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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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<b>Product Names:</b>	Fyre Putty™
<b>Other Names:</b>	Refractory Ceramic Fibre MMMMF MMVF SMF
<b>Ship. Name (CSN):</b>	None Allocated
<b>UN Number:</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
<b>Product Use</b>	Thermal Insulation and Fire Protection
<b>Supplier:</b>	Unifrax Australia Pty. Ltd.
<b>Contact Details:</b>	See Page 9.

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### 2. HAZARDS IDENTIFICATION

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<b>Flammability</b>	
<b>Fire Hazards:</b>	Non flammable
<b>Explosive Hazards:</b>	Non explosive
<b>Health Hazards:</b>	May cause temporary irritation to eyes, skin, throat, nose and upper 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>
	Ceramic Fibre (alumino silicate)	65997-17-3	16-18%
	Amorphous silica (fumed)	7631-86-9	40-60%
	Aluminium oxide	1344-28-1	5-20%
	Cellulose derivative	9004-34-6	1-10%
	Water		balance

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### 4. FIRST AID MEASURES

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<b>Ingestion</b>	Drink water <b>do not</b> induce vomiting.
<b>Eye</b>	Flush continuously with water for 15 minutes. Eyelids to be held open, do not rub eyes.
<b>Skin</b>	If skin becomes irritated remove clothing and wash areas of contact with soap and water. Using a skin cream or lotion may be helpful in reducing irritation.
<b>Inhalation</b>	Remove exposed person to fresh air.
<b>ADVICE TO DOCTOR</b>	Treat symptomatically for irritant effects see 'Other Information - Toxicology'.

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### 5. FIRE FIGHTING MEASURES.

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<b>Fire Explosion Hazard:</b>	Not Flammable and not explosive.
<b>Hazardous Reactions/ Decomposition Products</b>	Refer to SAFE HANDLING INFORMATION
<b>Hazchem Code:</b>	None Allocated.

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### 6. ACCIDENTAL RELEASE MEASURES

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**Spills** Pick up large pieces and place in containers. Where possible, use vacuum cleaner to clean up smaller spilled material. Refer to removal procedures in 'Use and Handling'.

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### 7. HANDLING & STORAGE

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**Storage & Transport:** No special Storage or Transport requirements.

**Handling:** In the installation of wet ceramic fibre materials, the following handling and installation procedures are recommended:

- Rubber gloves should be worn to prevent direct skin contact. With continuous contact, inorganic binders found in the majority of wet ceramic fibre forms will dry the skin.
- Hand tools should be used to mould, form, shape or apply wet mixes.
- All waste or excess materials should be cleaned up prior to completion of the job and sealed in plastic bags.

For the removal of ceramic fibre materials the following procedures are recommended:

- All practices should be designed to minimise the liberation of any airborne fibre or dust.
  - In large installations of several days/weeks duration, the installation area should be clearly designated and barriers erected to limit access.
  - 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.
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### 7. Handling & Storage cont'd:

For removal of embrittled ceramic fibre materials the following procedures in particular the selection of respiratory protection should be implemented.

- a) The removal area should be signposted and contained, where possible, 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 fibre and/or dust emission, and disposed of in accordance with local waste disposal authority requirements;
- e) The removal area should 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 minimises the liberation of any trapped dust.

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### 8. EXPOSURE CONTROLS & PERSONAL PROTECTION

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**Exposure Standards:** 0.5 fibre/ml for SMF  
2mg/m<sup>3</sup> (respirable dust) for amorphous fumed silica  
10mg/m<sup>3</sup> (inspirable dust) for cellulose  
10mg/m<sup>3</sup> (inspirable dust) for aluminium oxide (NOHSC 1995)

**Engineering Controls:** Fyre Putty is a sticky white putty which does not release dust. It dries into hard solid matrix. It does not give off toxic or objectionable fumes while drying or in fire conditions. During removal, where possible use local exhaust ventilation.

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

**Personal Protection:**

The National Code of Practice for the Safe Use of Synthetic Mineral Fibres (NOHSC 1990) advises the use of the following PPE that for installation of wet ceramic fibre material.

- 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;

For removal of embrittled or heat effected ceramic materials the following personal protective equipment should be used by all personnel directly involved in the removal work.

- 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 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-face P3 cartridge respirator, or  
a full-face P3 powered air-purifying respirator or  
a full-faced positive pressure demand airline respirator

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

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### 9. PHYSICAL & CHEMICAL PROPERTIES

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<b>Appearance</b>	Sticky, White / Grey putty
<b>Melting Point</b>	1760°C
<b>Boiling Point</b>	Not applicable
<b>Vapour Pressure</b>	Not applicable
<b>Specific Gravity</b>	1.2
<b>Flash Point</b>	None
<b>Flamm. Limit LEL</b>	Not applicable
<b>Solubility in Water</b>	Insoluble

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### 10. STABILITY & REACTIVITY

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**Stability:** Stable under normal conditions of use.

**Hazardous Reactions /  
Decomposition Products** N/A

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### 11. TOXICOLOGICAL INFORMATION

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The potential for SMF fibres to produce health effects has been the subject of extensive investigations over a number of decades. The Australian Refractory Ceramic Fibre Industry Association (ARCFIA) is continuing to support the necessary investigations and will make all data available to interested parties. Information will be updated as studies are completed and reviewed. The following is a review of the results to date:

**EPIDEMIOLOGY:** Extensive investigations of ceramic fibre production workers have been ongoing for more than 10 years. The preliminary evidence is as follows;

1. There is no evidence of any fibrotic lung disease (interstitial fibrosis) whatsoever on X-ray.
  2. There is no evidence of any lung disease among those employees exposed to ceramic fibres that have never smoked.
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### **11. Toxicological Information cont'd:**

3. A statistical "trend" was observed in smokers between slight decreases in measures of pulmonary function and the duration of exposure to ceramic fibre however this trend is similar to that observed in smokers who work in other industries.

4. Pleural plaques (thickening along the chest wall) have been observed in a small number of employees in overseas plants who have had long duration of employment. A repeat study found inconsistencies in detecting such pleural plaques. No pleural plaques have been found in the Australian manufacturing workforce. There are several occupational and non-occupational causes for pleural plaques and it is generally considered that they are not indications of "pre-cancer" nor are they associated with any measurable effect on lung function

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 inhalations study, rats exposed to Maximum Tolerated Dose (30 mg/m<sup>3</sup>, 200 fibres/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 fibres/mL) found a dose related parenchymal fibrosis however in the lowest exposed group (25 fibres/mL) no irreversible effects were found that could be attributed to ceramic fibre exposure. There was no statistical excess of lung tumours at any dose. One rat developed a mesothelioma in the 75 fibre/mL exposure group.

In 1997 the International Agency for Research on Cancer (IARC) reviewed the

epidemiological and animal toxicology data on SMF (including ceramic fibre, glasswool, rockwool and slagwool) and classified the group as possible human carcinogens (IARC Group 2B).

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### **12. ECOLOGICAL INFORMATION**

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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 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

<b>UN Number</b>	None Allocated
<b>Shipping Name (CSN)</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:** R36/37/38 Irritating to eyes, nose and throat and upper respiratory system and skin.

**Safety Statement:** S22 Do not breathe dust. S52 Avoid contact with eyes. S38 If 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:** Irritant

**Poisons Schedule:** Not scheduled.

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**FYRE PUTTY™**

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### 16. OTHER INFORMATION

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

**Emergency / After Hours Contact:** Peter Willoughby  
Ph: 0409 288 917

**References:** Replaces MSDS dated 19 March 2012

**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.*

.....End of Report.....

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