**ENGLISH** *Revision 10/29/2009 (Check www.thermbond.com for updates)*

# FORMULA 3-BL

***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 - Longer Working Time***

| PACKAGING | | |
|---|---|---|
| Unit Equivalent | Bags: 1 | Jugs: 1 |
| Bag Weight* | 63 lbs | 28.6 kg |
| Jug Weight* | 8 lbs | 3.6 kg |
| Drum Weight* | 400 lbs | 181.4 kg |
| Unit Weight* | 71 lbs | 32.0 kg |
| Yield / Unit* | 0.46 ft3 | 0.013 m3 |
| Units / Ton* | 28.33 short | 31.23 metric |
| Board Feet / Unit* | 5.5 bd ft | |
| Wet to Dry Ratio* | 12.1% - 13.3% | |
| Liquid Activator | FORMULA | |
| Bags Per Pallet | 48 | |
| Drums Per Dry Pallet | 1 | |

| APPLICATION | |
|---|---|
| Data based on | Casting |

| BULK DENSITY** | | |
|---|---|---|
| As Placed | 155 lbs/ft3 | 2483 kg/m3 |
| After 1500F (816C) | 145 lbs/ft3 | 2323 kg/m3 |

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

| ABRASION RESISTANCE** (ASTM C-704) | |
|---|---|
| After 1500F (816C) | <18 cc loss |

| MOLTEN METAL CONTACT |
|---|
| - Aluminum - Zinc - Iron |

| COMPRESSIVE STRENGTH** | | | |
|---|---|---|---|
| 1500F (816C) | 3000 psi | 211 kg/cm2 | 21 N/mm2 |
| 2000F (1093C) | 4500 psi | 316 kg/cm2 | 31 N/mm2 |
| 2500F (1371C) | 4000 psi | 281 kg/cm2 | 28 N/mm2 |

| PERMANENT LINEAR CHANGE** | |
|---|---|
| 1500F (816C) | -0.35% |
| 2000F (1093C) | -0.44% |
| 2500F (1371C) | -0.30% |

| TYPICAL CHEMICAL ANALYSIS (After 1500F (816C))** | |
|---|---|
| Al2O3 | 63.30% |
| SiO2 | 25.57% |
| Fe2O3 | 0.87% |
| P2O5 | 4.11% |
| Other | 6.15% |
| Total | 100.00% |

| THERMAL CONDUCTIVITY** | | |
|---|---|---|
| 600F (316C) | 10.3 Btu-in/hr-ft2-F | 1.48 W/m K |
| 1200F (649C) | 9.9 Btu-in/hr-ft2-F | 1.43 W/m K |
| **1800F (982C)** | 10.0 Btu-in/hr-ft2-F | 1.44 W/m K |
| 2400F (1316C) | 10.6 Btu-in/hr-ft2-F | 1.52 W/m K |

| COLD MODULUS OF RUPTURE** | | | |
|---|---|---|---|
| 1500F (816C) | 900 psi | 63 kg/cm2 | 6 N/mm2 |
| 2400F (1316C) | 1400 psi | 98 kg/cm2 | 10 N/mm2 |
| 2500F (1371C) | 1350 psi | 95 kg/cm2 | 9 N/mm2 |

| HOT MODULUS OF RUPTURE** | | | |
|---|---|---|---|
| 1500F (816C) | 1800 psi | 127 kg/cm2 | 12 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.