

Nd:YAP

Nd:YAP is an excellent laser crystal for high-power solid-state lasers. Because it outputs linearly polarized light, it is especially suitable for solid-state lasers with electro-optic boxes or harmonic generators to obtain high-efficiency laser output. The 1.34 μm wavelength laser emitted by Nd:YAP crystal has greater advantages in laser medical applications than the 1.32 μm wavelength laser emitted by Nd:YAG crystal.

Main features:

Output linearly polarized laser

1.079 μm laser threshold and output efficiency are similar to 1.064 μm of Nd:YAG crystal

1.34 μm laser output efficiency is higher than 1.32 μm of Nd:YAG crystal

The absorption of water and human body fluid tissue to 1.34 μm laser is higher than that of 1.32 μm

Material properties:

Crystal structure	Orthorhombic system
Lattice constant	a = 0.518 nm, b = 0.532 nm c = 0.736nm
Melting point	1870°C
Density	5.35 g/ cm ³
Moh's hardness	8.5
Specific heat capacity	400J/(kg K)
Coefficient of thermal expansion	a axis: 9.5×10^{-6} /K , b axis: 4.2×10^{-6} /K ; c axis: 10.8×10^{-6} /K
Thermal conductivity	11W/(m·K)
Refractive index	na=1.91, nb=1.92, nc=1.94
Thermo-optic coefficient	dna/dT= 9.7×10^{-6} /K dnb/dT= 14.5×10^{-6} /K

Product parameters:

Doping concentration	Nd: 0.7~ 0.9 at% @1.079 μm (continuous, pulsed laser), 0.85~0.95at% @1.34 μm (continuous laser) other doping
Orientation	[010], $\pm 5^\circ$
Crystal rod size	Diameter: 2~10mm, length: 20~150mm , can be customized
Dimensional tolerance	Diameter: +0.00/-0.05mm, Length: ± 0.5 mm
Cylindrical processing	Grinding and Polishing
Parallelism of end faces	$\leq 10''$
Perpendicularity between end face and	$\leq 5'$
Flatness of end face	$\leq \lambda/10$ @632.8nm
Surface Quality	10-5 (MIL-O-13830A)
Chamfer	0.15 \pm 0.05mm
AR Coating Reflectance	$\leq 0.25\%$
Damage threshold	≥ 500 MW/ cm ²