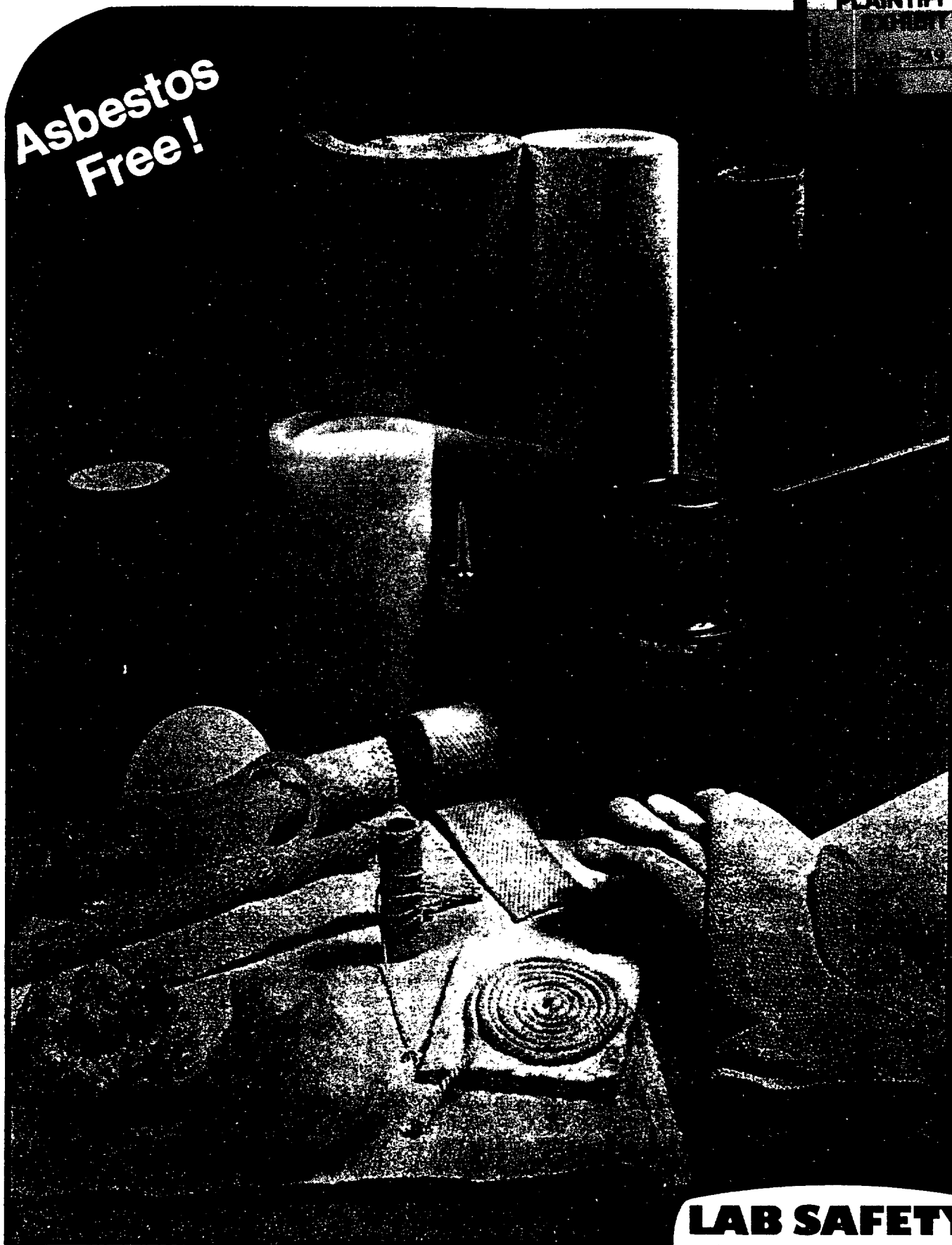


HIGH TEMPERATURE FOR THE LABORATORY MATERIALS

PLAINTIFF'S

Asbestos
Free!



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SUPPLY CO.**

HISTORY OF ASBESTOS

Asbestos is the name for a family of minerals that occur naturally as masses of fibers. Four major types of asbestos--chrysotile, amosite, crocidolite, anthophyllite--have found widespread use in laboratories and industry. All are hydrated inorganic silicates, although the exact chemical make up, and therefore precise physical properties, depend on the specific asbestos type.

Due to certain chemical and physical properties--fire resistance, mechanical strength, flexibility, good friction and wear characteristics, acid resistance (anthophyllite and crocidolite asbestos types), asbestos has been widely used in laboratories and industry.

Common uses of asbestos in laboratories include:

- insulation - walls, ceilings, pipes, electrical, acoustic
- protective clothing - overalls, gloves, mitts, aprons, gaiters
- safety curtains
- fire blankets
- filters
- diaphragms in electrolytic cells
- caulking
- fume-exhaust dampers
- heavy duty friction materials
- hot pads and lab bench protectors
- gasketing
- insulation for condensers, tongs, and other laboratory apparatus
- heating pads

Asbestos fibers break easily into a dust of tiny particles that can float in the air, stick to clothes and may be easily inhaled or swallowed.

Wherever asbestos is found there is a danger of exposure to asbestos dust. Even asbestos bonded in finished products can be a risk to health if the product is damaged or disturbed in such a way as to release free fibers into the air. Since the fibers are almost indestructible, a risk exists if fibers are set free. Health risks increase with increased amounts of exposure to asbestos dust and length of time of exposure. Once the asbestos particles work their way into body tissue they tend to stay there indefinitely.

Exposure to asbestos dust may increase risk of four serious diseases.

1. Asbestosis - A chronic lung ailment which results from inhalation of asbestos dust.
2. Lung Cancer - There is a close association between asbestos exposure and increased occurrence of lung cancer.

3. Mesothelioma - A cancer involving the membrane lining of the chest and abdomen.
4. Other Cancers - Some studies indicate a link between asbestos exposure and increased occurrence of cancers of the esophagus, stomach, colon and rectum.

The increasing awareness of asbestos-associated health hazards is causing many laboratories to seek replacements for the asbestos products they currently use. This brochure describes many of the products being used to replace asbestos. See Table 1-1 for a comparison of characteristics.

CERAMFAB

Ceramfab is the replacement for asbestos that can outperform and outlast asbestos in many applications. Ceramfab is available in a variety of product forms—fiber, paper, rope, blankets, boards, textiles—each designed to meet specific requirements.

Made from ceramic (alumina silica) fiber, Ceramfab contains no asbestos. But it has low thermal conductivity, very low heat storage, high resistance to flame erosion, and is immune to damage from thermal shock. Ceramfab products can withstand temperatures up to 1260°C (2300°F) and they exhibit excellent chemical stability, resisting attack from most corrosive agents. Exceptions are hydrofluoric and phosphoric acid and concentrated alkalis. Ceramfab products also resist oxidation and reduction. If wet by water, oil or steam, thermal and physical properties are restored upon drying. No water of combination is present in most Ceramfab products.

Areas of application include:

Ceramfab Yarn	flexible braided wire covers gasketing material replacement for asbestos cord
Ceramfab Cloth and Tape	gasketing material high temperature wrapping material insulation for laboratory apparatus
Ceramfab Bulk Fiber	filtration applications fill or packing material insulation substitute for glass wool
Ceramfab Long Staple Fiber	filtration applications high temperature and acoustical insulation substitute for glass wool
Ceramfab Milled Fiber	filler insulation mixed with plastic and Ceramfab Refractory Cement
Ceramfab 110 Paper	replaces asbestos millboard and gasketing hot pads protection of lab surfaces from hot materials

Ceramfab 970 Paper	high temperature gasketing thermal and electrical insulation filtration applications glass blowing surface protection from hot vessels
Ceramfab 440 Paper	gasketing material grip for flasks and beakers wrapping distillation columns, condensers, etc.
Ceramfab Rigidizer	surface treating agent for Ceramfab material.
Ceramfab Boards	heat shield bench liners hot pads
Durablanket	pipe insulation pressure and cryogenic vessel fire protection gasketing filtration
Ceramfab Moist Pak D	insulation
Ceramfab LDS Moldable	refractory repairs substitute for wet asbestos
Flexweave 1000 Cloth	pipe wrapping replacement for asbestos cloth

Versatile Ceramfab products are designed to meet your high temperature laboratory needs. And you can use them without the worry of asbestos-associated health hazards.

ZETEX

This silica-based product withstands continuous temperatures of 1100°F and higher short duration temperatures. Zetex resists flame better than asbestos and offers better thermal insulating properties, as well as good abrasion resistance. It withstands cold to -100°F, has high dielectric strength and low constant. Most acids, alkalies and solvents do not affect Zetex, with the exception of hydrofluoric acid and corrosive environments at elevated temperatures. Zetex also offers excellent acoustical insulation properties. As a strong, durable, dimensionally stable fabric, Zetex is an economical replacement for asbestos. Contains approximately 2-6% organic binders by weight. Use Zetex products with none of the health hazards associated with asbestos. Areas of application include:

- safety garments
- blankets for thermal insulation
- safety blankets
- filtration applications
- piping insulation
- electrical insulation
- acoustical insulation

NOMEX®

Nomex® is the replacement for asbestos that can be used in temperatures up to 600°F. Made from synthetic fiber, this insulating material has proven chemical, mechanical, and abrasion resistant as well as excellent resistance to bacteria and fungi. Nomex® is available in a variety of styles and configurations to meet specific needs.

Areas of application include:

Tapes and Cloth	Insulation for laboratory apparatus
	Duct insulation
	Pipe insulation
	Gasketing applications
Sleeving	Protection and insulation of small diameter equipment

® Nomex is DuPont's registered trademark

TABLE 1-1 CHARACTERISTICS OF HIGH TEMPERATURE MATERIALS

Fiber Property	Chrysotile Asbestos	Crocidolite Asbestos	Flexweave Cloth	Ceramfab Products	Zetex	Nonex
Specific Gravity	2.5	3.4	2.54	2.53	2.54	1.39
K Value $\frac{\text{BTU in}}{\text{hr ft}^2 \text{ of}}$	0.72 at 900°F ^a	0.72 at 900°F ^a	0.82 at 800°F	0.5-0.95 ^e	0.3385 at 1680°F ^h	0.4 at 500°F ⁱ
Degradation Temperature (°C)	450 ^b	300 ^b	700-760 ^d	1790 ^d	1145 ^g	371 (315 under load)
Maximum or Continuous Operating Temperature (°C)	600	600 ^b	538	1260	593	145-200
Fiber (tensile) Strength (MN/m ²)	3100 ^c	3500 ^c	1700	2760	3447	---
Fiber Modulus (elastic modulus) (GN/m ²)	160	190	70	110	72	---
Fiber Diameter (μ m)	Fibril 0.02 Fiber 0.03-100	0.5	14.7	2-3 average	9	---
Fiber Length (mm)	Fibril 0.25-5 Fiber 1-80	< 5	152-254	40-250 ^f	continuous filament	---
Chemical Constitution	Hydrated magnesium silicate	Hydrated sodium silicate	Fiberglass	alumino- silicate	aluminum borosilicate	aromatic polyamide

^a K Value for asbestos with binder

^b Degradation temperatures are those at which water of constitution starts to be lost. Operating temperatures can be higher and can range up to 1700°C

^c Average value

^d Melting point; there may be shrinkage between degradation temperature and operating temperature.

^e Range of K Values for Ceramfab products. For specific information see individual product listings.

