



# Brick

## Product Data

### GREENFREE

Classification: GREENFREE is a high fired basic, chrome free, magnesia-alumina spinel containing brick liner made of high purity raw materials and synthetic spinel grain. GREENFREE exhibits exceptionally good thermal shock and spall resistance, volume stability at high temperatures and a capability to form and retain coating, making this product an ideal liner for the upper and lower transition zones of rotary cement kilns.

| <u>Physical Data: (Typical)</u>                             | <u>English Units</u>  | <u>SI Units</u>                        |
|---|---|--|
| Fusion Point, PCE – ASTM C24                                |   | >40                                    |
| Bulk Density  | $\frac{\text{lb/ft}^3}{179}$  | $\frac{\text{kg/m}^3}{2870}$           |
| Apparent Porosity   |   | 18.6%                                  |
| Modulus of Rupture<br>At 70°F (21°C)                        | $\frac{\text{lb/in}^2}{830}$  | $\frac{\text{MPa}}{5.7}$               |
| Crushing Strength<br>At 70°F (21°C)                         | 5,740   | 39.5                                   |
| Thermal Expansion 2500°F (1400°C)                           |   | 2.0%                                   |
| Thermal Conductivity<br>At a Mean Temperature of            | $\frac{\text{Btu}\cdot\text{in/hr}\cdot\text{ft}^2\cdot^\circ\text{F}}$ | $\frac{\text{W/m}\cdot^\circ\text{C}}$ |
| 572°F (300°C)   | 26.3  | 3.8                                    |
| 1292°F (700°C)  | 20.1  | 2.9                                    |
| 1832°F (1000°C)   | 18.7  | 2.7                                    |
| <u>Chemical Analysis: (Approximate)</u><br>(Calcined Basis) |   |  |
| Magnesia  | (MgO)   | 83.9%                                  |
| Alumina   | (Al <sub>2</sub> O <sub>3</sub> )                                       | 11.9%                                  |
| Silica  | (SiO <sub>2</sub> )   | 1.7%                                   |
| Iron Oxide  | (Fe <sub>2</sub> O <sub>3</sub> )                                       | 0.8%                                   |
| Lime  | (CaO)   | 1.7                                    |

The properties shown on this data sheet represent typical average results generated using standard ASTM test methods (unless otherwise noted) conducted under controlled condition (using standard rectangular shapes), and should not be considered to be guaranteed specifications. Properties are subject to normal manufacturing statistical standard deviation ranges, and Resco Products, Inc. reserves the right to modify the properties and specifications at any time without prior notice.

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