

Data Sheet

Nilcra[®] SiAlON E

Description

- A Gas Pressure Sintered Silicon Nitride with exceptional strength and toughness.
- Contains interlocking grains of beta phase silicon nitride.
- Designed for applications requiring high strength, toughness and wear resistance.

Prime Features

- High Strength at ambient & high temperature
- Excellent fracture toughness
- Extremely high hardness & wear resistance
- Low coefficient of thermal expansion
- Good thermal shock resistance
- Excellent corrosion resistance
- Non-wetting in molten metal
- Low oxidation at elevated temperatures

Physical Properties

Colour		Black
Density g/cm³	20°C	3.21
Flexural Strength MPa	20°C	650
	1200°C	450
Weibull Modulus	20°C	15
Compressive Strength MPa	20°C	3000
Modulus of Elasticity GPa	20°C	320
Poisson's Ratio	20°C	0.28
Hardness HV_{0.3} kg/mm²	20°C	1630
Hardness Rockwell 45N	20°C	85
Fracture Toughness MPa√m	20°C	8
Average Grain Size μm		1-10
Thermal Conductivity W/m-K	20°C	25
	1000°C	15
	25-1000°C	3.2
Thermal Expansion Coefficient x10⁻⁶ mm/mm/°C	25-1000°C	3.2

Specifications

- Quality Assurance to ISO 9001

Typical Applications:

- Excellent for combating wear and corrosion in valves, pumps and liners used in chemical processing and refining environments
- Successfully used for a wide variety of tooling used in metal forming and dry cell battery production

Production Capabilities

- Sintered components
- Precision ground components
- Ceramic / Metal assemblies
- Ceramic design assistance
- Prototyping, batch and volume production

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.