

## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

**Product Name:** Kaowool Standard Vacuum Formed Board and Shapes

**Other Names:** Kaowool (1260) Vacuum Formed Boards and Shapes  
Cerachem Vacuum Formed Boards and Shapes  
Refractory Ceramic Fibre, MMMF, MMVF, SMF

**Recommended Use:** Thermal Insulation

**Manufacturer's Product Code:** 9110; 9200

**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

Classified as hazardous according to the criteria of Australian Safety & Compensation Council (ASCC)

Not classified as a dangerous good according to the criteria of the ADG Code

### 2.1 RISK PHRASE

R49 – May cause cancer by inhalation.  
R36/37/38 – Irritating to eyes, respiratory system and skin.  
R43 – May cause sensitization by skin contact

### 2.2 SAFETY PHRASES

S3/9/14 – Keep in a cool place, well ventilated place and away from foodstuffs.  
S22 - Do not breathe dust  
S25 - Avoid contact with eyes  
S26 – In case of contact with eye, rinse immediately with plenty of water  
S36 - Wear Suitable protective clothing  
S37 - Wear suitable gloves

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Proportion
Ceramic Fibre	65997-17-3	40-80%
Silica, Amorphous	7631-86-9	10-20%
Starch	9005-25-8	10-20%

## 4. FIRST AID MEASURES

### 4.1 ROUTES OF EXPOSURE

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### Swallowed

Exposure considered unlikely. Due to product form, ingestion is considered highly unlikely.

### Eyes

Exposure may result in lacrimation, irritation, pain and redness. Mechanical irritant

### Skin

Prolonged contact may result in irritation, itching and possible skin rash. Potential sensitizing agent

### Inhalation

Over exposure to fibre may result in mucous membrane irritation of the respiratory tracts. Fibre-glass is classified as possibly carcinogenic to humans (IARC Group 2B).

## 4.2 FIRST AID MEASURES

### Swallowed

For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor.

### Eyes

Flush gently with running water for 15 minutes. Seek medical attention if irritation persists.

### Skin

Remove contaminated clothing and gently flush affected areas with water. Seek medical advice if irritation persists.

### Inhalation

If over exposure occurs, leave exposure area immediately. Seek medical attention if irritation persists.

### Advice to Doctor

Treat symptomatically

## 5. FIRE FIGHTING MEASURES

### Flammability

Non flammable, No fire or explosion hazard exists. Resin binders and facings may decompose, smoulder or burn in fire situation or if heated over 300 C.

### Hazchem Code

None allocated

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1 EMERGENCY PROCEDURES

#### Spillage

If product is damaged, seal and minimize fibre release. Wear dust-proof goggles, PVC/rubber gloves, a Class P2 (Particulate) respirator and coveralls. 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.

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### 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

### 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 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.

## 7. HANDLING AND STORAGE

### 7.1 PRECAUTIONS FOR SAFE HANDLING

Before use carefully read the product label. Use of safe work practices are 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 (eg. if container is damaged).

### 7.2 STORAGE

Store in sealed container in cool, dry area, removed from foodstuffs. Ensure packages are adequately labelled, protected from physical damage and sealed when not in use.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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### 8.1 NATIONAL EXPOSURE STANDARDS HYGIENE STANDARDS AND EXPOSURE LIMITS

Country	Chemical	Exposure Limit*	Sources
Australia	Ceramic Fibre	0.5 fibre/ml	Australian Safety & Compensation Council
Australia	Silica Amorphous	10mg/m <sup>3</sup>	Australian Safety & Compensation Council
Australia	Starch	10mg/m <sup>3</sup>	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 PVC or rubber gloves (launder able clothing should be washed separately from other clothing).

#### Eye protection:

As necessary wear dust-proof 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 unbonded glass-wool material.

A half-face Class P2 (Particulate) respirator should be worn during work in enclosed or poorly ventilated spaces and high dust levels. At high fibre levels, wear a Full-face Class P3 (Particulate) respirator, or where evidence suggests that respirable fibre levels may exceed 0.5 fibres/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.*

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### 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>APPEARANCE</b>	White Fibrous	<b>BULK DENSITY</b>	280-330kg/m <sup>3</sup>
<b>ODOUR</b>	Odorless	<b>MELTING POINT</b>	>1800°C
<b>pH</b>	Not Available	<b>SOLUBILITY IN WATER</b>	Insoluble
<b>VAPOUR PRESSURE</b>	Not Available	<b>SPECIFIC GRAVITY</b>	Not Available
<b>VAPOUR DENSITY</b>	Not Available	<b>CHEMICAL FAMILY</b>	Synthetic Mineral Fibres
<b>BOILING POINT</b>	Not Available		
<b>LENGTH WEIGHTED GEOMETRIC MEAN DIAMETER</b>			

### 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

Resin binders and facings may decompose, smolder or burn in fire situation or if heated over 300 C.

#### 10.3 HAZARDOUS DECOMPOSITION PRODUCTS AND HAZARDOUS REACTIONS

### 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

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<sub>3</sub>, 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<sub>3</sub>; 25, 75, and 150 fibres/ml) found a dose related parenchymal fibrosis however in the lowest

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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. Silica occurs naturally as quartz, flint, diatomite, agate, chalcedony, chert and tridymite. It is not anticipated to have an adverse effect on the environment.

### 13. DISPOSAL CONSIDERATIONS

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 regulated for transport purposes.

UN Number:	None Allocated
DG Class:	None Allocated
Subsidiary risk(s):	None Allocated
Packing Group:	None Allocated
Hazchem Code:	None Allocated
Tertiary risk(s):	None Allocated
EPG:	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 cytotoxicity 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

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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).**

--- END OF MSDS ---