^f Range of fiber lengths for Ceramfab products

^g Melting point; material may start to lose strength between degradation temperature and operating temperatures

^h K Value for Zetex Fabric, fabric for Zetex Gloves and Mittens

ⁱ K Value for Nonex tapes, cloth



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Ceramfab Yarn

Ceramfab Insulation is Asbestos FREE

Product Specifications

Ceramfab Yarn is a high temperature ceramic fiber product which can be woven into numerous forms for industrial applications. Products made from *Ceramfab* Yarn are strong, chemically stable, and exhibit superior insulating qualities.

Ceramfab Yarn contains 20% organic carrier and is spun around high temperature alloy or monofilament glass strands. These inserts provide maximum tensile strength at elevated temperatures.

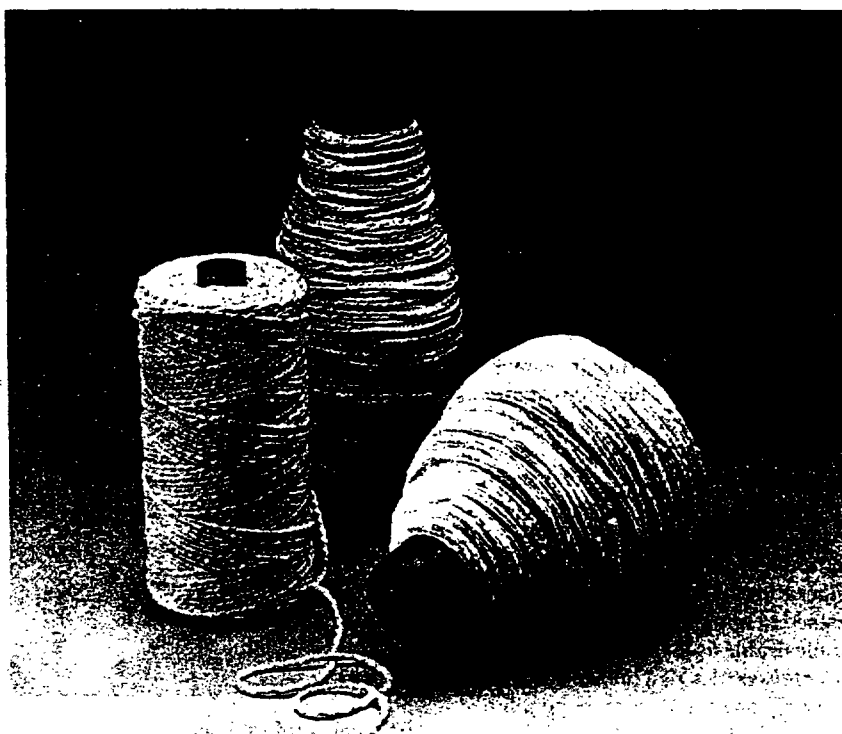
All *Ceramfab* Yarn can withstand temperatures to 1260°C (2300°F). In applications where tensile strength is important, the temperature limit of the insert material should be considered.

Chemical Properties

Ceramfab Yarn exhibits excellent chemical stability resisting attack from most corrosive agents with the exception of hydrofluoric and phosphorous acids and concentrated alkalis. *Ceramfab* Yarn also resists oxidation and reduction. If wet by water, steam or oil, thermal and physical properties are completely restored upon drying. No water of hydration is present.

Availability

Shipped on .45 kg (1 lb) spools.



Typical Applications

—Manufacture of *Ceramfab*
Cloth, Tape, Sleaving

—Flexible braided wire covers
—Gasket material
—Replacement of asbestos cord

PRICE INFORMATION:

No.	Description	Insert Material	Temperature Limit of Insert Material	Yds/spool	Cost per spool	
					1-9	10+
1947M	<i>Ceramfab</i> Yarn, 1 ply, 3/32" thick	Nichrome	2000°F	750	\$40.00	\$33.00
1947-2M	<i>Ceramfab</i> Yarn, 2 ply, 1/8" thick	Nichrome	2000°F	375	46.00	38.33

Also available with glass inserts only.

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Ceramfab

**Cloth, Tape
and Sleeving**

Ceramfab Insulation is Asbestos FREE

Product Specifications

Ceramfab textile product forms are unique high temperature fabrics usable in a wide variety of industrial applications. All textiles contain 20-25% organic fiber added during the carding process to produce roving. The roving is further processed into two-ply yarn for weaving into *Ceramfab* Cloth, Tape, and Sleeving.

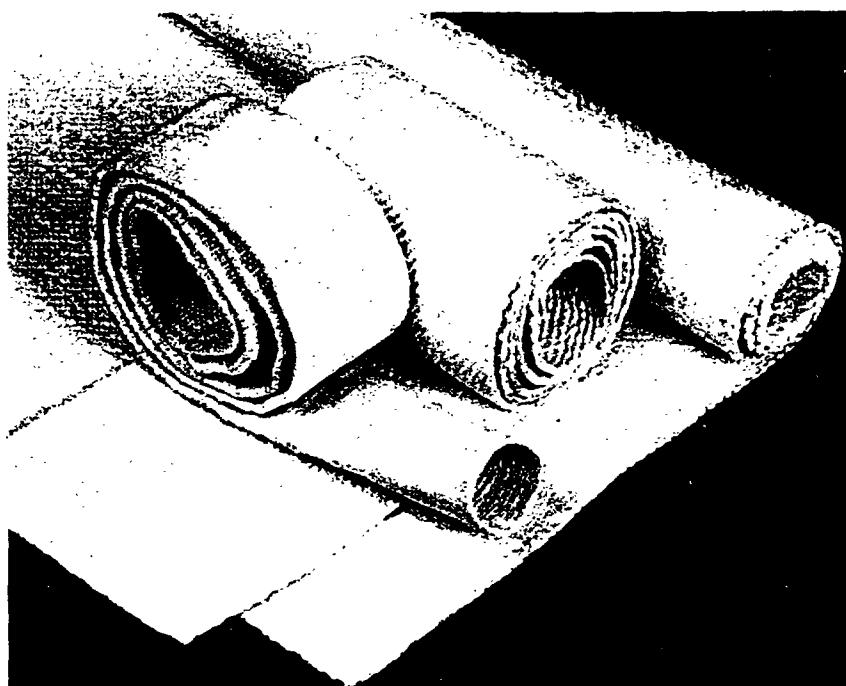
Ceramfab extiles are noted for superior insulating ability to 1260°C (2300°F). In addition, they have excellent resistance to thermal shock, corrosive attack, and breakdown due to mechanical vibration and stress.

Insert materials are incorporated into the *Ceramfab* Yarn to increase fabric tensile strength. Alloy wire inserts are available for obtaining maximum strength at elevated temperatures. Glass filament inserts are used in applications where metal is undesirable as is the case when using *Ceramfab* textiles as a dielectric. The following insert materials are available:

—Glass filament: service to 650°C (1200°F);
—Nichrome wire: service to 1093°C (2000°F). *Ceramfab* textiles may be used to 1260°C (2300°F). In applications where tensile strength is important, temperature limits of insert materials should be considered.

Chemical Properties

Ceramfab textiles exhibit excellent chemical stability resisting attack from most corrosive agents. Exceptions are hydrofluoric and phosphoric acids and concentrated alkalis. *Ceramfab* textiles also resist oxidation and reduction. If wet by water, steam, or oil, thermal and physical properties are completely restored upon drying. No water of hydration is present.



Typical Applications

—Gasket and wrapping material
—Induction heating furnace coil insulation
—Cable and wire insulation (thermal and/or electrical)
—Infrared radiating diffusers
—Boiler tadpole gaskets

—Fuel line insulation
—Furnace heat zone separators
—High pressure steam portable flange covers
—Welding curtains and blankets
—Replacement for asbestos cloth
—Furnace curtains
—Pipe hanger insulation

PRICE INFORMATION:

Cloth

No.	Width	Thickness	Temp Limit of Insert Material	Insert Material	Price/lin. yard	
					1-3	4+
1742M	36"	1/8"	1200°F	Glass	\$50.40	\$45.36
1742-2M	36"	1/8"	2000°F	Nichrome	53.70	48.33
1742-3M	36"	3/16"	2000°F	Nichrome	87.00	78.30

Tape

No.	Width	Thickness	Temp Limit of Insert Material	Insert Material	Price/Lin. Ft.
1743M	1"	1/8"	1200°F	Glass	\$5.39
1743-2M	2"	1/8"	1200°F	Glass	6.43
1744M	3"	1/8"	2000°F	Nichrome	8.53

Sleeving

No.	I.D.	Temp Limit of Insert Material	Insert Material	Price/Lin. Ft.	
				1-24	25+
1739M	1/4"	2000°F	Nichrome	\$11.88	\$9.90
1739-2M	1"	2000°F	Nichrome	13.15	10.96
1739-3M	2"	2000°F	Nichrome	14.81	13.33
1739-4M	3"	2000°F	Nichrome	25.40	22.86

Also Available with glass inserts only.



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Ceramfab Bulk Fiber

Ceramfab Insulation is Asbestos FREE

Ceramfab Bulk ceramic fibers are the basis for the *Ceramfab* family of product forms. Manufactured from a very high purity alumina-silica composition, bulk fibers have a continuous high temperature use limit of 1260°C (2300°F). With a melting point over 1760°C (3200°F), the fibers can be used in certain applications at temperatures in excess of 1260°C (2300°F).*

Bulk Fibers have the following unique and outstanding properties which carry through the entire *Ceramfab* product line.

- High temperature stability
- Low thermal conductivity
- Low heat storage
- Excellent thermal shock resistance
- Light weight
- Superior corrosion resistance
- Excellent sound absorption

Typical Chemical Analysis

Al ₂ O ₃	51.9%
SiO ₂	47.9%
Na ₂ O	0.08%
Fe ₂ O ₃	0.1%
Leachable Chlorides	<10 ppm

Chemical Properties

Ceramfab Bulk Fiber exhibits excellent resistance to attack from most corrosive agents. Exceptions include hydrofluoric acid, phosphoric acid and strong alkalis. Bulk Fibers also effectively resist oxidation and reduction. If wet by water or steam, thermal and physical properties are restored upon drying. *Ceramfab* Bulk Fiber contains no water of hydration.



Typical Physical Properties

Color	White
Continuous Use Limit*	1260°C (2300°F)
Melting Point	1790°C (3260°F)
Normal Packing Density	96-192 kg/m ³ (6-12 lb/ft ³)
Approximate Shipping Density	96 kg/m ³ (6 lb/ft ³)
Fiber Diameter	2-3 microns (mean)
Fiber Lengths	Up to 51 mm (2")
Specific Gravity	2.73 g/cm ³
Specific Heat at 1093°C (2000°F)	1130 J/kg °C (.27 Btu/lb °F)
Fiber Tensile Strength	2.76 x 10 ⁸ N/m ² (4 x 10 ⁸ psi)
Fiber Surface Area	0.5 m ² /g

*The Continuous Use Limit of *Ceramfab* insulation is determined by irreversible linear change criteria, not product melting point.

