MgF2

DESCRIPTION

Magnesium Fluoride (MgF2) is commonly used for UV windows, lenses and polarisers. It is also useful in its transmission range for some IR spectroscopy applications. Magnesium Fluoride (MgF2) Windows offer excellent broadband transmission from the deep-UV to the mid-infrared. DUV transmission makes them ideal for use at the Hydrogen Lyman-alpha line and for UV radiation sources and receivers, as well as excimer laser applications. Windows, lenses, and prisms made of this material can be used over the entire range of wavelengths from 0.120 μm (vacuum ultraviolet) to 8.0 μm (infrared). MgF2 is tough and works and polishes well, but it is slightly birefringent and should be cut with the optic axis perpendicular to the plane of the window or lens, Generally, Magnesium Fluoride for laser use is recommended to be oriented along the optic axis to avoid birefringent effects. It is particularly useful for excimer laser application.

APPLICATIONS

- Optical fiber communication
- Wave plate， High Energy WavePlate
- Achromatic Waveplates
- Glanprisms
- Window and focusing mirror for deep uv and excimer lasers

FEATURES

- Excellent transmission from 120nm to 7um
- Chemically stable
- Large resistance to thermal shock
- Irradiation does not lead to color centers
- Uniformly distributed Co

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PARAMETERS

Material and Specifications

Orientation	[100] or [001] < ±0.5°
Orientation Tolerance	< 0.5°
Parallelism	5″
Perpendicularity	3′
Surface Quality	10-5 (Scratch/Dig)
Wavefront Distortion	<λ/4@632 nm
Surface Flatness	<λ/8 @632 nm
Clear Aperture	>90%
Chamfer	<0.1×45°
Thickness/Diameter Tolerance	±0.05 mm
Maximum Dimensions	Dia150 mm×60mm（C-cut）

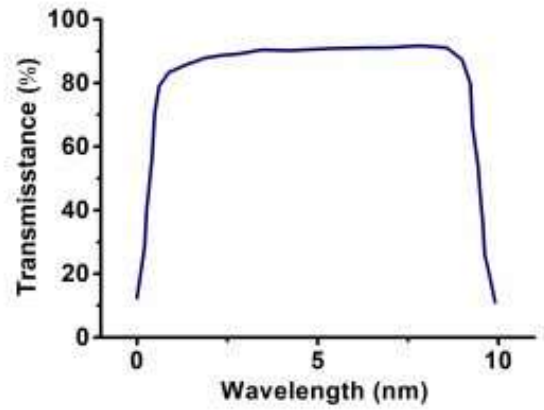
Physical and Chemical Properties

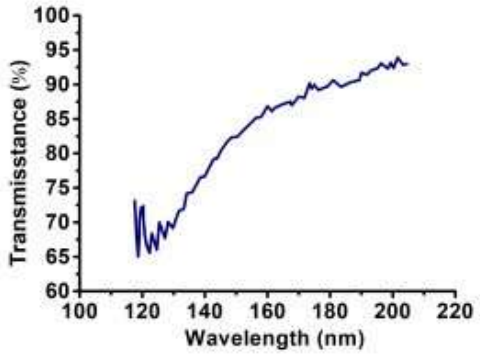
Crystal Structure	tetragonal
Lattice Constants	4.64
Density	3.18 g/cm3
Melting Point	1255°C
Thermal Conductivity /(W·m-1·K-1@25°C)	0.3
Specific Heat/ (J·g-1·K-1)	1.003
Thermal Expansion /（10-6·K-1@25°C ）	13.7
Hardness (Mohs)	4.15
Young`s Modulus /GPa	138.5

Optical Characteristics

Transmission Range	0.11 … 7.5 μm
Refractive Index	no = 1.3836, ne = 1.3957 @0.405 μm
Reflective Loss	5.1% @4.0 μm; 11.2% @0.12 μm
Poisson Ratio	0.271

Spectrum





Index of Refraction

μm	No	Ne	μm	No	Ne	μm	No	Ne
0.1137	1.7805		0.1149	1.742		0.1179	1.68	
0.1198	1.651		0.121	1.628	1.632	0.13	1.566	1.568
0.14	1.5095	1.523	0.15	1.48	1.494	0.16	1.461	1.475
0.17	1.448	1.462	0.18	1439	1.453	0.19	1.431	1.444
0.2	1.423	1.437	0.22	1.413	1.426	0.248	1.403	1.416
0.257	1.401	1.414	0.266	1.399	1.412	0.28	1.396	1.409
0.3	1.393	1.405	0.33	1.389	1.402	0.337	1.389	1.401
0.35	1.387	1.4	0.355	1.386	1.399	0.4	1.384	1.396
0.546	1.379	1.39	0.7	1.376	1.388	1.087	1.373	1.385
1.512	1.37	1.382	2	1.368	1.379	2.5	1.364	1.375
3.03	1.36	1.37	3.571	1.354	1.364	4	1.349	1.359
4.546	1.341	1.35	5	1.334	1.343	5.556	1.324	1.332

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