In accordance with Regulations (EC) n° 1907/2006, (EC) n° 1272/2008 and (EU) n° 453/2010 (Annex I)

1. IDENTIFICATION OF SUBSTANCE AND COMPANY

1.1. Substance identifier

<table>
<thead>
<tr>
<th>Substance name:</th>
<th>Ascophyllum nodosum, extract</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product name:</td>
<td>Symbio 50% Seaweed</td>
</tr>
<tr>
<td>CAS number</td>
<td>84775-78-0</td>
</tr>
<tr>
<td>CAS name:</td>
<td>Ascophyllum nodosum, ext.</td>
</tr>
<tr>
<td>IUPAC name:</td>
<td>Ascophyllum nodosum, extract</td>
</tr>
<tr>
<td>REACH registration number:</td>
<td>01-2120070500-70-0000</td>
</tr>
</tbody>
</table>

1.2. Relevant identified uses of the substance and uses advised against

<table>
<thead>
<tr>
<th>Relevant use(s):</th>
<th>Plant strengthener/organic fertilizer/foliar spray for use in agriculture and horticulture.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uses advised against:</td>
<td>There are no evidences of uses advised against.</td>
</tr>
</tbody>
</table>

1.3. Details of the supplier of the safety data sheet

<table>
<thead>
<tr>
<th>Company name:</th>
<th>Eco Solutions (C&amp;R) Ltd T/a Symbio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit 8</td>
<td>Coopers Place</td>
</tr>
<tr>
<td>Wormley</td>
<td>Surrey</td>
</tr>
<tr>
<td>GU8 5SZ</td>
<td></td>
</tr>
<tr>
<td>Tel:</td>
<td>+44 (0) 1428 685762</td>
</tr>
<tr>
<td>Fax:</td>
<td>+44 (0)1428 685702</td>
</tr>
<tr>
<td>Email:</td>
<td><a href="mailto:info@symbio.co.uk">info@symbio.co.uk</a></td>
</tr>
</tbody>
</table>

1.4. Emergency telephone number

Emergency telephone number +44 (0) 1428 685762

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance

<table>
<thead>
<tr>
<th>Hazard class</th>
<th>Class code and hazard category</th>
<th>Hazard statement</th>
<th>Hazard warning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not classified</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Classification in accordance with Directive 67/548/EEC:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Risk phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not classified</td>
<td></td>
</tr>
</tbody>
</table>

Potential adverse physicochemical, human health and environmental effects:

Under normal conditions of use, the substance does not cause adverse effects to humans and to the environment. See also sections from 9 to 12
2.2 Label elements

- Labelling in accordance with Regulation (EC) n°. 1272/2008:

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHS Pictogram</td>
<td>none</td>
</tr>
<tr>
<td>Signal word</td>
<td>none</td>
</tr>
<tr>
<td>Hazard Statement</td>
<td>none</td>
</tr>
<tr>
<td>Precautionary Statement</td>
<td>none</td>
</tr>
</tbody>
</table>
| Other information      | If skin irritation occurs: Get medical advice/attention  
                         | Avoid breathing spray        
                         | Use personal protective equipment as required  
                         | Keep out of the reach of children  
                         | This product may stain skin upon prolonged exposure. |

2.3 Other hazards (which do not result in the classification)

The substance does not fulfil the PBT and vPvB criteria.

3 COMPOSITION/INFORMATION ON INGREDIENTS

**Description:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of the component</td>
<td>Ascophyllum nodosum extract</td>
</tr>
<tr>
<td>Concentration</td>
<td>50% w/w soluble seaweed extract from Ascophyllum nodosum brown algae</td>
</tr>
<tr>
<td>Structural formula</td>
<td>Not applicable; Ascophyllum nodosum, ext. is an UVCB substance</td>
</tr>
<tr>
<td>Substance with Community OEL</td>
<td>NO</td>
</tr>
<tr>
<td>CAS name</td>
<td>Ascophyllum nodosum, ext.</td>
</tr>
<tr>
<td>CAS number</td>
<td>84775-78-0</td>
</tr>
<tr>
<td>IUPAC name</td>
<td>Ascophyllum nodosum, extract</td>
</tr>
<tr>
<td>EC number</td>
<td>700-983-2</td>
</tr>
<tr>
<td>Index number</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

Note: Confidential business information has been omitted

Other information:

The substance is a UVCB substance, with a variable composition.

4 FIRST AID MEASURES

4.1 Description of the first aid measures

Under normal circumstances, the product has no harmful effect. If irritation occurs, seek medical advice.

