



## SAFETY DATA SHEET

Following Regulation 1910.1200

SDS Number: MK202      Date of first issue: 01 November 2011      Date of last revision: 21 February 2022

### 1 - Identification of product

#### a - Product identifier used on the label

**Tradenames:** FireMaster Ul-T-Wrap, Min-K Data Recorder and Molded Insulation, Min-K FDR, Min-K Moulded Boards and Shapes, Mix 1301, Mix 1302, Mix 1303, Mix 1304, Mix 2000, Mix 283, Mix TE1400, Mix TE1800, Thermal Barrier System

#### b - Other means of identification

MICROPOROUS INSULATION

#### c - Recommended use of the chemical and restrictions on use

These products are used as high temperature thermal insulation in aerospace, automotive, nuclear and fire protection applications. These boards and shapes products combine high temperature insulating properties and very low thermal conductivity and can be used particularly where conditions impose low weight and space constraints at high temperature.

#### d - Name, address, and telephone number

|   |   |
|---|---|
| <b>Morgan Advanced Materials</b><br>2730 Industrial Parkway<br>Elkhart, IN 46516<br>Telephone: 574-296-3500 | <b>Morgan Advanced Materials</b><br>P. O. Box 923; Dept. 300<br>Augusta, GA 30903-0923<br>Telephone: 706-796-4200 |
|---|---|

#### e - Emergency Phone Number

For Product Stewardship and Emergency Information:  
Hotline - 1-800-722-5681  
Fax - 706-560-4054

For additional SDSs and to confirm this is the most current SDS for the product, visit our web page [www.morganthermalceramics.com](http://www.morganthermalceramics.com) or send a request to [MT.NorthAmerica@morganplc.com](mailto:MT.NorthAmerica@morganplc.com)

### 2 - Hazard Identification

#### a - Classification of the chemical in accordance with paragraph (d) of §1910.1200

Under OSHA HCS 2012, Titanium Dioxide is classified as a category 2 carcinogen.

#### b - Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accordance with paragraph (f) of §1910.1200

##### Hazard Pictogram



##### Signal Words

Warning

##### Hazard Statements

Suspected of causing cancer by inhalation.

##### Precaution Statements

Do not handle until all safety instructions have been read and understood.

Use respiratory protection as required; see Section 8 of the Safety Data Sheet.

If concerned about exposure, get medical advice.

Store in a manner to minimize airborne dust.

Dispose of waste in accordance with local, state and federal regulations.

May cause temporary mechanical irritation to exposed eyes, skin or respiratory tract.

Minimize exposure to airborne dust.

##### Emergency Overview

#### c - Describe any hazards not otherwise classified that have been identified during the classification process

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

#### d - Mixture Rule

Not applicable.

### 3 - Composition / Information On Ingredients

#### a - Composition table

| COMPONENT                                      | % BY WEIGHT | CAS NUMBER             | IndexNumber    | REACH RegistrationNumber |
|--|-------------|------------------------|----------------|--------------------------|
| Amorphous silica                               | < 90        | 112945-52-5 or similar | Not applicable | Not yet available        |
| E-glass filament                               | 1 - 10      | 65997-17-3             | Not applicable | Not applicable           |
| Amorphous silica fibers <sup>(1)</sup>         | 0 - 10      | 65997-17-3             | 650-017-00-8   | Not yet available        |
| Titanium dioxide <sup>(2)</sup>                | 0 - 30      | 1317-80-2              | Not applicable | N.A.                     |
| AES fibers* <sup>(4)</sup>                     | 0 - 10      | 436083-99-7            | 650-016-00-2   | 01-2119457644-32-0000    |
| Hydrated alumina                               | 0 - 50      | 21645-51-2             | Not applicable | Not yet available        |
| Polyester Fiber <sup>(3)</sup>                 | 0-10        | None                   | Not Applicable | Not Applicable           |
| Alumina Oxide <sup>(4)</sup>                   | up to 30    | 1344-28-1              | Not Applicable | Not Applicable           |
| Cured phenol formaldehyde resin <sup>(5)</sup> | 0 - 10      | None                   | Not applicable | Not yet available        |
| Polycrystalline wool <sup>(6)</sup>            | 0- 20       | 675106-31-7            | 614-074-7      | Not yet available        |

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

<sup>(1)</sup>Contained in product mixes: TE 1400; TE1800; 2000; 1302; 1304

<sup>(2)</sup>Contained in product mixes: TE1400; TE1800; 2000, Firemaster UT-I Wrap, Thermal Barrier System.

<sup>(3)</sup>Contained in product mixes: Firemaster UT-I Wrap, Thermal Barrier System.

