

**1 Identification**

**Product identifier**

Trade name: **Pyrogel® XTE**

Application of the substance / the mixture High performance insulation material

**Details of the supplier of the safety data sheet**

**Manufacturer/Supplier:**

Aspen Aerogels, Inc.  
30 Forbes Road, Bld. B  
Northborough, MA 01532  
USA  
+1 (508) 691-1111

Information department: EHS@aerogel.com

**Emergency telephone number:**

INFOTRAC: +1-352-323-3500 (international)  
+1-800-535-5053 (US only)

**2 Hazard(s) identification**

**Classification of the substance or mixture**

The product is not classified, according to the Globally Harmonized System (GHS).

**Additional information:**

This Safety Data Sheet (SDS) is provided as a courtesy in response to customer requests. The product is classified as an article according to local regulations. Articles are not subject to this geography's hazard communication regulations.

**Label elements**

**GHS label elements** None

**Hazard pictograms** None

**Signal word** None

**Hazard statements** None

**Other hazards**

**Results of PBT and vPvB assessment**

**PBT:** Not applicable.

**vPvB:** Not applicable.

**3 Composition/information on ingredients**

**Chemical characterization: Mixtures**

**Description:** Mixture of the substances listed below with nonhazardous additions.

**Dangerous components:**

	Fibrous glass, textile grade	>50.0%
7631-86-9	amorphous silicon dioxide, chemically prepared	10.0-30.0%
1309-37-1	iron oxide	1.0-5.0%
21645-51-2	aluminium hydroxide	1.0-5.0%

**Additional information:**

Non-hazardous components are listed above due to the existence of country-specific occupational exposure level (OEL) values (see Section 8) or are being voluntarily disclosed.

The exact percentage concentration of composition has been withheld as a trade secret or is disclosed as a range due to batch variation.

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**4 First-aid measures****Description of first aid measures****General information:** No special measures required.**After inhalation:** Supply fresh air.**After skin contact:**

Wash with plenty of soap and water.

If skin irritation continues, consult a doctor.

**After eye contact:** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.**After swallowing:** If symptoms persist consult doctor.**Information for doctor:****Most important symptoms and effects, both acute and delayed**

Dust may cause mechanical eye, skin, or respiratory irritation.

Silica aerogels are hydrophobic (repel water) and may cause temporary drying and irritation of the skin, eyes, and mucous membranes.

**Indication of any immediate medical attention and special treatment needed** No further relevant information available.

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**5 Fire-fighting measures****Extinguishing media****Suitable extinguishing agents:** Use fire fighting measures that suit the environment.**Special hazards arising from the substance or mixture**

Product is a super-insulator. Rolls of material will retain heat within internal layers and can ignite after the fire is extinguished.

Keep hot material away from combustible materials. Cool hot insulation with plenty of water.

**Advice for firefighters****Protective equipment:**

Normal firefighting procedures should be followed to avoid inhalation of smoke and gases produced by fire.

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**6 Accidental release measures****Personal precautions, protective equipment and emergency procedures**

Avoid formation of dust.

Ensure adequate ventilation.

Use personal protective equipment as required.

**Environmental precautions:** No special measures required.**Methods and material for containment and cleaning up:**

Collect using methods that avoid the generation of dust. Pick up large pieces and vacuum dust. Place in appropriate container for disposal.

**Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

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**7 Handling and storage****Handling:****Precautions for safe handling**

Prevent formation of dust.

Avoid dust contact with eyes, skin, and clothing. Avoid breathing dust.

Aerogel blankets may generate dust when handled. Because aerogel dust is hydrophobic, water is not an effective dust control agent. Workplace exposures to all dusts should be controlled with standard hygiene practices. Local exhaust should be the primary dust control method. Dry vacuuming is the preferred method for cleaning up dust. This will help to minimize the area where exposure may occur. Trimmed material may be reused in secondary applications and should be promptly packed in resealable bags. Scrap material should be packed for disposal. Wash hands with soap and water after

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handling.

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

**Information about protection against explosions and fires:** No special measures required.**Conditions for safe storage, including any incompatibilities****Storage:****Requirements to be met by storerooms and receptacles:** Keep packaging tightly sealed until ready for use.**Information about storage in one common storage facility:** Not required.**Further information about storage conditions:** Store in dry conditions.**Specific end use(s)**

Additional information about installation and startup of industrial insulation systems (temperature &gt;200 °C):

Thermal decomposition of trace components in the insulation is normal during installation of fibrous insulation materials onto hot equipment operating at temperatures above 200 °C and during startup. This is temporary and may generate fumes with objectionable odors. Ventilate the area well and keep a distance from the heated equipment. In enclosed and confined spaces, use a supplied air respirator. Respirator selection must be made by qualified person. See Section 10.

