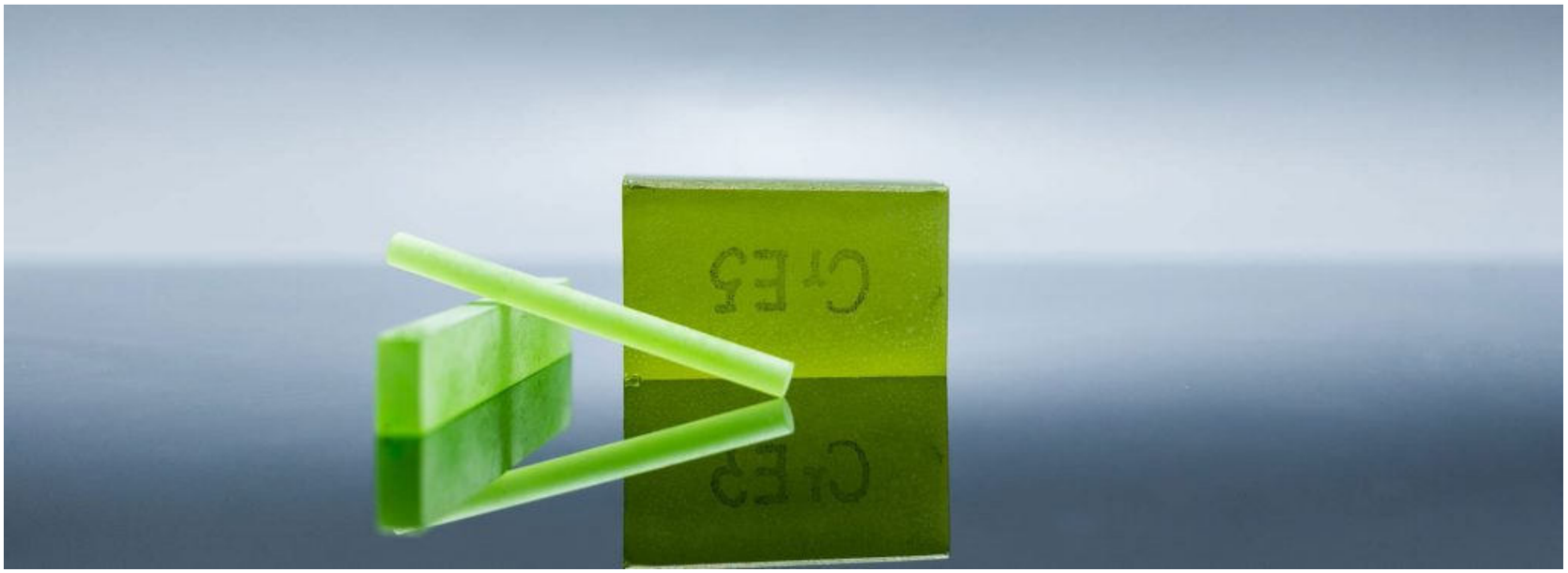
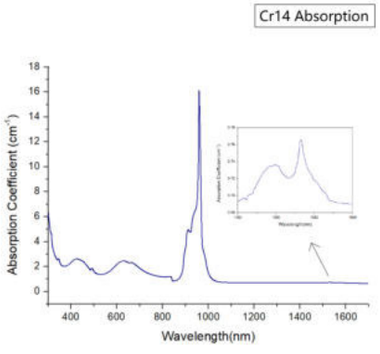
Er,Cr,Yb:Glass