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Bulk Fiber

Applications:

Bulk fiber insulation is used as a resilient fill or packing material for use in numerous high temperature areas:

- Expansion joints
- Chemical reactors
- Burner openings
- Glass feeder bowls
- Fire boxes
- Furnace repairs
- Furnace base seals
- Kiln insulation

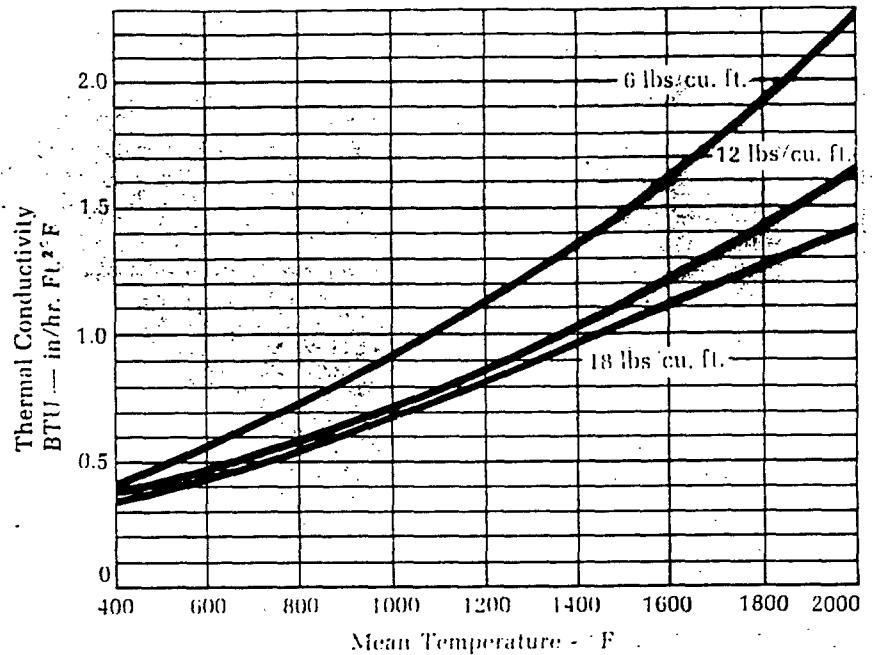
Bulk fiber is also used for the secondary processing of other

Ceramfab product forms:

- Blanket, felt
- Board, block
- Composites
- Paper
- Vacuum cast
- Cements, castables
- Sprayable
- Laminates

Bulk Fiber

Thermal Conductivity vs. Mean Temperature
per ASTM C177-63



PRICE INFORMATION:

No.	Description	Price	
		5 lb.	25 lbs.
1740M	Ceramfab Bulk Fiber	\$12.50	\$56.25



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Ceramfab

Long Staple Fiber

Ceramfab Insulation is Asbestos FREE

Product Specifications

Ceramfab Long Staple Fiber is composed of extra long alumina silica fibers formed by a unique spinning operation from molten high purity material. The two types available, long staple fine and long staple coarse, differ only in mean fiber diameter.

Long Staple Fibers combine the superior insulating properties of the **Ceramfab** family of products with an excellent resistance to breakdown from mechanical stress and vibration.

Typical Chemical Analysis

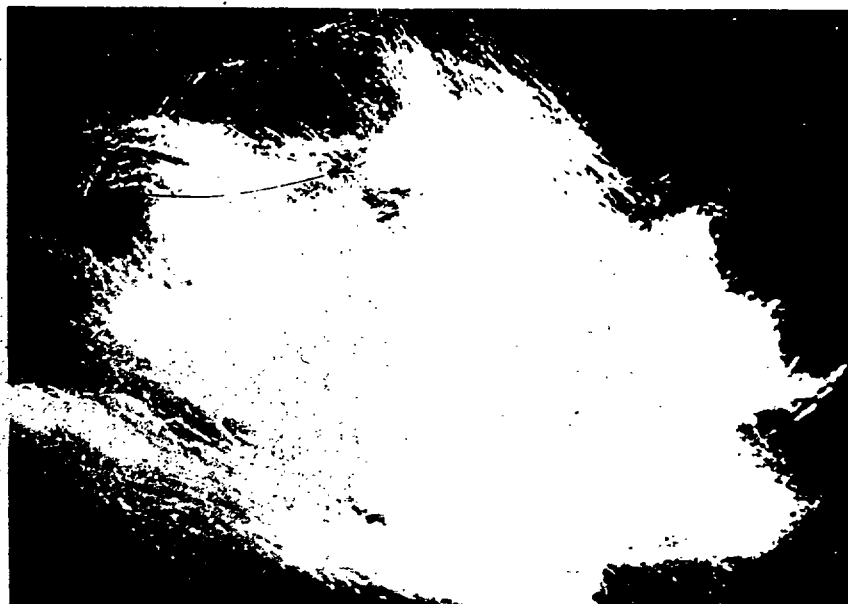
Al ₂ O ₃	43.9%
SiO ₂	50.1%
ZrO ₂	5.1%
Trace Inorganics	0.7%
Leachable Chlorides	<10 ppm

Chemical Properties

Ceramfab Long Staple Fibers exhibit excellent chemical stability and resistance to attack from most corrosive agents. Exceptions are hydrofluoric acid, phosphoric acid and strong alkalis. Long Staple Fibers also effectively resist oxidation and reduction. If wet by water or steam, thermal and physical properties are restored upon drying. **Ceramfab** Long Staple Fibers contain no water of hydration.

Typical Applications

- Catalyst recovery filter medium
- Diffusion medium for fluidized beds
- High temperature acoustical insulation
- Filter and catalyst carrier for radioactive particles and hot exhaust gases
- Raw material used in the manufacture of **Ceramfab** Textiles, Rope and Square Braid



Typical Physical Properties

Color	White
Continuous Use Limit*	1260°C (2300°F)
Melting Point	1790°C (3260°F)
Shipping Density (Approx.)	48 kg/m ³ (3 lb/ft ³)
Fiber Diameter:	
Long Staple - Fine	8 microns (mean)
Long Staple - Coarse	18 microns (mean)
Fiber Lengths	Up to approximately 254 mm (10")
Specific Gravity	2.62 g/cm ³

*The Continuous Use Limit of **Ceramfab** insulation is determined by irreversible linear change criteria, not product melting point.

PRICE INFORMATION:

No.	Description	Price		
		1 lb.	5 lbs.	25 lbs.
1741M	Ceramfab Long Staple Fiber, fine	\$9.46	\$43.00	\$179.16

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Ceramfab Milled Fiber

Ceramfab Insulation is Asbestos FREE

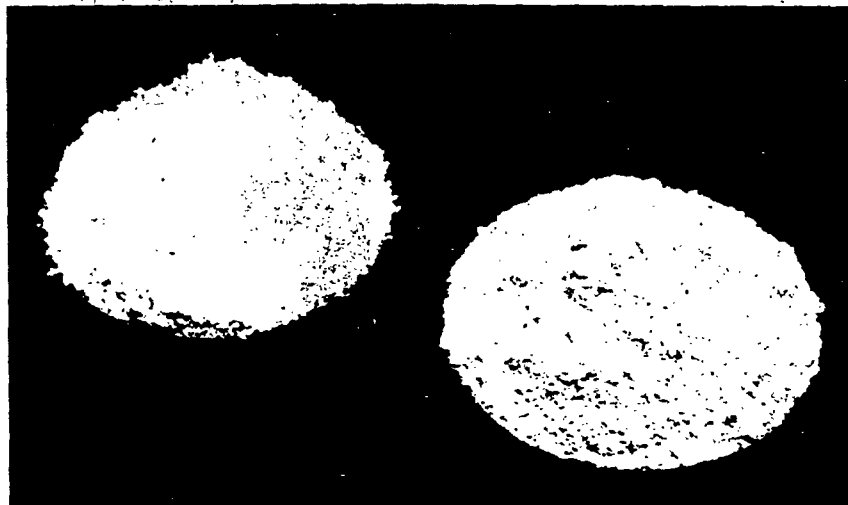
Product Specifications

Ceramfab Milled Fiber is ball milled from regular bulk fiber to reduce fiber lengths, facilitating mixture in plastic, resin, and refractory cement compositions.

Ceramfab Milled Fiber offers many outstanding properties:

- High temperature stability;
- Low thermal conductivity;
- Low heat storage;
- Excellent thermal shock resistance;
- Light weight;
- Excellent corrosion resistance.

Used as an additive for plastics and resins or as a base ingredient in cements, Milled Fibers contribute these properties to the final product. In addition, *Ceramfab* Milled Fiber is used as a compact filler insulation.



Typical Chemical Analysis

Al ₂ O ₃	51.9%
SiO ₂	47.9%
Na ₂ O	0.08%
Fe ₂ O ₃	0.1%
Leachable Chlorides	<10 ppm

Chemical Properties

Ceramfab Milled Fiber exhibits excellent resistance to attack from most corrosive agents. Exceptions include hydrofluoric acid, phosphoric acid and strong alkalies. Milled Fiber also effectively resists oxidation and reduction. If wet by water or steam, thermal and physical properties are restored upon drying. *Ceramfab* Milled Fiber contains no water of hydration.

Typical Physical Properties

Color	White
Continuous Use Limit*	1260°C (2300°F)
Melting Point	1790°C (3260°F)
Approximate Shipping Density	176 kg/m ³ (11 lb/ft ³)
Fiber Diameter	2-3 microns (mean)
Fiber Length	14 microns (mean)
Specific Gravity	2.73 g/cm ³
Specific Heat at 1093°C (2000°F)	1130 J/kg °C (.27 Btu/lb °F)
Thermal Conductivity at 538°C (1000°F) Mean Temperature	.187W/m °C (1.3 Btu-in/hr ft ² °F)

*The Continuous Use Limit of *Ceramfab* insulation is determined by irreversible linear change criteria, not product melting point.

PRICE INFORMATION:

No.	Description	Price	
		5 lbs.	200 lb Drum
1757M	<i>Ceramfab</i> Milled Fiber	\$37.50	\$790.00

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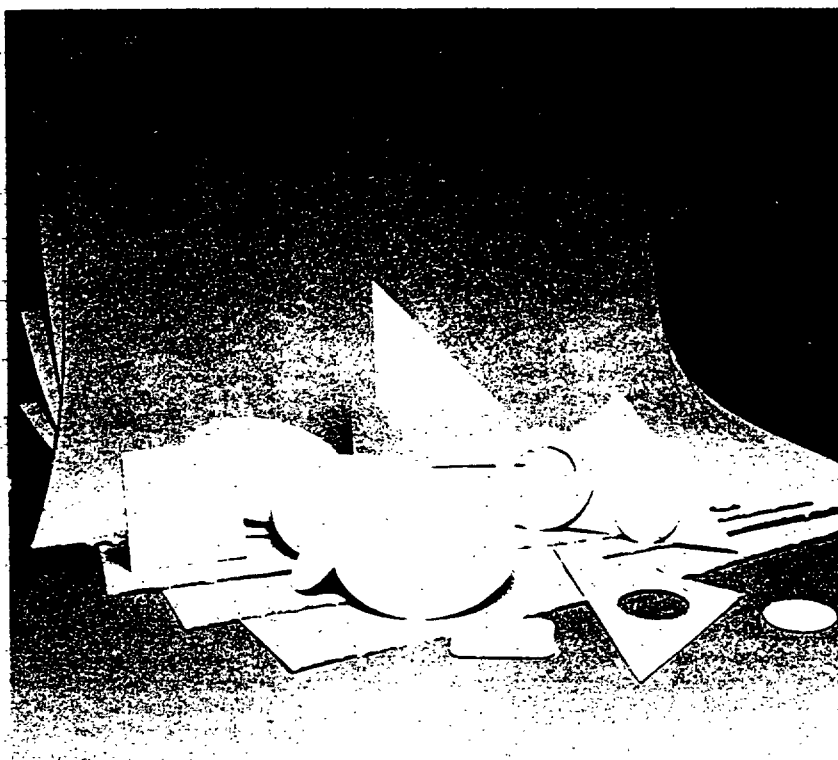
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Ceramfab**110 Paper****Ceramfab Insulation
is Asbestos FREE****Product
Specifications**

Ceramfab 110 Paper is the most rigid paper in the *Ceramfab* product line. It is also the easiest to handle, even after binder burn out. *Ceramfab* 110 Paper is composed of ceramic fiber, inert fillers and organic bonding agents. Its excellent stiffness makes *Ceramfab* 110 ideal as a replacement for asbestos millboard. It can be cut with household scissors or die cut to make precision shapes.

