ALSEY Hi-Cast 45 2700°F Refractory Castable

Description: Dry, hydraulic setting, high duty refractory castable.

Sizes: 55lb bag [3A3055] 3000lb supersack [3A3300]

HI-CAST 45 is a general purpose 2700°F castable effective for most standard operating service conditions.

Application:
Recommended water content is 9-12%. [2.5-3.5 US Quarts / 55lb bag.]

Actual water content may vary depending on job site conditions.

Coverage 55lb sack = .44ft³

Stir dry mix thoroughly and add the correct ratio of water. Return unused portion to the bag. To avoid moisture absorption, store HI-CAST 45 in a cool dry place.

Under normal atmospheric conditions, set will occur 8 to 10 hours after HI-CAST 45 is mixed. Heat can usually be applied after 24 hours; however, starting temperature must be held below the boiling point of water to avoid the formation of steam which will result in excessive cracking, spalling and lower strength.

TYPICAL TEST DATA -- PHYSICAL PROPERTIES

<table>
<thead>
<tr>
<th>ASTM C-24</th>
<th>P.C.E.</th>
<th>Temperature Equivalent (melting), °F</th>
<th>3061-3090</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Temperature (max. recommended), °F</td>
<td>2700</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ASTM C-20 after 2500°F</th>
<th>Apparent Porosity, %</th>
</tr>
</thead>
</table>

| ASTM C-113 | Schedule B % linear |
| Reheat Change at 2550°F |

<table>
<thead>
<tr>
<th>ASTM C-133 (4000 lb/min)</th>
<th>Temperature</th>
<th>MOR</th>
<th>Cold Crush</th>
</tr>
</thead>
<tbody>
<tr>
<td>200°F</td>
<td>521</td>
<td>1241</td>
<td></td>
</tr>
<tr>
<td>1000°F</td>
<td>266</td>
<td>828</td>
<td></td>
</tr>
<tr>
<td>1500°F</td>
<td>187</td>
<td>1110</td>
<td></td>
</tr>
<tr>
<td>2000°F</td>
<td>189</td>
<td>714</td>
<td></td>
</tr>
<tr>
<td>2500°F</td>
<td>759</td>
<td>2302</td>
<td></td>
</tr>
</tbody>
</table>

TYPICAL CHEMICAL ANALYSIS, Wt. % (calcined basis)

<table>
<thead>
<tr>
<th></th>
<th>Silica (SiO₂)</th>
<th>Aluminum Oxide (Al₂O₃)</th>
<th>Calcium Oxide (CaO)</th>
<th>Titanium Dioxide (TiO₂)</th>
<th>Iron Oxide (Fe₂O₃)</th>
<th>Potassium Oxide (K₂O)</th>
<th>Magnesium Oxide (MgO)</th>
<th>Sodium Oxide (Na₂O)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>46.25</td>
<td>44.88</td>
<td>4.30</td>
<td>1.90</td>
<td>1.65</td>
<td>0.60</td>
<td>0.32</td>
<td>0.08</td>
<td>99.98</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Loss on Ignition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.68</td>
</tr>
</tbody>
</table>

MSDS available upon request.
ALSEY HI-CAST 60 3000°F Refractory Castable

Description:
Dry, hydraulic setting, 60% alumina refractory castable.

Sizes:
55lb bag [3A3060]

HI-CAST 60 is a general purpose 3000°F castable effective for most standard operating service conditions.

Application:
Recommended water content is 9-12%. [2.5-3.0 US Quarts / 55lb bag].

Actual water content may vary depending on job site conditions.

Coverage 55lb sack = .41ft³

Stir dry mix thoroughly and add the correct ratio of water. Return unused portion to the bag. To avoid moisture absorption, store HI-CAST 60 in a cool dry place.

Under normal atmospheric conditions, set will occur 4 to 8 hours after HI-CAST 60 is mixed. Heat can usually be applied after 24 hours; however, starting temperature must be held below the boiling point of water to avoid the formation of steam which will result in excessive cracking, spalling and lower strength.

