

## SAFETY DATA SHEET

<b>1. IDENTIFICATION</b>
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**Product identifier:** Pyrogel® XTF  
**Synonyms:** Silica aerogel material

**Manufacturer: Name:** Aspen Aerogels, Inc.  
**Address:** 30 Forbes Road Bld. B  
 Northborough, MA 01532

**Telephone number:** (508) 691-1111  
**Email:** EHS@aerogel.com

**Emergency phone number:** 800-535-5053 US (INFOTRAC)  
 352-323-3500 INTERNATIONAL

**Recommended use:** High performance insulation material  
**Restrictions on use:** None.  
**Date of Preparation:** June 11, 2015

<b>2. HAZARD(S) IDENTIFICATION</b>
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**Classification:**

Physical	Health
Not Hazardous	Carcinogen Category 2

**Label Elements**

**Warning**

Contains titanium dioxide, which is suspected of causing cancer by inhalation.



**Precautionary Statements**

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves, eye protection and respiratory protection as recommended in Section 8. If exposed or concerned: Get medical attention. Dispose in accordance with local and national regulations.

<b>3. COMPOSITION / INFORMATION ON INGREDIENTS</b>
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Chemical name	CAS No.	Percent
Synthetic Amorphous Silica	7631-86-9	30-40%
Methylsilylated Silica	68909-20-6	10-20%
Continuous filament glass fibers	Not Applicable	40-50%
Titanium Dioxide	1317-80-2	1-5%
Aluminum trihydrate (aluminum hydroxide)	21645-51-2	1-5%
Proprietary Pigment (iron/manganese)	Proprietary	<1%
Other components are either non-hazardous ingredients or are below the concentration limit for classification	Mixture	Balance

**The exact percentage (concentration) of composition has been withheld as a trade secret.**

#### 4. FIRST-AID MEASURES

**Inhalation:** If dust is inhaled, remove to fresh air. Drink water to clear throat, and blow nose. If irritation occurs or symptoms develop, seek medical attention.

**Skin contact:** Wash skin with soap and water. If irritation develops, seek medical attention, launder clothing before reuse.

**Eye contact:** Do not rub eyes. Dust particles may cause abrasive injury. Immediately flush eyes with water while lifting the upper and lower lids. Seek medical attention if irritation persists.

**Ingestion:** No first aid is generally required. No adverse effects are expected from incidental ingestion.

**Most important symptoms/effects, acute and delayed:** Dust may cause eye irritation. Silica aerogels are hydrophobic (repel water) and may cause temporary drying and irritation of the skin, eyes, and mucous membranes. Inhalation of dust from handling may cause temporary upper respiratory tract irritation. Handling may cause dryness and irritation of the skin. Contains less than five percent titanium dioxide, which is suspected of causing cancer if inhaled based on studies with laboratory animals. See Section 11 for additional information.

**Indication of immediate medical attention and special treatment, if necessary:** Immediate medical attention is generally not required.

#### 5. FIRE-FIGHTING MEASURES

**Extinguishing media:** Use any media that is suitable for the surrounding fire.

**Specific hazards arising from the substance or mixture:** Product is a super-insulator. Rolls of material will retain heat within internal layers that may be a source of ignition after the fire is extinguished. Keep hot material away from combustible materials and cool hot insulation with water.

**Special protective equipment and precautions for fire-fighters:** Normal firefighting procedures should be followed to avoid inhalation of smoke and gases produced by a fire.

#### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment, and emergency procedures:** Wear appropriate protective clothing and equipment as described in Section 8. Avoid generating airborne dust during cleanup. Ensure adequate ventilation.

**Environmental Precautions:** Material is not water soluble. Report spills as required under federal, state and local regulations.

**Methods and materials for containment and cleaning up:** Collect using methods that avoid the generation of dust (pick up or vacuum dust) and place in appropriate container for disposal.

