Kaolite® 3000 Monolithic

Product Data Sheet

Product Description

Kaolite 3000 Cast is a lightweight 60% alumina insulating castable for use up to 1650°C (3000°F) that is specifically designed for casting. This mix utilizes a high-purity calcium- aluminate cement that is specifically chosen for its casting characteristics. A gun version is also available.

Instructions for using

Casting: Highest strength is obtained with castable refractory by using the least amount of clean mixing water which will allow thorough working of material into place with a vibrator. A mechanical mixer is required for proper placement (paddle type mortar mixers are best suited). After adding the recommended amount of water mix for 3 minutes to achieve a ball-in-hand consistency. Place material within 30 minutes after mixing.

Precautions: Watertight forms must be used when placing material. All porous surfaces that will come in contact with the material must be waterproofed with a suitable coating or membrane. For maximum strength, cure 24 hours under damp conditions before initial heat-up. Keep freshly placed monolithic warm during cold weather, ideally between 16°C and 27°C (60°F and 80°F) until wet curing is completed. New monolithic installations must be heated slowly the first time.

For detailed installation instructions and commissioning schedules, please contact your Morgan Advanced Materials- Thermal Ceramics representative.

Properties	Kaolite 3000
Region of Manufacture	Americas
Bond type	Hydraulic
Raw material base	Mullite
Method of installation	Cast
Maximum grain size, mm	8
Maximum service temperature, °C (°F)	1649 (3000)
Net material requirement, kg/m^3 (pcf)	1634 (102)
Water addition, % by weight	
casting by vibrating	14-20
Packaging in bags, kg (lbs)	22 (50)

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Bulk Density, kg/m^3 (pcf), ASTM C134	
fired 5 hours @ 816°C (1500°F)	1570-1778 (98-111)
Modulus of Rupture, MPa (psi), ASTM C133	
dried 24 hours @ 105°C (220°F)	1.72-3.79 (250-550)
fired 5 hours @ 816°C (1500°F)	1.21-2.41 (175-350)
fired 5 hours @ maximum service temperature °C (°F)	2.76-5.52 (400-800)
Cold Crushing Strength, MPa (psi), ASTM C133	
dried 24 hours @ 105°C (220°F)	6.21-11.72 (900-1700)
fired 5 hours @ 816°C (1500°F)	5.52-10.34 (800-1500)
fired 5 hours @ maximum service temperature °C (°F)	8.28-15.17 (1200-2200)
Permanent Linear Change, %, ASTM C113	
dried 24 hours @ 105°C (220°F)	0 to -0.2
fired 5 hours @ 816°C (1500°F)	-0.1 to -0.3
fired 5 hours @ maximum service temperature °C (°F)	-1.0 to -2.5
Chemical Analysis, %, Calcined Basis	
Alumina, Al_2O_3	57
Silica, SiO_2	35
Ferric Oxide, Fe_2O_3	1
Titanium Oxide, TiO_2	2
Calcium Oxide, CaO	4.5
Magnesium Oxide, MgO	0.2
Alkali as, K_2O+Na_2O	0.8
Thermal Conductivity, W.m•K (BTU•in/hr•ft^2•°F) , ASTM C417	
260°C (500°F)	0.52 (3.6)
538°C (1000°F)	0.55 (3.8)
816°C (1500°F)	0.58 (4.0)
1093°C (2000°F)	0.62 (4.3)
1370°C (2500°F)	0.69 (4.8)

Storage and Shelf Life

- Monolithics should be stored in a dry, well-ventilated area and held off the ground on pallets ideally with the original packaging intact. Keep out of rain and damp conditions.
- Normal shelf life is 12 months from date of manufacture when properly stored.

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Thermal Ceramics is a business of Morgan Advanced Materials