

# EXPRESS®-27 PLUS



## Product Data

2/14: 5290

### Description: Dense, Self-Flowing Refractory Castable

- Features:**
- High density and very good abrasion resistance properties are ideal for hot face lining material.
  - Can also be vibration cast using reduced water levels, providing properties superior to those attained at self-flowing consistency.
- Uses:**
- Fluid Catalytic Cracking Unit (FCCU) transfer lines, cyclones, air heaters, and boilers.
  - Rotary kiln linings and lifter shapes.
  - Precast shapes.
  - Furnace door jambs and lintels.
  - Annealing furnace cartops.
  - Aluminum holding furnace upper sidewall and roof regions.

### Chemical Analysis: Approximate (Calcined Basis)

Silica (SiO <sub>2</sub> )	42.2%
Alumina (Al <sub>2</sub> O <sub>3</sub> )	49.6%
Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	1.1%
Titania (TiO <sub>2</sub> )	1.9%
Lime (CaO)	4.2%
Magnesia (MgO)	0.2%
Alkalies (Na <sub>2</sub> O+K <sub>2</sub> O)	0.8%

Physical Data (Typical)	Vibration Cast	Pumped/Self-Flow
Maximum Service Temperature	2700°F (1482°C)	2700°F (1482°C)
Material Required	139 lb/ft <sup>3</sup> (2.23 g/cm <sup>3</sup> )	130 lb/ft <sup>3</sup> (2.08 g/cm <sup>3</sup> )
Bulk Density	lb/ft <sup>3</sup> (g/cm <sup>3</sup> )	lb/ft <sup>3</sup> (g/cm <sup>3</sup> )
After 230°F (110°C)	146 (2.34)	136 (2.18)
After 1500°F (816°C)	139 (2.23)	130 (2.08)
After 2000°F (1093°C)	139 (2.23)	131 (2.10)
After 2500°F (1371°C)	141 (2.26)	131 (2.10)
Modulus of Rupture	lb/in. <sup>2</sup> (MPa)	lb/in. <sup>2</sup> (MPa)
After 230°F (110°C)	1,800 (12.4)	1,400 (9.7)
After 1500°F (816°C)	1,300 (9.0)	1,200 (8.3)
After 2000°F (1093°C)	1,400 (9.7)	1,200 (8.3)
Cold Crushing Strength	lb/in. <sup>2</sup> (MPa)	lb/in. <sup>2</sup> (MPa)
After 230°F (110°C)	13,000 (89.7)	14,000 (96.6)
After 1500°F (816°C)	14,000 (96.6)	11,000 (75.9)
After 2000°F (1093°C)	9,700 (67.0)	7,700 (53.1)
Permanent Linear Change		
After 230°F (110°C)	Negligible	Negligible
After 1500°F (816°C)	-0.2%	-0.2%
After 2000°F (1093°C)	-0.3%	-0.4%
After 2500°F (1371°C)	-0.2%	-0.8%
Abrasion Loss		
After 1500°F (816°C)	8.5 cc	13.5 cc
Particle Size		
Maximum Grain Size 4 Mesh (Tyler)		< 2.0%

Note: The test data shown are based on average results on production samples and are subject to normal variation on individual tests. The test data cannot be taken as minimum or maximum values for specification purposes. ASTM test procedures used when applicable.

## Product Data

Mixing and Using Instructions (Water calculated at 8.337 lb/gallon)	55 lb bag	1000 lb bag	1500 lb bag
<b>Water Required—Vibration Casting (Weight 7.0%)</b>			
Pounds	3.9	70.0	105.0
Gallons	0.5	8.4	12.6
Liters	1.7	31.7	47.6
<b>Water Required—Pump Casting/Self-Flowing (Weight 10.5%)</b>			
Pounds	5.8	105.0	157.5
Gallons	0.7	12.6	18.9
Liters	2.6	47.6	71.4
<b>Water Required—Hand Casting (Weight 8.0%)</b>			
Pounds	4.4	80.0	120.0
Gallons	0.5	9.6	14.4
Liters	2.0	36.3	54.4
For detailed mixing and using instructions, contact your HWI representative or visit <a href="http://www.thinkHWI.com">www.thinkHWI.com</a> .			
<b>Heatup/Dryout Schedule</b>			
See HWI Dryout Schedule 2—PLUS Rated Castables and Gunning Castables.			
<b>Installation Guidelines</b>			
See HWI Installation Guidelines CC-3—Conventional Castables—Self-Leveling.			
<b>Shelf Life (Under Proper Storage Conditions)</b>			
In Paper Bags		120 days	
In Form, Fill & Seal Packaging		270 days	
In Bulk Bags		270 days	