



## MATERIAL SAFETY DATA SHEET

MSDS No. M0368

Effective Date: 04/25/2008

### 1. IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY

Trade Names: ISOFRAX® ABX-1667I

Chemical Name: **ALKALINE EARTH SILICATE WOOL (AES)**  
Synonym(s): Synthetic vitreous fiber (SVF), man-made vitreous fiber (MMVF), man-made mineral fiber (MMMMF), alkaline-earth-silicate fiber, magnesium silicate fiber

Manufacturer/Supplier: Unifrax I LLC  
2351 Whirlpool St.  
Niagara Falls, NY 14305-2413

Product Stewardship Information Hotline  
1-800-322-2293 (Monday - Friday 8:00 a.m. - 4:30 p.m. EST)

For additional MSDSs, visit our web page, <http://www.unifrax.com>, or call Unifrax Customer Service at (716) 278-3872

CHEMTREC Assist: CHEMTREC will provide assistance for chemical emergencies. Call 1-800-424-9300

### 2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>COMPONENTS</u>	<u>CAS NUMBER</u>	<u>% BY WEIGHT</u>
Amorphous alkaline-earth-silicate (magnesium-silicate) (SiO <sub>2</sub> 70-80 %, MgO 18-27 %, trace elements 0-4%)	wool436083-99-7	50-90
Vermiculite	1318-00-9	10-40
Acrylic latex	28205-96-1	1-15
Fiberglass (continuous filament)	65997-17-3	1-10
Petroleum wax	8002-74-2	1-10

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

### 3. HAZARDS IDENTIFICATION

#### MAY IRRITATE EYES, SKIN and RESPIRATORY TRACT

May cause temporary mechanical irritation to eyes, skin, and respiratory tract (nose, throat & lungs).

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

The Hazardous Materials Identification System (HMIS) –

Health 1      Flammability 0      Reactivity 0      Personal Protection Index: X (Employer Determined)

## 4. FIRST AID MEASURES

### FIRST AID PROCEDURES

#### **RESPIRATORY TRACT (nose & throat) IRRITATION:**

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

#### **EYE IRRITATION:**

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 IRRITATION:**

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.

#### **GASTROINTESTINAL IRRITATION:**

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

#### **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

Non-combustible (does not burn) product.

Packaging and surrounding materials may be combustible.  
Use extinguishing agent suitable for surrounding combustible materials.

## 6. ACCIDENTAL RELEASE MEASURES

### SPILL PROCEDURES

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 must be equipped with a HEPA filter. Compressed air or dry sweeping should not be used for cleaning.

## 7. HANDLING AND STORAGE

### STORAGE

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

### HANDLING

Handle fiber carefully. Limit 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.

## **EMPTY CONTAINERS**

Product packaging may contain residue. Do not reuse.

# **8. EXPOSURE CONTROL / PERSONAL PROTECTION**

## **INDUSTRIAL HYGIENE STANDARDS AND OCCUPATIONAL EXPOSURE LIMITS**

<b>COMPONENTS</b>	<b>OSHA PEL</b>	<b>MANUFACTURER REG</b>
Amorphous alkaline-earth-silicate (magnesium-silicate) wool	None established	See below**
Vermiculite	None established	None Established
Acrylic latex	None established	None Established
Fiberglass (continuous filament)	1 f/cc TWA	None Established
Petroleum wax	None Established	None Established

There is no specific regulatory standard for ISOFRAX® 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/m<sup>3</sup>; Respirable Fraction 5 mg/m<sup>3</sup>.

### **OTHER OCCUPATIONAL EXPOSURE LEVELS (OEL)**

ACGIH TLV's : Amorphous alkaline-earth-silicate (magnesium-silicate) wool -- Particulates Not Otherwise Classified (PNOC) : Inhalable particulate -- 10 mg/m<sup>3</sup>. Respirable particulate -- 3 mg/m<sup>3</sup>. Vermiculite -- 10 mg/m<sup>3</sup> (total dust), 3 mg/m<sup>3</sup> (respirable dust). Acrylic latex -- None established. Fiberglass (continuous filament) -- 1 f/cc TWA. Petroleum wax -- None established.

