

SPECIFICATIONS

- ▶ Chemical formula: Si_3N_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 (TYP.)

		N 7000	N 3000	N 8000
Si_3N_4 (incl. Al_2O_3 ; Y_2O_3 ; MgO)	[wt%]	> 99	> 99	> 99

MECHANICAL & PHYSICAL CHARACTERISTICS (TYP.)

		N 7000	N 3000	N 8000
Density	[g/cm ³]	3.22	3.23	3.23
Open porosity	[vol%]	0	0	0
Flexural strength $\sigma_{b4,m}$ (RT) ¹	[MPa]	800	900	1050
(1,000°C)	[MPa]	500	650	700
(1,200°C)	[MPa]	300	500	550
Weibull modulus (RT)	[-]	25	> 15	> 15
Comparison strength σ_{ov} (RT) ³	[MPa]	985	1320	1540
Young's modulus (RT)	[GPa]	300	300	310
Fracture toughness ²	[MPa $\sqrt{\text{m}}$]	6.7	6.5	6.0
Thermal conductivity (RT)	[W/mK]	20	25	25
Thermal expansion CTE (RT-1,000°C)	[x10 ⁻⁶ /K]	3.4	3.4	3.4
Hardness (DPH)	[GPa]	15	15	15
Thermal shock coefficient R1	[K]	620	670	760
Max. working temperature	[°C]	1,000	1,200	1,200
Resistivity (RT)	[Ωm]	10 ¹¹ - 10 ¹²	10 ¹¹ - 10 ¹²	10 ¹¹ - 10 ¹²

¹ 4-point-bending 40/20 mm

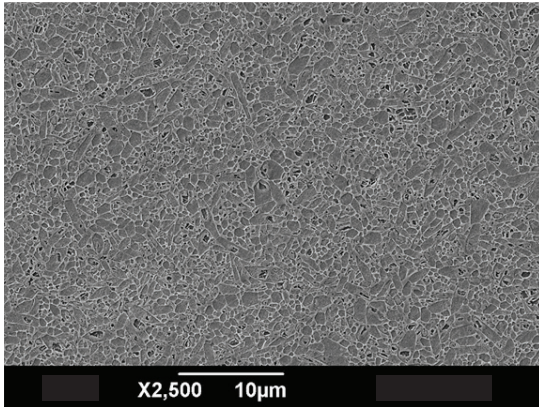
² ICL method

³ Standardized strength related to effective volume $V_{\text{eff}} = 1 \text{ mm}^3$ and fracture probability $F_B = 63.2 \%$

STARCERAM® N 7000, 3000, 8000

2023.04.03

SEM PHOTOMICROGRAPH



Si₃N₄, 8 kV, 10 µm

PACKAGING

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

STORAGE & 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 with every shipment.

The information contained herein, and in particular the recommendations relating to the application and end-use of our products, are given in good faith based on our current knowledge and experience. The information do not constitute a guarantee with respect to properties of the products. Since we have no control over the application modalities, no guarantee is granted with respect to merchantability or fitness for a particular purpose. It is your sole responsibility to validate the suitability and completeness for your own use. We therefore recommend to always perform a test according to specific circumstances. Any liability in respect of the information in this data sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in case of death or personal injury, intent or gross negligence and under any applicable mandatory product liability law. Technical data are subject to change without notice. The newest version of the technical data sheet replaces all preceding versions. The trademarks, trade names, logos and other designations of origin contained in this data sheet are registered and unregistered intellectual property rights of KYOCERA Fineceramics Europe GmbH. It is forbidden to copy or use information from this data sheet in whole or in part, especially in dealings with third parties.

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