

Magnesium Fluoride Technical Data

Transmission Range: 0.12 to 7 μm

Refractive Index: No 1.413 at 0.22 μm (4)

Reflection Loss: 5.7% at 0.22 μm (2 surfaces)

Absorption Coefficient: $40 \times 10^{-3} \text{ cm}^{-1}$ at 2.7 μm

Reststrahlen Peak: 20 μm (1)

Dn/dT : 2.3 (para) 1.7 (perp) at 0.4 μm (1)

$\text{Dn/d}\mu$ = 0: 1.4 μm

Density: 3.18g/cc

Melting Point: 1255°C

Thermal Conductivity: 21 (para) 33.6 (perp) $\text{W m}^{-1} \text{K}^{-1}$ at 300K (3)

Thermal Expansion: 13.7 (para) & 8.9 (perp) $\times 10^{-6}/\text{K}$ (3)

Hardness: Knoop 415

Specific Heat Capacity: 1003 $\text{J Kg}^{-1} \text{K}^{-1}$

Dielectric Constant: 4.87 (para) 5.45 (perp) at 1MHz (1)

Youngs Modulus (E): 138 GPa (2)

Shear Modulus (G): 54.66 GPa (2)

Bulk Modulus (K): 101.32 GPa (2)

Elastic Coefficients: $C_{11}=140$ $C_{12}=89$ $C_{44}=57$ $C_{13}=63$ $C_{66}=96$ (2)

Apparent Elastic Limit: 49.6 MPa (7,200 psi)

Poisson Ratio: 0.276 (2)

Solubility: 0.0002g/100g water

Molecular Weight: 62.32

Class/Structure: Tetragonal P42/mnm (#136) Rutile Structure. Can cleave on c-axis but not easily.