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## MATERIAL SAFETY DATA SHEET

Classified as Hazardous according to criteria of Worksafe Australia

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### 1. IDENTIFICATION OF MATERIAL & SUPPLIER

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**Brand Name:** Fiberfrax®

**Ship. Name (CSN):** None allocated

**Product Names:**

Spun Bulk A	AB-70 Bulk Fiber
Durablanket S	Regular Bulk Fiber
FT Bulk Fiber	AZS Bulk Fiber
Foamfrax Bulk Fiber	Granulated Fiber
Spun Bulk E	Trim Fiber
1400 Bulk Fiber	Durablanket-E
FT 1400 Bulk Fiber	Durablanket 1400
Durablanket 96, 128, 160Kg	Fiberwall Bonded Modules
Durablanket Hot Face	Fiberfrax Durablock
Duraback	HD Ropes
Fiberwall Modules	Cloth
Fiberwall Anchor-Loc Modules	L126 Cloth
Prismo Modules	L126 Tape
Braid	L144 Tape
L144 Cloth	Standard Rope
Tape	High-Index Fiber
Ladder Tape	Milled Fiber
Large-Diameter Fiber	HS-70 & HS-70C Bulk Fiber
High-Temperature Fiber	

**Other Names:**  
Kerlane Bulk K50 A

Kerlane Bulk K50 E  
CG Cloths  
Carbolane

CS Cloths

TS Tapes

SRS Square Braids  
SRG Square Braids  
TRS Ropes  
TRG Ropes

**UN Number:** None Allocated

**DG Class** None Allocated

**Packaging Group** None Allocated

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### 1. Identification of Material and Supplier cont'd:

**Hazchem Code** None Allocated  
**Poisons Schedule** Not Scheduled  
**Product Use** Thermal Insulation.

**Manufacturer/Supplier:** Unifrax **Australia** Pty. Ltd. 326 Settlement Rd Thomastown Victoria 3074  
Unifrax **Brazil** Ltd Avenida, Independencia, 7033 Jardim Sao Matheus Vinhedo 20 13280-**Brazil**

Unifrax **India** Ltd 402 Kailash Tower Behind STC Colony Andheri East Mumbai 400069 India  
Unifrax **UK** Ltd Mill Lane, Rainford St. Helens Merseyside. 20 WA118L UK

Unifrax **Shanghai** #37 Building, Section D No 378 Mei Gui Road (N) Waigaoqiao Free Trade Zone Shanghai 200131 **China**

**Contact Details:** See Page 10

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### 2. HAZARDS IDENTIFICATION

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**Flammability**  
**Fire Hazards:** Non Flammable  
**Explosive Hazards:** Non Explosive  
**Health Hazards:** Irritating to eyes, skin, respiratory system and disturbances to gastro intestines.

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### 3. COMPOSITION AND INFORMATION ON INGREDIENTS

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<b>Ingredients:</b>	<b>Name</b>	<b>CAS</b>	<b>Proportion</b>
<b>Information on Composition</b>	Ceramic Fiber	65997-17-3	99-100%
	Refractory Fiber		
	Ceramic Fiber		
	MMVF		
	SMF		
<b>Other Information:</b>	Remaining components not determined to be hazardous and/or hazardous components present at less than 1.0% (0.1% for carcinogens)		

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### 4. FIRST AID MEASURES

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<b>Ingestion:</b>	Do not induce vomiting. Drink plenty of water.
<b>Eye:</b>	Flush immediately with large amount of water for at least 15 minutes. Eyelids should be held open away from the eyeball to ensure thorough rinsing. Do not rub eyes.
<b>Skin:</b>	If skin becomes irritated, remove contaminated clothing. Wash areas of contact with soap and water. Do not rub or scratch exposed skin. Using a skin cream or lotion after washing may be helpful in reducing irritation.
<b>Inhalation:</b>	Remove exposed person/s from source of exposure to fresh air.
<b>ADVICE TO DOCTOR:</b>	Acute effects are essential irritant in nature. Refer to 'OTHER INFORMATION' section for long term exposures.

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### 5. FIRE FIGHTING MEASURES.

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**Fire Explosion Hazard:** Not Flammable and not explosive.

**Hazardous Reactions/  
Decomposition Products** Refer to SAFE HANDLING INFORMATION

**Hazchem Code:** None Allocated.

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### 6. ACCIDENTAL RELEASE MEASURES

**Spills or Release  
To the Environment** Where possible, use vacuum suction to clean up spilled material. Use dust suppressant where sweeping is necessary. Avoid clean up procedures that may result in water pollution. Personal safety and exposure recommendations described elsewhere in this data sheet apply to exposure during clean up of spilled material.

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### 7. HANDLING & STORAGE

**Storage Precautions:** No special storage requirements.

**Handling:** In the installation of unbonded materials, the following handling and installation procedures are recommended.

