# BGO Scintillation Crystal

## $Bi_4Ge_3O_{12}$

Bismuth Germanate , $Bi_4Ge_3O_{12}$ commonly is abbreviated as BGO. It is the crystalline form of an inorganic oxide with cubic structure, transparent and insoluble in water. When exposed to radiation of high energy particles or other sources, such as gamma-rays, X-rays, it emits a green fluorescent light with a peak wavelength of 480nm. With its high stopping power, high scintillation efficiency, good energy resolution and non-hygroscopic, BGO is a good scintillation material and has found a wide range of applications in high energy physics, nuclear physics, space physics, nuclear medicine, geological prospecting and other industries.

MTI supplies high quality BGO crystal boule up to 3'' dia. x 6" long , as well as various shapes of components per customer request.

### Physical properties of BGO

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|---|---|
| Structure | Cubic |
| Lattice constant | a=10.518 Å |
| Density ($g/cm^3$) | 7.13 |
| Melting point ($^oC$) | 1050 |
| Parameter of crystal cell (A) | 10.518 |
| Refractive index | 2.15 |
| Radiation length (cm) | 1.1 |
| Peak of fluorescence spectra (nm) | 480 |
| Decay time (ns) | 300 |
| Relative light output (%) | 10-14 Nal (Tl) |
| Energy resolution (511 Kev,%) | 20 |

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