Titanium sapphire (Ti:Al_2O_3)

Titanium-doped sapphire (Ti:Al_2O_3) laser crystal is the core material for femtosecond ultrashort pulse laser and petawatt-level high-power laser technology. The crystal has tunable wavelength (660-1200nm) and wide emission bandwidth (About 600nm), large emission cross-section, high thermal conductivity, excellent physical and chemical properties, etc., is currently the most widely used tunable laser crystal and the most important working medium for ultra-fast, ultra-intense and high-power laser operation.

Main features:

Broad wavelength tunability

Broad absorption pump band

Excellent output efficiency

Short excited state lifetime (3.2 mm)

Narrow clamp width

high damage threshold

Excellent thermal conductivity

Material properties:

Doping concentration	0.0 6 -0.5 wt%
Absorption range/absorption peak	400-600nm / 488nm
Absorption coefficient (@ 490nm)	1.0-7.5cm^{-1}
FOM value	100~300
Tuning Range/Emission Peak	660-1050nm / 795nm
Refractive index	1.76 @ 800nm
Fluorescence lifetime	3.2μs (T = 300K)
Crystal structure and unit cell	Hexagonal, a=4.748 Å , c=12.957 Å
Thermal conductivity	0.105cal/cm/sec/℃
Mohs hardness	9 Mohs
Density	3.98 g/ cm^3

Product parameters:

Diameter size	3 ~ 220mm _
Length	1~80mm
Cutting method	Flat, Brewster's corner or customized
Orientation	[0001]
Wavefront distortion	＜λ/4@632nm
Flatness	＜λ/8@632nm
Clear aperture	>90%
Parallelism	<10"
Surface quality	10/5
Coating	According to customer requirements