SAFETY DATA SHEET

Following Regulation 1910.1200

SDS Number: 204 Date of first issue: 01 May 1987 Date of last revision: 21 February 2022

1 - Identification of product

a - Product identifier used on the label

Tradenames: Cerwool HT Paper, Kaowool 3000 Paper, Kaowool Veneering Modules - Saffil Grade, Pyro-Bloc Grade S, Saffil Bulk

b - Other means of identification

POLYCRYSTALLINE WOOL PRODUCT

c - Recommended use of the chemical and restrictions on use

Primary Use: Refractory Ceramic Fiber (RCF) materials are used primarily in industrial high temperature insulating applications. Examples include heat shields, heat containment, gaskets, expansion joints, industrial furnaces, ovens, kilns, boilers and other process equipment at applications up to 1400°C. RCF based products are not intended for direct sale to the general public. While RCFs are used in the manufacture of some consumer products, such as catalytic converter mats and wood burning stoves, the materials are contained, encapsulated, or bonded within the units

Secondary Use: Conversion into wet and dry mixtures and articles (refer to section 8)**Tertiary Use:**Installation, removal (industrial and professional) / Maintenance and servicelife (industrial and professional) (refer to section 8).

Uses Advised Against: Spraying of dry product.

d - Name, address, and telephone number

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

IARC, US NTP, and OSHA do not list Mullite fiber or PCW as a carcinogen. However, in 1988 IARC classified man-made mineral fibers including one of the PCWs (Saffil fiber) in this broad category of ceramic fiber as possibly carcinogenic to humans (Refer to Section 11 of this SDS for detail information)

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

Hazard Pictograms

Signal Words

Warning

Hazard Statements

Suspected of causing cancer by inhalation.

Precautionary 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.

Supplementary Information

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

COMPONENTS	Polycrystalline Wool (PCW)*	CAS NUMBER	% BY WEIGHT
Silica, Amorphous		675106-31-7	95
Latex		7631-86-9	<5
		Proprietary	0 - 10
* PCW can also be identified by various CAS numbers: 1344-28-1 (fibrous forms of Aluminium Oxide) or 1302-93-8 (Mullite fiber).			

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

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

Minimize airborne dust. Compressed air or dry sweeping should not be used for cleaning. See Section 8 "Exposure Controls / Personal Protection" for exposure guidelines.

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

Handle fiber carefully to minimize airborne dust. Limit use of power tools unless in conjunction with local exhaust ventilation. Use hand tools whenever possible.

b - Conditions for safe storage, including any incompatibilities

Store in a manner to minimize airborne dust.

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***
Polycrystalline Wool (PCW)	Not Established	Not Established	1 f/cc, 8-hr TWA
Silica, Amorphous	(80 mg/m^3 ÷ % of SiO_2) or 20 mppcf	10 mg/m^3	NONE
OTHER OCCUPATIONAL EXPOSURE LEVELS (OEL) 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

Use 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.

c - Individual protection measures, such as personal protective equipment

PPE - Skin

Wear personal protective equipment (e.g gloves), as necessary to prevent skin irritation. Washable or disposable clothing may be used. If possible, do not take unwashed clothing home. If soiled work clothing must be taken home, employees should be informed on best practices to minimize non-work dust exposure (e.g., vacuum clothes before leaving the work area, wash work clothing separately, and rinse washer before washing other household clothes.

PPE - Eye

As necessary, wear goggles or safety glasses with side shields.

PPE – Respiratory

A suitable dust mask is recommended if dust generation is considered possible and should be worn if workplace exposure levels exceed the occupational exposure guidelines above. The selection of a suitable mask will depend upon the likely atmospheric concentration and the performance data of the mask. Check with protective equipment manufacturer's data. 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

a - Appearance	White odorless wool-like material
b -Odor	Not applicable
c - Odor Threshold	Not applicable
e- pH	Not applicable
d - Melting Point	>3600°F (2032°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	3.0 - 3.5
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

None.

f - Hazardous decomposition products

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

11 - Toxicological information

a - TOXICOKINETICS, METABOLISM AND DISTRIBUTION

Saffil® alumina fiber was administered to rats in intraperitoneal, intratracheal and intrapleural studies and all showed negative results. An international reference standard asbestos was used as a positive control and behaved as predicted in all of these studies. This comprehensive group of toxicological studies indicates that Saffil® alumina fiber showed no fibrogenic, carcinogenic nor other significant toxicological effects when exposure occurs by relevant routes (i.e., by inhalation or oral ingestion) or when introduced artificially into the lung in large quantities by injection. Despite this evidence, the IARC has placed Alumina Fiber into a broad group called ceramic fibers.

The International Agency for Research on Cancer (IARC) reviewed the carcinogenicity data on man-made mineral fibers in 1987. IARC classified ceramic fiber (including Saffil polycrystalline alumina fiber) as possible human carcinogens (Group 2B). IARC's classification of ceramic fiber was based on sufficient evidence of carcinogenicity in experimental animals and inadequate evidence (no data) of the carcinogenicity in humans.

Silica, amorphous : Toxic effects described in animals from single inhalation exposures of amorphous silica include upper respiratory irritation, lung congestion, bronchitis, and emphysema. Repeated inhalation exposures at concentration of 50 or 150 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 are available to define the carcinogenic, mutagenic, or reproductive effects.

b - Acute Toxicity

c - Epidemiology

d - Toxicology

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.

International Agency for Research on Cancer and National Toxicology Program

IARC, NTP, and OSHA do not list Mullite fiber or PCW as a carcinogen.However, in 1988 IARC classified man-made mineral fibers as possible human carcinogens (2B) and, at that time, one of the PCWs (Saffil fiber) was included in this broad category of ceramic fiber carcinogenic classification.

12 - Ecological information

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

c - Bioaccumulative potential

No bioaccumulative potential.

d - Mobility in soil

No mobility in soil.

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

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 contains aluminum oxide (fibrous forms) which is reportable under Section 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 the **Respiratory Protection Standards** 29 CFR 1910.134 and 29 CFR 1926.103.
California: According to our raw material supplier, latex used in this product contains small amounts of the following chemicals listed in Proposition 65, Safety Drinking Water and Toxic Enforcement Act of 1986 as chemical(s) known to the state of California to cause cancer:
-Formaldehyde CAS No. 50-00-0
-Acrylamide CAS No. 79-06-1 (also developmental toxicity, male only)
-Ethyl Acrylate CAS No. 140-88-5
Also, ceramic fibers (airborne particles of respirable size) are listed in the State of California as a chemical known to cause cancer.
Other States: Ceramic fiber products are not known to be regulated by states other than California; however, state and local OSHA and EPA regulations may apply to these products. If in doubt, contact your localregulatory agency.

15.2 - International Regulations

INTERNATIONAL REGULATIONS
Canadian WHMIS: Class D-2A 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

Trace amounts of formaldehyde, acrylonitrile may be released from latex polymer during initial heating. Under normal conditions of handling, processing and use it is reasonable to expect the amount of acrylonitrile released to be below 1.0 ppm. Consult OSHA Standards on acrylonitrile and formaldehyde (29 CFR 1910.1045 and 29 CFR 1910.1048 respectively) for specific requirements if the exposure level is beyond the threshold levels.

Devitrification

Product Stewardship Program

HMIS HAZARD RATING

HMIS Health	1* (* denotes potential for chronic effects)
HMIS Flammable	0
HMIS Reactivity	0
HMIS Personal Protective Equipment	X (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

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.