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ENGLISH

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FORMULA 2104-L

Thermbond Refractories use the patented Stellar Binder System™ for easy and accurate mixing, controlled setting, fast dry-out and heat up, thermal shock resistance and other unique properties. Thermbond chemically bonds to existing fired refractories. CHARACTERISTICS: - High Purity - High Alumina - Very Dense - Abrasion Resistant - Non-Wetting - Fast Setting - Fast Curing - Longer Working Time

PRELIMINARY DATA

PACKAGING

Unit Equivalent	Bags: 1	Jugs: 1
Bag Weight*	74 lbs	33.6 kg
Jug Weight*	8 lbs	3.6 kg
Drum Weight*	400 lbs	181.4 kg
Unit Weight*	82 lbs	37.0 kg
Yield / Unit*	0.43 ft ³	0.012 m ³
Units / Ton*	24.51 short	27.02 metric
Board Feet / Unit*	5.2 bd ft	
Wet to Dry Ratio*	10.3% - 11.3%	
Liquid Activator	FORMULA	
Bags Per Pallet	48	
Drums Per Dry Pallet	1	

APPLICATION

Data based on	Casting
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BULK DENSITY**

As Placed	190 lbs/ft ³	3044 kg/m ³
After 1500F (816C)	180 lbs/ft ³	2883 kg/m ³

MAXIMUM RECOMMENDED SERVICE TEMP**

Hot Face	3100 F	1704 C
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ABRASION RESISTANCE** (ASTM C-704)

After 1500F (816C)	<5 cc loss
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MOLTEN METAL CONTACT

- Aluminum - Zinc

COMPRESSIVE STRENGTH**

1500F (816C)	15000 psi	1055 kg/cm ²	103 N/mm ²
2700F (1482C)	20000 psi	1406 kg/cm ²	138 N/mm ²

PERMANENT LINEAR CHANGE**

1500F (816C)	-0.20%
2700F (1482C)	-1.40%

TYPICAL CHEMICAL ANALYSIS (After 1500F (816C))**

Al ₂ O ₃	89.68%
SiO ₂	2.23%
Fe ₂ O ₃	0.96%
P ₂ O ₅	3.36%
Other	3.77%
Total	100.00%

THERMAL CONDUCTIVITY**

600F (316C)	16.9 Btu-in/hr-ft ² -F	2.43 W/m K
1200F (649C)	14.3 Btu-in/hr-ft ² -F	2.06 W/m K
1800F (982C)	13.5 Btu-in/hr-ft ² -F	1.95 W/m K
2400F (1316C)	13.9 Btu-in/hr-ft ² -F	2.00 W/m K

COLD MODULUS OF RUPTURE**

1500F (816C)	2500 psi	176 kg/cm ²	17 N/mm ²
2700F (1482C)	3000 psi	211 kg/cm ²	21 N/mm ²

HOT MODULUS OF RUPTURE**

1500F (816C)	1800 psi	127 kg/cm ²	12 N/mm ²
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*Measures are approximate and may vary. For mixing partial units, contact Stellar Materials for specific wet-to-dry ratios. See Installation Guide for more detailed information.

**Test data shown are based on averages subject to normal variation on individual tests, and therefore should not be assumed to be maximum or minimum specifications.

Due to the unique nature of the Stellar binder system, test procedures vary slightly from ASTM. Documentation of these variations is available upon request.