



SAFETY DATA SHEET

SDS No. M0456

Effective Date: 10/30/2013

1. IDENTIFICATION

Product Identifier: Fyrewrap® DPS DRYER & PLENUM SYSTEMS

Chemical Name: ALKALINE EARTH SILICATE FIBER (AES)

Recommended Use: FyreWrap DPS is a high-temperature insulation blanket designed to provide a one hour fire rated flexible enclosure around dryer exhaust ductwork, functioning to contain a lint fire within the duct and limit heat transfer to nearby combustible construction.

Manufacturer/Supplier: Unifrax I LLC
600 Riverwalk Parkway, Suite 120
Tonawanda, NY 14150

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

For additional SDSs, visit our web page, <http://www.unifrax.com>, or call Unifrax Customer Service at (716) 768-6500

Emergency Phone Number: CHEMTREC will provide assistance for chemical emergencies. Call 1-800-424-9300

2. HAZARDS IDENTIFICATION

Not Classified in accordance with paragraph (d) of OSHA HCS 2012 §1910.1200

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.

3. COMPOSITION / INFORMATION ON INGREDIENTS

<u>COMPONENTS</u>	<u>CAS NUMBER</u>	<u>% BY WEIGHT</u>
Amorphous alkaline-earth-silicate (calcium-magnesium-silicate) fiber (SiO ₂ 62-67 %, CaO 28-33 %, MgO 1-6 %, trace elements 0-1%)*	436083-99-7	96-98
Aluminum foil with fiberglass reinforcement and inorganic adhesive.	Not applicable (article)	2-4

***Synonyms:** Synthetic vitreous fiber (SVF), man-made vitreous fiber (MMVF), man-made mineral fiber (MMMMF), alkaline-earth-silicate fiber (AES), calcium magnesium silicate fiber (CMS), high temperature insulation wool (HTIW)

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

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

Suitable Extinguishing Media:	Use extinguishing media suitable for type of surrounding fire.
Hazardous Decomposition Products:	
Flammable Properties:	Non combustible
Special protective equipment and precautions for fire-fighters	Wear a NIOSH certified respirator together with other protective gear appropriate to the surrounding fire.
Unusual Fire and Explosion Hazard:	None
NFPA Unusual Hazards:	None

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS

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

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP

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.

7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING

Handle fiber carefully to minimize airborne dust. 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.

CONDITIONS FOR SAFE STORAGE

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

EMPTY CONTAINERS

Product packaging may contain residue. Do not reuse.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

INDUSTRIAL HYGIENE STANDARDS AND OCCUPATIONAL EXPOSURE LIMITS

Components	OSHA	ACGIH	MANUFACTURER
Amorphous alkaline-earth-silicate (calcium-magnesium-silicate) fiber	Particulates Not Otherwise Regulated (PNOR) : Total Dust -- 15 mg/m ³ . Respirable Fraction -- 5 mg/m ³	Particulates Not Otherwise Classified (PNOC) : Inhalable particulate -- 10 mg/m ³ . Respirable particulate -- 3 mg/m ³	See below*
Aluminum foil with fiberglass reinforcement and inorganic adhesive.	Not applicable (article)	Not applicable (article)	Not applicable (article)

* 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 I LLC 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

Appearance	White, fibrous wool	Upper/lower flammability or explosive limits	Not applicable
Odor	Odorless	Vapor pressure	Not applicable
Odor threshold	Not applicable	Vapor density	Not applicable
pH	Not applicable	Relative density	2.60
Melting point	1260° C (2300° F)	Solubility	Insoluble
Initial boiling point and boiling range	Not applicable	Partition coefficient: n-octanol/water	Not applicable
Flash point	Not applicable	Auto-ignition temperature	Not applicable
Evaporation rate	Not applicable	Decomposition temperature	Not applicable
Flammability	Not applicable	Viscosity	Not applicable

10. STABILITY AND REACTIVITY

REACTIVITY	Not Applicable.
CHEMICAL STABILITY:	Stable under conditions of normal use.
POSSIBILITY OF HAZARDOUS REACTIONS:	Not Applicable.
CONDITIONS TO AVOID:	None.
INCOMPATIBLE MATERIALS:	None known.
HAZARDOUS DECOMPOSITION PRODUCTS:	

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

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 the regulatory (European Commission Directive 97/69/EC, now 1.1.3.1. (Nota Q) of Annex VI of regulation (EC) 1272/2008) definition as a "man-made vitreous (silicate) fiber with random orientation with alkaline oxide and alkaline earth oxide (Na₂O + K₂O + 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, Directive 97/69/EC (now 1.1.3.1. (Nota Q) of Annex VI of regulation (EC) 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 the directive. 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. In addition, INSULFRAX® 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 INSULFRAX® fibers was 30 days; well below the applicable regulatory thresholds. Based on the IT test results, INSULFRAX® products ARE EXEMPT from the requirements of the German Ordinance.

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. Consequently, the first Adaptation of Technical Progress of regulation (EC) N°1272/2008 of 10 August 2009 removed the skin irritancy classification for man-made vitreous (silicate) wools. 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).

INSULFRAX® is not listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) nor has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by OSHA.

12. ECOLOGICAL INFORMATION

Ecotoxicity	Unlikely to be hazardous to aquatic life.
Persistence and degradability	The product shows no evidence for biodegradability.
Bioaccumulative potential	Low potential for bioaccumulation.
Mobility in soil	No mobility in soil.

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

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.

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) - AES fiber has been assigned a CAS number; however; it is an "article" under TSCA and therefore exempt from listing 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.

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, 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 HTIW. 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 Hotline 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>

DEFINITIONS

ACGIH:	American Conference of Governmental Industrial Hygienists
ADR:	Carriage of Dangerous Goods by Road (International Regulation)
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
IARC:	International Agency for Research on Cancer
IATA:	International Air Transport Association
IMDG:	International Maritime Dangerous Goods Code
mg/m³:	Milligrams per cubic meter of air
mmpcf:	Million particles per cubic feet
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 Standards
29 CFR 1910.1200 & 1926.59:	OSHA Hazard Communication Standards
PEL:	Permissible Exposure Limit (OSHA)
PIN:	Product Identification Number
PNOC:	Particulates Not Otherwise Classified
PNOR:	Particulates Not Otherwise Regulated
PSP:	Product Stewardship Program
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:	SDS/List of Chemicals and Hazardous Inventory
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)

Revision Date: 10/30/2013

Revision Summary: Not applicable.

SDS 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 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, 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.