



Product Information



The two charts below summarize Thermal Ceramics range of medium weight 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	1230	14	14-G	14 HS
Low thermal conductivity	X	X	XX	X	X	X	X	X
Classification temperature °C	1370	1320	1320	1320	1230	1100	1100	1100
High mechanical resistance	X	X	XX	XX	X	X	X	XX
Low density	X	X	X	X	X	X	X	X
Stability SiO ₂	X	X	X	X	X	X	X	X
Low % CaO	X	X	X	X				
Cast installation	X	X	X		X	X		X
Gun installation	X	X		X	X		X	

Applications	2500	LW	LW HS	LW HS-G	1230	14	14-G	14 HS
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	X
Kiln car tops	X	X	X					
Arches, convection zones and ducts in petrochemical heater	X	X	X	X	X	X	X	X

X = Good
XX = Very good

Medium Weight Insulating Concretes Firelite™

Product Information

MAIN PROPERTIES

Product		2500		LW		LW HS		LW HS-G		1230		14	14-G	14 HS
Method of application		Cast	Gun	Cast	Gun	Cast	Gun	Cast	Gun	Cast	Gun	Cast	Gun	Cast
Temperature limit	°C	1370		1320		1320		1320		1230		1100		1100
ASTM-C-401-84 Class		Q, R		P, Q		Q		Q		P, Q		P		P
Basic raw material		Insulating Aggregate		Insulating Aggregate		Insulating Aggregate		Insulating Aggregate		Insulating Aggregate		Porous Aggregate		Porous Aggregate
Maximum grain size (mm)		6		6		4		4		8		8		4

Properties

• Density (kg/m ³)															
As placed		1860	1930	1740	1760	1610	1680	1700	1750	1490	1580	1520			
Oven dried at	105°C	1420	1500	1200	1290	1340	1430	1150	1220	1200	1200	1300			
After 5h firing at	815°C	1340	1420	1150	1200	1250	1330	1100	1140	1060	1100	1190			
• Cold crushing strength (MPa)**															
Oven dried at	105°C	8.8	10.8	4.3	6.4	9.8	14.7	4.2	6.4	8.8	8.8	15.7			
After 5hr firing at	815°C	6.9	8.4	3.2	5.9	7.8	11.8	3.7	6.2	5.9	5.9	9.3			
	1000°C	5.1	6.0	2.8	5.4	-	-	2.9	5.9	-	-	7.4			
	1100°C	-	-	-	4.9	4.9	5.9	2.7	4.5	3.9	3.9	-			
	1200°C	5.9	6.5	3.9	4.4	-	-	2.8	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	-0.3	-0.3	-0.2	-0.3	-0.2			
	1000°C	-0.3	-0.3	-0.3	-0.3	-	-	-	-	-	-	-			
	1100°C	-0.4	-0.4	-	-	-0.4	-0.4	-0.4	-0.4	-0.2	-0.3	-0.2			
	1200°C	-	-	-0.6	-0.5	-0.6	-0.6	-0.6	-0.5	-	-	-			
	1300°C	-0.7	-0.7	-1.0	-0.8	-1.5	-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	0.21	0.22	0.21	0.23	0.27			
	400°C	0.37	0.39	0.30	0.31	0.31	0.33	0.24	0.26	0.24	0.27	0.29			
	600°C	0.40	0.42	0.33	0.34	0.34	0.36	0.26	0.28	0.27	0.29	0.31			
	800°C	0.42	0.45	0.35	0.36	0.36	0.38	0.28	0.30	-	-	-			
	1000°C	0.44	0.48	0.38	0.39	0.39	0.41	-	-	-	-	-			

Estimated weight (kg) of dry material required per m ³ of construction (no allowance for waste)		1350	1450	1160	1220	1250	1330	1110	1180	1060	1160	1200			
Estimated weight (kg) of water required per 100kg dry material		38	33	50	44	29	26	53	48	36	36	27			

Chemical composition

Al ₂ O ₃	44.4	46.2	38.8	40.0	36.8	31.4	30.9	28.1
SiO ₂	34.6	34.3	37.6	36.2	33.1	36.0	36.6	39.9
Fe ₂ O ₃	5.4	4.7	6.9	6.8	5.8	7.2	7.3	7.9
TiO ₂	1.5	1.4	1.1	1.1	1.3	1.4	1.3	1.3
CaO	11.7	10.1	11.8	11.8	20.3	19.8	19.4	17.0
MgO + K ₂ O + Na ₂ O	1.1	1.5	1.9	1.3	1.5	3.7	3.9	5.3
Ig. Loss	1.1	1.7	1.9	1.3	1.1	0.3	0.5	0.3

Packaging

• In bags	kg	25/50	25/50	25/50	25/50	20/40	25/50	25/50	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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