+} or Sc^{3+}, and Y^{3+} is replaced by Er^{3+}, the crystal has the advantages of large size, low optical damage, high optical quality, and low lasing threshold. Flashlamp or laser diode is often used to pump the laser crystal, 970 nm laser diode is regarded as the first choice to realize 2790 nm laser pumping of Er,Cr:YSGG, which can excite the Er^{3+} to his lasing upper level directly with high efficiency and low energy cost. Nowadays, various method have been adopted to switch Q (such as acousto-optic, electro-optic, FTIR) to realize pulse laser output. Owing to the specificity of lasing wavelength, this kind of lasers are widely used in medical applications, scientific investigations, material processing, military and so on.

FEATURES

- Good crystal quality
- Super mechanical properties
- Low pump threshold
- High slope efficiency
- Working at medium frequency

APPLICATIONS

- 2790nm laser

PARAMETERS

PHYSICAL AND CHEMICAL PROPERTIES

Thermal conductivity (W/mK)	8
Thermal expansion coefficient	8.1×10^{-6}/K
Thermo-optical factor (dn/dT) (10^{-6}/K)	12.3
Hardness (Mohs)	8
Density	5.67g/cm^3 (Cr&Er doped)
Sizes, (dia x length), mm	from 3 x 30 to 12.7 x 127.0
Orientation	<001>, <111>

www.crylink.com
sales@crylink.com
+86-21-66566068
Building 7, No.718 Baoqi Road, Baoshan District, Shanghai, China

Er,Cr:YSGG

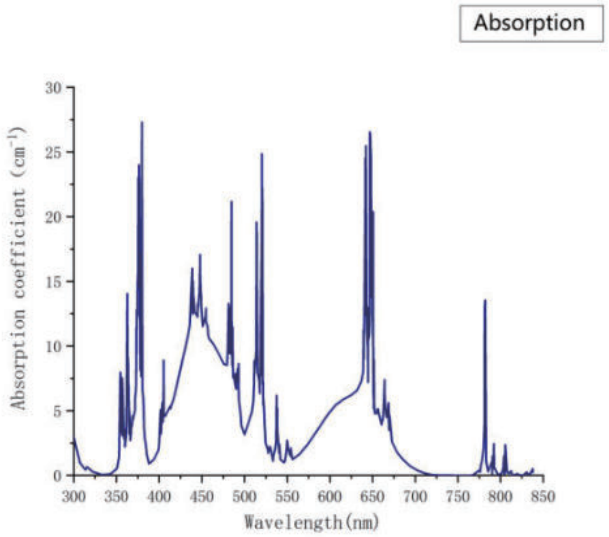
MATERIAL AND SPECIFICATIONS

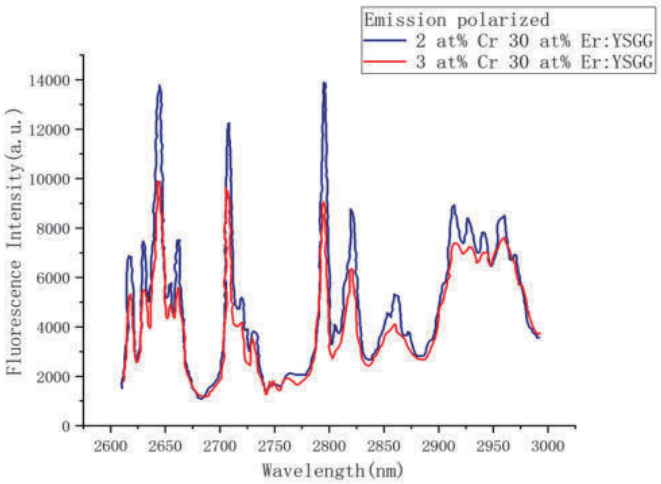
Crystal Structure	Cubic
Chemical Formula	$Y_{2.93}Sc_{1.43}Ga_{3.64}O_{12}$
Lattice Constant	12.42 Å
Concentration	30 at % (3.7×10^{21} cm^{-3} , dodecahedral Er^{3+})
	2 at % (1.7×10^{20} cm^{-3} , octahedral Cr^{3+})
Wavefront Distortion (per inch of rod length)	1/2
Surface Quality	10 – 5 scratch-dig
Perpendicularity	5 ‘
Parallelism	30 ″
Barrel Finish	55 micro-inch ±5 micro-inch
Chamfer Angle	45 deg ±5 deg
Chamfer	0.005 ±0.003 in
Length Tolerance	+0.040 / -0.000 in
Diameter Tolerance	+0.0000 / -0.0020 in

OPTICAL AND SPECTRAL PROPERTIES

Refractive index	1.92 at 1000nm
Fluorescent Lifetime	1400 μs
Emission cross-section, cm^2	5.2×10^{-21}
Lasing wavelength, μm	2.791

SPECTRA





www.crylink.com
sales@crylink.com
+86-21-66566068
Building 7, No.718 Baoqi Road, Baoshan District, Shanghai, China