1 Identification of the substance and of the company

1.1 Product identifier

Name of product: Biofibre® Sustra

Synonym: Natural fiber reinforced polyolefin resin

Substance registration number: Concerning polymers like polyolefins the regulations for registration of title II of the regulation (EC) No. 1907/2006 shall not apply according to article 2(9) and thus polymers need not to be registered. The respective monomers are registered according to article 6(3).

1.2 Relevant identified uses of the substance and uses advised against

Relevant identified uses of the substance: Natural fiber reinforced Bioplastic composites for the production of biodegradable injection molded parts

Uses advised against: Technical processing at temperatures above 230 °C

1.3 Details of the supplier of the safety data sheet

Distributor: Biofibre GmbH

Stree: Europaring 4

Nat.-Abbr./ZIP/City: D-94315 Straubing

Contact number for technical information: +49 (0) 871 / 308-0

Telephone / Telefax / E-Mail: +49 (0) 871 / 308-0 / +49 (0) 9421 / 785-225 / info@biofibre.de

1.4 Emergency telephone number

+49 (0) 871 / 308-0 (available during office hours)

2 Hazards Identification

2.1 Classification of the substance according to regulation (EC) 1272/2008 (CLP/GHS)

The product is not classified as dangerous according to Directives 67/548/EEC or 1999/45/EC

The product is not classified as dangerous according to Regulation (EC) 1272/2008 (GHS)

The product does not require a hazard warning label according to Regulation (EC) No 1272/2008 (GHS)

2.2 Other hazards

Substance does not contain toxic constituents. Risk of burns upon contact with hot product. Toxic vapors during combustion

3 Composition/information on ingredients

3.1 Substances

Major constituent (>25 mass-%)

Substance name: wood

Further contains polyolefins and additives

All constituent are not considered to be hazardous within the meaning of the regulation (EC) No 1272/2008 and the regulation 67/548/EEC

4 First aid measures

4.1 Description of first aid measures

Inhalation

Remove person from danger area. Supply person with fresh air and consult doctor according to symptoms.

Skin contact

After contact with molten Polymer cool the skin immediately with cold water. Wash skin with water and soap only. To remove adherent Material from the skin and for wound treatment consult a doctor
Eye contact
Rinse eyes cautiously for several minutes using copious water. If possible remove contact lenses. Continue with rinsing. Consult a doctor, have data sheet available.

Ingestion
No consequences known. If needed, give copious water to spill and to drink. If there is discomfort against the expectation consult a doctor immediately.

4.2 Most important symptoms and effects, both acute and delayed
Hot material may cause burns on the skin. No information on delayed symptoms and effects

4.3 Indication of any immediate medical attention and special treatment needed
Treatment according to the symptoms and supportive

5 Firefighting measures
5.1 Extinguishing media
Suitable: Water, alcohol-resistant foam, carbon dioxide, dry chemical or vaporizing liquid extinguishing agents
Unsuitable: Not known

5.2 Special hazards arising from the substance
Prevent formation of dust. Distribution of fine dust in the air in sufficient concentration and in presence of a fire source may lead to increased danger of a dust explosion. When the material is incompletely combusted, this may lead to the formation of CO and volatile organic compounds.

5.3 Advice for firefighters
Carbon oxides, aldehydes
May lead to the formation of caustic and toxic volatiles during combustion
Use safety equipment and follow safety measures. Use firefighting kit including self-contained breathing apparatus (SCBA). Keep away uninvolved personnel.

6 Accidental release measures
6.1 Personal precautions, protective equipment and emergency procedures
Wear protective clothing. Ensure sufficient supply of air, avoid inhalation, and contact with eyes or skin

6.2 Environmental precautions
Prevent surface and ground-water infiltration, as well as ground penetration, prevent from entering drainage system, if accidental entry into drainage system occurs, inform responsible authorities

6.3 Methods and material for containment and cleaning up
Pick up mechanically and dispose of according to Section 13. As a precaution, douse dust with water

6.4 Reference to other sections
Safe handling: see chapter 7
Personal protection: see chapter 8
Disposal instructions: see chapter 13

7 Handling and storage
7.1 Precautions for safe handling
Avoid eating, drinking and smoking during processing of this product. Reduce the development and accumulation of dust as far as possible. Handling operations with dry powders may lead to friction induced electricity, so avoid static loading and the formation of fine particles. Avoid contact with hot product.

