STARCERAM® N 3000, 7000, 8000

Chemical Formula \( \text{Si}_3\text{N}_4 \)

Chemical Name Silicon Nitride

Characteristic Sintered Silicon Nitride

Description of Product Parts made of Silicon Nitride

Colour Light grey to dark grey

### Chemical Characteristics

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<th>7000</th>
<th>3000</th>
<th>8000</th>
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<tr>
<td>( \text{Si}_3\text{N}_4 ) (incl. ( \text{Al}_2\text{O}_3; \text{Y}_2\text{O}_3; \text{MgO} ))</td>
<td>&gt; 99</td>
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<td>wt%</td>
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### Mechanical and physical Properties

- **Density**: 3.22, 3.23, 3.23 g/cm³
- **Open porosity**: 0, 0, 0 vol%
- **Flexural strength \( \sigma_{b4,m} \)**
  - (RT) 800, 900, 1050 MPa
  - (1000°C) 500, 650, 700 MPa
  - (1200°C) 300, 500, 550 MPa
- **Weibull modulus RT**: 25, 20, 15
- **Comparison strength**: 985, 1320, 1540 MPa
- **Young's modulus RT**: 290, 300, 310 GPa
- **Fracture toughness**: 6.7, 6.5, 6.0 MPa√m
- **Thermal conductivity RT**: 20, 25, 25 W/mK
- **Thermal expansion RT-1000°C**: 3.4, 3.4, 3.4 x10⁻⁶/K
- **Hardness (DPH)**: 15, 15.2, 15.2 GPa
- **Thermal shock coefficient R1**: 620, 670, 760 K
- **Max. working temperature**: 1000, 1200, 1200 °C

The data indicated relates to the test specimens from which it was obtained and is not unconditionally applicable to other forms of the same material. The data must, therefore, be regarded as indicative only.

1) ICL method, 2) Standardized strength related to effective Volume \( \text{V}_{\text{eff}} = 1\text{mm}^3 \) and fracture probability \( \text{F}_\text{b}=63,2 \% \)
Product Description and Applications

Products of our material STARCERAM® N 3000, 7000 and 8000 show a very high toughness and hardness, also at high temperatures. The temperature shock resistance is excellent, just as the abrasion resistance. Further characteristics are a low thermal expansion, mean thermal conductivity and good chemical resistance.

Example of products
STARCERAM® N
Packaging

STARCERAM® N 3000, 7000 and 8000 products are individually packed, depending on size. Packaging according to transport regulations.

Storage and Handling

Handle with care! Ceramic products may break if not treated properly. Storage and handling are subject to the rules and regulations in the country of use.

Hazards identification in Advertising (REGULATION (EC) No 1272/2008 Article 48)

none.

Documentation

An inspection document in accordance with EN 10204 is supplied when requested.

Further contact addresses

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