

**SDS No. M0386**
**Effective Date: 01/16/2018**

## 1. IDENTIFICATION

- A. Product Identifier used on label:** INSULFRAX® PAPER
- B. Other means of identification:** ALKALINE EARTH SILICATE WOOL (AES), Synthetic vitreous fiber (SVF), man-made vitreous fiber (MMVF), man-made mineral fiber (MMMMF), alkaline-earth-silicate fiber, magnesium silicate fiber, high temperature insulation wool (HTIW)
- C. Recommended use of the product:** Used for high temperature thermal insulation for applications up to 1600 deg C or 2912 deg F\*\* with low heat storage; has low shot content; rated as non-carcinogen (EC Directive 67/548/EEC), requires no special product labelling; is total thermal shock resistant. Typical uses: to improve service life for furnace roofs and linings, ladle and tundish covers, batten strips, burner walls, preheat covers, trough covers, soaking pit covers, expansion joints, heat shields, heat containment, gaskets and expansion joints; for use in industrial furnaces, ovens, kilns, and other process equipment. PCW based products are not intended for direct sale to the general public. While PCWs are used in the manufacture of some consumer products, the materials are contained, encapsulated, or bonded within the units.  
 \*\*refer to the technical data sheet for specific operating temperature limit and shrinkage data.
- D. Uses Advised Against:** Dismantling product for reuse on other applications.
- E. Manufacturer's Name:** FibreCast Incorporated, 3264 Mainway, Burlington, Ontario, Canada, L7M 1A7  
 Phone 905-319-1080; Fax 905-319-7611; email: sales@fibrecast.com
- F. Emergency Phone #:** CHEMTREC will provide assistance for chemical emergencies at 1-800-424-9300

## 2. HAZARDS IDENTIFICATION

- A. Classification of the chemical:** AES wools are not classified following self-classification guidelines of the OSHA Hazard Communication Standard (HCS) 2012 and not a dangerous product according to HPR classification criteria of WHMIS 2015. The assessment of all available toxicological data on AES during the classification process resulted in a "no classification" conclusion.
- B. Signal word:** Signal word hazard statement(s), symbol(s) and precautionary statement(s) Not applicable.
- C. Describe any hazards not otherwise classified during classification process:** Mild mechanical irritation to skin, eyes and upper respiratory system may result from exposure. These effects are usually temporary. Minimize exposure to airborne dust.
- D. Mixture rule not applicable**

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	% BY WEIGHT
Amorphous alkaline-earth-silicate (calcium-magnesium-silicate) fiber (SiO <sub>2</sub> 62-67 %, CaO 28-33 %, MgO 1-6 %, trace elements 0-1%)*	436083-99-7	80-90
Acrylic latex	28205-96-1	5-10
Aluminum sulfate	10043-01-3	1-5

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



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## 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

#### SKIN

Handling of this material may generate mild mechanical temporary skin irritation. If this occurs, rinse affected areas with water and wash gently. Do not rub or scratch exposed skin.

#### EYES

In case of eye contact flush abundantly with water; have eye bath available. Do not rub eyes.

#### NOSE AND THROAT

If these become irritated move to a dust free area, drink water and blow nose. If symptoms persist, seek medical advice.

### B. Most important symptoms/effects, acute and delayed

Mild mechanical irritation to skin, eyes and upper respiratory system may result from exposure. These effects are usually temporary.

### C. Indication of immediate medical attention and special treatment needed, if necessary

#### NOTES TO PHYSICIANS

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

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## 5. FIRE FIGHTING MEASURES

### A. Suitable (and unsuitable) extinguishing media

### B. Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products):

Non-combustible products, class of reaction to fire is zero.

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

### C. Special protective equipment and precautions for fire-fighters

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

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## 6. ACCIDENTAL RELEASE MEASURES

**A. Personal precautions, PPE, 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:** Frequently clean the work area with a filtered vacuum or wet sweeping to minimize the accumulation of debris. Do not use compressed air for clean-up.

