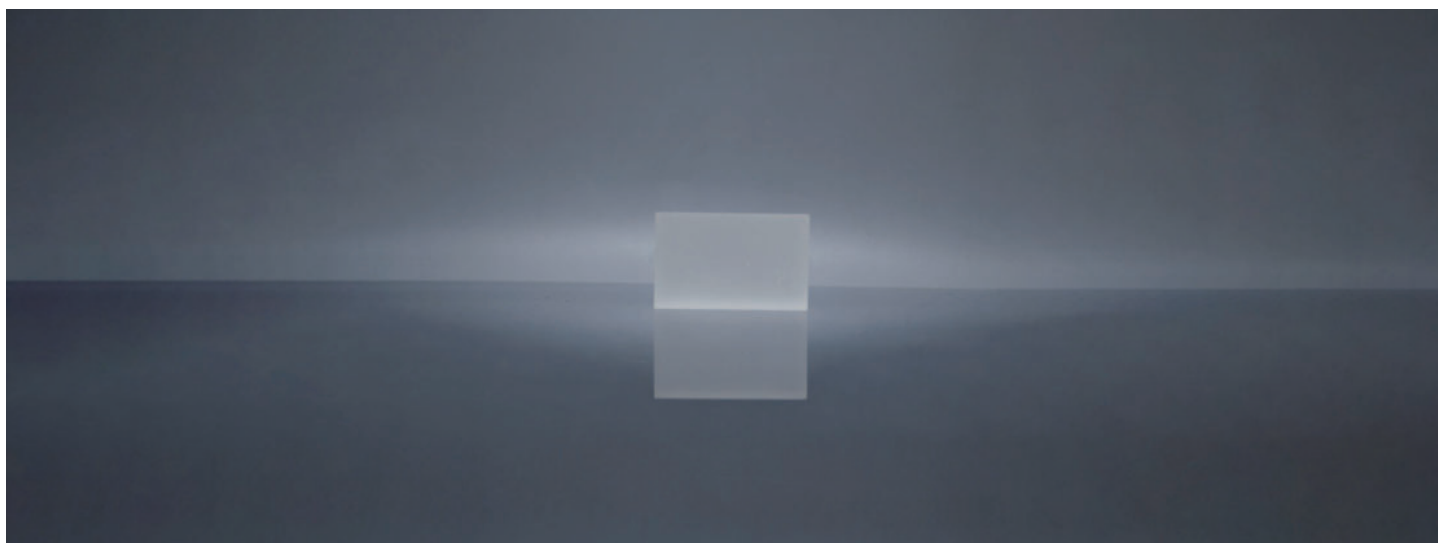


# BGO



## DESCRIPTION

BGO crystals, also known as bismuth germanate crystals, with the chemical formula  $\text{Bi}_{12}\text{GeO}_{20}$ , is a multifunctional optoelectronic material with high-speed photorefractive response in the visible range, as well as good piezoelectric, acousto-optic, magneto-optic, cyclotronic and electro-optic properties.

Both  $\text{Bi}_4\text{Ge}_3\text{O}_{12}$  and  $\text{Bi}_{12}\text{GeO}_{20}$  crystals are abbreviated as BGO.

$\text{Bi}_4\text{Ge}_3\text{O}_{12}$  belongs to the hexahedral body-centered structure of cubic crystal system, with space group F43m, mainly used as a scintillator;  $\text{Bi}_{12}\text{GeO}_{20}$  is also a cubic body-centered structure, but with space group I23, which is mainly utilized for photorefractive and electro-optical effects, etc. As the crystal is cubic symmetric, it has good piezoelectric, magneto-optical, cyclotronic and electro-optical properties.

Because the crystal is cubic symmetry, when there is no external electric field, the crystal is optically isotropic, and the refractive index of light at wavelength 510 nm is 2.55; when there is an external electric field, the crystal shows birefringence effect.

BGO crystals have the advantages of low dark conductivity, colorless and transparent, and insoluble in water, etc. BGO can be used not only for Pukkers boxes, but also for photorefractive devices in the ultraviolet range.

## FEATURES

- High electro-optical coefficient
- Low dark conductivity
- Large size components or wafers up to 3"
- Customized upon request

## APPLICATIONS

- Optical Switch
- Optical correlators
- Spatial light modulator

## CRYSTAL SPECIFICATION

Light Passing Aperture	85%
Dimensional Tolerance	+0.0/-0.2mm
Thickness tolerance	±0.2mm
Parallelism	<30 arc seconds
Chamfering	<0.3mm @45°
Surface quality	40/20
Wavefront distortion	< $\lambda/4$ @632.8nm
Coatings	No coating



# BGO

## CRYSTAL CHARACTERISTICS

Chemical formula	$\text{Bi}_{12}\text{GeO}_{20}$
Lattice parameters	10.15Å
Density	9.2g/cm <sup>3</sup>
Transmission range	0.45-7μm
Refractive index	2.55 @0.63μm
Spinability	41.5deg/mm @500nm
Electro-optical coefficient	$r_{41}=4.1\text{pm/v}$
Dielectric constant	40

## SPECTRA

