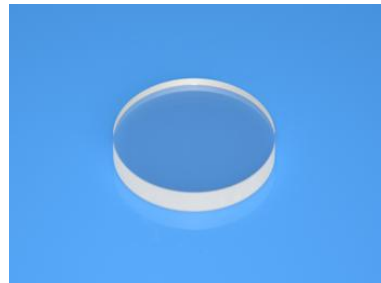
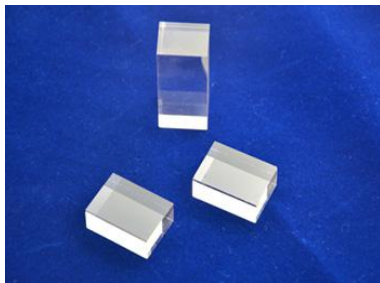


BGO Scintillators

BGO crystal is one of the most widely used scintillation materials of the oxide type. It has a high Z, high density scintillation material. Due to the high atomic number of bismuth (83) and the material's high density of 7.13 g/cm³, BGO is a very efficient gamma ray absorber. Given the high Z value of the material, the photo fraction for gamma ray absorption is high, as a result very good peak-to-total ratios are observed. Due to these features, BGO crystals are used in high-energy physics (scintillators for electromagnetic calorimeters and detecting assemblies of accelerators), spectrometry and radiometry of gamma-radiation, positron tomography.



Features:

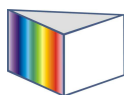
- No hygroscopic
- Mechanical ruggedness
- High density and atomic number
- Good radiation hardness

Ability:

- Growth method: Bridgmen
- Formula: Bi₄Ge₃O₁₂
- Maximum dimension: φ 75 mm x 300 mm
- Available items: single crystals and arrays

Basic Properties:

Basic Properties	
Density(g/cm ³)	7.13
Melting Point (K)	1323
Thermal Expansion Coefficient (C ⁻¹)	7 x 10 ⁻⁶
Cleavage Plane	None
Hardness (Mohs)	5



Hygroscopic	No
Wavelength of Emission Max. (nm)	480
Lower Wavelength Cutoff (nm)	320
Refractive Index @ Emission Max.	2.15
Primary Decay Time (ns)	300
Light Yield (photons/keV)	8-10
Photoelectron Yield (% of NaI(Tl) for γ -rays)	15-20
Temperature Response	-1.2%/C
Neutron Capture Cross-section	1.47b
Afterglow @ 20ms	150ppm

Note: The boules, blanks, polished elements are available.

Application Note:

- Positron emission tomography(PET)
- High energy physics
- Nuclear medicine
- Geological prospecting
- Gamma pulse spectroscopy