- **Eye contact:** Wash immediately with large amounts of water or normal saline for ≥15 minutes. Keep eyelid open during the washing. Get medical advice if adverse symptoms will appear.
- **Skin contact:** Remove contaminated clothing. Wash affected area with soap or mild detergent and large amount of water. Get medical advice if adverse symptoms will appear.
- **Inhalation:** Move the person to fresh air. Get medical advice if adverse symptoms will appear.
- **Ingestion:** Rinse mouth thoroughly. Get medical advice if adverse symptoms will appear.
- **First Aid Responders:** Wear rubber or nitrile gloves to prevent staining of skin.

4.2 Most important symptoms and effects (acute and delayed)

- **Acute:** Inhalation: May cause irritation.
  
Skin: May be irritant for skin.
Eyes: May cause irritation.
Ingestion: may be harmful.
Delayed: Delayed symptoms and effects are not known.

4.3 Indication of any immediate medical attention and special treatment needed

Medical monitoring: Not foreseen.
Antidotes, if known Unknown.

5 FIREFIGHTING MEASURES

This substance is non-flammable and non-explosive

5.1 Extinguishing media

Suitable extinguishing media Carbon dioxide, foam, powder and nebulized water.
In the event of a fire, keep containers cool with water spray. Slippery in liquid form or when mixed with water.
Unsuitable extinguishing media Unsuitable extinguish media not known.

5.2 Special hazards arising from the substance

Hazardous combustion Thermal decomposition or combustion may generate toxic and hazardous fumes of products CO\textsubscript{x}, NO\textsubscript{x}.

5.3 Advice for firefighters

-Technical actions for Don’t try to extinguish the fire without an autonomous respiratory device (SCBA) and protection protective adapted clothes.
-Special protective equipment Wear boots, overalls, gloves, eye and face protection and breathing apparatus.
for firefighters Equipment must be conformed with EN criteria and used in highest condition of protection on the basis of the information reported in the previous sub-sections. Firefighters should wear self-contained breathing apparatus and full fire-fighting turnout gear.

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel No action shall be taken without suitable training. Evacuate personnel to safe areas. Ventilate areas. Remove all sources of ignition.

For emergency responders

Stop the leak, if it can be done safely. Wear appropriate protective equipment (see Section 8) to minimize exposure to the product.

6.2 Environmental precautions

In case of accidental release in the environment avoid that the substance can reach drains, surface water and ground water and soil.

6.3 Methods and material for containment and cleaning up

- Containment techniques and clean-up procedures Stop the spill if it can be done safely. Collect the material with mechanic means, wearing appropriate protective equipment, and store in a clean and appropriate waste disposal container. Wash the area with water.
6.4 Reference to other sections
See also section 8 and 13.

7 HANDLING AND STORAGE

7.1. Precautions for safe handling
Recommendations for handling: Handle in a well ventilated place.
- Wear suitable personal Protection Equipment (see section 8).
- Keep the substance away from drains, surface or ground waters.
- If irritation occurs get medical advice/attention.
- Keep out of the reach of children.
- Avoid excessive handling which may cause staining of skin

Recommendations for hygiene:
- Do not eat, drink and smoke in the working areas. personal
- Wash hands after handling the substance.
- Remove contaminated clothing and protective equipment before entering eating areas.

7.2. Condition for safe storage including any incompatibilities
Recommendations for storage:
- It can be stored for 2 years in unopened containers.
- Avoid direct exposure to sunlight. Store in a cool, well ventilated, dry place.
- Keep containers tightly closed. Store in containers correctly labelled. Protect from frost. Keep away from food, drink and animal feeding stuffs.

7.3. Specific end use(s)
Recommendations for specific end use as plant strengthener/organic fertilizer/foliar spray for use in agriculture and horticulture: avoid contact with eyes, skin and inhalation of the vapours/fume/gas/mist/spray/dust.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters
- National/ European Occupational Exposure Limits: Not established.
- Other National/ European Occupational Exposure Limits: Not established.
- National/ European Biological Limits (BEI): Not established.
- Other National/ European Biological Limits (BEI): Not established.
Recommended monitoring procedures
- Measurements of the substance/s in the workplace must be carried out in accordance with standardized methods described by EN guidance.

