

DATA SHEET

RBSN

Silicon Nitride

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Description

An advanced synthetic ceramic with a nominal Si₃N₄ content of 99%. Reaction bonded silicon nitride (RBSN) is made by directly reacting compacted silicon powder with nitrogen to produce porous components of relatively low density and possessing exceptional thermal properties.

Prime Features

- Porous, low density material.
- Exceptional resistance to thermal downshock.
- Excellent resistance to wetting and attack by molten non-ferrous alloys containing aluminum, magnesium, copper, zinc and lead.
- Low thermal conductivity.
- Good electrical resistance.

Typical Applications

- Welding jigs and fixtures.
- Molten non-ferrous metal handling systems.
- Riser tubes and transfer tubes.
- Delivery systems and degassing systems.
- Special crucibles.

Specification

Quality Assurance to ISO 9002

MTC Production Capabilities

- Net shape forming.
- Prototype, batch and volume production.
- Ceramic Injection Moulding

Physical properties*

Color	Gray
Bulk density (fired), mg/m ³	2.5
Porosity (open), % nominal	20
Compressive strength, MPa	800
Flexural strength (3-point), MPa @ 20C	250
Young's modulus, GPa @ 20C	170
Thermal conductivity, W/m.K @ 20C	12
Thermal expansion coefficient (20-1000C), 10 ⁻⁶ /C	3.1
Thermal downshock, ▲C	>600
Specific heat, J/kg.K	1100
Maximum no-load temperature, C	1300
Volume resistivity, ohm.cm @ 20C	>10 ¹⁰

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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