**8 Exposure controls/personal protection****Additional information about design of technical systems:**

Technical measures and the application of adequate working methods take priority over the use of personal protection equipment. Use process enclosures, local exhaust ventilation, or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

**Control parameters:**

<b>Components with limit values that require monitoring at the workplace:</b>	
<b>Fibrous glass, textile grade</b>	
ACGIH TLV	Long-term value: 5* mg/m <sup>3</sup> *inhalable
NIOSH REL	Long-term value: 5* mg/m <sup>3</sup> *total
OSHA PEL	Long-term value: 5*, 15** mg/m <sup>3</sup> *respirable, **total as inert or nuisance dust
<b>7631-86-9 amorphous silicon dioxide, chemically prepared</b>	
CAL OSHA PEL	Long-term value: 6*, 3** mg/m <sup>3</sup> *total dust, **respirable dust
NIOSH REL	Long-term value: 6 mg/m <sup>3</sup>
OSHA PEL	Long-term value: 80 mg/m <sup>3</sup> per % SiO <sub>2</sub>
<b>1309-37-1 iron oxide</b>	
PEL	Long-term value: 10* mg/m <sup>3</sup> *Fume
REL	Long-term value: 5 mg/m <sup>3</sup> Dust & fume, as Fe
TLV	Long-term value: 5* mg/m <sup>3</sup> *as respirable fraction, A4
<b>21645-51-2 aluminium hydroxide</b>	
REL	Long-term value: 2 mg/m <sup>3</sup> as Al

**Additional information:**

Monitoring of substance concentrations in air at the workplace may be necessary to ensure compliance with official exposure limit values and adequacy of exposure controls. For further information contact the supplier or the competent authorities.

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The lists that were valid during the creation were used as basis.

**Exposure controls****Personal protective equipment:****General protective and hygienic measures:**

The usual precautionary measures for handling chemicals should be followed.

**Breathing equipment:** Select fit and use in accordance with local and national regulations.

**Protection of hands:**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

**Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

**Eye protection:** Appropriate safety eye wear is recommended.

**Body protection:** Appropriate work clothing is recommended.

**9 Physical and chemical properties****Information on basic physical and chemical properties****General Information****Appearance:**

<b>Form:</b>	Non-woven fabric
<b>Color:</b>	According to product specification
<b>Odor:</b>	Characteristic
<b>Odor threshold:</b>	Not determined.
<b>pH-value:</b>	Not applicable.

**Change in condition**

<b>Melting point/Melting range:</b>	Undetermined.
<b>Boiling point/Boiling range:</b>	Undetermined.

**Flash point:** Not applicable.

**Flammability (solid, gaseous):** Product is not flammable.

**Decomposition temperature:** Not determined.

**Ignition temperature:** Product is not selfigniting.

**Danger of explosion:** Product does not present an explosion hazard.

**Explosion limits:**

<b>Lower:</b>	Not determined.
<b>Upper:</b>	Not determined.

**Vapor pressure:** Not applicable.

**Density:** Not determined.

**Relative density** Not determined.

**Vapor density** Not applicable.

**Evaporation rate** Not applicable.

**Solubility in / Miscibility with**

**Water:** Insoluble.

**Partition coefficient (n-octanol/water):** Not determined.

**Viscosity:**

<b>Dynamic:</b>	Not applicable.
<b>Kinematic:</b>	Not applicable.

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<b>Solvent content:</b>	
<b>VOC content:</b>	0.00 %
<b>Solids content:</b>	100.0 %
<b>Other information</b>	No further relevant information available.

**10 Stability and reactivity****Reactivity** Not reactive under normal conditions.**Chemical stability** Stable under normal conditions.**Thermal decomposition / conditions to be avoided:**

No hazardous decomposition products during normal storage and use.

See hazardous decomposition products on hot equipment below.

**Possibility of hazardous reactions** No dangerous reactions known.**Conditions to avoid** Avoid prolonged exposure above the recommended use temperature.**Incompatible materials:** Strong acids and bases.**Hazardous decomposition products:**

Thermal decomposition of trace components in the insulation is normal during installation of fibrous insulation materials onto hot equipment operating at temperatures above 200 °C and during startup. Emission of decomposition products usually only occurs during the first few hours. Low molecular weight alcohols, ammonia, and other undetermined decomposition products may be present when heated above 200 °C. When heated above 350 °C, primary combustion products are expected to include carbon dioxide, water, and possibly carbon monoxide.

