



**Lithium iodate (LiIO<sub>3</sub>) :**

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Lithium iodate (LiIO<sub>3</sub>) crystal is a negative uniaxial crystal, with high nonlinear optical coefficient and wide transparency range, radiation damage resistance characteristics. It can be used for nonlinear acousto-optic and piezoelectric applications in a 347 nm ruby laser as a medium and narrow pulse, wide band ultrasonic transducer. It can also be used as two, three time frequency and mixing of medium and low power laser.

Main features:

High nonlinear optical coefficient, wide transparent range, wide phase matching range, good temperature stability of the refractive index, and low damage threshold value

**Material Properties:**

Crystal structure	hexagonal crystal system
Crystal structure	uniaxial negative crystal
Point group	6
Melting point	420°C
Density	4.487 g/cm <sup>3</sup>
Mohs hardness	3.5-4.0
Transparent range	280-4000nm
Absorption coefficient @ 1064 nm,	< 0.05cm <sup>-1</sup>
Refractive index @ 1,064 nm	n <sub>o</sub> = 1.8571, n <sub>e</sub> = 1.7165
@800 nm	n <sub>o</sub> = 1.8676, n <sub>e</sub> = 1.7245
@532 nm	n <sub>o</sub> = 1.8982, n <sub>e</sub> = 1.7480
Type 1 SHG Phase-matching range	570-4000nm
Type 1 SHG Acceptance @ 1064 nm	
Angle, and the mradcm	0.77
Light spectrum,cm-1×cm	12.74
Type 1 SHG Go @ 1064 nm, mrad	74.3
Nonlinear coefficient	d <sub>31</sub> =4.4 pm/V(@ 1064 nm)
Effective nonlinearity	d <sub>eff</sub> = d <sub>31</sub> sinθ
Damage threshold	> 100MW/cm <sup>2</sup> @1064 nm, 10 ns
Sellmeier Equation (λ in μm)	n <sub>o</sub> <sup>2</sup> =3.415716+0.047031/(λ <sup>2</sup> -0.035306)-0.008801λ <sup>2</sup>
	n <sub>e</sub> <sup>2</sup> =2.918692+0.035145/(λ <sup>2</sup> -0.028224)-0.003641λ <sup>2</sup>

**Product Parameter:**

Dimensional tolerance	±0.1mm
Optical aperture	≥90%
Wavefront distortion	≤λ/4 @ 633nm
Flatness	λ/4 @ 633nm
Finish	20/10
Parallelism	≤20"
Verticality	≤5'
Angular deviation	< ±0.5°