SAFETY DATA SHEET

(Following Regulations (EC) No 1907/2006 & (EC) No 1272/2008)

SDS Number: 248 Date of first issue: 22 June 2015 Date of last revision: 21 February 2022

1 - Identification of product

1.1 - Identification of Product

Tradenames: Suprawool B, Suprawool C,

The above-mentioned product contains Alkaline-earth silicate wools (AES wools) and polycrystalline fibres.

1.2 - Use of Product

Application as 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. (Please refer to specific technical data sheet for more information)

1.3 - Identification of Company

U.K.

THERMAL CERAMICS LIMITED
Tebay Road, Bromborough
Wirral, Merseyside CH62 3PH
Tel. : +44 (0) 151 334 4030
Fax : +44 (0) 151 334 1684

Website

www.morganthermalceramics.com
sds.tc@morganplc.com

1.4 - Emergency information

Tel: + 44 (0) 7931 963 973
Language: English
Opening hours: Only available during office hours

2 - Hazard Identification

2.1 - Classification of the substance/ mixture

2.1.1 CLASSIFICATION ACCORDING TO REGULATION (EC) NO 1272/2008
Not classified as hazardous according to Classification, Labelling and Packaging regulations (CLP) 1272/2008 EEC

2.2 - Labelling Elements

Not applicable

2.3 - Other hazards which do not result in classification

Mild mechanical irritation to skin, eyes and upper respiratory system may result from exposure.
These effects are usually temporary

3 - Composition / Information On Ingredients

These products are articles in the form of crucibles for use in the casting of superalloys

COMPONENT	%	CAS Number	REACH Registration Number	Hazard Classification according to CLP
Alkaline Earth Silicate Fibres	35-65	436083-99-7	01-2119457644-32	Note Q exonerated
Polycrystalline Fibre	5-20	675106-31-7	01-2119456884-25	Not classified as hazardous
Colloidal silica	5-30	7631-86-9	01-2119379499-16	Not classified as hazardous
Alumina	5-20	1344-28-1	01-2119817795-27	Not classified as hazardous
Starch	2-10	56780-58-6	Not yet available	Not classified as hazardous
Organic Binder	2-10	Not applicable	Not yet available	Not classified as hazardous
Fused Silica	2-10	60676-86-0	Not yet available	Not classified as hazardous

Composition:
* CAS definition: Alkaline earth silicate (AES) consisting of silica (50-82 wt%), calcia and magnesia (18-43 wt%), alumina, titania and zirconia (less than 6 wt%), and trace oxides.

IT IS STATED that these fibres comply with the TERMS of the "NOTE Q" of EUROPEAN COMMISSION regulation EC1272/2008 of 16 December 2008

None of the components are radioactive under the terms of European Directive Euratom 96/29.

4 - First-Aid measures

4.1 - Description of First Aid Measures.

Skin

Handling of this material may generate mild mechanical temporary skin irritation. If this occurs, rinse affected areas with water and wash gently. Do not rub or scratch exposed skin.

Eyes

In case of eye contact flush abundantly with water; have eye bath available. Do not rub eyes. Seek medical attention is irritation persists.

Nose and Throat

If these become irritated move to a dust free area, drink water and blow nose. Seek medical attention if irritation persists.

If symptoms persist, seek medical advice.

4.2 - Most Important symptoms and effects, both acute and delayed

No symptoms or effects expected either acute or delayed

4.3 - Indication of any immediate medical attention and special treatment required

No special treatment required, if exposure occurs wash exposed areas to avoid irritation.

5 - Fire-fighting measures

5.1 - Extinguishing media

Use extinguishing agent suitable for surrounding combustible materials.

5.2 - Special hazards arising from the substance or mixture

Non combustible products. However, virgin product binder may burn and produce gases and/or fumes.

5.3 - Advice for firefighters

Packaging and surrounding materials may be combustible.

