

Product Information



The two charts below summarize Thermal Ceramics range of low lime insulating concretes.

The aim is to aid a quick selection of the appropriate concrete.

The chart in the back page provides full details of the product physical properties as determined by our laboratory test results.

Characteristics	Type of Firelite						
	2500	LW	LW HS	LW HS-G	2200 LL	2000 LL	2000LL-G
Low thermal conductivity	X	X	XX	X	X	X	X
Classification temperature °C	1370	1320	1320	1320	1200	1100	1100
High mechanical resistance	X	X	XX	XX	XX		X
Low density	X	X	X	X	X	X	X
Stability SiO ₂	X	X	X	X	X	X	X
Low % CaO	X	X	X	X	X	X	X
Cast installation	X	X	X		X	X	
Gun installation	X	X		X	X		X

Applications	2500	LW	LW HS	LW HS-G	2200 LL	2000 LL	2000LL-G
Lining for every type of petrochemical heat exchanges	X	X	X	X			
Furnace doors and covers	X	X	X				
Applications where sulphur is present in the fuel used	X	X	X	X	X	X	X
Kiln car tops	X	X	X				
Arches, convection zones and ducts in petrochemical heater	X	X	X	X	X	X	X

X = Good

XX = Very good

MAIN PROPERTIES

Product	2500		LW		LW HS		LW HS-G		2200 LL		2000 LL		2000LL-G	
	Cast	Gun	Cast	Gun	Cast	Gun	Cast	Gun	Cast	Gun	Cast	Gun	Cast	Gun
Method of application														
Temperature limit	°C													
ASTM-C-401 Class	1370		1320		1320		1320		1200		1100		1100	
Basic raw material	Q, R		P, Q		Q		Q							
Maximum grain size (mm)	Insulating Aggregate 6		Insulating Aggregate 6		Insulating Aggregate 4		Insulating Aggregate 4		Insulating Aggregate 4		Insulating Aggregate 4		Insulating Aggregate 4	

Properties

• Density (kg/m ³)																				
As placed	1860		1930		1740		1760		1610		1680		1510		1560		1300		1300	
Oven dried at 105°C	1420		1500		1200		1290		1340		1430		1230		1390		1040		1060	
After 5h firing at 815°C	1340		1420		1150		1200		1250		1330		1190		1330		1010		1050	
• Cold crushing strength (MPa)**																				
Oven dried at 105°C	8.8		10.8		4.3		6.4		9.8		14.7		9.1		19.6		5.9		9.8	
After 5hr firing at 815°C	6.9		8.4		3.2		5.9		7.8		11.8		6.2		14.7		3.9		6.9	
1000°C	5.1		6.0		2.8		5.4		-		-		-		9.8		-		-	
1100°C	-		-		-		4.9		4.9		5.9		-		-		-		-	
1200°C	5.9		6.5		3.9		4.4		-		-		-		-		-		-	
1300°C	6.9		7.0		-		-		6.4		6.9		-		-		-		-	

High Temperature Performance

• Permanent linear change (%)																				
After 5hr firing at 815°C	-0.2		-0.2		-0.2		-0.2		-0.2		-0.2		-0.2		-0.3		-0.2		-0.3	
1000°C	-0.3		-0.3		-0.3		-0.3		-		-		-0.6		-0.5		-0.6		-0.5	
1100°C	-0.4		-0.5		-		-		-0.4		-		-		-		-		-	
1200°C	-		-		-0.6		-0.5		-0.6		-		-		-		-		-	
1300°C	-0.7		-0.7		-1.0		-0.8		-1.5		-		-		-		-		-	
• Thermal Conductivity (W/m.K)*																				
ASTM-C-417-84																				
At mean temperature of 200°C	0.34		0.36		0.28		0.29		0.29		0.31		0.24		0.29		0.21		0.21	
400°C	0.37		0.39		0.30		0.31		0.31		0.33		0.27		0.31		0.23		0.24	
600°C	0.40		0.42		0.33		0.34		0.34		0.36		0.29		0.34		0.26		0.27	
800°C	0.42		0.45		0.35		0.36		0.36		0.38		0.33		0.36		-		-	
1000°C	0.44		0.48		0.38		0.39		0.39		0.41		-		-		-		-	

Estimated weight (kg) of dry material required per m³ of construction (no allowance for waste)

1350 1450 1160 1220 1250 1330 1190 1300 1020 1040

Estimated weight (kg) of water required per 100kg dry material

38 33 50 44 30 25 27 20 27 25

Chemical composition

Al ₂ O ₃	44.4		46.2		38.8		40.0		30.7		28.0		29.1	
SiO ₂	34.6		34.3		37.6		36.2		42.9		45.8		45.2	
Fe ₂ O ₃	5.4		4.7		6.9		6.8		8.0		8.4		8.1	
TiO ₂	1.5		1.4		1.1		1.1		1.4		1.0		1.0	
CaO	11.7		10.1		11.8		11.8		11.8		10.5		10.3	
MgO + K ₂ O + Na ₂ O	1.1		1.5		1.9		1.3		3.9		5.3		4.8	
Ig. Loss	1.1		1.7		1.9		2.3		1.3		1.0		1.5	

Packaging

• In bags	kg	25/50	25/50	25/50	25/50	25/50	25/50	40	25/50
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* To convert W/m.K to Btu in/ft₂/h/°F, multiply by 6.93 to kcal/m.h. °C, multiply by 0.86 ** To convert MPa to kg/cm², multiply by 10.2

Your local contact:

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The values given herein are typical average values obtained in accordance with accepted internal test methods and are subject to normal manufacturing variations. The "G" gunning version data are obtained by ramming. They are supplied as a technical service and are subject to change without notice. Therefore, the data contained herein should not be used for specification purposes. Check with your Thermal Ceramics office to obtain current information. Before using these materials, it is strongly recommended that the installer consults Thermal Ceramics manual "storage and installation manual" copies of which are obtainable from Thermal Ceramics offices or distributors.

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