CALCIUM FLUORIDE CaF2

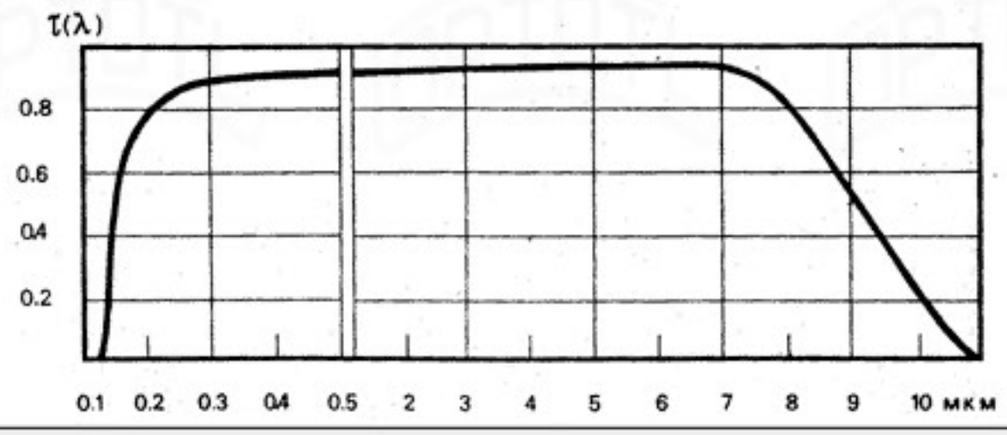
Crystallographic CaF2 (Calcium Fluoride)

Syngony	Cubic
Symmetry Class	m3m
Lattice Constants, Angstroms	a=5.462 c=a
Cleavability	(111), perfect

Optical CaF2 (Calcium Fluoride)

Refractive Index at n_e	1.4349
Refractive Index at $n_{F'}$-$n_{C'}$	0.0043
Refractive Index at $n_{10.6}$	1.2996
Thermal Coefficient of Refractive Index at l=3.39 microns, $^oC^{-1}$ for +/-60^{o}C	(-0.95...-1.17)• 10^{-5}
Transmission Range, microns (thickness 10мм)	0.15,9.0

Transmittance $t_i(l)$ vs. wavelength l



Internal Transmittance $t_i(l)$ vs. wavelength l
CaF2 Calcium Fluoride

l,мкм	$t_i(l)$
0.2	0.87
0.5	0.97
1.0	0.99
3.0	0.99
5.0	0.99
6.0	0.98
7.0	0.97
8.0	0.88
9.0	0.59
10.0	0.19

Refractive Index n vs. wavelength l
CaF2 Calcium Fluoride

l,мкм	n(l)
0.2	1.4951
0.5	1.4365
1.0	1.4289
2.0	1.4239
3.0	1.4179
4.0	1.4096
5.0	1.3990
6.0	1.3856
7.0	1.3693
8.0	1.3498
9.0	1.3268
10.0	1.3002
11.0	1.2676
12.0	1.2299

Thermal CaF2 (Calcium Fluoride)

Thermal Linear Expansion a_t, $^oC^{-1}$ for +/-60^{o}C	(16.2,19.4)•10^{-6}
Thermal Conductivity, W/(m • ^{o}C) at 36 ^{o}C	9.71
Specific Heat Capacity, J/(kg • ^{o}C) at 40 ^{o}C	887.6
Thermal Stability, ^{o}C	20+/-2
Melting Point, ^{o}C	1418

Mechanical CaF2 (Calcium Fluoride)

Density, g/cm^3 at 20 ^{o}C		3.18
Mohs Hardness		4
Vickers Microhardness , Pa		165• 10^7
Constants of Elastic Compliance, Pa^{-1}	S_{11}	6.83• 10^{-12}
	S_{12}	-1.53• 10^{-12}
	S_{44}	29.58• 10^{-12}
Poisson Ratio		0.216
Young Modulus (E), Pa	<100>	14.61• 10^{10}
	<100>	8.99• 10^{10}
Shear Modulus (G), Pa	(100)	4.76• 10^{10}
	(100)	3.38• 10^{10}

Chemical CaF2 (Calcium Fluoride)

Solubility CaF2 (Calcium Fluoride)
in water at 18 ^{o}C g/100cm^3
0.0016

"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 calcium fluoride (CaF2) .