Ceramfab 110 Paper exhibits good dielectric strength. It is a homogeneous product with smooth sides. Because of its dielectric strength, *Ceramfab* 110 Paper is suitable for replacing mica sheets in strip heaters. It also exhibits flexibility in temperatures up to 1038°C (1900°F).

Ceramfab 110 Paper is an ideal gasketing material because it contains no asbestos, can be cut and handled easily, and possesses stiffness, a high temperature capability, and good compressive strength.

**Typical Chemical Analysis**

SiO ₂	47.16%
Al ₂ O ₃	45.12%
Fe ₂ O ₃	0.38%
Na ₂ O	0.30%
CaO	0.14%
MgO	0.63%
LOI	6.23%
Trace Inorganics	0.04%

Typical Physical Properties

Color	Gray
Nominal Density	312 kg/m ³ (19.5 lb/ft ³)
Average Dry Tensile Strength	1207 K·Pa (175 psi)
Organic Binder	7%
Nominal Thickness	110-J 3.2 mm (1/8")
Average Yield	1.025 m ² /kg (5 ft ² /lb)

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Availability

Sheets In widths up to 1524 mm (60") at any length desired

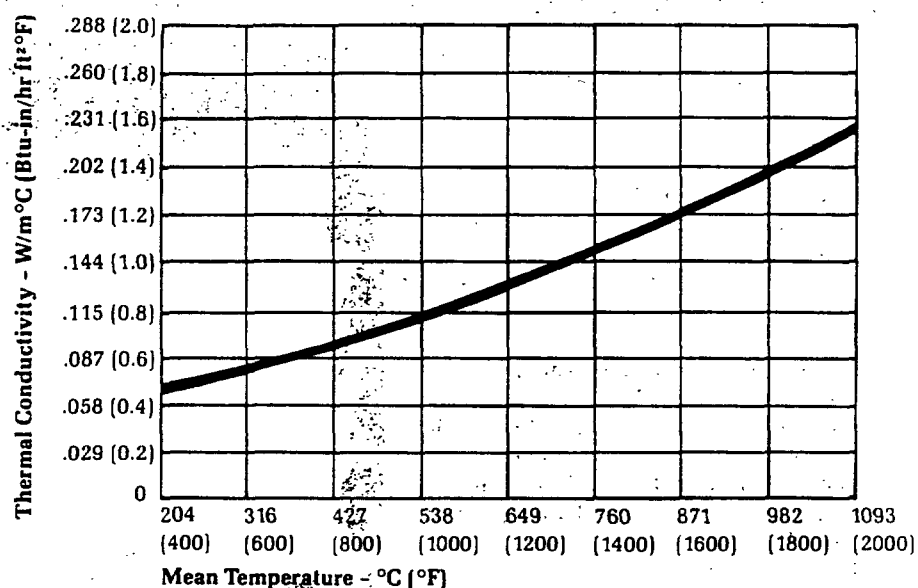
Die cuts According to customer specifications

Typical Applications

- Metal clad brick gaskets
- Expansion joints around burners
- Replacing asbestos gaskets
- Investment casting mold gaskets
- Hot air duct gasketing
- Dummy bar seals
- As a replacement for mica sheet
- Back-up in coreless induction furnaces
- Centrifugal casting gaskets
- Coke oven leveling doors
- Brick expansion joints
- Replacement for asbestos millboard

Ceramfab 110 Paper

Thermal Conductivity vs Mean Temperature (per ASTM C177)**



**All heat flow calculations are based on a surface emissivity factor of .90, an ambient temperature of 27°C (80°F), and zero wind velocity, unless otherwise stated. All thermal conductivity values for this product have been measured in accordance with ASTM Test Procedure C-177. When comparing similar data, it is advisable to check the validity of all thermal conductivity values and ensure the resulting heat flow calculations are based on the same condition factors. Variations in any of these factors will result in significant differences in the calculated data.

PRICE INFORMATION:

No.	Description	Price
1946-2M	Ceramfab 110 Paper 10½"x12" sheet	\$20.40/doz.
1946M	Ceramfab 110 Paper 42"x48" sheets	22.61/sheet

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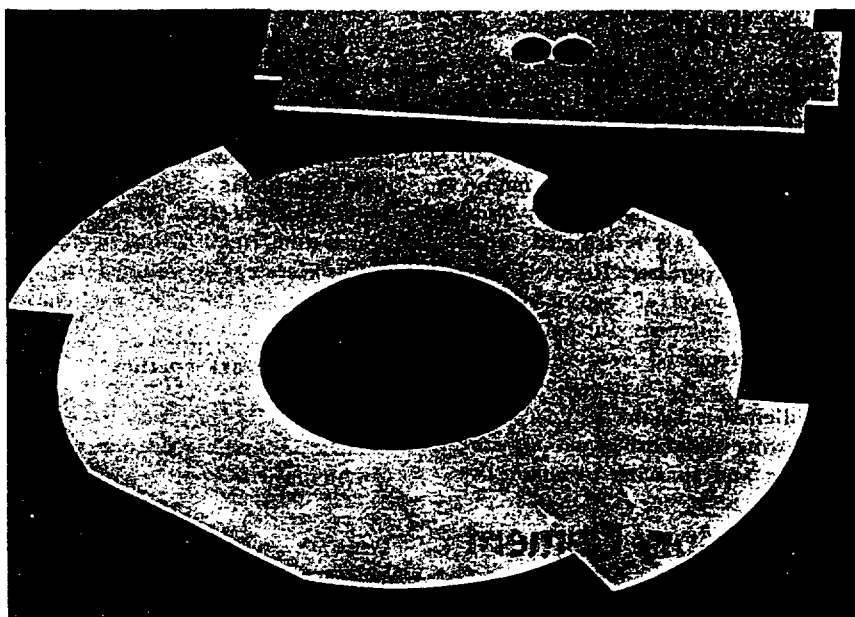
Ceramfab

440 Paper

Ceramfab Insulation is Asbestos FREE

Product Specifications

Ceramfab 440 Paper is a commercial grade, low cost, high strength paper made from a combination of ceramic fibers, inert fillers and fiberglass to produce an exceptionally strong sheet for use up to 704°C (1300°F). It has low shrinkage, good dielectric properties and contains 6% organic binder for increased handling strength. Its uniform structure assures equal thermal conductivity throughout and provides a smooth surface, making it ideal for gasketing applications. It is completely free of asbestos and is designed to replace asbestos materials where application temperatures do not exceed 704°C (1300°F). *Ceramfab* 440 Paper is easy to handle, and can be cut, wrapped and rolled to fit nearly any configuration.



Typical Chemical Analysis

SiO ₂	39.79%
Al ₂ O ₃	30.98%
CaO	14.17%
MgO	3.93%
Binder Content	6%
Trace Inorganics	23%

Typical Physical Properties

Color	Gray
Continuous Use Limit*	704°C (1300°F)
Average Density	208 kg/m ³ (13 lb/ft ³)
Average Dry Tensile Strength at 2.5 mm (1/10") thick	6.9 x 10 ⁵ N/m ² (100 psi)
Dielectric Strength	11,810 volts/mm (300 volts/mil)

*The Continuous Use Limit of *Ceramfab* insulation is determined by irreversible linear change criteria, not product melting point.

PRICE INFORMATION:

No.	Style	Thickness	Roll Width	Roll Length	Cost/Lin. Yd.	Cost/Roll
1754M	440	1/8"	24"	100 ft.	\$4.40	\$115.75

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Ceramfab

Rigidizer and Refractory Cement

Ceramfab Insulation is Asbestos FREE

Product Specifications

Rigidizer

Rigidizer is an inorganic liquid compound which is used as a surface treating agent to increase hardness and erosion resistance of *Ceramfab* materials. Flame resistance improves considerably and permeability to gases or molten metals is reduced, with a coating of Rigidizer. Rigidizer contains a small amount of organic material to permit shipment during winter months. Repeated freezing, however, will damage the material.

Rigidizer is easily applied by employing standard brushing, rolling, dipping and spraying techniques.

Refractory Cement

Ceramfab Refractory Cement is a high temperature, air setting cement.

This cement is specially formulated for use with *Ceramfab* Blankets.

The adherence of *Ceramfab* Cement to ceramic fiber insulation products sets it apart from standard 1650°C (3000°F) refractory cements.

Ceramfab Refractory cement is shipped in a troweling consistency. Should a thinner mixture be desired, water can be added to obtain the required consistency.

Typical Chemical Composition

Al ₂ O ₃	41.2%
SiO ₂	52.1%
Fe ₂ O ₃	.8%
TiO ₂	1.0%
CaO	.1%
MgO	.1%
Alkali	4.4%

Application Information

Rigidizer materials should be applied to clean surfaces free of all oil or grease. When applying by spraying, provide suitable respiratory protection and adequate ventilation. Rigidizer bonding action is achieved when the water vehicle is removed through evaporation. Heating or oven drying will accelerate evaporation, but the time to dry and fully cure is a function of size and geometry.

Typical Physical Properties

Color:	Pink
Rigidizer	
Continuous Use Limit*	1260°C (2300°F)**
Coverage:	
<i>Ceramfab</i> Paper	9.3 m ² /gal (100 ft ² /gal)
Impermeable Surface	18.6 m ² /gal (200 ft ² /gal)
Weight per gal 25°C (77°F)	4.5 kg (10 lb)
Normal Shelf Life	> 1 year
Density (wet)	1200 kg/m ³ (75 lb/ft ³)
Specific Gravity Wet @ 25°C (77°F)	1.20 g/cm ³
Viscosity	4 centipoises
pH	9.7

*The Continuous Use Limit of this product is determined by irreversible linear change criteria, not product melting point.

**Where shrinkage cannot be tolerated, 871°C (1600°F) is the maximum safe use temperature.

Typical Physical Properties

Color	Gray-Brown
Continuous Use Limit*	1650°C (3000°F)
Normal Joint Thickness	3.2 mm (1/8")
Bulk Density (as shipped)	2082 kg/m ³ (130 lb/ft ³)
Consistency (as shipped)	Troweling
Quantity Required per 92m ² (1000 ft ²)	612.9 kg (1350 lb)
Normal Shelf Life	9 months

*The Continuous Use Limit of this product is determined by irreversible linear change criteria, not product melting point.

PRICE INFORMATION:

No.	Description	Price/gallon	
		1 gal.	4+ gal.
1936M	Rigidizer, 1 gallon	\$29.32	\$26.39

No.	Description	Price/can
1751M	Refractory Cement, 50 lb. can	\$25.25



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Ceramfab

970 Paper

Ceramfab Insulation is Asbestos FREE

Product Specifications

Ceramfab 970 Paper is made from *Ceramfab* Washed Fiber wherein the unfiberized shot is removed by a unique washing process. The wet fibers are then formed into a flexible, lightweight sheet by a special paper processing machine. *Ceramfab* 970 Paper is noted for having exceptionally low thermal conductivity and good handling properties. Its highly uniform structure assures equal thermal conductivity throughout and a smooth surface provides advantages in seal, gasket and spacer applications.

