

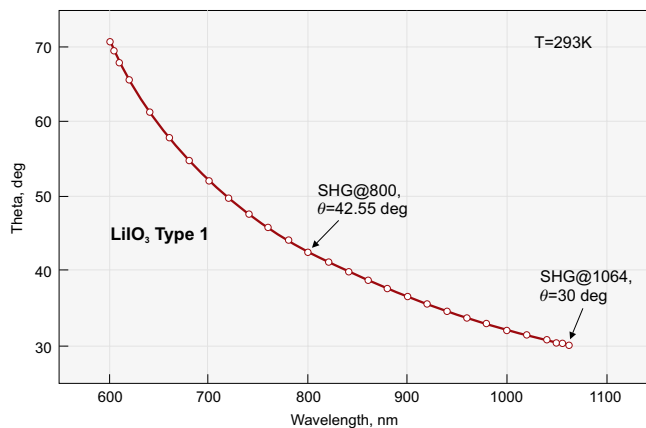
LiIO₃ – LITHIUM IODATE

Features

- High nonlinear optical coefficients
- Wide transparency range
- Low damage threshold – not recommended for high power applications

Applications

- Harmonic generators
- Thin LiIO₃ for autocorrelation measurements



LiIO₃ Second harmonic generation phase matching

Specifications

Flatness	$\lambda/6$ at 633 nm
Parallelism	< 30 arcsec
Surface quality	20 – 10 scratch & dig (MIL-PRF-13830B)
Perpendicularity	< 5 arcmin
Angle tolerance ($\Delta\theta$ & $\Delta\phi$)	< 30 arcmin
Clear aperture	90% of full aperture

Physical and Optical properties

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 1064 nm, 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_{31} , pm/V	4.4 (at 1064 nm)
Effective nonlinearity	$d_{\text{ooe}} = d_{15} \sin\theta$
Damage threshold, MW/cm ²	> 100 for TEM ₀₀ , 1064 nm, 10 ns, 10 Hz
Wavelength dispersion of refractive indices (λ – in μm)	$n_o^2 = 1.673463 + \frac{1.245229}{\lambda^2} - 0.003641\lambda^2$ $n_e^2 = 2.083648 + \frac{1.332068}{\lambda^2} - 0.008525\lambda^2$

Housing accessories

Ring Holders for Nonlinear Crystals

See page 2.26



Positioning Mount 840-0199 for Nonlinear Crystal Housing

See page 2.27