- (a) All installation practices should be designed to minimise the liberation of any airborne Fiber or dust.
- (b) In large installations of several days/weeks duration, the installation area should be clearly designated and barriers erected to prevent access.
- (c) The ceramic materials should be stored in sealed plastic bags or similar containers until installation is to proceed. These containers should only be opened within the designated work area when work is to start.
- (d) Where possible, materials should be delivered in sizes such that a minimum of handling and machining is required. However, when cutting or drilling is required, these should be done with hand tools fitted with local exhaust extraction. The exhaust from such extraction equipment should be fitted and positioned away from other work areas.

**7. Handling & Storage cont'd:**

- (e) Empty storage bags should be folded and stored in a

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waste container along with any other waste material.

- (f) Upon completion of the job, all excess material should be sealed in bags prior to removal from the designated work area. The work area should be vacuumed using an industrial vacuum cleaner. Wet mopping and wiping can be utilised if an industrial vacuum cleaner is not available.

For removal of ceramic Fiber materials the following handling procedures are recommended:

- (a) All practices should be designed to minimise the liberation of any airborne Fiber or dust.
- (b) In large installations of several days/weeks duration, the installation area should be clearly designated and barriers erected to prevent access.
- (c) Upon completion of the job, all excess material should be sealed in bags prior to removal from the designated work area. The work area should be vacuumed using an industrial vacuum cleaner. Wet mopping and wiping can be utilised if an industrial vacuum cleaner is not available.

For removal of embrittled ceramic Fiber materials the following procedures in particular the selection of respirator protection should be implemented during the removal of such materials.

- (a) The removal area should be signposted and contained, where workable, to minimise the transfer of dust to other work areas;
- (b) Separate change areas should be provided to minimise the transfer of dust to general work areas;
- (c) Where workable, the spent material should be wetted to suppress dust generation;
- (d) Waste shall be placed in containers, plastic bags or other methods which prevent Fiber and/or dust emission, and disposed of in accordance with local waste disposal authority requirements;
- (e) The removal area should then be cleaned using an industrial vacuum cleaner; and
- (f) Once visible dust has been cleaned up, containment material

### **7. Handling & Storage cont'd:**

should be removed in a manner that minimises the liberation of any

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trapped dust.

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### 8. EXPOSURE CONTROLS & PERSONAL PROTECTION

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**Exposure Limits** 0.5 Fiber/ml for synthetic mineral Fiber.

**Other Exposure Info.** As published by Worksafe Australia.

**Protective Equipment** The National Code of Practice for the Safe Use of Synthetic Mineral Fibers (NOHSC May 1990) advises that for installation and removal of both bonded and unbonded ceramic Fiber material the following personal protective equipment should be used.

- (a) Disposable coveralls or long sleeve, loose fitting clothing and gloves (launderable clothing should be washed separately from other clothing).
- (b) Where overhead work is involved, goggles and head covering should be worn; and
- (c) A half-face (P1 or P2) respirator should be worn during work in enclosed or poorly ventilated spaces, for example, in ceiling spaces, or where evidence suggests that respirable Fiber levels may exceed 0.5 f/ml.

For ceramic Fiber removal work the following personal protective equipment should be used.

- (a) Disposable coveralls or long sleeves, loose fitting clothing and gloves be worn during installation (launderable clothing should be washed separately from other clothing).
- (b) Where overhead work is involved, goggles and head covering should be worn; and
- (c) A half-face respirator (Class P1 or P2) respirator.

For removal of embrittled or heat effected ceramic materials, the following personal protective equipment should be used by all

#### 8. Exposure Controls & Personal Protection cont'd:

personnel directly involved in the removal work.

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- (a) Disposable coveralls or long sleeve, loose fitting clothing and gloves (launderable clothing should be washed separately from other clothing).
- (b) Where overhead work is involved, goggles and head covering should be worn. Eye protection would be provided as an integral component of a full-face respirator.
- (c) A Class P2 respirator provides the necessary protection factor for this task. However, in some circumstances where excessive levels of dust are created, the limitations of filter loading capacity and facial seal may necessitate the use of:
  - a full (P3) cartridge respirator, or
  - a full (P3) powered air-purifying respirator or
  - a full faced, positive pressure demand airline respirator.

All respiratory protective devices should comply with AS/NZS1715 and AS/NZS1716.

