SAFETY DATA SHEET
Classic Silica™ Aerogel Monolith
Revision Date 02/04/2013

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

Product Name:	Classic Silica™ Aerogel Monolith
Synonyms:	Silica aerogel
Manufacturer:	Aerogel Technologies, LLC Boston, MA
Telephone:	(888) 923-7643
Email:	safety@aerogeltechnologies.com
Emergency Telephone:	+1 (414) 944-0019

2. HAZARDS IDENTIFICATION

Classification:	Product is not classified as a dangerous material or preparation as defined in EC Directives 67/548/EEC or 1999/45/EC.
Emergency Overview:	Mechanical processing of product may result in lightweight fragments or dust. Inhalation of excessive amounts of dust from the product may cause mechanical irritation to the respiratory tract. Dermal contact may cause mechanical irritation to the skin.

POTENTIAL HEALTH EFFECTS:

Inhalation:	Inhalation of airborne fragments or dust may cause mechanical irritation of the upper respiratory tract.
Eye Contact:	Exposure to fragments or dust from this product can produce a drying sensation and mechanical irritation of the eyes.
Skin Contact:	Skin contact with fragments or dust from this product can produce a drying sensation and mechanical irritation of the skin and mucous membranes.
Ingestion:	This material is not intended to be ingested. If ingested in large quantity, the material may locally dehydrate contacted tissue, produce mechanical irritation, and/or result in blockage.
Acute Health Hazards:	Fragments and dust from this product are a physical irritant and may cause temporary irritation of scratchiness of the throat and/or itching and redness of the eyes and skin.
Chronic Health Hazards:	Product is not known to pose any chronic health hazards.

Medical Conditions Aggravated by Exposure:	Excessive inhalation of fragments or dust may aggravate pre-existing chronic lung conditions including, but not limited to, bronchitis, emphysema, and asthma. Dermal contact may aggravate existing dermatitis.

This product is composed of **amorphous silicon dioxide**, also referred to as silica gel or amorphous precipitated silica. Amorphous silica should not be confused with crystalline silica. Epidemiological studies indicate low potential for adverse health effects from exposure to amorphous silica.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms:	Silicon dioxide
Formula:	SiO_2
Molecular Weight:	60.09 g mol^{-1}

Ingredient	Percent	CAS Number	EC Number	Classification
Silicon dioxide	100%	7631-86-9	231-545-4	Xi, R36/37

4. FIRST AID MEASURES

General advice:
Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled:
Move person into fresh air. Drink water to clear throat and blow nose to remove fragments/dust. If not breathing, give artificial respiration. Obtain medical attention if ill effects persist.

In case of skin contact:
Wash off with soap and plenty of water. Obtain medical attention if ill effects persist.

In case of eye contact:
Rinse thoroughly with plenty of water for at least 15 minutes, occasionally lifting lids. Obtain medical attention if irritation occurs and persists.

If swallowed:
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Flammability Properties:	Not Applicable
Auto Ignition Temperature:	Not Applicable
Flash Point:	Not Applicable

Suitable Extinguishing Media:
Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:
Use personal protective equipment. Avoid dust or fragment formation. Avoid breathing dust or fragments. Ensure adequate ventilation. Use personal protective equipment as necessary.

Environmental Precautions:
Material is not soluble. Do not let product enter drains.

Methods for Cleaning Up:
Collect released material fragments and/or dust. Keep in suitable, closed containers for disposal. Dry vacuuming is the preferred method of cleaning up.

7. HANDLING AND STORAGE

Handling: Avoid pinching, squeezing, crushing, or applying concentrated loads to monolith as these actions will result in fragmentation and/or formation of dust. Avoid grinding and powderization that may result in dust formation. Provide appropriate exhaust ventilation if dust or fragments are formed.

Storage: Store in a cool, dry container. Keep container tightly closed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limit Values:
There are no exposure limits identified for the main product component, classified as synthetic amorphous silica. Exposure limits for synthetic amorphous silica are based on silica (CAS Number 7631-86-9).

US OSHA PEL (TWA)[a]	15 mg m^{-3} (total dust) 5 mg m^{-3} (respirable fraction)
US ACGH[b]	10 mg m^{-3} (inhalable) 3 mg m^{-3} (respirable)
UK WEL	6 mg m^{-3} (inhalable fraction) 2.4 mg m^{-3} (respirable fraction)
Germany TRGS 900	4 mg m^{-3} (inhalable fraction)

[a]US OSHA standard for amorphous silica is 80 mg m^{-3} % SiO_2. *NIOSH Sampling Method 7501 for Amorphous Silica* calculates the % SiO_2 based on the percentage of crystalline silica in the sample. The particulate limit for 0% crystalline silica applies for silica aerogel as it is amorphous.
[b]US ACGH based on "particles not otherwise specified" (PNOS).

