

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

Trade name: **Pyrogel® XTE**

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

No further relevant information available.

**Application of the substance / the mixture** High performance insulation material

### 1.3 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

**Further information obtainable from:** EHS@aerogel.com

### 1.4 Emergency telephone number:

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

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

#### Classification according to Regulation (EC) No 1272/2008

The product is not classified, according to the CLP regulation.

#### 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.

### 2.2 Label elements

**Labelling according to Regulation (EC) No 1272/2008** None

**Hazard pictograms** None

**Signal word** None

**Hazard statements** None

### 2.3 Other hazards

#### Results of PBT and vPvB assessment

**PBT:** Not applicable.

**vPvB:** Not applicable.

## SECTION 3: Composition/information on ingredients

### 3.2 Chemical characterisation: Mixtures

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

#### Dangerous components:

|                                      |                                                                                                    |            |
|--------------------------------------|----------------------------------------------------------------------------------------------------|------------|
|                                      | Fibrous glass, textile grade substance with a Community workplace exposure limit                   | >50.0%     |
| CAS: 7631-86-9<br>EINECS: 231-545-4  | amorphous silicon dioxide, chemically prepared substance with a Community workplace exposure limit | 10.0-30.0% |
| CAS: 1309-37-1<br>EINECS: 215-168-2  | iron oxide substance with a Community workplace exposure limit                                     | 1.0-5.0%   |
| CAS: 21645-51-2<br>EINECS: 244-492-7 | aluminium hydroxide substance with a Community workplace exposure limit                            | 1.0-5.0%   |

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**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.

For the wording of the listed hazard phrases refer to section 16.

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**SECTION 4: First aid measures****4.1 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.

**4.2 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.

**4.3 Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

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**SECTION 5: Firefighting measures****5.1 Extinguishing media**

**Suitable extinguishing agents:** Use fire extinguishing methods suitable to surrounding conditions.

**5.2 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.

**5.3 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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**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Avoid formation of dust.

Ensure adequate ventilation.

Use personal protective equipment as required.

**6.2 Environmental precautions:** No special measures required.

**6.3 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.

**6.4 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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**SECTION 7: Handling and storage****7.1 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. 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 handling.

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

**Information about fire - and explosion protection:** No special measures required.

**7.2 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.

**7.3 Specific end use(s)**

Additional information about installation and startup of industrial insulation systems (temperature >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 for additional information.

**SECTION 8: Exposure controls/personal protection****8.1 Control parameters****Additional information about design of technical facilities:**

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.

**Ingredients with limit values that require monitoring at the workplace:****Fibrous glass, textile grade**

|               |                                              |
|---------------|----------------------------------------------|
| LEP (Spain)   | Long-term value: 1 fibre per cm <sup>3</sup> |
| VLEP (France) | Long-term value: 1 fibre per cm <sup>3</sup> |
| OEL (Sweden)  | Long-term value: 1 fibre per cm <sup>3</sup> |

**7631-86-9 amorphous silicon dioxide, chemically prepared**

|               |                                                     |
|---------------|-----------------------------------------------------|
| AGW (Germany) | Long-term value: 4 E mg/m <sup>3</sup><br>DFG, 2, Y |
|---------------|-----------------------------------------------------|

**1309-37-1 iron oxide**

|                     |                                                                                                                                                |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| AGW (Germany)       | Long-term value: 1.25* 10** mg/m <sup>3</sup><br>2(II);*alveolengängig**einstaubbar; AGS, DFG, Y                                               |
| LEP (Spain)         | Long-term value: 5 mg/m <sup>3</sup><br>como Fe                                                                                                |
| VLEP (France)       | Long-term value: 5 mg/m <sup>3</sup>                                                                                                           |
| WEL (Great Britain) | Short-term value: 10* mg/m <sup>3</sup><br>Long-term value: 5* 10** 4*** mg/m <sup>3</sup><br>*fume (as Fe), **total respirable, ***respirable |

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|                                       |                                                                                                |
|---------------------------------------|------------------------------------------------------------------------------------------------|
| TWA (Italy)                           | Long-term value: 5 mg/m <sup>3</sup><br>A4, (j) (come Fe)                                      |
| WGW (Netherland)                      | (als Fe)                                                                                       |
| OEL (Sweden)                          | Long-term value: 3.5 mg/m <sup>3</sup><br>respirabel fraktion, som Fe                          |
| <b>21645-51-2 aluminium hydroxide</b> |                                                                                                |
| AGW (Germany)                         | Long-term value: 1.25* 10** mg/m <sup>3</sup><br>2(II);*alveolengängig**eintembar; AGS, DFG, Y |
| VLEP (France)                         | Long-term value: 2 mg/m <sup>3</sup><br>en Al                                                  |
| WEL (Great Britain)                   | Long-term value: 2 mg/m <sup>3</sup>                                                           |
| OEL (Sweden)                          | Long-term value: 1 mg/m <sup>3</sup><br>som Al; totaldamm                                      |

