

**Barium Fluoride (BaF2) Windows**



**Features:**

- Wide wavelength range of 0.2-11  $\mu\text{m}$
- Excellent as the security inspection windows

**Descriptions:**

Barium Fluoride is often suitable for applications in the passive IR band (8 to 14  $\mu\text{m}$ ) and is often used as a viewport window for thermal imaging inspection application in electric power facilities and petroleum industries. For an equivalent thickness the transmission extends approximately 1 micron further into the IR than Calcium Fluoride.

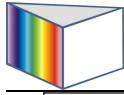
Hangzhou Shalom EO also provided the BaF2 windows with the protective coatings and assembly windows with metal holders.

**Specifications:**

Materials	IR grade Barium fluoride crystals	Diameter Range	~ 200mm
Aperture	>90%	Dimension Tolerance	+0.0/-0.1mm
Thickness Tolerance	+/-0.2mm	Surface Quality	60/40 S/D
Parallelism	1 arc minute	Chamfer	0.3-0.5mmx45degree
Coating	Optional protective coating		

**Physical and Optical Properties:**

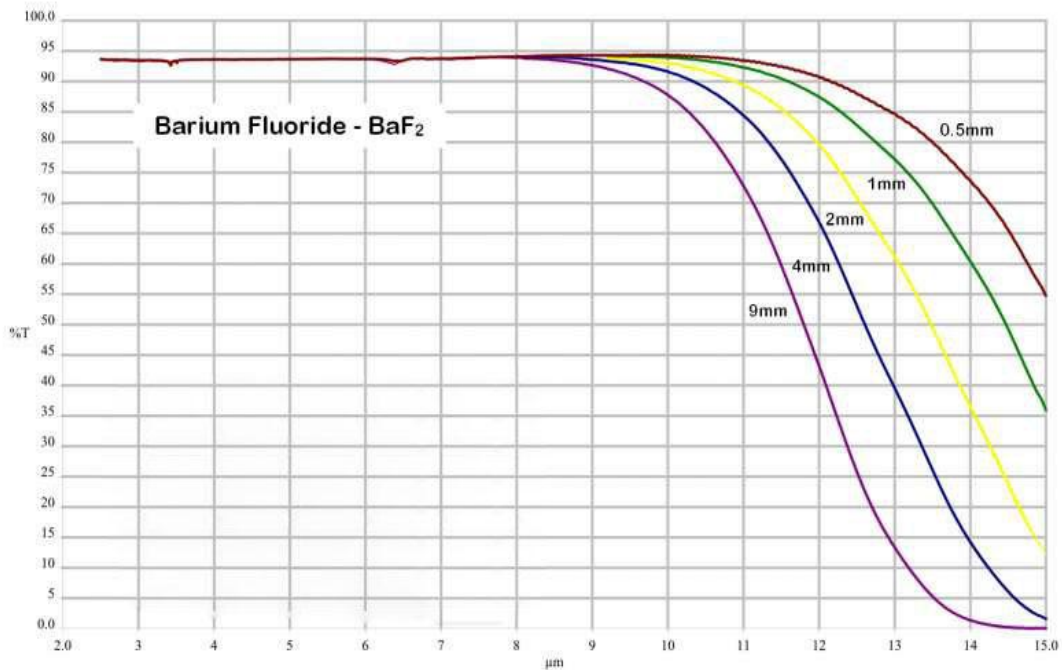
Transmission Range	0.15 to 12 $\mu\text{m}$	Refractive Index	1.45 at 5 $\mu\text{m}$ (1)
Reflection Loss	6.5% at 5 $\mu\text{m}$ (2 surfaces)	Absorption Coefficient	$3.2 \times 10^{-4} \text{ cm}^{-1}$ @ 6 $\mu\text{m}$
Reststrahlen Peak	47 $\mu\text{m}$	dn/dT	$-15.2 \times 10^{-6}/^\circ\text{C}$ (2)
dn/d $\mu$ = 0	1.95 $\mu\text{m}$	Density	4.89 g/cc
Melting Point	1386 $^\circ\text{C}$	Thermal Conductivity	11.72 W m <sup>-1</sup> K <sup>-1</sup> @ 286 K
Thermal Expansion	$18.1 \times 10^{-6}/^\circ\text{C}$ @ 273 K	Hardness	Knoop 82 with 500g indenter (4)
Specific Heat Capacity	410 J Kg <sup>-1</sup> K <sup>-1</sup> (3)	Dielectric Constant	7.33 at 1 MHz
Youngs Modulus (E)	53.07 GPa (3)	Shear Modulus (G)	25.4 GPa (3)
Bulk Modulus (K)	56.4 GPa	Elastic Coefficients	C11 = 89.2 C12 = 40.0 C44 = 25.4 (2)
Apparent Elastic Limit	26.9 MPa (300psi) (4)	Poisson Ratio	0.343



Solubility	0.17g/100g water at 23°C	Molecular Weight	175.36
Class/Structure	Cubic CaF <sub>2</sub> , Fm3m, (111), cleavage		

**Technical images:**

Transmission curve of the BaF<sub>2</sub> windows of different thickness



**Related products:**

- 1) Infrared windows -> CaF<sub>2</sub> windows
- 2) Infrared windows -> Windows assembly for inspection
- 3) Infrared lenses -> BaF<sub>2</sub> lenses