Morgan Advanced Materials

DATA SHEET

Hilox™ 998

Alumina

Description

A 99.5% purity, fully dense alumina typically used in ceramic injection moulding and extrusion forming for applications requiring good electrical properties and resistance to thermal and chemical fatigue.

Prime Features

- Non-porous and vacuum tight
- High volume resistivity
- Good thermal conductivity
- Resistant to chemical attack

Typical Applications

- Components for a range of medical, analytical and industrial applications

MTC Production Capabilities

- Ceramic injection moulding of highly complex geometries
- High precision, very thin wall extrusions
- Volume capability; prototype, batch through to very high (millions of components)
- A range of secondary processing to meet surface finish and flatness requirements

Specifications

Quality Assurance to ISO 9002

Physical Properties

Colour	Ivory white
Density (fired), g/cm^3	3.91
Porosity (apparent), % nominal	0 (fully dense)
Rockwell hardness (R45N)	82
Fracture Toughness, MPa.m^{½}	4.0
Flexural Strength (3-point), MPa @ 20 °C	330
Grain Size, µm	10
Young's Modulus E, GPa @ 20 °C	370
Shear Modulus G, GPa @ 20 °C	149
Poisson's Ratio v	0.24

Thermal Properties

Thermal Conductivity, W/m.K @ 20C	26
Thermal Expansion Coefficient 10^{-6} @ 20-1000 ºC	9.0
Thermal Shock Resistance (R_1) ΔT/C	75
Thermal Shock Resistance (R_2) W/m	1921
Specific Heat J/kg.K	940

Electrical Properties

Permittivity, 20C 1MHz	9.5
20C 10 GHz	----
Dielectric Loss @ 1MHz, tan δ 10^{-4}	4.6
@ 10 GHz, tan δ 10^{-4}	2.7
Dielectric Strength, kV/mm	20-25
Volume Resistivity, ohm.cm @100°C	>10^{15}
300°C	>10^{11}
600°C	>10^{7}

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. 12.12.2012

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