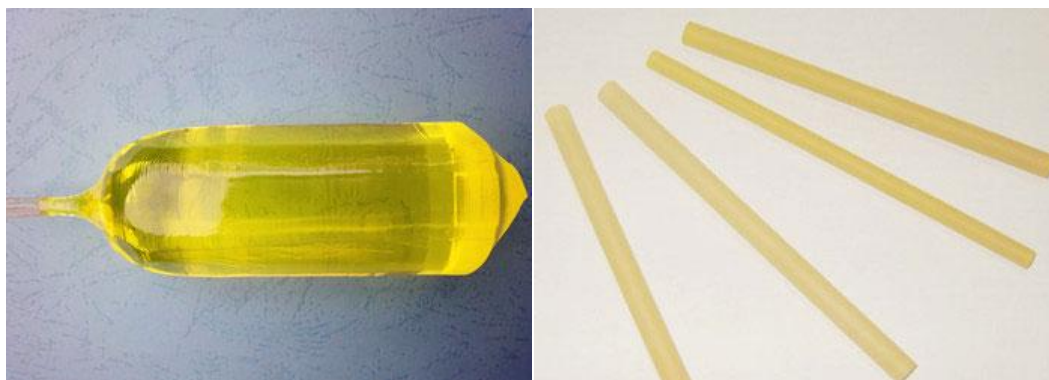


## Nd:Ce:YAG Laser Crystals

- **Low threshold and very high slope efficiency**
- **Good thermal stability and high optical quality**
- **Good anti-V irradiation property**

**Nd:Ce:YAG crystal** is an excellent laser material used for no-water cooling and miniature laser systems. The **(Nd, Ce): YAG laser rod** we produce has the characteristics of high efficiency, low threshold, anti-violet radiation and high repetition frequency for lasers operation. It has achieved the international advanced level. It is the most ideal laser material for the high repetition air cooling lasers. It suitable for different modes of operation (cw, pulsed , Q-switched, mode locked, doubling of frequency ) and high-average power lasers.



Specifications	
Dopant concentration	Nd: 0.9—1.3 atm %, Ce : Nd=1:10
orientation	<111> crystalline direction within 5°C
Flatness	<math>\lambda/10</math>
Parallism	$\leq 10$ arc seconds
Perpendicularity	$\leq 5$ arc minutes
Surface Quality	10/5 Scratch / Digper MIL-O-13830A
Optical Quality	Interference fringes $\leq 0.25 \lambda$ /inch Extinction ration $\geq 30$ dB
Size	Diameter: 3~8mm, Length: 40~80mm Upon request of customer
Dimensional tolerances	Diameter: +0.000"/-0.05" Length: $\pm 0.5$ " Chamfer: < 0.1 mm @45°
AR-Coating Reflectivity	$\leq 0.2\%$ (@1064nm)

Physical and Chemical Properties	
Chemical formula	Nd <sup>3+</sup> : Ce <sup>3+</sup> : Y3Al5O12
Crystal Structure	Cubic
Lattice Parameters	12.01A
Melting Point	1970°C
Moh Hardness	8.5
Density	4.56 ± 0.04g/cm <sup>3</sup>
Specific Heat (0-20)	0.59J/g.cm <sup>3</sup>
Modulus of Elasticity	310GPa
Young's Modulus	3.17×104Kg/mm <sup>2</sup>
Poisson Ratio	0.3(est.)
Tensile Strength	0.13~0.26GPa
Thermal Expansion Coefficient	[100]:8.2 × 10 <sup>-6</sup> /°C
	[110]:7.7 × 10 <sup>-6</sup> /°C
	[111]:7.8 × 10 <sup>-6</sup> /°C
Thermal Conductivity	14W/m/K(@25°C )
Thermal Optical Coefficient (dn/dT)	7.3×10 <sup>-6</sup> /°C
Thermal Shock Resistance	790W/m

Laser Properties	
Laser Transition	<sup>4</sup> F <sub>3/2</sub> --> <sup>4</sup> I <sub>11/2</sub>
Laser Wavelength	1.064μm
Photon Energy	1.86×10 <sup>-19</sup> J@1.064μm
Emission Linewidth	4.5A @1.064μm
Emission Cross Section	2.7~8.8×10 <sup>-19</sup> cm <sup>-2</sup>
Fluorescence Lifetime	230μs
Index of Refraction	1.8197@1064nm