

Crystaltechno Ltd. offers grown in house

Ti:Sapphire (Al₂O₃ : Ti³⁺) Single Crystals

For Laser Technics

Sapphire doped with titanium (Ti³⁺) is applied as an active medium in laser systems.

Chemical formula	Al ₂ O ₃ : Ti ³⁺
Dopant concentration, at. %	0,02÷0,35
Crystal structure	hexagonal
Lattice cell parameters, Å	a = 4,765 c = 13,001
Density, g/cm ³	3,98
Melting point, ° C	2050
Mohs' hardness	9
Index of refraction	no 1,768 ne 1,760
Laser transition	² E _{2g} → ² T _g
Emission wavelength, μm	0,660-1,000
Luminescence life time, ns	15-30
Thermal expansion coefficient at (25 – 50) °C	
parallel to c axis	6,6 · 10 ⁻⁶
perpendicular to c axis	5,0 · 10 ⁻⁶
Thermal conductivity, W/(cmK)	0,33
Figure of merit (a490/a800)	60 - 300
Maximal dimensions of crystals, mm	150 x 250 x 25

Titanium-sapphire refers to the lasing medium, a crystal of sapphire (Al₂O₃) that is doped with titanium ions. A Ti:sapphire laser is usually pumped with another laser with a wavelength of 514 nm to 532 nm, for which argon-ion lasers (514.5 nm) and frequency-doubled Nd:YLF, Nd:YAG and Nd:YVO lasers (527 nm - 532 nm) are used. Ti:sapphire lasers operate most efficiently at wavelengths near 800 nm.

*If you are interested please feel free to contact us!
You can receive the additional information*

e-mail: sales@crystaltechno.com