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## 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. EXPOSURE 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

COMPONENTS	OSHA	ACGIH	Recommended OEL Ontario
Amorphous alkaline-earth-silicate (calcium-magnesium-silicate) fiber	Particulates Not Otherwise Regulated (PNOR) : Total Dust – 15 mg/m <sup>3</sup> . Respirable Fraction – 5 mg/m <sup>3</sup>	Particulates Not Otherwise Classified (PNOC) : Inhalable particulate – 10 mg/m <sup>3</sup> . Respirable particulate – 3 mg/m <sup>3</sup>	1.0 fibres/cc or 3 mg/m <sup>3</sup> as a respirable particulate
Acrylic latex	None established	None established	None established
Aluminum sulfate	None established	None established	None established

\*There is no specific regulatory standard for INSULFRAX® 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>.

\*\* 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 0.5 f/cc or less.

### 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

#### 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 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

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

#### Respiratory Protection

When engineering and/or administrative controls are insufficient to maintain workplace concentrations below the applicable level, the use of appropriate respiratory protection, pursuant to the requirements of OSHA Standards 29 CFR 1910.134 and 29 CFR 1926.103, is recommended. A NIOSH certified respirator with a filter efficiency of at least 95% should be used. The 95% filter efficiency recommendation is based on NIOSH respirator selection logic sequence for exposure to particulates. Selection of filter efficiency (i.e. 95%, 99% or 99.97%) depends on how much filter leakage can be accepted and the concentration of airborne contaminants. Other factors to consider are the NIOSH filter series N, R or P. (N) Not resistant to oil, (R) Resistant to oil and (P) oil Proof. These recommendations are not designed to limit informed choices, provided that respiratory protection decisions comply with 29 CFR 1910.134.

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>APPEARANCE</b> White, fibrous wool	<b>UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS</b> Not applicable
<b>ODOR</b> Odorless	<b>VAPOR PRESSURE</b> Not applicable
<b>ODOR THRESHOLD</b> Not applicable	<b>VAPOR DENSITY</b> Not applicable
<b>pH</b> Not applicable	<b>RELATIVE DENSITY</b> 2.60
<b>MELTING POINT</b> 1260° C (2300° F)	<b>SOLUBILITY</b> Insoluble
<b>INITIAL BOILING POINT AND BOILING RANGE</b> Not applicable	<b>PARTITION COEFFICIENT: N-OCTANOL/WATER</b> Not applicable
<b>FLASH POINT</b> Not applicable	<b>AUTO-IGNITION TEMPERATURE</b> Not applicable
<b>EVAPORATION RATE</b> Not applicable	<b>DECOMPOSITION TEMPERATURE</b> Not applicable
<b>FLAMMABILITY</b> Not applicable	<b>VISCOSITY</b> Not applicable

## 10. STABILITY AND REACTIVITY

<b>Reactivity</b>	AES is non-reactive.
<b>Chemical stability</b>	As supplied AES is stable and inert.
<b>Possibility of hazardous reactions</b>	None
<b>Conditions to avoid</b>	Please refer to handling and storage advice in Section 7
<b>Incompatible materials</b>	None
<b>Hazardous decomposition products</b>	

## 11. TOXICOLOGICAL INFORMATION

### (a) through (d)

#### Toxicological Data/Epidemiology Data

##### 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

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 INSULFRAX® fiber has been determined through standardized in vitro testing. The dissolution rate of INSULFRAX® 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 European Regulation 1272/2008 (formerly 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". INSULFRAX® fibers have been tested pursuant to EU protocol ECB/TM/26, rev. 7, Nota Q, European Regulation 1272/2008. The results for the short term biopersistence test by inhalation (IH test) was 7 days; well below the regulatory threshold of 10 days cited in European Regulation 1272/2008. Based on testing results, INSULFRAX® 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.

##### Irritant Properties

The definition of "skin irritation" contained in the hazard communication standard, 29 CFR 1900.1200, Appendix A.2.1.1, is "the production



of reversible damage to the skin following the application of a test substance for up to 4 hours." When tested using approved methods (for example EU Directive 67/548/EC, Annex V, Method B4), fibers contained in this material give negative results. The fiber contained in this product 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).

(e) International Agency for Research on Cancer and National Toxicology Program

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).

## 12. ECOLOGICAL INFORMATION

Ecotoxicity (aquatic and terrestrial, where available)	No known aquatic toxicity
Persistence and degradability	These products are insoluble materials that remain stable over time and are chemically identical to inorganic compounds found in the soil and sediment; they remain
Bioaccumulative potential	No bioaccumulative potential.
Mobility in soil	No mobility in soil.
Other adverse effects (such as hazardous to the ozone layer)	No adverse effects of this material on the environment are anticipated.