\*\* As with most industrial materials, it is prudent to minimize unnecessary exposure to respirable dusts. Note that Industrial hygiene standards and occupational exposure limits differ between countries and local jurisdictions. Check with your employer to identify any "respirable dust", "total dust" or "fiber" exposure standards to follow in your area. If no regulatory dust or fiber control standard apply, a qualified industrial hygiene professional can assist with a specific evaluation of workplace conditions and the identification of appropriate respiratory protection practices. In the absence of other guidance, the supplier has found that it is generally feasible to control occupational fiber exposure to 1 f/cc or less.

### **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 the Unifrax Product Stewardship Information Line at 1-800-322-2293 (See Section 16).

### **PERSONAL PROTECTION EQUIPMENT**

#### **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. If soiled work clothing must be taken home, employers should ensure employees are thoroughly 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.).

#### **Eye Protection:**

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.

#### **Respiratory Protection:**

When effective engineering and/or administrative controls are insufficient, the use of appropriate respiratory protection, pursuant to the requirements of OSHA 1910.134, is recommended. For dust concentrations below the applicable exposure limit value, PPE is not required. 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>ODOR AND APPEARANCE:</b>	White, odorless, fibrous material
<b>CHEMICAL FAMILY:</b>	Alkaline Earth Silicate Wool (AES) Magnesium Silicate
<b>BOILING POINT:</b>	Not Applicable
<b>WATER SOLUBILITY (%):</b>	Not Soluble in Water
<b>MELTING POINT:</b>	1500-1550°C (2730-2820°F)
<b>SPECIFIC GRAVITY:</b>	2.60
<b>VAPOR PRESSURE:</b>	Not Applicable
<b>pH:</b>	Not Applicable
<b>VAPOR DENSITY (Air = 1):</b>	Not Applicable
<b>% VOLATILE:</b>	Not Applicable
<b>MOLECULAR FORMULA:</b>	SiO <sub>2</sub> MgO.

## **10. STABILITY AND REACTIVITY**

<b>CHEMICAL STABILITY:</b>	Stable under conditions of normal use.
<b>INCOMPATIBILITY:</b>	Avoid direct contact with strong acid environments.
<b>CONDITIONS TO AVOID:</b>	None.
<b>HAZARDOUS DECOMPOSITION PRODUCTS:</b>	Thermal decomposition of binder from fires or from first heat of product may release smoke, carbon monoxide, carbon dioxide, oxides of nitrogen and small amounts of aromatic and aliphatic hydrocarbons. Use adequate ventilation or other precautions to eliminate exposure to vapors resulting from thermal decomposition of binder. Exposure to thermal decomposition fumes may cause respiratory tract irritation, bronchial hyper-reactivity or an asthmatic-type response.
<b>HAZARDOUS POLYMERIZATION:</b>	Not Applicable.

## **11. TOXICOLOGICAL INFORMATION**

#### **EPIDEMIOLOGY**

This product has not been the subject of epidemiological study. Epidemiological studies related to other fiber chemistries of similar solubility have not identified a statistically significant incidence of exposure-related respiratory disease.

#### **TOXICOLOGY**

This product has been the subject of limited testing.

A review of available scientific literature suggests an inverse relationship between dissolution rate and potential health effects; i.e. the higher the dissolution rate of a fiber the lower its potential to produce health effects. The dissolution rate of ISOFRAX® fiber has been determined through standardized *in vitro* testing. The dissolution rate of ISOFRAX® fibers is higher than that of other fiber types that have been tested in chronic animal studies and did not produce respiratory disease.

This product possesses a fiber chemistry within the regulatory (European Commission Directive 97/69/EC) definition as a "man-made vitreous (silicate) fiber with random orientation with alkaline oxide and alkaline earth oxide (Na<sub>2</sub>O + K<sub>2</sub>O + CaO + MgO + BaO) content greater than 18% by weight". ISOFRAX® fibers have been tested pursuant to EU protocol ECB/TM/26, rev. 7, Nota Q, Directive 97/69/EC. The results for the short term biopersistence test by inhalation (IH test) was 6 days; well below the regulatory threshold of 10 days cited in Directive 97/69/EC. Based on testing results, ISOFRAX® based products are not regarded as potential carcinogens and they ARE EXEMPT from European classification as such. By virtue of these test results, these products ARE EXEMPT from European regulatory guidelines that require hazard warning labels with specific risk phrases citing respiratory disease potential. In addition, ISOFRAX® fibers have been tested in an independent laboratory, by intratracheal (IT test) instillation, under a protocol that was consistent with the requirements of the German Hazardous Substances Ordinance (BGBI. I pp. 1782, 2049, Third Amendment, Appendix V, No. 7). The half-life clearance of Isofrax® fibers was 32.7 days; well below the applicable regulatory thresholds. Based on the IT test results, Isofrax products ARE EXEMPT from the requirements of the German Ordinance.

