



SPECIALITIES

Unifrax makes/supplies variety of speciality products viz; Coatings, Moldable, Mortar, Rigidizer, Moist pak, Rope, Textiles, Pumpables, Fireputty etc., These products have specific application and are made against order after studying the application details. Given below are the typical data and application details of these products.

Unifrax can modify these specifications to some extent details of these products.

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RIGIDIZER

Rigidizer is a specially prepared water based colloidal solution used to harden/rigidized the surface of blankets, modules and board to improve resistance to gas velocity. It can be applied by spraying on the surface of the ceramic fibre product.

Recommended use temperatures for all rigidized blankets and modules are 100 deg. C less than the normal use temperatures.

Appesrance : off- white
Density : 1.1 - 1.2 gm/cc
pH : 9.3 to 9.7
Packaging : 60 Kg. carboys
Shelf life : 6 months, store away from direct sun

COATINGS

When necessary, for modular linings, suitable coatings are used on the hot face to enhance velocity resistance and protect the fibre from chemical attack.

Unifrax offers four types of coatings developed for specific applications as per table given below.

MOIST PAK

Moist pak is manufactured from Durablanket that has been soaked in a specially formulated rigidizing solution which caused the blanket to harden when exposed to ambient air and/or heat. It is a "hot face" refractory insulation barrier that has been designed for direct exposure to process atmospheres and can be fitted to variety of surface contours. In addition, it offers a higher insulating value than castable, IFB or fire bricks while maintaing substantial resistance to vapour or gas erosion. Moist pak shrinkage is higher than that of corresponding grade of blanket.

PROPERTIES	CERCOAT M	CERCOAT Z	CERCOAT ZL	CERCOAT S
Type	High Alumina based	Zirconia based	Zirconia based and Low temp. setting	Alumina silica based
Form	Dry power	Dry powder	Dry powder	Thick slurry
Max. Service Temp., deg.C	1600	1700	1700	1600
Approx. Setting Temp., deg.C	1150	950	400	150
Shelf Life	N.A.	N.A.	N.A.	6 Months
Application Suitability for	High Alumina Mullite Fibre	All Types of Fibres with Allumina <60% and for all Alumina - Silica or Zirconia Refractories	Fibres with Alumina <60% and Alumina-Silica or Zirconia Refractories where low temp setting is essential.	All Types of Fibres with Alumina <60% and Alumina Silica Refractories
Method of Application	Mix with 50-60% Water and spray or brush apply	Mix with 50-60% Water and spray or brush apply	Mix with 50-60% Water and spray or brush apply	Dilute with water & spray, brush or trowel
Quantity Required, Gm/Sq.Ft.	200	150-200	150-200	100-150
Qty./Pail	30 Kgs.	40 Kgs.	40 kgs.	40 kgs.

PHYSICAL PROPERTIES (TYPICAL)

Colour	:	White to Off -White
Average fibre dia, Microns	:	2.5 to 3
Density, kgs/m ³		
Dry	:	320-350
Wet	:	950-1050
Velocity resistance, m/s		
Room Temp.	:	45
1000 deg.C	:	30

GRADE	S	Z
percentage linear shrinkage after 24 hrs at 1100 deg. C	2.5	2.0

CHEMICAL ANALYSIS, % wt.

Al ₂ O ₃	35-38	22-25
ZrO ₂	--	11-13
SiO ₂	62-65	62-67
Others	<1	<1

Thermal conductivity, W/mk
at mean temp., deg.C

400	0.10	0.10
600	0.13	0.13
800	0.17	0.17

Thickness, mm	:	6, 12, 19, 25
Standard Size, mm x mm	:	610 x 914
Shelf Life	:	Six Months
Packing	:	Double HMHD bag and 320 x 625 x 155 mm five ply carton

MOLDABLE

Fiberfrax Moldable is composed of Fiberfrax bulk fibers, organic polymers and inorganic binder. It is a pliable, low shrinkage, putty-like material that is supplied wet, and premixed, ready for installation. Moldable has been specially formulated to provide a smoother texture, an enhanced flowability and better finished surface. These properties allow successful application in thin sections, in molten aluminium contact and through caulking apparatus. The major applications of moldable include superior performance in molten aluminium handling equipment, asbestos replacement in caulking and gasketing of refractory burner blocks, patching ceramic fibre and refractory backup materials and packing in ceramic cuplocks for protecting alloy steel studs and fasteners in ceramic fibre furnace linings.

