

Plico Castable A-T 93 KK

Product Number 16530

Date 2/10/2014

Product Description

A high alumina, high strength low cement castable non-wetting to aluminum alloys.

Typical Aluminum Applications

Aluminum furnace hearths & sidewalls. Ladles and troughs.

Service limit - 3000°F 1648 °C

Std. package 55 # / 25 kg Bag

Al contact limit - 1800 °F 982 °C

Water range per std. package:

Density to place 180 pcf 2,883 kg/m³

Casting 1.5 to 1.6 qts 1.4 to 1.6 l

Density in service 180 pcf 2,884 kg/m³

Pumping to qts 0.0 to 0.0 l

Min time before firing 16 hr

Chemistry % (calcined)

| | | | |
|--------------------------------|------|-------------------------------|-----|
| Al ₂ O ₃ | 92.8 | P ₂ O ₅ | |
| SiO ₂ | 4.1 | Alk. | 0.4 |
| Fe ₂ O ₃ | 0.1 | MgO | 0.0 |
| CaO | 2.6 | SiC | |
| TiO ₂ | 0.0 | ZrO ₂ | |
| | | Other | |

Thermal Conductivity

| | btu*in/hr*ft ² *°F | w/m°C |
|----------------------|-------------------------------|-------|
| 500F / 260C | 28.0 | 4.03 |
| 1000F / 540C | 23.3 | 3.35 |
| 1500F / 815C | 20.6 | 2.96 |
| 2000F / 1090C | 20.9 | 3 |

Abrasion Loss

per ASTM C 704
after 1500 F

4 cc

Coefficient of Thermal Expansion

(reversible)

5.3 x 10⁻⁶ in/in F

9.5 x 10⁻⁶ m/m C

| Temperature per <u>ASTM C113 / C865</u> | Linear Change per <u>ASTM C113 / C179</u> | Cold MOR | | CCS | | Hot MOR | |
|---|---|-----------------------------|------------|-----------------------------|------------|-----------------------------|------------|
| | | per ASTM C133 <u>psi</u> | <u>MPa</u> | per ASTM C133 <u>psi</u> | <u>MPa</u> | per ASTM C583 <u>psi</u> | <u>MPa</u> |
| 230 F / 110 C | 0.0% | 2100 | 14.5 | 9500 | 66 | | |
| 1000 F / 540 C | -0.2% | 2500 | 17.2 | | 0 | 2400 | 16.6 |
| 1500 F / 815 C | -0.3% | 3000 | 20.7 | 9000 | 62 | 4000 | 27.6 |
| 1800 F / 980 C | | | 0.0 | | 0 | 2400 | 16.6 |
| | | | 0.0 | | 0 | | 0.0 |

Other Data

Aluminum Cup Test - 1500F, 72 hr, 7075 alloy

Non wetting/no penetration. Si pick up 0.01%, Fe pick up - 0.02%

Heat Up Guide

Schedule AT AS or AT AS Linear

ASTM Class

C 401 Class E

Low Cement Castable

Note:

All data are averaged results of ASTM tests (where applicable) on laboratory cast 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 / testing changes. Please consult your Plico representative to make sure you have the most current data.

Plico Refractories are manufactured by Plibrico Company LLC, USA.