



SAFETY DATA SHEET

1. IDENTIFICATION

Product Identification:	SiFAB™ Silicon Fiber
Manufacturer/Supplier:	Alkegen 600 Riverwalk Parkway Tonawanda, NY 14150 For Product Stewardship Information or additional SDSs, visit our web page, http://www.alkegen.com , or call Alkegen Customer Service at (716) 768-6500
Identified Use of the Mixture:	Industrial use only. Intended for use as a high-capacity lithium storage anode material in lithium ion batteries
Emergency Telephone Number:	CHEMTREC will provide assistance for chemical emergencies. Call 1-800-424-9300

2. HAZARDS IDENTIFICATION**(a) Classification of the chemical**

OSHA HCS 2012:

Combustible Dust
Category 2 Carcinogen

Scientific studies suggest that the potential toxicity of a respirable fiber is directly related to its biopersistence (the length of time it takes for the fiber to be dissolved from the lung). A portion of the fibers may be respirable, as well as relatively durable, which indicates exposure should be kept to a minimum. The classification following OSHA HCS 2012 Category 2 carcinogen is based on analogous, relatively durable fiber types.

(b) Signal word, hazard statement(s), symbol(s) and precautionary statement(s)**Hazard Pictogram****Signal Word**
Warning**Hazard Statements**May form explosible dust-air mixture if dispersed.
H351 - Suspected of causing cancer by inhalation.**Precautionary statements**P280 - Wear protective gloves/protective clothing/eye protection/face protection
P210 - Keep away from heat, open flames, sparks. - No smoking
P240 - Ground/bond container and receiving equipment
P370+P378 - In case of fire: Use metal-extinguishing powder to extinguishDo not handle until all safety instructions have been read and understood.
Use respiratory protection as required; see section 8 of the Safety Data Sheet.

If concerned about exposure, get medical advice.
Store in a manner to minimize airborne dust.
Dispose of waste in accordance with local, state and federal regulations.

Supplementary Information

May cause temporary mechanical irritation to exposed eyes, skin or respiratory tract.
Minimize exposure to airborne dust.

(c) Describe any hazards not otherwise classified that have been identified during the classification process

Avoid product contact with electrical circuitry. Mild mechanical irritation to skin, eyes and upper respiratory system may result from exposure. These effects are usually temporary.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Mixture Components:	CAS Number	% by Weight
Silicon	7440-21-3	40-75
Carbon	7440-44-0	25-50
Silicon dioxide (amorphous)	7631-86-9	0-10

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.

5. FIRE FIGHTING MEASURES**5.1. Extinguishing media**

Suitable extinguishing media: Use Met-L-X or other appropriate metal-extinguishing powder.

Unsuitable extinguishing media: Do not apply water to burning material.

5.2. Special hazards arising from the substance or mixture

Fire hazard: Combustible dust. Irritating fumes vapors may develop when material is mixed with other materials and exposed to elevated temperatures or open flame.

5.3. Advice for firefighters Firefighting instructions Protection during firefighting

Explosion hazard

May form explosible dust-air mixture if dispersed. Exercise caution when fighting any chemical fire.

Do not enter fire area without proper protective equipment, including respiratory protection. Avoid contact with skin and eyes. Do not breathe dust.

6. ACCIDENTAL RELEASE MEASURES

General measures: Remove ignition sources. Use special care to avoid static electric charges.

6.1.1. For non-emergency personnel: Evacuate unnecessary personnel.

Emergency procedures

6.1.2. For emergency responders: Equip cleanup crew with proper protective equipment.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Clean up any spills as soon as possible. Sweep or shovel spills into appropriate container for disposal. Use only non-sparking tools.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

7. HANDLING AND STORAGE

7.1 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. Use only non-sparking tools.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures: Ground/bond container and receiving equipment.

Storage conditions: Keep container tightly closed.

Incompatible materials: Oxidizing agent.

Storage area: Store in a well-ventilated place. Store away from heat.

