Crystals Land

* Welcome To $BaTiO_3$ & doped $BaTiO_3$ Crystal *

$BaTiO_3$ & doped $BaTiO_3$

Undoped and doped Barium Titanate crystals are the excellent photorefractive materials, their high Self pumped Phase Conjugation (SPPC) reflection and two wave mixing (optical amplification) efficiency, which make them important role for information processing and image storage. In addition, $BaTiO_3$ is an important substrate material for some special film due to its unique ferroelectric and other properties.

Physical Properties:

Structure	Tetragonal(4m) at 13°C<T<132 °C
Cell parameter	a=3.99Å, c=4.04Å, (at 26 °C)
Melting Point	1891 K
Density	6.06 g/cm^3 at 26 °C
Specific Heat	0.527J/g • k(300° K)
Thermal conductivity	6 W/m • k(300° K)
Thermal expansion ($10^{-6}k^{-1}$)	15.7 //a 6.2 //c
Dielectric constant (ε r)	ε a=3000 ε c=800
Mohs Hardness	4.5

Optical Properties:

Transmission wavelength	0.43 - 6.30μm			
Index of Refraction		515 nm	633 nm	800 nm
	n_o	2.4912	2.4160	2.3681
	n_e	2.4247	2.3630	2.3235
Electro Optic Coefficients	r^T_{13}=8+/-2 pm/V			
	r^T_{33}=105-/+10 pm/V			
	r^T_{42}= 1300+/-100 pm/V			
Reflectivity of SPPC (0° cut)	50-70 % (Ce: BaTiO3) for λ = 515 nm			
	40-60% (Pure BaTiO3) for λ = 515 nm			
	50-80 % (Ce: BaTiO3) for λ = 633 nm			
	40-60% (Pure BaTiO3) for λ= 633 nm			
Two-wave mixing coupling constant	10-40cm^{-1}			
Absorption loss		515 nm	633 nm	800 nm
	a	0.285cm^{-1}	0.108cm^{-1}	0.033cm^{-1}
Wavelength range for photo refractive effect	Undoped BTO :for visible Ce:BTO:480-780nm Rh:BTO:720-1060nm			

Specifications:

Standard Size	10x10, 10x5, 10x3,5x5 mm
Thickness	0.5mm, 1.0mm

Polishing	one or two side polished
Bulk	5x5x5,4x4x4,3x3x3 mm, 0°or 45°cut,2-6 faces polished
Orientation	< 100 > , < 110 > , < 001 > , < 111 >
Angle tolerance	better than ±0.5°

Contact us for  information

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