
MATERIAL SAFETY DATA SHEET

Classified as Hazardous according to criteria of Worksafe Australia

1. IDENTIFICATION OF MATERIAL & SUPPLIER

Brand Name: FIBERFRAX®

Ship. Name (CSN): None Allocated

Product Names: 110 Paper
440 Paper
550 Paper
880 Paper
970 Paper
FT Paper
DS Paper

Other Names: Carbolane Paper

UN Number: None Allocated
DG Class: None Allocated
Packaging Group: None Allocated
Hazchem Code: None Allocated
Poisons Schedule: Not Scheduled
Product Use: Thermal Insulation

Supplier & Manufacturer: UNIFRAX LIMITED
Mill Lane, Rainford
St. Helens, Merseyside. 20 WA118L
UK

Contact Details: See Page 11.

2. HAZARDS IDENTIFICATION

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

Information on Composition:

Chemical Family: Vitreous Aluminosilicate Fibres.
Additional other names: Refractory Fibre, Ceramic Fibre, MMVF, SMF.
Remaining components not determined to be hazardous and/or hazardous components present at less than 1.0% (0.1% for carcinogens).

Ingredients:

<u>Name</u>	<u>CAS</u>	<u>Proportion</u>
Ceramic Fibre	65997-17-3	85-90%
Acrylic Latex		10-15%

4. FIRST AID MEASURES

Ingestion:

Ingestion is unlikely, but if it does occur DO NOT induce vomiting; drink plenty of water. Material should be excreted naturally, but if effects persist seek medical attention.

Eye:

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. If effects persist seek medical advice.

Skin:

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. If effects persist seek medical advice.

Inhalation:

Remove exposed person/s from source of exposure to fresh air. Keep person/s comfortable, warm, and rested. Recovery should be rapid after removal from exposure, but some people may be sensitive to a fibre induced irritation of the respiratory tract. If symptoms such as shortness of

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4. First Aid Measures Cont'd:

breath, cough, wheezing or chest pain develop seek medical advice, and if breathing difficulties continue qualified first-aiders may administer oxygen.

First Aid Facilities

Eyewash station and normal washroom facilities must be provided.

ADVICE TO DOCTOR:

Acute effects are essential irritant in nature. Refer to 'OTHER INFORMATION' section for long term exposures.

5. FIRE FIGHTING MEASURES.

Fire Explosion Hazard:

Not Flammable and not explosive.

**Hazardous Reactions/
Decomposition Products:**

Thermal decomposition of the binder from fires or first heat of the product may release vapours of carbon monoxide, carbon dioxide oxides of nitrogen and small amounts of aromatic and aliphatic hydrocarbons. Use adequate ventilation or other precautions to eliminate exposure to these vapours.

Hazchem Code:

None Allocated.

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.

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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 fibre or dust.
- b) In large installations of several days/weeks duration, the installation area should be clearly designated and barriers erected to limit 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 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.
- e) Empty storage bags should be folded and stored in a waste container along with any waste material.
- f) Upon completion of the job, all excess materials 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 installation practices should be designed to minimise the liberation of any airborne fibre or dust.
 - b) In large installations of several days/weeks duration, the installation area should be clearly designated and barriers erected to prevent access.
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7. Handling & Storage cont'd:

- c) Upon completion of the job, all excess materials 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 minimize the transfer of dust to other work areas.
- b) Separate change areas should be provided to minimize 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 should be removed in a manner that minimizes the liberation of any trapped dust.

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

Personal Protection:
Respiratory Type
(AS1716)

Thermal decomposition of the binder from fires or first heat of the product may release vapours of carbon monoxide, carbon dioxide oxides of nitrogen and small amounts of aromatic and aliphatic hydrocarbons. Use adequate ventilation or other precautions to eliminate exposure to

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8. Exposure Controls & Personal Protection cont'd:

these vapours, which can cause respiratory tract irritation, bronchial hyper-reactivity and asthmatic response.

The Worksafe Australia TWA exposure standard for cristobalite is 0.1mg/m³; OSHA permissible exposure limit (PEL) for cristobalite is 0.05mg/m³ (respirable dust). The ACGIH threshold limit value (TLV) for cristobalite 0.05 1mg/m³ (respirable dust) (ACGIH 1991-1992).

Use AS, NIOSH or MSHA approved equipment when airborne limits may be exceeded. Minimal acceptable respirators recommended for given airborne cristobalite concentrations are as follows:

CONCENTRATION: Up to 1 fibres/ml

RESPIRATOR TYPE: Optional dust respirator. (eg. 3M 9970 or equivalent).

CONCENTRATION: Up to 25 fibres/ml or 50 times the OSHA PEL for cristobalite (2.5mg/m³).

RESPIRATOR TYPE: P3 Type, Full-face cartridge respirator with high-efficiency filters. (eg. 3M 7800S with 7255 filter or equivalent).

CONCENTRATION: Greater than 25 fibres/ml or 50 times the OSHA PEL for cristobalite (2.5mg/m³).

