SAFETY DATA SHEET

SDS No. M0049 **Effective Date: 06/28/2016**

1. IDENTIFICATION

(a) Product identifier used on the label **FIBERSTICK™ REFRACTORY CEMENT**

(b) Other means of identification **Fiberstick V, Alumina-Silicate Wet Air Set Mortar-Slurry**

(c) Recommended use of the chemical and restrictions on use A high-temperature, airsetting mortar used as an adhesive to securely bond modules and other product forms to refractory surfaces.

d) Name, address, and telephone number

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

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

2. HAZARDS IDENTIFICATION

(a) Classification of the chemical in accordance with paragraph (d) of §1910.1200

Respirable crystalline silica is classified as an OSHA HCS 2012 Category 1A carcinogen

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

Hazard Pictograms

Signal Word
Danger

Hazard Statements
Causes skin irritation
Causes serious eye irritation
May cause cancer by inhalation.

Precautionary statements

Do not handle until all safety instructions have been read and understood.
Wear eye protection, protective gloves, protective clothing
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If skin irritation occurs: Get medical advice/attention
If eye irritation persists: Get medical advice/attention
Use respiratory protection as required; see section 8 of the Safety Data Sheet.
Dispose of waste in accordance with local, state and federal regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

(a) Chemical and (b) Common Name	(c) CAS Number	% BY WEIGHT
Kyanite	1302-76-7	45-50
Sodium silicate	1344-09-8	25-30
Calcined clay	1332-58-7	15-20
Crystalline silica (quartz)	14808-60-7	5-10
Water	7732-18-5	0-5

(d) Impurities and stabilizing additives

Not applicable.

4. FIRST AID MEASURES

Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin and eye contact, and ingestion

SKIN

Gently wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse.

EYES

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

INGESTION

Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

Most important symptoms/effects, acute and delayed

Prolonged exposure to respirable crystalline silica particulate from dried, abraded product may cause cancer and silicosis by inhalation.
Irritation to skin and eyes may result from exposure.

5. FIRE FIGHTING MEASURES

(a) Suitable (and unsuitable) extinguishing media

Use extinguishing agent suitable for surrounding combustible materials.

(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.
None.

(c) Special protective equipment and precautions for fire-fighters

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

6. ACCIDENTAL RELEASE MEASURES

(a) Personal precautions, protective equipment, and emergency procedures

If spilled, may cause the floor to be slippery. For dried product, 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 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.

7. HANDLING AND STORAGE

(a) Precautions for safe handling

Avoid contact with eyes and skin. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

(b) Conditions for safe storage, including any incompatibilities

Store in original container. Keep container closed when not in use.

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 PEL	ACGIH TLV	MANUFACTURER REG
Kyanite	5 mg/m³ (resp.fraction) 15 mg/m³ (total dust)	3 mg/m³	None established
Sodium silicate	None established	None established	None established
Calcined clay	5 mg/m³ (resp.fraction) 15 mg/m³ (total dust)	2 mg/m³	None established
Crystalline silica (quartz)	50 micrograms/cc	0.025 mg/m³	None established

(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 particulate emissions.

(c) Individual protection measures, such as personal protective equipment

Skin Protection
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).

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 a regulatory OEL, the use of appropriate respiratory protection, pursuant to the requirements of OSHA Standards 29 CFR 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

(a) Appearance	Brown slurry.	**(j) Upper/lower flammability or explosive limits**	Not applicable
(b) Odor	Odorless	**(k) Vapor pressure**	Not applicable
(c) Odor threshold	Not applicable	**(l) Vapor density**	Not applicable
(d) pH	Not applicable	**(m) Relative density**	1.5
(e) Melting point	1760° C (3200° F)	**(n) Solubility**	Insoluble
(f) Initial boiling point and boiling range	Not applicable	**(o) Partition coefficient: n-octanol/water**	Not applicable
(g) Flash point	Not applicable	**(p) Auto-ignition temperature**	Not applicable
(h) Evaporation rate	Not applicable	**(q) Decomposition temperature**	Not applicable
(i) Flammability	Not applicable	**(r) Viscosity**	Not applicable

10. STABILITY AND REACTIVITY

(a) **Reactivity**	Product is non-reactive.
(b) **Chemical stability**	As supplied, product is stable and inert.
(c) **Possibility of hazardous reactions**	None
(d) **Conditions to avoid**	Please refer to handling and storage advice in Section 7
(e) **Incompatible materials**	None
(f) **Hazardous decomposition products**	None.

11. TOXICOLOGICAL INFORMATION

(a) through (d)

LD50 oral: > 2000 mg/kg (Rat)

TOXICOKINETICS, METABOLISM AND DISTRIBUTION

In Monograph 68, (IARC 1997) noted that six cohort studies of quarries and granite works "revealed lung cancer excesses" (p. 206) from exposure to respirable crystalline silica. In addition, the results of two cohort studies of refractory brick workers from China and Italy and of one cohort study of diatomaceous earth workers from the US "provided consistent evidence of increased lung cancer" (p. 207). Different specimens of quartz with particle sizes in the respirable range were tested in four experiments in rats by inhalation and in four separate experiments in rats by intratracheal instillation (IARC 1997). In these eight experiments, there were significant increases in the incidence of adenocarcinomas and squamous-cell carcinomas of the lung; marked, dense pulmonary fibrosis was also observed (p. 208).

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

IARC classified respirable crystalline silica as carcinogenic to humans (group 1).

The Annual Report on Carcinogens (latest edition), prepared by NTP, classified Silica, crystalline (respirable size) as "known to be a human carcinogen").

12. ECOLOGICAL INFORMATION

(a) Ecotoxicity (aquatic and terrestrial, where available)	No known aquatic toxicity.
(b) 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 inert in the natural environment.
(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

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

DISPOSAL

This product, 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.

14. TRANSPORT INFORMATION (Non-mandatory)

(a) UN number	Not Applicable
(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))	Not a marine pollutant
(f) Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code)	Not Applicable
(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

Canadian TDG Hazard Class & PIN: Not regulated

Not classified as dangerous goods under ADR (road), RID (train) or IMDG (ship).

15. REGULATORY INFORMATION (Non-mandatory)

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). **Hazard Categories**: Immediate Hazard ï No Delayed Hazard ï Yes Fire Hazard ï No Pressure Hazard ï No Reactivity Hazard - No **Toxic Substances Control Act (TSCA)** - All ingredients, as required, are listed on the TSCA inventory.
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	Respirable crystalline silica is listed in **Proposition 65, The Safe Drinking Water and Toxic Enforcement Act of 1986** as a chemical known to the State of California to cause cancer.

INTERNATIONAL REGULATIONS

Canada	**Canadian Environmental Protection Act (CEPA)** - All substances in this product are listed, as required, on the Domestic Substance List (DSL)

16. OTHER INFORMATION

Hazardous Materials Identification System (HMIS) Hazard Rating

HMIS Health	1* (* denotes potential for chronic effects)
HMIS Flammability	0
HMIS Reactivity	0
HMIS Personal Protective Equipment	X (To be determined by user)

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 meter
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:	MSDS/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`
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)

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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.