

SPACELOFT

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

1.1 Product details

Product name : Spaceloft® grey silica aerogel material
Use of the substance/ preparation : High performance insulation material

1.2 Identification of the suppliers

INSULCON B.V.

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2. HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture:

CLP/GHS Classification (1272/2008):

| | | |
|----------------|------------------|-----------------------|
| Health Hazards | Physical Hazards | Environmental Hazards |
| Not Hazardous | Not Hazardous | Not Hazardous |

2.2 Label Elements

Not hazardous in accordance with the Regulation (EC) 1272/2008 CLP.

2.3 Other Hazards: None

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical name | CAS No. | Percent | CLP/GHS class. (1272/2008) |
|---|----------------|---------|-------------------------------|
| Synthetic Amorphous Silica | 7631-86-9 | 40-50% | Not hazardous |
| Methylsilylated Silica | 68909-20-6 | 10-20% | Not hazardous |
| Polyethylene Terephthalate (PET or polyester) | 25038-59-9 | 10-20% | Not hazardous |
| Fibrous Glass (textile grade) | Not Applicable | 10-20% | Not hazardous |
| Magnesium Oxide | 1309-48-4 | 0-5% | Not hazardous |
| Synthetic Graphite | 7782-42-5 | 0-5% | Not hazardous |

See Section 16 for full text of GHS and EU Classifications.

4. FIRST AID MEASURES

4.1 Description of 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.

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Eyes:

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.

Skin:

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

Ingestion:

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

4.2 Most Important symptoms and effects, both 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.

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

Immediate medical attention is generally not required.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing Media:

Use media appropriate for surrounding fire.

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 Fire-Fighters:

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

6. ACCIDENTAL RELEASE MEASURES

6.1 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.

6.2 Environmental Precautions:

Material is not water soluble. 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.

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6.4 Reference to Other Sections:

Refer to Section 8 for personal protective equipment and Section 13 for disposal information.

7. HANDLING AND STORAGE

7.1 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. 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.

7.2 Conditions for Safe Storage, Including any Incompatibilities:

Keep tightly closed in the packaging until ready for use. Store in a dry location.

7.3 Specific end use(s):

Industrial uses : Insulation
Professional uses : Insulation

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters:

Synthetic Amorphous Silica (as PNOC)

3 mg/m³ TWA Belgium OEL (respirable aerosol)
10 mg/m³ TWA Belgium OEL (inhalable aerosol) 5
mg/m³ TWA France OEL (respirable aerosol)
10 mg/m³ TWA France OEL (inhalable aerosol)
.5 mg/m³ TWA DFG MAK (respirable aerosol)
4 mg/m³ TWA DFG MAK (inhalable aerosol)
4 mg/m³ TWA UK WEL (respirable aerosol)
10 mg/m³ TWA UK WEL (inhalable aerosol)

Methylsilylated Silica (as PNOC)

3 mg/m³ TWA Belgium OEL (respirable aerosol)
10 mg/m³ TWA Belgium OEL (inhalable aerosol)
5 mg/m³ TWA France OEL (respirable aerosol)
10 mg/m³ TWA France OEL (inhalable aerosol)
1.5 mg/m³ TWA DFG MAK (respirable aerosol)
4 mg/m³ TWA DFG MAK (inhalable aerosol)
4 mg/m³ TWA UK WEL (respirable aerosol)
10 mg/m³ TWA UK WEL (inhalable aerosol)

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Polyethylene Terephthalate (PET or polyester) (as PNOC)

3 mg/m³ TWA Belgium OEL (respirable aerosol)

10 mg/m³ TWA Belgium OEL (inhalable aerosol)

5 mg/m³ TWA France OEL (respirable aerosol)

10 mg/m³ TWA France OEL (inhalable aerosol)

1.5 mg/m³ TWA DFG MAK (respirable aerosol)

4 mg/m³ TWA DFG MAK (inhalable aerosol)

4 mg/m³ TWA UK WEL (respirable aerosol)

10 mg/m³ TWA UK WEL (inhalable aerosol)

Fibrous Glass (textile grade)

1 fibre/cm³ TWA Belgium OEL

1 fibre/cm³ TWA France OEL Magnesium Oxide

10 mg/m³ TWA Belgium OEL

10 mg/m³ TWA France OEL (respirable aerosol)