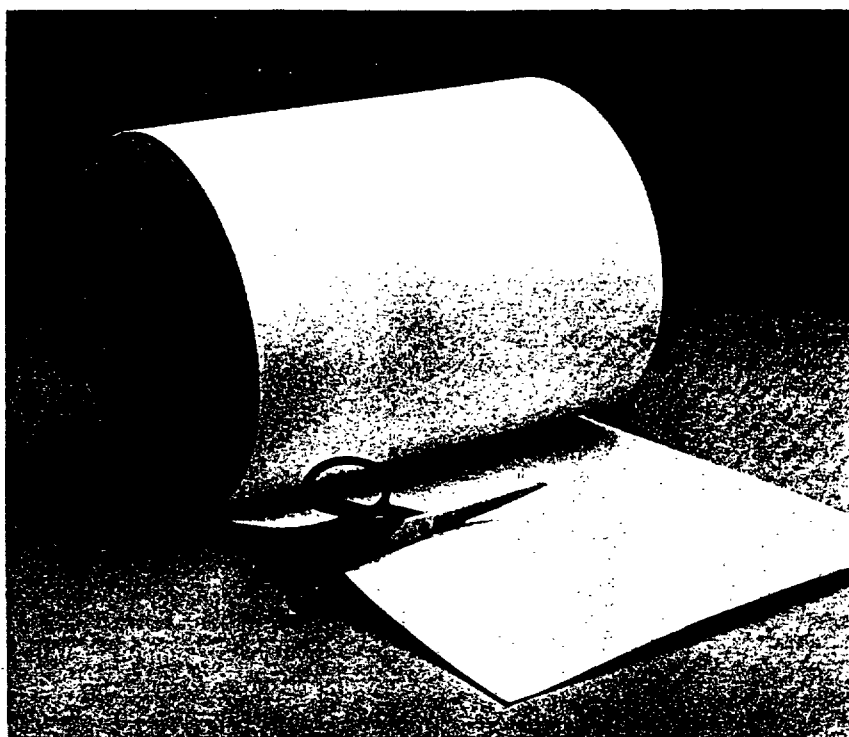
Ceramfab 970 Paper is available with or without an organic binder. The 970 series contains approximately 6% organic binder for increased handling strength. Series 970-H is completely inorganic and is preferred in processes and applications where even a small amount of organic burnout at low temperatures is unacceptable.

Ceramfab 970 Paper possesses the following unique advantages:

- High temperature stability;
- Low thermal conductivity;
- Low heat storage;
- Light weight;
- Resiliency;
- Thermal shock resistance;
- High heat reflectance;
- Good dielectric strength;
- Excellent corrosion resistance;
- Easy to wrap, shape or cut.

Typical Chemical Analysis

Al ₂ O ₃	51.9%
SiO ₂	47.9%
Na ₂ O	0.08%
Fe ₂ O ₃	0.1%



Typical Physical Properties

Color	White
Continuous Use Limit*	1260°C (2300°F)
Melting Point	1790°C (3260°F)
Fiber Diameter	2-3 microns (mean)
Fiber Length	Up to 25 mm (1")
Density	160-192 kg/m ³ (10-12 lb/ft ³)
Specific Gravity	2.73 g/cm ³
Specific Heat 1093°C (2000°F)	1130 J/kg °C (.27 Btu/lb °F)
Dielectric Strength	3937 volts/mm (100 volts/mil)

*The Continuous Use Limit of *Ceramfab* insulation is determined by irreversible linear change criteria, not product melting point.

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Chemical Properties

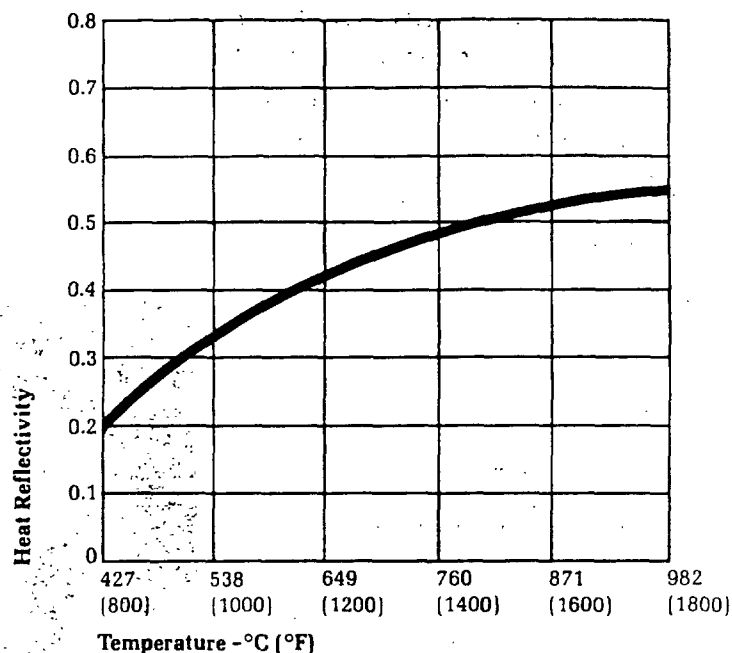
Ceramfab 970 Paper exhibits excellent chemical stability resisting attack from most corrosive agents. Exceptions are hydrofluoric, phosphoric acids and concentrated alkalis. 970 Paper also resists oxidation and reduction. If wet by water or steam, thermal and physical properties are completely restored upon drying. No water of hydration is present.

Typical Applications

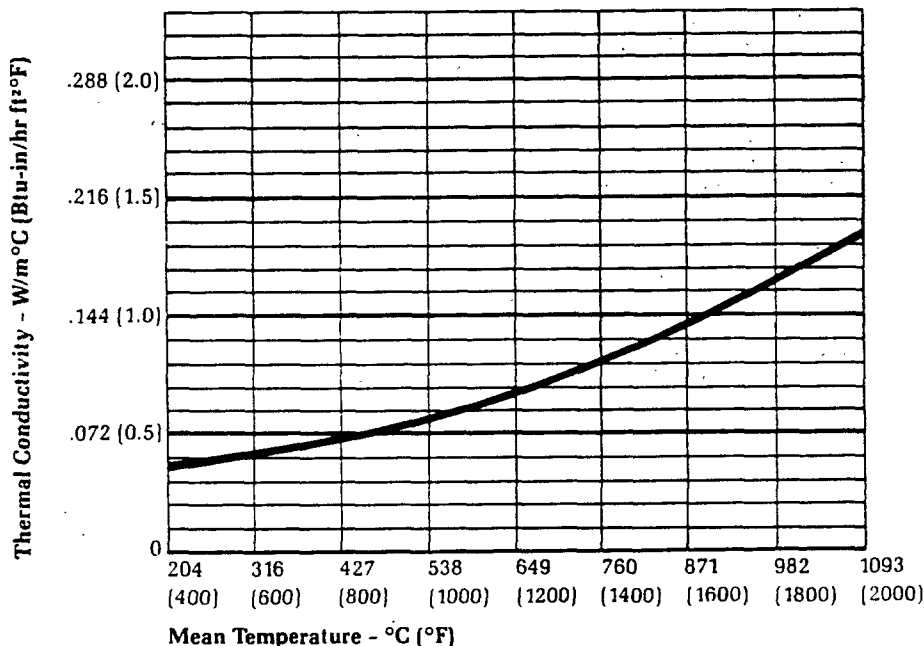
- High temperature gaskets
- Thermal and electrical insulation
- Combustion chamber liners
- Backup linings for metal troughs
- Hot top linings
- Tap hole plug covers
- Ingot mold linings for high purity metals and glass
- Parting agent in brazing, heat treating, and metal forming processes
- Blast furnace blow pipe insulation
- Rotary kiln backup insulation
- Investment casting parting agent

Availability

Each roll contains the number of linear meters and feet shown. However, the roll weight may vary slightly. Non-standard widths are available upon request.

Ceramfab* 970-J Paper*Heat Reflectivity vs Temperature****Average Yields****Roll Width - 305 mm (12")**

Paper Grade	Thickness mm (in)	Length - m (ft)	
		4.54 kg (10 lb)	11.35 kg (25 lb)

970 Paper**Thermal Conductivity vs Mean Temperature (per ASTM C-177)******PRICE INFORMATION:**

No.	Roll Width	Style	Thickness	Roll Length	Cost/ Lin. Yd.	Cost/ Roll
1755M	12"	970J	1/8"	100 ft.	\$6.24	\$129.40
1755-2M	12"	970JH	1/8"	250 ft.	6.55	196.48



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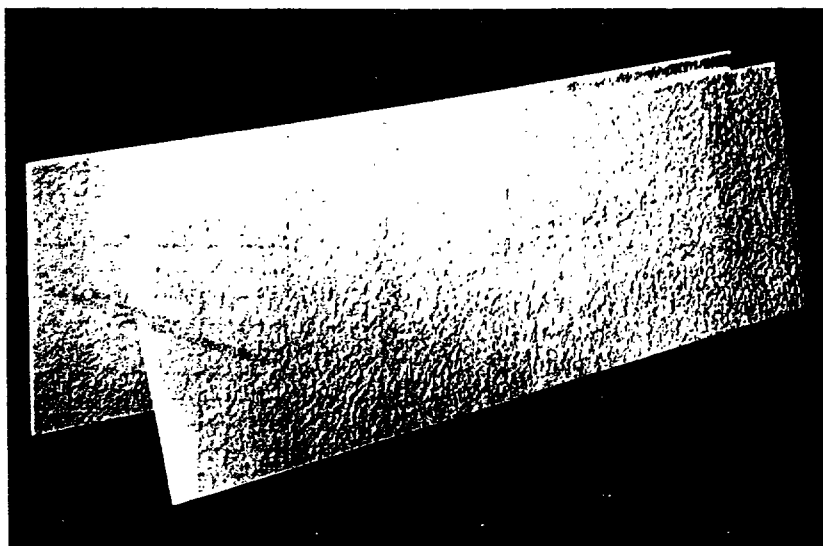
Ceramfab Duraboard

Ceramfab Insulation is Asbestos FREE

Ceramfab Duraboard is a rigid, high temperature board made from bulk ceramic fibers and inorganic bonding agents. Duraboard offers low thermal conductivity, high temperature stability and excellent resistance to thermal shock and chemical attack. Duraboard has uniform density across its entire thickness. Its high Modulus of Rupture, both as received and after firing to 1260°C (2300°F), makes it an ideal material for use in thermal areas experiencing vibration, mechanical stress or strong erosion. It is easily sawed, drilled, and is machinable to a certain degree. *Ceramfab* Duraboard is available in a wide variety of sizes and thicknesses.

Chemical Properties

Ceramfab Duraboard exhibits excellent chemical stability resisting attack from most corrosive agents. Exceptions are hydrofluoric, phosphoric, hydrochloric and sulphuric acids as well as concentrated alkalis. *Ceramfab* Duraboard also resists oxidation and reduction. If wet by water, steam or oil, thermal and physical properties are completely restored upon drying. No water of hydration is present.



