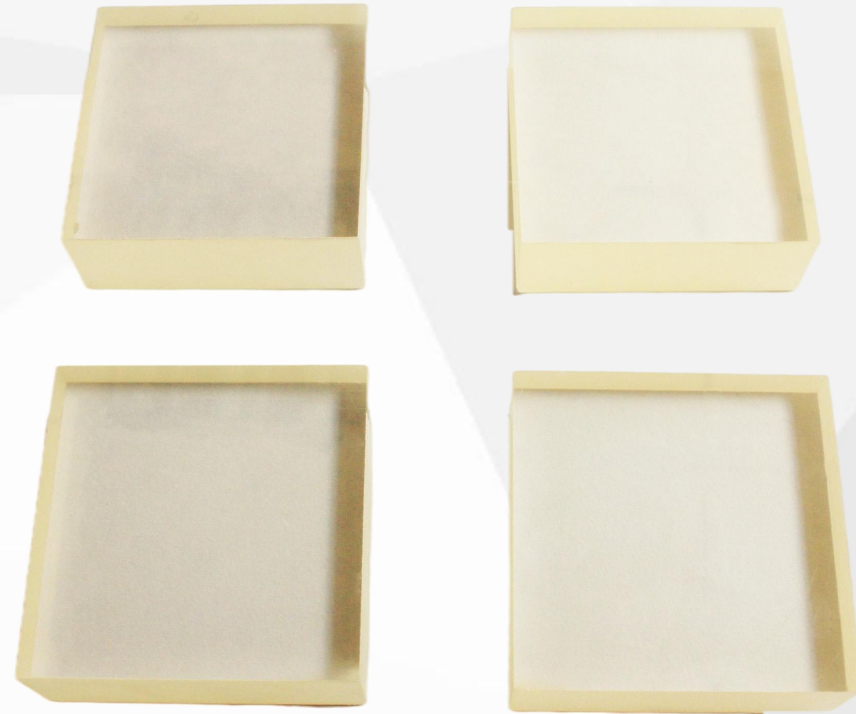


ZnS

ZnS is a very important optical crystals applied in IR waveband.

Transmitting range of CVD ZnS is 8um-14um, high transmittance, low absorption, ZnS with multi-spectrum level by heating etc. static pressure technics has improved the transmittance of IR and visible range.

Zinc Sulphide is produced by synthesis from Zinc vapour and H₂S gas, forming as sheets on Graphite susceptors. Zinc Sulphide is microcrystalline in structure, the grain size being controlled to produce maximum strength. Multispectral grade is then Hot Isostatically Pressed (HIP) to improve the mid IR transmission and produce the visibly clear form. Single crystal ZnS is available, but is not common.



Zinc Sulphide oxidizes significantly at 300° C, exhibits plastic deformation at about 500° C and dissociates about 700° C. For safety, Zinc Sulphide windows should not be used above 250° C in normal atmosphere.

ZnS

Applications:

Optics,electronics, photoelectronic devices.

Feature:

Excellent optical uniformity,
resisting acid-base erosion,
stable chemical performance.

High refractive index,
high refractive index and high transmittance within visible
range.

Materia	ZnS
Diameter Tolerance	+0.0/-0.1mm
Thickness Tolerance	±0.1mm
Surface Accuracy	$\lambda/4@632.8\text{nm}$
Parallelism	<1'
Surface Quality	60-40
Clear Aperture	>90%
Bevelling	<0.2×45°
Coating	Custom Design

Transmission Range	0.37 to 13.5 μm
Refractive Index	2.20084 at 10 μm (1)
Reflection Loss	24.7% at 10 μm (2 surfaces)
Absorption Coefficient	0.0006 cm^{-1} at 3.8 μm
Reststrahlen Peak	30.5 μm
dn/dT	+38.7 x 10 ⁻⁶ /°C at 3.39 μm
dn/d μ	n/a
Density	4.09 g/cc
Melting Point	1827°C (See notes below)
Thermal Conductivity	27.2 W m ⁻¹ K ⁻¹ at 298K
Thermal Expansion	6.5 x 10 ⁻⁶ /°C at 273K
Hardness	Knoop 160 with 50g indenter
Specific Heat Capacity	515 J Kg ⁻¹ K ⁻¹
Dielectric Constant	88
Youngs Modulus (E)	74.5 GPa
Shear Modulus (G)	n/a
Bulk Modulus (K)	n/a
Elastic Coefficients	Not Available
Apparent Elastic Limit	68.9 MPa (10,000 psi)
Poisson Ratio	0.28
Solubility	65 x 10 ⁻⁶ g/100g water
Molecular Weight	97.43
Class/Structure	HIP polycrystalline cubic, ZnS, F42m