## 7. HANDLING AND STORAGE

**Precautions for safe handling:** Aerogel blankets may generate dust when handled. Workplace exposures to all dusts should be controlled with standard industrial hygiene practices. Local exhaust should be the primary dust control method. Dust generated when handling this product should be cleaned up promptly. Dry vacuuming is the preferred method for cleaning up dust. Because aerogel dust is hydrophobic, water is not an effective dust control agent. Unpack material in the work area. This will help to minimize the area where dust exposure may occur. Trimmed material should be promptly packed in disposal bags. Trims and offcuts may be reused in secondary applications, otherwise scrap material should be packed for disposal. Avoid dust contact with eyes, skin and clothing and avoid breathing dust. Wash hands with soap and water after handling.

**Conditions for safe storage, including any incompatibilities:** Keep tightly closed in the packaging until ready for use. Store in a dry location.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Exposure guidelines:

Synthetic Amorphous Silica	6 mg/m <sup>3</sup> TWA OSHA PEL*
Methylsilylated Silica (as particulates not otherwise classified)	5 mg/m <sup>3</sup> (respirable), 15 mg/m <sup>3</sup> (total dust) TWA OSHA PEL
Continuous filament glass fibers	5 mg/m <sup>3</sup> (respirable), 15 mg/m <sup>3</sup> (total dust) TWA OSHA PEL 5 mg/m <sup>3</sup> (inhalable) / 1 fiber/cc TWA ACGIH TLV
Titanium Dioxide	15 mg/m <sup>3</sup> (total dust) TWA OSHA PEL 10 mg/m <sup>3</sup> TWA ACGIH TLV
Aluminum trihydrate (aluminum hydroxide)	5 mg/m <sup>3</sup> (respirable), 15 mg/m <sup>3</sup> (total dust) TWA OSHA PEL 1 mg/m <sup>3</sup> (respirable) TWA ACGIH TLV
Proprietary Pigment (as manganese)	0.02 mg/m <sup>3</sup> (respirable) 0.1 mg/m <sup>3</sup> (inhalable) TWA ACGIH TLV 5 mg/m <sup>3</sup> Ceiling OSHA PEL

\*Equivalent to 20 mppcf; 54 FR 2701

**Appropriate engineering controls:** Use with adequate local exhaust ventilation to minimize exposures. Provide local exhaust ventilation where product is processed in a manner that generates dust.

### Individual protection measures:

**Respiratory protection:** If exposures exceed the occupational exposure limits or if inhalation of dust results in experiencing irritation, an appropriate certified particulate respirator is recommended. Selection of respiratory protection depends on the contaminant type, form and concentration. Select and use in accordance with OSHA 1910.134 and good Industrial Hygiene practice, e.g. a NIOSH approved P100 or N100 particulate filtering facepiece respirator

**Skin protection:** Impervious gloves recommended for handling product. Long-sleeved and long-legged work clothing are also advised.

**Eye protection:** Safety glasses with side shields or dust goggles recommended.

**Other:** None known.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance (physical state, color, etc.):** Grey fabric blanket.

**Odor:** Slight ammonia.

<b>Odor threshold:</b> 0.6-53 ppm (ammonia)	<b>pH:</b> Not applicable
<b>Melting point/freezing point:</b> Not determined	<b>Boiling Point:</b> Not applicable
<b>Flash point:</b> Not applicable	<b>Evaporation rate:</b> Not applicable
<b>Flammability (solid, gas):</b> Not flammable	<b>VOC:</b> Not applicable
<b>Flammable limits: LEL:</b> Not applicable	<b>UEL:</b> Not applicable
<b>Vapor pressure:</b> Not applicable	<b>Vapor density:</b> Not applicable
<b>Relative density:</b> Not determined	<b>Solubility(ies):</b> Insoluble in water
<b>Partition coefficient: n-octanol/water:</b> Not available	<b>Auto-ignition temperature:</b> Not applicable
<b>Decomposition temperature:</b> Not determined	<b>Viscosity:</b> Not applicable