**Regulatory information**

LEP (Spain): Límites de exposición profesional para agentes químicos

VLEP (France): ED 1487 05.2021

OEL (Sweden): AFS 2022:5

AGW (Germany): TRGS 900

WEL (Great Britain): EH40/2020

TWA (Italy): Valori Limite di Soglia

WGW (Netherland): Grenswaarden gezondheidsschadelijke stoffen

**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.

The lists valid during the making were used as basis.

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

The usual precautionary measures are to be adhered to when handling chemicals.

**Respiratory protection:** 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.

**Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

**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.

**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties****General Information****Appearance:**

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

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**Change in condition****Melting point/freezing point:** Undetermined.**Initial boiling point and boiling range:** Undetermined.**Flash point:** Not applicable.**Flammability (solid, gas):** Product is not flammable.**Decomposition temperature:** Not determined.**Ignition temperature:** Product is not selfigniting.**Explosive properties:** Product does not present an explosion hazard.**Explosion limits:****Lower:** Not determined.**Upper:** Not determined.**Vapour pressure:** Not applicable.**Density:** Not determined.**Relative density** Not determined.**Vapour density** Not applicable.**Evaporation rate** Not applicable.**Solubility in / Miscibility with water:**

Insoluble.

**Partition coefficient: n-octanol/water:** Not determined.**Viscosity:****Dynamic:** Not applicable.**Kinematic:** Not applicable.**Solvent content:****VOC (EC)** 0.00 %**Solids content:** 100.0 %**9.2 Other information** No further relevant information available.**SECTION 10: Stability and reactivity****10.1 Reactivity** Not reactive under normal conditions.**10.2 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.

**10.3 Possibility of hazardous reactions** No dangerous reactions known.**10.4 Conditions to avoid** Avoid prolonged exposure above the recommended use temperature.**10.5 Incompatible materials:** Strong acids and bases.**10.6 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.

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**SECTION 11: Toxicological information****11.1 Information on toxicological effects****Acute toxicity** Based on available data, the classification criteria are not met.**Primary irritant effect:****Skin corrosion/irritation** Handling may cause dryness and may cause temporary irritation to skin.**Serious eye damage/irritation** Handling may cause dryness and may cause temporary irritation to eyes.**Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.**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.

**CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)****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.**STOT-single exposure** Based on available data, the classification criteria are not met.**STOT-repeated exposure** Based on available data, the classification criteria are not met.**Aspiration hazard** Based on available data, the classification criteria are not met.**SECTION 12: Ecological information****12.1 Toxicity****Aquatic toxicity:** Not toxic to aquatic environment.**12.2 Persistence and degradability** No further relevant information available.**12.3 Bioaccumulative potential** No further relevant information available.**12.4 Mobility in soil** No further relevant information available.**Additional ecological information:****General notes:** Not hazardous for water.**12.5 Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.**12.6 Other adverse effects** No further relevant information available.**SECTION 13: Disposal considerations****13.1 Waste treatment methods****Recommendation** Dispose of contents/container in accordance with local/regional/national/international regulations.**Uncleaned packaging:****Recommendation:** Cover promptly to avoid dust generation.**SECTION 14: Transport information****14.1 UN-Number****ADR, IMDG, IATA** not regulated**14.2 UN proper shipping name****ADR, IMDG, IATA** not regulated**14.3 Transport hazard class(es)****ADR, ADN, IMDG, IATA****Class** not regulated

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**14.4 Packing group****ADR, IMDG, IATA**

not regulated

**14.5 Environmental hazards:**

Not applicable.

**14.6 Special precautions for user**

Not applicable.

**14.7 Transport in bulk according to Annex II of****Marpol and the IBC Code**

Not applicable.

**UN "Model Regulation":**

not regulated

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****Directive 2012/18/EU****Named dangerous substances - ANNEX I** None of the ingredients is listed.**DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

None of the ingredients is listed.

**REGULATION (EU) 2019/1148****Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**

None of the ingredients is listed.

**Annex II - REPORTABLE EXPLOSIVES PRECURSORS**

None of the ingredients is listed.

**Regulation (EC) No 273/2004 on drug precursors**

None of the ingredients is listed.

**Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**

None of the ingredients is listed.

**15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.**SECTION 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**Abbreviations and acronyms:**

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

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