6 - Accidental Release Measures

6.1 - Personal precautions, protective equipment and emergency procedures

Where abnormally high dust concentrations occur, provide the workers with appropriate protective equipment as detailed in section 8.
Restore the situation to normal as quickly as possible.

6.2 - Environmental precautions

Prevent further dust dispersion for example by damping the materials.
Do not flush spillage to drain and prevent from entering natural watercourses.
Check for local regulations, which may apply

6.3 - Methods and materials for containment and clean up

Pick up large pieces and use a vacuum cleaner.
If brushes are used, ensure that the area is wetted down first.
Do not use compressed air for clean up.
Do not allow to become windblown.

6.4 - Reference to other sections

For further information, please refer to sections 7 and 8

7 - Handling and storage

7.1 - Precautions for safe handling

Handling can be a source of dust emission and therefore the processes should be designed to limit the amount of handling. Whenever possible, handling should be carried out under controlled conditions (i.e., using dust exhaust system).
Regular good housekeeping will minimise secondary dust dispersal.

7.2 - Conditions for safe storage

Store in original packaging in a dry area.
Always use sealed and clearly labelled containers.
Avoid damaging containers.
Reduce dust emission during unpacking.

7.3 - Specific end use

Please refer to your local Morgan Thermal Ceramics' supplier.

8 - Risk Management Measures / Exposures Controls / Personal Protection

8.1 - Control parameters

Industrial hygiene standards and occupational exposure limits vary between countries and local jurisdictions. Check which exposure levels apply to your facility and comply with local regulations. If no regulatory dust or other standards apply, a qualified industrial hygienist can assist with a specific workplace evaluation including recommendations for respiratory protection. Examples of national OELs (November 2014) are given in the table below.

COUNTRY	Total Dust (mg/m^3)	Resp Dust (mg/m^3)	MMMF (fibre/ml)	Source
Austria	10	6	1	Grenzwerteverordnung
Belgium	10	3	1	Valeurs limites d'exposition professionnelle – VLEP/ Grenswaarden voor beroepsmatige blootstelling – GWBB
Denmark	10	5	1	Grænseværdier for stoffer og materialer
Finland	No limit	No limit	1	Finnish Ministry of Social Affairs and Health
France	10	5	1	Institut National de Recherche et de Sécurité
Germany	10	1.25	No Limit	TRGS 900
Hungary	No limit	No limit	*1*	EüM-SZCSM rendelet
Ireland	10	4	1	HAS – Ireland
Italy	10	3	1	Uses EU values
Luxembourg	10	6	1	Agents Chimiques, Cancérigènes Ou Mutagènes Au Travail
Netherlands	10	5	1	SER
Norway	10	5	0.5	Veiledning om administrative normer for forurensning i arbeidsatmosfære
Poland	No limit	No limit	2	Dziennik Ustaw 2010
Spain	10	3	1	INSHT
Sweden	10	5	1	AFS 2005:17
Switzerland	10	6	1	SUVA - *Valeurs limites d'exposition aux postes de travail*
UK	10	4	2	EH40/2005

Information on monitoring procedures

United Kingdom

MDHS 59 specific for MMVF: "Man-made mineral fibre - Airborne number concentration by phase-contrast light microscopy" and
MDHS 14/4 "General methods for sampling and gravimetric analysis of respirable and inhalable dust"

NIOSH

NIOSH 0500 "Particulates not otherwise regulate, total"
NIOSH 0600 "Particulates not otherwise regulate, respirable"
NIOSH 7400 "Asbestos and other fibres by PCM"

8.2 - Exposure controls

8.2.1 APPROPRIATE 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. Avoid brushing and compressed air.

If necessary, consult an industrial hygienist to design workplace controls and practices.
The use of products specially tailored to your application(s) will help to control dust. Some products can be delivered ready for use to avoid further cutting or machining. Some could be pre-treated or packaged to minimise or avoid dust release during handling.
Consult your supplier for further details

8.2.2 - Personal Protective Equipment

Skin protection:
Wear gloves and work clothes, which are loose fitting at the neck and wrists. Soiled clothes should be cleaned to remove excess fibres before being taken off (e.g. use vacuum cleaner, not compressed air). Wash work clothes seperately from other clothing.

