

SCProbond™ TN

Thick Nitride Bonded Silicon Carbide

Description: SCProbond™ TN is an exciting advancement at SCP developed to address the issue of unscheduled emergency downtime. In the world of nitride bonded silicon carbide, thick cross-sectional areas (greater than ¾") can show variation in strength and stability. This material is characterized by excellent wear properties in severe industrial environments, specifically in components with thick cross-sectional areas. SCProbond™ TN is a nitride bonded silicon carbide material, set apart by the advantage of its "Through Nitriding" properties which equalize the wear rate across thicker cross sections and increase lifetime predictability. Traditional nitride bonded silicon carbide material will exhibit a significant increase in wear rate as the distance to the center of a thick cross section decreases. The wear rate of our new SCProbond™ TN material will remain constant throughout the entirety of the cross section. "Through Nitriding" has seen success at cross-sections 4" and beyond. This gives our customers extended product lifetimes and the ability to better **predict** and **schedule** maintenance and replacement. Even in demanding abrasive applications, SCProbond™ TN offers excellent high impact resistance, corrosion resistance, temperature resistance up to 1525°C, and increases in strength with thermal cycling. This material is recommended for use in areas where sustained predictable wear is desired, such as power plants, mining for bulk material handling, and protective wear linings.

Physical Properties:

Property	Unit	Value
Density	g/cc	2.60-2.72
	lb/ft ³	162-169
Apparent Porosity	%	13-16
C704 Abrasion Loss (volumetric)	cc	1.71
C1421 Fracture Toughness	MPa*m ^{1/2}	4.22
Modulus of Rupture 3 Point Loading	MPa	67
	psi	9700
Maximum Service Temperature (Dependent upon atmosphere)	°C	1525
	°F	2777
C1171 Thermal Cycling	Psi	10% Gain after thermal cycling
Thermal Conductivity	W/m°K	18
Coefficient of Thermal Expansion @ 1200°C	/°C	4.9 x 10 ⁻⁶
	/°F	2.7 x 10 ⁻⁶



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Typical Applications

Ash handling sweeps	Impellers
Centrifuge components	Liners
Chutes	Molten metal pump protective sleeves
Coal handling components	Pump components
Coal preparation applications	Reactor liners
Cyclones	Spray nozzles
Frac sand sweeps, elbows,	Transitions
Valve body liners	Wear blocks
Refractory	Complex custom shapes

WARRANTY AND DISCLAIMER

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