

**Plico Shotcrete LC CL 20-M KK**

Product Number 15406

Date 2/10/2014

**Product Description**

A mullite based low cement castable for casting or shotcrete application. Formulated for resistance to alkali attack in cement kiln preheater applications.

**Service limit -** 2800°F 1,537 °C

**Std. package** 55 # / 25 kg Bag

**Density to place** 152 pcf 2,435 kg/m<sup>3</sup>

**Water range per std. package:**

**Density in service** 152 pcf 2,435 kg/m<sup>3</sup>

**Casting** 1.6 to 1.9 qts 1.5 to 1.8 l

**Min time before firing** 16 hr

**Pumping** 1.8 to 2.0 qts 1.7 to 1.9 l

**Chemistry % (calcined)**

|                                |      |                               |      |
|--------------------------------|------|-------------------------------|------|
| Al <sub>2</sub> O <sub>3</sub> | 47.2 | P <sub>2</sub> O <sub>5</sub> |      |
| SiO <sub>2</sub>               | 28.1 | Alk.                          | 0.2  |
| Fe <sub>2</sub> O <sub>3</sub> | 0.7  | MgO                           | 0.1  |
| CaO                            | 2.3  | SiC                           | 20.3 |
| TiO <sub>2</sub>               | 1.2  | ZrO <sub>2</sub>              |      |
|                                |      | Other                         |      |

**Thermal Conductivity**

|               | btu*in/hr*ff <sup>2</sup> *°F | w/m°C |
|---------------|-------------------------------|-------|
| 500F / 260C   | 18.7                          | 2.69  |
| 1000F / 540C  | 19.3                          | 2.77  |
| 1500F / 815C  | 20.0                          | 2.88  |
| 2000F / 1090C | 20.6                          | 2.96  |

**Abrasion Loss**

per ASTM C 704  
after 1500 F

8 cc

**Coefficient of Thermal Expansion**

(reversible)

3.3 x 10<sup>-6</sup> in/in F

5.9 x 10<sup>-6</sup> m/m C

| Temperature<br>per<br>ASTM C113 / C865 | Linear Change<br>per<br>ASTM C113 / C179 | Cold MOR             |      | CCS                  |     | Hot MOR              |      |
|--|--|----------------------|------|----------------------|-----|----------------------|------|
|  |  | per ASTM C133<br>psi | MPa  | per ASTM C133<br>psi | MPa | per ASTM C583<br>psi | MPa  |
| 230 F / 110 C                          | 0.0%                                     | 1900                 | 13.1 | 8000                 | 55  |                      |      |
| 1500 F / 815 C                         | -0.2%                                    | 2220                 | 15.3 | 8000                 | 55  | 3300                 | 22.8 |
| 2000 F / 1090C                         | -0.3%                                    | 2500                 | 17.2 |                      | 0   | 3100                 | 21.4 |
| 2300 F / 1260 C                        | -0.3%                                    | 3600                 | 24.8 |                      | 0   | 1000                 | 6.9  |
|  |  |                      | 0.0  |                      | 0   |                      | 0.0  |

**Other Data**

**Heat Up Guide**

Schedule C or C-Linear

**ASTM Class**

C 401 Class D

Low Cement Castable

**Note:**

All data are averaged results of ASTM tests (where applicable) on laboratory shotcreted 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.*