



# Plibrico Company, LLC

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# Technical Data Sheet Plicast Al-Tuff 93 KK

Product # 16530

Available Internationally As:

Plico Castable A-T 93 KK

### Product Description:

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

**Standard Packaging:** 55 # / 25 kg Bag

**Shelf Life:** 6 months

**Service Limit:** 3000 °F 1650 °C

**Contact Limit:** 1800 °F 982 °C

**Bulk Density - In Service:** 180 pcf 2884 kg/m<sup>3</sup>

**Bulk Density - To Place:** 180 pcf 2884 kg/m<sup>3</sup>

**Minimum Time To Firing:** 16 hr

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

4 cc

Chemistry (calcined) %					
Al <sub>2</sub> O <sub>3</sub>	92.8	Alk	0.4	MgO	
SiO <sub>2</sub>	4.1	TiO <sub>2</sub>		ZrO <sub>2</sub>	
CaO	2.6	P <sub>2</sub> O <sub>5</sub>		Other	
Fe <sub>2</sub> O <sub>3</sub>	0.1	SiC			

Water Range Per Standard Package		%	Quarts	Liters
Vib Casting	min			
	max			
Casting	min	5.2	1.4	1.3
	max	6.2	1.6	1.6
Pumping	min			
	max			

**Coefficient of Thermal Expansion (reversible):**

5.3 x 10<sup>-6</sup> in/in/°F / 9.5 x 10<sup>-6</sup> mm/mm/°C

Thermal Conductivity	btu*in/hr*ft <sup>2</sup> *°F	W/m°C
500°F / 260°C	28.0	4.0
1000°F / 540°C	23.3	3.4
1500°F / 815°C	20.6	3.0
2000°F / 1090°C	20.9	3.0

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	9500	66.0	2100	14.5		
1000	540	-0.2			2500	17.2	2400	16.6
1500	820	-0.3	9000	62.1	3000	20.7	4000	27.6
1800	980						2400	16.6

Other Data: Aluminum Cup Test - 1500F, 72 hr, 7075 alloy Non wetting/no penetration. Si pick up 0.01%, Fe pick up - 0.02%

Release Date: 1 Aug 2019

Heat Up Guide: Schedule AT AS or AT AS Linear

ASTM Class: C 401 Class E

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.