

DATA SHEET

CALCIUM FLUORIDE (CAF₂)

1. Material Properties

Optical Properties	
Transmission Range	130 nm to 10 μ m
Transmittance	>94% at 193 nm to 7.8 μ m
Refractive Index	1.39908 at 5 μ m
Reflection Loss	5.4% at 5 μ m (both surfaces)
Absorption Coefficient	0.03 cm ⁻¹ at 2.6 μ m to 2.9 μ m
dn/dT	-10.6 x 10 ⁻⁶ /°C
Physical Properties	
Density	3.18 g/cm ³
Melting Point	1360°C
Thermal Conductivity	9.71 Wm ⁻¹ K ⁻¹ at 286K
Thermal Expansion	18.85 x 10 ⁻⁶ /°C at 273K
Knoop Hardness	158.3 with 100g indenter (kg/mm ²)
Specific Heat Capacity	854 J/(kg.k)
Dielectric Constant	6.76 at 1MHz
Youngs Modulus (E)	75.80 GPa
Shear Modulus (G)	33.77 GPa
Bulk Modulus (K)	82.71 GPa
Elastic Coefficient	C ₁₁ =164; C ₁₂ =53; C ₄₄ =33.7
Apparent Elastic Limit	36.54 MPa (3900 psi)
Poisson Ratio	0.26
Chemical Properties	
Solubility	0.0017 g/ 100g water at 20°C
Molecular Weight	78.08
Structure	Cubic Crystal
Cleavage Plane	(111)

2. Transmission Curve

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