

BIBO Bismuth Borate :

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BIBO Bismuth Borate (BiB₃O₆) is a newly developed nonlinear optical crystal with a large effective nonlinear optical coefficient, high damage threshold and no moisture solution.

Its nonlinear coefficient was 3.5-4 times higher than LBO and 1.5-2 times higher than BBO. It can efficiently multiply the frequency by 946nm and produce a blue laser at 473nm.



Main features:

- light transmittance range: 286-2,500 nm
- Large effective nonlinear optical coefficient
- High injury threshold
- Not easy to tide solution,
- Stable physical and chemical performance

Product Parameter:

Dimensional tolerance	(W±0.1mm)x(H±0.1mm)x(L+0.5mm/-0.1mm) (L≥2.5mm)
Angular tolerance	Δθ≤±0.25°, Δφ≤±0.25°
Parallelism	< 20"
Verticality	< 5'
Optical aperture	≥90%
Surface finish	10-5(MIL-0-13830A)
Flatness	< λ/8 @633nm
Wavefront distortion	< λ/8 @633nm
Optical aperture [GW / cm ²]	> 0.3 @1064nm, TEM00, 10ns, 10H z

Material Properties:

Crystal structure	orthorhombic system
Crystal lattice parameters	a=12.532Å, b=6.71Å, c=10.864Å
Melting point	1090°C
Moh's hardness	4.5
Density	3.85g/cm ³
Thermal conductivity	10W/(m·K)
Thermal expansion coefficient	a:4.4×10 ⁻⁶ /K, b:3.5×10 ⁻⁶ /K, c:9.3×10 ⁻⁶ /K
Transmissivity	> 95%(1064nm)
Optical homogeneity	< 0.1%



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Temperature stability	$< 10^{-5}/K$
Nonlinear optical coefficient (pm / V)	$d_{31}=8.8, d_{32}=3.5, d_{33}=13.8$
Thermo-optical coefficient	$dn/dT=10^{-5}/K$
Refractive index	$n_o=2.155, n_e=2.220(@1064nm)$
Nonlinear coefficient (pm / V)	3.5(SHG), 1.8(THG)
Effective frequency doubling coefficient (SHG, THG)	1.7(SHG), 0.9(THG)
Walking angle (mrad·cm)	32(type I), 42(type II)
Receiving angle (mrad·cm)	22.5(type I), 29.5(type II)
Phase Matching Range (°Cm)	400~1300(SHG), 900~2600(THG)
Temperature acceptance (°C)	55
Damage threshold (GW/cm ²)	~2.5(SHG), ~0.6(THG)