1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: **KAOWOOL BLANKET & BULK PRODUCTS**

Other Names: KAOWOOL STANDARD BLANKET, KAOWOOL S BLANKET, PYRO – BLOC, FOLDED MODULES, LT BATTS, KAOWOOL BULK FIBRE

Recommended Use: Thermal insulation, heat shields, heat containment, gaskets and expansion joints in industrial furnaces, ovens, kilns, boilers and other process equipment and in the aerospace, automotive and appliance industries and as passive fire protection systems and fire stops

Manufacturer's Product Code / Name: 8910, 8950, 8970, and 9000

Supplier Name: Thermal Ceramics, a Division of Morganite Australia Pty. Ltd.
Address: 10 – 14 Toogood Ave, Beverley South Australia, 5009 Australia
Telephone: 1800 467 858
Fax: 1800 467 850

Emergency Contact: (08) 8243 5300
(Monday to Friday, 8:00a.m – 4:00p.m)

2. HAZARDS IDENTIFICATION

This product is classified as hazardous according to the criteria of Safe Work Australia (SWA).
Not classified as a dangerous good according to the criteria of the ADG Code

Risk Phrase

R49 May cause cancer by inhalation

Safety Phrases

S53 Avoid exposure-obtain special instruction before use
S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
Refer to Safe Work Australia Code of Practice for SMF, [NOHSC: 2006 (1990)].

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Proportion
Ceramic Fibre	65997–17-3	100%

4. FIRST AID MEASURES

4.1 ROUTES OF EXPOSURE

Swallowed
If ingested in sufficient quantity may cause temporary gastric irritation.

Eyes
Physical irritation, Abrasive action may cause damage to outer surface of the eye.

Skin
May cause irritation and inflammation due to mechanical action of fibre ends

Inhalation
Irritation to nose, throat and upper respiratory tract

4.2 FIRST AID MEASURES

Swallowed
Drink water do not induce vomiting.

Eyes
Flush continuously with water for 15 minutes. Eyelids to be held open, do not rub eyes.

Skin
If skin becomes irritated remove clothing wash areas of contact with soap and water. Using a skin cream or lotion may be helpful in reducing irritation.

Inhalation
Remove exposed person to fresh air.

4.3 ADVICE TO DOCTOR
Treat symptomatically

5. FIRE FIGHTING MEASURES

Flammability
Non flammable, No fire or explosion hazard exists.Packaging and surrounding materials may be combustible. Use extinguishing agent suitable for surrounding combustible materials.

Hazchem Code
None allocated

6. ACCIDENTAL RELEASE MEASURES

6.1 EMERGENCY PROCEDURES

Spillage
If product is damaged, seal and minimize fibre release. Clean area using approved micro-filter-equipped vacuum cleaner or wet sweep. Reuse where possible or place in a sealable plastic bag for safe disposal to an approved landfill.

Fire and Explosion
Non flammable, No fire or explosion hazard exists. Evacuate area and contact emergency services. Remain upwind and notify those downwind of hazard. Wear full protective equipment including self-contained Breathing Apparatus (SCBA) when combating fire. Use water fog to cool intact containers and nearby storage areas.
Extinguishing
Non flammable

6.2 METHODS AND MATERIAL FOR CONTAINMENT AND CLEAN UP
Pick up large pieces and use a vacuum cleaner fitted with high efficiency filter (HEPA). If brushing is used, ensure that the areas are wetted down first.

- Do not use compressed air for clean up.
- Do not allow being wind blown.
- Do not flush spillage to drain and prevent from entering natural watercourses.

7. HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING
Before use carefully read the product label. Use of safe work practices is recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas (ex if container is damaged).

Handling, Installation & Removal
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 fibre materials should be stored in sealed plastic bags or similar containers until installation is to proceed. These containers should 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.
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.

Removal of em-brittle ceramic fibre materials
a) The removal area should be signpost 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.

7.2 STORAGE

Store in original packaging in a dry area. Always use sealed and clearly labelled containers. Avoid damaging containers. Reduce dust emission during unpacking. Emptied containers, which may contain debris, should be cleaned before disposal or recycling.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 NATIONAL EXPOSURE STANDARDS

Country	Exposure Limit*	Sources
Australia	0.5 fibres/ml	Australian Safety & Compensation Council

** Time weighted average concentrations of airborne respirable fibres over 8 hours by the conventional membrane filter method.*

8.2 ENGINEERING CONTROLS

Review your applications in order to identify potential sources of dust exposure. Local exhaust ventilation, which collects dust at source, can be used. For example down draft tables, emission controlling tools and materials handling equipment. Keep the workplace clean. Use a vacuum cleaner fitted with a HEPA filter; avoid brushing and compressed air.

8.3 PERSONAL PROTECTIVE EQUIPMENT

Skin protection:
Disposable coveralls or long sleeve, loose fitting clothing and gloves (launderable clothing should be washed separately from other clothing).

