

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Trade Name: **GEMCOWOOL® Non-RCF Fiber Products**

Chemical Name: Mixture of Vitreous Alumina Silicate Fibers

Grade(s): FG18-108 (All Grades)

Manufacturer/Supplier: **Refractory Specialties, Inc. P.O. Box 189, OH U.S.A. 44672-0189**

Emergency: 1-330-938-2101 (Monday - Friday 8:00 a.m. - 5:00 p.m.)  
1-330-821-4051 330-692-3149 or 330-692-0247 (After Hours)

## 2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>COMPONENTS</u>	<u>CAS NUMBER</u>	<u>% BY WEIGHT</u>
Mineral Wool fiber	65997-17-3	0-100
Silica (amorphous)	7631-86-9	0-50
Wollastonite, Calcium Silicate	13983-17-0	0-50
Starch	56780-58-6	0-10

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

## 3. HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW

WARNING! POSSIBLE CANCER HAZARD BY INHALATION. MAY CAUSE SKIN, EYE, AND RESPIRATORY TRACT IRRITATION. MAY BE HARMFUL IF INHALED. HAZARD DEPENDS ON DURATION AND LEVEL OF EXPOSURE. OFF-WHITE TO WHITE ODORLESS MINERAL FIBER SHAPES. SEE SECTION 11 FOR DETAILS.

### HAZARD RATINGS

#### HAZARDOUS MATERIALS INFORMATION SYSTEM (HMIS) RATINGS:

Health: 1\*, Flammability: 0, Reactivity: 0, Personal Protection Index: X

### POTENTIAL HEALTH EFFECTS

#### TARGET ORGANS:

Skin, eyes, and lungs.

#### INHALATION:

If inhaled in sufficient quantity, may cause respiratory tract irritation. Symptoms may include scratchiness of the nose or throat, cough or chest discomfort.

#### EYE CONTACT:

Slightly to moderately irritating. Fibers may be abrasive; prolonged contact may cause damage to the outer surface of the eye.

#### SKIN CONTACT:

Slightly to moderately irritating. Exposure may result in irritation, inflammation, rash or itching.

**INGESTION:**

If ingested in sufficient quantity, may cause gastrointestinal disturbances. Symptoms may include nausea, vomiting, or abdominal pain.

**CHRONIC EFFECTS:**

Studies to date, involving occupationally exposed workers, have not identified any increased incidence of respiratory disease. Long-term, high-dose exposure to specially-sized, rodent respirable fiber has resulted in the development of fibrosis, lung cancer and mesothelioma in rats & hamsters. See Sections 11 & 16 of this MSDS for more information.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:**

Pre-existing medical conditions, including dermatitis, asthma or chronic lung disease may be aggravated by exposure; individuals who are atopic (with a history of allergies) may experience greater amounts of skin and respiratory irritation.

**HAZARD CLASSIFICATION:**

Although studies, involving occupationally exposed workers, have not identified any increased incidence of respiratory disease, results from animal testing have been used as the basis for hazard classification:

The International Agency for Research on Cancer (IARC) has classified Mineral Wool as GROUP 3. The evidence of carcinogenicity is inadequate in humans but sufficient in animals. There is strong evidence that the mechanism of carcinogenicity in animals does not operate in humans.

**4. FIRST AID MEASURES**

**FIRST AID PROCEDURES**

**INHALATION:**

If respiratory tract irritation occurs, relocate individual to a dust free environment. Get medical attention if irritation persists. See Section 8 for additional measures to reduce or eliminate exposure.

**EYE CONTACT:**

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. Get medical attention if irritation persists.

**SKIN CONTACT:**

If skin becomes irritated, remove contaminated 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.

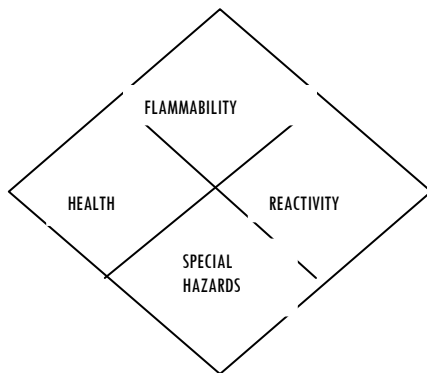
**INGESTION:**

If gastrointestinal irritation occurs, relocate individual to a dust free environment. Seek medical attention if symptoms persist.