DNEL values
- DNELs for workers: No information available
- DNELs for general population: No information available

PNEC values
- PNEC water: PNEC fresh water: 65.3 µg/L
- PNEC marine water: 6.53 µg/L
- PNEC intermittent releases: 653 µg/L
- PNEC sediment: No information available
- PNEC soil: PNEC: 4.7 µg/kg soil dw
- PNEC for sewage treatment plant: PNEC - STP: 1 mg/L

8.2. Exposure controls

Appropriate risk management measures, that must be adopted at the workplace, have to be selected and applied, following the risks assessment carried out by the employer, in connection with his working activity (in accordance with Directive 98/24/EEC). If the results of this evaluation show that the general and collective prevention measures are not sufficient to reduce the risk, and if you cannot prevent exposure to the mixture by other means, adequate personal protective equipments must be adopted, complying with the relevant technical EN standards.

Eye/face protection:
- Wear eye protection. Eyewash facilities should be available.

Hands protection:
- Protective gloves, chemical-resistant according to EN 374.

Skin protection:
- Wear a water impermeable bodysuit to prevent staining of skin.
- Person carrying out disposal should wear PVC gloves.

Respiratory protection:
- Special protections are not required during the normal conditions of use. In case of handling of large quantities, wear masks with appropriate filters.

Environmental exposure controls:
- Prevent the product from reaching surface water or groundwater. Check the pH and the presence of surfactants.

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</td>
<td>Liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>Black/brown</td>
</tr>
<tr>
<td>Odour</td>
<td>Marine</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>Not determined</td>
</tr>
<tr>
<td>pH</td>
<td>8.5 – 10.5</td>
</tr>
<tr>
<td>Melting point</td>
<td>&gt; 300 °C, no decomposition.</td>
</tr>
<tr>
<td>Initial Boiling Point/Boiling Range</td>
<td>Not determined</td>
</tr>
<tr>
<td>Flash point</td>
<td>not available</td>
</tr>
<tr>
<td>Octanol-water partition coefficient</td>
<td>Log P = 3.3 at 22 °C</td>
</tr>
<tr>
<td>Flammability</td>
<td>not flammable</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.22 – 1.25 at 20°C</td>
</tr>
<tr>
<td>Water solubility</td>
<td>≥99.5% water soluble at 20 °C</td>
</tr>
<tr>
<td>Surface tension</td>
<td>51.1 mN/m at 20°C and 1000 mg/L</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>non explosive</td>
</tr>
</tbody>
</table>
Oxidising properties: Evaporation Rate: non oxidizing Not determined
Upper/lower flammability or OEL: Not determined
Vapour Pressure: Not determined
Vapour Density: Not determined
Decomposition Temperature: Not determined
Auto-ignition Temperature: 550 °C
Viscosity: <300 cP

9.2. Other information
Granulometry: After 5 minutes of shaking, over 93 % of the sample presents a particle size higher than 0.250 mm and no sample was found under the 0.045 mm sieve.

10 STABILITY AND REACTIVITY

10.1. Reactivity
This substance is not reactive under normal conditions of storage.

10.2. Chemical stability
Substance is stable under normal conditions of temperature and pressure and if it is stored in closed containers in a well ventilated and cool place.

10.3. Possibility of hazardous reactions
Under normal conditions of storage and use, no hazardous reactions occur.

10.4. Conditions to avoid
Potential heat and ignition sources, moisture, direct sunlight, freezing.

10.5. Incompatible materials
Strong oxidizing and reducing agents. Do not mix with highly acidic chemicals. Oxidants and acids may cause degradation.

10.6. Hazardous decomposition products
Combustion may produce toxic and hazardous fumes (COx and NOx).

11 INFORMATION ON TOXICOLOGICAL EFFECTS

- Effects following the exposure:
  Dermal: may cause irritation.
  Ingestion: may cause irritation to the gastrointestinal mucous membranes.
  Inhalation: inhalation of the product may cause irritation to respiratory ways.
  Contact with eyes: may cause eye irritation.

- Acute Toxicity
- Oral: This information is not available.
- Dermal: This information is not available.
- Inhalation: This information is not available.
- Skin corrosion/irritation: The substance is not irritant for the skin. (OECD Guideline 404)
- Serious eye damage/irritation: The substance is not irritant for the eye. (OECD Guideline 405)
- Respiratory or skin sensitisation: This information is not available.
- Germ cell mutagenicity: The substance is not mutagenic in vitro test. (OECD Guideline 471 and 476)
- Carcinogenicity: This information is not available.
- Reproductive toxicity: This information is not available.
- Repeated dose toxicity: This information is not available.

Based on the available toxicological data, Ascophyllum nodosum, extract is not classified as a specific target organ toxicant (single exposure).