## 13. DISPOSAL CONSIDERATIONS

### A. WASTE MANAGEMENT

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

### B. DISPOSAL

INSULFRAX® 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.

### C. 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 (Non-mandatory)

UN number	Not Applicable
UN proper shipping name	Not Applicable
Transport hazard class(es)	Not Applicable
Packing group, if applicable	Not Applicable
Environmental hazards (e.g., Marine pollutant (Yes/No))	Not a marine pollutant
Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code)	Not Applicable
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



\* Canadian TDG Hazard Class & PIN: Not regulated. Not classified as dangerous goods under ADR (road), RID (train) or IMDG (ship).

## 15. REGULATORY INFORMATION

### A. 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) - INSULFRAX® 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:** INSULFRAX® 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.

### B. INTERNATIONAL REGULATIONS

**Canada:** Canadian Workplace Hazardous Materials Information System (WHMIS 2015): No Canadian Workplace Hazardous Materials Information System (WHMIS 2015) 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, INSULFRAX® fiber has been exempted from classification and labeling as a potential carcinogen.

## 16. OTHER INFORMATION

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

As produced, Insulfrax® fibers are vitreous (glassy) materials, which do not contain crystalline silica. Continued exposure to elevated temperatures may cause these fibers to devitrify (become crystalline). The first crystalline formations to occur are diopside and wollastonite, which begin to form at about 900° C (1652° F). Under recommended usage, it is unlikely that Insulfrax® fibers will be exposed to the temperatures and conditions required for the formation of crystalline phase silica. The occurrence and extent of crystalline phase silica formation is highly dependent on temperature, the duration of time that the fibers are exposed to high temperatures, fiber chemistry, and the presence of fluxing agents. The presence of crystalline phase silica can only be confirmed 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. 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.

The HTIW Coalition and the U.S. Occupational Safety and Health Administration (OSHA) are partners in PSP HTW, a comprehensive, multi-faceted risk management program designed to control and reduce workplace exposures to high temperature insulation wools (HTIW). For more information regarding PSP HTW, please visit <http://www.htiwcoalition.org>



## 16.1 Definitions

ACGIH	American Conference of Governmental Industrial Hygienists
ADR	Carriage of Dangerous Goods by Road (International Regulation)
AES	Alkaline Earth Silicate Wools
ASW	Alumino-Silicate Wools
CAA	Clean Air Act
CAS	Chemical Abstracts Service
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
DSL	Domestic Substances List
EPA	Environmental Protection Agency
EU	European Union
f/cc	Fibers per cubic centimeter
HEPA	High Efficiency Particulate Air
HMIS	Hazardous Materials Identification System
HTIW	North American high temperature insulation wool industry
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods Code
mg/m <sup>3</sup>	Milligrams per cubic meter of air
mmpcf	Million particles per cubic meter
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
29 CFR 1910.1200 & 1926.59	OSHA Respiratory Protection Standards
29 CFR 1910.1200 & 1926.59:	OSHA Hazard Communication Standards
PCW	Polycrystalline Wools
PEL	Permissible Exposure Limit (OSHA)
PIN	Product Identification Number
PNOC	Particulates Not Otherwise Classified
PNOR	Particulates Not Otherwise Regulated
PSP	Product Stewardship Program
RCFA	Refractory Ceramic Fiber Association
RCRA	Resource Conservation and Recovery Act
REL	Recommended Exposure Limit (NIOSH)
RID	Carriage of Dangerous Goods by Rail (International Regulations)
SARA	Superfund Amendments and Reauthorization Act
SARA Title III	Emergency Planning and Community Right to Know Act
SARA Section 302	Extremely Hazardous Substances
SARA Section 304	Emergency Release
SARA Section 311	MSDS/List of Chemicals and Hazardous Inventory



## 16.2 Definitions Continued...

SARA Section 312	Emergency and Hazardous Inventory
SARA Section 313	Toxic Chemicals and Release Reporting
STEL	Short Term Exposure Limit
SVF	Synthetic Vitreous Fiber
TDG	Transportation of Dangerous Goods
TLV	Threshold Limit Value (ACGIH)
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
WHMIS	Workplace Hazardous Materials Information System (Canada)

**16.3 Revision Summary:** Annual review. SDS Prepared By: UNIFRAX RISK MANAGEMENT DEPARTMENT

## 16.4 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, FibreCast Inc. 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.