Product Specifications

Typical Physical Properties

Color	White	
Basic Composition	Alumina-Silica	
Continuous Use Limit*	1260°C (2300°F)	
Melting Point	1760°C (3200°F)	
Nominal Density	450-480 kg/m ³ (28-30 lb/ft ³)	
Typical Modulus of Rupture (as received)	13.8 x 10 ⁵ N/m ² (200 lb/in ²)	
Linear Shrinkage- 24 hr @ Temperature (soaking heat condition)		
871°C (1600°F)	0%	
1260°C (2300°F)	4.1%	
Weight Loss on Ignition	2.3%	
Compressive Strength:	Stress - After 24 hr	
Stress - As Received	@ 1260°C (2300°F)	Deformation
3.2 x 10 ⁵ N/m ² (47 psi)	3.7 x 10 ⁵ N/m ² (53 psi)	5%
5.2 x 10 ⁵ N/m ² (76 psi)	4.3 x 10 ⁵ N/m ² (63 psi)	10%
8.9 x 10 ⁵ N/m ² (129 psi)	5.0 x 10 ⁵ N/m ² (73 psi)	20%
11.6 x 10 ⁵ N/m ² (168 psi)	5.7 x 10 ⁵ N/m ² (82 psi)	25%

*The Continuous Use Limit of *Ceramfab* insulation is determined by irreversible linear change criteria, not product melting point.

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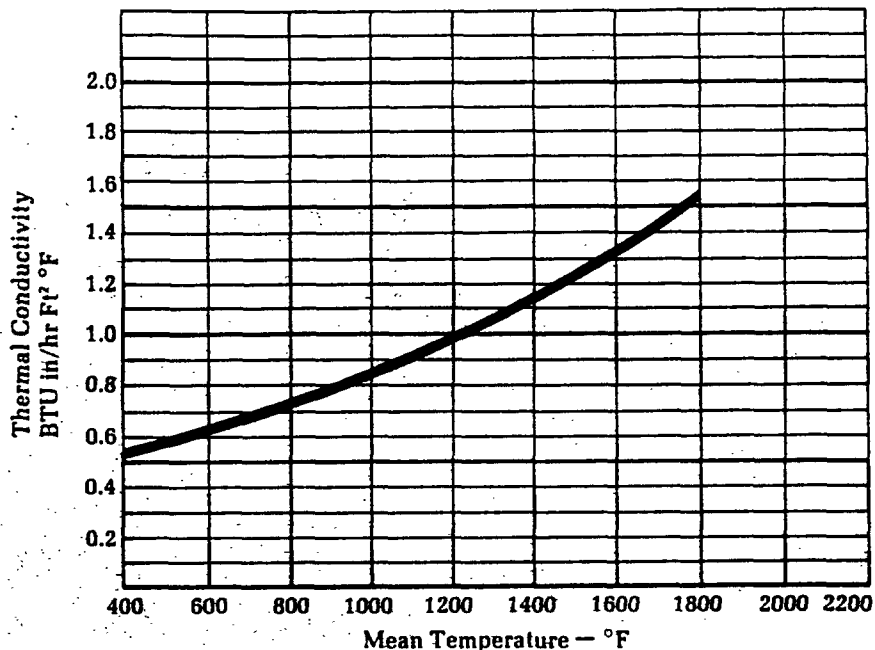
Duraboard™

Applications:

- Rigid high temperature gaskets and seals.
- High temperature baffles and muffles.
- Flue and chimney linings in furnaces and kilns.
- Infrared element supports.
- Glass tank side and endwall, and port neck insulation.
- Trough and distribution linings for the conveying of molten non-ferrous metals such as aluminum and zinc.
- Thermal insulation where high velocities are encountered.
- Heat shields for personnel protection.
- Hot gas ducts.
- Low and high temperature driers.

Duraboard

Thermal Conductivity vs Mean Temperature
per ASTM C177-63



PRICE INFORMATION:

No.	Description	Price	
		Each	Carton
1745M	Ceramfab Duraboard, 36"x12"x½" 12/ctn	\$11.50	\$124.20
1745-2M	Ceramfab Duraboard, 36"x12"x1" 6/ctn	16.92	91.37
1745-3M	Ceramfab Duraboard, 36"x12"x2" 3/ctn	42.42	114.53



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Ceramfab

GH Board

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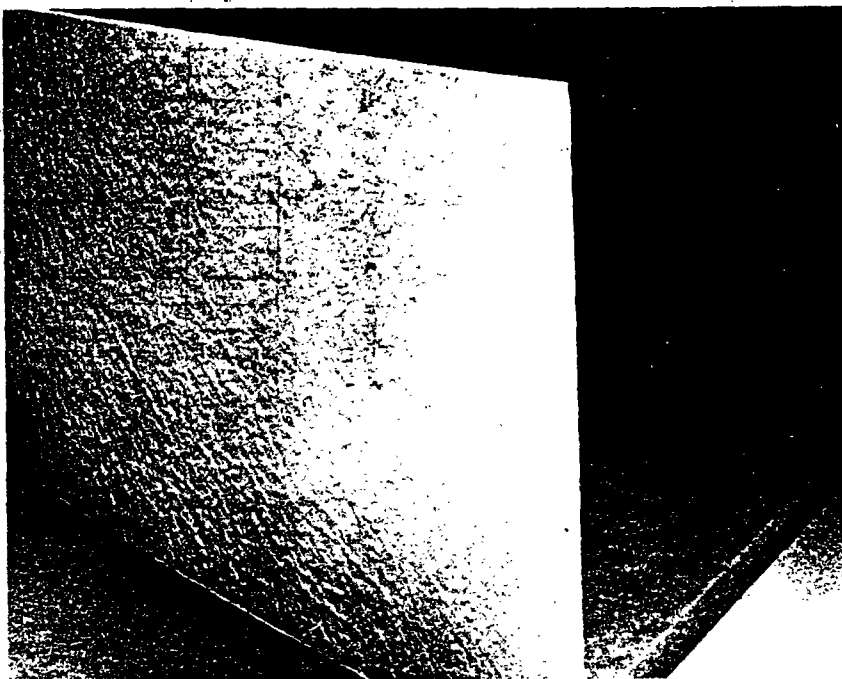
Product Specifications

Ceramfab GH Board is a rigid, high temperature insulation made from bulk ceramic fibers and inorganic bonding agents. GH Board offers low thermal conductivity, high temperature stability and excellent resistance to thermal shock and chemical attack. Its high breaking strength makes it an ideal material for use in thermal areas experiencing vibration, mechanical stress, or strong erosive forces.

GH Board is available in a standard size of 914 mm x 305 mm x 6.4 mm (36" x 12" x 1/4") thick. It is easily cut, sawed or drilled to meet custom requirements.

Chemical Properties

Ceramfab GH Board exhibits excellent chemical stability resisting attack from most corrosive agents. Exceptions are hydrofluoric and phosphoric acids and concentrated alkalis. GH Board also resists oxidation and reduction. If wet by water or steam, thermal and physical properties are completely restored upon drying. No water of hydration is present.



Typical Physical Properties

Color	White
Basic Composition	Alumina-Silica
Continuous Use Limit*	1260°C (2300°F)
Melting Point	1760°C (3200°F)
Density	560 kg/m ³ (35 lb/ft ³)
Modulus of Rupture	
Room Temperature	20.7 x 10 ⁵ N/m ² (300 lb/in ²)
After 24 hrs @ 1260°C (2300°F)	8.6 x 10 ⁵ N/m ² (125 lb/in ²)
Linear Shrinkage - 24 hr @	
Temperature (soaking heat condition)	
871°C (1600°F)	0%
1260°C (2300°F)	5%
Dielectric Strength	1260 volts/mm (32 volts/mil)
Loss on Ignition	2% max.

*The Continuous Use Limit of *Ceramfab* products is determined by irreversible linear change criteria, not product melting point.

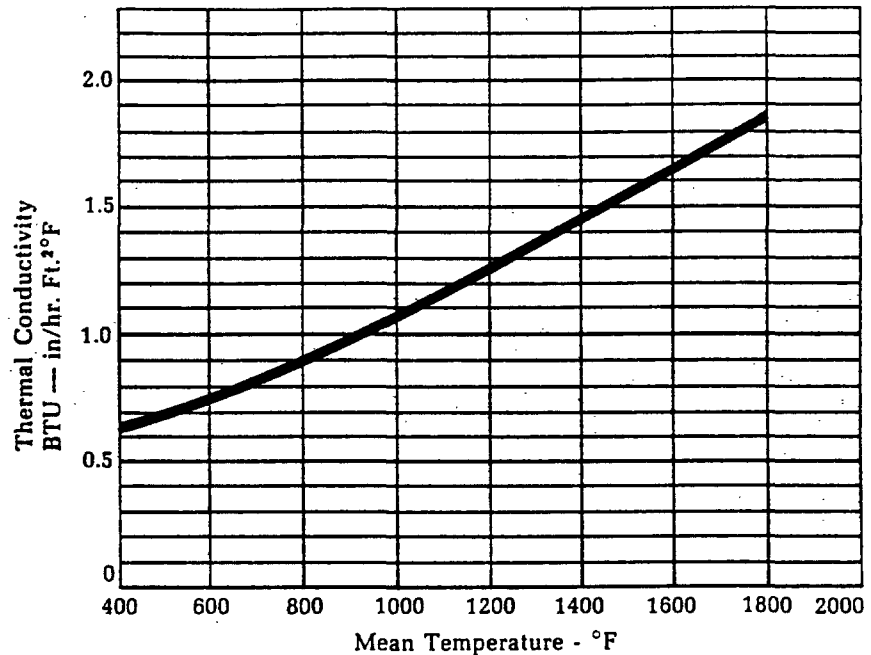
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GH Board

Applications

- Rigid high temperature gaskets and seals
- Heating element support brackets
- Industrial heat shields and thermal barriers
- Wind tunnel insulation
- High temperature baffles and muffles
- Flue and chimney linings in furnaces and kilns

GH Board
Thermal Conductivity vs. Mean Temperature
per ASTM C177-63



PRICE INFORMATION:

No.	Description	Price	
		Each	Carton
1750M	Ceramfab GH Board, 36"x12"x1/4" 5/ctn	\$23.58	\$98.25

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Ceramfab

Durablanket

Ceramfab Insulation is Asbestos FREE

Product Specifications

Ceramfab Durablanket is a strong, light weight, flexible needled blanket made from long *Ceramfab* ceramic fibers. The fibers are cross-locked through a unique forming process to produce a blanket with unexcelled handling strength. There are no binders added to Durablanket.

Durablanket is a highly efficient insulator having low heat storage capacity and complete resistance to thermal shock.

Durablanket is unaffected by most chemicals except hydrofluoric and phosphoric acids and concentrated alkalis. If wet by water or steam, thermal and physical properties remain unaffected after drying.

