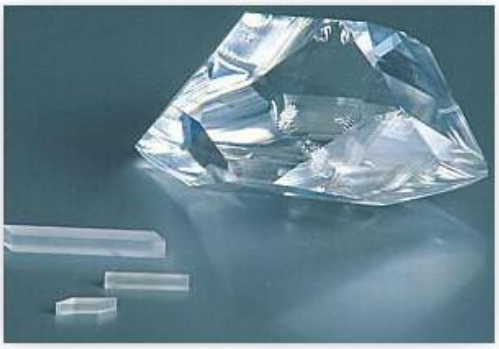
BIBO Crystals

- **Large crystal size up to 10x10x15mm**
- **AR coating, mounts and re-polishing service**

BIBO(BiB3O6) crystal is a newly developed nonlinear Optical Crystal. It possesses large effective nonlinear coefficient, high damage threshold and inertness with respect to moisture. Its nonlinear coefficient is 3.5-4 times higher than that of LBO,1.5-2 times higher than that of BBO. It is a promising doubling crystal to produce blue laser. The top-seeded solution growth (TSSG) technique is used for the growth of BIBO single crystals.



SPECIFICATIONS

Specifications	
Clear aperture	central 90% of the diameter
Flatness	less than λ/8 @ 633nm
Transmitting wavefront distortion	less than λ/8 @ 633nm
Chamfer	≤0.2mmx45°
Chip	≤0.1mm
Scratch/Dig code	10/ 5 to MIL-PRF-13830B
Parallelism	better than 20 arc seconds
Perpendicularity	≤5 arc minutes
Angle tolerance	Δθ≤0.25°, ΔΦ≤0.25°
Quality Warranty Period	one year under proper use

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Chemical and Structure properties	
Crystal Structure	Monoclinic, Point group 2
Lattice Parameter	a=7.116Å, b=4.993Å, c=6.508Å, β=105.62° ,Z=2
Melting Point	726°C
Mohs Hardness	5-5.5
Density	5.033 g/cm3
Thermal Expansion coefficient	αa=4.8x10^{-5}/K, αb=4.4x10^{-6}/K, αc=-2.69x10^{-5}/K

Optical and Nonlinear Optical properties	
Transparency Range	286-2500nm
Absorption Coefficient	<0.1%/cm at 1064nm
Physical Axis	X//b,(Z,a)=31.6 °,(Y,c)=47.2 °
SHG of 1064/532	Phase matching angle:168.9 ° from z axis in YZ plane
	Deff:3.0+/-0.1 pm/V
	Angular acceptance:2.32 arad-cm
	Walk-off angle :25.6 mrad
	temperature acceptance:2.17 ° C-cm

Sellmeier coefficients	$n_i^2(\lambda)=A+B/(\lambda^2-C)-D\lambda^2$ (λ in um)			
	A	B	C	D
n1	3.6545(4)	0.0511(2)	0.0371(3)	0.0226(1)
n2	3.0740(3)	0.0323(1)	0.0316(3)	0.01337(6)
n3	3.1685(3)	0.0373(1)	0.0346(3)	0.01750(8)

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Features

- Broad transparent range from 286nm to 2500nm
- High optical homogeneity (未 n ~ 10-6/cm), free of inclusions
- Large effective SHG coefficient (~ 9 times that of KDP)
- High damage threshold
- Large temperature-bandwidth
- Inertness to moisture

Application Notes

- SHG and THG for middle and high power Nd: lasers at 1064nm
- SHG and THG of high power Nd: lasers at 1342nm & 1319nm for red and blue laser
- SHG for the Nd: Lasers at 914nm & 946nm for blue laser
- Optical Parametric Amplifiers (OPA) and Oscillators (OPO) application

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