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Technical Data Sheet Plicast Al-Tuff TSR Plus KK

Product # 14204

Available Internationally As: Plico Castable A-T TSR Plus

Product Description:

A fused silica-mullite, thermal shock resistant, high strength, non-wetting low cement castable

Standard Packaging: 50 # / 23 kg Bag

Shelf Life: 6 months

Service Limit: 2500 °F 1370 °C

Contact Limit: 1700 °F 927 °C

Bulk Density - In Service: 127 pcf 2035 kg/m³

Bulk Density - To Place: 127 pcf 2035 kg/m³

Minimum Time To Firing: 16 hr

Abrasion Loss after 1500°F / 815°C per ASTM C704

12 cc

| Chemistry (calcined) % | | | | | |
|--------------------------------|------|-------------------------------|-----|------------------|-----|
| Al ₂ O ₃ | 31.1 | Alk | 0.2 | MgO | 0.1 |
| SiO ₂ | 65.5 | TiO ₂ | 0.3 | ZrO ₂ | |
| CaO | 2.5 | P ₂ O ₅ | | Other | |
| Fe ₂ O ₃ | 0.3 | SiC | | | |

| Water Range Per Standard Package | | % | Quarts | Liters |
|----------------------------------|-----|-----|--------|--------|
| Vib Casting | min | | | |
| | max | | | |
| Casting | min | 6.4 | 1.5 | 1.5 |
| | max | 7.2 | 1.7 | 1.6 |
| Pumping | min | 6.8 | 1.6 | 1.5 |
| | max | 8.8 | 2.1 | 2.0 |

Coefficient of Thermal Expansion (reversible):

0.7 x 10⁻⁶ in/in/°F / 1.3 x 10⁻⁶ mm/mm/°C

| Thermal Conductivity | btu*in/hr*ft ² *°F | W/m°C |
|----------------------|-------------------------------|-------|
| 500°F / 260°C | 6.1 | 0.9 |
| 1000°F / 540°C | 6.4 | 0.9 |
| 1500°F / 815°C | 7.1 | 1.0 |
| 2000°F / 1090°C | 8.1 | 1.2 |

| Temperature | | Linear Change% per ASTM C113 | CCS per ASTM C133 | | Cold MOR per ASTM C133 | | Hot MOR per ASTM C583 | |
|-------------|-----|---------------------------------|----------------------|------|---------------------------|------|--------------------------|------|
| °F | °C | | psi | MPa | psi | MPa | psi | MPa |
| 230 | 110 | 0.0 | 8000 | 55.0 | 1500 | 10.3 | | |
| 1000 | 540 | -0.1 | | | 1600 | 11.0 | 2000 | 13.8 |
| 1500 | 820 | -0.2 | 8500 | 58.6 | 1650 | 11.4 | 2300 | 15.9 |
| | | | | | | | | |
| | | | | | | | | |

Other Data:

Release Date: 1 Aug 2019

Heat Up Guide: Schedule AT AS or AT AS

ASTM Class: C 401 Class C Low Cement Castable

Refractory material should be stored in a cool, dry environment.

Note: All data are averaged results of ASTM tests (where applicable) on laboratory specimens. Reasonable variations in data can be expected. Data is not to be used for specification purposes. Product data is periodically updated to reflect product, raw material, process and/or testing changes. Please consult your Plibrico representative to make sure you have the most current data.