

## MATERIAL DATA SHEET

Material type: Si<sub>3</sub>N<sub>4</sub>

### Silicon Nitride HP 79

Properties		Unit	Specific value
Density		g / cm <sup>3</sup>	> 3.23
Open Porosity		vol.-%	0
Bending Strength $\sigma_m$	DIN EN 843-1	MPa	900
Weibulls Modulus		-	15
Compressive Strength		MPa	3000
Young's Modulus	static	GPa	310
Poisson's Ratio		-	0.26
Hardness	Vickers	GPa	16
Maximum Service Temperature in Air	inert atmosphere	°C	1200
	air	°C	1200
Linear Coefficient of Expansion	20 - 1000 °C	10 <sup>-6</sup> / K	3.2
Specific Heat	20 °C	J / (kg * K)	800
Thermal Conductivity	20 °C	W / (m * K)	28
Resistivity	20 °C	$\Omega$ * cm	1 * 10 <sup>10</sup>
	1000 °C	$\Omega$ * cm	1 * 10 <sup>7</sup>
Chemical Composition	Si <sub>3</sub> N <sub>4</sub>	vol.-%	96
	Al <sub>2</sub> O <sub>3</sub>	vol.-%	1
	MgO	vol.-%	3
Typical Colour		-	black

The data indicated on this table are in line with the introductory German Industrial Standard DIN 40680 and relate to test specimens from which they were obtained. They are not unconditionally applicable to other forms of the same material. The data must be regarded as indicative only. All data refer to a temperature of 20 °C, unless otherwise specified.