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### 9. PHYSICAL & CHEMICAL PROPERTIES

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<b>Appearance</b>	White fibrous material - Nil odour
<b>Melting Point</b>	1760°C
<b>Boiling Point</b>	Not applicable
<b>Vapour Pressure</b>	Not applicable
<b>Specific Gravity</b>	2.62

#### 9. Physical & Chemical Properties cont'd:

<b>Flash Point</b>	None
<b>Flamm. Limit LEL</b>	Not applicable
<b>Solubility in Water</b>	Not available

#### 9. Physical & chemical Properties cont'd:

#### Other Properties

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<b>Autoignition Temp.</b>	None
<b>Vapour Density</b>	Not applicable
<b>pH Value</b>	Not applicable

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### 10. STABILITY & REACTIVITY

**Stability:** Stable under normal conditions of use.  
Incompatible with hydrofluoric acid and concentrated alkali

**Hazardous Reactions/  
Decomposition Products** Refer to SAFE HANDLING INFORMATION

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### 11. TOXICOLOGICAL INFORMATION

A number of studies have been conducted on the health effects of inhalation exposure of rats and hamsters. In a lifetime (6 hours per day, 5 days a week for 24 months) nose only inhalation study, rats exposed to the Maximum Tolerated Dose (30mg/m<sup>3</sup>, 200 Fibers/ml) developed progressive lung damage (interstitial fibrosis) and cancer of the lung and mesothelioma. In contrast, Hamsters similarly exposed developed interstitial fibrosis and mesothelioma but no lung cancers. A multiple dose study (3, 9, 16mg/m<sup>3</sup>; 25, 75 and 150 Fibers/ml) found a dose related parenchymal fibrosis however in the lowest exposed group (25 Fibers/ml); no irreversible effects were found that could be attributed to ceramic Fiber exposure. There was no statistical excess of lung tumours at any dose. One rat developed a mesothelioma in the 75 Fiber/ml exposure group. In 1987 the International Agency for Research on Cancer (IARC) reviewed the epidemiological and animal toxicology data on SMF (including ceramic Fiber, glasswool, rockwool, and slagwool) and classified the group as possible human carcinogens (IARC Group 2B)

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### 12. ECOLOGICAL INFORMATION

Not available.

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### 13. DISPOSAL CONSIDERATIONS

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**Waste Disposal:** Waste shall be placed in containers, plastic bags or other methods which will prevent Fiber and/or dust emission, and disposed of in accordance with the local waste disposal authority

#### 13. Disposal Considerations cont'd:

requirements. There may be specific regulations at the Local, State or Federal level that pertain to this material

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### 14. TRANSPORT INFORMATION

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No special transport requirements are necessary.

<b>UN Number</b>	None Allocated
<b>Shipping Name</b>	None Allocated
<b>DG Class</b>	None Allocated
<b>Packaging Group</b>	None Allocated
<b>Hazchem Code</b>	None Allocated
<b>Poisons Schedule</b>	Not Scheduled

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### 15. REGULATORY INFORMATION

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**Risk Statement:** R40 (3) Possible risk of irreversible effects. R36/37/38 Irritating to eyes, respiratory system and skin.

**Safety Statement:** S22 Do not breathe dust. S25 Avoid contact with eyes. S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

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### 16. OTHER INFORMATION

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#### RCF DEVITRIFICATION

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As produced, all RCG fibers are vitreous (glassy) materials which do not contain crystalline silica. Continued exposure to elevated temperatures may cause these fibers to devitrify (become crystalline). The first crystalline formation (mullite) begins to occur at approximately 985° C (1805° F). Crystalline phase silica may begin to form at temperatures of approximately 1200° C (2192° F). The occurrence and extent of crystalline phase formation is dependent on the duration and temperature of exposure, fiber chemistry and/or the presence of fluxing agents. The presence of crystalline phases can be confirmed only through laboratory analysis of the "hot face" fiber.

IARC's evaluation of crystalline silica states "Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1)" and additionally notes "carcinogenicity in humans was not detected in all industrial circumstances studied" (IARC Monograph Vol. 68, 1997). NTP lists all polymorphs of crystalline silica amongst substances which may "reasonably be anticipated to be carcinogens".

IARC and NTP did not evaluate after-service RCF, which may contain various crystalline phases. However, an analysis of after-service RCF samples obtained pursuant to an exposure monitoring agreement with the USEPA, found that in the furnace conditions sampled, most did not contain detectable levels of crystalline silica. Other relevant RCF studies found that (1) simulated after-service RCF showed little, or no, activity where exposure was by inhalation or by intraperitoneal injection; and (2) after-service RCF was not cytotoxic to macrophage-like cells at concentrations up to 320 g/cm<sup>2</sup> - by comparison, pure quartz or cristobalite were significantly active at much lower levels (circa 20 g/cm<sup>2</sup>).

### **CONTACT DETAILS:**

**Contact:** During Business Hours Ph: +61 3 9463 7100

**Emergency / After Hours Contact:** Alan Smith  
Ph: 0409 288 916

**References:** Replaces MSDS dated 01 August 2007.

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Unifrax Australia Pty. Ltd.

326 Settlement Road  
Thomastown, VIC 3074  
ACN 093 625 757



**FIBERFRAX®**

Ph: (03) 9463 7100 Fax: (03) 9464 5472

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**NOTICE:** *The information presented herein is based on data considered to be accurate as of the date of preparation of this Material Safety Data Sheet. However, no warranty or representation, express or implied, is made as to the accuracy or completeness of the foregoing data and safety information, nor is any authorisation given or implied to practise any patented invention without licence. In addition, no responsibility can be assumed by the vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product.*

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