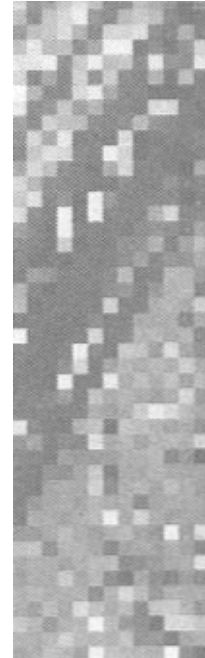




Material Safety Data Sheet according 93/112/EC ALVEOLIT - standard types



Introduction

This Material Safety Data Sheet contains all the necessary information and advice according to Commission Directive 93/112/EC amending Commission Directive 91/155/EEC relating to Council Directive 88/379/EEC (Article 10):

1. Identification of
 - 1.1 Product
 - 1.2 Company
 - 1.3 Emergency phone number
2. Product description
3. Hazards identification
4. First aid measures
5. Fire fighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure controls/personal protection
9. Physical and chemical properties
10. Stability and reactivity
11. Toxicological information
12. Ecological information
13. Recycling & disposal considerations
14. Transport information
15. Regulatory information
16. Other information

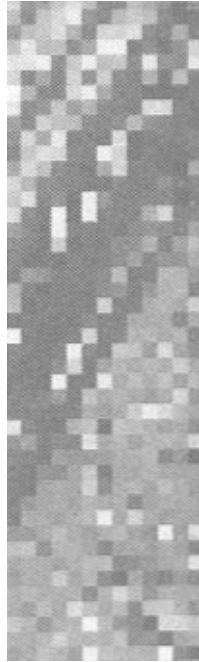
Note:

ALVEOLIT standard types are produced without Flame Retardant (FR) additives. Products containing FR formulations may be identified by the following designations: e.g. ALVEOLIT FR/FRS/FRB/FRZ/FRO

Recommendations as to methods of postfabrication, safety measures, application and use of ALVEO foams are based on our experience and knowledge of the characteristics of our products and are given in good faith. As producer of the material we have no control over the application of ALVEO foams and no legal responsibility is accepted for such recommendations. In particular, no responsibility is accepted by us for neither system and postfabrication method in which ALVEO foams are utilized nor any safety measure.



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Item

Details

1. Identification of

1.1 Product

ALVEOLIT standard types (non FR)

1.2 Company

Production plant NL:
SEKISUI-ALVEO B.V.
Industrieterrein Roerstreek
Montageweg 6
P.O. box 292
NL-6040 AG Roermond
Tel. +31 - 475 354 354
Fax +31 - 475 328 056
Safety responsible: Tom van Utteren

Production plant UK:
SEKISUI (UK) LTD.
Merthyr Industrial Park
Cardiff Road
Troedyrhiw
Merthyr Tydfil
South Wales
Tel. +44 - 1443 690940
Fax +44 - 1443 693738
Safety responsible: Mark Hennessy

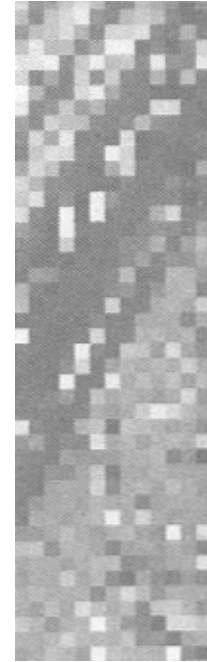
ALVEO Headquarters:
ALVEO AG
Bahnhofstr. 7
Postfach 2068
CH-6002 Luzern
Tel. +41 41 - 228 92 92
Fax +41 41 - 228 92 00
Safety responsible: Armin Fasola

