

## DATA SHEET

# Silicon Nitride

### Hot Pressed

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#### Material

Material description		Hot pressed Si <sub>3</sub> N <sub>4</sub>
Bulk density	[g/cm <sup>3</sup> ]	3,22
Porosity		no
Grain spectrum	[µm]	1-10

#### Mechanical Properties

Hardness	[2]	[HV1]	1.575
Compressive strength		[MPa]	3.000
Bending Strength	[3]	[MPa]	910
Weibull-Modulus		m	15
Fracture Youngs Modulus E		[GPa]	310
Poisson ratio			0,28
toughness K <sub>IC</sub>	[4]	[MPam]	6,0

#### Thermal Properties

Max. Working temperature			
- inert gas		[°C]	1.200
- air		[°C]	1.200
Thermal conductivity (20°C)		[W/mK]	28
Thermal expansion RT- 1000°C		[10 <sup>-6</sup> K <sup>-1</sup> ]	3,2
RT- 250°C		[10 <sup>-6</sup> K <sup>-1</sup> ]	1,0
Thermal shock parameter R <sub>1</sub>	[5]	[K]	660
Thermal shock parameter R <sub>2</sub>	[6]	[W/m]	18.494

#### Chemical Composition

Si <sub>3</sub> N <sub>4</sub>		[%]	90
sintering additives: Al <sub>2</sub> O <sub>3</sub> /Y <sub>2</sub> O <sub>3</sub> mixture		[%]	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 any way whatsoever and should only be treated as indicative and for guidance only.