

Magnesium Oxide (MgO)

MATERIALS DATA

Magnesium Oxide is grown in relatively small sizes, mainly in Japan and China.

APPLICATIONS: Magnesium Oxide can be used for high temperature windows and substrates. HTSC substrates.

Transmission Range	0.3 to 6 μ m
Refractive Index	1.7085 at 2 μ m (1)
Reflection Loss	12.8% at 2 μ m (2 surfaces)
Absorption Coefficient	0.05 cm ⁻¹ at 5.5 μ m
Reststrahlen Peak	n/a
dn/dT	+19 x 10 ⁻⁶ K ⁻¹
dn/d μ = 0	n/a
Density	3.58 g/cc
Melting Point	2800 °C
Thermal Conductivity	42 W m ⁻¹ K ⁻¹ at 273K
Thermal Expansion	10.8 x 10 ⁻⁶ K ⁻¹ at 273K
Hardness	Knoop 692 with 600g indenter
Specific Heat Capacity	877 J Kg ⁻¹ K ⁻¹
Dielectric Constant	9.65 at 1 MHz
Youngs Modulus (E)	249 GPa
Shear Modulus (G)	155 GPa
Bulk Modulus (K)	155 GPa
Elastic Coefficients	C ₁₁ =294; C ₁₂ =93; C ₄₄ =155
Apparent Elastic Limit	138 MPa (20,000 psi)
Poisson Ratio	0.18
Solubility	0.00062g / 100g water
Molecular Weight	40.32
Class/Structure	Cubic FCC, NaCl, Fm3m, (100) cleavage



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μm	No	μm	No	μm	No
0.171	2.319	0.180	2.138	0.191	2.039
0.200	1.986	0.230	1.892	0.276	1.824
0.310	1.795	0.382	1.7668	0.436	1.75471
0.50	1.754	0.644	1.734	1.00	1.7229
2.00	1.7085	3.00	1.6915	4.00	1.6679
5.00	1.6373	6.02	1.5957	7.04	1.543
8.07	1.475	9.09	1.389	10.64	1.209

