

MATERIAL PROPERTIES

		Thermalox® 995	BW 1000®	BW3250®	Thermalox® CR	Durox® 98	Durox® AL	Durox® UHP	
		General Purpose	High Strength	High Thermal Conductivity	Crucible Material	High Purity	High Purity	Ultra High Purity	
Property		Units	99.5% BeO	99.5% BeO	99.5% BeO	99.7% BeO	97.6% Al ₂ O ₃	99.8% Al ₂ O ₃	99.9% Al ₂ O ₃
Physical	Color		White	White	Light Grey	Light Grey	Off White	Off White	White
	Density	g/cm ³	2.85	2.89	2.92	2.85	3.83	3.94	3.95
	Grain Size	micron	15	14	22	25	2	2	1
	Hardness	Rockwell 45N	60	60	60	60	85	85	85
	Gas Impenetrability	cc/sec He	10 ⁻⁸	10 ⁻⁸	10 ⁻⁸	10 ⁻⁸	10 ⁻⁸	10 ⁻⁸	10 ⁻⁸
	Water Absorption	Percentage	0%	0%	0%	0%	0%	0%	0%
Thermal	Thermal Conductivity	W/m•K (at RT)	285	275	325	250	27	30	35
	Coefficient of Thermal Expansion	10 ⁻⁶ /°C (RT to 1000°C)	9.0	9.0	9.0	9.0	7.5	8.0	8.0
	Specific Heat	cal/g°C	0.25	0.25	0.25	0.25	0.20	0.20	0.20
Mechanical	Flexural Strength (MOR)	MPa	221	262	207	207	379	379	379
	Elastic Modulus	GPa	345	345	345	345	351	360	375
	Tensile Strength	MPa	152	172	152	124	152	276	276
	Compressive Strength	MPa	1,551	1,551	1,551	1,551	2,413	2,413	2,413
	Poisson's Ratio		0.26	0.26	0.26	0.26	0.22	0.22	0.22
	Fracture Toughness (K _{IC})	MPa√m	3.5	3.7	3.5	3.7	4	4	4
Electrical	Dielectric Constant	1 MHz (at RT)	6.76	6.76	6.76	6.76	9.5	9.7	9.7
	Dielectric Constant	10 GHz (at RT)	6.67	6.67	6.67	6.67	9.4	9.6	9.6
	Dissipation Factor	1 MHz (at RT)	0.0004	0.0004	0.0004	0.0004	0.0001	0.0001	0.0001
	Dissipation Factor	10 GHz (at RT)	0.004	0.004	0.004	0.004	0.0001	0.0001	0.0001
	Volume Resistivity	Ω-cm (at RT)	>10 ¹⁵	>10 ¹⁵	>10 ¹⁵	>10 ¹⁵	>10 ¹⁵	>10 ¹⁵	>10 ¹⁵
	AC Dielectric Strength	V/mil (6.35mm)	230	230	230	230	220	220	220

Health & Safety Note: Handling beryllium oxide ceramics in solid form poses no special health risk. Like many industrial materials, beryllium-containing materials may pose a health risk if recommended safe handling practices are not followed. Inhalation of airborne beryllium may cause a serious lung disorder in susceptible individuals. The Occupational Safety and Health Administration (OSHA) has set mandatory limits on occupational respiratory exposures. Read and follow the guidance set forth in the Safety Data Sheet (SDS) before working with this material. For additional information on safe handling practices or technical data on beryllium, contact Materion Ceramics at +1 520.746.0699

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Typical property values shown unless otherwise noted. Actual values may vary with size, shape and method of manufacture.