**Albond® & Alcast® Extra HS Monolithics**

**Description**

Alcast Extra HS is a 2400°F (1316°C) molten aluminium resistant product with high hot strengths. Its chemistry, densely packed structure, and low permeability produce optimum resistance to hot abrasion, mechanical impact, and slag/metal contact.

A proprietary additive particularly inhibits the penetration of molten aluminium and its alloys. All of these factors combine to make Alcast Extra HS an ideal product for aluminium holding or reverb furnaces at or below the melt line.

Albond is a high temperature molten aluminium resistant monolithic product with excellent strengths throughout the temperature range.

It is designed to run at high temperatures when holding furnaces are drained and higher temperatures are seen by the areas below the melt line. Its chemistry, densely packed structure, and low permeability produce excellent resistance to severe hot abrasion, mechanical impact and slag/metal contact. A proprietary additive particularly inhibits the penetration of molten aluminium and its alloys.

**Features**

- Excellent resistance to molten aluminum metal
- Superb resistances to abrasion or mechanical impact
- Excellent thermal shock resistance
- Excellent resistance to corundum formation
- Stronger bond formed when heated
- Porosity rivals that of dense firebrick

**Instructions for Use**

Highest strength is obtained with castable refractory by using the least amount of clean mixing water that will allow thorough working of material into place by vibrating.

A mechanical mixer is required for proper placement (paddle type mortar mixers are best suited).

After adding the recommended water to the mixer for 6 minutes, place the material within 20 minutes after mixing.

For maximum strength cure 24 hours in a damp condition before initial heat-up. New monolithic installation must be heated slowly the first time.
### Data sheet

**Albond® & Alcast® Extra HS Monolithics**

<table>
<thead>
<tr>
<th>Monolithic Product Name</th>
<th>Alcast Extra HS</th>
<th>Albond</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material method of installation</td>
<td>vibratory cast</td>
<td>vibratory cast</td>
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</table>

#### Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Alcast Extra HS</th>
<th>Albond</th>
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<tbody>
<tr>
<td>Temperature use limit, °F</td>
<td>2370</td>
<td>2550</td>
</tr>
<tr>
<td>Temperature use limit, °C</td>
<td>1299</td>
<td>1399</td>
</tr>
<tr>
<td>Placement, average lb to place 1 ft³</td>
<td>180</td>
<td>174</td>
</tr>
<tr>
<td>Placement, average kg to place 1 m³</td>
<td>82</td>
<td>79</td>
</tr>
<tr>
<td>Pounds per bag, lb</td>
<td>50</td>
<td>50</td>
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<tr>
<td>Pounds per bag, kg</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Shelf life, months</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

- Water, %, recommended casting by vibrating: 5.0-5.8, 5.5-6.5
- Density, ASTM C 134, pcf
  - Fired @ 1500°F: 176-184, 170-178
  - Fired @ 816°C: 2819-2947, 2723-2851
- Cold crushing strength, CCS, ASTM C 133, psi
  - Dried 24 hrs @ 220°F: 9500-14000, 9000-13000
  - Dried 5 hrs @ 1500°F: 10000-17000, 9500-14000
  - Dried 5 hrs @ temperature use limit, °F: 12000-18000, 11000-17000
- Cold crushing strength, CCS, ASTM C 133, MPa
  - Dried 24 hrs @ 104°C: 66.97, 62.90
  - Dried 5 hrs @ 816°C: 69.117, 66.97
  - Dried 5 hrs @ temperature use limit, °C: 83-124, 76-117
- Permanent Linear Shrinkage, ASTM C 113, %
  - Dried 24 hrs @ 220°F (104°C): 0.0 to -0.2, 0.0 to -0.2
  - Dried 5 hrs @ 1500°F (816°C): -0.1 to -0.3, -0.1 to -0.3
  - Dried 5 hrs @ temperature use limit, °F (°C): -0.2 to -0.6, -0.2 to -0.5
- Chemical Analysis, % weight basis after firing
  - Alumina, Al₂O₃: 77, 82
  - Silica, SiO₂: 12, 11
  - Ferric Oxide, Fe₂O₃: 1.1, 1.2
  - Calcium Oxide, CaO: 1.4, 1.8

<table>
<thead>
<tr>
<th>Thermal Conductivity, BTU•in/hr•f t², per ASTM C 201</th>
<th>Alcast Extra HS</th>
<th>Albond</th>
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<tbody>
<tr>
<td>1000°F</td>
<td>15.9</td>
<td>15.9</td>
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</table>

<table>
<thead>
<tr>
<th>Thermal Conductivity, W/m•K, per ASTM C 201</th>
<th>Alcast Extra HS</th>
<th>Albond</th>
</tr>
</thead>
<tbody>
<tr>
<td>538°C</td>
<td>2.4</td>
<td>2.4</td>
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</table>

The values given herein are typical average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Therefore the data contained herein should not be used for specification purposes. Check with your Thermal Ceramics office to obtain current information or a Compliance Data Sheet where guaranteed property specifications are required. Before using these materials, it is strongly recommended that the installer consults a Technical Ceramics manual or installation manual of which are obtainable from Thermal Ceramics offices or distributors.

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