
MATERIAL SAFETY DATA SHEET

Classified as Hazardous according to criteria of Worksafe Australia

1. IDENTIFICATION OF MATERIAL & SUPPLIER

Product Name: Launder Repair

Ship. Name (CSN): None Allocated

Other Names: Fiberfrax Launder Repair
Potlining Collector Bar Mastic

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

Supplier: Unifrax Australia Pty. Ltd.

Contact: See page 10

2. HAZARDS IDENTIFICATION

Flammability: Not applicable; material is non-combustible for practical purposes.

Fire Hazards: Not applicable; material is non-combustible for practical purposes.

Explosive Hazards: Non explosive

Health Hazards: May cause irritation to eyes, skin, respiratory system and disturbances to gastro intestines.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

| Ingredients: | Name | CAS | Proportion |
|--------------|--|------------|------------|
| | Colloidal silica (amorphous) | 7631-86-9 | 50-60% |
| | Ceramic Fibre | 65997-17-3 | 20-30% |
| | China Clay | | 10-20% |
| | Fumed Silica | | 1-10% |
| | Smectite Clay | | .10-5% |
| | Organic pigment | | .10-4% |
| | Cellulose derivative | | .20-3.50% |
| | Other ingredients determined not to be hazardous. | Mixture | .10-10% |

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4. FIRST AID MEASURES

| | |
|-----------------------------|---|
| Ingestion | Ingestion is unlikely. If ingested, DO NOT induce vomiting. The preferred method of elimination is through dilution and natural gastrointestinal elimination. Drink extra water or milk. Get medical attention if gastrointestinal symptoms develop, for example, irritation, nausea, vomiting, abdominal pain and diarrhea. If spontaneous vomiting occurs monitor breathing difficulty. |
| Eye | Flush immediately with large amounts of water for at least 15 minutes. Any contact lenses should be removed, and eyelids should be held away from the eyeball to ensure thorough rinsing. Do not rub eyes. Get medical attention as good work hygiene practice in all cases of eye exposure, and especially if effects persist. |
| Skin | If skin becomes irritated, remove contaminated clothing. Wash area of contact thoroughly with soap and water. Do not rub or scratch exposed skin. Using a skin cream or lotion after washing may be helpful. Get medical attention if irritation persists. Launder contaminated clothing separately. |
| Inhalation | Remove exposed victim/s from source of exposure, to fresh air. Some people may be sensitive to a fibre-induced irritation of the respiratory tract. If symptoms such as shortness of breath, coughing, wheezing or chest pain develop, seek medical attention. If victim/s experiences continued breathing difficulties, competent first-aid personnel can administer oxygen until medical assistance can be rendered. |
| First Aid Facilities | Eyewash station and normal washroom facilities must be provided, and a safety shower is strongly recommended. |
| Advice to Doctor | Pre-existing medical conditions may be aggravated by exposure, specifically, bronchial hyper-activity and chronic bronchial or lung disease. Persons chronically exposed to Aluminosilicate based products should be periodically monitored with chest X-rays and pulmonary function testing. |

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5. FIRE FIGHTING MEASURES.

Fire Explosion Hazard: Not Flammable and not explosive.

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

Hazchem Code: None Allocated.

6. ACCIDENTAL RELEASE MEASURES

Spills & Leaks:

Where possible, use HEPA fitted 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.

7. HANDLING & STORAGE

Safe Handling: Use AS1715/1716 approved equipment when airborne limits may be exceeded. If airborne fibre or cristobalite concentrations are not known, as minimum protection, use AS1715/1716 approved half face, air purifying respirator with HEPA, P1 filter cartridges. Insulation surfaces should be lightly sprayed 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.

Storage Precautions: No special storage requirements.

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8. EXPOSURE CONTROLS & PERSONAL PROTECTION

Exposure Limits

| Name | STEL | | TWA | | Footnote |
|------------|-------------------|-----|-------------------|-----|----------|
| | mg/m ³ | ppm | mg/m ³ | ppm | |
| China Clay | - | - | 2.5 | - | |

Other Exposure Info.

Ceramic Fibre: 0.5 fibre/ml.
Silica, Quartz TWA: 0.2mg/m³
Silica, cristobalite TWA: 0.2mg/m³
Silica, tridymite TWA: 0.2mg/m³
Silica, Fumed TWA: 0.2mg/m³

As established by the National Occupational Health and Safety Commission (Worksafe Australia).

Engineering Controls

Use adequate ventilation to keep the airborne concentrations of this material below the Worksafe Australia exposure standard. Local ventilation and/or enclosure of the process are preferred in these cases.

The following personal protective guidelines should be followed, especially where engineering controls (e.g. mechanical dust collection and other means of exhaust ventilation) are not technically feasible or do not reduce airborne fibre concentrations to below 0.5 fibre/ml. However, when the material has been exposed to temperatures greater than 1000°C, more extensive precautions are required as outlined below in 'Personal Protection Respiratory' section.