PHYSICAL PROPERTIES (TYPICAL)

Temperature Grade	:	1260 Deg. C
Linear shrinkage, % dry to fired, 24 hrs at		
1100 Deg. C	:	2.1
1200 Deg. C	:	3.5
Density, Kg/m ³		
Wet	:	1200-1280
Dry	:	480 - 530
% Solids	:	40
Compressive strength (KG/CM ²) at 10% Compression on dry product	:	12.0

Thermal conductivity W/mk		
at 250 Deg.C	:	0.07
at 550 Deg. C	:	0.10

Shelf life	:	Six months
Packaging	:	20 kgs Pail

VENEER MORTAR

A special refractory adhesive, Veneer Mortar is designed for installation of Veneer modules. This product contains a special binder system and wetting agents to promote better adhesion of the veneer modules to the refractory surface.

Colour	:	tan grey
Bond	:	air set
Use limit :	:	1600 deg. C
Packed density	:	2.00 gm/cc
Dry density :	:	1.45 gm/cc

CHEMICAL ANALYSIS, % wt. on dry product

Al ₂ O ₃	:	34 to 36
SiO ₂	:	55 to 59
Alkali	:	6 to 8
Shelf life	:	9 months
Packaging	:	40 kgs/pail (29 cm dia, 39 cm ht.)

TEXTILES

CERAMIC FIBRE CLOTH, TAPE & ROOF

Ceramic fibre textiles are woven or braided from yarn consisting of refractory ceramic fibre with approximately 20% organic carrier fibre. Insert materials are incorporated into the yarn to increase fabric tensile strength. Alloy wire insert (Grade MR) are available for obtaining maximum strength at elevated temperature. Glass filament insert (Grade Gr) are used in applications where electrical resistance is required.

Ceramic fibre textiles may be used up to 1250 Deg. C, however when tensile strength is important the temperature limits of the insert material should be considered.

Textile products can be supplied with little or no organic carrier. These products have exceptionally low smoke-off

characteristics upon heating compared with standard ceramic fibre textiles. Consequently these product are especially suited to fire protection applications and for hot wrapping of cables, pipes and ducts. These heat-treated products are only available with alloy wire reinforcement. Ropes are manufactured from yarn or blanket strips compressed and over braided with fibre glass, ceramic fibre or stainless steel wire. These ropes are accordingly called as Twisted, Ply or Braided. Ropes are available in various sizes and grades.

Typical Applications :

- Gasket & wrapping material
- Cable & wire insulation
- Welding curtains
- Furnace curtains & heat Zone separators
- Fuel line insulation
- Expansion Joints
- Door Gasket

PUMPABLES

The entire family of PUMPABLES is composed of spun Fibers, organic polymers, and inorganic binders. Pumpables are basically water-based, pliable, putty-like materials which are supplied premixed in 20 kgs pails.

Depending on the grade, the solid content of the material is between 31 and 48 percent. Dry densities can range from 350 to 650 kg./m³. Pumpables are specifically designed to be pumped into voids caused by deteriorated insulation. It can also be filled into cracks or gaps in refractory linings.

Installation

PUMPABLE can be installed in a number of ways : Caulking, Pumping, Troweling and Wet Spraying. Each method has its own place. Caulking and pumping are the most widely used.

Pumpables	S	AR	HT	WR
Type	Standard	Aluminium Resistant	High temperature	Water Resistant
Temperature Grade Deg.C	1260	1260	1400	1000
Linear shrinkage % dry to fired, 24 hrs.				
at 1000 ^o C	1.0 - 1.5	1.0 - 1.5	0.0 - 0.5	2.2 - 3.0
at 1100 ^o C	2.4 - 3.3	2.0 - 2.7	0.5 - 1.0	3.6 - 5.0
at 1200 ^o C			0.75 - 1.25	
at 1300 ^o C			1.5 - 2.0	
at 1350 ^o C			2.0 - 3.0	
Density, kg/m ³				
Wet	1025 - 1160	1150 - 1300	1200 - 1350	1200 - 1300
Dry	350 - 430	460 - 530	450 - 550	580 - 650
% Solids (Average)	31	38	38	48
Thermal conductivity, W/mk				
at 250 ^o C	0.08	0.08	0.08	0.09
at 500 ^o C	0.11	0.11	0.11	0.12
Shelf life	6 Months	6 Months	6 Months	3 Months

FIXWOOL FX

Fixwool FX is a silicate - based adhesive used for adhering fibre products to cold refractory brickwork or steelwork. it is best suited to thin products and die - cut pieces of blanket, felt, paper and board. Fixwool FX is supplied as liquid mix.