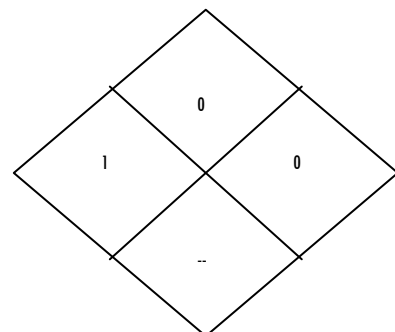
**NOTES TO PHYSICIANS:**

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

**5. FIRE FIGHTING MEASURES**



4 -- EXTREME  
 3 -- HIGH  
 2 -- MODERATE  
 1 -- LIGHT  
 0 -- INSIGNIFICANT



**NFPA Unusual Hazards:** None

**Flammable Properties:**

Flashpoint: None.  
Method: N. A.

**Flammable Limits:**

Lower Flammable Limit: N. A.  
Upper Flammable Limit: N. A.

**Autoignition Temperature:** None.

**Hazardous Decomposition Products:**

Decomposition products may include carbon dioxide, carbon monoxide, water and smoke.

**Extinguishing Media:**

Use extinguishing media suitable for type of surrounding fire.

**Fire Fighting Instructions:**

See "Extinguishing Media" above.

**Unusual Fire and Explosion Hazard:**

None.

**6. ACCIDENTAL RELEASE MEASURES**

**SPILL PROCEDURES**

Use vacuum suction with HEPA filters to clean up spilled material. Use wet sweeping or a dust suppressant where sweeping is necessary.

**7. HANDLING AND STORAGE**

**HANDLING AND STORAGE**

Handle ceramic fiber with caution. Minimize airborne dusts by avoiding the unnecessary disturbance of materials. Removal and clean up of after service product may result in exposure to a mixture of crystalline phase silica and vitreous man-made fiber (See Section 16 for more details). Depending on the product's use, other contaminants may also be present. During removal, the exposed material should be frequently misted with water to minimize airborne dust. A surfactant may be added to the water to improve the wetting process. Use only enough water to wet the insulation. Do not allow water to accumulate on floors.

**Clean Up**

Dust suppressing cleaning methods such as wet sweeping or vacuuming should be used to clean the work area. If vacuuming is used the vacuum must be equipped with a HEPA filter. Compressed air or dry sweeping should not be used for cleaning. Dust suppressing compounds may be used to clean up light dust. For additional information regarding the use and handling of refractory ceramic fiber, contact Refractory Specialties, Inc. at 1-330-938-2101.

**EMPTY CONTAINERS**

Product packaging may contain residue. Do not reuse.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**EXPOSURE GUIDELINES**

<u>Components</u>	<u>OSHA (PEL)</u>	<u>ACGIH (TLV)</u>	<u>SUPPLIER</u>
Mineral Wool fiber	15 mg/m3 total dust 5 mg/m3 respirable fraction	10 mg/m3	None Established

Silica (amorphous )	6 mg/m3 (< 1% crystalline silica)	10 mg/m3 (total dust, containing < 1% crystalline silica) 3 mg/m3 (respirable dust, containing < 1% crystalline silica)	None Established
Wollastonite, Calcium Silicate	5 mg/m3 (PNOR)	3 mg/m3 (PNOC)	None Established

\* There is no specific regulatory standard for RCF in the U.S. OSHA's "Particulate Not Otherwise Regulated (PNOR)" standard [29 CFR 1910.1000, Subpart Z, Air Contaminants] applies generally - Total Dust 15 mg/m3; Respirable Fraction 5 mg/m3.

**ENGINEERING CONTROLS**

Dust suppressing control technologies such as local exhaust ventilation, point of generation dust collection, down draft work stations, emission controlling tool designs, and materials handling equipment are effective means of minimizing airborne fiber emissions. For additional information, contact Refractory Specialties, Inc. at 1-330-938-2101

**PERSONAL PROTECTION EQUIPMENT**

**RESPIRATORY PROTECTION:**

When engineering and/or administrative controls are insufficient, the use of appropriate respiratory protection, pursuant to the requirements of OSHA 1910.134 AND 29 CFR 1926.103, is recommended. 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.