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

Respiratory protection:
For dust concentrations below the exposure limit value, RPE is not required but FFP2 respirators may be used on a voluntary basis.
For short-term operations where excursions are less than ten times the limit value use FFP2 respirators.
In case of higher concentrations or where the concentration is not known, please seek advice from your company and/or local Thermal Ceramics supplier.

Information and training of workers
Workers should be trained on good working practices and informed on applicable local regulations.

8.2.3 - Environmental Exposure Controls

Refer to local, national or European applicable environmental standards for release to air water and soil.
For waste, refer to section13

9 - Physical and chemical properties

Information on basic physical and chemical properties	Not applicable
State	White or beige shape
Colour	Not applicable
Odour	Not applicable
Odour threshold	Not applicable
pH	Not applicable
Melting point/freezing point	> 1400°C
Initial boiling point and boiling point range	Not applicable
Flash point	Not applicable
Evaporation rate	Not applicable
Flammability (solid, gas)	Not applicable
Upper/lower flammability or explosive limits	Not applicable
Vapour pressure	Not applicable
Vapour density	Not applicable
Relative density	200-400 kg/m3
Solubility(ies)	Less than 1 mg/l
Partition co-efficient: n-octanol/water	Not applicable
Auto-ignition temperature	Not applicable
Decomposition temperature	Not applicable
Viscosity	Not applicable
Particle Characteristics	Not applicable
Explosive properties	Not applicable
Oxidising properties	Not applicable

10 - Stability and Reactivity

10.1 - Reactivity

The material is stable and non reactive.

10.2 - Chemical Stability

AES is inorganic, stable and inert

10.3 - Possibility of Hazardous Reactions

During first heating, oxidation products from the organic binder might be emitted in a temperature range from 180°C to 600°C. It is recommended to ventilate the room until gases and fumes have disappeared. Avoid exposure to high concentrations of gas or fumes.

10.4 - Conditions to Avoid

Please refer to handling and storage advice in Section 7

10.5 - Incompatible Materials

None

10.6 - Hazardous decomposition products

Upon heating above 900°C for sustained periods, this amorphous material begins to transform to mixtures of crystalline phases. For further information please refer to Section 16.

11 - Toxicological information

Toxicokinetics, metabolism and distribution

11.1.1 BASIC TOXICOKINETICS
Exposure is predominantly by inhalation or ingestion. Man made vitreous fibres of a similar size to AES have not been shown to migrate from the lung and/or gut and do not become located in other organs of the body
Fibres contained in the products listed in the title have been designed to be rapidly cleared from lung tissue. This low biopersistence has been confirmed in many studies on AES using EU protocol ECB/TM/27(rev 7). When inhaled, even at very high doses, they do not accumulate to any level capable of producing a serious adverse biological effect.

11.1 - Information on hazard classes as defined in Regulation (EC) No 1272/2008

In lifetime chronic studies there was no exposure-related effect more than would be seen with any "inert" dust. Subchronic studies at the highest doses achievable produced at worst a transient mild inflammatory response. Fibres with the same ability to persist in tissue do not produce tumours when injected into the peritoneal cavity of rats.

12 - Ecological information

12.1 - Toxicity

These products are inert materials that remain stable overtime.
No adverse effects of this material on the environment are anticipated.

12.2 - Persistence and degradability

Not established

12.3 - Bioaccumulative potential

Not established

12.4 - Mobility in soil

No information available

12.5 - Results of PBT and vPvB assessment

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

This mixture contains no substance considered to be very persistent and very bioaccumulative (vPvB).

12.6 - Endocrine Disrupting Properties

No additional information available

12.7 - Other adverse effects

13 - Disposal Considerations

Waste from these materials may be generally disposed off at a landfill, which has been licensed for this purpose. Please refer to the European list (Decision N° 2000/532/CE as modified) to identify your appropriate waste number, and insure national and/or regional regulations are complied with.