1.5 mg/m³ TWA DFG MAK (respirable aerosol)

4 mg/m³ TWA DFG MAK (inhalable aerosol)

4 mg/m³ TWA UK WEL (respirable aerosol)

10 mg/m³ TWA UK WEL (inhalable aerosol)

Synthetic Graphite

2 mg/m³ TWA Belgium OEL

2 mg/m³ TWA France OEL (respirable aerosol)

1.5 mg/m³ TWA DFG MAK (respirable aerosol)

4 mg/m³ TWA DFG MAK (inhalable aerosol)

4 mg/m³ TWA UK WEL (respirable aerosol)

10 mg/m³ TWA UK WEL (inhalable aerosol)

Refer to specific country legislation

8.2 Exposure Controls:

Recommended Monitoring Procedures: Collection on filters with gravimetric analysis. Refer to BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

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.

Personal Protective 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, fit and use in accordance with local and national regulations.

Skin protection: Impervious gloves complying with EN 374 recommended for handling product. Long-sleeved and long-legged work clothing are also advised.

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Eye protection: Safety glasses with side shields or dust goggles in compliance with EN 166 recommended.

Other: None known

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic Physical and Chemical Properties

| | | |
|--|---|---|
| Appearance | : | White or gray fabric blanket. Gray material contains an opacifier. White material does not. |
| Odor | : | Slight ammonia. |
| Odor threshold | : | 0.6-53 ppm (ammonia) |
| pH | : | Not applicable |
| Melting point/ freezing point | : | Not determined Boiling point: Not applicable |
| Flash point | : | Not applicable |
| Evaporation rate | : | Not applicable |
| Flammability (solid, gas) | : | Not flammable |
| Flammable limits | : | LEL: Not applicable UEL: Not applicable |
| Vapor pressure | : | Not applicable |
| Vapor density (air = 1) | : | Not applicable |
| Relative density | : | Not determined |
| Solubility In Water | : | Insoluble in water |
| Partition coefficient n-octanol/water | : | Not available |
| Auto-ignition Temperature | : | Not applicable |
| Decomposition Temperature | : | Not determined |
| Viscosity | : | Not applicable |
| Explosive Properties: Properties | : | None Oxidizing None |

9.2 Other Information: None available

10. STABILITY AND REACTIVITY

10.1

| | | |
|-------------------------------------|---|--|
| 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 | : | None known. |
| Hazardous decomposition products: | : | Under recommended usage conditions, hazardous decomposition products are not expected. |

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11. TOXICOLOGICAL INFORMATION

11.1 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 | : | None of the components are listed as carcinogens or suspected carcinogens by IARC, NTP, ACGIH or OSHA. The International Agency for Research on Cancer (IARC) considers synthetic amorphous silica and continuous filament fiber glass to be not classifiable as to carcinogenicity to humans (Group 3). |
| Acute Toxicity Values | : | Components are not acutely toxic. |

12. ECOLOGICAL INFORMATION

12.1

| | | |
|-------------------------------|---|-----------------------|
| 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. |

12.2

Other adverse effects: Not required.

13. DISPOSAL CONSIDERATIONS

13.1

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.

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14. TRANSPORT INFORMATION

| | 41.1 UN Number | 14.2 UN Proper shipping name | 14.3 Hazard Class | 14.4 Packing Group | 14.5 Environmental Hazard |
|-----------------|-------------------|---------------------------------|----------------------|--------------------------|---------------------------------|
| US DOT | | Not Regulated | | | |
| Canadian TDG | | Not Regulated | | | |
| IMDG | | Not Regulated | | | |
| IATA/ICAO | | Not Regulated | | | |

14.6 Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code):

Not applicable – product is transported only in packaged form.

14.7 Special precautions:

None known.

15. REGULATORY INFORMATION

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

REACH-Aspen Aerogels' insulating products are articles.

REACH - Candidate List of Substances of Very High: This product does not contain Substances of Very High Concern for Authorisation (Article 59).

German WGK: Not Hazardous to waters

16. OTHER INFORMATION

16.1 CLP/GHS Classification and H Phrases for Reference (See Section 3)

None

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.