

Lithium Iodate – LiIO₃

EK SMA Co. OFFERS:

- The mass production of LiIO₃ 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 LiIO₃ for autocorrelation measurements.

PHYSICAL AND OPTICAL PROPERTIES OF LIIO₃

Crystal structure	hexagonal
Point group	6
Density [g/cm ³]	4.487
Mohs hardness	3.5÷4.0
Transparency range [nm]	280÷4000
Absorption at 1064nm [cm ⁻¹]	< 0.05
Refractive indices	at 1064 nm $n_o = 1.8571, n_e = 1.7165$ at 800 nm $n_o = 1.8676, n_e = 1.7245$ at 532 nm $n_o = 1.8982, n_e = 1.7480$
Phase matching range for Type 1 SHG [nm]	570÷4000
Acceptances for Type 1 SHG at 1064 nm	Angular [mrad×cm] 0.77 Spectral [cm ⁻¹ ×cm] 12.74
Walk-off for Type 1 SHG at 1064 nm [mrad]	74.30
Nonlinear optical coefficient d ₁₅ [pm/V]	2.2 (at 1064 nm)
Effective nonlinearity	$d_{\text{oe}} = d_{15} \sin \theta$
Damage threshold [MW/cm ²]	> 100 for TEM ₀₀ , 1064 nm, 10 ns, 10 Hz
Wavelength dispersion of refractive indices (λ – in μm)	$n_o^2 = 2.083648 + \frac{1.332068\lambda^2}{\lambda^2 - 0.035306} - 0.008525\lambda^2$ $n_e^2 = 1.673463 + \frac{1.245229\lambda^2}{\lambda^2 - 0.028224} - 0.003641\lambda^2$

Please contact EK SMA for further information or nonstandard specifications.

SPECIFICATIONS OF LIIO₃ CRYSTALS

Flatness: $\lambda/6$ at 633 nm

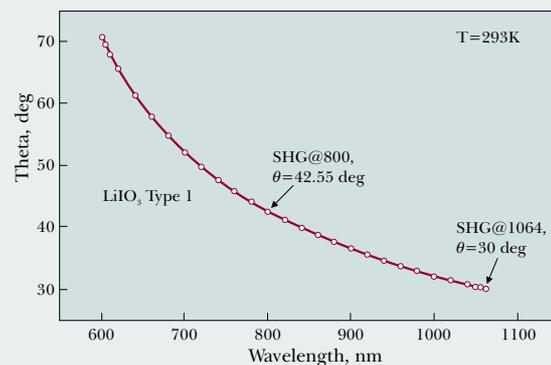
Parallelism: < 30 arcsec

Surface quality: 20/10 scratch/dig as per MIL-O-13830A

Perpendicularity: < 5 arcmin

Angle tolerance ($\Delta\theta$ & $\Delta\phi$): < 30 arcmin

Clear aperture: 90% of full aperture



LiIO₃ Second harmonic generation phasematching