ENGLISH *Revision 01/16/2009 (Check www.thermbond.com for updates)*

FORMULA 15-R

Formerly Formula 15

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: - Alumina - Silica - Mullite - Dense - Non-Wetting - Fast Setting - Fast Curing

PACKAGING		
Unit Equivalent	Bags: 2	Jugs: 1
Bag Weight*	33 lbs	15.0 kg
Jug Weight*	8 lbs	3.6 kg
Drum Weight*	400 lbs	181.4 kg
Unit Weight*	74 lbs	33.4 kg
Yield / Unit*	0.46 ft3	0.013 m3
Units / Ton*	27.14 short	29.92 metric
Board Feet / Unit*	5.6 bd ft	
Wet to Dry Ratio*	11.5% - 12.7%	
Liquid Activator	FORMULA	
Bags Per Pallet	48	
Drums Per Dry Pallet	1	

APPLICATION	
Data based on	Ramming

BULK DENSITY**		
As Placed	159 lbs/ft3	2547 kg/m3
After 1500F (816C)	149 lbs/ft3	2387 kg/m3

MAXIMUM RECOMMENDED SERVICE TEMP**		
Hot Face	3000 F	1649 C

ABRASION RESISTANCE** (ASTM C-704)	
After 1500F (816C)	<12 cc loss

MOLTEN METAL CONTACT
- Aluminum - Zinc - Iron

COMPRESSIVE STRENGTH**			
1500F (816C)	6500 psi	457 kg/cm2	45 N/mm2
2500F (1371C)	18000 psi	1266 kg/cm2	124 N/mm2

PERMANENT LINEAR CHANGE**	
1500F (816C)	-0.30%
2000F (1093C)	-0.40%
2500F (1371C)	-0.60%

TYPICAL CHEMICAL ANALYSIS (After 1500F (816C))**	
Al2O3	60.27%
SiO2	30.42%
Fe2O3	0.89%
P2O5	3.91%
Other	4.51%
Total	100.00%

THERMAL CONDUCTIVITY**		
1000F (538C)	8.9 Btu-in/hr-ft2-F	1.28 W/m K
1500F (816C)	9.0 Btu-in/hr-ft2-F	1.30 W/m K
2000F (1093C)	9.5 Btu-in/hr-ft2-F	1.37 W/m K
2500F (1371C)	10.0 Btu-in/hr-ft2-F	1.44 W/m K

COLD MODULUS OF RUPTURE**			
1500F (816C)	2000 psi	141 kg/cm2	14 N/mm2
2500F (1371C)	4000 psi	281 kg/cm2	28 N/mm2

HOT MODULUS OF RUPTURE**			
1500F (816C)	2200 psi	155 kg/cm2	15 N/mm2

*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.