7.2 Conditions for safe storage, including any incompatibilities
Not applicable according to the terms of regulations. Keep the product cool (< 50 °C) and dry during storage. Prevent exposure to intense heat, fire, sparks, and flames and other sources that may lead to sudden ignition. Keep away from strong oxidizing agents and strong bases.

7.3 Specific end use(s)
Partially biobased granulate for injection molding and hereover produced parts

7.4 Storage
Keep away from UV-Rays and moisture. Keep material cool and in closed containers. Avoid any sources of ignition. Take precautions for static loading. Use safe electric devices. Prohibit use of open flames. Product can be stored in bags, big bags, containers, silos and bulk cartons.

8 Exposure controls/personal protection
Ensure good ventilation. This can be achieved by local suction or general air extraction. If this is insufficient to maintain the concentration under the WEL or AGW values, suitable breathing protection should be worn. Normal working clothes according to local regulations, e.g. wear suitable body protection including working clothes, if applicable safety goggles, and heat-protective gloves. General hygiene measures for the handling of chemicals are applicable. Wash hands before breaks and at end of work. Keep away from food, drink and animal feedingstuffs. Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance/shape:</td>
<td>granulate</td>
</tr>
<tr>
<td>Physical state at room temp.:</td>
<td>solid</td>
</tr>
<tr>
<td>Color:</td>
<td>brown</td>
</tr>
<tr>
<td>Odor:</td>
<td>weak, wooden</td>
</tr>
<tr>
<td>Melting area:</td>
<td>160-180 °C</td>
</tr>
<tr>
<td>Density:</td>
<td>1.05 g/cm³</td>
</tr>
<tr>
<td>Oxidising properties:</td>
<td>not oxidising</td>
</tr>
<tr>
<td>Explosive limits:</td>
<td>not applicable, product is not explosive</td>
</tr>
<tr>
<td>Solubility</td>
<td>insoluble to very limited solubility in water</td>
</tr>
<tr>
<td></td>
<td>the polymeric constituent as well as the additives are soluble in cooking aromatic chlorinated solvent</td>
</tr>
<tr>
<td>Start thermal degradation:</td>
<td>230 °C (dependent on time of exposure)</td>
</tr>
<tr>
<td>Spontaneous ignition:</td>
<td>&gt;400 °C</td>
</tr>
</tbody>
</table>

10 Stability and reactivity

10.1 Reactivity
The material is stable under normal processing and storage conditions

10.2 Chemical stability
Stable unter the recommended storage conditions

10.3 Possibility of hazardous reactions
Hazardous reactions will not occur during storage and handling under normal conditions.

10.4 Conditions to avoid
See also section 7.
Protect from humidity and extreme heat. Thermal degradation starts at temperatures > 230 °C.

10.5 Incompatible materials
Avoid contact with strong oxidising agents and strong alkalis

10.6 Hazardous decomposition products

See also section 5.2

11 Toxicological information

Acute toxicity: None at room temperature
Corrosiveness/irritation to skin: None at room temperature
Additional informations: If the product is used according to the directions for use, no toxicological effects are to be expected.

12 Ecological information

General information: The product is non-toxic. Small particles can have physical effects on water and soil organisms
Other notes: The product is biodegradable under industrial and physiological conditions. The material should be processed and used according to normal practices. Distribution of the product in the environment should be avoided.

13 Disposal considerations


14 Transport information

Transport by road/by rail (ADR/RID) not restricted
Transport by sea (IMDG-code) not restricted
Transport by air (IATA/ICAO): not restricted

15 Regulatory information

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

Labeling: This product is not considered as hazardous according to EC-regulation 67/548. Classification and labelling is not required according to with EC Directive CEE 88/379.

16 Other information

The raw materials, additives, and fillers do not or only contain minimal amounts of substances from the following list:
Asbestos, cadmium, mercury, lead, chrome, arsenic, antimony, nitroamine, FCKW Chlorofluorocarbons hydrocarbons, formaldehyde, vinyl chloride, dioxine und furane, pentachlorophenol, tetrachloroethylene, trichloroethylene, organobromine compound

This data is based on the current state of our information and experience. This safety data sheet describes our product in terms of safety requirements. Preceding data is not applicable as a warranty of product properties. It is the responsibility of the recipient to observe the existing legal regulations for the use of this product.