

Ti:SAPPHIRE CRYSTALS

Al₂O₃:Ti³⁺ - titanium-doped sapphire crystals combine supreme physical and optical properties with broadest lasing range, It's indefinitely long stability and useful lifetime added to the lasing over entire band of 660-1050 nm challenge "dirty" dyes in variety of applications. Medical laser systems, lidars, laser spectroscopy, direct femtosecond pulse generation by Kerr-type mode-locking - there are few of existing and potential applications.

The absorption band of Ti:Sapphire centered at 490 nm makes it suitable for variety of laser pump sources - argon ion, frequency doubled Nd:YAG and YLF, copper vapour lasers. Because of 3.2 μs fluorescence lifetime Ti:Sapphire crystals can be effectively pumped by short pulse flashlamps in powerful laser systems.

Physical and Optical Properties:

Properties	Values
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	0.11 cal/(°C x sec x cm)
Specific heat	0.10 cal/g
Laser action	4-Level Vibronic
Lattice constants	a = 4.748, c = 12.957
Fluorescence lifetime	3.2 μsec (T = 300 K)
Tuning range	660-1050 nm
Absorption range	400-600 nm
Emission peak	795 nm
Absorption peak	488 nm
Refractive index	1.76 @ 800 nm

Our Manufacture Technical Capabilities:

Properties	Values
Ti ₂ O ₃ concentration:	0.06-0.5 wt%
Figure of Merit:	100-300
Diameter:	2-50mm
Path Length:	2-130mm
End configuration:	flat/flat or Brewster/Brewster ends or Specified
Orientation:	Optical axis C normal to rod axis
α ₄₉₀ :	1.0-7.5cm ⁻¹
Flatness:	10 @633nm
Parallelism:	10 arcsec
Surface quality:	10/5 scratch/dig
Wavefront distortion:	4 per inch

Please contact [ultiQuest](#) for more information and technical supports.

NOTES!

- ➔ Be sure to wear laser safety goggles when checking optical path and adjusting optical axis.

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