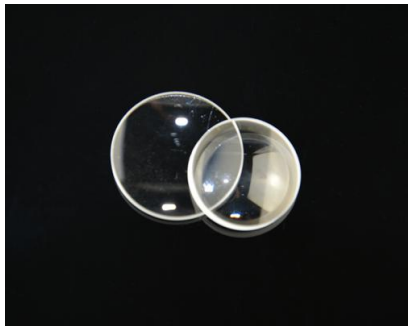
CaF2 Lenses



Features:

- UV to IR wavelength range: 0.18-8 μm
- Fit for MWIR (3-5 micro) thermal imaging cameras

Descriptions:

Due to its high average transmission and low chromatic aberration relative to other IR materials, calcium fluoride (or CaF2) is an excellent choice for windows and lenses for spectroscopy applications in the deep UV to near IR wavelength range (180 nm-8 μm). For its good transmission properties at MWIR range, the CaF2 are often selected as the lenses for MWIR (3-5 micro)thermal imaging applications.

Specifications:

Materials	CaF2 crystals	Diameter Range	~200mm
Diameter Tolerance	+0.0/-0.2mm	Thickness Tolerance	+/-0.1mm
Surface Quality	60/40 S/D	Frings (N)	3
Irregularity (delta N)	1	Centration	3'
Chamfer	0.1-0.3mmx45 degree	Coatings	AR/AR@3-5micro

Physical and Optical Properties:

Transmission Range	0.13 to 10 μm	Refractive Index	1.39908 at 5 μm (1) (2)
Reflection Loss	5.4% at 5 μm	Absorption Coefficient	7.8 x 10^{-4} cm-1 @ 2.7 μm
Reststrahlen Peak	35 μm	dn/dT	-10.6 x 10^{-6}/°C (3)
dn/dμ = 0	1.7 μm	Density	3.18 g/cc
Melting Point	1360°C	Thermal Conductivity	18.85 x 10-6/°C (5)(6)
Hardness	Knoop 158.3 (100) with 500g indenter	Specific Heat Capacity	854 J Kg-1 K-1
Dielectric Constant	6.76 at 1MHz (7)	Youngs Modulus (E)	75.8 GPa (7)
Shear Modulus (G)	33.77 GPa (7)	Bulk Modulus (K)	82.71 GPa (7)
Elastic Coefficients	C11 = 164 C12 = 53 C44 = 33.7 (7)	Apparent Elastic Limit	36.54 MPa
Poisson Ratio	0.26	Solubility	0.0017g/100g water at 20°C
Molecular Weight	78.08	Class/Structure	Cubic (111) cleavage

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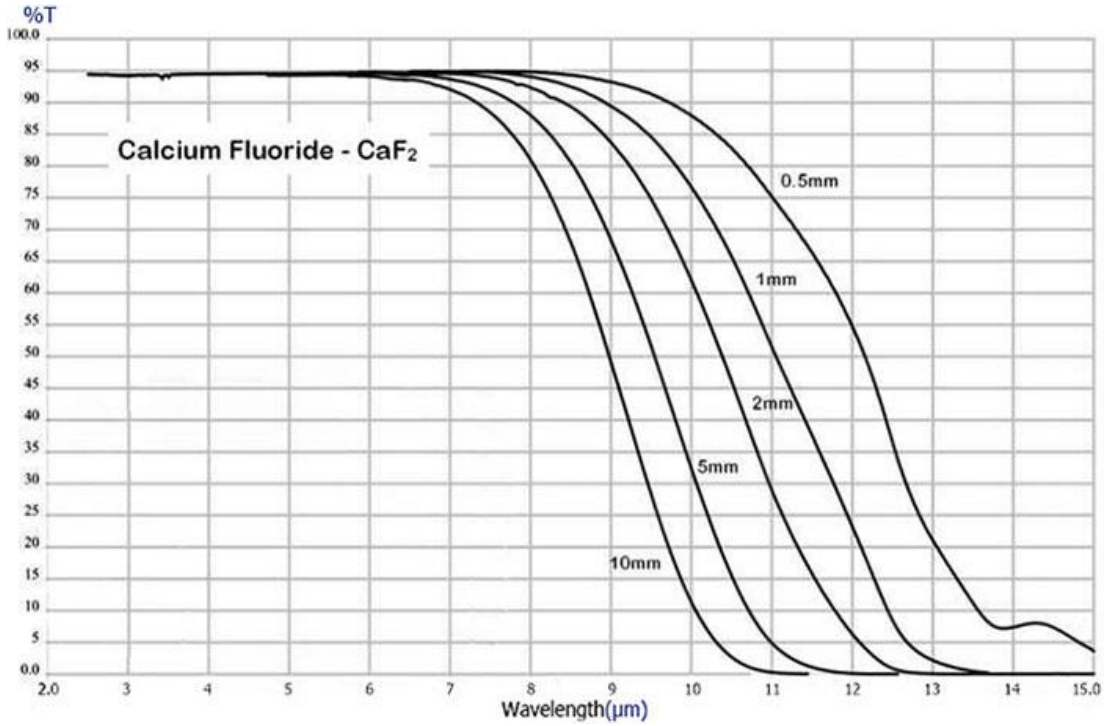
Technical images:

Transmission curve of the CaF2 substrates of different thickness



Related products:

1) Infrared Lenses -> BaF2 lenses
2) Infrared lenses -> Silicon lenses
3) Infrared windows -> CaF2 windows

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