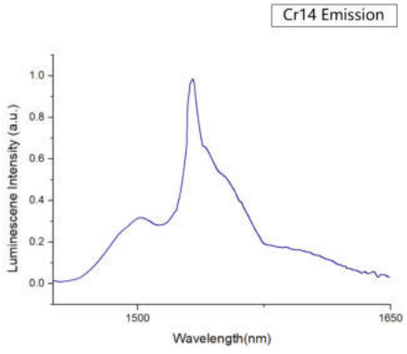


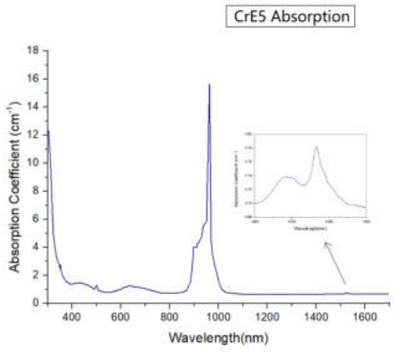
DESCRIPTION

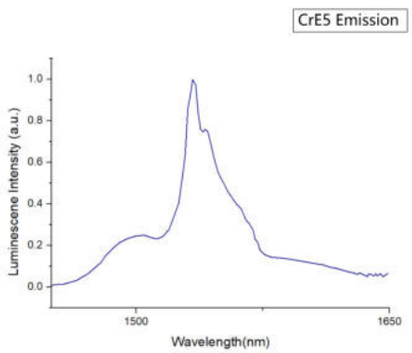
Erbium Glass doped with Er^{3+}, Yb^{3+} and Cr^{3+}, Erbium doped glass laser provides a useful coherent source in the spectral range near 1.5 μm, which is relatively safe for the human eye and is convenient in many applications, such as lidar and range measurements, fiber-optic communication, and laser surgery. In spite of the considerable progress in the development of InGaAs laser diode pump sources, Xe flash-lamp will continue to be used as pump sources of Er:glass lasers because of their high reliability and low cost, and also the simplicity of design of such systems. Since about half the flashlamp radiation energy is emitted in the visible and near infrared (IR) ranges, a second sensitizer Cr^{3+} is introduced into Yb-Er laser glasses to utilize this energy.

SPECTRA









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

PARAMETER

Material and Specifications

Materials	Cr14	CrE5
Mass Density	3.10 g/cm^3	2.95 g/cm^3
Mohs Hardness	8.5	8.5
Young's Modulus	57.6 GPa	57.6 GPa
Tensile Strength	2 GPa	2 GPa
Melting Point	1970°C	1970°C
Thermal Conductivity	0.7	0.8
Specific Heat/(J·g^{-1}·k^{-1})	0.59	0.59
Thermal Shock Resistance Parameter	800 W/m	800 W/m
Thermal Coeff. of Optical Path Length (10^{-7}/K) (20~100℃)	3.6	
Coeff.of Linear Thermal Expansion (10^{-7} /K) (20~100℃)	103	80.5
Coeff.of Linear Thermal Expansion (10^{-7} /K) (100~300℃)	127	87
Softening Temp. (ºC)	493	519
Transformation Temp. (ºC)	455	476
Chemical Durability (weigh loss rate at 100ºC distilled water) (μg/hr.cm^2)	103	
dn/dT (10^{-6}/K)(20~100℃)	-5.2	-6.8
Refractive Index @ 1535 nm	1.53	1.533
Refractive Index (d 589.3nm)	1.539	1.541
Abbe Value	64	63.6

Optical Properties

Optical Density	0.1 to 0.8
Fluorescence Lifetime	7.7-8.2 ms
Concentrations	0.5 mol % ~ 3 mol %
Emission Wavelength	1535 nm
Absorption Coefficient	1.0 cm^{-1}~7 cm^{-1}
Emission State Absorption Cross Section	0.75×10^{-20}cm^2@1535nm
Transmission	10% to 90%
Coatings	AR≤ 0.2% @1535nm
Damage Threshold:	> 500 MW / cm^2

Polishing Specification

Orientation Tolerance	< 0.5°
Thickness/Diameter Tolerance	±0.05 mm
Surface Flatness	<λ/8@632 nm
Wavefront Distortion	<λ/4@632 nm
Surface Quality	10-5(MIL-O-13830A)
Parallel	10″
Perpendicular	15′
Clear Aperture	>90%
Chamfer	<0.1×45°
Maximum Dimensions	dia (3-12.7)×（3-150）mm^2

FEATURES

- High laser efficiency
- Low laser threshold
- Safe for human eye
- High light conversion

APPLICATIONS

- Lidar
- Range measurements
- Fiber-optic communication
- Laser surgery