

Kaowool[®] Organic Boards

Product Data Sheet



Product Description

Kaowool Organic Boards are rigid, self-supporting fiber insulation boards manufactured from a slurry of ceramic fibers, binders and other proprietary ingredients. Customers are provided with optimized, engineered solutions from our wide range of formulations.

- Kaowool M is a general duty product for a wide range of applications.
- Kaowool HS is a high strength product recommended for tough mechanical stress areas at higher temperatures.
- Kaowool HS45 is designed for a temperature rating of 1370°C (2500°F) with very high compressive and flexural strengths. It is non-wetting to molten aluminum and exhibits good resistance to chemical attack.
- Kaowool HT is a high temperature product designed for use up to 1430°C (2600°F).
- Kaowool 2600 uses high temperature alumina fibers in the manufacturing process. It is an excellent dimensionally stable product and has minimal shrinkage at its use limit of 1510°C (2700°F).
- Kaowool 80 has a continuous use limit of 1620°C (2950°F). It has excellent temperature stability, density and strength.

Features

- Rigid, 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 aluminum 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
- Appliance and heat processing insulation
- Bullnose tiles
- Burner blocks
- Expansion joint material
- Glass regenerator, tank side, end wall and port neck insulation
- High temperature gaskets and seals
- Back-up insulation in steel ladle and torpedo cars

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Properties	<u>Kaowool Board M</u>	<u>Kaowool Board HS</u>	<u>Kaowool Board HS-45</u>	<u>Kaowool Board HT</u>	<u>Kaowool Board 2600</u>	<u>Kaowool Board 80</u>
Region of Manufacture	Americas	Americas	Americas	Americas	Americas	Americas
Color	beige	beige	white	yellow	blue	white
Classification Temperature, °C (°F)	1204 (2200)	1316 (2400)	1371 (2500)	1426 (2600)	1482 (2700)	1649 (3000)
Continuous Use Temperature, °C (°F)	1093 (2000)	1260 (2300)	1316 (2400)	1343 (2450)	1426 (2600)	1621 (2950)
Density, kg/m ³ (pcf)	288 - 320 (18 - 20)	449 (28)	673 (42)	352 - 400 (22 - 25)	288 (18)	400 (25)
Modulus of Rupture, MOR, Mpa (psi), *unfired	0.69 - 0.90 (100 - 130)	1.59 - 1.79 (230 - 260)	3.10 - 3.79 (450 - 550)	1.38 (200)	0.23 (333)	0.52 (75)
Compressive strength @ 5% deformation, MPa (psi)	0.14 - 0.21 (20 - 30)	0.41 - 0.55 (60 - 80)	1.38 - 1.72 (200 - 250)	0.52 (75)	0.38 (55)	0.17 (25)
Compressive strength @ 10% deformation, MPa (psi)	0.21 - 0.28 (30 - 40)	0.55 - 0.69 (80 - 100)	1.72 - 2.07 (250 - 300)	0.69 (100)	435 (63)	0.34 (50)
Permanent Linear Shrinkage, %, 24 hours						
815°C (1500°F)	1.2	0.8	0.5	-	-	-
982°C (1800°F)	2.2	1.9	0.7	-	-	-
1093°C (2000°F)	2.8	2.1	0.4	-	-	-
1204°C (2200°F)	3.4	0.2	0.6	2.3	-	1.3
1316°C (2400°F)	-	0.3+	0.8+	2.6	1.7	1.8
1426°C (2600°F)	-	1.1+	-	3	-	0.1
1538°C (2800°F)	-	-	-	-	-	0.3+
Chemical Composition, %						
Alumina, Al ₂ O ₃	42	18	55	50-52	45	70-72
Silica, SiO ₂	56	81	35	47-49	45	25-28
Zirconia, ZrO ₂	-	-	-	-	9	-
Calcium oxide + Magnesium oxide, CaO + MgO	-	-	8	-	-	-
Other	-	-	2	-	<1	<1
Loss of Ignition, LOI	4-7	5-8	5-8	5-7	7-10	3-5
Thermal Conductivity, W/m·K (BTU·in/hr·ft²), per ASTM C201						
260°C (500°F)	0.072 (0.5)	0.101 (0.7)	0.144 (1)	0.072 (0.5)	0.072 (0.5)	0.072 (0.5)
538°C (1000°F)	0.101 (0.7)	0.115 (0.8)	0.144 (1)	0.101 (0.7)	0.101 (0.7)	0.101 (0.7)
816°C (1500°F)	0.144 (1)	0.159 (1.1)	0.173 (1.2)	0.130 (0.9)	0.144 (1)	0.130 (0.9)
1093°C (2000°F)	0.216 (1.5)	0.231 (1.6)	0.245 (1.7)	0.187 (1.3)	0.216 (1.5)	0.187 (1.3)

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.