SAFETY DATA SHEET

Following Regulation 1910.1200

SDS Number: MK207 Date of first issue: 05 March 1997 Date of last revision: 21 February 2022

1 - Identification of product

a - Product identifier used on the label

Tradenames: BTU-Block Gue, Min-K Mouldable

b - Other means of identification

MICROPOROUS INSULATION

c - Recommended use of the chemical and restrictions on use

Industrial Thermal Insulation; High-Temperature Caulking

d - Name, address, and telephone number

Morgan Advanced Materials 2730 Industrial Parkway Elkhart, IN 46516 Telephone: 574-296-3500	**Morgan Advanced Materials** P. O. Box 923; Dept. 300 Augusta, GA 30903-0923 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 or send a request to MT.NorthAmerica@morganplc.com

2 - Hazard Identification

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

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

Inhalation of excessive amounts of dust from the product may cause temporary upper respiratory irritation and/or congestion. Remove individual to fresh air.

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

d - Mixture Rule

3 - Composition / Information On Ingredients

a - Composition table

COMPONENTS	CAS NUMBER	% BY WEIGHT
Water	7732-18-5	60 - 70
Silica, Amorphous	7631-86-9	10 - 20
Fumed Silica, Treated	67762-90-7	10 - 15
Fibrous Glass	65997-17-3	5 - 10
Alkaline-Earth Silicate Wool[(1)]	436083-99-7	3 - 5
Titanium Dioxide	13463-67-7	2 - 5
Polymer	NONE	< 1

(1) **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. This CAS composition also covers Morgan Thermal Ceramics products Calcium-Magnesium-Silicate Wool (CAS no. 329211-92-9) and Calcium-Magnesium-Zirconium-Silicate Wool (CAS no. 308084-09-5).

b - Common Name

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

d - Impurities and Stabilizing Additives

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

If eyes become irritated, flush immediately with large amounts of lukewarm water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Do not rub eyes.

Skin

If skin becomes irritated, remove soiled clothing. Do not rub or scratch exposed skin. Wash area of contact thoroughly with soap and water. Using a skin cream or lotion after washing may be helpful.

Respiratory Tract

If respiratory tract irritation develops, move the person to a dust free location. See Section 8 for additional measures to reduce or eliminate exposure.

Gastrointestinal

If gastrointestinal tract irritation develops, move the person to a dust free environment.

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

NFPA Codes: Flammability: 0 Health: 1 Reactivity: 0 Special: 0

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

Avoid creating airborne dust. Follow routine housekeeping procedures. Vacuum only with HEPA filtered equipment. If sweeping is necessary, use a dust suppressant and place material in closed containers. Do not use compressed air for clean-up. Personnel should wear gloves, goggles and approved respirator.

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

Limit the use of power tools unless in conjunction with local exhaust. Use hand tools whenever possible. Frequently clean the work area with HEPA filtered vacuum or wet sweeping to minimize the accumulation of debris. Do not use compressed air for clean-up.

b - Conditions for safe storage, including any incompatibilities

Store in original factory container in a dry area. Keep container closed when not in use. Do not reuse the container.

c - empty containers

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***
Silica Amorphous	80 mg/m^3 ÷ % SiO_2	$10mg/m^3$	NONE
Fumed Silica, Treated	Not Established	$6mg/m^3$	NONE
Fibrous Glass	Not Established	1 f/cc	NONE
Alkaline-Earth Silicate Wool(1)	Not Established	Not Established	1 f/cc, 8-hr TWA
Titanium Oxide	15 mg/m^3	Not Established	NONE

(1)**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. This CAS composition also covers Thermal Ceramics products Calcium- Magnesium-Silicate Wool (CAS no. 329211-92-9) and Calcium-Magnesium-Zirconium-Silicate Wool (CAS no. 308084-09-5).

OTHER OCCUPATIONAL EXPOSURE LEVELS (OEL)

Ontario Canada OEL: Silica fused = 0.1 mg/m^3 (Respirable). Fiber glass wool = 1 f/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

It is prudent to reduce exposure to respirable dusts to the lowest attainable level through the use of engineering controls such as ventilation and dust collection devices. Effective technologies to control respirable dust are available. These include local exhaust ventilation, point of generation dust collection, down draft workstations, emissions controlling tool designs and materials handling equipment. For further information call the Thermal Ceramics' Product Stewardship Hotline: (800-722-5681).

c - Individual protection measures, such as personal protective equipment

PPE - Skin

Wear long-sleeved, loose fitting clothing, gloves and hat as necessary to prevent skin irritation.

PPE - Eye

Wear goggles/safety glasses with sideshields

PPE – Respiratory

When it is not possible or feasible to reduce airborne particulate, dust or vapor/mist levels below the PEL or REG through engineering controls, or until they are installed, employees are encouraged to use good work practices together with respiratory protection. Use NIOSH/MSHA approved particulate respirators, in compliance with OSHA Respiratory Protection Standard 29 CFR 1910.134 and 29 CFR 1926.103.

