

## Kaowool® Papers

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### Product Description

High-performance paper and felt products from Thermal Ceramics are the preferred choice over traditional fiberglass, textile, or metal products for thermal, acoustical, or filtration management.

Kaowool Flex-Wrap is produced from a blend of Kaowool high purity ceramic fibers and organic binders. Due to its low organic binder content, off-gassing is at a minimum. This specialty paper is noted for its excellent flexibility, outstanding handling characteristics, and high insulating value at high temperatures.

Kaowool 500, 700, and 900 Grade paper products are produced from Kaowool high purity fibers and organic binders. Each of these paper products are noted for their excellent tensile strengths and outstanding handling characteristics. The 900 grade paper is manufactured from cleaned Kaowool high purity ceramic fibers resulting in a premium paper product with low shot (unfiberized material) content.

Kaowool 2000 Grade paper is produced from cleaned Kaowool high purity ceramic fibers and organic binders. The special cleaning process makes a premium grade paper product with a very high quality surface finish and texture.

### Features

- Low thermal conductivity and heat storage
- Excellent flexibility for wrapping applications
- Easily die cut to form complex shapes
- Thin, flexible high temperature insulation
- Excellent tensile strength
- Excellent high temperature backup and expansion joint material

### Applications

- High temperature gaskets and seals
- Refractory back-up insulation
- Appliance insulation
- Separating media for heat treating metals
- High temperature filtration
- High temperature expansion joint packing
- Glassware separating media
- Parting agent for brazing operations
- Hot face and backup lining for lab furnaces
- Aluminum distributor pan lining
- Super alloy ingot mold lining and hot tapes

Kaowool 2600 Grade paper is produced from a blend of Kaowool and Cerachem® ceramic fibers and organic binders. The various features of Kaowool 2600 make it an excellent choice for higher temperature heat treating and gasketing applications where standard ceramic fiber papers break down. Kaowool 3000 Grade paper is produced from Denka® alumina fibers and organic binders.

### Chemical Properties

A small amount of organic combustible binder will burn out at approximately 300°F (149°C). Caution should be exercised during the initial heating. Adequate ventilation should be provided to avoid potential flash ignition of the binder out-gassing or avoid air entry while at elevated temperature.

## Kaowool® Papers

Paper Product Name	Kaowool Flex-Wrap	Kaowool 500	Kaowool 700	Kaowool 900	Kaowool 2000	Kaowool 2600	Kaowool 3000
Fiber Class	RCF	RCF	RCF	RCF	RCF	RCF	RCF/PCW
<b>Physical Properties</b>							
Color	white	white	white	white	white	white	white
Continuous Use Temperature, °F	2150	2150	2150	2150	2150	2450	2800
Continuous Use Temperature, °C	1176	1176	1176	1176	1176	1343	1538
Classification Temperature, °F	2300	2300	2300	2300	2300	2600	3000
Classification Temperature, °C	1260	1260	1260	1260	1260	1426	1648
Melting Temperature, °F	3200	3200	3200	3200	3200	3200	3600
Melting Temperature, °C	1760	1760	1760	1760	1760	1760	1982
Density, pcf	11-13	12-14	11-13	10-12	11-14	10-13	7-10
Density, kg/m <sup>3</sup>	176-208	192-224	176-208	160-192	176-224	160-208	112-160
Tensile strength, psi	<25	75-100	75-100	75-100	75-100	75-100	25-40
Tensile strength, Mpa	0.17	0.51-0.68	0.51-0.68	0.51-0.68	0.51-0.68	0.51-0.68	0.17-0.27
Fired Tensile strength, psi	2-3	2-3	2-3	2-3	2-3	2-3	-
Fired Tensile strength, Mpa	0.01-0.02	0.01-0.02	0.01-0.02	0.01-0.02	0.01-0.02	0.01-0.02	-
Fiber index, %	50	50	55	70	80	55	99
<b>Chemical Analysis, % weight basis after firing</b>							
Alumina, Al <sub>2</sub> O <sub>3</sub>	47	47	47	47	47	35	95
Silica, SiO <sub>2</sub>	53	53	53	53	53	51	5
Zirconia, ZrO <sub>2</sub>	-	-	-	-	-	14	-
Other	trace	trace	trace	trace	trace	trace	trace
Loss of Ignition, LOI	3-7	6-10	6-10	6-10	6-10	6-10	6-10
<b>Thermal Conductivity, BTU•in/hr•ft<sup>2</sup>, per ASTM C201</b>							
500°F	0.39	0.43	0.4	0.38	0.38	0.37	0.36
1000°F	0.69	0.69	0.63	0.61	0.56	0.63	0.53
1500°F	0.96	1.07	0.95	0.94	0.8	1.02	0.82
2000°F	-	1.58	1.38	1.4	1.11	1.57	1.22
2200°F	-	-	-	-	-	1.85	1.42
2400°F	-	-	-	-	-	2.16	1.63
2600°F	-	-	-	-	-	2.52	1.86
2800°F	-	-	-	-	-	-	2.22
<b>Thermal Conductivity, W/m•K, per ASTM C201</b>							
260°C	0.06	0.06	0.06	0.05	0.05	0.05	0.05
538°C	0.1	0.09	0.09	0.09	0.08	0.09	0.08
816°C	0.14	0.15	0.14	0.14	0.11	0.15	0.12
1093°C	-	0.23	0.2	0.2	0.16	0.23	0.18
1204°C	-	-	-	-	-	0.27	0.2
1316°C	-	-	-	-	-	0.31	0.23
1427°C	-	-	-	-	-	0.36	0.27
1538°C	-	-	-	-	-	-	0.32