- **STOT - repeated exposure:**
  Based on the available toxicological data, Ascophyllum nodosum, extract is not classified as a specific target organ toxicant (repeated exposure).

- **Aspiration hazard:**
  There is no human evidence that Ascophyllum nodosum, extract may cause aspiration toxicity. Therefore the substance is not classified as a Category 1 Aspiration hazard under the CLP and Harmful under DSD.

### 12 ECOLOGICAL INFORMATION

#### 12.1. Toxicity

**Fish:**
- Danio rerio: LC$_{50}$: > 100 mg/L/96h (OECD Guideline 203 and EPA OPPTS 850.1075)

**Aquatic invertebrates:** Daphnia Magna: IC$_{50}$: > 100 mg/L/48h (OECD Guideline 202 and EC 440/2008 - Council regulation)

**Algae and aquatic plants:** Selenastrum capricornutum: EC$_{50}$ (yield rate): 60.35 mg/L/72 h (OECD Guideline 201)
  EC$_{50}$ (growth rate): > 100 mg/L/72 h (OECD Guideline 201)

**Terrestrial plants:** Zea mays: % inhibition (28 d): ca. 3 kg/ha length (cm) (estimated) based on: growth
  % inhibition (28 d): ca. 3 kg/ha weight (g) (estimated) based on: growth

#### 12.2. Persistence and degradability

Ascophyllum nodosum, extract is readily biodegradable, even if failing the 10-days window; in fact, according to the respirometric test performed a % of biodegradation > 60% is reached within 17 days. The degradation products are naturally occurring elements. (OECD Guideline 301F and EU Method C.4-D)

#### 12.3. Bioaccumulative potential

This information is not available.

#### 12.4. Mobility in soil

This information is not available.

#### 12.5. Results of PBT e vpVb assessment

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Page 7 of 9
Based on the assessment described in the subsections above the submission substance is not a PBT/ vPvB substance

12.6. Other adverse effects
Based on the available data, no other adverse effects are expected.

13 DISPOSAL CONSIDERATION

13.1. Waste treatment methods
Any disposal practice must be in compliance with all local, national and Community laws and regulations. Send wastes to disposal (landfill or incinerator) or recycle them. Do not dump into any sewers, on the ground, or into any body of water.

14 TRANSPORT INFORMATION
Not classified in accordance with ADR/RID, IMDG, IATA and DOT regulations.

15 REGULATORY INFORMATION
All other information on regulation are reported if not provided in other sections/subsection of the Safety Data Sheet.

15.1 Safety, Health and Environmental regulation/legislation specific for the substance
The substance is not the subject of provisions.

15.2. Chemical Safety Assessment
A chemical safety assessment has been carried out.

16 OTHER INFORMATION
Revision n.08 dated 02/10/2015 (First Edition in accordance with Annex I of Regulation 453/2010/EU)

Bibliographic sources:
Ascophyllum nodosum extract - Chemical Safety Report

Information concerning health, safety and environment, in accordance with Regulation (EC) No. 1272/2008:
H-Statements None
P-Statements: P102: Keep out of reach of children
P261: Avoid breathing spray
P281: Use personal protective equipment as required
P332/313: If skin irritation occurs: Get medical advice/attention

R-Phrases:
None
S-Phrases:
S2: Keep out of the reach of children
S23: Do not breathe spray
S36/37/39: Wear suitable protective clothing, gloves and eye/face protection

Acronyms
- ADR: Agreement concerning the carriage of dangerous goods by Road
- BCF: Bioaccumulative factor
- CAS: Chemical Abstract Service (division of the American Chemical Society
- CLP: Classification, Labelling and Packaging
- EINECS: European Inventory of existing Commercial Substances
- GHS: Globally Harmonised System
- IATA: International Air Transport Association Code
- IMDG: International Maritime Dangerous Goods Code
- IUPAC: International Union of Pure and Applied Chemistry
- N.A.: Not Applicable
- N.A.: Not Available
- NOAEL: No Observed Adverse Effect Level
- PPE: Personal protective Equipment
- PBT: Persistent, Bioaccumulative and Toxic substances
- RID: Regulation concerning the International carriage of Dangerous goods by rail
- STOT: Specific Target Organ Toxicity
- TLV/TWA: Threshold Limit Value/Threshold Weighted Average
- vPvB: very Persistent, very Bioaccumulative

Restriction of use: None
Substance under authorisation: No

Disclaimer

The information in this SDS was obtained from sources which we believe to be reliable. Symbio provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate handling of the product by properly trained and qualified personnel. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.

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