

SICAL-78 Silicon nitride-bonded silicon carbide brick

for sidewall lining of aluminium reduction cells



Maximum service temperature	°C	1580
	°F	2876
Bulk density (EN 993-1 1995)	kg/m ³	2650
	lbs/cu.ft.	165
Apparent porosity (EN 993-1 1995)	%	17
Cold crushing strength (EN 993-5 1998)	MPa	160
	lbs/sq.in.	23200
Modulus of rupture (EN 993-6 1995)	MPa	44
	lbs/sq.in.	6380
Permeability to gases (EN 993-4 1995)	nPm	<0.05
Linear thermal expansion (ASTM C-372) @ 20°C-1000°C (68°F-1832°F)	K ⁻¹	4.3x10 ⁻⁶
	°F ⁻¹	2.4x10 ⁻⁶
Thermal conductivity ("Hot strip", SINTEF)		
mean temp. @ 200°C	W/(mK)	38
mean temp. @ 500°C	W/(mK)	28
mean temp. @ 700°C	W/(mK)	21
mean temp. @ 392°F	BTU/(sq.ft.h°F/in.)	264
mean temp. @ 932°F	BTU/(sq.ft.h°F/in.)	194
mean temp. @ 1292°F	BTU/(sq.ft.h°F/in.)	146
Corrosion resistance (SINTEF)		3
Mineralogical composition (XRD/XRF/LECO)	%	
Silicon carbide	SiC	78
Silicon nitride	Si ₃ N ₄	18
Silicon	Si	0.5
Silica + Silicon oxynitride	SiO ₂ + Si ₂ ON ₂	2.0
Other oxides	Al ₂ O ₃ + Fe ₂ O ₃ + CaO	0.5
Standard sizes		
Other sizes made on request.	mm	510x300x50
	mm	500x300x100
	mm	230x114x64
	inches (")	20.1x11.8x2.0
	inches (")	19.7x11.8x3.9
	inches (")	9.1x4.5x2.5
Dimensional tolerances		
Length/width/thickness	mm	±2.0/±2.0/±1.0
	inches (")	±0.08/±0.08/±0.04
Colour		grey

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The manufacturer, Tangshan Hexagon Silicon Carbide Co., Ltd., China, is certified according to ISO 9002 and approved supplier by Skamol A/S. Data are average results of tests conducted under standard procedures and are subject to variation. All data are supplied in good faith and are subject to change without notice. No warranty or guarantee is implied. Misprint and errors excepted.

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