

Physical and Optical Properties	
Chemical formula	Ti 3+ : Al 2 O 3
Crystal structure	Hexagonal
Melting point	2050 °C
Density	3.98 g/cm ³
Mohs hardness	9
Thermal conductivity Coefficient	0.11 cal/(°C x sec x cm)
Thermal Expansion Coefficient	
Lasing Wavelength	660-1050 nm (795 nm)
Absorption range	400-600 nm (488 nm)
Lattice constants	a = 4.748, c = 12.957
Fluorescence lifetime	3.2 μsec (T = 300 K)
Absorption Coefficient	1.0-7.5cm ⁻¹ @490nm
Refractive index	1.76 @ 800 nm
Polarized Emission	Unpolarized
Typical Specification and Tolerance	
concentration	0.06-0.5 wt% Ti dopant
Figure of Merit	100~300
Aperature	2~50mm
Path Length	2~130mm
End configuration	flat/flat or Brewster/Brewster ends or Specified
Orientation	Optical axis C normal to rod axis
Parallelism	<10 arc seconds
Surface quality	better than 60/40 scratch/dig per MIL-O-13830A
Surface flatness	<λ/10 @633nm
Wavefront distortion	<λ/4 per inch @ 633 nm
Perpendicularity	< 5 arc minutes
Clear aperture	Central 90%
Chamfer	0.15x44°
Damage threshold	over 15J/cm ² (rods without coating) over 700MW/cm ² (coating)
Coatings	AR@700-1100nm