

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.

	Type of Firelite						
Characteristics	105	105 L	105 L-G	1700	ВМ		
Low thermal conductivity	XX	XX	XX	XX	XX		
Classification temperature °C	1100	1100	1100	1000	870		
High mechanical resistance	X			Х			
Pumped into place				Х			
Cast installation	X	Х		Х	Х		
Gun installation			X		X		

Applications	105	105 L	105 L-G	1700	ВМ
Radiant and convection zones in petrochemical heaters	0	0	0	0	0
Floors, doors in petrochemical heaters	0	О	О	О	0

O = Back up insulation

X = Good

XX = Very good

Product Information

м	ΔΙ	N	PF	30	PF	RT	IES
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Temperature limit	Product		105	105 L	105 L-G	1700	вм		
Basic raw material Vermiculite Vermiculite Vermiculite Vermiculite Insulating Aggregate National Properties National	Method of application		Cast	Cast	Gun	Cast		Gun	
Insulating Aggregate Silica Silica Insulating Aggregate Silica Silica Insulating Aggregate Silica Silica Silica Silica Insulating Aggregate Silica Sili	Temperature limit	°C	1100	1100	1100	1000	8	70	
Properties Density (kg/m³) As placed Oven dried at 105°C 720 660 720 550 450 50 After 5h firing at 815°C 620 570 660 490 400 40 Cold crushing strength (MPa)*** Oven dried at 105°C 2.2 1.3 1.6 1.6 0.6 1 After 5h firing at 650°C 1.8 1.1 1.4 1.2 0.5 0.5 After 5h firing at 650°C 1.8 1.1 1.4 1.2 0.5 0.5 After 5h firing at 650°C 1.8 1.1 1.4 1.2 0.5 0.5 After 5h firing at 650°C 1.8 1.1 1.4 1.2 0.5 0.5 After 5h firing at 650°C 1.8 1.0 1.0 1.3 1.1 0.4 0.5 High Temperature Performance Permanent linear change (%) After 5hr firing at 650°C -0.2 -0.2 -0.2 -0.2 -0.2 -0.7 -0.4 After 5hr firing at 650°C -0.1 1.0 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1	Basic raw material		Vermiculite		Vermiculite			Vermiculite/ Insulating Aggregate	
 Density (kg/m³)	Maximum grain size (mm)		3		8	3	-	8	
As placed	Properties								
Oven dried at 105°C 720 660 720 550 450 550 450 560 After 5h firing at 815°C 620 570 660 490 400 480 48	 Density (kg/m³) 								
After 5h firing at 815°C 620 570 660 490 400 48 • Cold crushing strength (MPa)*** Oven dride at 105°C 2.2 1.3 1.6 1.6 1.6 0.6 1 After 5hr firing at 650°C 1.8 1.1 1.4 1.4 1.2 0.5 0 815°C 1.6 1.0 1.3 1.1 1.4 1.2 0.5 0 815°C 1.6 1.0 1.3 1.1 1.4 1.2 0.5 0 815°C 1.6 1.0 1.3 1.1 1.4 1.2 0.5 0 815°C 1.6 1.0 1.3 1.1 1.4 1.2 0.5 0 815°C 1.6 1.0 1.3 1.1 1.4 1.2 0.5 0 815°C 1.6 1.0 1.3 1.1 1.4 1.2 0.5 0 815°C 1.6 1.0 1.3 1.1 1.4 1.2 0.5 0 815°C 1.6 1.0 1.3 1.1 1.4 1.2 0.5 0 815°C 1.6 1.0 1.0 1.3 1.1 1.4 1.2 0.5 0 815°C 1.6 1.0 1.0 1.3 1.3 1.1 1.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0	As placed			1190		990	1020	1050	
• Cold crushing strength (MPa)*** Oven dried at	Oven dried at	105°C	720	660	720	550	450	540	
Oven dried at After 5hr firing at 105°C 22 1.3 1.6 1.6 0.6 1 After 5hr firing at 650°C 1.8 1.1 1.4 1.2 0.5 0.5 0.5 0 0 0 High Temperature Performance • • Permanent linear change (%) • </td <td>After 5h firing at</td> <td>815°C</td> <td>620</td> <td>570</td> <td>660</td> <td>490</td> <td>400</td> <td>490</td>	After 5h firing at	815°C	620	570	660	490	400	490	
