

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

1.1 Product identifier

This Safety Data Sheet (SDS) is provided as a courtesy in response to customer requests. The product is classified as an article. Articles are not subject to this geography's hazard communication regulations. As generally defined: "Article" means any article that is formed to a specific shape or design during manufacture, the intended use of which when in that form is dependent in whole or in part on its shape or design, and that, when being installed, if the intended use of the article requires it to be installed, and under normal conditions of use, will not release or otherwise cause an individual to be exposed to a hazardous product.

Chemical Identification: Pyrogel® XTF

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

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

Uses advised against: None specified.

1.3 Details of the supplier of the safety data sheet

Manufactured by:

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

Further information obtainable from: EHS@aerogel.com

1.4 Emergency telephone number

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

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.

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: The components in this formulation do not meet the criteria for classification as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous Components: No hazardous components in this proprietary formulation.

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SECTION 4: First aid measures

4.1 Description of first aid measures

After inhalation: Remove person to fresh air.

After skin contact:

Wash with soap and water.

Observe good occupational hygiene for work.

If skin irritation or rash occurs: seek medical attention.

After eye contact:

Do not rub eyes.

Dust particles may cause abrasive injury.

Flush eyes with water for several minutes.

After swallowing: No need for first aid is anticipated.

4.2 Most important symptoms and effects, both acute and delayed:

Dust may cause mechanical eye and skin irritation.

Inhalation of dust may cause irritation of the respiratory system.

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:

Immediate medical attention is generally not required.

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 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.

5.3 Advice for firefighters

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

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

Use personal protective equipment as required.

Ensure adequate ventilation.

Avoid formation of dust.

6.2 Environmental precautions: Report spills as required under national and local regulations.

6.3 Methods and material 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.

6.4 Reference to other sections:

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

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See Section 13 for disposal information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling:

Prevent formation of dust.

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. 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. 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.

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

7.2 Conditions for safe storage, including any incompatibilities

Information about storage in one common storage facility:

Keep tightly closed in the packaging until ready for use.

Store in a dry place.

Further information about storage conditions:

Dispose of contents/container in accordance with local/regional/national/international regulations.

7.3 Specific end use(s): No relevant information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:

CAS: 21645-51-2 aluminium hydroxide

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| OEL | Long-term value: 2 mg/m ³ |
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Regulatory 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.

8.2 Exposure controls

Appropriate engineering controls

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.

Individual protection measures, such as personal protective equipment

General protective and hygienic measures: Observe good hygiene practices.

Respiratory protection: Select fit and use in accordance with local and national regulations.

Hand protection

Material of gloves: Impervious gloves recommended for handling product.

Penetration time of glove material: not applicable

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Eye/face 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

| | |
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| Physical state | Solid |
| Colour: | Grey |
| Odour: | Ammonia-like |
| Odour threshold: | Not determined |
| Melting point/freezing point: | No data available. |
| Boiling point or initial boiling point and boiling range | Not determined |
| Flammability | Not determined. |
| Lower and upper explosion limit | |
| Lower: | Not determined |
| Upper: | Not determined |
| Flash point: | Not applicable |
| Ignition temperature: | No data available. |
| Decomposition temperature: | Not determined |
| pH | No data available. |
| Viscosity: | |
| Kinematic viscosity | Not applicable |
| Dynamic: | Not applicable |
| Solubility | |
| water: | insoluble |
| Partition coefficient n-octanol/water (log value) | Not determined |
| Vapour pressure: | Not applicable |
| Density and/or relative density | |
| Density: | Not determined |
| Relative density: | Not determined. |
| Vapour density: | Not applicable. |
| Particle characteristics | Not applicable. |

9.2 Other information

Appearance:

Form: Non-woven fabric

Important information on protection of health and environment, and on safety.

Auto-ignition temperature: Not determined.

Explosive properties: Product does not present an explosion hazard.

Change in condition

Evaporation rate: Not applicable.

Information with regard to physical hazard classes

Explosives None

Flammable gases None

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| Aerosols | None |
| Oxidising gases | None |
| Gases under pressure | None |
| Flammable liquids | None |
| Flammable solids | None |
| Self-reactive substances and mixtures | None |
| Pyrophoric liquids | None |
| Pyrophoric solids | None |
| Self-heating substances and mixtures | None |
| Substances and mixtures, which emit flammable gases in contact with water | None |
| Oxidising liquids | None |
| Oxidising solids | None |
| Organic peroxides | None |
| Corrosive to metals | None |
| Desensitised explosives | None |

SECTION 10: Stability and reactivity

10.1 Reactivity: Not reactive under normal conditions.

10.2 Chemical stability: Stable under normal conditions.

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: No hazardous decomposition products during normal storage and handling.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity: Based on available data, components are not acutely toxic.

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 skin.

Respiratory tract: Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation: The chemical structure does not suggest a sensitizing effect.

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

Carcinogenicity: None of the components are classified as a carcinogen or suspected carcinogens by EU CLP.

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.

11.2 Information on other hazards

Endocrine disrupting properties

None of the ingredients is listed.

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SECTION 12: Ecological information**12.1 Toxicity****Aquatic toxicity:** Not toxic to aquatic environment.**12.2 Persistence and degradability** No relevant information available.**12.3 Bioaccumulative potential** No relevant information available.**12.4 Mobility in soil** No relevant information available.**12.5 Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.**12.6 Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.**12.7 Other adverse effects****Other information:****General notes:** Not hazardous for water.**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.

Disposal must be made according to official regulations.

SECTION 14: Transport information**14.1 UN number or ID number****ADR, IMDG, IATA** Not applicable**14.2 UN proper shipping name****ADR, IMDG, IATA** Not applicable**14.3 Transport hazard class(es)****ADR, ADN, IMDG, IATA****Class** Not applicable**14.4 Packing group****ADR, IMDG, IATA** Not applicable**14.5 Environmental hazards**

Not applicable.

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14.6 Special precautions for user Not applicable.

14.7 Maritime transport in bulk according to IMO instruments Not determined

UN "Model Regulation": Not applicable

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU-Regulations

Regulation (EC) No 1907/2006 (REACH)

Regulation (EC) No 1272/2008 (CLP)

Regulation 98/24/EC (employee health protection)

Directive 2012/18/EU

Named dangerous substances - ANNEX I: None of the ingredients are 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

Chemical Safety Assessment not required

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 article information 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 article information sheet is not valid for the new made-up material.

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Classification according to Regulation (EC) No 1272/2008

The classification of the mixture is generally based on the calculation method using substance data according to Regulation (EC) No 1272/2008.

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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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Sources: Data arise from reference works and literature.
