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## SBN CRYSTALS

Strontium-Barium Niobate ( $\text{Sr}_x\text{Ba}_{(1-x)}\text{Nb}_2\text{O}_6$ ) SBN is an excellent optical and photorefractive material. Nominally pure and doped by Ce, Cr, Co, Fe SBN crystals of different compositions are used in electro-optics, acousto-optics, photorefractive non-linear optics. New growing technique (Stepanov Method) provides perfect optical quality single crystals, free of growth striations, inclusions and other inhomogeneties, as well as definite cross section and linear dimensions up to 80mm. SBN crystalline elements meet the requirements for different applications. Basing on unique crystal growing technique, large quality SBN optical elements and photorefractive cells are offered.

### Basic Properties of SBN

	SBN X=0.60	SBN x=0.75
Crystal structure	4mm	4mm
Cell parameters	a=12.46±0.05Å c=3.946±0.0005Å	a=12.43024 ±0.00002Å c=3.91341 ±0.00001Å
Melting Point	1500±10°C	1500±10°C
Mohs hardness	5.5	5.5
Density	5.4 g/cm <sup>3</sup>	5.4 g/cm <sup>3</sup> ± 0.01
Transparency range	0.35÷6.0µm	0.35÷6.0µm
Refractive indices @ λ=0.51µm	n <sub>e</sub> =2.33 n <sub>o</sub> =2.36	n <sub>e</sub> =2.35 n <sub>o</sub> =2.37
Absorption coefficient @ λ=0.44µm	0.3cm <sup>-1</sup>	
Thermooptic coefficient dn <sub>e</sub> /dT	3*10 <sup>-4</sup> K <sup>-1</sup>	
Thermal Conductivity @ 25°C		0.006 W/cm*K
@ 1370 ÷ 1470°C		0.008 W/cm*K
Electrooptic coefficient	r <sub>13</sub> =47pm/V r <sub>33</sub> =235pm/V	r <sub>13</sub> =67pm/V r <sub>33</sub> =1340pm/V
Curie temperature	75°C	56°C
Half wave Voltage	240 V	48 V
Dielectric constant	880	3400