

SAFETY DATA SHEET

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

SDS Number: 1020 Date of first issue: 15 November 2018 Date of last revision: 21 February 2022

1 - Identification of product

1.1 - Identification of Product

Tradenames: Superwool Pumpable,

The above-mentioned product contains Alkaline-earth silicate wools (AES wools)

Index Number: 650-016-00-2 Annex VI

CAS number: 436083-99-7

Registration number: 01-2119457644-32-0000

1.2 - Use of Product

This product is used to fill gaps in refractory applications particularly fibre-based refractories. It is highly resistant to spalling and cracking and has also very good adhesive properties. Mastic could be used as seam filler, gap filler, caulking agent, patching repair material, lining material for launders, and so on. (Please refer to specific technical data sheet for more information)

- Primary Use: Manufacture of fibre (this use refers to the initial production of the fibre and is therefore not relevant to the downstream user)
- Secondary Use: Conversion into wet and dry mixtures and articles (refer to section 8)
- Tertiary Use: Installation, removal (industrial and professional) / Maintenance and service life (industrial and professional) (refer to section 8)

1.3 - Identification of Company

IDENTIFICATION OF THE MANUFACTURER/SUPPLIER

Murugappa Morgan Thermal Ceramics Ltd.,
Plot No: 26 & 27, SIPCOT Industrial complex,
Ranipet, Vellore District, Tamil Nadu, India
Pin: 632403

Murugappa Morgan Thermal Ceramics Ltd.,
Plot No: 681, Motibhoyan Village,
Sanand-Kalol state Highway, Kalol Taluk,
Gandhi Nagar District, Gujarat, India

Website

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

1.4 - Emergency information

EMERGENCY CONTACT NUMBER

Tel 1: +91 (4172) 244 313 extn no. 215 or 201
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

CHRONIC RESPIRATORY HEALTH EFFECTS FOR ETHYLENE GLYCOL

NIOSH recently described evidence that ethylene glycol has potential reproductive hazards by inhalation of ethylene glycol mist.

3 - Composition / Information On Ingredients

This product is mastic made of AES wool. Once dried out, this product may generate dust.

| COMPONENT | % | CAS Number | REACH Registration Number | Hazard Classification according to CLP |
|-------------------------------|-------|----------------|---------------------------|--|
| Alkaline-earth Silicate Wools | 15-50 | 436083-99-7 | 01-2119457644-32 | Not classified |
| Colloidal silica | 40-80 | 7631-86-9 | 01-2119379499-16 | Not classified |
| Water | 0-30 | 7732-18-5 | Not yet available | Not classified |
| Organic material | < 5 | Not applicable | Not yet available | Not classified |
| Ethylene glycol | 1-9 | 107-21-1 | 01-2119456816-28 | Acute Tox 4 (H302) |

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

Skin

In case of skin irritation 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 if 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

Provide the workers with appropriate protective equipment until the situation is restored to normal (see section 8).

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

Do not handle wet product with bare hands. The process or processes should be designed to limit the amount of handling. Regular good housekeeping will minimise secondary dispersal.

7.2 - Conditions for safe storage

Store in dry and cool condition. Always use sealed and clearly labelled containers. Avoid storage in temperature lower than +5°C (risk of solidification) or above +40°C. Avoid damaging the packaging and keep closed when not in use. Emptied containers, which may contain debris, should be cleaned before disposal or recycling. Recyclable cardboard and/or plastic films are recommended for packaging.