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 Morgan Advanced Materials office to obtain current information.

## Kaowool® Papers

### Standard Size and Availability

<u>Products</u>	<u>Thickness In (mm)</u>	<u>Width In (mm)</u>	<u>Sq Ft/Roll (M)</u>	<u>Mill Rolls, Linear Ft/Roll (M)</u>
Kaowool 700, Kaowool 900, Kaowool 2000	1/32 (0.8)	12 (305)	1000 (33)	-
Kaowool 700, Kaowool 900, Kaowool 2000, Kaowool 3000	1/32 (0.8)	24 (610)	1000 (33)	-
Kaowool 700, Kaowool 900, Kaowool 2000	1/32 (0.8)	48 (1220)	1000 (33)	-
Kaowool 500, Kaowool 700, Kaowool 900, Kaowool 2000, Kaowool 2600	1/16 (2)	12 (305)	500 (46)	750 (229)
Kaowool Flex-Wrap, Kaowool 500, Kaowool 700, Kaowool 900, Kaowool 2000, Kaowool 2600, Kaowool 3000	1/16 (2)	24 (610)	500 (46)	750 (229)
Kaowool Flex-Wrap, Kaowool 500, Kaowool 700, Kaowool 900, Kaowool 2000, Kaowool 2600	1/16 (2)	48 (1220)	500 (46)	750 (229)
Kaowool 500, Kaowool 700, Kaowool 900, Kaowool 2000, Kaowool 2600	1/8 (3)	12 (305)	250 (23)	375 (114)
Kaowool Flex-Wrap, Kaowool 500, Kaowool 700, Kaowool 900, Kaowool 2000, Kaowool 2600, Kaowool 3000	1/8 (3)	24 (610)	250 (23)	375 (114)
Kaowool Flex-Wrap, Kaowool 500, Kaowool 700, Kaowool 900, Kaowool 2000, Kaowool 2600	1/8 (3)	48 (1220)	250 (23)	375 (114)
Kaowool 500, Kaowool 700, Kaowool 900, Kaowool 2000, Kaowool 2600	¼ (6)	12 (305)	125 (12)	185 (56)
Kaowool Flex-Wrap, Kaowool 500, Kaowool 700, Kaowool 900, Kaowool 2000, Kaowool 2600, Kaowool 3000	¼ (6)	24 (610)	125 (12)	185 (56)
Kaowool Flex-Wrap, Kaowool 500, Kaowool 700, Kaowool 900, Kaowool 2000, Kaowool 2600	¼ (6)	48 (1220)	125 (12)	185 (56)

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