Unless wetted, such a waste is normally dusty and so should be properly sealed in containers for disposal. At some authorised disposal sites, dusty waste may be treated differently in order to ensure they are dealt with promptly to avoid them being windblown. Check for any national and/or regional regulations, which may apply.

14 - Transport information

14.1. UN number
Not Applicable

14.2. UN proper shipping name
Not Applicable

14.3. Transport hazard class(es)
Not Applicable

14.4. Packing group
Not Applicable

14.5. Environmental hazards
Not Applicable

14.6. Special precautions for user
Not Applicable

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Not Applicable

15 - Regulatory information

15.1 - Safety health and environment regulations/legislation specific for the substances or mixtures

EU regulations:

- Regulation (EC) No 1907/2006 dated 18th December 2006 on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
- Regulation (EC) No 1272/2008 dated 20th January 2009 on classification, labelling and packaging of substances and mixtures (OJ L 353)
- Annex of Regulation (EU) 2015/830
- Commission regulation (EC) No 790/2009 of 10 August 2009 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures.
- The 1st Adaptation to Technical Progress (ATP) to Regulation (EC) No 1272/2008 entered into force on 25 September 2009.

POLYCRYSTALLINE FIBRE
In Germany and in accordance with Technical Rules for Hazardous Substances TRGS905 (2.3. para. 6) inorganic fibrous dust is classified in category 3.
In 1988 IARC classified man-made mineral fibres as possible human carcinogens (2B) and, at that time PCWs were included in this broad category of materials. Current information on carcinogenicity is given in Section 11.

15.2 - Chemical Safety Assessment

Chemical Safety Reports have been requested from suppliers, as soon as this information is available it will be shared with downstream users.

16 - Other Information

Information on after service heated fibres

In almost all applications high temperature insulating wools products (HTIW) are used as an insulating material helping keeping up temperature at 900°C or more in a closed space. As only a thin layer of the insulation hot face side is exposed to high temperature, respirable dust generated during removal operations does not contain detectable levels of crystalline silica.

In applications where the material is heat socked, duration of heat exposure is normally short and a significant devitrification allowing CS to build up does not occur. This is the case for waste mould casting for instance.

Toxicological evaluation of the effect of the presence of CS in artificially heated HTIW material has not shown any increased toxicity in vitro. The results from different combinations of factors like increased brittleness of fibres, or micro crystals embedded in the glass structure of the fibre and therefore not biologically available may explain the lack of toxicological effects.

IARC evaluation as provided in Monograph 68 is not relevant as CS is not biologically available in after service HTIW and respirable dust generated during removal operations does not contain detectable levels of crystalline silica. http://www.iarc.fr/en/publications/pdfs-online/index.php

High concentrations of fibres and other dusts may be generated when after-service products are mechanically disturbed during operations such as wrecking. Therefore ECFIA recommends:
a) control measures are taken to reduce dust emissions; and
b) all personnel directly involved wear an appropriate respirator to minimise exposure and comply with local regulatory limits.

The trade association representing the European high temperature insulation wool industry (ECFIA) has undertaken an extensive hygiene programme for High Temperature Insulation Wool (HTIW). The objectives are twofold: (i) to monitor workplace dust concentrations at both manufacturers' and customers' premises, and (ii) to document manufacturing and use of HTIW products from an industrial hygiene perspective in order to establish appropriate recommendations to reduce exposures. The initial results of the programme have been published. If you wish to participate in the CARE programme, contact ECFIA or your Thermal Ceramics' supplier.

For more information connect to:
The Morgan Thermal Ceramics' website: (http://www.morganthermalceramics.com/)
Or ECFIA's website: (http://www.ecfia.eu)

Revision Summary

Update to Section 3

Technical data sheets

For more information on individual products please see the relevant technical data sheet available from http://www.morganthermalceramics.com/downloads/datasheets