



## DESCRIPTION

YLF laser crystal is the abbreviation for yttrium lithium fluoride (YLiF<sub>4</sub>). YLF laser crystal is birefringent, which eliminates thermally induced depolarization loss. Pure YLF crystals are transparent within the spectrum band of 0.12 – 7.5  $\mu\text{m}$ , photo-, thermal- and radiation-resistant. The YLF crystals have low values of nonlinear refraction index and thermos optical constants. YLF has good optical properties with high transparency throughout the emission spectrum of the conventional sources used for pumping solid-state lasers. YLF does not show UV damage, and it has lower non-radiative decay rates for processes occurring between electronic levels participating in the pumping and lasing process. YLF is also a good medium for mode locking at 1047 or 1053 nm and 1.313  $\mu\text{m}$  as a result of its natural birefringence and low thermal lensing. Mode-locked pulses from YLF are shorter thanks to its broader linewidth, both for the 1047/1053-nm and 1.313- $\mu\text{m}$  emission peaks. Yttrium Lithium Fluoride (YLF) is a crystalline material used in optics and solid-state single crystal laser rods. YLF is typically doped with materials such as neodymium, holmium, erbium and is generally immediately available in most volumes.

## APPLICATIONS

- Lamp pumping, diode pumping
- Conventional sources used for pumping solid-state lasers
- Cascade emission between intermediate levels as well as an up-converter
- A good medium for mode locking at 1047 or 1053 nm and 1.313  $\mu\text{m}$

## FEATURES

- High power, low beam divergence, efficient single - mode operation
- High average power Q-switched at a moderate repetition rate
- Potential uniform mode for large diameter rods
- Linear polarized resonators for Q-switching and frequency doubling



## PARAMETERS

### Material and Specifications

Doping Concentration	0.5–3.0%
Orientation Tolerance	5'
Dopant Concentration Tolerance	0.001
Parallelism	<10"
Perpendicularity	5'
Chamfer	0.1mm@45°
Surface Quality	10-5 (MIL-O-13830A)
Wavefront Distortion	<λ/8@633 nm
Surface Flatness	λ/10 @633 nm
Clear Aperture	0.95
Diameter	2-50.8 mm
Length	1-180mm

### Physical and Chemical Properties

Crystal System	Scheelite Structure
Symmetry	Tetragonal
Space Group	C64h-T41/a
Lattice Constants	a=5.1710, c=10.7484 Å
Density (g/cm <sup>3</sup> )	3.96
Melting Point	1354°C
clearage	Typical

### Optical characteristics

Transmission Range	0.22 ... 8 μm
Reflective Loss	6 ... 16%@0.2 ... 10 μm
Refractive Index	n <sub>o</sub> =1.46136, n <sub>e</sub> =1.48398@435.8nm

## SPECTRA

