

# Lithium Iodate – LiIO<sub>3</sub>

## EKSPLA OFFERS:

- The mass production of LiIO<sub>3</sub> crystals
- Attractive discounts for OEM customers
- Different shapes (slabs, cylinders, Brewster ends) are available
- Standard open ring holders
- Recoating and repolishing service
- AR, BBAR and P - coatings according to customer's choice
- P-coatings optimised at pump wavelengths
- BBAR coatings for wavelength tuned Ti:Sapphire and other lasers.

## APPLICATIONS

- Harmonic generators
- Thin LiIO<sub>3</sub> for autocorrelation measurements.

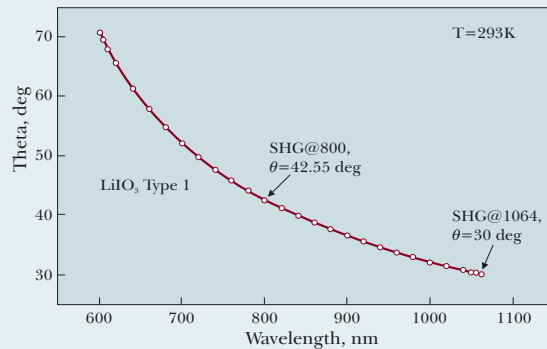
## PHYSICAL AND OPTICAL PROPERTIES OF LIIO<sub>3</sub>

Crystal structure  
Point group  
Density [g/cm<sup>3</sup>]  
Mohs hardness  
Transparency range [nm]  
Absorption at 1064nm [cm<sup>-1</sup>]  
Refractive indices  
Phase matching range for Type 1 SHG [nm]  
Acceptances for Type 1 SHG at 1064 nm  
Walk-off for Type 1 SHG at 1064 nm [mrad]  
Nonlinear optical coefficient d<sub>15</sub> [pm/V]  
Effective nonlinearity  
Damage threshold [MW/cm<sup>2</sup>]  
Wavelength dispersion of refractive indices (λ – in μm)

$$n_o^2 = 2.083648 + \frac{1.332068\lambda^2}{\lambda^2 - 0.035306} - 0.008525\lambda^2$$

## SPECIFICATIONS OF LIIO<sub>3</sub> CRYSTALS

Flatness: λ/6 at 633 nm  
Parallelism: < 30 arcsec  
Surface quality: 20/10 scratch/dig as per MIL-O-13830A  
Perpendicularity: < 5 arcmin  
Angle tolerance (Δθ & Δφ): < 30 arcmin  
Clear aperture: 90% of full aperture



LiIO<sub>3</sub> Second harmonic generation phase matching

hexagonal  
6  
4.487  
3.5 ÷ 4.0  
280 ÷ 4000  
< 0.05  
n<sub>o</sub> = 1.8571, n<sub>e</sub> = 1.7165  
n<sub>o</sub> = 1.8676, n<sub>e</sub> = 1.7245  
n<sub>o</sub> = 1.8982, n<sub>e</sub> = 1.7480  
570 ÷ 4000  
0.77  
12.74  
74.30  
2.2 (at 1064 nm)  
d<sub>ooe</sub> = d<sub>15</sub> sinθ  
> 100 for TEM<sub>00</sub>, 1064 nm, 10 ns, 10 Hz

$$n_e^2 = 1.673463 + \frac{1.245229\lambda^2}{\lambda^2 - 0.028224} - 0.003641\lambda^2$$

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