

Magnesium Fluoride (MgF₂)

Specialist Data Sheet

Product Name	Magnesium Fluoride (MgF ₂)
Transmission Range	0.12 ~ 7 μm
Refractive Index	1.413 @ 0.22 μm
Reflection Loss	5.7% @ 0.22 μm (2 surfaces)
Absorption Coefficient	40 x 10 ⁻³ cm ⁻¹ @ 2.7 μm
Reststrahlen Peak	20 μm
dN/dT	2.3 (para) 1.7 (perp) @ 0.4 μm
dN/du	1.4 μm
Density	3.18 g/cc
Melting Point	1255 °C
Thermal Conductivity	21 (para) 33.6 (perp) 1 W m ⁻¹ K ⁻¹ @ 300K
Thermal Expansion	13.7 (para) 8.9 (perp) x 10 ⁻⁶ K ⁻¹
Hardness	Knoop 415
Specific Heat Capacity	1003 J Kg m ⁻¹ K ⁻¹
Dielectric Constant	4.87 (para) 5.45 (perp) @ 1 MHz
Youngs Modulus (E)	138 GPa
Shear Modulus (G)	54.66 GPa
Bulk Modulus (K)	101.32 Gpa
Elastic Coefficients	C11=140; C12=89, C44=57, C13=63, C66=96
Apparent Elastic Limit	49.6 Mpa (7200 psi)
Poisson Ratio	0.276
Solubility	0.0002g/100g water
Molecular Weight	62.32
Class/Structure	Tetragonal, can cleave on c-axis

Notes:

Magnesium Fluoride is grown by vacuum Stockbarger technique in ingots of various diameters, but 70mm is standard at Crystran. It is a tough material and polishes well and can be worked to the highest standards. MgF₂ is slightly birefringent and usually supplied with the optic axis cut perpendicular to the window faces

Application:

Magnesium Fluoride transmits well into the VUV region to the hydrogen Lyman-alpha line (121nm) and beyond. It is used mostly for UV optics and is excellent for excimer laser use.

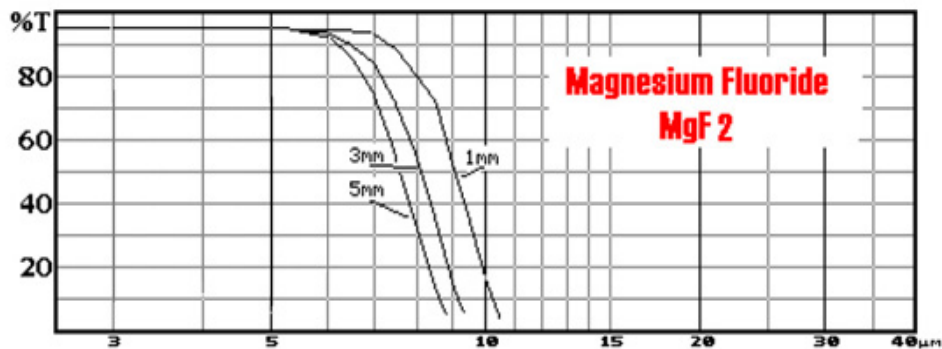
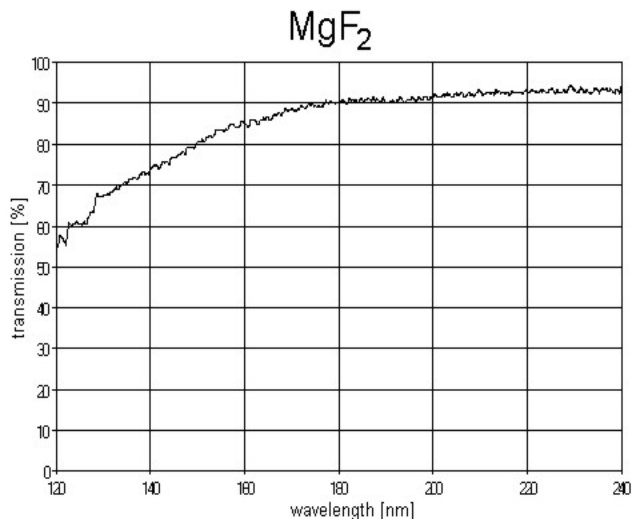


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Refractive Index:

Transmission Range Graph:



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