

MAGNESIUM FLUORIDE CRYSTALS [MgF2]

Magnesium fluoride is a rugged, hard material which is resistant to thermal and mechanical shock. Considerable mechanical shock is needed to cause cleavage which is near perfect when it occurs. The natural form of MgF₂ is known as Sellaite. Magnesium fluoride is a positive birefringent crystal grown normally to 135mm diameter by vacuum Stockbarger technique, seeding along the C-axis.



Specification

Transmission Range	0.11 to 7.5μm
Refractive Index	n _o =1.3836, n _e =1.3957 @ 0.405μm
Reflection Loss	11.2% at 0.12μm [2 surfaces]
Restrahlen Peak	20μm
dn/dT	+2.3 and +1.7 × 10 ⁻⁶ / °C at 0.4μm
Density	3.177 g/cm ³
Melting Point	1255 °C
Thermal Conductivity	0.3 W/ [m K] at 27 °C
Thermal Expansion	13.7 and 8.48 × 10 ⁻⁶ / °C
Specific Heat Capacity, cal/ [g K]	0.24 @ 298K; 0.362 @ 1700K
Dielectric Constant	4.87 parallel and 5.45 perpendicular
Young's Modulus [E]	138.5 GPa
Shear Modulus [G]	54.66 GPa
Bulk Modulus [K]	101.32 GPa
Elastic Coefficients	C ₁₁ =140.2 C ₁₂ =89.5 C ₄₄ =56.8 / C ₃₃ =204.7 C ₁₃ =62.9 C ₆₆ =95.7
Apparent Elastic Limit	49.64 MPa
Poisson Ratio	0.276