INDUSTRIAL CERAMIC DIVISON

Technical Data Sheet - Alumina Ceramics

S.No	Properties	Properties	Units	Test Condition	94 % Alumina	97.5% Alumina (975M)	99.5 % Alumina (995R)	99.5 % Alumina (995M)
1	PHYSICAL	Density	(gm/cc)	ASTM C373-88	3.7	3.76	3.85	3.85
		Colour	--	--	White	White	Ivory	Ivory
		Water Absorption	(%)	ASTM 373-88	0	0	0	0
		Porosity (Apparent)	(%)	--	0	0	0	0
	MECHANICAL	Elastic Modulus	Gpa	ASTM C1198-08	300	--	370	--
		Poisson's Ratio	--	ASTM C1198-08	0.21	--	0.22	--
2		Flexural Strength (MOR)	Mpa	ASTM C1161-02c	350	290	370	280
		Compressive Strength	Mpa	ASTM C1424 -04	2100	1750	2600	2100
		Vacuum tightness	$1x10^{-12}$ l/s STP.	--	No leakage	No leakage	No leakage	No leakage
		Rockwell Hardness	RN45	ASTM C1327-03	78	75	82	81
		Fracture Toughness	$Mpa.m^{0.5}$	ASTM C1421-01b	4-5	--	4-5	--
3	THERMAL	Thermal Conductivity	W/m. K	ASTM C1470-06	22.4	--	30	--
		Co-efficient of thermal expansion	$1X\ 10^{-6}/\ ^{o}C$	25-1000°C	8.2	8.9	8.3	9.2
		Thermal Shock Resistance	oC	ASTM C1525-04	250	--	200	--
		Max use Temperature	oC	--	1700	1700	1700	1700
		Metallizing temperature	oC	--	1450	1530	1450	1530
4	ELECTRICAL	Dielectric strength	AC-KV/mm(3.18MM)	ASTM D149-97a	8.5	13.7	8.7	13
			DC-KV/mm(3.18MM)		-	31.5	--	27
		Dielectric loss	25°C @ 1MHz	ASTM D2520-01	0.0004	--	0.0001	--
		Volume Resistivity	25°C, onm-cm	ASTM D1829	$>10^{14}$	$>10^{14}$	$>10^{14}$	--
			500°C, onm-cm		$4x10^{9}$	--	$2x10^{10}$	--
			1000°C, onm-cm		$5x10^{5}$	--	$2x10^{5}$	--

This Chart is intended to illustrate typical properties of CUMI Ceramic materials. The designer should recognise that exact properties may vary according to product configuation and can sometimes be tailored to meet specific requirements. The information set forth herein should not be construed as absolute engineering data or constituting a warranty or representation for which we assume legal responsibility