BARIUM FLUORIDE BaF2

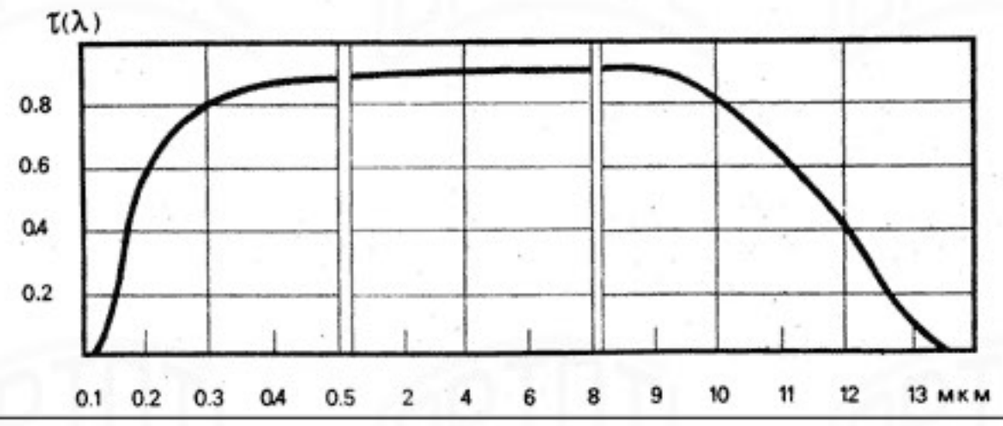
Crystallographic BaF2 (Barium Fluoride)

Syngony	Cubic
Symmetry Class	m3m
Lattice Constants, Angstroms	a=6.196 c=a
Cleavability	(111), perfect

Optical BaF2 (Barium Fluoride)

Refractive Index at n_e	1.4759
Refractive Index at $n_{F'}$-$n_{C'}$	0.0059
Refractive Index at $n_{10.6}$	1.3926
Refractive Index at $n_{8.0}$-$n_{12.5}$	0.0673
Thermal Coefficient of Refractive Index at l=3.39 microns, $^oC^{-1}$ for +/-60^{o}C	(-1.27...-1.51)• 10^{-5}
Transmission Range, microns (thickness 10мм)	0.18,12

Transmittance $t_i(l)$ vs. wavelength l



Internal Transmittance $t_i(l)$ vs. wavelength l	
l,мкм	$t_i(l)$
0.2	0.60
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

Refractive Index n vs. wavelength l	
l,мкм	n(l)
0.2	1.5573
0.5	1.4779
1.0	1.4686
2.0	1.4647
3.0	1.4612
4.0	1.4587
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	1.3050

Thermal BaF2 (Barium Fluoride)

Thermal Linear Expansion a_t, $^oC^{-1}$ for +/-60^{o}C	(16.5,19.2)•10^{-6}
Thermal Conductivity, W/(m •^oC) at 38 ^{o}C	7.1
Specific Heat Capacity, J/(kg •^oC)	456
Thermal Stability, ^{o}C	10+/-2
Melting Point, ^{o}C	1354

Mechanical BaF2 (Barium Fluoride)

Density, g/cm^3 at 20 ^{o}C		4.83
Mohs Hardness		3
Vickers Microhardness , Pa		82• 10^7
Constants of Elastic Compliance, Pa^{-1}	S_{11}	15.3• 10^{-12}
	S_{12}	-4.69• 10^{-12}
	S_{44}	39.47• 10^{-12}
Poisson Ratio		0.307
Young Modulus (E), Pa	<100>	6.54• 10^{10}
	<100>	6.63• 10^{10}
Shear Modulus (G), Pa	(100)	2.51• 10^{10}
	(100)	2.53• 10^{10}

Chemical BaF2 (Barium Fluoride)

Solubility BaF2 (Barium Fluoride)	
in water at 10 ^{o}C g/100cm^3	in acids
0.17	soluble

"Opto-Technological Laboratory" produces lenses, windows, prisms, wedges, ball lenses, cylindrical lenses, windows for spectrophotometers and others optical components according to customers' specifications and drawings out of crystals barium fluoride (BaF2) .