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

Alkegen has adopted a recommended exposure guideline (REG) of **0.5 fibers/cc 8 hr Time Weighted Average**, as measured under NIOSH Method 7400 B, based on analogous, relatively durable fiber types. ACGIH and OSHA have not adopted exposure limits for this fiber.

(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 neoprene or nitrile gloves 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

Wear chemical goggles

Respiratory Protection

When engineering and/or administrative controls are insufficient to maintain workplace concentrations below the REG or 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. 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 manmade mineral fibers. 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

Odorless

Solubility (Water)	: Insoluble
Melting Point (C)	: No data available
Boiling Point (C)	: Not applicable
Specific Gravity (water = 1)	: No data available

10. STABILITY AND REACTIVITY

- | | |
|---|-----------------------------------|
| (a) Reactivity | Non-reactive. |
| (b) Chemical stability | As supplied, is stable and inert. |
| (c) Possibility of hazardous reactions | None |
| (d) Conditions to avoid | None |
| (e) Incompatible materials | None |
| (f) Hazardous decomposition products | None |

11. TOXICOLOGICAL INFORMATION**Acute effects:**

Eye Contact: May cause eye irritation.

Skin Contact: Slight mechanical irritation is possible.

Inhalation: Inhalation of dust may cause respiratory tract (nose, throat, lungs) irritation.

Chronic effects:

Scientific studies suggest that the potential toxicity of a respirable fiber is directly related to its biopersistence (the length of time it takes for the fiber to be dissolved from the lung). A portion of the fibers may be respirable, as well as relatively durable, which indicates exposure should be kept to a minimum. The classification following OSHA HCS 2012 Category 2 carcinogen is based on analogous, relatively durable fiber types.

To obtain more health and safety related information, please call the Alkegen Product Stewardship Program at (716) 768-6500.

12. ECOLOGICAL INFORMATION

No ecological concerns have been identified.

13. DISPOSAL CONSIDERATIONS

Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility. Under Federal regulations, it is the waste generator's responsibility to properly characterize a waste material, to determine if it is a "hazardous" waste. Avoid release to the environment.

14. TRANSPORT INFORMATION

- (a) UN number UN proper shipping name: Not Applicable
(b) Transport hazard class(es): Not Applicable
(c) Packing group, if applicable: Not Applicable
(d) Environmental hazards (e.g., Marine pollutant (Yes/No)): Not Applicable
(e) Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC: Not Applicable
(f) 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), IMDG (ship), or IATA (air).

15. REGULATORY INFORMATION

OSHA: This safety data sheet has been compiled in accordance with the revised Hazard Communication Standard (HCS 2012) and applies GHS classification criteria.

TSCA (Toxic Substance Control Act):

The product is considered a "simple mixture" and "article" under TSCA. Therefore, SiFAB fibers qualify for TSCA new chemical notification and inventory listing exemptions. Each of the components are listed on the TSCA inventory.

CERCLA (Comprehensive Response Compensation, and Liability Act):

Not listed in 40 CFR 302.4.

California Proposition 65: Not listed.

IARC (International Agency for Research on Cancer): Not listed.

US-NTP (US National Toxicology Program):

The product is not listed in the latest Report on Carcinogens (RoC).

16. OTHER INFORMATION**Product Stewardship Program**

Alkegen has established a program to provide customers with up-to-date information regarding the proper use and handling of this product. If you would like more information, please call Alkegen Product Stewardship at (716) 768-6500.

Revision history: Added "industrial use only". Corrected hazard statement H351.

SDS Prepared By: ALKEGEN PRODUCT STEWARDSHIP

DISCLAIMER

The information presented on this SDS (1) provides details on material identity, manufacturer/supplier information, hazard characterization and prevention, emergency response and other specialized information, (2) is considered to be accurate to the best of our knowledge, information and good faith belief as of the date of publication, (3) is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release of the material named, (4) should be read and used in conjunction with the company's relevant literature, (5) relates only to the specific material designated and may not be valid for such material used in combination with any other material or process and (6) is provided without warranty, expressed or implied, in law or in fact, of merchantability or fitness for a particular purpose. This document does not constitute a product specification and should not be relied on as such. 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.