<sup>(4)</sup> Only in Mixe 283

<sup>(5)</sup> Not in TE1400, TE1800, FireMaster UI-T-Wrap and Thermal Barrier System

<sup>(6)</sup> Only in 1303 mix

\*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

#### b - Common Name

(See Section 8 "Exposure Controls / Personal Protection" for exposure guidelines)

#### d - Impurities and Stabilizing Additives

Not applicable.

### 4 - First-Aid measures

#### a - Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin and eye contact, and ingestion

##### Eyes

In case of eye contact flush abundantly with water; have eye bath available. Do not rub eyes.

##### Skin

If a skin rash develops due to mechanical irritation, wash the affected area gently with soap and water. A skin cream or lotion after washing may be helpful. Do not rub or scratch the exposed skin. Changing into clean clothing is recommended.

##### Respiratory Tract

If these become irritated move to a dust free area, drink water and blow nose.

##### Gastrointestinal

#### c - Indication of immediate medical attention and special treatment needed, if necessary

### 5 - Fire-fighting measures

#### a - Suitable (and unsuitable) extinguishing media and

Use extinguishing media suitable for type of surrounding fire

#### c - Special Protective Equipment and Precautions for Firefighters

#### b - Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products):

None

### 6 - Accidental Release Measures

#### a - 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.

Prevent further dust dispersion for example by damping the materials.

If brushing is used, ensure that the area is wetted down first.

Do not use compressed air for clean up.

Do not allow being windblown. Do not flush spillage to drain and prevent from entering natural watercourses.

#### b - Methods and materials for containment and cleaning up

Pick up large pieces and dispose in a closed container. Follow precaution stated in above section for clean up.

## 7 - Handling and storage

### a - Precautions for safe handling

Handling can be a source of dust emission. The process or processes should be designed to limit the amount of handling. Wherever possible, handling should be carried out under ventilation with filtered exhaust. Regular good housekeeping will minimise secondary dust dispersal.

### b - Conditions for safe storage, including any incompatibilities

#### SPECIFIC USE

Please refer to your local Thermal Ceramics' supplier.

### c - empty containers

Product packaging may contain residue. Do not reuse.

## 8 - Risk Management Measures / Exposures Controls / Personal Protection

a - OSHA permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available

| EXPOSURE GUIDELINES     |  |                     |                    |
|-------------------------|--|---------------------|--------------------|
| MAJOR COMPONENT         | OSHA PEL   | ACGIH TLV           | MANUFACTURER'S REG |
| Amorphous Silica        | 20 mppcf or (80 mg/m <sup>3</sup> + % SiO <sub>2</sub> ) | Not Established     | NONE               |
| E-Glass Filament        | Not Established  | 5mg/m <sup>3</sup>  | 1 f/cc             |
| Amorphous Silica Fibers | Not Established  | 1 f/cc              | 1 f/cc             |
| Titanium Dioxide        | 15mg/m <sup>3</sup>                                      | 10mg/m <sup>3</sup> | NONE               |
| AES Fibers              | Not Established  | Not Established     | 1 f/cc             |
| Polyester Fiber         | Not Established  | Not Established     | None               |

#### OTHER OCCUPATIONAL EXPOSURE LEVELS (OEL)

Ontario Canada OEL - Continuous Filament Glass Fibers = 1 f/cc (F) or 5 mg.m<sup>3</sup>. Glass wools = 1f/cc. 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.

### b - 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.

### c - Individual protection measures, such as personal protective equipment

#### PPE - Skin

Wear gloves and work clothes, which are loose fitting at the neck and wrists. Soiled clothes should be cleaned to remove excess fibers before being taken off (e.g. use vacuum cleaning, not compressed air).

#### PPE - Eye

As necessary wear goggles or safety glasses with side shields.

#### PPE – Respiratory

When engineering and/or administrative controls are insufficient to maintain workplace concentrations below the PEL/REG or OEL the use of appropriate respiratory protection, pursuant to the requirements of OSHA Standards 29 CFR 1910.134 and 29 CFR 1926.103, is recommended. A NIOSH certified respirator with a filter efficiency of at least 95% should be used. The 95% filter efficiency recommendation is based on NIOSH respirator selection logic sequence for exposure to particulates. Selection of filter efficiency (i.e. 95%, 99% or 99.97%) depends on how much filter leakage can be accepted and the concentration of airborne contaminants. Other factors to consider are the NIOSH filter series N, R or P. (N) Not resistant to oil, (R) Resistant to oil and (P) oil Proof. These recommendations are not designed to limit informed choices, provided that respiratory protection decisions comply with 29 CFR 1910.134.