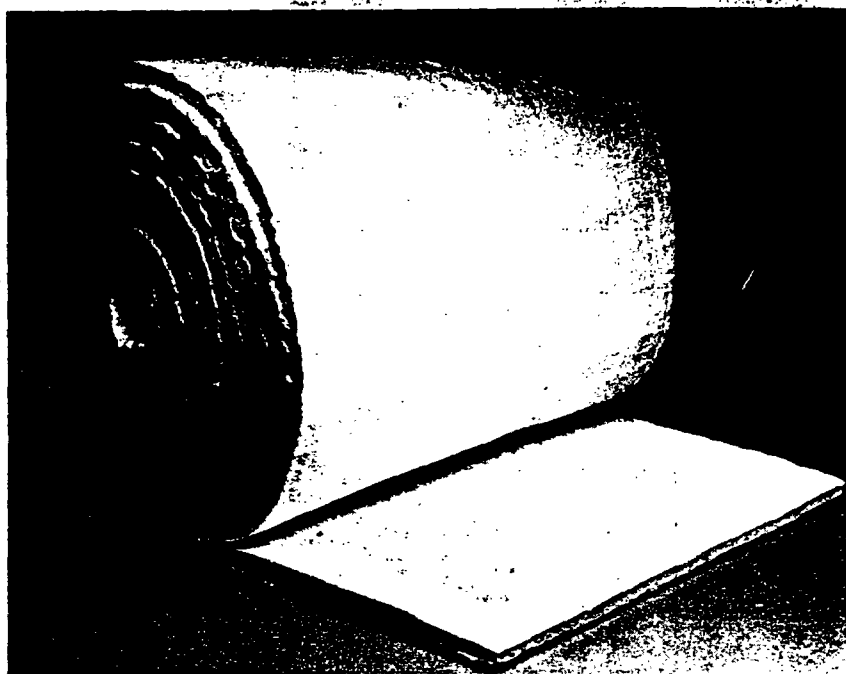
Durablanket has the following outstanding characteristics:

- Excellent handling strength;
- Excellent hot strength;
- Low thermal conductivity;
- Low heat storage;
- Light weight;
- Resiliency;
- Thermal shock resistance;
- Excellent thermal stability;
- High heat reflectance;
- Good sound absorption;
- Excellent corrosion resistance.

Typical Chemical Analysis

Al ₂ O ₃	48.0%
SiO ₂	51.8%
Fe ₂ O ₃	0.04%
TiO ₂	0.002%
MgO	0.01%
CaO	0.02%
Na ₂ O ₃	0.1%
Leachable Chlorides	<10 ppm

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Typical Physical Properties

Color	White
Continuous Use Limit*	1260°C (2300°F)
Melting Point	1760°C (3200°F)
Fiber Diameter	2-3 microns (mean)
Specific Heat at 1093°C (2000°F)	1130 J/kg °C (.27 Btu/lb °F)
Specific Gravity	2.73 g/cm ³

*The Continuous Use Limit of *Ceramfab* insulation is determined by irreversible linear change criteria, not product melting point.

Typical Applications:

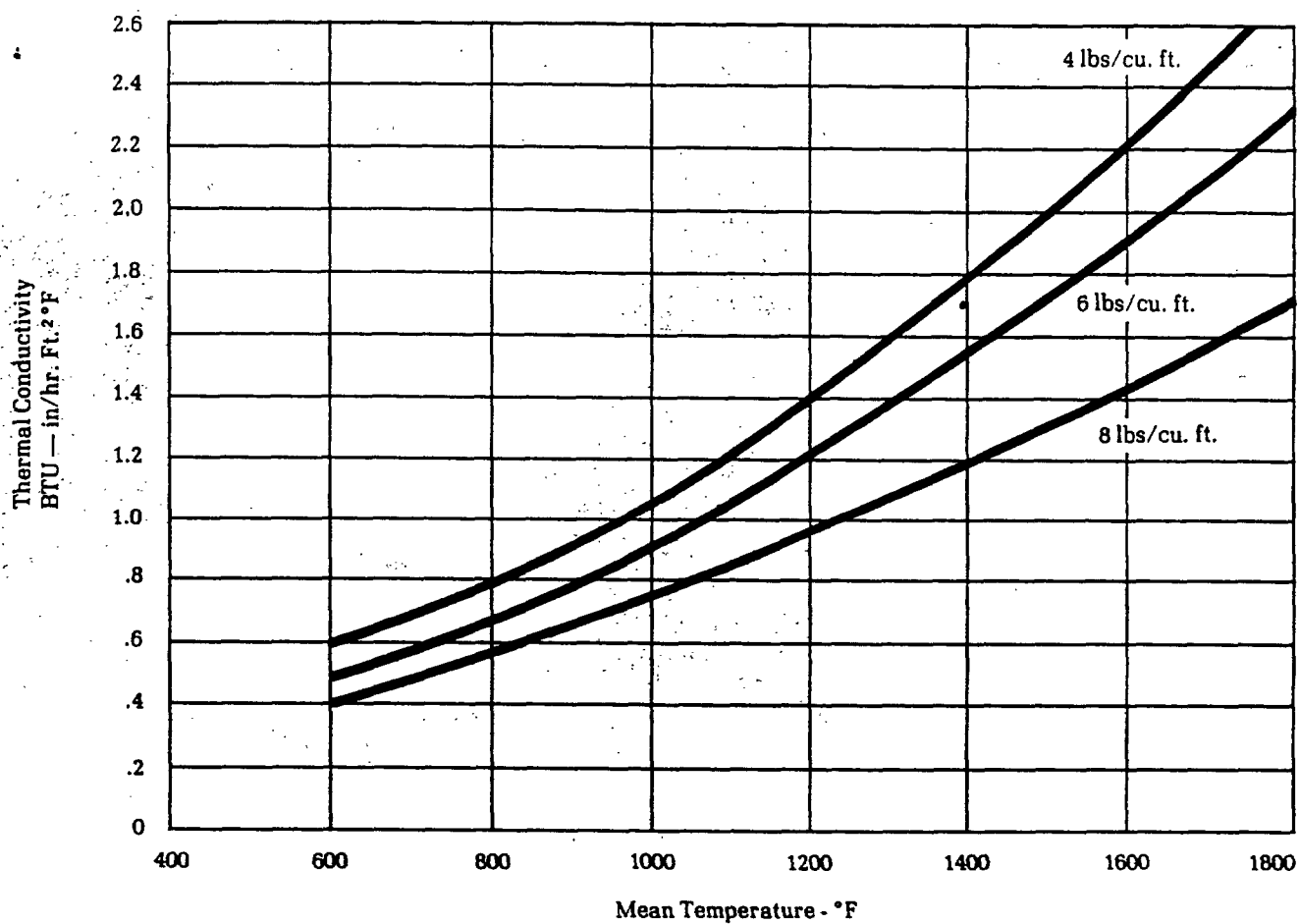
Investment Casting Mold Wrappings
Furnace, Kiln and Boiler Linings
Removable Insulating Blankets for Field Stress Relieving Welds
Reusable Insulation for Steam and Gas Turbines
Flexible High Temperature Pipe Insulation
Pressure and Cryogenic Vessel Fire Protection
High Temperature Kiln and Furnace Backup Insulation
Furnace Door Linings and Seals

Soaking Pit Seals
Furnace Repairs
Thermal Reactor Insulation
Expansion Joint Seals
Primary Reformer Header Insulation
High Temperature Gasketing
Glass Furnace Crown Insulation
Incineration Equipment and Stack Linings
Annealing Cover Seals
High Temperature Filtration
Nuclear Insulation Applications

Durablanket™

Durablanket

Thermal Conductivity vs Mean Temperature



Linear Firing Shrinkage - 24 hr @ Temperature (soaking heat condition)

982°C (1800°F)	1.5%
1093°C (2000°F)	2.0%
1260°C (2300°F)	3.1%

PRICE INFORMATION:

No.	Description	Price/lin. yd.	
		1-8 yds.	25 ft. roll
1759M	Ceramfab Durablanket	\$17.95	\$127.50



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Ceramfab

Moist-Pack D

Ceramfab Insulation is Asbestos FREE

Product Specifications

Ceramfab Moist-Pack D is made from high strength ceramic fiber blanket and inorganic bonding agents resulting in a flexible insulation that air dries to a hard, rigid structure. Moist-Pack D is ideal for insulation of complex shapes and for service under conditions of high hot gas velocities.

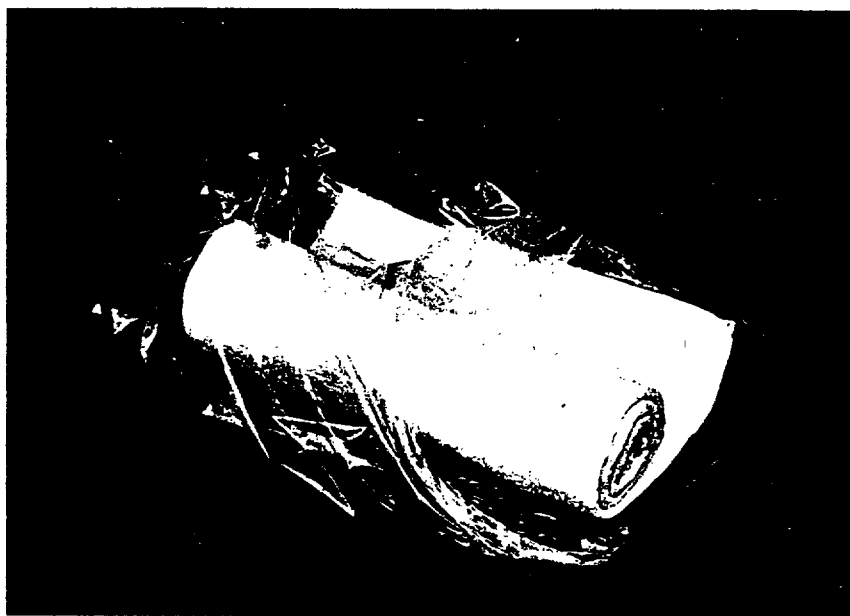
Moist-Pack D possesses low thermal conductivity, low heat storage, and good thermal reflectance. It is low in density and displays excellent resistance to thermal shock and chemical attack. The material is packaged in a clear polyethylene bag to retain the wet binder during shipment and storage. A small amount of organic material is added to prevent freezing during winter months.

Curing of product can be accomplished by air drying for one or two days or by immediate temperature exposure in the application. Curing is merely a function of removal of the water in the inorganic binder.

Ceramfab Moist-Pack D is supplied in 2.3 m² (25 ft²) rolls. It can be cut to smaller sizes for efficient coverage of both large and small surface areas. The product possesses excellent strength for ease of installation.

Typical Chemical Analysis

Al ₂ O ₃	35.6%
SiO ₂	63.8%
Na ₂ O	0.2%
Fe ₂ O ₃	0.04%
TiO ₂	0.002%
CaO	0.02%
MgO	0.01%



Typical Physical Properties

Color	White
Basic Composition	Alumina-Silica
Continuous Use Limit*	1260°C (2300°F)
Melting Point	1790C (3260°F)
Typical Dry Density	190-290 kg/m ³ (12-18 lb/ft ³)
Specific Heat 1093°C (2000°F)	1130 J/kg °C (.27 Btu/lb °F)
Tensile Strength - 6.4 mm (¼")	Wet = 1.2x10 ⁵ N/m ² (17 psi) Dry = 3.5x10 ⁵ N/m ² (50 psi)
Hot Gas Erosion Resistance	Test Procedure based on British Gas Council Research Comm. GC174 = over 70 m/sec (230 ft/sec). Samples tested after heat treatment at 982°C (1800°F) and 1260°C (2300°F) for 24 hours.

*The Continuous Use Limit of *Ceramfab* insulation is determined by irreversible linear change criteria, not product melting point.

PRICE INFORMATION:

No.	Description	Price/roll
1758M	<i>Ceramfab</i> Moist Pack D, 24"Wx¼" Thick x 12.5 ft L	\$66.50

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Ceramfab LDS Moldable

Ceramfab Insulation is Asbestos FREE

Product Specifications

Ceramfab LDS Moldable is a versatile insulation product used as cast shapes, coatings, linings and for general refractory repairs. It consists of **Ceramfab** ceramic fibers dispersed in a very sticky water based refractory silica binder requiring only drying to produce a hard surfaced, low thermal conductivity insulation. The tackiness provides good wet adhesion of the LDS Moldable to the applied surface during drying, thereby assuring a good refractory bond. Temperature of the **Ceramfab** LDS and the surface should be 20°C (70°F) or above to assure proper adhesion. Drying is possible at room temperature but requires an extended period of time. Therefore, heated forced air drying is recommended. This may safely be accomplished at any temperature short of causing boiling within the drying product. Ventilation should be provided during drying to exhaust the organic fumes resulting from vaporization of the freeze stabilizing agent.