Oven dried at After 5hr firing at 105°C 22 1.3 1.6 1.6 0.6 1 After 5hr firing at 650°C 1.8 1.1 1.4 1.2 0.5 0.5 0.5 0 0 0 High Temperature Performance • • Permanent linear change (%) • </td <td> Cold crushing strength (MPa)*** </td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	 Cold crushing strength (MPa)*** 								
High Temperature Performance Permanent linear change (%) After 5hr firing at 650°C -0.2 -0.2 -0.5 -0.5 -0.5 -0.5 -0.4 -1.2 -1 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 0.13 0.14 0.12 0.09 0. 400°C 0.15 0.15 0.15 0.16 0.14 0.12 0.09 0. 400°C 0.15 0.17 0.17 0.18 0.16 Estimated weight (kg) of dry material required per m³ of construction (no allowance for waste) Estimated weight (kg) of water required per 100kg dry material **Thermal Conductivity (W/m.K)** ASTM-C-417-84' At mean temperature of 200°C 0.13 0.13 0.13 0.14 0.12 0.09 0. 600°C 0.17 0.17 0.18 0.16 0.14 0.12 0.09 0. 600°C 0.17 0.17 0.18 0.16 0.14 0.12 0.09 0. 500°C 0.17 0.17 0.18 0.16 0.14 0.12 0.09 0. 640 580 700 500 400 50 **Thermal Conductivity (kg) of dry material required per m³ of construction (no allowance for waste) Estimated weight (kg) of water required per 100kg dry material 90 105 85 98 165 1** **Chemical composition** Al ₂ Q ₃ 35.0 33.7 33.7 31.8 24.7 51.2 51.2 51.2 51.2 51.2 51.2 51.2 51.2		105°C	2.2	1.3	1.6	1.6	0.6	1.0	
High Temperature Performance Permanent linear change (%) After 5hr firing at 650°C -0.2 -0.2 -0.5 -0.5 -0.5 -0.5 -0.4 -1.2 -1 **Thermal Conductivity (W/m.K)** ASTM-C-417-84 At mean temperature of 200°C 0.13 0.13 0.13 0.14 0.12 0.09 0. **400°C 0.15 0.15 0.15 0.16 0.14 0.12 0.09 0. **Goove 0.17 0.17 0.18 0.16 Estimated weight (kg) of dry material required per m³ of construction (no allowance for waste) Estimated weight (kg) of water required per 100kg dry material **Thermal Composition** Al ₂ Q ₃ 35.0 33.7 33.7 31.8 24.7 SiO ₂ 22.6 23.3 23.3 23.3 26.2 32.6 Fe ₂ O 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 22.8 MgO + K ₂ O + Na ₂ O 5.7 6.1 6.1 6.1 8.3 9.9 Ig. Loss 1.10 0.1 0.1 0.7 2.0	After 5hr firing at	650°C			1.4	1.2	0.5	0.8	
 Permanent linear change (%) After 5hr firing at	G	815°C	1.6	1.0	1.3	1.1	0.4	0.7	
After 5hr firing at 650°C -0.2 -0.2 -0.2 -0.2 -0.2 -0.7 -0.5 815°C -0.5 -0.5 -0.5 -0.5 -0.5 -0.4 -1.2 -1 1000°C -1.0 -1.1 -1.1 -1.1	High Temperature Performance								
After 5hr firing at 650°C -0.2 -0.2 -0.2 -0.2 -0.2 -0.7 -0.5 815°C -0.5 -0.5 -0.5 -0.5 -0.5 -0.4 -1.2 -1 1000°C -1.0 -1.1 -1.1 -1.1	Permanent linear change (%)								
** 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. ** Estimated weight (kg) of dry material required per m³ of construction (no allowance for waste) Estimated weight (kg) of water required per 100kg dry material ** Pool		650°C	-0.2	-0.2	-0.2	-0.2	-0.7	-0.6	
• 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. 400°C 0.15 0.15 0.16 0.14 0.12 0. 600°C 0.17 0.17 0.18 0.16 0.14 0.12 0. Estimated weight (kg) of dry material required per m³ of construction (no allowance for waste) Estimated weight (kg) of water required per 100kg dry material 90 105 85 98 165 1. Chemical composition Al2O3 35.0 33.7 33.7 31.8 24.7 SiO2 22.6 23.3 23.3 26.2 32.6 Fe2O3 8.8 9.7 9.7 10.0 7.3 SiO2 1.5 1.4 1.4 0.1 0.8 CaO 25.2 24.9 24.9 22.8 22.7 MgO + K ₂ O + Na ₂ O 5.7 6.1 6.1 8.3 9.9 Ig. Loss Packaging	S .	815°C	-0.5	-0.5	-0.5	-0.4	-1.2	-1.0	