## 10. STABILITY AND REACTIVITY

**Reactivity:** Not reactive under normal conditions of use.

**Chemical stability:** Stable.

**Possibility of hazardous reactions:** None known.

**Conditions to avoid:** Avoid prolonged exposure above the recommended use temperature.

**Incompatible materials:** Avoid strong acids and bases.

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

## 11. TOXICOLOGICAL INFORMATION

**Acute effects of exposure:**

**Inhalation:** Inhalation of dust may cause temporary irritation of the mucous membranes and upper respiratory tract.

**Ingestion:** No adverse effects expected, however, do not ingest.

**Skin contact:** Handling may cause dryness and temporary irritation of the skin.

**Eye contact:** Contact may cause irritation with redness and tearing. Dust may cause abrasive injury.

**Chronic Effects:** None known.

**Sensitization:** Components are not known to be sensitizers.

**Germ Cell Mutagenicity:** None of the components have been shown to cause germ cell mutagenicity.

**Reproductive Toxicity:** Components are not reproductive toxins.

**Carcinogenicity:** Titanium dioxide is classified by the International Agency for Research on Cancer (IARC) as a suspected carcinogen (group 2B). None of the other components are listed as carcinogens or suspected carcinogens by IARC, NTP, ACGIH or OSHA. IARC considers synthetic amorphous silica and continuous filament fiber glass to be not classifiable as to carcinogenicity to humans (Group 3).

The State of California has included titanium dioxide (as airborne, unbound particles of respirable size) in its List of Chemicals Known to the State to Cause Cancer effective September 2, 2012, under California Environmental Protection Agency's Proposition 65 regulations. See also Section 15 below.

The American Conference of Governmental Industrial Hygienists (ACGIH) considers titanium dioxide to be not classifiable as a human carcinogen (A4).

**Acute Toxicity Values:** Components are not acutely toxic.

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity values:** No data is available

**Persistence and degradability:** No data is available

**Bioaccumulative potential:** No data is available

**Mobility in soil:** No data is available.

**Other adverse effects:** None known.

**13. DISPOSAL CONSIDERATIONS**

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

**14. TRANSPORT INFORMATION**

	<b>UN Number</b>	<b>Proper shipping name</b>	<b>Hazard Class</b>	<b>Packing Group</b>	<b>Environmental Hazard</b>
<b>DOT</b>		Not Regulated			
<b>TDG</b>		Not Regulated			
<b>IMDG</b>		Not Regulated			
<b>IATA</b>		Not Regulated			

**Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code):** Not applicable – product is transported only in packaged form.

**Special precautions:** None known.

**15. REGULATORY INFORMATION**

**Safety, health, and environmental regulations specific for the product in question.**

**CERCLA:** This product is not subject to CERCLA release reporting. Many states have more stringent release reporting requirements. Report spills as required under federal, state and local regulations.

**SARA Hazard Category (311/312):** Chronic Health

**EPA SARA 313:** This product contains the following chemicals regulated under SARA Title III, section 313:  
None

**EPA TSCA Inventory:** This product is a manufactured article and not subject to TSCA pre-manufacturing notification requirements.

**California Proposition 65: WARNING:** This product contains a chemical known to the State of California to cause cancer.

**CANADIAN REGULATIONS:** All chemical substances in this product are included on or exempted from the Canadian Domestic Substance List (DSL).

**16. OTHER INFORMATION**

**NFPA Rating:** Health = 1      Flammability = 0      Instability = 0

**HMIS Rating:** Health = 1\*      Flammability = 0      Physical Hazard = 0

**SDS Revision History:** Update to US Hazcom 2012/GHS format and content. Changes in all sections.

**Date of preparation:** June 11, 2015

**Date of last revision:** August 31, 2012

**DISCLAIMER:** The information herein is presented in good faith and believed to be accurate as of the effective data given. However, no warranty, expressed or implied, is given. It is the user's responsibility to ensure that its activities comply with Federal, State or Provincial, and local laws.