

## Refractory Ceramic Bulk



### Product Description

Thermal Ceramics bulk products are produced by varying composition, fiber length, compressed density, fiber content, fiber diameter, and lubricity to serve a wide range of customer needs.

**Kaowool®** is a Kaolin based refractory fiber manufactured using high pressure air attenuation.

**Kaowool HP** is a high purity blend of alumina and silica manufactured using high pressure air attenuation.

**Cerafiber®**, a high purity blend of alumina and silica, is manufactured using the melt spinning process, as are all "Cera" fibers.

**Cerachem®** is a bulk refractory fiber produced from an alumina-silica-zirconia composition designed to resist excessive shrinkage at elevated temperatures.

**Cerachrome®** is a bulk refractory fiber produced from an alumina-silica-chromia composition which provides for a maximum use limit of 2600°F (1427°C).

**Saffil®** is a 96% high-purity polycrystalline fiber that is manufactured by a unique solution process to control fiber diameter and non-fibrous material (shot content). Engineered Fibers are based on our extensive family of bulks. Value adding technology has been developed to allow Thermal Ceramics to tailor products to meet specific customer requirements. Fiber length, diameter, and surface treatment can be engineered as can the fiber content. The various grades of fibers can be engineered for applications in plastic reinforcement, metal matrix composites, and automotive applications.

### Features

- Excellent insulating performance
- Range of temperature from 2000°F to 3000°F (1093°C to 1649°C)
- Mechanically needed for strength and surface integrity
- Provide excellent resistance to most chemical attacks
- Unaffected by oil or water
- No organic binders

### Applications

- Expansion joints construction
- Base seals
- Low mass kiln car construction
- Tube seal fabrication
- Thermal and acoustical insulation
- Filtration media
- Reinforcement for plastic and resins
- Filler in resins and paints
- Mastic and cement

### Chemical Precautions

Exceptions include hydrofluoric acid, phosphoric acids, and strong alkalis. If wet by oil or water, thermal and physical properties will be fully restored after drying.

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### Physical Properties

	Kaowool	Kaowool RT	Cerafiber	Cerachem	Cerachrome	Saffil
Color	off white	off white	white	white	blue/green	white
Continuous Temperature Use Limit, °F	2000	2150	2150	2400	2500	2800
Classification Temperature Rating, °F	2300	2400	2400	2600	2600	2900
Specific Heat, BTU/lb·°F @ 1800°F	0.26	0.26	0.26	0.26	0.26	0.25
Fiber Tensile Strength, psi	1.5 x 10 <sup>6</sup>	---2.9 x 10 <sup>6</sup>				
Fiber Length, in.	½ - 4	½ - 4	½ - 10	½ - 10	½ - 10	¼ - 4

### Chemical Analysis, %, Weight Basis After Firing

Alumina, Al <sub>2</sub> O <sub>3</sub>	45	35 - 47	46	35	43	95-97
Silica, SiO <sub>2</sub>	50 - 55	49 - 54	54	50	54	3-5
Calcium oxide + Magnesium oxide, CaO + MgO	0.1	0.1	0.1	0.1	0.1	-
Ferric oxide, Fe <sub>2</sub> O <sub>3</sub>	1.0	0.05 - 1.5	0.05	0.05	--	
Titanium oxide, TiO <sub>2</sub>	1.7	0.05 - 1.9	----			
Alkalies as Na <sub>2</sub> O	0.2	0.2	0.2	0.2	--	
Boron oxide, B <sub>2</sub> O <sub>3</sub>	0.08	----				
Chromium oxide, Cr <sub>2</sub> O <sub>3</sub>	----3-					
Zirconia, ZrO <sub>2</sub>	-	0 - 15	-	15	--	
Other	-	0 - 3	trace	trace	trace	-
Leachable Chlorides	1 - 2	0 - 3	trace	trace	trace	-

### Availability

	Grade	Fiber Index	Fiber Length	Fiber Lubrication	Packaging
Kaowool	BN	50	4 in. (avg)	unlubricated	50 lb bag
	D	50	4 in. (avg)	unlubricated	50 lb bag
	A	50	4 in. (avg)	lubricated	50 lb bag
	HM-12	50	0.5 in. (max)	unlubricated	50 lb bag
	HM-25	50	1 in. (max)	unlubricated	50 lb bag
	HM-50	50	2 in. (max)	unlubricated	50 lb bag
Kaowool HP	HY	50	0.5 in. (avg)	unlubricated	50 lb bag
	HA	50	0.5 in. (avg)	unlubricated	50 lb bag
	A	50	4 in. (avg)	lubricated	50 lb bag
Cerafiber, Cerachem, Cerachrome	VFS	50	0.5 in (avg)	unlubricated	40 lb bag
	111	50	up to 10 in.	lubricated	40 lb bag
	112	50	up to 10 in.	unlubricated	40 lb bag
	HM-12	50	0.5 in. (max)	unlubricated	50 lb bag
	HM-25	50	1 in. (max)	unlubricated	50 lb bag
	HM-50	50	2 in. (max)	unlubricated	50 lb bag
Engineered Fiber	various	60 - 99	various	unlubricated	25 lb ctn
Saffil	-	99	up to 4 in.	unlubricated	22 lb bag

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 Thermal Ceramics office to obtain current information.