

Skamol Group SICAL 78 Silicon Nitride-Bonded Silicon Carbide Brick

Category : Ceramic , Carbide

Material Notes:

Silicon nitride-bonded silicon carbide brick has the following characteristics: Max. service temperature 1580°C (2876°F) For sidewall lining of aluminum reduction cells High thermal conductivity Low porosity Low thermal expansion Low gas permeability Outstanding abrasion and erosion resistance High modulus of rupture Superior resistance to metal penetration and attack Extremely high crushing strength Excellent oxidation resistance and resistance to corrosion Information provided by Skamol.

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http://www.lookpolymers.com/polymer_Skamol-Group-SICAL-78-Silicon-Nitride-Bonded-Silicon-Carbide-Brick.php

Physical Properties	Metric	English	Comments
Bulk Density	2.64 g/cc	0.0955 lb/in ³	EN 993-1 1995
Porosity	17 %	17 %	Apparent; EN 993-1 1995
Permeability	<= 0.050	<= 0.050	nPm, Permeability to gases; EN 993-4 1995

Mechanical Properties	Metric	English	Comments
Modulus of Rupture	0.0440 GPa	6.38 ksi	EN 993-6: 1995
Compressive Strength	160 MPa	23200 psi	EN 993-5 1998

Thermal Properties	Metric	English	Comments
CTE, linear	4.30 Åµm/m-Å°C	2.39 Åµin/in-Å°F	ASTM C-372
	@Temperature 20.0 - 1000 Å°C	@Temperature 68.0 - 1830 Å°F	
Thermal Conductivity	21.0 W/m-K	146 BTU-in/hr-ft ² -Å°F	Hot strip, Mean temp.; SINTEF
	@Temperature 700 Å°C	@Temperature 1290 Å°F	
	28.0 W/m-K	194 BTU-in/hr-ft ² -Å°F	
	@Temperature 500 Å°C	@Temperature 932 Å°F	Hot strip, Mean temp.; SINTEF
	38.0 W/m-K	264 BTU-in/hr-ft ² -Å°F	Hot strip, Mean temp.; SINTEF
	@Temperature 200 Å°C	@Temperature 392 Å°F	
Maximum Service Temperature, Air	1580 Å°C	2880 Å°F	

Component Elements Properties	Metric	English	Comments
Al ₂ O ₃ + Fe ₂ O ₃ + CaO	0.50 %	0.50 %	

Si3N4 Component Elements Properties	18 % Metric	18 % English	Comments
SiC	78 %	78 %	
Silicon, Si	0.50 %	0.50 %	
SiO2 + Si2ON2	2.0 %	2.0 %	

Descriptive Properties	Value	Comments
Color	Grey	
Corrosion Resistance	3	SINTEF
Dimensional Tolerances (Length/Width/Thickness)	±2.0/±2.0/±1.0 mm	
Standard Sizes	510x300x50mm, 500x300x100mm, or 230x114x64mm	Other sizes made on request

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