Kaolite® 3300 Monolithic

Product Data Sheet

Product Description

Kaolite 3300 is a high strength bubble alumina, lightweight castable with a high-purity binder. Kaolite 3300 is recommended for transfer lines to secondary ammonia reformers, and other applications where resistance to hydrogen atmospheres and silica pickup is critical.

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 castable warm during cold weather, ideally between 16°C to 27°C (60°F and 80°F) until wet curing is complete. New castable 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 3300
Region of Manufacture	Americas
Bond type	Hydraulic
Raw material base	Bubble Alumina
Method of installation	Cast
Maximum grain size, mm	6
Maximum service temperature, °C (°F)	1816 (3300)
Net material requirement, kg/m^3 (pcf)	1570 (98)
Water addition, % by weight	
casting by vibrating	11-13
Packaging in bags, kg (lbs)	22 (50)

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Properties	Kaolite 3300
Bulk Density, kg/m^3 (pcf), ASTM C134	
fired 5 hours @ 816°C (1500°F)	1505-1682 (94-105)
Modulus of Rupture, MPa (psi), ASTM C133	
dried 24 hours @ 105°C (220°F)	2.76-5.52 (400-800)
fired 5 hours @ 816°C (1500°F)	2.41-4.14 (350-600)
fired 5 hours @ maximum service temperature °C (°F)	6.21-11.72 (900-1700)
Cold Crushing Strength, MPa (psi), ASTM C133	
dried 24 hours @ 105°C (220°F)	13.79-24.14 (2000-3500)
fired 5 hours @ 816°C (1500°F)	10.34-20.69 (1500-3000)
fired 5 hours @ maximum service temperature °C (°F)	17.24-27.59 (2500-4000)
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)	0 to -0.6
Chemical Analysis, %, Calcined Basis	
Alumina, Al_2O_3	94
Silica, SiO_2	0.5
Ferric Oxide, Fe_2O_3	0.1
Titanium Oxide, TiO_2	-
Calcium Oxide, CaO	4.6
Magnesium Oxide, MgO	0.1
Alkali as, K_2O+Na_2O	0.4
Thermal Conductivity, W.m•K (BTU•in/hr•ft^2•°F) , ASTM C417	
260°C (500°F)	1.43 (9.9)
538°C (1000°F)	1.18 (8.2)
816°C (1500°F)	1.07 (7.4)
1093°C (2000°F)	1.08 (7.5)
1370°C (2500°F)	1.15 (8.0)

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