**SKIN PROTECTION:**

Wear gloves, 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 clothing home. Work clothes should be washed separately from other clothing and the washing machine rinsed thoroughly following use. Inform the launderer of the proper procedures. Store work clothes and street clothes separately to prevent contamination.

**EYE PROTECTION:**

Wear safety glasses or chemical goggles to prevent eye contact. Do not wear contact lenses unless chemical goggles are also worn. Do not touch eyes with contaminated body parts or materials. Have eye-washing facilities readily available where eye contact can occur.

See Section 16 regarding handling considerations for after-service fiber.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Odor and Appearance: White or off-white, odorless ceramic shape.	Chemical Family: Vitreous man-made fibers
Boiling Point: N. A.	% Solubility in Water: N. A.
Melting Point: 2200F minimum	Specific Gravity: 2.73 – 3.2
Vapor Pressure: N. A.	pH: N. A.
Vapor Density (Air = 1): N. A.	% Volatile: N. A.
Molecular Weight: N. A.	Molecular Formula: N. A.

**10. STABILITY AND REACTIVITY**

<b>CHEMICAL STABILITY:</b>	Stable under conditions of normal use.
<b>INCOMPATIBILITY:</b>	Soluble in hydrofluoric acid, phosphoric acid, and concentrated alkali.
<b>CONDITIONS TO AVOID:</b>	None.
<b>HAZARDOUS DECOMPOSITION PRODUCTS:</b>	Decomposition products may include carbon monoxide, carbon dioxide, and smoke.
<b>HAZARDOUS POLYMERIZATION:</b>	Not Applicable.

**11. TOXICOLOGICAL INFORMATION**

**TOXICOLOGY**

In 2001 the International Agency for Research on Cancer (IARC) classified Mineral Wool as GROUP 3. The evidence of carcinogenicity is inadequate in humans but sufficient in animals. There is strong evidence that the mechanism of carcinogenicity in animals does not operate in humans.

## 12. ECOLOGICAL INFORMATION

### Ecotoxicological Information:

No data available.

### Distribution:

No data available.

### Chemical Fate Information:

No data available.

## 13. DISPOSAL CONSIDERATIONS

### DISPOSAL

Fibers contained in GEMCOWOOL® products are not classified as a hazardous waste according to Federal regulations (40 CFR 261). Check local, regional, state or provincial regulations for applicable requirements for disposal. 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.

**EMPTY CONTAINERS:** Product packaging may contain product residue. Do not reuse.

## 14. TRANSPORT INFORMATION

### U.S. DEPARTMENT OF TRANSPORTATION (DOT)

<b>BILL OF LADING DESCRIPTION (49 CFR 172.202):</b>	GEMCOWOOL® CERAMIC FIBER PRODUCTS (NON-REGULATED)
<b>UNITED NATIONS (UN) NUMBER:</b>	NOT APPLICABLE
<b>NORTH AMERICA (NA) NUMBER:</b>	NOT APPLICABLE

## 15. REGULATORY INFORMATION

**Key statutory and regulatory classifications or listings for the product, as manufactured, which may impact product storage, use, handling or disposal:**

### U.S. FEDERAL REGULATIONS

#### Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA)

Constituents regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA 40 CFR 302):

NONE

Most mineral wool products, including this product, are composed of fibers with an average diameter greater than 1 micron, and therefore are not considered CERCLA hazardous substances. See 60 FR 30934 (June 12, 1995).

#### Clean Air Act (CAA)

Substances regulated as hazardous air pollutants under Section 112 of the Clean Air Act Amendments of 1990:

NONE

Most mineral wool products, including this product, are composed of fibers with an average diameter greater than 1 micron, and therefore are not considered hazardous air pollutants. See 60 FR 30934 (June 12, 1995).

**Toxic Substances Control Act (TSCA)**

All substances in this product are listed, as required, on the TSCA inventory.

**Superfund Amendments and Reauthorization Act (SARA) Title III Information: SARA Hazard Category**

Listed below are the hazard categories for the Superfund Amendments and Reauthorization Act (SARA) Section 311/312 (40 CFR 370):

Immediate Hazard: -- Fire Hazard: -- Reactivity Hazard: -- Delayed Hazard: X Pressure Hazard: --

**SARA 313 Information**

Toxic chemical(s) subject to the annual reporting requirements of the Superfund Amendments and Reauthorization Act (SARA) Section 313 (40 CFR 372)"

NONE

EPA has proposed to place man-made mineral fibers on the list of substances subject to the annual TRI reporting requirements, but a final listing decision has been deferred indefinitely. See 59 FR 61439 (November 30, 1994).