Eye protection:
As necessary wear goggles or safety glasses with side shields.

Respiratory protection:
The National Standard for Synthetic Mineral Fibres [NOHSC:1004(1990)] advises the use of the following PPE that for installation and removal of both bonded and un-bonded glass wool material.
A half-face (P1 or P2) respirator should be worn during work in enclosed or poorly ventilated spaces, or where evidence suggests that respirable fibre levels may exceed 0.5 f/ml.All respiratory devices should be tested for compliance with AS/NZS 1715 & AS/NZS 1716.

8.4 VENTILATION

Use with adequate natural or mechanical ventilation during installation. If cutting with power tools, local extraction ventilation is recommended. Clean area with micro equipped vacuum cleaner or by wet sweeping.

8.5 INFORMATION AND TRAINING OF WORKERS

Workers should be trained on good working practices and informed on applicable local regulations. This may include:

- the potential risks to health resulting from the exposure to dust;

- the requirements regarding smoking, eating and drinking at the workplace;
- the requirements for protective equipment and clothing;
- the good working practices to limit dust emissions;
- the proper use of protective equipment;

8.6 ENVIRONMENTAL EXPOSURE CONTROLS

Refer to local applicable environmental permitted standards for air, water and soil. *For waste, refer to Section 13*.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	White Fibre	**BULK DENSITY**	96 – 240 kg/m^3
ODOUR	None	**MELTING POINT**	>1800° C
pH	Not Available	**SOLUBILITY IN WATER**	Slight
VAPOUR PRESSURE	Not Available	**SPECIFIC GRAVITY**	Not Available
VAPOUR DENSITY	Not Available	**CHEMICAL FAMILY**	Refractory Ceramic Fibre
BOILING POINT	Not Available		

10. STABILITY AND REACTIVITY

10.1 STABILITY

This material is chemically stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.2 CONDITIONS & MATERIALS TO AVOID

None

10.3 HAZARDOUS DECOMPOSITION PRODUCTS AND HAZARDOUS REACTIONS

None

As produced, Superwool™ are vitreous (glassy) AES Wools that do not contain crystalline silica. Continued exposure to elevated temperatures (>900°C) may cause these materials to form crystalline phases, including crystalline silica. The occurrence and extent of crystalline silica formation is dependent on the duration and temperature of exposure, CMS Wool chemistry and/or the presence of fluxing agents. The presence of crystalline silica can be confirmed only through laboratory analysis of the "hot face" fibre. If crystalline silica is present, follow appropriate hygiene standards and national or state regulations.

11. TOXICOLOGICAL INFORMATION

11.1 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.
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.

11.2 TOXICOLOGY

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:
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_3, 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, 16 mg/M_3; 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, glass-wool, rock-wool, and slag-wool) and classified the group as possible human carcinogens (IARC Group 2B).

12. ECOLOGICAL INFORMATION

These products are inert materials, which remain stable over the time.
No adverse effects of this material on the environment are anticipated.

13. DISPOSAL CONSIDERATIONS

Waste Disposal
Place in sealed, appropriately labeled plastic bags and dispose of in accordance with local authority guidelines. Suitable label: CAUTION: SYNTHETIC MINERAL FIBRE WASTE. Clean area with micro equipped vacuum or wet sweep

14. TRANSPORT INFORMATION

Not classified as a Dangerous Good according to the Australian Code for the transport of Dangerous Goods by Road and Rail.

UN Number	None Allocated
DG Class	None Allocated
Subsidiary risk(s)	None Allocated
Packing Group	None Allocated
Hazchem Code	None Allocated

15. REGULATORY INFORMATION

Poison Schedule
None Available

16. OTHER INFORMATION

In service this material may see conditions, temperatures greater than 1100° C for extended periods of time, to partially transform the silica present to a complex (disordered) crystalline phase form. If this occurs the precautions associated with the removal of em-brittle fibre material should be followed. Neither unheated nor after service RCF demonstrate any crytotoxity to macrophage-like cells in vitro. For after-service RCF administered to rats by inhalation, irreversible fibrosis only develops after 12 months at high doses. After service RCF shows no significant carcinogenicity in rats when administered by inhalation or intraperitoneal injection. Because high temperature insulation wools are such efficient insulators only a small proportion of the product volume develops crystalline phases when the hot face is above the devitrification temperature.

National Standard for Synthetic Mineral Fibres [NOHSC: 1004(1990)]
This code details the exposure standard and the appropriate testing procedures

National Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006(1990)]
This code details the minimum requirements for the safe handling of synthetic mineral fibres. It details provisions for the training, air monitoring, application procedures to reduce fibre release and personal protective equipment when using synthetic mineral fibres within the workplace.

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 safe as provided by law, 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 practice any patented invention without a 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 (however, this shall not act to restrict the vendor's potential liability for negligence or under statute).

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