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ENGLISH

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FORMULA 3-P

Formerly Formula Patch

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 - Fine Grain - Non-Wetting - Fast Setting - Fast Curing

PACKAGING		
Unit Equivalent	Bags: 1	Jugs: 1
Bag Weight*	51 lbs	23.1 kg
Jug Weight*	8 lbs	3.6 kg
Drum Weight*	400 lbs	181.4 kg
Unit Weight*	59 lbs	26.6 kg
Yield / Unit*	0.40 ft ³	0.011 m ³
Units / Ton*	34.13 short	37.62 metric
Board Feet / Unit*	4.8 bd ft	
Wet to Dry Ratio*	14.9% - 16.4%	
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	148 lbs/ft ³	2371 kg/m ³
After 1500F (816C)	140 lbs/ft ³	2243 kg/m ³

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

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

COMPRESSIVE STRENGTH**			
1500F (816C)	4000 psi	281 kg/cm ²	28 N/mm ²
2000F (1093C)	8000 psi	562 kg/cm ²	55 N/mm ²
2500F (1371C)	11750 psi	826 kg/cm ²	81 N/mm ²

PERMANENT LINEAR CHANGE**	
1500F (816C)	0.03%
2000F (1093C)	0.06%
2500F (1371C)	0.07%

TYPICAL CHEMICAL ANALYSIS (After 1500F (816C))**	
Al ₂ O ₃	59.61%
SiO ₂	28.39%
Fe ₂ O ₃	0.93%
P ₂ O ₅	5.98%
Other	5.08%
Total	100.00%

THERMAL CONDUCTIVITY**		
600F (316C)	8.5 Btu-in/hr-ft ² -F	1.23 W/m K
1200F (649C)	9.1 Btu-in/hr-ft ² -F	1.31 W/m K
1800F (982C)	9.5 Btu-in/hr-ft ² -F	1.37 W/m K
2400F (1316C)	10.1 Btu-in/hr-ft ² -F	1.45 W/m K

COLD MODULUS OF RUPTURE**			
1500F (816C)	900 psi	63 kg/cm ²	6 N/mm ²
2000F (1093C)	1750 psi	123 kg/cm ²	12 N/mm ²
2500F (1371C)	2600 psi	183 kg/cm ²	18 N/mm ²

HOT MODULUS OF RUPTURE**			
1500F (816C)	2100 psi	148 kg/cm ²	14 N/mm ²

*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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