



# < BBO



## Applications

Operation	Advantages	Field of Application
<ul style="list-style-type: none"> <li>• THG at 1.06 μm</li> <li>• 4HG at 1.06 μm</li> <li>• 5HG at 1.06 μm</li> </ul>	<ul style="list-style-type: none"> <li>• Fair efficiency</li> <li>• Best commercially available crystal for 4HG and 5HG</li> </ul>	<ul style="list-style-type: none"> <li>• UV lasers for material processing</li> <li>• Gas laser replacement</li> </ul>
<ul style="list-style-type: none"> <li>• OPO pumped at 532 nm or 355 nm</li> </ul>	<ul style="list-style-type: none"> <li>• Widely tunable</li> <li>• High conversion efficiency</li> </ul>	
<ul style="list-style-type: none"> <li>• E-O phase modulation</li> </ul>	<ul style="list-style-type: none"> <li>• Excellent extinction ratio</li> <li>• Wide transmission range</li> <li>• High damage threshold</li> </ul>	<ul style="list-style-type: none"> <li>• Q-switches at high rep. rates or where high damage threshold is needed</li> </ul>

## Optical properties

Average refractive index	1.6				
Coefficients in Sellmeier's equation	Index	A	B	C	D
$\left[ n_i^2 = A_i + \frac{B_i}{\lambda^2 - C_i^2} - D_i \lambda^2 \right]$	n <sub>o</sub>	2.7359	0.01878	0.01822	0.01354
	n <sub>e</sub>	2.3753	0.01224	0.01667	0.01516
	Negative uniaxial crystal with n <sub>o</sub> > n <sub>e</sub>				
	K. Kato IEEE J.QE-22, 1013 (1986)				
Transparency range, μm					0.2-2.2
Residual absorption					< 0.1% / cm at 1064 nm

## Physical properties

Chemical formula	β-BaB <sub>2</sub> O <sub>4</sub>
Crystal structure	Trigonal
Point group	3m
Lattice parameters, Å	a 12.53
	b 12.53
	c 12.72
Hardness, Mohs	4
Hygroscopic susceptibility	High
Density, g.cm <sup>-3</sup>	3.85
Specific heat, J/kg.K	490
Thermal conductivity, mW.cm <sup>-1</sup> .°C <sup>-1</sup>	1.2(⊥c) 1.6(//c)
Aperture, mm <sup>2</sup>	up to 13 x 13
Length, mm	up to 20