$BaTiO_3$ - Barium Titanate Crystal

Description: BaTiO3 is a very unique crystal with superior photo-refractive and ferroelectric properties. MaTecK supplies both of substrate grade and photo refractive grade BaTiO3 single crystal with excellent quality and affordable price.

TYPICAL PROPERTIES

Crystal Structure:	Tetragonal (4m) 9°C < T < 130.5 °C a=3.99 Å, c= 4.04 Å			
Growth Method:	Top Seeded Solution Growth			
Melting Point:	1600 °C			
Density:	6.02 g/cm3			
Dielectric constants:	⊠a = 3700, ⊠c = 135 (unclamped) ⊠a = 2400, ⊠c = 60 (clamped)			
Index of Refraction:	l	515 nm	633 nm	800 nm
	no	2.4921	2.4160	2.3681
	ne	2.4247	2.3630	2.3235
Transmission wavelength:	0.45 ~ 6.30 μm			
Electro Optic Coefficients:	rT 13 = 11.7 ± 1.9 pm/V rT 33 = 112 ± 10 pm/V rT 42 = 1920 ± 180 pm/V			
Reflectivity of SPPC (at 0 deg. cut):	50-70% (max. 77%) for ⊠ = 515 nm 50-80% (max: 86.8%) for ⊠ = 633 nm			
Two-wave mixing coupling constant:	10-40 cm-1			
Absorption loss:	λ	515 nm	633 nm	800 nm
	α	3.392 cm-1	0.268 cm-1	0.005 cm-1

STANDARD BTO CRYSTAL PRODUCTS

Refractive Grade BTO: (Fully electric poled with single domain)	3x3x3 mm, 2-4 faces polished 5x5x5 mm, 2-6 faces polished
Substrate grade BTO: (poled, but with domains)	5x5x1.0 mm, <100> or <001> Orientation 1-2 sides polished 10x10x1.0 mm, <100> or <001> Orientation 1-2 sides polished

BTO crystal must be stored in temperature above 10 °C to avoid phase transition which will cause twin or domain inside crystal.
Other sizes and specifications on request.

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