

Silicon Nitride (Si₃N₄) – CeramaSil-N™

PCSN4000







Material webpage



Overview

Silicon Nitride (Si₃N₄) has the most versatile combination of mechanical, thermal, and electrical properties of any advanced ceramic material. It is tough, strong, electrically insulating, and has exceptional thermal shock and impact resistance. PCSN4000 is manufactured by extrusion.

Primary Advantages

-  High Strength over Large Temp. Range
-  High Fracture Toughness
-  Thermal Shock, Impact, & Wear Resistant
-  Lightweight – Low density

Common Applications

- Aerospace Applications
- Bearing Applications
- Tooling & Wear Parts
- Foundry Applications
- Mechanical Engineering
- Medical Components

	Properties	Units	PCSN4000
Mechanical	Compressive Strength	MPa	3000
	Density	g/cm ³	3.23
	Flexural Strength @ 25°C	MPa	850
	Fracture Toughness K _{IC}	MPa m ^{1/2}	8.5
	Hardness	GPa	16
	Young's Modulus	GPa	340
	Poisson's Ratio	-	0.28
Thermal	Thermal Conductivity	W/mK	28
	CTE @ 25°C – 250°C	10 ⁻⁶ /K	1.9
	CTE @ 25°C – 1000°C	10 ⁻⁶ /K	3.2
	Thermal Shock Parameter R1	K	700
	Thermal Shock Parameter R2	W/m	19
	Maximum Temperature (Air)	°C	1100
	Maximum Temperature (Inert)	°C	1200
Electrical	Dielectric Constant @ 1 MHz	-	7
	Dielectric Strength @ 25°C	kV/mm	19
	Volume Resistivity @ 25°C	ohm-cm	10 ¹²

Disclaimer: The values presented are mean and typical of those resulted from test samples. They are provided as an indication only to serve as guidance in the design of ceramic components and are not guaranteed in any way. The actual values can vary according to the shape and size of the envisioned component.



PRECISION CERAMICS UK
uk@precision-ceramics.com
+44 121 687 5858

PRECISION CERAMICS USA
info@precision-ceramics.com
+1 727 388 5060

PRECISION CERAMICS EU
eu@precision-ceramics.com
+353 51 550 480