**11 Toxicological information****Information on toxicological effects****Acute toxicity:** Based on available data, components are not acutely toxic.**Primary irritant effect:****on the skin:** Handling may cause dryness and may cause temporary irritation to skin.**on the eye:** Handling may cause dryness and may cause temporary irritation to eyes.**Sensitization:** No sensitizing effects known.**Additional toxicological information:**

Thermal decomposition of trace components of the insulation during installation onto hot equipment operating at temperatures above 200 °C and during startup may generate fumes that may be irritating to the eyes and respiratory system.

The product is not subject to classification according to internally approved calculation methods for preparations:

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

**Carcinogenic categories**

<b>IARC (International Agency for Research on Cancer)</b>		
7631-86-9	amorphous silicon dioxide, chemically prepared	3
1309-37-1	iron oxide	3
<b>NTP (National Toxicology Program)</b>		
None of the ingredients is listed.		
<b>OSHA-Ca (Occupational Safety &amp; Health Administration)</b>		
None of the ingredients is listed.		

**Germ cell mutagenicity** Based on available data, the classification criteria are not met.**Carcinogenicity** Based on available data, the classification criteria are not met.**Reproductive toxicity** Based on available data, the classification criteria are not met.**Specific target organ toxicity - single exposure** Based on available data, the classification criteria are not met.**Specific target organ toxicity - repeated exposure** Based on available data, the classification criteria are not met.

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**Aspiration hazard** Based on available data, the classification criteria are not met.**12 Ecological information****Toxicity****Aquatic toxicity:** Not toxic to aquatic environment.**Persistence and degradability** No further relevant information available.**Behavior in environmental systems:****Bioaccumulative potential** No further relevant information available.**Mobility in soil** No further relevant information available.**Additional ecological information:****General notes:** Not hazardous for water.**Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.**Other adverse effects** No further relevant information available.**13 Disposal considerations****Waste treatment methods****Recommendation:** Dispose of contents/container in accordance with local/regional/national/international regulations.**Uncleaned packagings:****Recommendation:** Cover promptly to avoid dust generation.**14 Transport information****UN-Number**

DOT, IMDG, IATA not regulated

**UN proper shipping name**

DOT, IMDG, IATA not regulated

**Transport hazard class(es)**

DOT, ADN, IMDG, IATA

Class not regulated

**Packing group**

DOT, IMDG, IATA not regulated

**Environmental hazards:** Not applicable.**Special precautions for user** Not applicable.**Transport in bulk according to Annex II of****MARPOL73/78 and the IBC Code** Not applicable.**UN "Model Regulation":** not regulated**15 Regulatory information****Safety, health and environmental regulations/legislation specific for the substance or mixture**

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**Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

**Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

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<b>TSCA (Toxic Substances Control Act):</b>
All ingredients are listed or exempt.
<b>Hazardous Air Pollutants</b>
None of the ingredients is listed.
<b>Proposition 65</b>
<b>Chemicals known to cause cancer:</b>
None of the ingredients is listed.
<b>Chemicals known to cause reproductive toxicity for females:</b>
None of the ingredients is listed.
<b>Chemicals known to cause reproductive toxicity for males:</b>
None of the ingredients is listed.
<b>Chemicals known to cause developmental toxicity:</b>
None of the ingredients is listed.
<b>Chemical safety assessment:</b> A Chemical Safety Assessment has not been carried out.

**16 Other information**

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet for storage, processing, transport, and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not valid for the new made-up material.

**Department issuing SDS:** EHS Department

**Contact:** ehs@aerogel.com

**Date of preparation / last revision** 12/21/2023

**Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods  
 DOT: US Department of Transportation  
 IATA: International Air Transport Association  
 EINECS: European Inventory of Existing Commercial Chemical Substances  
 ELINCS: European List of Notified Chemical Substances  
 CAS: Chemical Abstracts Service (division of the American Chemical Society)  
 VOC: Volatile Organic Compounds (USA, EU)  
 PBT: Persistent, Bioaccumulative and Toxic  
 vPvB: very Persistent and very Bioaccumulative  
 OSHA: Occupational Safety & Health  
 TLV: Threshold Limit Value  
 PEL: Permissible Exposure Limit  
 REL: Recommended Exposure Limit