7.3 - Specific end use

The main application of these products is as thermal insulation. Use of the products is restricted to professional users.
Please refer to section 8 and the relevant exposure scenario

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) | Ethylene Glycol (mg/m ³) | Source |
|-------------|---------------------------------|--------------------------------|--------------------------------------|---|
| Austria | 10 | 6 | No limit | Grenzwertverordnung |
| Belgium | 10 | 3 | 52 | Valeurs limites d'exposition professionnelle – VLEP/ Grenswaarden voor beroepsmatige blootstelling – GWBB |
| Denmark | 10 | 5 | 10 | Grænseværdier for stoffer og materialer |
| Finland | No limit | No limit | 50 | Finnish Ministry of Social Affairs and Health |
| France | 10 | 5 | 52 | Institut National de Recherche et de Sécurité |
| Germany* | 10 | 1.25 | 26 | TRGS 900 |
| Hungary | No limit | No limit | 53 | <i>EüM-SZCSM rendelet</i> |
| Ireland | 10 | 4 | 10 | HAS – Ireland |
| Italy | 10 | 3 | 52 | Uses EU values |
| Luxembourg | 10 | 6 | No limit | Agents Chimiques, Cancérigènes Ou Mutagènes Au Travail |
| Netherlands | 10 | 5 | 10 | SER |
| Norway | 10 | 5 | 10 | Veiledning om administrative normer for forurensning i arbeidsatmosfære |
| Poland | No limit | No limit | 15 | Dziennik Ustaw 2010 |
| Spain | 10 | 3 | 52 | INSHT |
| Sweden | 10 | 5 | 25 | AFS 2005:17 |
| Switzerland | 10 | 6 | 26 | SUVA - <i>Valeurs limites d'exposition aux postes de travail</i> |
| UK | 10 | 4 | 10 | EH40/2005 |

Information on monitoring procedures

United Kingdom

MDHS59 - "Machine Made fibre - Airborne number concentration and classification by phase contrast light microscopy"
MDHS88 - "Volatile organic compounds in air "

NIOSH

NIOSH 5523 "Glycols"
NIOSH 7400 "Asbestos and other fibres by PCM"

8.2 - Exposure controls

8.2.1 APPROPRIATE ENGINEERING CONTROLS

Review your application(s) and assess situations with the potential for dust release. Where practical, enclose dust sources and provide dust extraction at source. Designate work areas and restrict access to informed and trained workers. Use operating procedures that will limit dust production and exposure of workers. Keep the workplace clean. Use a vacuum cleaner fitted with a HEPA filter; avoid using brooms 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
Use of gloves and work clothes is recommended.

Eye Protection
Wear safety glasses

Respiratory Protection
Use appropriate respiratory protective equipment (RPE) if necessary.

Information and Training of workers

Workers should be informed on:
• The requirements for the use of protective equipment and clothing.
Workers should be trained on:
• The proper use of protective equipment

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 paste |
| Colour | Not applicable |
| Odour | None |
| Odour threshold | Not Applicable |
| pH | Not applicable |
| Melting point/freezing point | Not determined |
| 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 | 1.2 - 1.4 kg/dm ³ (wet) |
| Solubility(ies) | Not applicable |
| Partition co-efficient: n-octanol/water | Not applicable |
| Auto-ignition temperature | Not applicable |
| Decomposition temperature | Not Applicable |
| Viscosity | Not Applicable |
| Other safety information | Length Weighted Geometric Mean Diameter 1.4 - 3 µm |
| Particle Characteristics | Not applicable |
| Explosive properties | Not applicable |
| Oxidising properties | Not applicable |

10 - Stability and Reactivity

10.1 - Reactivity

AES 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

Experimental Studies for AES Wool

(a) acute toxicity; not tested: Short term tests have been undertaken to determine fibre biopersistence rather than toxicity; repeat dose inhalation tests have been undertaken to determine chronic toxicity and carcinogenicity.

(b) skin corrosion/irritation; Not a chemical irritant according to test method OECD no. 404

(c) serious eye damage/irritation; not tested

(d) respiratory or skin sensitisation; No evidence from human epidemiological studies of any respiratory or skin sensitisation potential

(e) germ cell mutagenicity; no adverse effects

Method: In vitro micronucleus test
Species: Hamster (CHO)
Dose: 1-35 mg/ml
o Routes of administration: In suspension
o Results: Negative

(f) carcinogenicity; no adverse effects

(g) reproductive toxicity; no adverse effects

Method: Gavage
Species: Rat
Dose: 250mg/kg/day
Routes of administration: Oral
Results: No effects were seen in an OECD 421 screening study. There are no reports of any reproductive toxic effects of mineral fibres. Exposure to these fibres is via inhalation and effects seen are in the lung. Clearance of fibres is via the gut and the faeces, so exposure of the reproductive organs is extremely unlikely.

