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Vermiculite insulating bricks

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

V-LITE (375) · V-LITE (475)

Description

V-LITE bricks are lightweight insulating bricks based on vermiculite, combining good insulation value with high mechanical strength and temperature resistance. The bricks are designed for a maximum service temperature of 1100°C (2012°F) and are available in two grades identified by density:

- V-LITE (375), 375 kg/m³ (23.4 lbs/cu.ft.)
- V-LITE (475), 475 kg/m³ (30 lbs/cu.ft.)

Standard sizes

V-LITE insulating bricks are precision moulded to extremely close dimensional tolerances exhibiting smooth, non-dusting surfaces and clean edges. They are available as squares (straights) and splits in standard sizes:

Standard sizes	
Metric:	
Length × width: 230 × 114 mm 250 × 124 mm	Thickness: 38-51-64-76 mm 54-76 mm
US/British:	
Length x width: 9" × 4 1/2"	Thickness: 1 1/4" - 2" - 2 1/2" - 3"

Other sizes including arches and wedges as well as non-standard shapes to meet specific design requirements are made to order.

The product composition allows for easy cutting and shaping from standards on site, using ordinary wood working tools.

Dimensional tolerances

Length+2.5/-0.5 mm (+0.1"/-0.02")
 Width+1.5/-0.5 mm (+0.06"/-0.02")
 Thickness..... ±1.0 mm (0.04")

Application

V-LITE vermiculite insulating bricks are equally suitable for hot-face applications and back-up insulation of refractory constructions. Both grades are characterized by an excellent performance of thermal efficiency and energy conservation and are used for lining in all types of industrial kilns and furnaces, incinerators, and combustion plants. V-LITE bricks withstand direct flame impingement and due to their high resistance to carbon monoxide and hydrocarbon attacks they can be used in furnaces with reducing atmospheres.

Jointing mortar

Use of the proper mortar and the workmanship applied determine the stability and thermal efficiency of the finished brickwork. SKAMOL FL-06 insulating mortar possessing water-retentive properties is recommended for dry laying of the V-LITE bricks (see separate data sheet "SKAMOL insulating mortars").



SKAMOL vermiculite insulating brick

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

Grade		V-LITE (375)	V-LITE (475)
Maximum service temperature			
	°C	1100	1100
	°F	2012	2012
Bulk density, dry			
	kg/m ³	375	475
	lbs/cu.ft.	23.4	29.6
Compressive strength (EN 1094-5; 1995)			
@ room temperature	MPa	1.3	2.5
	lbs/sq.in.	188.5	362.5
Modulus of rupture (EN 993-6; 1995)			
	MPa	0.5	1.0
	lbs/sq.in.	73	145
Total porosity			
	%	86	81
Specific heat			
	kJ/(kg×K)	0.94	0.94
	BTU/(lb×°F)	0.224	0.224
Coefficient of reversible thermal expansion (BS 1902: section 5.3: 1990)			
@ 20°C-750°C (68°F-1382°F)	K ⁻¹	11×10 ⁻⁶	11×10 ⁻⁶
	°F ⁻¹	6.1×10 ⁻⁶	6.1×10 ⁻⁶
Resistance to thermal shock (EN 993-11; 1998)			
heating to 950°C (1742°F)	cycles	>10	>10
Linear reheat shrinkage (EN 1094-6; 1999)			
12 h at 1000°C (1832°F)	%	1	1
Pyrometric cone equivalent (ASTM C24-89 ORTON cones)			
	°C	1300	1300
	°F	2372	2372
Thermal conductivity (ASTM C-182)			
mean temp. @ 200°C	W/(m×K)	0.12	0.14
@ 400°C		0.14	0.16
@ 600°C		0.16	0.19
@ 392°F	BTU/(sq.ft.×h×°F/in)	0.83	0.97
@ 752°F		0.97	1.11
@ 1112°F		1.11	1.32
Chemical analysis, typical			
	%		
Silica	SiO ₂	47	47
Titanium dioxide	TiO ₂	0.5	0.5
Ferric oxide	Fe ₂ O ₃	4	4
Alumina	Al ₂ O ₃	7	7
Magnesium oxide	MgO	21	21
Calcium oxide	CaO	2	2
Sodium oxide	Na ₂ O	0.5	0.5
Potassium oxide	K ₂ O	11	11
Loss on ignition 1025°C (1877°F)	LOI	7	7
Colour		Light brown	Light brown

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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