

### Product Description

Kaocrete HS is a high strength monolithic for service up to 1427°C (2600°F). It incorporates an intermediate purity calcium-aluminate cement which produces high strength and good abrasion resistance.

### 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 vibration. A mechanical mixer is required for proper placement (paddle type mortar mixers are best suited). After adding the recommended amount of water, wet mix for 3 minutes. Place material within 30 minutes after mixing.

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 in a damp condition 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 complete. 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		Kaocrete HS
Region of Manufacture		Americas
Bond type		Hydraulic
Raw material base		Chamotte
Method of installation		Cast
Maximum grain size, mm		6
Maximum service temperature, °C (°F)		1427 (2600)
Net material requirement, kg/m <sup>3</sup> (pcf)		2082 (130)
Water addition, % by weight		
	casting by vibrating	9-11
Packaging in bags, kg (lbs)		25 (55)

Whilst the values and application information in this datasheet are typical, they are given for guidance only. The values and the information given are subject to normal manufacturing variation and may be subject to change without notice. Morgan Advanced Materials – Thermal Ceramics makes no guarantees and gives no warranties about the suitability of a product and you should seek advice to confirm the product's suitability for use with Morgan Advanced Materials - Thermal Ceramics.

# Kaocrete<sup>®</sup> HS Monolithic

## Product Data Sheet



Properties		Kaocrete HS
<b>Bulk Density, kg/m<sup>3</sup> (pcf), ASTM C134</b>		
dried 24 hours @ 105°C (220°F)		2131-2307 (133-144)
fired 5 hours @ 816°C (1500°F)		1970-2163 (123-135)
<b>Modulus of Rupture, MPa (psi), ASTM C133</b>		
dried 24 hours @ 105°C (220°F)		7.6-11.0 (1100-1600)
fired 5 hours @ 816°C (1500°F)		3.3-6.6 (475-950)
fired 5 hours @ maximum service temperature °C (°F)		6.6-9.7 (950-1400)
<b>Cold Crushing Strength, MPa (psi), ASTM C133</b>		
dried 24 hours @ 105°C (220°F)		37.9-62.1 (5500-9000)
fired 5 hours @ 816°C (1500°F)		29.0-55.2 (4200-8000)
fired 5 hours @ maximum service temperature °C (°F)		24.1-48.3 (3500-7000)
<b>Permanent Linear Change, %, ASTM C113</b>		
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)		-0.4 to -1.0
<b>Chemical Analysis, %, Calcined Basis</b>		
Alumina, Al <sub>2</sub> O <sub>3</sub>		48
Silica, SiO <sub>2</sub>		40
Iron Oxide, Fe <sub>2</sub> O <sub>3</sub>		1.1
Titania, TiO <sub>2</sub>		1.9
Lime, CaO		8.4
Magnesia, MgO		0.1
Alkali as, Na <sub>2</sub> O + K <sub>2</sub> O		0.2
<b>Thermal Conductivity, W.m•K (BTU•in/hr•ft<sup>2</sup>•°F), ASTM C417</b>		
260°C (500°F)		0.85 (5.9)
538°C (1000°F)		0.89 (6.2)
816°C (1500°F)		0.94 (6.5)
1093°C (2000°F)		0.97 (6.7)

### 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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