(h) STOT-single exposure; not applicable

(i) STOT-repeated exposure; not applicable

(j) aspiration hazard. not applicable

EXPERIMENTAL STUDIES FOR ETHYLENE GLYCOL

Ethylene glycol toxicity by ingestion includes kidney effects with oxalate crystal deposition and liver damage. By inhalation exposure, lung changes and irritation of mucosal surfaces occurred in rats. A slight effect on reproduction was seen in mice administered 2000 mg/kg/day in their drinking water. During the studies with pregnant animals where high doses of ethylene glycol have been administered, foetal and maternal toxicity was observed.

Negative results have been obtained in animal studies (EU method B 4) for skin irritation. Inhalation exposures using the nose only route produce simultaneous heavy exposures to the eyes, but no reports of excess eye irritation exist. Animals exposed by inhalation similarly show no evidence of respiratory tract irritation.

Human data confirm that only mechanical irritation, resulting in itching, occurs in humans. Screening at manufacturers' plants in the UK has failed to show any human cases of skin conditions related to fibre exposure.

12 - Ecological information

12.1 - Toxicity

These products are insoluble materials that remain stable overtime and are chemically identical to inorganic compounds found in the soil and sediment; they remain inert in the natural environment.

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

13.1 - Disposal Considerations

To prevent waste materials from becoming airborne during waste storage, transportation and disposal, a covered container or plastic bagging is recommended.

For Australia, waste from these materials should be considered as hazardous waste and local waste authorities should be contacted for correct disposal methods.

For other countries, waste from these materials (even after use above 900°C) is not classified as hazardous waste and may generally be disposed of at a normal tipping site which has been licensed for the disposal of industrial waste. Taking into account any possible contamination during use, which may be classified as hazardous, expert guidance should be sought.

Such a waste is normally dusty (unless wetted) and so should be properly bagged and clearly labelled for disposal. At some tip sites dusty waste may be treated differently in order to ensure they are dealt with promptly and to avoid them being windblown. Check for national and /or regional regulations to identify all applicable disposal requirements.

14 - Transport information

14.1 - 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 - Regulatory information

The fibres contained in this product have been tested for bio persistence according to Note Q requirements under European Classification, Labelling and Packaging Regulations (EC/1272/2008) and its subsequent amendments.

Based on these results they are exonerated from classification as carcinogens in Europe and Australia.

16 - Other Information

16.1 - ADDITIONAL INFORMATION AND PRECAUTIONS TO BE CONSIDERED UPON REMOVAL OF AFTER SERVICE MATERIAL

16.2 - uses advised against

16.3 - NOTE

This Safety Data Sheet was originally produced in English and has subsequently been translated in to other languages; whilst every effort has been made to make this an accurate translation, please be aware that technical terms do not always translate correctly. The English version should always be considered as the reference version.

16.4 - Further Information

FURTHER INFORMATION

Further information can be found on

<http://www.morganthermalceramics.com/>

<http://www.cdc.gov/niosh/docs/2006-123/>

<http://www.ecfia.eu/>

http://echa.europa.eu/chem_data/authorisation_process/candidate_list_obligations_en.asp

16.5 - Technical Datasheets

TECHNICAL DATA SHEETS

For more information on individual products please see the technical data sheet section at www.morganthermalceramics.com

16.6 - Revision Summary

New Safety Data Sheet

16.7 - NOTICE

The information presented herein is based on data considered to be accurate as of the date of preparation of this 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 authorization given or implied to practice any patented invention without a license. 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.