TYPICAL TEST DATA -- PHYSICAL PROPERTIES

ASTM C-24
P.C.E. ................................................................. 36
Temperature Equivalent (melting), °F ........................................ 3279
Service Temperature (max. recommended), °F ..................... 3000

ASTM C-20
Apparent Porosity (dried), % ........................................ 19.2
Apparent Specific (dried), g/cc .................................... 2.84
Bulk Density lb/ft³ .................................................. 149.9

ASTM C-113 Schedule G % linear
Reheat Change at 2550°F ............................................... 1.10
Reheat Change at 3000°F ............................................ 2.3

ASTM C-133 (4000 lb/min)

<table>
<thead>
<tr>
<th>Temperature</th>
<th>MOR</th>
<th>Cold Crush</th>
<th>Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>220°F</td>
<td>1136</td>
<td>5574</td>
<td>146.2</td>
</tr>
<tr>
<td>1000°F</td>
<td>587</td>
<td>4324</td>
<td>141.3</td>
</tr>
<tr>
<td>1500°F</td>
<td>547</td>
<td>4880</td>
<td>141.1</td>
</tr>
<tr>
<td>2000°F</td>
<td>627</td>
<td>3249</td>
<td>140.2</td>
</tr>
<tr>
<td>2500°F</td>
<td>938</td>
<td>3212</td>
<td>133.0</td>
</tr>
</tbody>
</table>

TYPICAL CHEMICAL ANALYSIS, Wt. % (calcined basis)

- Aluminum Oxide (Al₂O₃) ........................................... 59.11
- Silica (SiO₂) ....................................................... 34.77
- Titanium Dioxide (TiO₂) ......................................... 2.14
- Calcium Oxide (CaO) ............................................. 2.11
- Iron Oxide (Fe₂O₃) ................................................ 0.81
- Magnesium Oxide (MgO) ......................................... 0.10
- Other Oxides ....................................................... 0.96
- Total .................................................................... 100.00

Loss on Ignition (%) ................................................. 0.5

MSDS available upon request.
**PRODUCT DATA**

**HI-CAST REFRACTORY CASTABLE**

**ALSEY Hi-Cast LC60 3000°F Refractory Castable**

**Description:**
Dry, hydraulic setting, 60% alumina, low cement refractory castable.

**Sizes:**
- 55lb bag [3A3065]

HI-CAST LC60 is a high strength general purpose 3000°F low cement castable effective for most standard operating service conditions.

**Application:**
Recommended water content is 4.5-5.5%.[2.2-2.5 US Pints / 55lb bag]

Actual water content may vary depending on job site conditions.

Coverage 55lb sack = 0.35ft³

Stir dry mix thoroughly and add the correct ratio of water. Mix with a high shear mixer. Return unused portion to the bag. To avoid moisture absorption, store HI-CAST LC60 in a cool dry place.

Under normal atmospheric conditions, set will occur 4 to 8 hours after HI-CAST LC60 is mixed. Heat can usually be applied after 24 hours; however, starting temperature must be held below the boiling point of water to avoid the formation of steam which will result in excessive cracking, spalling and lower strength.

**TYPICAL TEST DATA -- PHYSICAL PROPERTIES**

- ASTM C-24
  - P.C.E. .................................................. 36
  - Temperature Equivalent (melting), °F .................................. 3279
  - Service Temperature (max. recommended), °F .................. 3000

- ASTM C-20 after 2500°F
  - Apparent Porosity (dried), % ........................................... 9.1
  - Apparent Specific Gravity (dried), g/cc ..................... 2.75
  - Bulk Density lb/ft³ .................................................. 156.6

- ASTM C-113 Schedule G % linear
  - Reheat Change at 2550°F ............................................. 0.59
  - Reheat Change at 3000°F ........................................... -0.45

- ASTM C-133 (4000 lb/min)

<table>
<thead>
<tr>
<th>Temperature</th>
<th>MOR</th>
<th>Cold Crush</th>
<th>Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>220°F</td>
<td>1961</td>
<td>8462</td>
<td>156.6</td>
</tr>
<tr>
<td>1000°F</td>
<td>2107</td>
<td>8282</td>
<td>154.5</td>
</tr>
<tr>
<td>1500°F</td>
<td>2672</td>
<td>9717</td>
<td>154.0</td>
</tr>
<tr>
<td>2000°F</td>
<td>4382</td>
<td>&gt;9800*</td>
<td>155.1</td>
</tr>
<tr>
<td>2500°F</td>
<td>3633</td>
<td>&gt;9800*</td>
<td>152.0</td>
</tr>
</tbody>
</table>

*Reached equipment limit before crushing

**TYPICAL CHEMICAL ANALYSIS, Wt. % (calcined basis)**

- Aluminum Oxide (Al₂O₃) ........................................... 59.38
- Silica (SiO₂) ..................................................... 36.21
- Titanium Dioxide (TiO₂) ......................................... 2.05
- Calcium Oxide (CaO) ............................................. 1.06
- Iron Oxide (Fe₂O₃) ............................................... 0.79
- Magnesium Oxide (MgO) ......................................... 0.10
- Other Oxides ..................................................... 0.41
- Total .............................................................. 100.00

- Loss on Ignition (%) ............................................... 2.7

MSDS available upon request.

Revised: June 25, 2013