

Dynalox® Alumina Ceramics

The Properties:

Dynalox	Units	Dynalox Z	Dynalox 94	Dynalox 95	Dynalox 96	Dynalox 100	Dynalox HP
Nominal Composition			94% Al ₂ O ₃	95% Al ₂ O ₃	96% Al ₂ O ₃	99.7% Al ₂ O ₃	99.9% Al ₂ O ₃
Density	g/cm ³	4.6	3.69	3.67	3.67	3.89	3.92

Mechanical Properties:

Flexural Strength 20°C	MPa	900	330	330	360	330	350
800°C	MPa		240	240	250	250	250
Compressive Strength	MPa	2500	2100	2100	2100	2100	2500
Modulus of Elasticity	GPa	330	275	275	275	330	350
Hardness	R45N	85	78	80	81	83	84
	HV _{0.3}	1650	1500	1550	1590	1600	1700
Fracture Toughness (K _{IC})	MPa ^{1/2}	7.3	3.5	3.6	3.5	4.0	4.5

Thermal Properties:

Max. Use Temp.	°C	1500	1500	1450	1700	1800	1800
Thermal Expansion Coeff.	x 10 ⁻⁶ /°C	8	8.1	8.3	7.8	8.4	8.5
Thermal Conductivity	W/mK	17	19	22.5	25	29	28
Thermal Shock Resistance	°C	225	200	200	200	200	200

Electrical Properties:

Resistivity 25°C	Ohm.cm	> 10 ¹⁴	> 10 ¹⁴	> 10 ¹⁴	> 10 ¹⁴	> 10 ¹⁴	> 10 ¹⁴
400°C		1 x 10 ⁹	9 x 10 ¹¹	4 x 10 ¹¹	3.1 x 10 ¹¹	1.6 x 10 ¹³	1 x 10 ¹³
1000°C		1 x 10 ⁶	5 x 10 ⁵	1 x 10 ⁶	1 x 10 ⁶	2 x 10 ⁶	2.4 x 10 ⁶