

## Mateck Barium Fluoride, BaF2

Category : Ceramic , Halide

### Material Notes:

Optical crystals

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Mateck-Barium-Fluoride-BaF2.php](http://www.lookpolymers.com/polymer_Mateck-Barium-Fluoride-BaF2.php)

Physical Properties	Metric	English	Comments
Density	4.83 g/cc @Temperature 20.0 °C	0.174 lb/in <sup>3</sup> @Temperature 68.0 °F	
Solubility	0.17 ppm	0.17 ppm	
a Lattice Constant	6.196 Å...	6.196 Å...	
c Lattice Constant	6.196 Å...	6.196 Å...	
Molecular Weight	175.3 g/mol	175.3 g/mol	

Mechanical Properties	Metric	English	Comments
Vickers Microhardness	820	820	MPa
Hardness, Mohs	3.0	3.0	
Modulus of Elasticity	65.4 GPa	9490 ksi	<100> direction
	66.3 GPa	9620 ksi	<111> direction
Poissons Ratio	0.307	0.307	
Shear Modulus	25.1 GPa	3640 ksi	<100> direction
	25.3 GPa	3670 ksi	<111> direction

Thermal Properties	Metric	English	Comments
CTE, linear	16.5 - 19.2 Åµm/m-°C @Temperature -60.0 - 60.0 °C	9.17 - 10.7 Åµin/in-°F @Temperature -76.0 - 140 °F	
Specific Heat Capacity	0.456 J/g-°C	0.109 BTU/lb-°F	
Thermal Conductivity	7.10 W/m-K @Temperature 38.0 °C	49.3 BTU-in/hr-ft <sup>2</sup> - °F @Temperature 100 °F	

Melting Point Thermal Properties	1354 A°C Metric	2469 A°F English	Comments
<b>Optical Properties</b>	<b>Metric</b>	<b>English</b>	<b>Comments</b>
Refractive Index	1.3926	1.3926	at n10.5
	1.4759	1.4759	at ne
	1.305	1.305	
	@Wavelength 15000 nm	@Wavelength 15000 nm	
	1.4014	1.4014	
	@Wavelength 10000 nm	@Wavelength 10000 nm	
	1.4647	1.4647	
	@Wavelength 2000 nm	@Wavelength 2000 nm	
	1.5573	1.5573	
	@Wavelength 200 nm	@Wavelength 200 nm	
IR Transmittance	42 %	42 %	Internal Transmittance
	@Wavelength 12000 nm	@Wavelength 12000 nm	
	97 %	97 %	Internal Transmittance
	@Wavelength 1000 nm	@Wavelength 1000 nm	
	97 %	97 %	Internal Transmittance
	@Wavelength 7000 nm	@Wavelength 7000 nm	
UV Transmittance	70 %	70 %	Internal Transmittance
	@Wavelength 200 nm	@Wavelength 200 nm	

Descriptive Properties	Value	Comments
Absorption loss (cm <sup>-1</sup> )	0.08	at 0.4 microns
	0.13	at 10.6 microns
	0.2	at 0.2 microns
Cleavability	(111)	perfect
Constants of Elastic Compliance (Pa <sup>-1</sup> )	1.53E-11	S11
	39.47	S44
	-4.69E-12	S12

Descriptive Properties	Value	Comments
Symmetry Class	$m\bar{3}m$	
Syngony	cubic	
Thermal Coefficient of Refractive Index	-1.27E-5 to -1.51E-5	3.39 microns for $\Delta \pm 60^\circ\text{C}$
Thermal Stability, $^\circ\text{C}$	$10 \pm 2$	
Transmission Range (microns)	0.15 - 12.5	

## Contact Songhan Plastic Technology Co.,Ltd.

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