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Calcium silicate boards

for back-up insulation – up to 1100°C (2012°F)

SUPER-ISOL · SUPER-1100 E

Description

The SKAMOL SUPER calcium silicate boards cover a range of extremely lightweight insulating boards with excellent insulating value, high mechanical strength and good heat resistance. The boards are designed for maximum service temperatures of 1000°C (1832°F) or 1100°C (2012°F), they are light grey and have smooth, rigid and non-dusting surfaces. Two grades are available:

- SUPER-ISOL
- SUPER-1100 E

Due to exceptional heat resistance both grades of SKAMOL SUPER calcium silicate boards will withstand continuous heat up to their full temperature use limit. The low thermal conductivity provides top insulation throughout the temperature range.

Jointing mortar recommended is SKAMOL FL-06, see separate data sheet "SKAMOL insulating mortars".

Surface treatment

Calcium silicate boards can be delivered with a water-repellent surface treatment on one side. Water repellence is achieved by application of a coat of potassium silicate identified by a light blue colour. For water repellence, please specify the product grade followed by "WR".

Standard sizes

SKAMOL SUPER calcium silicate boards are available in the following standard sizes:

Metric	
Length x width: 2440 x 1220 mm	Thickness: 25 through 60 mm
1220 x 1000 mm 1000 x 610 mm 1000 x 305 mm	25 through 100 mm
US/British	
Length x width: 96" x 48"	Thickness: 1" through 2.4"
48" x 36" 36" x 24" 36" x 12"	1" through 4"

The product composition allows for easy cutting of derivatives on site using ordinary wood-working tools. Special shapes machined to customer specification can be supplied for specific design requirements.

Dimensional tolerances

Length and width ± 2.5 mm (0.10")
 Thickness ± 1.5 mm (0.06")

Application

SKAMOL SUPER calcium silicate boards are designed for the application as back-up insulation of all refractory constructions – dense firebrick, insulating firebrick, castables, plastic refractories, etc. The combination of high performance features makes the range of SKAMOL SUPER calcium silicate boards the ideal choice for efficient insulation of kilns, furnaces, ovens, stoves, boilers, soaking pits, regenerators, mains and other combustion or high-temperature process equipment. Due to their high resistance to carbon monoxide and hydrocarbons SKAMOL SUPER calcium silicate boards can be used in furnaces with reducing atmospheres. No disintegration of carbon deposition is found after 200 hours' exposure to CO at 450°C (842°F).

SKAMOL SUPER calcium silicate insulating slabs

for back-up insulation up to 1100°C (2012°F)

Grade		SUPER-ISOL	SUPER-1100 E
Maximum service temperature			
	°C	1000	1100
	°F	1832	2012
Bulk density, dry			
	kg/m ³	225	245
	lbs/cu.ft.	14.0	15.3
Compressive strength (EN 1094-5: 1995)			
@ room temperature	MPa	2.6	2.7
	lbs/sq.in.	377	392
Modulus of rupture (EN 993-6: 1995)			
	MPa	1.9	1.8
	lbs/sq.in.	276	261
Total porosity			
	%	91	90
Permeability to air (BS EN 993-4: 1995)			
	nPm	0.7	0.5
Creep in compression (EN 993-9: 1997)			
50 h at 900°C (1652°F), load 0.1 MPa (14.5 lbs/sq.in.)	%	0.5	0.4
Specific heat			
	kJ/(kg×K)	0.84	0.84
	BTU/(lb×°F)	0.20	0.20
Coefficient of reversible thermal expansion (BS 1902: section 5.3: 1990)			
@ 20°C-750°C (68°F-1382°F)	K ⁻¹	5.5x10 ⁻⁶	5.5x10 ⁻⁶
	°F ⁻¹	3.1x10 ⁻⁶	3.1x10 ⁻⁶
Linear reheat shrinkage (EN 1094-6: 1999)			
12 h at 50°C (90°F) below max. service temp.	%	1.0	1.5
Pyrometric cone equivalent (ASTM C24-89 ORTON cones)			
	°C	1345	1345
	°F	2453	2453
Thermal conductivity (ASTM C-182)			
mean temp. @ 200°C	W/(m×K)	0.08	0.08
@ 400°C		0.10	0.10
@ 600°C		0.12	0.12
@ 392°F	BTU/(sq.ft×h×°F/in)	0.55	0.55
@ 752°F		0.69	0.69
@ 1112°F		0.83	0.83
Chemical analysis, typical			
	%		
Silica	SiO ₂	45	47
Alumina	Al ₂ O ₃	0.2	0.3
Ferric oxide	Fe ₂ O ₃	0.2	0.3
Magnesium oxide	MgO	0.7	0.6
Calcium oxide	CaO	45	45
Sodium oxide	Na ₂ O	0.1	0.1
Potassium oxide	K ₂ O	0.2	0.1
Loss on ignition 1025°C (1877°F)	LOI	8	6
Colour			Grey
HS Tariff number			
(Harmonized Commodity Description and Coding System)			6806.90.00

Data are average results of tests conducted under standard procedures and are subject to variation. Data contained in this data sheet are supplied in good faith as a technical service and are subject to change without notice. Misprint and errors excepted.

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