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ENGLISH

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FORMULA 4-P

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 Alumina - Very Dense - Fine Grain - Abrasion Resistant - Non-Wetting - Fast Setting - Fast Curing

| PACKAGING | | |
|----------------------|---------------|--------------|
| Unit Equivalent | Bags: 1 | Jugs: 1 |
| Bag Weight* | 58 lbs | 26.3 kg |
| Jug Weight* | 8 lbs | 3.6 kg |
| Drum Weight* | 400 lbs | 181.4 kg |
| Unit Weight* | 66 lbs | 29.8 kg |
| Yield / Unit* | 0.39 ft3 | 0.011 m3 |
| Units / Ton* | 30.49 short | 33.61 metric |
| Board Feet / Unit* | 4.6 bd ft | |
| Wet to Dry Ratio* | 13.1% - 14.4% | |
| Liquid Activator | FORMULA | |
| Bags Per Pallet | 48 | |
| Drums Per Dry Pallet | 1 | |

| APPLICATION*** | |
|-----------------------|------------------------|
| Data based on | Casting |
| Alternative Method*** | Hand Packing Troweling |

| BULK DENSITY** | | |
|--------------------|-------------|------------|
| As Placed | 170 lbs/ft3 | 2723 kg/m3 |
| After 1500F (816C) | 160 lbs/ft3 | 2563 kg/m3 |

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

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

| COMPRESSIVE STRENGTH** | | | |
|------------------------|-----------|-------------|-----------|
| 1500F (816C) | 7500 psi | 527 kg/cm2 | 52 N/mm2 |
| 2000F (1093C) | 8500 psi | 598 kg/cm2 | 59 N/mm2 |
| 2500F (1371C) | 15000 psi | 1055 kg/cm2 | 103 N/mm2 |

| PERMANENT LINEAR CHANGE** | |
|---------------------------|--------|
| 1500F (816C) | -0.10% |
| 2000F (1093C) | -0.45% |
| 2500F (1371C) | -0.80% |

| TYPICAL CHEMICAL ANALYSIS (After 1500F (816C))** | |
|--|---------|
| Al2O3 | 77.44% |
| SiO2 | 10.03% |
| Fe2O3 | 1.00% |
| P2O5 | 5.45% |
| Other | 6.09% |
| Total | 100.00% |

| THERMAL CONDUCTIVITY** | | |
|------------------------|----------------------|------------|
| 600F (316C) | 17.0 Btu-in/hr-ft2-F | 2.45 W/m K |
| 1200F (649C) | 15.0 Btu-in/hr-ft2-F | 2.16 W/m K |
| 1800F (982C) | 14.0 Btu-in/hr-ft2-F | 2.02 W/m K |
| 2400F (1316C) | 14.5 Btu-in/hr-ft2-F | 2.09 W/m K |

| COLD MODULUS OF RUPTURE** | | | |
|---------------------------|----------|------------|----------|
| 1500F (816C) | 1400 psi | 98 kg/cm2 | 10 N/mm2 |
| 2000F (1093C) | 1600 psi | 112 kg/cm2 | 11 N/mm2 |
| 2500F (1371C) | 2300 psi | 162 kg/cm2 | 16 N/mm2 |

| HOT MODULUS OF RUPTURE** | | | |
|--------------------------|----------|------------|----------|
| 1500F (816C) | 2000 psi | 141 kg/cm2 | 14 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.

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

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