

**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, and air heaters.
  - Aluminum casting furnace upper sidewall and roof regions.
  - Precast shapes and burner blocks.
  - Rotary kiln lifter and mixer shapes, and rotary kiln feed and discharge hoods.
  - Brass crucible furnace tops, brass reverberatory furnace upper sidewall and roof regions, and vertical cases of channel induction furnaces for melting yellow brass.
  - Incinerators, high temperature boiler linings, and combustion chambers.

**Chemical Analysis: Approximate (Calcined Basis)**

Silica (SiO <sub>2</sub> )	34.8%
Alumina (Al <sub>2</sub> O <sub>3</sub> )	59.2%
Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	0.9%
Titania (TiO <sub>2</sub> )	1.7%
Lime (CaO)	3.1%
Magnesia (MgO)	0.1%
Alkalies (Na <sub>2</sub> O+K <sub>2</sub> O)	0.2%

Physical Data (Typical)	Vibration Cast	Self-Flow
Maximum Service Temperature	3000°F (1650°C)	3000°F (1650°C)
Material Required	150 lb/ft <sup>3</sup> (2.40 g/cm <sup>3</sup> )	145 lb/ft <sup>3</sup> (2.32 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)	154 (2.47)	149 (2.39)
After 1500°F (815°C)	147 to 152 (2.35 to 2.43)	146 (2.34)
Modulus of Rupture	lb/in. <sup>2</sup> (MPa)	lb/in. <sup>2</sup> (MPa)
After 230°F (110°C)	2,300 (15.9)	1,900 (13.1)
After 1500°F (815°C)	2,800 (19.3)	2,000 (13.8)
After 2000°F (1093°C)	2,200 (15.2)	1,800 (12.4)
After 2500°F (1370°C)	2,300 (15.9)	2,000 (13.8)
Hot Modulus of Rupture	lb/in. <sup>2</sup> (MPa)	lb/in. <sup>2</sup> (MPa)
At 2000°F (1093°C)	2,600 (17.9)	2,100 (14.5)
At 2500°F (1370°C)	900 (6.2)	900 (6.2)
Cold Crushing Strength	lb/in. <sup>2</sup> (MPa)	lb/in. <sup>2</sup> (MPa)
After 230°F (110°C)	16,000 (110.3)	10,000 (69.0)
After 1500°F (815°C)	13,000 to 20,000 (89.7 to 137.9)	8,000 to 12,000 (55.2 to 82.8)
After 2000°F (1093°C)	17,000 (117.2)	10,000 (69.0)
After 2500°F (1370°C)	18,500 (127.6)	12,000 (82.8)

**Product Data****Permanent Linear Change**

After 1500°F (815°C)	-0.3%	-0.3%
After 2000°F (1093°C)	-0.4%	-0.4%
After 2500°F (1370°C)	+0.7%	+0.5%
After 2910°F (1600°C)	+0.4%	+0.4%

**Abrasion Loss**

After 1500°F (815°C)	5 cc	7 cc
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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.

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 6.3%)</b>			
Pounds	3.5	63.0	94.5
Gallons	0.4	7.6	11.3
Liters	1.6	28.5	42.8
<b>Water Required—Self-Flowing (Weight 8.3%)</b>			
Pounds	4.6	83.0	124.5
Gallons	0.5	10.0	14.9
Liters	2.1	37.6	56.4
Working Time-Vibration Casting or Self Flowing	45 minutes		
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.			
Shelf Life (Under Proper Storage Conditions)	120 days		