Kaowool® High Temperature Boards

Product Information

Thermal Ceramics high temperature vacuum formed boards are rigid and self-supporting. These products offer excellent thermal conductivity, strength and thermal stability at elevated temperatures and have the capability to withstand chemical attack. Exceptions include hydrofluoric acid, phosphoric acid and strong alkalies. A small amount of combustible binder will burn out at approximately 300°F. Additional hardness and strength can be reached with post treatments. Board capabilities are 48 x 36 x ¼ to 3" *(120 x 90 x 0.625 to 7.5cm)*.

Kaowool HT is a low cost high temperature product designed for use up to 2600°F *(1427°C)*. Kaowool HT is a rigid self-supporting product produced in a variety of sizes and thicknesses.

Kaowool 2600 using high alumina fibers along with Kaowool ceramic fibers is an excellent dimensional stable product at 2600°F *(1427°C)* where minimal shrinkages are very important.

Kaowool 3000M is processed using a blend of high purity ceramic fibers and high temperature mulite fibers and alumina mix. Kaowool 3000M has excellent temperature stability, shrinkage and mechanical strengths after firing for temperatures up to 2900°F *(1593°C)*.

Kaowool 3000 is processed using a blend of high purity ceramic fibers, high temperature alumina fibers and binders. Kaowool 3000 has a continuous use limit up to 2800°F *(1538°C)*.

Kaowool 17C is processed using a blend of high purity ceramic fibers, high temperature alumina fibers and binders. This combination produces a product with improved high temperature stability. Kaowool 17C exhibits excellent shrinkage and mechanical strengths after firing for temperatures up to 2900°F *(1593°C)*.

Applications

- Appliance and heat processing
- Backup insulation to dense refractories
- Bullnose tiles
- Burner blocks
- Combustion chamber construction
- Expansion joint material
- Flue and chimney linings
- Furnace components
- Furnace door linings
- Furnace, kiln, and oven hot face linings
- Glass regenerator insulation
- Heat shields
- High temperature gaskets and seals
- Peep door frames and plugs
- Shapes in ammonia reformers

Chemical Properties

Caution should be exercised during initial heating. Adequate ventilation should be provided to avoid potential flash ignition of the binder out-gassing or avoid air entry while at elevated temperatures.

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Physical Properties	**Kaowool HT**	**Kaowool 2600**	**Kaowool 3000M**	**Kaowool 3000**	**Kaowool 17C**
Color	yellow	blue	gold	pink	orange
Density, pcf *(kg/m³)*	21 *(336)*	15 *(240)*	14 *(224)*	12 *(192)*	14 *(224)*
Continuous Temperature Use Limit, °F *(°C)*	2600 *(1427)*	2600 *(1427)*	2900 *(1593)*	2800 *(1538)*	2900 *(1593)*
Maximum Temperature Rating,°F *(°C)*	2600 *(1427)*	2600 *(1427)*	3100 *(1704)*	3000 *(1649)*	3100 *(1704)*
Melting Point °F *(°C)*	3200 *(1760)*	3200 *(1760)*	3300 *(1816)*	3300 *(1816)*	3300 *(1816)*
Modulus of Rupture, psi *(Mpa)*	160 *(1.10)*	110 *(0.75)*	125 *(0.86)*	70 *(0.48)*	70 *(0.48)*
Compressive Strength, psi *(Mpa)*					
@ 5% deformation	60 *(0.43)*	30 *(0.21)*	30 *(0.21)*	20 *(0.14)*	20 *(0.14)*
@ 10% deformation	90 *(0.62)*	40 *(0.28)*	35 *(0.24)*	25 *(0.17)*	25 *(0.17)*
Linear Shrinkage, %					
24 hrs @ 1500°F *(815°C)*	0.5	0.3	0.3	0.3	1.2
24 hrs @ 1800°F *(982°C)*	1.6	0.3	0.1	0.1	0.4
24 hrs @ 2000°F *(1093°C)*	2.3	0.6	0.1	0.0	0.3
24 hrs @ 2200°F *(1204°C)*	3.5	0.7	–	0.4	0.4
24 hrs @ 2400°F *(1371°C)*	3.5	0.8	0.5	0.5	0.5
24 hrs @ 2500°F *(1371°C)*	3.5	1.0	–	–	–
24 hrs @ 2600°F *(1371°C)*	3.5	1.4	0.4	0.6	0.0
24 hrs @ 2800°F *(1371°C)*	–	–	0.2	+1.5	+0.3
24 hrs @ 2900°F *(1371°C)*	–	–	0.9	+2.5	+0.5
Chemical Analysis, %, Weight basis after firing					
Alumina, Al_2O_3	33	51	71	66	81
Silica, SiO_2	53	49	29	34	19
Zirconia, ZrO_2	13	–	–	–	–
Other	1	<1	<1	<1	<1
Loss of Ignition	7-9	7-9	7-9	7-9	7-9
Organic Material	6 - 8	6-8	6-8	6-8	6-8
Thermal Conductivity, BTU•in/hrs•ft²•°F *(w/m•k)*, ASTM C 201					
Mean temperature					
@ 500°F *(260°C)*	0.47 *(0.07)*	0.45 *(0.06)*	0.48 *(0.07)*	0.47 *(0.07)*	0.47 *(0.07)*
@ 1000°F *(538°C)*	0.68 *(0.10)*	0.67 *(0.09)*	0.66 *(0.09)*	0.67 *(0.09)*	0.61 *(0.09)*
@ 1500°F *(816°C)*	1.01 *(0.15)*	1.01 *(0.15)*	0.97 *(0.14)*	0.98 *(0.14)*	0.88 *(0.13)*
@ 2000°F *(1093°C)*	1.50 *(0.22)*	1.49 *(0.21)*	1.42 *(0.20)*	1.41 *(0.20)*	1.31 *(0.19)*
@ 2500°F *(1371°C)*	–	–	2.06 *(0.30)*	1.92 *(0.28)*	1.95 *(0.28)*

The values given herein are typical average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Therefore, the data contained herein should not be used for specification purposes. Check with your Thermal Ceramics office to obtain current information.

Note: Custom vacuum formed shapes manufactured from the materials shown above will no longer be identified by color coding. The shapes will all be white in color.

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