Calcium Fluoride (CaF2)

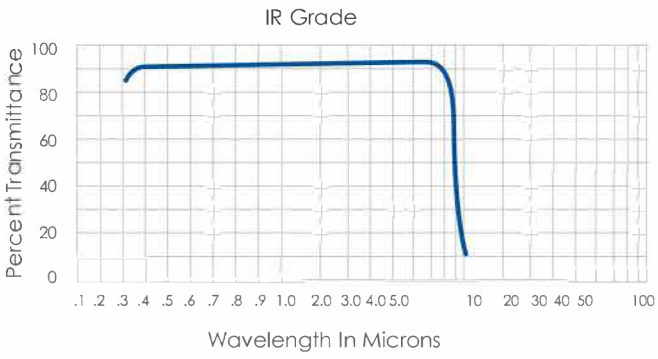
Custom sizes and specifications are available

Crystal Structure: Monocrystalline, Polycrystalline **Types Available:** IR Grade, UV Grade, Excimer Grade

CRYSTALLOGRAPHIC	
Syngony	Cubic
Symmetry Class	m3m
Lattice Constants, Angstrom	a = 5.462
	c=a
Cleavability	<111>, perfect
Orientation	<111>, <100>
OPTICAL	
Refractive Index at n_e	1.4349
Refractive Index $n_{F'} - n_{C'}$	0.0043
Refractive Index at $n_{10.6}$	1.2996
Thermal Coefficient of Refractive Index at 3.39 microns for +/- 60 deg C	(-0.95)... (-1.17) x 10^{-5}
Transmission Range, Microns	0.15 - 9.0
THERMAL	
Thermal Linear Expansion, deg C^{-1} for +/- 60 deg C	(16.5...19.4) x 10^{-6}
Thermal Conductivity, W/(m * deg C) at 36 deg C	9.71
Specific Heat Capacity, J/(kg * deg C)	0.8876 x 10^3
Thermal Stability, deg C	20 +/-2
Melting Point, deg C	1418

MECHANICAL	
Density, g/cm^3 at 20 deg C	3.18
Mohs Hardness	4
Vickers Microhardness, Pa	165 x 10^7
Constants of Elastic Compliance, Pa^{-1}	S_{11}=6.83 x 10^{-12} S_{12}=-1.53 x 10^{-12} S_{44}=29.58 x 10^{-12}
Young Modulus €, Pa	
in <100> direction	14.61 x 10^{10}
in <111> direction	8.99 x 10^{10}
Shear Modulus (G), Pa	
in <100> direction	4.76 x 10^{10}
in <111> direction	3.38 x 10^{10}
Poisson Ratio	0.216
CHEMICAL	
Molecular Weight	78.08
Solubility	
in water, gram/100cm^3	0.0016

Transmittance τ (λ) vs. Wavelength λ



Refr. Index n vs. Wavelength λ	
WAVELENGTH, MICRONS	REFRACTIVE INDEX
0.2	1.4951
0.5	1.4951
1.0	1.4951
2.0	1.4951
3.0	1.4951
4.0	1.4951
5.0	1.4951
6.0	1.4951
7.0	1.4951
8.0	1.4951
9.0	1.4951
10.0	1.4951
11.0	1.4951
12.0	1.4951

Internal Transmittance Ti (λ) vs. Wavelength λ	
WAVELENGTH, MICRONS	INTERNAL TRANSMITTANCE
0.35	0.97
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

For Reference Only

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