

SAFETY DATASHEET

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

SDS Number: 350 Date of first issue: 24 March 1992 Date of last revision: 22 October 2014

1 - Identification of product

Product Group

Calsimag CSM, Engineered Fibre (all grades), FireMaster 607 Blanket, FireMaster 607 Bulk, FireMaster Dryer Wrap, FireMaster Duct Wrap, FireMaster Duct Wrap +, FireMaster Duct Wrap 2x2, FireMaster Fast Wrap +, FireMaster FastWrap XL, FireMaster Marine Blanket, FireMaster Marine Bulk, FireMaster Marine Mats, FireMaster Marine Plus Blanket, FireMaster Plenumwrap Plus, Isoblanket E, Mix 436-C Component B, Plenumwrap+, Pyroscat Duct Wrap XL, Superwool 607 Max Blanket, Superwool 607 Max Bulk, Superwool 607 Max Mat, Superwool 607 Max Modules, Superwool 612 Blanket, Superwool 612 Bulk, Superwool 612 Mat, Superwool 612 Modules, Superwool Blankets, Superwool Bulks, Superwool Enfil Engineered Fiber, Superwool HT Blanket, Superwool HT Bulk, Superwool HT Die-Cut, Superwool HT Log, Superwool HT Mat, Superwool HT Strip, Superwool Plus Blanket, Superwool Plus Bulk, Superwool Plus Diecut, Superwool Plus Log, Superwool Plus Mat, Superwool Plus Strip, Superwool Pyro-Bloc, Pyro-Stack and Pyro-Fold Modules, Superwool Pyrofold M, Superwool Pyrofold Y, Superwool Unibloc,

ALKALINE EARTH SILICATE (AES) WOOL PRODUCT

Chemical Name

Calcium-Magnesium-Silicate Wool or Calcium-Magnesium-Zirconium-Silicate Wool

Intended Use

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 firestops. (Please refer to specific technical data sheets for more information)

Synonyms

AES Wool, Synthetic Vitreous Fiber (SVF), Man-made Vitreous Fiber (MMVF), Man-made Mineral Fiber (MMMF)

Trade Names

Superwool™Enfil™Engineered Fiber
Superwool™ 607MAX, 612: Bulk, Blanket, Mat, Module
Superwool™ HT, Superwool™ PLUS: Bulk, Blanket, Mat, Module; Log, Strip, Die-cut
Superwool Pyro-Fold: M, Y
Superwool Unibloc
Isoblanket-E®
Engineered Fiber (ALL GRADES)
Mix 436-C Component "B"
FireMaster® Marine: Bulks, Blankets, Mats and Modules
FireMaster PlenumWrap+™
FireMaster Duct Wrap +™
FireMaster FastWrap+™
FireMaster Duct Wrap 2x2 +™
FireMaster FastWrap XL™
FireMaster Marine PLUS
FireMaster DryerWrap
CALSIMAG® (Pyroscat) CSM: Blanket, Bulk
Pyroscat Duct Wrap XL

APPROVED MATERIAL

JUN 23 2015

MSDS # 11321
APPROVED BY *Amy R. O'Connell*

Company

Morgan Advanced Materials

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For Product Stewardship and Emergency Information:
Hotline - 1-800-722-5681
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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

Chronic Effects

None Applicable

Possible Health Effects

None Applicable

Hazard Classification Info

CLASSIFICATION OF THE SUBSTANCE/MIXTURE

Not Applicable

LABELING ELEMENTS

Not Applicable

OTHER HAZARDS WHICH DO NOT RESULT IN CLASSIFICATION

Mild mechanical irritation to skin, eyes and upper respiratory system may result from exposure.

These affects are usually temporary.

3 - Composition / Information On Ingredients

<u>COMPONENTS</u>	<u>CAS NUMBER</u>	<u>% BY WEIGHT</u>
Alkaline-Earth Silicate Wool ⁽¹⁾	436083-99-7	100
⁽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).		

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

4 - First-Aid measures

4.1 - 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.

4.2 - 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.

4.3 - 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.