The definition of "irritant" contained in the hazard communication standard, 29 CFR 1900.1200, Appendix A, is "...a reversible inflammatory effect on living tissue by chemical action...". ISOFRAX® fiber is an inert material which doesn't interact chemically with exposed skin. However, there is a possibility that exposure to this product may cause temporary mechanical irritation to the eyes, skin or respiratory tract (nose, throat, lungs). This temporary irritation can be mitigated with proper handling practices designed to limit exposure and the use of protective clothing (glasses, gloves, clothing).

This product has not been specifically evaluated by any regulatory authority or other classification entity, such as the International Agency for Research on Cancer (IARC) or the National Toxicology Program (NTP). Other types of man-made vitreous fibers (MMVF) have been evaluated and subsequently classified as potential carcinogens. Various classifications, such as "possible carcinogen", "probable carcinogen", and "reasonably anticipated to be a carcinogen" have been given to other MMVF's.

## 12. ECOLOGICAL INFORMATION

No ecological concerns have been identified.

## 13. DISPOSAL CONSIDERATIONS

### WASTE MANAGEMENT

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

### DISPOSAL

ISOFRAX® fiber, as manufactured, is not classified as a hazardous waste according to Federal regulations (40 CFR 261). 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.

### EUROPEAN UNION

Waste from this product is not classified as "hazardous" or "special" under European Union regulations. Disposal is permitted at landfills licensed for industrial waste.

## 14. TRANSPORT INFORMATION

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

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) or IMDG (ship).

## 15. REGULATORY INFORMATION

### UNITED STATES REGULATIONS

**EPA:** **Superfund Amendments and Reauthorization Act (SARA)** Title III - This product does not contain any substances reportable under Sections 302, 304, 313, (40 CFR 372). Sections 311 and 312 (40 CFR 370) apply (delayed hazard).  
**Toxic Substances Control Act (TSCA)** - All substances in this product are listed, as required, on the TSCA inventory.  
**Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)** and the **Clean Air Act (CAA)** - ISOFRAX® contains fibers with an average diameter greater than one micron and thus is not considered a hazardous air pollutant.

**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.

**States:** ISOFRAX® products are not known to be regulated. However, state and local OSHA and EPA regulations may apply to these products. If in doubt, contact your local regulatory agency.

### INTERNATIONAL REGULATIONS

**Canada:** **Canadian Workplace Hazardous Materials Information System (WHMIS):**  
No Canadian Workplace Hazardous Materials Information System (WHMIS) categories apply to this product.  
**Canadian Environmental Protection Act (CEPA)** - All substances in this product are listed, as required, on the Domestic Substance List (DSL)

**European Union:** **European Directive 97/69/EC** - By virtue of testing results, ISOFRAX® fiber has been exempted from classification and labeling as a potential carcinogen.

## 16. OTHER INFORMATION

### After-Service ISOFRAX® Thermal Insulation: Removal

As produced, Isofrax fibers are vitreous (glassy) materials, which upon continued exposure to elevated temperatures (above about 800°C) might devitrify, initially forming magnesia-bearing phases (enstatite). At higher temperatures, (above about 1000°C) crystalline phase silicas may occur. The occurrence and extent of crystalline phase formation is dependent on the duration and temperature of exposure, fiber chemistry and/or the presence of fluxing agents. The presence of crystalline phases can be confirmed only through laboratory analysis of the "hot-face" fiber.

IARC's evaluation of crystalline silica 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" (IARC Monograph Vol. 68, 1997). NTP lists all polymorphs of crystalline silica amongst substances which may "reasonably be anticipated to be carcinogens".

