



## Barium Fluoride

### Optical

Transmission Range :	150 nm to 12 $\mu\text{m}$
Refractive Index :	1.45 at 5 $\mu\text{m}$
Reflective Losses :	6.5% at 5 $\mu\text{m}$ (losses from two surfaces)
Absorption Coefficient :	$3.2 \times 10^{-4} \text{ cm}^{-1}$ @ 6 $\mu\text{m}$

### Physical

Density :	4.89 $\text{g/cm}^3$
Melting Point :	1386 $^{\circ}\text{C}$
Thermal Conductivity :	11.72 $\text{W m}^{-1} \text{ K}^{-1}$ at 286 K
Linear CTE :	$18.1 \times 10^{-6}/^{\circ}\text{C}$ at RT
Specific Heat Capacity :	410 $\text{J Kg}^{-1} \text{ K}^{-1}$

### Mechanical

Youngs Modulus (E) :	53.07 GPa
Shear Modulus (G) :	25.4 GPa
Bulk Modulus (K) :	56.4 GPa
Rupture Modulus :	26.9 Mpa
Hardness :	82 Knoop (500g indenter)
Poisson Ratio :	0.343

### Chemical

Chemical Formula:	BaF <sub>2</sub>
Solubility :	0.17g/100g H <sub>2</sub> O
Molecular Weight :	175.36 g/mole

### Notes

BaF<sub>2</sub> is easily cleaved and susceptible to thermal shock.  
IR, UV, and VUV grades are available