4.4 - Gastrointestinal

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

If the above symptoms persist, seek medical attention

NOTES TO PHYSICIANS:

Skin and respiratory effects are the result of temporary, mild mechanical irritation; fiber exposure does not result in allergic manifestations.

5 - Fire-fighting measures

5.1 - NFPA Codes

Flammability: 0 Health: 1 Reactivity: 0 Special: 0

5.2 - NFPA Unusual Hazards

None

5.3 - Flammable Properties

None

5.4 - Flash Point

None

5.5 - Hazardous decomposition products

None

5.6 - Unusual Fire and explosion hazard

None

5.7 - Extinguishing media

Use extinguishing media suitable for type of surrounding fire

6 - Accidental Release Measures

Avoid creating airborne dust. Dust suppressing cleaning methods such as wet sweeping or vacuuming should be used to clean the work area. If vacuuming, the vacuum should be equipped with a HEPA filter. Compressed air or dry sweeping should not be used for cleaning.

7 - Handling and storage

7.1 - 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.

7.2 - Storage

Store in original container in a dry area. Keep container closed when not in use.

Product packaging may contain residue. Do not reuse.

8 - Risk Management Measures / Exposures Controls / Personal Protection

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. Industrial hygiene standards and occupational exposure limits may vary between countries, state and local jurisdictions. Contact your employer to determine which exposure levels apply to your facility. If no regulatory dust or other standards apply, a qualified industrial hygienist can assist with a specific workplace evaluation including recommendations for respiratory protection. In the absence of such guidance, the manufacturer generally recommends the control of AES wool exposures to 1 fiber/cc or less.

Exposure Limit/Guidelines Table

EXPOSURE GUIDELINES			
MAJOR COMPONENT	OSHA PEL	ACGIH TLV	MANUFACTURER'S REG
Alkaline-Earth Silicate Wool	None Established	None Established	1 f/cc, 8-hr TWA

Engineering controls

Use feasible engineering controls such as local exhaust ventilation, point of generation dust collection, down draft work stations, emission controlling tool designs, and materials handling equipment designed to minimize airborne fiber emissions.

PPE - Skin

Wear gloves (e.g. cotton), head coverings and full body clothing as necessary to prevent skin irritation. Washable or disposable clothing may be used. If possible, do not take unwashed work clothing home. If soiled work clothing must be taken home, employers should ensure employees are trained on the best practices to minimize or avoid non-work dust exposure (e.g., vacuum clothes before leaving the work area, wash work clothing separately, rinse washer before washing other household clothes, etc.).

PPE - Eye

Wear safety glasses with side shields or other forms of eye protection in compliance with appropriate OSHA standards to prevent eye irritation. The use of contact lenses is not recommended, unless used in conjunction with appropriate eye protection. Do not touch eyes with soiled body parts or materials. If possible, have eye-washing facilities readily available where eye irritation can occur.

PPE - Respiratory (general text)

When it is not possible or feasible to reduce respirable dust exposures through engineering controls, employees are encouraged to use good work practices together with respiratory protection. For dust exposure below the REG, respiratory protection is not required, but particulate respirator equipped with N-95 or higher may be used on a voluntary basis. Comply with OSHA Respiratory Protection Standards, 29 CFR 1910.134 and 29 CFR 1926.103, for the particular hazard or airborne concentrations to be encountered in the work environment. For the most current information on respirator selection, contact your supplier.

9 - Physical and chemical properties

ODOR & APPEARANCE	White odorless material with a wool type appearance
CHEMICAL FAMILY	Calcium, Magnesium, Silicate Mixture
BOILING POINT	Not Applicable
WATER SOLUBILITY (%)	Less than 1 mg/litre
MELTING POINT	1275 - 1300°C (2327 - 2372°F)
SPECIFIC GRAVITY	2.5 - 3.0
VAPOR PRESSURE	Not applicable
pH	Not applicable
VAPOR DENSITY (Air = 1)	Not applicable
% VOLATILE	Not applicable
MOLECULAR FORMULA	Not applicable
LENGTH WEIGHTED GEOMETRIC MEAN DIAMETER OF FIBERS CONTAINED IN THE PRODUCT	1.4 - 3 micron

10 - Stability and Reactivity

Chemical stability

Stable under conditions of normal use

Incompatibilities

Avoid contact with strong acids

Conditions to avoid

None

Hazardous decomposition products

Upon heating above 1650°F (900°C) for sustained periods, this amorphous material begins to transform to mixtures of crystalline phases. For further information, please refer to Section 16.