The evaluation of workplace hazards and the identification of appropriate respiratory protection is best performed , on a case by case basis, by a qualified industrial hygienist.

## 9 - Physical and chemical properties

|   |   |
|---|---|
| <b>a - Appearance</b>                                   | Quilted blanket, tape or pre-formed tan disk; slight odor |
| <b>b - Odor</b>   | Not applicable  |
| <b>c - Odor Threshold</b>                               | Not applicable  |
| <b>e - pH</b>   | Not applicable  |
| <b>d - Melting Point</b>                                | Not determined  |
| <b>f - Initial Boiling Point/Range</b>                  | Not applicable  |
| <b>g - Flashpoint</b>                                   | Not applicable  |
| <b>h - Evaporation Rate</b>                             | Not applicable  |
| <b>i - Flammability</b>                                 | Not applicable  |
| <b>j - Upper/Lower Flammability or Explosive Limits</b> | Not applicable  |
| <b>k - VAPOR PRESSURE</b>                               | Not applicable  |
| <b>l - VAPOR DENSITY</b>                                | Not applicable  |
| <b>m - Solubility</b>                                   | Not soluble in water                                      |
| <b>n - Relative Density</b>                             | Not applicable  |
| <b>o - Partition Coefficient: n-Octanol/water</b>       | Not applicable  |
| <b>p - Auto-ignition temperature</b>                    | Not applicable  |
| <b>q - Decomposition Temperature</b>                    | Not applicable  |
| <b>r - Viscosity</b>                                    | Not applicable  |

## 10 - Stability and Reactivity

### a - Reactivity

None.

### b - Chemical Stability

Stable under conditions of normal use.

### c - Possibility of Hazardous Reaction

None

### d - Conditions to Avoid

None

### e - Incompatible Materials

None

### f - Hazardous decomposition products

This product can produce carbon dioxide, carbon monoxide and traces of ammonia, formaldehyde and phenol during initial heating.

## 11 - Toxicological information

### a - TOXICOKINETICS, METABOLISM AND DISTRIBUTION

#### b - Acute Toxicity

#### c - Epidemiology

#### d - Toxicology

Titanium Dioxide

Titanium dioxide was reclassified by the IARC in 2006 as a "possibly carcinogenic to humans (Group 2B)". The classification was based on sufficient evidence in experimental animals but inadequate evidence in humans for the carcinogenicity of titanium dioxide. IARC indicated in the monograph that "the studies do not suggest an association between occupational exposure to titanium dioxide as it occurred in recent decades in Western Europe and North America and risk for cancer."  
[IARC Monograph (Vol. 93)]

The US National Institute for Occupational Safety and Health (NIOSH) is currently reviewing the available toxicity data on titanium dioxide. On the recent draft Current Intelligence Bulletin (March, 2006), NIOSH recommends exposure limits of 1.5 mg/m<sup>3</sup> for fine TiO<sub>2</sub> (particle greater than 0.1 µm in diameter) and 0.1 µg/m<sup>3</sup> for ultrafine particles. The draft document states that the difference in the recommended limits reflect findings from studies, which suggest that ultrafine TiO<sub>2</sub> particles may be more potent than fine TiO<sub>2</sub> particles at the same mass. It also indicated this may due to the fact, that the ultrafine particles have a greater surface area than the fine particles at the same mass.

Silica, Amorphous

Toxic effects found in animals following a single inhalation exposure to amorphous silica include upper respiratory irritation, lung congestion, bronchitis and emphysema. Repeated inhalation exposures at concentrations of 50 to 150 mg/m<sup>3</sup> produced increased lung weights and lung changes. No progressive pulmonary fibrosis was seen and the observed lung changes were reversible. No adverse effects were observed in this study at 10 mg/m<sup>3</sup>. No animal test reports have been found which define carcinogenic, mutagenic or reproductive effects.

Amorphous Silica Fibers

In October 2001, an international expert review was conducted by the International Agency for Research on Cancer (IARC), downgrading the classification of glasswool from Group 2B (possible carcinogen) to Group 3 (not classifiable as to carcinogenicity in humans). However, the special high purity silica fiber contain fiber with very fine diameter, the manufacture has classified them as possible carcinogen.

AES Wools

AES wools have been tested for their biopersistence using methods devised by the European Union. The results from these studies exonerate AES wools from carcinogen classification under the criteria listed in Nota Q of European Commission Directive 97/69/EU.

### POLYCRYSTALLINE WOOLS (Only in mix 1303)

Lifetime rat inhalation studies in the rat on PCW fibers at the maximum levels achievable have shown no evidence of lung cancer, lung fibrosis or any other adverse effect, apart from a minimal pulmonary response typical of that of a 'low toxicity dust'.

