



USA:(561) 330-9300

www.thermbond.com  
STELLAR MATERIALS INCORPORATED

EU:+31 (10) 2460264

ENGLISH

Revision 07/08/2002 (Check www.thermbond.com for updates)

# FORMULA 3-E

*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 - Extra Working Time -*

PACKAGING		
Unit Equivalent	Bags: 1	Jugs: 1
Bag Weight*	65 lbs	29.5 kg
Jug Weight*	8 lbs	3.6 kg
Drum Weight*	400 lbs	181.4 kg
Unit Weight*	73 lbs	32.9 kg
Yield / Unit*	0.45 ft <sup>3</sup>	0.013 m <sup>3</sup>
Units / Ton*	27.55 short	30.37 metric
Board Feet / Unit*	5.4 bd ft	
Wet to Dry Ratio*	11.7% - 12.9%	
Liquid Activator	FORMULA	
Bags Per Pallet	48	
Drums Per Dry Pallet	1	

APPLICATION***	
Data based on	Casting
Alternative Method***	Pumping

BULK DENSITY**		
As Placed	160 lbs/ft <sup>3</sup>	2563 kg/m <sup>3</sup>
After 1500F (816C)	150 lbs/ft <sup>3</sup>	2403 kg/m <sup>3</sup>

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

ABRASION RESISTANCE** (ASTM C-704)	
After 1500F (816C)	<20 cc loss

MOLTEN METAL CONTACT	
- Aluminum - Zinc - Iron -	

COMPRESSIVE STRENGTH**			
1500F (816C)	3500 psi	246 kg/cm <sup>2</sup>	24 N/mm <sup>2</sup>
2000F (1093C)	4900 psi	345 kg/cm <sup>2</sup>	34 N/mm <sup>2</sup>
2500F (1371C)	7000 psi	492 kg/cm <sup>2</sup>	48 N/mm <sup>2</sup>

PERMANENT LINEAR CHANGE**	
1500F (816C)	-0.20%
2000F (1093C)	-0.40%
2500F (1371C)	-0.60%

TYPICAL CHEMICAL ANALYSIS (After 1500F (816C))**	
Al <sub>2</sub> O <sub>3</sub>	64.16%
SiO <sub>2</sub>	26.06%
Fe <sub>2</sub> O <sub>3</sub>	0.92%
P <sub>2</sub> O <sub>5</sub>	4.98%
Other	3.88%
Total	100.00%

THERMAL CONDUCTIVITY**		
600F (316C)	10.3 Btu-in/hr-ft <sup>2</sup> -F	1.48 W/m K
1200F (649C)	9.9 Btu-in/hr-ft <sup>2</sup> -F	1.43 W/m K
1800F (982C)	10.0 Btu-in/hr-ft <sup>2</sup> -F	1.44 W/m K
2400F (1316C)	10.6 Btu-in/hr-ft <sup>2</sup> -F	1.52 W/m K

COLD MODULUS OF RUPTURE**			
1500F (816C)	900 psi	63 kg/cm <sup>2</sup>	6 N/mm <sup>2</sup>
2400F (1316C)	1100 psi	77 kg/cm <sup>2</sup>	8 N/mm <sup>2</sup>
2800F (1538C)	1500 psi	105 kg/cm <sup>2</sup>	10 N/mm <sup>2</sup>

HOT MODULUS OF RUPTURE**			
1500F (816C)	1950 psi	137 kg/cm <sup>2</sup>	13 N/mm <sup>2</sup>

\*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.

\*\*\*Application by alternative method may produce somewhat different results.