

# ULTRA-EXPRESS® 45



## Product Data

06/09: 6201

Description: 50% Alumina, Ultra-Low Cement, Self-Flowing Castable

- Features:
- Fireclay-based castable.
  - Has the unique property that vibration is not required to remove air voids.
  - Can be vibration cast, poured, pumped, or rammed.

### Chemical Analysis: Approximate (Calcined Basis)

Silica (SiO <sub>2</sub> )	43.6%
Alumina (Al <sub>2</sub> O <sub>3</sub> )	50.6%
Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	1.2%
Titania (TiO <sub>2</sub> )	2.2%
Lime (CaO)	1.0%
Magnesia (MgO)	0.2%
Alkalies (Na <sub>2</sub> O+K <sub>2</sub> O)	0.5%

### Physical Data (Typical)

#### Self-Flow

Maximum Service Temperature	3000°F (1650°C)
Material Required	144 lb/ft <sup>3</sup> (2.31 g/cm <sup>3</sup> )
Bulk Density	lb/ft <sup>3</sup> (g/cm <sup>3</sup> )
After 220°F (105°C)	145 (2.32)
After 1500°F (815°C)	144 (2.31)
After 2000°F (1095°C)	145 (2.32)
After 2500°F (1370°C)	142 (2.28)
Modulus of Rupture	lb/in. <sup>2</sup> (MPa)
After 220°F (105°C)	1,000 (6.9)
After 1500°F (815°C)	1,600 (11.0)
After 2000°F (1095°C)	2,700 (18.6)
After 2500°F (1370°C)	3,800 (26.2)
After 2910°F (1595°C)	2,700 (18.6)
Hot Modulus of Rupture	lb/in. <sup>2</sup> (MPa)
At 2000°F (1095°C)	3,500 (24.1)
At 2500°F (1370°C)	650 (4.5)
Cold Crushing Strength	lb/in. <sup>2</sup> (MPa)
After 220°F (105°C)	6,200 (42.8)
After 1500°F (815°C)	8,500 (58.6)
After 2000°F (1095°C)	12,000 (82.8)
After 2500°F (1370°C)	14,000 (96.6)
After 2910°F (1595°C)	23,000 (158.6)
Permanent Linear Change	
After 1500°F (815°C)	-0.2%
After 2000°F (1095°C)	-0.5%
After 2500°F (1370°C)	+0.4%
After 2910°F (1595°C)	-0.8%

## Product Data

### Apparent Porosity

After 220°F (105°C)	12.0%
After 1500°F (815°C)	15.0%
After 2000°F (1095°C)	16.0%
After 2500°F (1370°C)	17.0%

### Particle Size

Maximum Grain Size 4 Mesh (Tyler) (4.7 mm opening)	Trace
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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 Information (Water calculated at 8.337 lb/gallon)	55 lb bag	1000 lb bag	1500 lb bag
<b>Water Required—Vibration Casting (Weight 4.5%)</b>			
Pounds	2.5	45.0	67.5
Gallons	0.3	5.4	8.1
Liters	1.1	20.4	30.6
<b>Water Required—Self-Flowing/Pump Casting (Weight 7.5%)</b>			
Pounds	4.1	75.0	112.5
Gallons	0.5	9.0	13.5
Liters	1.9	34.0	51.0
<b>Water Required—Hand Casting (Weight 5.5%)</b>			
Pounds	3.0	55.0	82.5
Gallons	0.4	6.6	9.9
Liters	1.4	24.9	37.4
<b>Water Required—Rammed (Weight 4.25%)</b>			
Pounds	2.3	42.5	63.8
Gallons	0.3	5.1	7.6
Liters	1.1	19.3	28.9

For detailed mixing and using instructions, contact your HWI representative or visit [www.thinkHWI.com](http://www.thinkHWI.com).

### Heatup/Dryout Schedule

See HWI Dryout Schedule 1—Standard Castables and Gunning Castables.

### Installation Guidelines

See HWI Installation Guidelines LCC-4—Low Cement Castables—Self Leveling.

Shelf Life (Under Proper Storage Conditions)	120 days
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