

Data Sheet

Sintox™ CL (Mac-A986R)

Description

Alumina ceramic of 98.6% Al₂O₃ content. Well proven as a lightweight hard-faced armour tile material for battlefield vehicles and structures.

Prime Features:

- Excellent ballistic properties: designed to defeat rounds from small arms up to medium calibre cannon
- Very hard, and resistant to fracture and thermal downshock
- Half the weight of conventional steel armour for same level of protection
- Battlefield repairs are easily performed by unbolting a damaged ceramic armour panel and fitting a new one

Specifications

- Quality Assurance to ISO 9002
- Approved supplier to UK Ministry of Defence, and defence equipment manufacturers globally

Typical Applications:

- Hard-faced armour tiles for battlefield and security service vehicles or structures
- Add-on packages to upgrade the armour of existing vehicles/structures and provide good multi-hit capability at five calibre spacing or better

Production Capabilities

- Standard tile sizes readily supplied
- Intermediate, shaped and larger sizes manufactured to order
- Prototypes and armour tile kits to customer requirements

Physical Properties

Colour	White
Bulk Density (fired)	3.89 Mg/m ³
Grain Size	4.0 µm
Porosity (apparent) % nominal	0% (fully dense)
Vickers Hardness	17.0 GPa @ Hv 0.5kg
Rockwell hardness (R45N)	85
Compressive Strength	2000 MPa
Flexural Strength (3-point)	410 MPa
Young's modulus	380 GPa
Poisson's ratio	0.25
Fracture toughness	3.5 K _{IC} (SENB), MPa.m ^{1/2}
Sonic modulus (time of flight method)	380 GPa
Shear modulus (time of flight method)	150 GPa
Sonic velocity (time of flight method)	10 000 m/s
Thermal Conductivity	25 W/m.K
Thermal Expansion Coefficient (20-800C)	8.0 10 ⁻⁶ /C
Thermal Downshock	200 σC
Dielectric constant @ 1MHz	9.8
Dielectric loss @ 1MHz, tan δ 10.4	3.0

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, assemblies 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.