• 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. 400°C 0.15 0.15 0.16 0.14 0.12 0. 600°C 0.17 0.17 0.18 0.16 0.14 0.12 0. Estimated weight (kg) of dry material required per m³ of construction (no allowance for waste) Estimated weight (kg) of water required per 100kg dry material 90 105 85 98 165 1. Chemical composition Al ₂ O ₃ 35.0 33.7 33.7 31.8 24.7 31.8 24.7 31.0 31.0 32.3 25.2 32.6 25.0 32.6 25.0 32.6 25.2 24.9 9.7 9.7 10.0 7.3 32.7 31.0 0.1 0.8 32.7 32.7 32.7 32.7 32.7 32.7 32.7 32.7		1000°C	-1.0	_1 1	_1 1	_	_	_	
At mean temperature of 200°C 0.13 0.13 0.14 0.12 0.09 0. 400°C 0.15 0.15 0.16 0.16 0.14 0.12 0. 600°C 0.17 0.17 0.18 0.16		1000 0	-1.0	-1.1	-1.1				
A00°C 0.15 0.15 0.16 0.14 0.12 0.16 0.16 0.14 0.12 0.16		200°C	0.13	0.13	0.14	0.12	0.09	0.11	
Estimated weight (kg) of dry material required per m³ of construction (no allowance for waste) Estimated weight (kg) of water required per 100kg dry material **Total Composition** **Al2O3** SiO2** SiO2** SiO3** SiO3*								0.14	
required per m³ of construction (no allowance for waste) Estimated weight (kg) of water required per 100kg dry material Chemical composition Al ₂ O ₃ 35.0 33.7 33.7 31.8 24.7 SiO ₂ 22.6 23.3 23.3 26.2 32.6 Fe ₂ O 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 ₂ O + Na ₂ O 5.7 6.1 6.1 6.1 8.3 9.9 lg. Loss Packaging								-	
required per m³ of construction (no allowance for waste) Estimated weight (kg) of water required per 100kg dry material Chemical composition Al ₂ O ₃ 35.0 33.7 33.7 31.8 24.7 SiO ₂ 22.6 23.3 23.3 26.2 32.6 Fe ₂ O 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 ₂ O + Na ₂ O 5.7 6.1 6.1 6.1 8.3 9.9 lg. Loss Packaging	Estimated weight (kg) of dry mate	erial							
Tequired per 100kg dry material Chemical composition Al ₂ O ₃ 35.0 33.7 33.7 31.8 24.7 SiO ₂ 22.6 23.3 23.3 26.2 32.6 Fe ₂ O 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 ₂ O + Na ₂ O 5.7 6.1 6.1 8.3 9.9 Ig. Loss 1.1 0.1 0.1 0.7 2.0			640	580	700	500	400	500	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			90	105	85	98	165	110	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Chemical composition								
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	AlaOa		35.0	33.7	33.7	31.8	24.7		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	SiO ₂								
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Ig. Loss 1.1 0.1 0.1 0.7 2.0 Packaging									
	Packaging								
▼ III Days KU SU SU SU SU ZS ZU	• In bags	kg	30	30	30	25	2	20	

^{**} 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:

Distributed by:

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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