Personal Protective Equipment:

Ventilation:
Local exhaust in accordance with general industrial hygiene practices is recommended if dust or fragments form.

Respiratory Protection:
Where risk assessment shows air-purifying respirators are appropriate, use a dust mask type N95 (US) or P1 (EN 143) respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand Protection:
Handle with gloves. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 384 derived from it.

Eye Protection:
Safety glasses.

Skin and Body Protection:
Choose body protection according to the amount and concentration of dust or fragments that result.

Hygiene Measures:
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	Monolithic solid
Color	Transparent blue to white

Materials Data

Solubility in Water	Insoluble
Density	0.020 – 0.100 g cm^{-3}
pH	Not applicable
Odor	No characteristic odor
Sintering Point	600 – 800°C
Melting Point	>1600°C
Boiling Point	2230°C
Vapor Pressure	Not applicable
Flammability	Not applicable
Flash Point	Not applicable
Ignition Temperature	Not applicable
Lower Explosion Limit	Not applicable
Upper Explosion Limit	Not applicable

10. STABILITY AND REACTIVITY

Chemical Stability: Stable

Conditions to Avoid: Exposure to humid air, contact with moisture, or prolonged exposure to temperatures above the sintering temperature will cause material to collapse and densify.

Materials to Avoid: Strong oxidizing agents.

Hazardous Decomposition Products: Under recommended usage conditions, hazardous decomposition products are not expected.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity:
LD50 Oral – rat – 3.160 mg kg^{-1}
LD50 Oral – rat – 7.500 mg kg^{-1}

Irritation and Corrosion:
No data available

Sensitization:
No data available

Chronic Exposure:
The International Agency for Research on Cancer (IARC) considers synthetic amorphous silica to be not classifiable as to its carcinogenicity to humans (Group 3).

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible, or confirmed human carcinogen by IARC.

Carcinogenicity – rat – Inhalation
Tumorigenic: Carcinogenic by RTECS criteria. Lungs, thorax, or respiration: tumors.

Genotoxicity in vivo – rat – Intratracheal
Unscheduled DNA synthesis

12. ECOLOGICAL INFORMATION

Ecological information based on literature review for synthetic amorphous silica (CAS Number 7683-86-9).

Aquatic Toxicity: Fish: LC50>10,000 mg L^{-1} (Brachydanio rerio: 96 hour), Method OECD 203
Daphnia magna: EC50>10,000 mg L^{-1} (24 hours), Method OECD 202

Mobility: None expected due to insoluble nature of product.

Persistence and Biodegradability: Not applicable for inorganic material.

Bioaccumulative Potential: None expected due to insoluble nature of product.

Other Adverse Effects: None expected.

13. DISPOSAL CONSIDERATIONS

Dispose in an approved landfill in accordance with federal, state/provincial, and local regulation. This product is not regulated as a hazardous waste under US RCRA regulations.

14. TRANSPORT INFORMATION

Shipping Name: Not regulated for transport

Hazard Class: None

UN Number: None

Packing Group: None

Required Label(s): None

Marine Pollutant: No

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

15. REGULATORY INFORMATION

EC Regulatory Information:
Product is not classified as a dangerous material or preparation as defined in EC Directives 67/547/EEC or 1999/45/EC. Aerogel monoliths are considered an article, not a substance or preparation under the REACH directive.

Canadian Regulations:
All chemical substances in this product are included on or exempted from the Canadian Domestic Substance List (DSL). Amorphous silica (CAS Number 7631-86-9) is listed on the WHMIS Ingredient Disclosure List at a concentration threshold of 1%.

US Federal Regulations:

CERCLA (Comprehensive Response Compensation and Liability Act): Product is not classified as hazardous or reportable under this requirement.

SARA TITLE III (Superfund Amendments and Reauthorization Act): Product is not classified as hazardous or reportable under this requirement.

311/312 HAZARD CATEGORIES: Product is not classified as hazardous or reportable under this requirement.

313 REPORTABLE INGREDIENTS: Product is not classified as hazardous or reportable under this requirement.

STATE REGULATIONS:
Amorphous silica, CAS Number 7631-36-9, appears on the following state hazardous substance lists: CA, IN, KY, MA, MN, NC, NJ, OR, and PA. Check individual state requirements.

INTERNATIONAL REGULATIONS
Amorphous silica, CAS Number 7631-86-9, is listed on the WHMIS Ingredient Disclosure List at a concentration threshold of 1%.

TSCA:
All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

16. OTHER INFORMATION

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our \knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Aerogel Technologies, LLC shall not be held liable for any damage resulting from handling of or contact with the above product.