1.3 Emergency phone number

Call ALVEO AG,
+41 41 - 228 92 92,
Armin Fasola



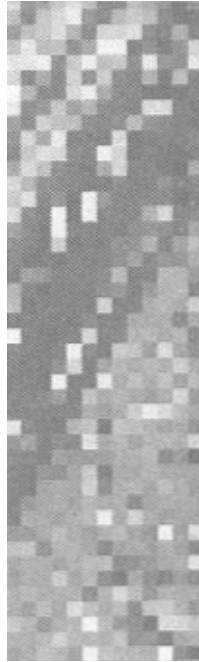
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2. Product description	<p>ALVEOLIT is a physically crosslinked polyolefin foam produced in a continuous web process. ALVEOLIT is based on PE- and PP- homo- and copolymers and is foamed with an organic foaming agent by chemical decomposition. The gases mainly produced are:</p> <ul style="list-style-type: none">- Nitrogen (N₂)- Carbon dioxide (CO₂), <p>both are known as non depleting substances to the ozone layer.</p>
3. Hazards identification	<p>Eye contact: Fine dust from mechanical transformation e.g. grinding may cause irritation. Fumes from material heated to more than 160 °C may cause irritation.</p> <p>Skin contact: Material is unlikely to cause irritation, but if contact with hot material thermal burn may occur (see also section 4).</p> <p>Inhalation: If heated to more than 160 °C the material may give off fumes which could cause irritation to the respiratory tract.</p> <p>Ingestion: Inert material; regarded as harmless by ingestion.</p>
4. First aid measures	<p>Eye contact: Any dusty material entering the eye should be flushed out with plenty of water. If irritation by fumes — move person away from source, rinse eyes with plenty of water, get medical attention.</p> <p>Skin contact: Any hot or molten material on skin should be cooled down as quickly as possible by means of cold water; do not try to remove material from skin. Thermal burn requires immediate medical attention.</p> <p>Inhalation: When fumes of hot material have been inhaled: Move person to fresh air as quickly as possible, rest person in half upright position, loosen clothing, keep warm. In case of respiratory problem move person to first aid, get medical attention.</p> <p>Ingestion: No danger of toxicity, this material is biologically and chemically inactive (see also section 11).</p>
5. Fire fighting measures	<p>Extinguishing media:</p> <ul style="list-style-type: none">- water spray- extinguishing foam- CO₂-extinguisher <p>Unsuitable extinguishing media:</p> <p>Do not use direct water jets in the early stage as this may help to spread the flames. Do not use water extinguisher in close proximity to live electrical installations.</p>



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**Item****Details****5. Fire fighting measures (cont.)**

Special hazards:

Avoid dense smoke and do not inhale the smoke gases from the combustion:

- a. Carbon dioxide (CO₂)
- b. Carbon monoxide (CO)
- c. Water vapour (H₂O) a. + b. + c.: 95 - 97 %
- d. Ethine (C₂H₂) 2 - 4 %
- e. Ethene (C₂H₄) < 1 %
- f. Ammonia (NH₃) < 1 %

Protection to the fire fighters:

Do not approach fire in confined space without positive pressure selfcontained breathing apparatus and full bunker gear: bunker coats, helmet with face shield, gloves, rubber boots.

6. Accidental release measures

Not applicable.

7. Handling and storage**7.1 Handling**

Practice reasonable care as a normal safety precaution. Fabrication areas should be well ventilated to carry away fumes, vapours and dust, especially in processes e.g.: lamination (heat and coating), welding, vacuum forming, hot pressmoulding; operators should be assured of an adequate supply of fresh air. The working environment should be kept clean and free of dust.

To avoid electrostatic discharges during fabrication/transformation processes install grounding or ionisation devices as a precaution (see also chapter '4.1 Product storage, working and handling' of the ALVEO Technical Documentation).

7.2 Storage

Practice reasonable care and cleanliness; provide adequate distance between stacks of foam as a safety precaution: Do not expose to any source of flame, ignition or heat. Recommended storage is inside due to UV light and heat sensitivity. For more info see under chapter. '4.1 Product storage, working and handling' of the ALVEO Technical Documentation.

8. Exposure controls/personal protection

Breathing protection:

Use special personal breathing respirator/mask or filter, in special fabrication areas (see 7.1 'Handling') that are not well ventilated, in order to protect from fumes, vapours and dust.

Hand protection:

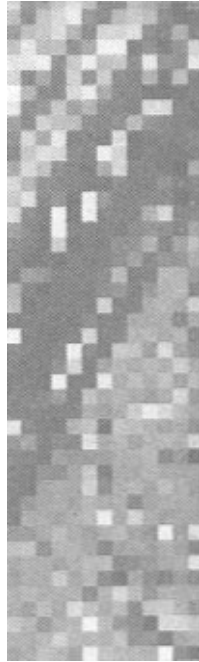
Wear gloves (cotton, wool or leather), when working in fabrication areas utilising heat processes, to prevent possible thermal injury from hot foam.

Eye protection:

Use goggles or face masks, when working in fabrication areas utilising heat processes, to prevent possible contact with hot foam and thermal injury.