PERSONAL PROTECTION

Respiratory Type

Respiratory equipment that conforms to AS1715/1716 must be used, where (**AS1716**) exposure to refractory ceramic fibre, (RCF), or silica based material is likely to exceed or approach exposure standards. If airborne exposure limits are exceeded and engineering controls are not feasible, respiratory protection (as described below) must be used. Respiratory protection must also be used if irritation is experienced, or if airborne limits are unknown. Also, if the material has been exposed to temperatures above 1000°C refer to information below.

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8. Exposure Controls & Personal Protection cont'd:

CONCENTRATION: Up to 5 fibres/ml

RESPIRATOR TYPE: The optional disposable dust respirator, with P1 filter.

CONCENTRATION: 0.5 to 5 fibres/ml

RESPIRATOR TYPE: Half-face, air purifying respirator equipped with a high efficiency particulate air (HEPA), P1 filter cartridges.

CONCENTRATION: 5 to25 fibres/ml

RESPIRATOR TYPE: Full-face, air purifying respirator with high efficiency particulate air (HEPA), P1 filter cartridges.

CONCENTRATION: >25 fibres/ml

RESPIRATOR TYPE: Full-face, positive pressure supplied air respirator.

If airborne fibre levels are not known, as minimum protection, use half mask air purifying respirator equipped with high efficiency particulate air (HEPA), P1 filter cartridges. If respiratory protection is used, employees must be given instructions and training on their correct use and maintenance.

Eye Protection

Safety glasses with side shields, or chemical goggles must be worn when handling this material. 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.

Glove Type

Wear gloves, hats or full body clothing to prevent skin contact 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

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8. Exposure Controls & Personal Protection cont'd:

clothing is to be laundered by someone else, inform launderer of proper procedure.

Work/Hygienic Practices

Good work hygiene practice must be followed when handling this substance; that is, always wash face and hands before eating, drinking, smoking, toilet breaks and at the end of shifts. Do not take contaminated clothing home.

9. PHYSICAL & CHEMICAL PROPERTIES

| | |
|----------------------------|---------------------------|
| Appearance | White Paint with no odour |
| Melting Point | Not available |
| Boiling Point | Not available |
| Vapour Pressure | Not available |
| Specific Gravity | Not available |
| Flash Point | Not applicable |
| Flamm. Limit LEL | Not applicable |
| Flamm. Limit UEL | Not applicable |
| Solubility in Water | Insoluble |

OTHER PROPERTIES

| | |
|----------------------------|--|
| Autoignition Temp. | None |
| Vapour Density | Not applicable |
| pH Value | Not applicable |
| Viscosity | Not applicable |
| Haz. Polymerisation | None |
| Materials to Avoid | Incompatible with hydrofluoric acid, phosphoric acid and concentrated alkalis. |
| Formula | Not applicable: Mixture |
| Molecular Weight | Not applicable: Mixture |
| Other Information | Pour Point: Not applicable |

10. STABILITY & REACTIVITY

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Stability: Stable under normal conditions of use.

Hazardous Reactions Refer to SAFE HANDLING INFORMATION
Decomposition Products

11. TOXICOLOGICAL INFORMATION

The toxicology data indicates that ceramic fibre 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 minimise 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.

The potential for SMF's and other man made vitreous fibres to produce toxicity has been the subject of 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:

EPIDEMIOLOGY: Investigations of RCF production workers are ongoing. The preliminary evidence, obtained from employees in RCF manufacturing facilities, 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 fibre that have never smoked.
3. A statistical 'trend' was observed in the exposed population between duration of exposure to RCF and a decrease in some measures of pulmonary function. These observations are clinically insignificant and individual results are within the range of values obtained from the normal population.
4. Pleural plaques (thickening along the chest wall) have been observed in a small number of employees in overseas plants

11. Toxicological Information cont'd:

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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 an indication of a 'pre-cancerous' state.

A number of studies on the health effects of inhalation exposure of rats and hamsters have been conducted. In a lifetime nose only inhalation study, rats exposed to the Maximum Tolerated Dose of 30mg/m³ (200 fibres/ml) developed progressive lung damage (interstitial fibrosis) and cancer of the lung and of the pleural (lining of the chest wall and lung). In contrast, hamsters similarly exposed developed interstitial fibrosis and pleural cancer, but no lung cancer. Cancer of the pleura is called mesothelioma. A multiple dose study (3, 9, 16mg/m³; 25, 75 and 150 fibres/ml, respectively) found a dose related parenchymal fibrosis 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 tumour at any dose level. One rat developed mesothelioma in the 75 fibre/ml exposure group.

In 1987 the International Agency for Research on Cancer (IARC) reviewed the epidemiological and animal toxicology data on SMF, man made vitreous fibres (including ceramic fibre, glasswool, rockwool, and slagwool) and classified these groups as possible human carcinogens (IARC Group 2B, Worksafe Australia Category 3).

12. ECOLOGICAL INFORMATION

Conformance to specific local, state and federal regulations may be required for this material.

13. DISPOSAL CONSIDERATIONS

Waste shall be placed in containers, plastic bags or other methods which will prevent fibre and/or dust emission, and disposed of in accordance with all local, state and federal waste disposal authority that pertain to this material.

14. TRANSPORT INFORMATION

No special transport requirements are necessary.

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| | |
|-------------------------|----------------|
| 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

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

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LAUNDER REPAIR

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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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