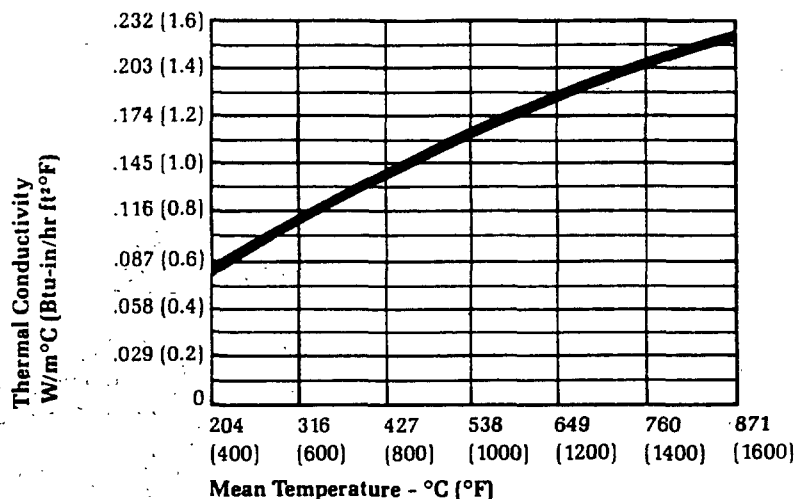
Installation and Drying Schedule

Ceramfab LDS Moldable may be installed with plastic gloves, trowels, spatulas or caulking gun. It is easily smoothed to the desired contour by water wetting the forming tool and molding to shape. Drying involves removal of the internal water and anti-freeze solution. If the mass of **Ceramfab** LDS is small (less than ½ kg or one-pound) it can be immediately fired to its use temperature without damage or directly applied to a hot surface or fissure if desired.

For larger masses, the recommended practice is forced drying at 93-149°C (200-300°F) with a major uncovered surface exposed and adequate ventilation provided. Generally, overnight drying is sufficient for thicknesses of 25-51 mm (1"-2").

Ceramfab LDS Moldable

Thermal Conductivity vs Mean Temperature (per ASTM C-177)**



Typical Physical Properties

Percent Solids	55%
Dried Density	640 kg/m³ (40 lb/ft³)
Hot Gas Erosion Resistance	>61 m/sec (200 ft/sec)
Linear Shrinkage - 24 hr @	
Temperature [soaking heat condition]	
1093°C (2000°F)	2%
1260°C (2300°F)	6%

*The Continuous Use Limit of **Ceramfab** products is determined by irreversible linear change criteria, not product melting point.

Typical Applications

- Hot and cold patching of refractory cracks and fissures
- Trough linings for aluminum and other non-ferrous metals
- Coating for metal liners
- Turbine and exhaust insulation
- Patching around burner blocks
- Metal stud protection
- A substitute for wet asbestos fibers
- Brazing and spot welding protection

PRICE INFORMATION:

No.	Description	Price
1752M	LDS Moldable	\$40.00/gallon
1753M	Caulking Tubes, 11 fl. oz. per tube	6.00/tube
1753-2M	Case of 24 tubes	129.00/case

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Ceramfab

**Flexweave 1000
Asbestos Free Cloth**

Ceramfab Insulation is Asbestos FREE

Product Specifications

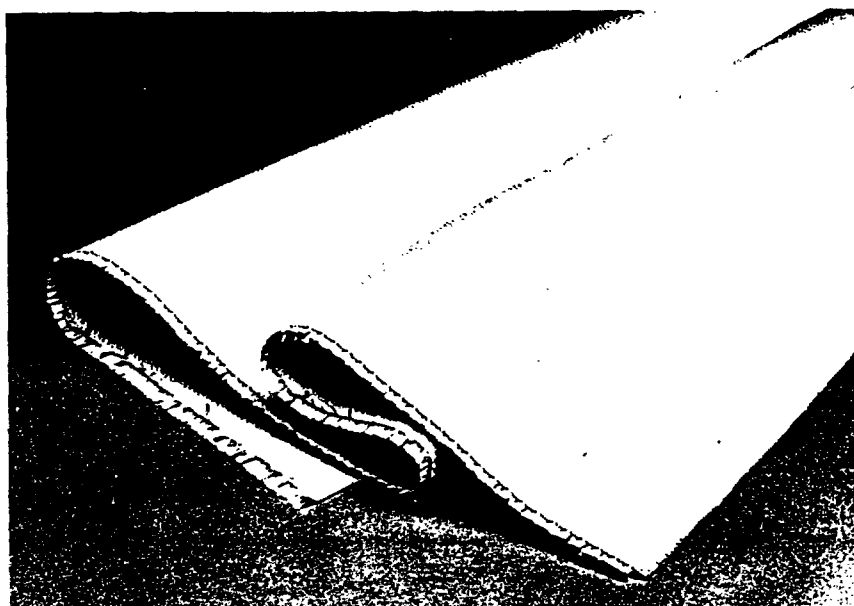
Flexweave 1000 Cloth is an exceptionally durable, dimensionally stable, woven fiberglass with an unusual combination of properties. It is recommended for continuous use up to 538°C (1000°F).

Flexweave 1000 Cloth has high dielectric strength and low dielectric constant and is highly resistant to attack by most chemicals. It resists abrasion and fraying and has greater strength than asbestos cloth.

Flexweave 1000 Cloth is non-toxic. It will not burn or smolder, is resistant to welding sparks and is reusable. It is wettable and mildew resistant.

All Flexweave Cloth is coated with an acrylic coating containing a fire retardant material. The coating prevents unraveling during cutting and also helps reduce skin irritation. The acrylic coating dissipates at 315°-370°C (600°-700°F) with no adverse effects on the properties of the cloth.

Flexweave 1000 Cloth is easily sewn and is ideal for fabricating products such as curtains and blankets.



Typical Physical Properties

Density (nominal)	769 kg/m ³ (48 lb/ft ³)
Construction	Plain weave
Continuous Use Limit	538°C (1000°F)

Typical Applications

- Personnel protection
- Envelopes for stress relieving blankets
- Tadpole gasket covers
- Welding curtains
- Pipe wrapping
- Replacement for asbestos cloth

Availability

Roll length*	46 m (50 yds)
Width* (measured between selvage edges)	1016 mm and 1524 mm (40" and 60")

*Normal manufacturing tolerances on roll length, weight, and thickness are ±10%. Tolerance on width is ±2%.

PRICE INFORMATION:

No.	Description	Price/linear yard	
		1-49	50+
1756M	Ceramfab Flexweave Cloth,	\$24.96	\$20.80

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ZETEX

PRODUCT SPECIFICATIONS

ZETEX is an aluminum borosilicate consisting of oxides of silicon, calcium, aluminum, boron, with approximately 2-6% organic binders by weight.

ZETEX offers many outstanding properties:

- high temperature stability
- low thermal conductivity
- high dielectric strength and low constant
- abrasion resistance
- high tensile strength and modulus
- easily sewn into comfortable safety garments

Chemical Properties

ZETEX exhibits excellent resistance to attack from most corrosive agents. Exceptions are hydrofluoric or hot phosphoric acids. It is impervious to all elements of weather and moisture. *Zetex* will not rot or mildew.

Areas of application:

thermal insulation
safety blankets
filtration applications
piping insulation
electrical insulation
acoustical insulation

Physical Properties

Color	White
Continuous Use Limit	1100°F
Fiber Diameter	9μ
Fiber Length	continuous filament
Specific Gravity	2.55
Thermal Conductivity	0.419
Melting Point	2100°F

ZETEX PRODUCTS



ZETEX SAFETY GARMENTS

Zetex offers a softer hand and feel than asbestos, with good dimensional stability, abrasion resistance and strength. *Zetex Gloves* and *Mittens* offer a full 14" of protection with a 10 oz. wool lining for added comfort.

No.	Description	Price/Pair
1915M	Gloves, length 14" with 10 oz. wool lining	\$22.36
1916M	Mittens, length 14", with 10 oz. wool lining, reversible	17.75



Zetex 1200 Fabric

This woven material is 0.080" thick and weighs 35 oz. per square yard. The standard roll is 40" wide. Minimum purchase 1 linear yard.

No.	Description	Price/lin. yd.
1933M	<i>Zetex Fabric</i> , 40" W x 0.080" thick. Weight 35oz. per square yard	\$24.50

Zetex Tape

Woven tape will not fray at edges. Thickness is 0.125". Weight 75 oz. per sq. yd. 100 linear ft. per roll.

No.	Description	Width	Price/roll
1932M	<i>Zetex Tape</i> , 0.125" thick x 100 ft L	1 1/2"	\$39.95
1932-2M	<i>Zetex Tape</i> , 0.125" thick x 100 ft. L	2"	54.50
1932-3M	<i>Zetex Tape</i> , 0.125" thick x 100 ft L	3"	102.50

NOMEX®

PRODUCT SPECIFICATIONS

NOMEX® synthetic fiber is made from aromatic polyamide and can be used as a replacement for asbestos in laboratory applications up to 600°F.

NOMEX® fiber offers many outstanding properties:

- abrasion resistance
- low thermal conductivity
- abrasion resistance
- low thermal conductivity
- resistance to high temperatures (up to 600°F) for many laboratory applications
- flexibility at low temperatures
- good dimensional stability

Chemical Properties

NOMEX® exhibits good resistance to many chemicals and is highly resistant to most hydrocarbons and many organic solvents. **Nomex®** shows good resistance to alkalis at room temperature. However, it is degraded by strong alkalis at elevated temperatures. **Nomex®** exhibits excellent resistance to bacteria and fungus.

Areas of Application

insulation for laboratory apparatus
direct insulation
pipe insulation
gasketing
protection and insulation of small diameter equipment

Physical Properties

Color	White
Continuous Use Limit	300-400°F
Fiber Diameter	—
Fiber Length	—
Specific Gravity	1.39
Molten Splash	char at 760°F
Weight	702/sq. yd.
Thickness	60 mils
Moisture Regain	7 to 8% at 120°F
Dimensional Stability	Less than 1% temp. change at max.

NOMEX® PRODUCTS

FABRIC, width 45", thickness 1/2".

No.	1-49 yds.	50 yds.
1937M	\$14.00/yd.	\$565.00

TAPES, thickness 1/16".

No.	Width	Ft./Roll	Rolls/Case	Cost/Roll	Cost/Case
1938M	1"	150	24	\$15.00	\$292.00
1938-2M	2"	150	12	30.00	292.00
1938-3M	3"	150	8	45.00	292.00

SLEEVING

No.	I.D.	Price/25 ft.	Ft./Roll	Price/Roll
1939M	1/4"	\$7.00	500	\$119.00
1939-3M	1/2"	13.00	500	221.00
1939-5M	1"	25.25	250	214.63

FOR MORE INFORMATION ON
HIGH TEMPERATURE MATERIALS FOR THE LABORATORY
CALL TOLL FREE 800-356-0783



P.O. BOX 1368 JANESVILLE, WI 53545