RESPIRATOR TYPE: P3 Type, Full-face cartridge respirator with high-efficiency filters. (eg. 3M 7800S with W9435 hose and W2806 regulator or equivalent).

If airborne filter or cristobalite concentrations are not known, as minimum protection, use AS, NIOSH or MSHA approved half face, air purifying respirator with HEPA filter cartridges. Insulation surfaces should be lightly sprayed

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8. Exposure Controls & Personal Protection cont'd:

with water before removal to suppress airborne dust. As water evaporates during removal, additional water should be sprayed on the surfaces as needed. Only enough water should be sprayed to suppress dust so that water does not run onto the floor of the work area. To aid the wetting process, a surfactant may be used. After RCF removal is completed, dust suppressing cleaning methods, such as wet sweeping or vacuuming, should be used to clean the work area. If dry vacuuming is used, the vacuum must be equipped with a HEPA filter. Air blowing or dry sweeping should not be used. Dust suppressing components can be used to clean up light dust.

Eye Protection

Safety glasses with side shields, or chemical goggles must be worn when handling this material. Wear safety glasses or chemical goggles to prevent eye contact. Contact lenses should not be worn unless chemical goggles are also worn and care is taken not to touch the eye with contaminated parts of the body. Have eye washing facilities readily available where eye contact can occur.

Clothing:

Wear gloves, hats or full body clothing to prevent skin as necessary. Use separate lockers for work clothes to prevent fibre transfer to street clothes. Avoid taking unwashed work clothes home or provide disposable work clothing. Wash work clothes separately from other clothing. Rinse washing machine thoroughly after use. If clothing is to be laundered by someone else, inform launderer of proper procedure.

All respiratory devices should be tested for compliance with AS/NZS 1715 & AS/NZS 1716.

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9. PHYSICAL & CHEMICAL PROPERTIES

Appearance	White to Tan coloured paper, with no odour.
Melting Point	1800°C DS & FT Paper, 1538°C 110 Paper, 1927°C 880 Paper, 1793°C 970 Paper.
Boiling Point	Not applicable
Vapor Pressure	Not applicable
Specific Gravity	1400kg/m ³
Flash Point	None
Flamm. Limit LEL	Not applicable
Flamm. Limit UEL	Not applicable
Volatile Component	Not applicable
Solubility in Water	Not available
Autoignition Temp.	None
Vapor Density	Not applicable
pH Value	Not applicable
Solubility in Organic Solvents	Partly soluble in some solvents
Specific Properties or Risk	See 'Health Effects' section
Thermal Decomposition	See 'Hazardous Decomposition or by-products'.
Formula	Not applicable: Mixture
Molecular Weight	Not applicable: Mixture

10. STABILITY & REACTIVITY

Stability:	Stable under normal conditions of use.
Hazardous Reactions Decomposition Products	Thermal decomposition of the binder from fires or first heat of the product may release vapours of carbon monoxide, carbon dioxide oxides of nitrogen and small amounts of aromatic and aliphatic hydrocarbons. Use adequate ventilation or other precautions to eliminate exposure to these vapours. Also refer to SAFE HANDLING.

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11. TOXICOLOGICAL INFORMATION

The toxicology data indicates that ceramic fibre based materials should be handled with caution. The handling practices described in this MSDS must be strictly followed. In particular, when handling refractory ceramic fibre in any application, special caution should be taken to avoid unnecessary cutting, abrading, grinding, tearing etc., of the material to minimize the generation of airborne dusts. Product which has been in service at temperatures above 1000 °c, may undergo partial conversion to cristobalite, a form of crystalline silica. This reaction occurs at the furnace lining hot face. As a consequence, this material becomes more friable; special caution must be taken to minimise generation of airborne dust. The amount of cristobalite present will depend on the temperature and length in service. IARC has recently reviewed the animal, human and other relevant experimental data on silica in order to critically evaluate and classify the cancer causing potential; (See 'Respiratory Protection', where cristobalite has been classified as an established human carcinogen).

The potential for SMF's and other man made vitreous fibres to produce toxicity has been subject to extensive investigations. Unifrax is continuing to support the necessary investigations and will make all data available to all interested parties. Information will be updated as studies are completed and reviewed. The following is a review of the results to date:

12. ECOLOGICAL INFORMATION

Not Available

13. DISPOSAL CONSIDERATIONS

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 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

No special transport requirements are necessary.

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

15. REGULATORY INFORMATION

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. S52 Avoid contact with eyes. S38
In insufficient ventilation, wear suitable respiratory equipment.
S40 To clean floor and all objects contaminated by this
Material, use AS approved HEPA fitted vacuum cleaner.
S36/37/39 Wear suitable protective clothing, gloves and eye/
face protection.

Hazard Category: Harmful, irritant.

Poisons Schedule: Not scheduled.

16. OTHER INFORMATION

RCF DEVITRIFICATION

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

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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/cm² - by comparison, pure quartz or cristobalite were significantly active at much lower levels (circa 20 g/cm²).

CONTACT DETAILS:

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

Emergency / After Hours Contact: Alan Smith
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References: Replaces MSDS dated 01 August 2007.

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*

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... End Of Report ...

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