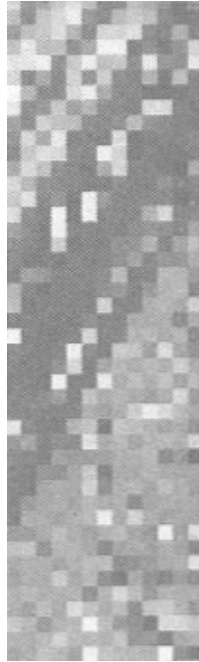
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Item	Details
8. Exposure controls/personal protection (cont.)	<p>Body protection: Wear clothes and shoes, to protect the full body, especially when working in fabrication areas utilising heat processes, to prevent possible thermal injury (burns).</p>
9. Physical and chemical properties	<p>Appearance: semi rigid closed cell, physically crosslinked polyolefin plastic foam web, available in a wide variety of colours.</p> <p>Odour: odourless</p> <p>Softening range: $\geq 70 - 130\text{ }^{\circ}\text{C}$</p> <p>Autoflammability: $\geq 300\text{ }^{\circ}\text{C}$</p> <p>Thermal decomposition: $> 160 - 180\text{ }^{\circ}\text{C}$</p> <p>Explosive properties: none</p> <p>Apparent density: $25 - 250\text{ kg/m}^3$</p> <p>Solubility in: water insoluble organic solvents insoluble, partly soluble, swelling; depending on solvent type</p> <p>Other properties: Electrical surface resistance: $\geq 10^{12}\text{ }\Omega/\text{square}$</p>
10. Stability and reactivity	<p>Avoid:</p> <ul style="list-style-type: none"> - temperatures $> 160 - 180\text{ }^{\circ}\text{C}$ (over period $> 10\text{ min.}$) - contact with strong oxidizing chemicals - electrostatic discharges <p>Dangerous decomposition products (temperatures $> 160 - 180\text{ }^{\circ}\text{C}$):</p> <ul style="list-style-type: none"> - decomposition gases/vapours in heat fabrication processes - combustion gases in case of fire
11. Toxicological information	<p>Toxicologically harmless.</p> <p>Physically crosslinked polyolefin foams are among the most inert polymer foams and constitute no hazard in terms of normal handling and skin contact (test certificates on request):</p> <ul style="list-style-type: none"> - Biological evaluation of medical devices (acc. BS 5736/ISO 10993) <ul style="list-style-type: none"> - dermal sensitization - skin irritation - cytotoxicity - Food packaging approval acc. 97/48/EC - Heavy metal content (acc. EN 71) - Sweat and spittle resistance (acc. DIN 53160) - Water quality (BS 6920) - Toxicity index: smoke gases (acc. NES 713)



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12. Ecological information

Environmentally harmless.

- insoluble in water: no contamination of environment (water, soil)
- insoluble in most solvents
- degradable only by UV light

Ozone layer depleting substances:

ALVEOLIT does not contain and is not produced with any of the substances mentioned in the 'Montreal protocol' of 'ozone depleting substances' and in the corresponding EEC Council Regulations 594/91, 3952/92, 93/C 232/07:

CFC's, HCFC's, halons, carbon tetrachloride, 1,1,1-trichloroethane, methyl bromide, hydrobromofluorocarbons.

13. Recycling & disposal considerations

Re-use: Remnant material may be reused directly e.g.:

- cushion packaging material

Recycling: Our sales responsible can help concerning specific recycling possibilities, e.g. ALVEO's foam taking back concept.

Disposal: When disposing of waste, observe all applicable national and local regulations.

ALVEOLIT polyolefin foam may be disposed of by:

a. Landfill:

ALVEOLIT polyolefin foam is inert and does not degrade, it forms a permanent soil base and releases no gases or chemicals known to pollute water resources.

b. Incineration:

Incineration with properly controlled municipal or industrial incineration systems. Plastic materials, such as ALVEOLIT, have high heat values and should only be incinerated in units designed to handle high combustion heat.

14. Transport information

No restrictions and non dangerous material in relation to transportation regulations.

No classification according the following regulations necessary:

- ADR, GGVS (roads)
- RID, GGVE (railways)
- IMDG, GGVS (maritime)
- ICAO, IATA-DGR (aviation)

15. Regulatory information

No regulations apply in relation to classification, packaging and identification, also applicable to health and environmental care.

16. Other information

For additional product information see valid ALVEOLIT Product Sales Specification.

This Material Safety Data Sheet (6 pages) has been issued 03/94, revised 03/97 and 12/00 by Armin Fasola, Technical Service Mgr. and Health and Safety Responsible.

