

## Fiberfrax® Ropes, Braids and Wicking

### Introduction

Fiberfrax® ropes, braids and wicking are a family of dense, resilient, ceramic fiber materials, widely used for a broad variety of high-temperature gasketing, packing and sealing applications. They also serve as excellent replacements for asbestos, and reduce the frequency of repairs and maintenance in numerous applications. Many combinations of density and construction are available.

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

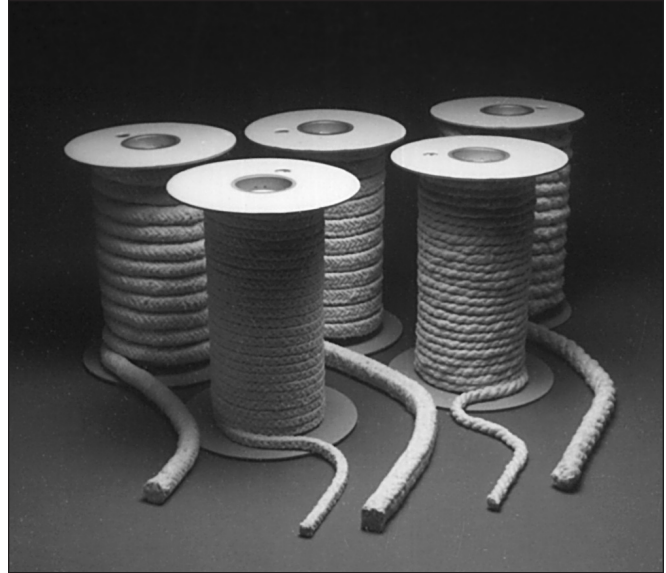
### Fiberfrax® Rope, High Density Rope, Round and Square Braid

Fiberfrax textile products are durable, high temperature, ceramic fiber packing materials that are well-suited for industrial applications. They are noted for their superior insulating and sealing ability to 1260°C (2300°F).

These materials contain approximately 20% organic carrier fiber to facilitate the carding process. The carrier fiber burns out at a low temperature with no effect on the ceramic fiber properties.

Fiberfrax ropes are twisted multi-ply ceramic fiber packing manufactured from Fiberfrax wicking. Standard minimum 3-ply rope is a low density, highly compressive product form. HD rope is up to 9-ply and provides increased compression resistance and strength and is approximately 40-65% denser than regular Fiberfrax rope.

Fiberfrax braids are used where high density and resistance to compression and mechanical abuse are required, such as in packing applications. Round and square versions are available.



Fiberfrax Ropes and Braids



Fiberfrax Rope and HD Rope

Refer to the product Material Safety Data Sheet (MSDS) for recommended work practices and other product safety information.

## Typical Product Properties

Temperature Grade:	1260°C (2300°F)
Recommended Operating Temperature:*	1175°C (2150°F)
Melting Point:	1790°C (3260°F)
Nominal Density:	
Rope:	320 kg/m <sup>3</sup> (20 lb/ft <sup>3</sup> )
High Density Rope:	529 kg/m <sup>3</sup> (33 lb/ft <sup>3</sup> )
Round Braid:	529 kg/m <sup>3</sup> (33 lb/ft <sup>3</sup> )
Square Braid:	577 kg/m <sup>3</sup> (36 lb/ft <sup>3</sup> )
Breaking Strength 12.7 mm (½") size:	
Rope, as produced:	356 N (80 lb f)
Rope, after 24 hrs. @ 980°C (1800°F):	44 N (10 lb f)
High Density Rope as produced:	490 N (110 lb f)
High Density Rope after 24 hrs. @ 900°C (1800°F):	62 N (14 f)

\*Determined by irreversible linear shrinkage, not melting point.

## Typical Applications

- Furnace door insulation and seal
- Expansion joint packing in boilers and furnaces
- Skid rail insulation
- Coke oven door jam seal
- Hot top seal
- Glass furnace tuckstone seal
- Gasket for vacuum degassing of steel during pouring
- High-temperature gasketing and packing
- Woodburning stove door seal
- Tadpole gasket bulb material
- Continuous casting starter block plug



Fiberfrax Round and Square Braid

## Fiberfrax® Wicking

Fiberfrax wicking is a high-temperature twisted roving made from Fiberfrax ceramic fibers and organic carrier fibers. It possesses the same thermal and chemical properties common to all Fiberfrax forms. It is typically used in applications that do not demand high tensile strength or compression resistance.

## Typical Applications

- Expansion joint packing
- Gasketing on heater unit of combustion chambers
- Wick for oil burning apparatus
- Radiant tube packing for heat treat furnaces
- Packing between reinforcing bar and sleeve to prevent molten leakage



Fiberfrax Wicking

Data are average results of tests conducted under standard procedures and are subject to variation. Results should not be used for specification purposes. For additional information about product performance or to identify the recommended product for your application, please contact the Unifrax Application Engineering Group at 716-278-3888.

**Typical Linear Weight**

Sizes: mm (in)	6 (¼)	10 (⅜)	13 (½)	16 (⅝)	19 (¾)	22 (⅞)	25 (1)	32 (1¼)	38 (1½)	51 (2)
<b>Rope</b>										
m/kg (ft/lb)	60.4 (90)	34.9 (52)	19.5 (29)	14.1 (21)	10.1 (15)	7.4 (11)	6.0 (9)	5.0 (7.5)	3.5 (5.2)	1.5 (2.2)
<b>HD Rope</b>										
m/kg (ft/lb)	—	18.1 (27)	12.8 (19)	—	6.0 (9)	—	3.7 (5.5)	—	2.3 (3.5)	1.1 (1.7)
<b>Round Braid</b>										
m/kg (ft/lb)	45.6 (68)	24.2 (36)	16.1 (24)	9.4 (14)	6.4 (9.5)	4.9 (7.3)	3.7 (5.5)	2.8 (4.1)	2.0 (3.0)	1.3 (1.9)
<b>Square Braid</b>										
m/kg (ft/lb)	28.9 (43)	15.4 (23)	10.1 (15)	7.4 (11)	4.4 (6.5)	3.3 (4.9)	2.7 (4.0)	1.9 (2.8)	1.3 (2.0)	.94 (1.4)

**Non-standard Product Forms:**

The following product variations are available as non-standard textile products. Please contact your Unifrax Sales Engineer or Application Engineering at 716-278-3888 for additional information.

<b>Product Variation:</b>	<b>Description:</b>
Wire Overbraid	Yarns contain metal alloy wire insert
Mesh Enclosure	Inconel Mesh Covering
Graphite Coating	Increased lubricity
Rectangular Braid	Specially sized braid
Tadpole Gasket	Rope Core, Tape Covering
Custom Sizes	Special Dimensions, lengths

**Fiberfrax® Woven Textiles**

In addition to ropes, braids and wicking, the Fiberfrax textile product family also contains a variety of woven product forms. Woven textiles are composed of three basic product lines: Fiberfrax cloth, tape, and sleeving, Fibersil cloth and Flexweave™ 1000 cloth and tape.

The woven textile product family is a unique group of high-temperature fabrics useable in a wide variety of industrial applications. They offer superior insulating capability and exhibit excellent resistance to thermal shock, corrosive attack and breakdown due to mechanical vibration and stress.

For additional details on the available woven textile product forms, typical properties and applications for which they are appropriate, refer to Fiberfrax Woven Textiles, Product Information Sheet, Form C-1425.



Fiberfrax Woven Textiles Product Family

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The test data shown are average results of tests conducted under standard procedures and are subject to variation. Results should not be used for specification purposes.

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