Data Sheet

Hilox™ 961 (Mac-A960S)

Description

A high quality alumina ceramic of **96% Al_2O_3** content. Excellent mechanical characteristics make this an ideal material for components where resistance to dynamic wear and abrasive action are prime factors.

Prime Features:

- Exceptionally hard-wearing
- Excellent abrasion resistance
- High compressive and flexural strengths
- Dense, non-porous and vacuum tight
- Excellent dimensional stability across very wide temperature range
- Resists chemical attack

Typical Applications:

- Valve plates for liquid and gas control systems: industrial and domestic duties
- Pneumatic slider valves (>20 million operating cycles can be achieved)
- Wear resistant components for rotary and reciprocating pumps: shafts, bearings, thrust washers, plungers, counterface seats, etc

Specifications

- Quality Assurance to ISO 9002

Production Capabilities:

- Complex components to close tolerances
- Exacting flatness and surface finishes for low friction valve operation and accurate flow control
- Flatness tolerance below three helium bands (0.0009mm)
- Flat surface polished finish to 0.08 micron Ra
- Cylindrical surface finish to 0.2 micron Ra
- Prototype, batch and volume production

Physical Properties

Colour	Brown
Bulk Density (fired)	3.88 Mg/m^3
Grain Size	2.8 μm
Porosity (apparent)	0% (fully dense) % nominal
Compressive Strength	2100 MPa
Flexural Strength (3-point)	376 MPa @20C
Young's modulus	354 GPa @20C
Rockwell Hardness (R45N)	84
Thermal Conductivity	21 W/m.K @20C
Thermal Expansion Coefficient (20-1000C)	8.2 10^{-6}/C
Thermal downshock	160 σC
Specific Heat	880 J/kg.K
Maximum no-load temperature	1500 C
Dielectric Constant	10 @1MHz
Dielectric Loss	10 @1MHz, tan δ 10.4
Dielectric Strength	28 kV/mm
Volume Resistivity	
@20C	$>10^{14}$ ohm.cm
@300C	$>10^{8}$ ohm.cm
@600C	$>10^{6}$ ohm.cm

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.

Morgan Advanced Materials is a global materials engineering company which designs and manufactures a wide range of high specification products with extraordinary properties, across multiple sectors and geographies. From an extensive range of advanced materials we produce components, assembles and systems that deliver significantly enhanced performance for our customers' products and processes. Our engineered solutions are produced to high tolerances and many are designed for use in extreme environments.

We design and manufacture products for demanding applications in a variety of markets using a comprehensive range of advanced ceramic, glass, precious metal, piezoelectric and dielectric materials. We utilise core competences of applications engineering and superior materials technology, together with state of the art fully integrated manufacturing processes to offer precision ceramic components, ceramic-to-metal assemblies and special coatings for use in a variety of applications.