Temperature Grade	1300°C
Colour	Light Cream
Density, gm/cc	
Wet	1.96
Dry	1.8
Green Strength	Good
Fired Strength	Good
Consumption	1 Kg / M ²
Method of application	Brush, Trowel
Shelf Life	6 Months
Chemical Analysis, Dry Wt. %	
Al ₂ O ₃ O	: > 70
SiO ₂	: > 25
Al ₂ O ₃ + TiO ₂	: > 1
Na ₂ O + K ₂ O	: > 7
CaO + MgO	: < 1
Packaging	: 40 kg pail

Preparation and installation :

Ready to use . Mix the contents well using a heavy duty mechanical mixer. Apply using a brush, spatula or trowel. Drying time is normally in the region of one hour, depending on the ambient conditions. Do not allow to freeze in storage.

FYREPUTTY

FyrePutty made from Fibrefrax ceramic fibre, is a single component fire stop system for use in walls, ceilings and floors. It is used in new and retrofit construction for sealing metal pipes, voids, cable and EMT penetrations.

Ceramic fibre is an inorganic, chemically stable material that has excellent insulating and fire resistant characteristics. As a result, unlike silicone or intumescent products, FirePutty does not smoke, flame or give off noxious fumes or odors under fire conditions.

FyrePutty can be hand packed troweled, caulked or mechanically pumped.

Temperature use limit	:	1260 deg. C
Colour	:	Gray - White putty
Density, kg/m ³	:	
Wet	:	1200 - 1350
Dry	:	850 - 900
PH Value	:	9.5 - 9.8
Pumpability	:	Good
Shelf life	:	Six months
Packaginig	:	20 kg Pail

SEALCOAT HT

The wet sprayable versions of Pumpable products are seal Coar HT. Seal Coat HT (in conjunction with an Extrusion Pump and a Seal-Coat Gun Nozzel) can be wet sprayed onto ceramic fibre, other refractory linings & metal to seal, coat, and provide hot face Insulation lining. Seal Coat HT provides a tough insulating barrier against heat, gas flow and in some cases metal penetration.

• Temperature Grade	:	1400°C
• Linear Shrinkage, 5 dry to fired, 24 hrs. at : 1350°C	:	2.0 Max.
• Density, Kg/m ³	:	
Wet	:	1250 - 1350
Dry	:	500 - 600
• % Solids Average	:	40
• Thermal Conductivity W / mk at	:	
250°C	:	0.09
550°C	:	0.12
800°C	:	0.16
1100°C	:	0.22
• Sprayability	:	Good
• Thickness of Coating	:	1/2" To over 2"
• Coverage (for 1/2" Thick)	:	16.5 Kg./M ²
• Stricking	:	Good
• Shelf Life	:	6 Months
• Packaging	:	25 kg pail

PRODUCT DATA

FIBERFRAX QF 180

Description: Fiberfrax® QFTMCoating Cements contain ceramic fibres blended with inorganic additives to provide air setting refractory coatings or bonding agents. QF Coating Cements dry to a hard surface which is highly resistant to erosion and flame abrasion.

PHYSICAL PROPERTIES

Colour	:	Off – White
Form	:	Paint
Wet Density	:	1.54 gm/cc
Solids Content	:	60%
Normal Layer Thickness	:	0.25 – 0.5 mm
Typical Yield per 5.6 litres (1 layer)	:	7 m ² -14m ²
Application method	:	Brush, Roller
Recommended temperature limit	:	1250 Deg.C
Packaging	:	20 Kgs/pail
Shelf life	:	Six months

Typical Application :

- Mould lining adhesive for Fiberfrax paper used with high purity metals & glass
- Oxidation barrier for aluminium dip tubes, cast iron thermocouple tubes and galvanizing tanks
- Protective coating for molten aluminium distribution systems and associated implements
- Electric insulation coating for core liners of induction furnaces
- Infrared radiating surface for heating elements
- Internal coating for automotive exhaust pipes

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