S&S ADVANCE CERAMICS PRIVATE LIMITED

DATA SHEET

Alumina (AL-960)

Description:

High purity alumina with a minimum purity of 96%. Specifically developed for electrical insulation properties and resistance to wear and corrosion.

Salient Features:

- Good electrical insulation
- High mechanical strength
- Excellent wear resistance
- Excellent corrosion resistance
- Low dielectric constant
- Low porosity

Typical Applications:

- Wear resistance components
- Military
- Automotive
- Seal rings
- Pump seals
- Bearings Severe
- General industrial duties requiring excellent mechanical, electrical, and thermal properties.

Physical Properties

PROPERTY	TEST	UNITS	AL960
Colour			White
Density	ASTM-C20	g/cc	3.72
Average Crystal Size	THIN-SECTION	Microns	6
Water Absorption	ASTM-373	%	0
Gas Permeability			0
Flexural Strength (20°C)	ASTM-F417	MPa (psi x 10^3)	352 (52)
Elastic Modulus (20°C)	ASTM-C848	GPa (psi x 10^3)	303 (44)
Poission's Ratio (20°C)	ASTM-C848		0.21
Compressive Strength (20°C)	ASTM-C773	MPa (psi x 10^3)	2068 (300)
Hardness	KNOOP 1000 gm ROCKWELL 45 N	GPa (kg x mm^2) R45 N	11.5 (1175) 78
Tensile Strength (25°C)	ACMA TEST #4	MPa (psi x 10^3)	221 (32)
Fracture Toughness K_{IC}	NOTCHED BEAM	MPa m$^{1/2}$	4-5
Thermal Conductivity (20°C)	ASTM-C408	W/mK	24.7
Coefficient of Thermal Expansion (25-1000°C)	ASTM-C372	1×10^{-6}/°C	8.2
Specific 100°C	ASTM-E1269	J/Kg K	880
Maximum No Load Temperature		°C	1600
Thermal Shock Resistance T_C		°C	250
Dielelectric Strength	ASTM-D116	Ac-kV/mm (ac V/mil)	8.3 (210)
Dielctric Constant (1 MHz)	ASTM-D150		9.0
Dielectric Loss (1 MHz)	ASTM-D150		0.0002
Volume Resistivity 25°C 500°C 1000°C	ASTM-D1829	Ohm-cm	$>10^{14}$ 4.0×10^9 1.0×10^6

Production Capabilities

- Isostatic, uniaxial pressing & Injection Molding
- Lapping & polishing to 2 microinch Ra
- Manual, CNC and high precision machining

Please note that all values quoted are based on test pieces and may vary according to component design. These values are not guaranteed in anyway whatsoever and should only be treated as indicative and for guidance only.