



# Kaowool<sup>®</sup> Organic Boards

## Product Data Sheet

### Product Description

Kaowool Organic Boards are a family of rigid, self-supporting, high-temperature refractory ceramic fibre insulating boards. They are manufactured using state of the art Vacuum Forming technology and are designed for use in a wide range of applications requiring excellent stability and high-temperature capability. Kaowool Organic Boards have excellent thermal insulation properties, and unmatched resistance to thermal shock, abrasion, and chemical attack.

Kaowool Organic Boards are manufactured in a range of thickness and dimensional choices. They have an excellent homogeneity throughout the thickness which ease machining of the boards when needed. The excellent rigidity and mechanical properties feature easy handling and quick installation in various engineering projects.

All Board formulations contain a small amount of organic binder to improve the cold handling strength, and this burns out on first firing at approximately 200 - 300°C (392 - 572°F).

The continuous use temperature depends upon the application and we encourage contacting your regional Morgan Advanced Materials - Thermal Ceramics representative to support specific application requirements.

### Features

- Rigid, yet lightweight, hot face insulation
- Resistant to particulate and hot gas erosion
- Engineered formulations for high strength and temperature resistance
- Low thermal conductivity and heat storage
- Highly resistant to thermal shock
- Resists most chemical attacks
- Non-wetting to molten aluminium and other non-ferrous metals
- Easy to cut, handle and install
- Up to 50% reduction in furnace lining thickness, as compared to firebrick and castable

### Applications

- Furnace and kiln hot face linings
- Back-up insulation for monolithic and brick refractories
- Ladle liners and covers
- Aluminum trough liners and special shapes
- Riser sleeves, tap out cones and hot tops
- Combustion chambers for boilers and heaters
- Hot gas duct, flue and chimney liners
- Heat processing insulation
- Bullnose tiles
- Burner blocks
- Glass regenerator, tank side, end wall and port neck insulation
- Back-up insulation in steel ladle, tundishes, and torpedo cars

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Properties	Kaowool 1260 Board	Kaowool 1400LD Board	Kaowool 1400MD Board	Kaowool HS45 Board	Kaowool 1650MD Board
Color	off-white	off-white	off-white	off-white	off-white
Classification Temperature, °C (°F), ISO 10635	1260 (2300)	1400 (2550)	1425 (2600)	1400 (2550)	1650 (3000)
Continuous Use Temperature, °C (°F)	1150 (2100)	1300 (2370)	1325 (2415)	1300 (2370)	1600 (2910)
Density, kg/m <sup>3</sup> (pcf), ASTM C612-14	320 (20)	310 (19.4)	390 (24.3)	700 (43.7)	405 (25.3)
Compressive strength, 10% deformation, MPa (psi), ASTM C165	≥ 0.3 (44)	≥ 0.3 (44)	≥ 0.5 (73)	≥ 1.5 (218)	≥ 0.3 (44)
Permanent Linear Shrinkage, %, 24 hours, ISO 10635					
1260°C (2300°F)	<4	-	-	-	-
1400°C (2550°F)	-	<4	-	<2	-
1425°C (2600°F)	-	-	<3.5	-	-
1650°C (2910°F)	-	-	-	-	<2
Modulus of Rupture, MPa (psi), ASTM C165	≥ 1.0 (145)	≥ 0.8 (116)	≥ 1.2 (174)	≥ 2.5 (174)	≥ 0.5 (73)
Loss of Ignition, LOI, %	≤ 7.0	≤ 7.0	≤ 7.0	≤ 9.0	≤ 5.0
Chemical Composition, %					
Alumina, Al <sub>2</sub> O <sub>3</sub>	42	34	51	55	72
Silica, SiO <sub>2</sub>	58	23	49	35	28
Zirconia oxide, ZrO <sub>2</sub>	-	13	-	-	-
Calcium oxide + Magnesium oxide, CaO + MgO	-	-	-	10	-
Other	<0.5	<1	<0.3	<0.5	<0.2
Thermal Conductivity, W/m·K (BTU·in/hr·ft <sup>2</sup> ), per ASTM C201					
200°C (392°F)	0.05 (0.38)	0.06 (0.44)	0.07 (0.49)	0.14 (0.97)	0.08 (0.56)
400°C (752°F)	0.08 (0.54)	0.08 (0.56)	0.08 (0.58)	0.15 (1.04)	0.10 (0.69)
600°C (1112°F)	0.11 (0.76)	0.11 (0.74)	0.10 (0.72)	0.17 (1.17)	0.12 (0.84)
800°C (1472°F)	0.15 (1.01)	0.15 (1.01)	0.13 (0.91)	0.20 (1.39)	0.15 (1.04)
1000°C (1832°F)	0.19 (1.30)	0.19 (1.30)	0.16 (1.11)	0.24 (1.66)	0.19 (1.27)
1200°C (2192°F)	0.24 (1.63)	0.24 (1.66)	0.20 (1.39)	0.28 (1.94)	0.23 (1.60)
1400°C (2552°F)	-	-	-	-	0.28 (1.94)

### Product Availability

Kaowool Organic Boards are manufactured and available globally, but packaging, thickness, width and length vary by region.

Please contact your regional Morgan Advanced Materials - Thermal Ceramics representative to support providing specific packaging availability for your local business needs.

The product(s) represented are intended for industrial refractory applications. The values and application information in this datasheet 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.