



# Calcium Fluoride (CaF<sub>2</sub>)

Calcium Fluoride a crystal with good transmission from 170 nm to 7800 nm. Due to its low refractive index, Calcium Fluoride can be used without anti-reflection coating. It can be used as a prism, lens, or window within a wide region from ultraviolet to infrared. Polished surfaces are stable and will last several years under normal conditions. It is a chemically and physically stable crystal with excellent water resistant, chemical resistant, and heat resistant characteristics. Also, since it has unique optical dispersion, it can be used as an achromatic lens combined with other optical materials. It can also be used as a laser crystal or radiation detection crystal by doping it with the appropriate rare earth elements. Calcium Fluoride is commonly sold in two grades - IR grade and UV grade.

## Physical Properties:

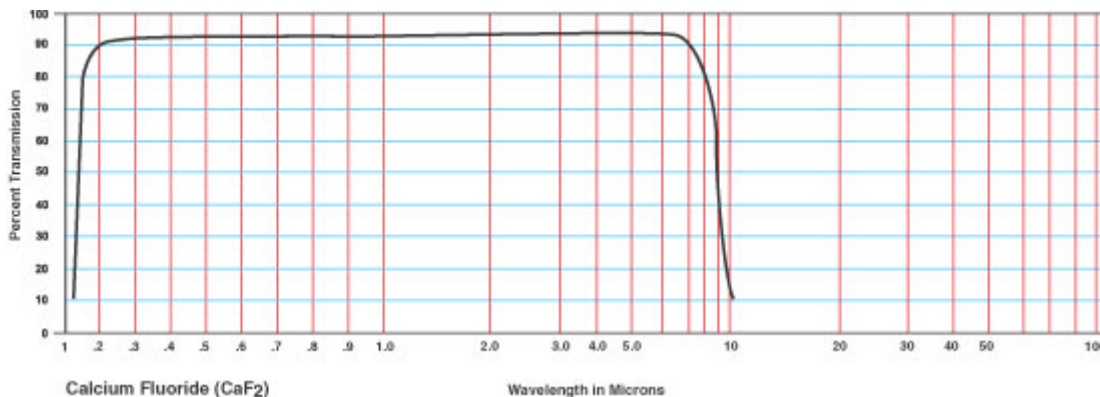
<b>Melting Point:</b>	1360° C
<b>Hardness (Knoop):</b>	158 psi
<b>Young's Modulus:</b>	75.8 GPa
<b>Modulus of Rupture:</b>	5300 psi
<b>Structure:</b>	Cubic---111 cleavage plane

## Chemical Properties:

<b>Solubility:</b>	0.0017gm./100 gm water @ 20° C.
	Insoluble in most bases and acids.
	Soluble in NH <sub>4</sub> salts.

## Optical Properties:

### Transmission Range



### Refractive Index

Wavelength (μ)	Refractive index
0.19	1.50500
0.20	1.49531
0.22	1.48110
0.3	1.45402
0.4	1.44185
0.5	1.43647
0.6	1.43356
0.7	1.43176
0.8	1.43052
0.9	1.42961
1.0	1.42888
2.0	1.42385
3.0	1.41785
4.0	1.40963
5.0	1.39895
6.0	1.38559
7.0	1.36932
9.0	1.32677
9.8	1.30541

## Specifications:

<b>Size:</b>	Ø5.0mm, Ø10.0mm, Ø20.0mm, Ø50mm, Ø80.0mm, Ø12.7mm, Ø25.4mm, Ø50.8mm, Ø76.2mm, 5.0x5.0mm, 10.0x10.0mm, 20.0x20.0mm, 50x50mm, 80.0x80.0mm, 12.7x12.7mm, 25.4x25.4mm, 50.8x50.8mm, 76.2x76.2mm	<b>Material:</b>	UVU or IR grade Calcium Fluoride Single Crystal
		<b>Orientation:</b>	<100>, <111>, <110>
		<b>Flatness:</b>	λ/4
		<b>Parallelism:</b>	<1 arc minute
<b>Thickness:</b>	0.5mm, 1.0mm, 2.0mm, 3.0mm, 4.0mm	<b>Surface</b>	40/20
<b>Tolerance:</b>	±0.10mm	<b>Bevel:</b>	0.25mm x 45°
		<b>Coating:</b>	Available upon request



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