

### Product Description

Kaolite 2000, 2000HS and Kaolite 2000HS Gun are general purpose, lightweight monolithics for use up to 1090°C (2000°F). Kaolite 2000 is a gun/cast material for use where low thermal conductivity is required. Kaolite 2000HS and Kaolite 2000HS Gun maintain excellent volume stability throughout their temperature use range and are well suited for insulating applications where strength is also required.

Kaolite 2200 and Kaolite 2200 Gun are designed for temperatures up to 1200°C (2200°F). They have excellent volume stability and good strength. These general purpose, lightweight monolithics have low density, excellent resistance to thermal shock, and low thermal conductivity.

### Instructions for using

**Casting:** Highest strength is obtained with monolithic refractory by using the least amount of clean mixing water that will allow thorough working of material into place by vibrating. A mechanical mixer is required for proper placement (paddle-type mortar mixers are best suited). Mix for 6 minutes to achieve a ball-in-hand consistency. Place material within 30 minutes after mixing.

**Gunning:** Use suitable gunite equipment. The gun grade materials should be pre-dampened uniformly with approximately 8-12 % by weight of clean water in a mechanical mixer before placing into gun. This will reduce rebound and dust. Add required water at nozzle with needle valve controls for effective placement. Suggested air pressure at the nozzle is 0.14 to 0.21 MPa (20 to 30 psi).

**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.

Properties	<u>Kaolite 2000</u>	<u>Kaolite 2000-HS</u>	<u>Kaolite 2000HS Gun</u>	<u>Kaolite 2200</u>	<u>Kaolite 2200 Gun</u>
Region of Manufacture	Americas				
Method of application	Cast/Gun	Cast	Gun	Cast	Gun
Maximum service temperature, °C (°F)	1090 (2000)	1090 (2000)	1090 (2000)	1200 (2200)	1200 (2200)
Estimated weight of dry material/ m <sup>3</sup> of construction, kg (lb)	513 (32)	977 (61)	993 (62)	977 (61)	993 (62)
Water addition, % by weight					
casting by vibrating	110-125	45-53	-	45-53	-
Packaging in bags, kg (lb)	11 (25)	18 (40)			

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# Kaolite<sup>®</sup> 2000, 2000HS, 2200

## Product Data Sheet



	Kaolite 2000	Kaolite 2000HS	Kaolite 2000HS Gun	Kaolite 2200	Kaolite 2200 Gun
<b>Density, kg/m<sup>3</sup> (pcf), ASTM C134</b>					
dried 24 hours, 105°C (220°F)	496-657 (31-41)	977-1105 (61-72)	1009-1186 (63-74)	977-1105 (61-72)	1009-1186 (63-74)
Firing, 815°C (1500°F)	432-577 (27-36)	881-1057 (55-66)	897-1073 (56-67)	881-1057 (55-66)	897-1073 (56-67)
<b>Cold crushing strength, MPa (psi), ASTM C133</b>					
dried 24 hours, 105°C (220°F)	0.65-1.24 (95-180)	2.41-5.17 (350-750)	2.07-4.83 (300-700)	2.41-5.17 (350-750)	2.07-4.83 (300-700)
fired 5 hours, 815°C (1500°F)	0.69-1.28 (100-185)	2.41-5.52 (350-800)			2.41-5.52 (350-800)
fired 5 hours, 1090°C (2000°F)	0.69-1.38 (100-200)	3.10-6.21 (450-900)		-	-
fired 5 hours, 1200°C (2200°F)	-	-	-	3.10-6.21 (450-900)	3.10-6.21 (450-900)
<b>Permanent linear change, %, ASTM C 113</b>					
after 5 hours firing, 815°C (1500°F)	-0.6 to -1.5	-0.2 to -0.55	-0.2 to -0.65	-0.2 to -0.55	-0.2 to -0.65
fired 5 hours, 1090°C (2000°F)	-1.5 to -2.5	-0.3 to -1.0	-0.3 to -0.8	-	-
fired 5 hours, 1200°C (2200°F)		-	-	-0.3 to -1.0	-0.3 to -0.8
<b>Thermal Conductivity, W/m•K (BTU-in/hr-ft<sup>2</sup>), per ASTM C201</b>					
260°C (500°F)	0.11 (0.73)	0.21 (1.48)	0.21 (1.48)	0.21 (1.48)	0.21 (1.48)
538°C (1000°F)	0.13 (0.88)	0.23 (1.63)	0.23 (1.63)	0.23 (1.63)	0.23 (1.63)
815°C (1500°F)	0.4 (0.98)	0.26 (1.79)	0.26 (1.79)	0.26 (1.79)	0.26 (1.79)
1093°C (2000°F)	-	0.28 (1.96)	0.28 (1.96)	0.28 (1.96)	0.28 (1.96)
<b>Chemical composition, %</b>					
Alumina, Al <sub>2</sub> O <sub>3</sub>	33	37	36	37	36
Silica, SiO <sub>2</sub>	35	38	42	38	42
Ferric Oxide, Fe <sub>2</sub> O <sub>3</sub>	4.0	2.2	1.6	2.2	1.6
Titanium Oxide, TiO <sub>2</sub>	1.7	1.5	1.4	1.5	1.4
Calcium Oxide, CaO	18	19 (12)	17 (10)	19 (12)	17 (10)
Magnesium Oxide, MgO	4.6	0.2	0.2	0.2	0.2
Alkalies as Na <sub>2</sub> O and K <sub>2</sub> O	3.1	1.2	1.4	1.2	1.4

### Storage and Shelf Life

- Should be stored in dry conditions, unopened packaging on pallets. Do not store on ground. Keep out of rain and damp conditions.
- Shelf life is of twelve months with original packaging, double shrink film and dehydrating agent provided if the monolithic is stored under these recommended conditions.

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