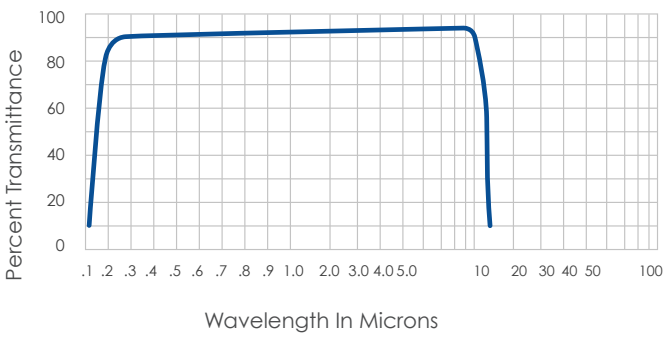
Barium Fluoride (BaF2)

Custom sizes and specifications are available

CRYSTALLOGRAPHIC	
Syngony	Cubic
Symmetry Class	m3m
Lattice Constants, Angstrom	a=6.196
	c=a
Cleavability	(111), perfect
OPTICAL	
Refractive Index at n_e	1.4759
Refractive Index $n_{F'}$ -$n_{C'}$	0.0059
Refractive Index at $n_{10.6}$	1.3926
Refractive Index $n_{8.0}$ -$n_{12.5}$	0.0673
Thermal Coefficient of Refractive Index at 3.39 microns for +/- 60 deg C	(-1.27)… (-1.51) x 10^{-5}
Transmission Range, Microns	0.15 - 12.5
Absorbance μ (λ), cm^{-1}	
at 0.2 microns	0.2
at 0.4 microns	0.08
at 10.6 microns	0.13
THERMAL	
Thermal Linear Expansion, deg C^{-1} for +/- 60 deg C	(16.5…19.2) x 10^{-6}
Thermal Conductivity, W/(m * deg C) at 38 deg C	7.1
Specific Heat Capacity, J/(kg * deg C)	0.456 x 10^3
Thermal Stability, deg C	10 +/-2
Melting Point, deg C	1354

MECHANICAL	
Density, g/cm^3 at 20 deg C	4.83
Mohs Hardness	3
Vickers Microhardness, Pa	82 x 107
Constants of Elastic Compliance, Pa^{-1}	S_{11}=15.30 x 10^{-12} S_{12}=-4.69 x 10^{-12} S_{44}=39.47 x 10^{-12}
Young Modulus €, Pa	
in <100> direction	6.54 x 10^{10}
in <111> direction	6.63 x 10^{10}
Shear Modulus (G), Pa	
in <100> direction	2.51 x 10^{10}
in <111> direction	2.53 x 10^{10}
Poisson Ratio	0.307
CHEMICAL	
Molecular Weight	175.3
Solubility	
in water, gram/100cm^3	0.17
in acids	soluble

Transmittance τ (λ) vs. Wavelength λ



Refr. Index n vs. Wavelength λ	
WAVELENGTH, MICRONS	REFRACTIVE INDEX
0.2	1.5573
0.5	1.4779
1.0	1.4686
2.0	1.4647
3.0	1.4612
4.0	1.4558
5.0	1.4511
6.0	1.4441
7.0	1.4357
8.0	1.4258
9.0	1.4144
10.0	1.4014
11.0	1.3865
12.0	1.3696
12.5	1.3585
15.0	1.3050

Internal Transmittance Ti (λ) vs. Wavelength λ	
WAVELENGTH, MICRONS	INTERNAL TRANSMITTANCE
0.2	0.70
0.5	0.96
1.0	0.97
3.0	0.97
5.0	0.97
6.0	0.97
7.0	0.97
8.0	0.97
9.0	0.97
10.0	0.85
12.0	0.42

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