Also, a lifetime feeding study in rats has produced no evidence of any adverse effects at levels up to 2.5 % in the diet.

Intraperitoneal, intratracheal and intrapleural studies in rats, together with two in vitro tests, all showed negative results whereas asbestos and crystalline silica which were used as positive controls (where relevant) produced positive responses.

The results of these extensive testing programmes indicate that PCW materials lack one or more of the fundamental characteristics necessary for mesothelioma induction, as well as not possessing fibrogenic potential.

### International Agency for Research on Cancer and National Toxicology Program

Titanium dioxide was reclassified by the IARC in 2006 as a "possibly carcinogenic to humans (Group 2B)".

The classification was based on sufficient evidence in experimental animals but inadequate evidence in humans for the carcinogenicity of titanium dioxide.

The IARC classification are based on very specific evidence showing that high concentrations of pigment-grade (powdered) and ultrafine titanium dioxide dust caused respiratory tract cancer in rats exposed by inhalation and intratracheal instillation.

## 12 - Ecological information

These products are not reported to have any ecotoxicity effects.

### c - Bioaccumulative potential

No information for the product.

### d - Mobility in soil

No information for the product.

### e - Other adverse effects (such as hazardous to the ozone layer)

No adverse effects of this material on the environment are anticipated.

## 13 - Disposal Considerations

### Waste Management and Disposal

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

### Additional information

This product, as manufactured, is not classified as a listed or characteristic hazardous waste according to U. S. Federal regulations (40 CFR 261). Any processing, use, alteration or chemical additions to the product, as purchased, may alter the disposal requirements. Under U. S. Federal regulations, it is the waste generator's responsibility to properly characterize a waste material, to determine if it is a "hazardous" waste. Check local, regional, state or provincial regulations to identify all applicable disposal requirements.

## 14 - Transport information

### a - UN number.

Hazard Class: Not Regulated United Nations (UN) Number: Not Applicable  
Labels: Not Applicable North America (NA) Number: Not Applicable  
Placards: Not Applicable Bill of Lading: Product Name

### b - UN proper shipping name

Not applicable.

### c - Transport hazard class(es)

Not applicable.

### d - Packing group, if applicable

Not applicable.

### e - Environmental hazards (e.g., Marine pollutant (Yes/No))

No.

### f - Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code)

Not regulated.

### g - Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises

Not applicable.

### International

#### INTERNATIONAL

Canadian TDG Hazard Class & PIN: Not regulated

Not classified as dangerous goods under ADR (road), RID (train), IATA (air) or IMDG (ship).

## 15 - Regulatory information

### 15.1 - United States Regulations

#### **UNITED STATES REGULATIONS**

**SARA Title III:** This product does not contain any substances reportable under Sections 302, 304, 313 (40 CFR 372). Sections 311 and 312 apply.

**OSHA:** Comply with Hazard Communication Standards 29 CFR 1910.1200 and 29 CFR 1926.59 and Respiratory Protection Standards 29 CFR 1910.134 and 29 CFR 1926.103.

**TSCA:** All substances contained in this product are listed, if required, in the TSCA Chemical Inventory.

### 15.2 - International Regulations

#### **INTERNATIONAL REGULATIONS**

**Canada WHMIS:** Polycrystalline wools and titanium dioxide are classified as Class D2A-Materials, causing other toxic effects.

**Canadian EPA:** All substances in this product are listed, as required, on the Domestic Substance List (DSL).

## 16 - Other Information

### initial statement

### Devitrification

### Product Stewardship Program

Morgan Thermal Ceramics [www.morganthermalceramics.com](http://www.morganthermalceramics.com)

### HMIS HAZARD RATING

### TECHNICAL DATA SHEETS

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### Revision Summary

Revision date updated.

### MSDS prepared by

SDS Prepared By: MORGAN THERMAL CERAMICS ENVIRONMENTAL, HEALTH & SAFETY DEPARTMENT

### Disclaimer

The information presented herein is presented in good faith and believed to be accurate as of the effective date of this Safety Data Sheet. Employers may use this SDS to supplement other information gathered by them in their efforts to assure the health and safety of their employees and the proper use of the product. This summary of the relevant data reflects professional judgment; employers should note that information perceived to be less relevant has not been included in this SDS. Therefore, given the summary nature of this document, Morgan Thermal Ceramics does not extend any warranty (expressed or implied), assume any responsibility, or make any representation regarding the completeness of this information or its suitability for the purposes envisioned by the user.