Hazardous polymerization

Not applicable

11 - Toxicological information

Acute Toxicity

IRRITANT PROPERTIES

Superwool fibers are negative when tested using approved methods (Directive 67/548/EEC, Annex 5, Method B4). Like all man-made mineral fibers and some natural fibers, fibers contained in this product can produce a mild mechanical irritation resulting in temporary itching or rarely, in some sensitive individuals, in a slight temporary reddening. Unlike other irritant reactions, this is not the result of allergy or chemical skin damage but is caused by mechanical effects.

Toxicology

Fibers 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. 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. Fibers with the same ability to persist in tissue do not produce tumors when injected into the peritoneal cavity of rats.

12 - Ecological information

Adverse effects of this material on the environment are not anticipated.

13 - Disposal Considerations

13.1 - Waste Management

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.

13.2 - Disposal

RCRA

Superwool, as manufactured, is not classified as a hazardous waste according to Federal regulations (40 CFR 261). As manufactured, Superwool was tested using EPA's Toxicity Characteristics Leaching Procedure (TCLP). Results showed there were no detectable contaminants or detectable leachable contaminants that exceeded the regulatory levels. Any processing, use, alteration or chemical additions to the product, as purchased, may alter the disposal requirements. Under 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

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

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

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: AES wools have been assigned several CAS numbers; however, they are not required to be listed on the TSCA inventory.

CERCLA: AES wool contains fibers with an average diameter greater than one micron and thus is not considered a CERCLA hazardous substance.

CAA: AES wool contains fibers with an average diameter greater than one micron and thus is not considered a hazardous air pollutant.

States: AES wools are not known to be regulated by any State. If in doubt, contact your local regulatory agency.

INTERNATIONAL REGULATIONS

Canada WHMIS: No Canadian Workplace Hazardous Materials Information System categories apply to this product.

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

Devitrification

PRECAUTIONARY MEASURES TO BE TAKEN AFTER SERVICE UPON REMOVAL

High temperature insulating wool (HTIW) is typically used in insulation applications to keep temperature exposure at 900°C or above in a closed space. The exposure temperature maximum occurs at the hot face surface of the insulation. The heat exposure on the insulation decreases from the hot face to the cold face as the insulation "insulates itself". As a result, only thin layers of the hot face surface of the insulation become devitrified and respirable dust generated during removal operations typically do not contain detectable levels of crystalline silica (CS).

Toxicological evaluation of the effect of the presence of CS in artificially heated HTIW material has not shown any increased toxicity in vitro and in vivo. The results from different factor combinations such as increased brittleness of fibers or micro crystals embedded in the glass structure of the fiber and therefore not biologically available, may explain the lack of toxicological effects. IARC evaluation as provided in Monograph 68 is not relevant since CS is not biologically available in after-service HTIW.

PRODUCT STEWARDSHIP PROGRAM:

Morgan Thermal Ceramics has established a program to provide customers with up-to-date information regarding the proper use and handling of RCF. In addition, Thermal Ceramics has established a program to monitor airborne fiber concentrations at customer facilities. If you would like more information about this program, please call your local supplier or visit one of the following web sites.

Morgan Thermal Ceramics - Global www.morganthermalceramics.com
Refractory Ceramic Fibers Coalition (USA) www.RCFC.net
ECFIA (Europe) www.ecfia.eu

As product information labels may be required on Superwool™ packages, check local destination regulations before shipping.

HMIS HAZARD RATING

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

TECHNICAL DATASHEETS

1114-100, 1114-105, 1114-160, 1114-130, 714-300, 714-100, 714-101, 714-236, 714-233

Revision Summary

Section 16: Disclaimer Updated

SDS 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.