During removal operations, the use of a full face respirator is recommended to reduce inhalation exposure along with eye & respiratory tract irritation. A specific evaluation of workplace hazards and the identification of appropriate respiratory protection is best performed, on a case by case basis, by a qualified industrial hygiene professional. For more detailed information regarding respirable crystalline silica, call the Product Stewardship Information Hotline (see below).

## **PRODUCT STEWARDSHIP PROGRAM**

Unifrax has established a program to provide customers with up-to-date information regarding the proper use and handling of fiber-based products, including ISOFRAX® THERMAL INSULATION. In addition, Unifrax has also established a program to monitor airborne fiber concentrations at customer facilities. If you would like more information about this program, please call the Unifrax Product Stewardship Information Line at 1-800-322-2293.

## **DEFINITIONS**

<b>ACGIH:</b>	American Conference of Governmental Industrial Hygienists
<b>ADR:</b>	Carriage of Dangerous Goods by Road (International Regulation)
<b>CAA:</b>	Clean Air Act
<b>CAS:</b>	Chemical Abstracts Service
<b>CERCLA:</b>	Comprehensive Environmental Response, Compensation and Liability Act
<b>DSL:</b>	Domestic Substances List
<b>EPA:</b>	Environmental Protection Agency
<b>EU:</b>	European Union
<b>f/cc:</b>	Fibers per cubic centimeter
<b>HEPA:</b>	High Efficiency Particulate Air
<b>HMIS:</b>	Hazardous Materials Identification System
<b>IARC:</b>	International Agency for Research on Cancer
<b>IATA:</b>	International Air Transport Association
<b>IMDG:</b>	International Maritime Dangerous Goods Code
<b>mg/m<sup>3</sup>:</b>	Milligrams per cubic meter of air
<b>mmpcf:</b>	Million particles per cubic meter
<b>NFPA:</b>	National Fire Protection Association
<b>NIOSH:</b>	National Institute for Occupational Safety and Health
<b>OSHA:</b>	Occupational Safety and Health Administration
<b>29 CFR 1910.134 &amp; 1926.103:</b>	OSHA Respiratory Protection Standards
<b>29 CFR 1910.1200 &amp; 1926.59:</b>	OSHA Hazard Communication Standards
<b>PEL:</b>	Permissible Exposure Limit (OSHA)
<b>PIN:</b>	Product Identification Number
<b>PNOC:</b>	Particulates Not Otherwise Classified
<b>PNOR:</b>	Particulates Not Otherwise Regulated
<b>PSP:</b>	Product Stewardship Program
<b>RCRA:</b>	Resource Conservation and Recovery Act
<b>REL:</b>	Recommended Exposure Limit (NIOSH)
<b>RID:</b>	Carriage of Dangerous Goods by Rail (International Regulations)
<b>SARA:</b>	Superfund Amendments and Reauthorization Act
<b>SARA Title III:</b>	Emergency Planning and Community Right to Know Act
<b>SARA Section 302:</b>	Extremely Hazardous Substances
<b>SARA Section 304:</b>	Emergency Release
<b>SARA Section 311:</b>	MSDS/List of Chemicals and Hazardous Inventory
<b>SARA Section 312:</b>	Emergency and Hazardous Inventory
<b>SARA Section 313:</b>	Toxic Chemicals and Release Reporting
<b>STEL:</b>	Short Term Exposure Limit
<b>SVF:</b>	Synthetic Vitreous Fiber
<b>TDG:</b>	Transportation of Dangerous Goods
<b>TLV:</b>	Threshold Limit Value (ACGIH)
<b>TSCA:</b>	Toxic Substances Control Act
<b>TWA:</b>	Time Weighted Average

**WHMIS:** Workplace Hazardous Materials Information System (Canada)

**Revision Summary:** Not applicable.

**MSDS Prepared By:** UNIFRAX RISK MANAGEMENT DEPARTMENT

**DISCLAIMER**

The information presented herein is presented in good faith and believed to be accurate as of the effective date of this Material Safety Data Sheet. Employers may use this MSDS 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 MSDS. Therefore, given the summary nature of this document, Unifrax I LLC 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.