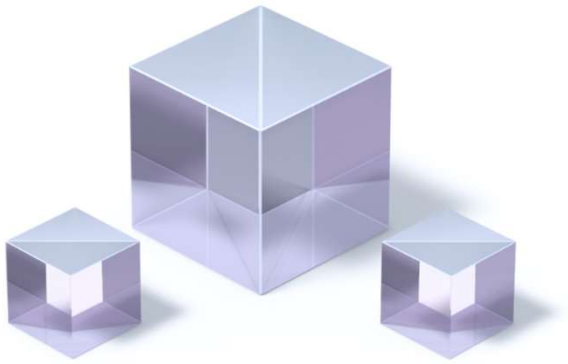
Magnesium Fluoride

MgF_2 Datasheet

德硅凯氟
DESIOPTOE



DESIOPTOE is a distinguished Magnesium Fluoride crystal supplier. DESIOPTOE's technical growth operation produces MgF_2 crystals of exceptional quality for use at broadband wavelength and a variety of applications.

Magnesium fluoride is a crystal material with excellent optical and mechanical properties. MgF_2 performance well in high-powered laser durable. DESIOPTOE's MgF_2 crystal ingots are grown from highly purified materials by DESIOPTOE's proprietary process, making DESIOPTE's MgF_2 crystal with low absorption, suitable for DUV applications. MgF_2 crystal is also naturally birefringent, making it can be used in the applications such as retardation waveplates and polarizing elements.

Standard (001) (110) (100) orientation are offered.

KEY ADVANTAGE

Excellent broadband transmittance

High laser durability

Low absorption

Naturally birefringence

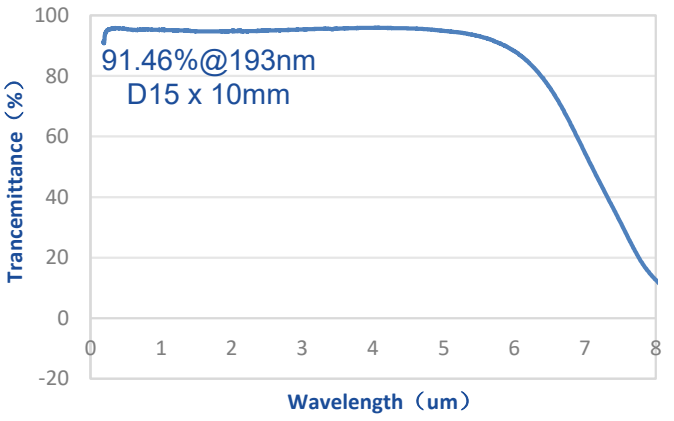
Excellent mechanical properties

DESIOPTOE Magnesium General Grades

General Grades	Crystal Structure	Application Wavelength
MGF-A	single crystal	DUV - UV
MGF-C	single crystal	VIS - IR
MGF-D	poly crystal	Ordinary

DESIOPTOE Magnesium Transmission

Uncoated sample, uncorrected for surface effects



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Physical Properties

Crystal Structure	Tetragonal
Cleavage Plane	(100) (110)
Lattice Constant	a axis 4.64, c axis 3.06
Molecular Weight	62.302 g/mol
Density	3.148 g/cm ³
Melting Point	1255 ℃
Dielectric Constant	parallel C axis 4.87 perp C axis 5.44

Thermal Properties

Heat Capacity	0.92 J/g . K
Thermal Conductivity	parallel C axis 21.0 W/g . K perp C axis 33.6 W/g . K
Linear Thermal Expansion Coefficient	parallel C axis 13.7 10^-6/K perp C axis 8.9 10^-6/K

Mechanical Properties

Bulk Modulus	(GPa)	101.32
Shear Modulus	(GPa)	54.66
Young's Modulus	(GPa)	138.5
Poisson Ratio	μ	0.276
Knoop Hardness		415
Mohs Hardness		6

DESIOPTOE also offers a variety of fabrication such as grinding, polishing and coating, that making DESIOPTOE not only provide MgF2 crystal ingots and blanks, DESIOPTOE also provide customized optical components.

Refractive Indices @ 19 ℃

λ(μm)	n_o	n_e	β (n_e-n_o)
0.2	1.42309	1.43657	0.01348
0.24	1.40567	1.41859	0.01292
0.28	1.3962	1.40877	0.01257
0.32	1.3904	1.40275	0.01235
0.36	1.38656	1.39875	0.01219
0.4	1.38387	1.39594	0.01207
0.44	1.38189	1.39389	0.012
0.48	1.3804	1.39233	0.01193
0.52	1.37923	1.39111	0.01188
0.56	1.37829	1.39013	0.01184
0.6	1.37752	1.38932	0.0118
0.64	1.37688	1.38865	0.01177
0.68	1.37633	1.38808	0.01175
0.72	1.37585	1.38758	0.01173
0.76	1.37543	1.38714	0.01171
0.8	1.37506	1.38674	0.01168
0.84	1.37472	1.38639	0.01167
0.88	1.3744	1.38606	0.01166
0.92	1.37411	1.38575	0.01164
0.96	1.37384	1.38546	0.01162
1	1.37358	1.38519	0.01161
1.4	1.37134	138281	0.01147
1.8	1.36908	1.3804	0.01132
2.2	1.36649	1.37763	0.0114
2.6	1.36346	1.3744	0.01094
3	1.35995	1.37063	0.01068
3.4	1.35591	1.36631	0.0104
3.8	1.35133	1.36141	0.01008
4.2	1.34618	1.35589	0.00971
4.6	1.34043	1.34972	0.00929
5	1.33404	1.34288	0.00884
5.1	1.32699	1.33532	0.00833
5.8	1.31923	1.327	0.00777
6.2	1.31072	1.31786	0.00714
6.6	1.30142	1.30787	0.00645
7	1.29125	1.29694	569

Optical fabrication capacity

DESIOPTOE provide customized complete end-to-end optical solutions to meet individual customer specification.

Internal Transmittance	>99.0%@193nm
Stress Birefringence	Naturally birefringent
Bubbles/Inclusions	ISO 10110 – 1 x 0.02
Scratch/Dig Limit	10-5
Micro-roughness Limit	≤ 0.5 nm
Available blanks diameters	up to 110mm
Orientation	(001) (110) (100) orientation are offered
Finish	TSK/rope cut, fine ground, polished
Coatings	Anti-reflective, highly reflective