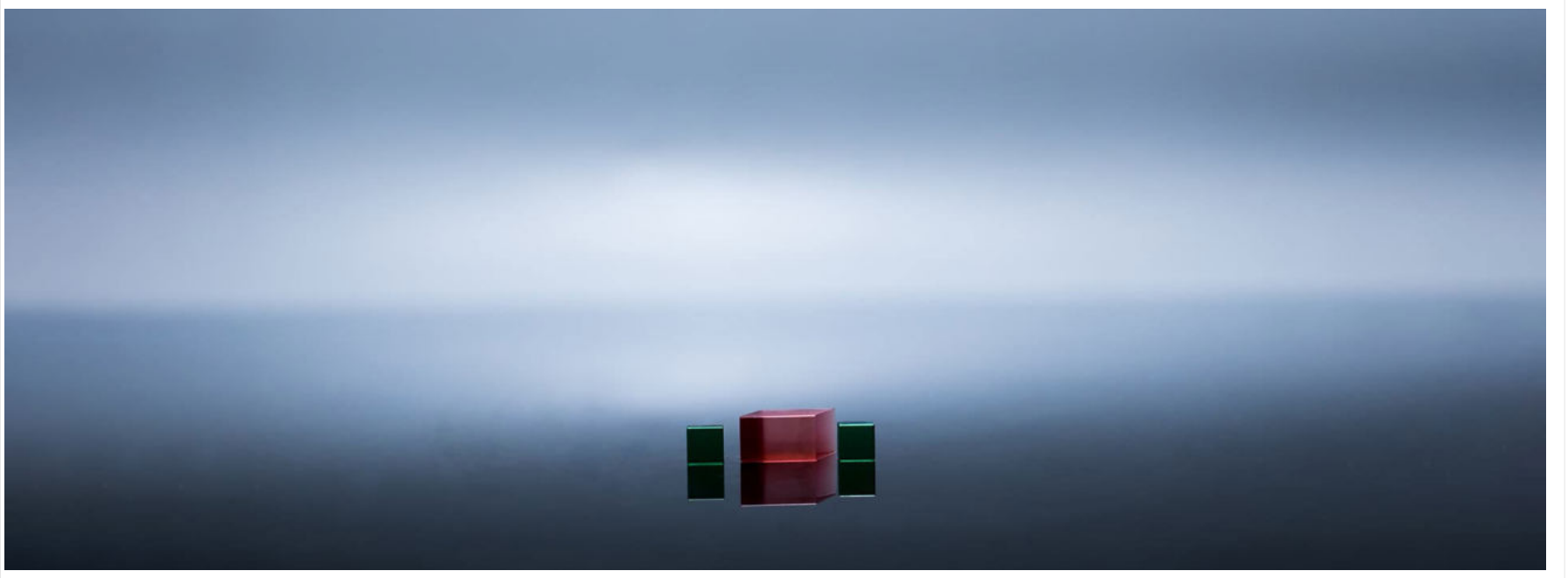


# V:YAG



## DESCRIPTION

V:YAG crystal is a new material of laser saturable absorber and passive Q-switch in wavelength range of 1.06 $\mu$ m-1.44  $\mu$  m. It is especially suitable for neodymium laser of 1.3  $\mu$  m. It is an excellent saturable absorber material in wave band of 1300nm. There are four chemical values of V element: + 2, + 3, + 4 and + 5. The V3 + ions with + 3 valence are commonly used Q-switch and saturable absorber ions, which are doped into YAG matrix crystals to realize the passive Q-switch and mode-locking of laser. In the passively Q-switch solid-state laser, the laser has the advantages of good stability, long lifetime, miniaturization, simplicity and practicality.

## FEATURES

- Long upper level life
- Excited state absorption
- High saturation at 1.3 $\mu$ m
- High damage threshold
- Short recovery time
- Wide absorption band

## APPLICATIONS

- 1064nm laser
- 1300nm laser
- Laser plotter
- Laser Range Finder
- Laser cutting machine



## PARAMETER

### Properties

Property	Value
Chemical Formula	V <sup>3+</sup> :Y <sub>3</sub> Al <sub>5</sub> O <sub>12</sub>
Crystal structure	cubic - Ia3d
Orientation	<100> <+/-0.5°
Transmittance	30%-97%
Optical density	0.1-0.8
Atomic transition structure	Two-level system
Recovery time	5~22 × 10 <sup>-22</sup> s
Concentrations	(0.05~0.35) wt%
Ground-state absorption cross-section	7.2 × 10 <sup>-18</sup> cm <sup>2</sup>
Excited-state absorption cross-section	7.4 × 10 <sup>-19</sup> cm <sup>2</sup>
Emission bandwidth	1000-1450 nm
Central absorption wavelength	1300 nm
Coatings	Standard coating is AR with R < 0.2%(@1340 nm)
Absorption coefficient	1.0cm <sup>-1</sup> - 7.0cm <sup>-1</sup>
Damage threshold	>500MW/cm <sup>2</sup>

### Polishing

Property	Value
Orientation Tolerance	< 0.5°
Thickness/Diameter Tolerance	±0.05 mm
Surface Flatness	<λ/8@632 nm
Wavefront Distortion	<λ/4@632 nm
Surface Quality	44474
Parallel	30"
Perpendicular	15'
Clear Aperture	>90%
Chamfer	<0.2×45°
HR coating	<= 0.2% (@ 1340nm)

## SPECTRA