9 - Physical and chemical properties

a - Appearance	Particles in suspension
b -Odor	Not applicable
c - Odor Threshold	Not applicable
e- pH	Not applicable
d - Melting Point	>2000°F (1093°C)
f- Initial Boiling Point/Range	Not applicable
g- Flashpoint	Not applicable
h - Evaporation Rate	Not applicable
i - Flammability	Not applicable
j - Upper/Lower Flammability or Explosive Limits	Not applicable
k - VAPOR PRESSURE	Not applicable
l - VAPOR DENSITY	Not applicable
m - Solubility	Not soluble in water
n - Relative Density	Variable
o - Partition Coefficient: n-Octanol/water	Not applicable
p - Auto-ignition temperature	Not applicable
q - Decomposition Temperature	Not applicable
r - Viscosity	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

Avoid contact with strong acids

f - Hazardous decomposition products

Oxides of carbon from burning of binder and polymer

11 - Toxicological information

a - TOXICOKINETICS, METABOLISM AND DISTRIBUTION

b - Acute Toxicity

c - Epidemiology

This material has not been the subject of an epidemiology study.

AES Wools
Neither the International Agency for Research on Cancer (IARC) nor the National Toxicology Program nor any other U.S. regulatory or classification entity has evaluated AES wool. Superwool products are members of a family of materials whose properties are distinct in several ways from other man-made mineral fibers. In October 2001 IARC re-reviewed Man-Made Vitreous Fibers and "elected not to make an overall evaluation of the newly developed fibers" [such as AES wool] but recognized that "those that have been tested appear to have low carcinogenic potential in experimental animals."

While AES wool is an inert material that does not react with the skin, exposures may cause temporary mild mechanical irritation to the eyes, skin, nose and/or throat (for First Aid Measurers, see Section 4). Proper handling practices and the use of protective clothing (see Section 8) can minimize irritation.

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/m3 for fine TiO2 (particle greater than 0.1 um in diameter) and 0.1 ug/m3 for ultrafine particles. The draft document states that the difference in the recommended limits reflect findings from studies, which suggest that ultrafine TiO2 particles may be more potent than fine TiO2 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.

Fiberglass
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). IARC noted specifically:

"Epidemiologic studies published during the 15 years since the previous IARC Monographs review of these fibers in 1988 provide no evidence of increased risks of lung cancer or mesothelioma (cancer of the lining on the body cavities) from occupational exposures during manufacture of these materials, and inadequate evidence overall of any cancer risk."

The IARC downgrade is consistent with the conclusion reached by the U.S. National Academy of Sciences, which in 2000 found "no significant association between fiber exposure and lung cancer or nonmalignant respiratory disease in the MVF [man-made vitreous fiber] manufacturing environment". However, the US Department of Human Services National toxicology Program (NTP) continues to list "Glasswool (respirable size)" as "reasonably anticipated to be human 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.

In a lifetime carcinogenicity test, rats were exposed by inhalation for two years (5 days a week; 6 hours a day) to AES fibers at 200 WHO fibers/ml. There was neither fibrosis nor carcinogenic response; only reversible cellular changes were seen. Further, subchronic inhalation studies on rats with AES fibers at concentrations of 150 fibers (>20 µm long) per ml for 90 days with follow up to 1 year showed neither inflammation nor cell proliferation. All parameters studied returned rapidly to baseline levels on cessation of exposure.

After-service, AES wools may contain crystalline phases including some forms of silica. (See Section 16) However, AES fibers heated to 1000°C for 2 weeks were not cytotoxic to macrophage-like cells at concentrations up to 320 µg/cm2. In the same test, samples of pure crystalline quartz were significantly active at 20 µg/cm2.

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 to150 mg/m3 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/m3. No animal test reports have been found which define carcinogenic, mutagenic or reproductive effects.

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

To prevent waste materials becoming airborne, a covered container or plastic bagging is recommended. Comply with federal, state and local regulations. Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate, or otherwise inappropriate.

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 Section 302, 304, 313 (40 CFR 372). Section 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 in the TSCA Chemical Inventory [Section 8(b)].
California: Listed as “Glasswool fibers (airborne particles of respirable size)” Proposition 65, The Safe Drinking Water and Toxic Enforcement Act of 1986: Known to the State of California to cause cancer.

15.2 - International Regulations

INTERNATIONAL REGULATIONS
Canada WHMIS: Titanium dioxide is 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).
European Union: These products are exonerated from any carcinogenic classification in the countries of the European Union under the provisions of Nota Q of the European Commission Directive 97/69/EC.

16 - Other Information

initial statement

Devitrification

As produced, Superwools™ are vitreous (glassy) AES Wools that do not contain crystalline silica. Continued exposure to elevated temperatures (>900C) 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, AES 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" fiber. If crystalline silica is present, follow appropriate hygiene standards and national regulations.

Devitrified, after-service Superwool™, containing crystalline silica, has shown no adverse reactions in toxicity assays (See Section 11). These findings are consistent with IARC's evaluation, which states "Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1)" and additionally notes "carcinogenicity in humans was not detected in all industrial circumstances studied. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." (IARC Monograph Vol. 68, 1997).

Respirable dust from devitrified Superwool™ products can be controlled with ventilation, dust collectors or respiratory protection as detailed in Section 8 (above). Ventilation and respiratory protection should be provided in compliance with OSHA standards. The evaluation of workplace hazards and, if necessary, the identification of appropriate respiratory protection is best performed by qualified Industrial Hygienists.

For more information, call the Thermal Ceramics Product Stewardship Hotline (800-722-5681).

Product Stewardship Program

HMIS HAZARD RATING

HMIS Health: 1
HMIS Flammable: 0
HMIS Reactivity: 0
HMIS Personal Protective: To be determined by user

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

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