Product Information

The two charts below summarize Thermal Ceramics range of very light 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				
	105	**105 L**	**105 L-G**	**1700**	**BM**
Low thermal conductivity	XX	XX	XX	XX	XX
Classification temperature °C	1100	1100	1100	1000	870
High mechanical resistance	X			X	
Pumped into place				X	
Cast installation	X	X		X	X
Gun installation			X		X

Applications	**105**	**105 L**	**105 L-G**	**1700**	**BM**
Radiant and convection zones in petrochemical heaters	❍	❍	❍	❍	❍
Floors, doors in petrochemical heaters	❍	❍	❍	❍	❍

❍ = Back up insulation
X = Good
XX = Very good

MAIN PROPERTIES

Product		105	105 L	105 L-G	1700	BM	
Method of application		Cast	Cast	Gun	Cast	Cast	Gun
Temperature limit	°C	1100	1100	1100	1000	870	
Basic raw material		Vermiculite	Vermiculite/ Insulating Aggregate	Vermiculite	Vermiculite Silica	Vermiculite/ Insulating Aggregate	
Maximum grain size (mm)		3	8	8	3	8	8
Properties							
• Density (kg/m^3)							
As placed		1216	1190	1300	990	1020	1050
Oven dried at	105°C	720	660	720	550	450	540
After 5h firing at	815°C	620	570	660	490	400	490
• Cold crushing strength (MPa)***							
Oven dried at	105°C	2.2	1.3	1.6	1.6	0.6	1.0
After 5hr firing at	650°C	1.8	1.1	1.4	1.2	0.5	0.8
	815°C	1.6	1.0	1.3	1.1	0.4	0.7
High Temperature Performance							
• Permanent linear change (%)							
After 5hr firing at	650°C	-0.2	-0.2	-0.2	-0.2	-0.7	-0.6
	815°C	-0.5	-0.5	-0.5	-0.4	-1.2	-1.0
	1000°C	-1.0	-1.1	-1.1	-	-	-
• Thermal Conductivity (W/m.K)** ASTM-C-417-84							
At mean temperature of	200°C	0.13	0.13	0.14	0.12	0.09	0.11
	400°C	0.15	0.15	0.16	0.14	0.12	0.14
	600°C	0.17	0.17	0.18	0.16	-	-
Estimated weight (kg) of dry material required per m^3 of construction (no allowance for waste)		640	580	700	500	400	500
Estimated weight (kg) of water required per 100kg dry material		90	105	85	98	165	110
Chemical composition							
Al_2O_3		35.0	33.7	33.7	31.8	24.7	
SiO_2		22.6	23.3	23.3	26.2	32.6	
Fe_2O_3		8.8	9.7	9.7	10.0	7.3	
TiO_2		1.5	1.4	1.4	0.1	0.8	
CaO		25.2	24.9	24.9	22.8	22.7	
MgO + K_2O + Na_2O		5.7	6.1	6.1	8.3	9.9	
Ig. Loss		1.1	0.1	0.1	0.7	2.0	
Packaging							
• In bags	kg	30	30	30	25	20	

** To convert W/m.K to Btu in/ft$_2$/h/°F, multiply by 6.93 to kcal/m.h. °C, multiply by 0.86 *** To convert MPa to kg/cm^2, 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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