**SARA 302/311/312 Information**

Extremely hazardous substances subject to the notification and inventory reporting requirements of the Superfund Amendments and Reauthorization Act (SARA) Section 302 (40 CFR 355) and Section 311/312 (40 CFR 370) respectively:

NONE

**STATE REGULATIONS****California:**

Substance(s) listed by the State of California on Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986:

Chemical Name

CAS Number

**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. Contact your local agency if in doubt.

**INTERNATIONAL REGULATIONS****Canadian Workplace Hazardous Materials Information System (WHMIS):**

The following Canadian Workplace Hazardous Materials Information System (WHMIS) categories apply to this product:

Compressed Gas: -- Flammable/Combustible: -- Oxidizer: -- Acutely Toxic: --  
Other Toxic Effects: X Biohazardous: -- Corrosive: --- Dangerously Reactive: --

**Canadian Environmental Protection Act (CEPA)**

All substances in this product are listed, as required, on the Domestic Substances List (DSL).  
Chemical(s) which are listed on the Non-Domestic Substances List:

NONE

<b>16. OTHER INFORMATION</b>
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**After Service GEMCOWOOL®: Removal**

As manufactured, GEMCOWOOL® products are vitreous calcium silicates and other man-made vitreous fibers, which do not contain respirable crystalline silica. However, following sustained, high temperature (>1800°F) use, it is possible for portions of the exposed fibers or amorphous silica to de-vitrify into Wollastonite and Mullite. Further, following sustained, temperatures greater than 2192° F (1200° C) portions of fiber (up to 45% by weight) could be converted to crystalline phase silica (cristobalite or quartz) [The De-vitrification of Alumino-silicate Ceramic Fiber Materials – The Kinetics of the Formation of Different Crystalline Phases, Ann. Occup. Hyg. Vol. 41, No. 5, pp. 561-590, 1997]. The de-vitrification of fibers and amorphous silica can take place at lower temperatures than mentioned above, in the presence of fluxing materials - such as alkali metals. Chronic exposure to respirable crystalline silica may lead to lung disease. IARC has

concluded that: "Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1)." [IARC Monograph 68, June 1997, p. 210-211]. The Occupational Safety and Health Administration (OSHA) has adopted a permissible exposure limit (PEL) for respirable cristobalite at 0.05 mg/m<sup>3</sup>. When needed, the use of proper exposure controls and respiratory protection is recommended to reduce potential health risks and to ensure compliance with OSHA requirements. 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. For more detailed information regarding respirable crystalline silica, call Refractory Specialties, Inc.

**Definitions:**

**ACGIH:** American Conference of Governmental Industrial Hygienists  
**CAS:** Chemical Abstracts Service  
**EPA:** Environmental Protection Agency  
**Fibers/cc:** Fibers per cubic centimeter  
**HEPA:** High Efficiency Particulate Air  
**HMIS:** Hazardous Materials Information System  
**mg/m<sup>3</sup>:** Milligrams per cubic meter of air  
**NFPA:** National Fire Protection Association  
**NIOSH:** National Institute for Occupational Safety and Health  
**OSHA:** Occupational Safety and Health Administration  
**29 CFR 1910.134 & 1926.103:** OSHA Respiratory Protection Standard  
**29 CFR 1910.1200 & 1926.59:** OSHA Hazard Communication Standard  
**PEL:** Permissible Exposure Limit  
**RCRA:** Resource Conservation and Recovery Act  
**SARA:** Superfund Amendments and Reauthorization Act  
**Title III:** Emergency Planning and Community Right to Know Act  
**Section 302:** Extremely Hazardous Substances  
**Section 304:** Emergency Release  
**Section 311:** MSDS/List of Chemicals and Hazardous Inventory  
**Section 312:** Emergency and Hazardous Inventory  
**Section 313:** Toxic Chemicals and Release Reporting  
**SVF:** Synthetic Vitreous Fiber  
**TLV:** Threshold Limit Value (ACGIH)  
**TSCA:** Toxic Substances Control Act

**DISCLAIMER**

The information presented herein is based on data considered to be accurate as of the date of preparation of this Material 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. In addition, no responsibility can be assumed by 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.