

MATERIAL PROPERTIES

			Thermalox® 995	BW 1000®	BW3250®	Thermalox® CR	Durox® 997*	Durox® AL	Durox® UHP
			General Purpose	High Strength	High Thermal Conductivity	Crucible Material	High Purity	High Purity	Ultra High Purity
			99.5% BeO	99.5% BeO	99.5% BeO	99.7% BeO	99.7% Al ₂ O ₃	99.8% Al ₂ O ₃	99.9% Al ₂ O ₃
Property			Units						
Physical	Color		White	White	Light Grey	Light Grey	White	Off White	White
	Density	g/cm³	2.85	2.90	2.95	2.85	3.90	3.94	3.95
	Grain Size	micron (typical)	15	9	22	1	2	2	1
	Hardness	Rockwell 45N	60	60	60	60	82	85	85
	Gas Impenetrability	cc/sec He	10 ⁻⁹	10 ⁻⁹	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	8.0	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)	kpsi	32	40	32	40	52	55	55
	Elastic Modulus	GPa (Mpsi)	345 (50.0)	345 (50.0)	345 (50.0)	345 (50.0)	375 (54.4)	375 (54.4)	375 (54.4)
	Tensile Strength	kpsi	22	25	22	25	32	40	40
	Compressive Strength	kpsi	225	225	225	225	300	350	350
	Poisson's Ratio		0.26	0.26	0.26	0.26	0.22	0.22	0.22
	Fracture Toughness (K _{IC})	MPa√m	4	4	4	4	5	5	5
Electrical	Dielectric Constant	1 MHz (at RT)	6.76	6.76	6.76	6.76	9.7	9.7	9.7
	Dielectric Constant	10 GHz (at RT)	6.67	6.67	6.67	6.67	9.6	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)	0.0004	0.0004	0.0004	0.0004	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 significant 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 +1 520.746.0251

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

*Durox 997 values are preliminary.

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