



USA:(561) 330-9300

www.thermbond.com  
STELLAR MATERIALS INCORPORATED

EU:+31 (10) 2460264

ENGLISH

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# FORMULA 9-J

Formerly Formula Nine-Flow

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 - Dense - Fast Setting - Fast Curing -

PACKAGING		
Unit Equivalent	Bags: 1	Jugs: 1
Bag Weight*	45 lbs	20.4 kg
Jug Weight*	8 lbs	3.6 kg
Drum Weight*	400 lbs	181.4 kg
Unit Weight*	53 lbs	23.9 kg
Yield / Unit*	0.38 ft3	0.011 m3
Units / Ton*	38.02 short	41.91 metric
Board Feet / Unit*	4.5 bd ft	
Wet to Dry Ratio*	16.9% - 18.6%	
Liquid Activator	FORMULA	
Bags Per Pallet	48	
Drums Per Dry Pallet	1	

APPLICATION	
Data based on	Casting

BULK DENSITY**		
As Placed	140 lbs/ft3	2243 kg/m3
After 1500F (816C)	130 lbs/ft3	2082 kg/m3

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

COMPRESSIVE STRENGTH**			
1500F (816C)	1500 psi	105 kg/cm2	10 N/mm2
2000F (1093C)	3000 psi	211 kg/cm2	21 N/mm2
2500F (1371C)	5500 psi	387 kg/cm2	38 N/mm2

PERMANENT LINEAR CHANGE**	
1500F (816C)	-0.41%
2000F (1093C)	-0.64%
2500F (1371C)	-1.20%

TYPICAL CHEMICAL ANALYSIS (After 1500F (816C))**	
Al2O3	53.72%
SiO2	32.17%
Fe2O3	0.89%
P2O5	6.57%
Other	6.66%
Total	100.00%

THERMAL CONDUCTIVITY**		
600F (316C)	8.0 Btu-in/hr-ft2-F	1.15 W/m K
1200F (649C)	8.5 Btu-in/hr-ft2-F	1.23 W/m K
1800F (982C)	9.0 Btu-in/hr-ft2-F	1.30 W/m K
2400F (1316C)	9.5 Btu-in/hr-ft2-F	1.37 W/m K

COLD MODULUS OF RUPTURE**			
1500F (816C)	400 psi	28 kg/cm2	3 N/mm2
2000F (1093C)	750 psi	53 kg/cm2	5 N/mm2
2500F (1371C)	1550 psi	109 kg/cm2	11 N/mm2

HOT MODULUS OF RUPTURE**			
1500F (816C)	900 psi	63 kg/cm2	6 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.