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SECTION 1 IDENTIFICATION OF SUBSTANCE AND COMPANY

1.1. Substance identifier

Substance name:	<i>Ascophyllum nodosum, extract</i>
Product name:	Emerald Pro 30% Seaweed LC
CAS number:	84775-78-0
CAS name:	<i>Ascophyllum nodosum, ext.</i>
IUPAC name:	<i>Ascophyllum nodosum, extract</i>

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

Relevant use(s):	Plant strengthener/organic fertilizer/foliar spray for use in agriculture and horticulture.
Uses advised against:	There is no evidence of uses advised against.

1.3. Details of the supplier of the safety data sheet

Identification of the company (Manufacturer):

Agrigem Ltd

Gem House, Riverside Enterprise Park, Lincoln, Lincolnshire, LN1 2FU, UK

E-mail address of the competent person responsible for the Safety Data Sheet: sales@agrigem.co.uk

1.4. Emergency telephone number

Emergency telephone number (office hours): +44 (0) 1522 246491

Emergency Contact: Quality, Safety and Environmental Manager

Emergency Contact Times: Monday - Friday, 9am – 5pm (GMT)

SECTION 2 HAZARDS IDENTIFICATION

2.1 Classification of the substance

- Classification of the substance in accordance with Regulation (EC) n°. 1272/2008:

Hazard class	Class code and hazard category	Hazard statement	Hazard warning
Not classified			

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



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2.2 Label elements

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

<i>GHS Pictogram</i>	none
<i>Signal word</i>	none
<i>Hazard Statement</i>	none
<i>Precautionary Statement</i>	none
<i>Other information</i>	P332 + 313 If skin irritation occurs get medical advice/attention. P261: Avoid breathing dust/fumes/gas/mist/vapours/spray. P280: Wear protective gloves/protective clothing/eye protection/face protection. P102: Keep out of reach of children.

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

The substance does not fulfil the PBT and vPvB criteria.

Given the pH range of 8.0 – 10.0, the following applies:

Skin and eye: The substance may be irritant to skin and eye.

Metals: The substance may be corrosive to metals.

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Description:

<i>Name of the component</i>	<i>Ascophyllum nodosum</i> extract
<i>Concentration</i>	30% w/v soluble seaweed extract from <i>Ascophyllum nodosum</i> brown algae
<i>Structural formula</i>	Not applicable; <i>Ascophyllum nodosum</i> , ext. is an UVCB substance
<i>Substance with Community OEL</i>	NO
<i>CAS name</i>	<i>Ascophyllum nodosum</i> , ext.
<i>CAS number</i>	84775-78-0
<i>IUPAC name</i>	<i>Ascophyllum nodosum</i> , extract
<i>EC number</i>	700-983-2
<i>Index number</i>	n.a.

Note: Confidential business information has been omitted

Other information:

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

SECTION 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 rinsing. Get medical advice if adverse symptoms appear.



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- Skin contact:* Remove contaminated clothing. Wash affected area with soap or mild detergent and large amount of water. Get medical advice if adverse symptoms appear.
- Inhalation:* Move the person to fresh air. Get medical advice if adverse symptoms appear.
- Ingestion:* Rinse mouth thoroughly. Get medical advice if adverse symptoms 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.

SECTION 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. *media*

5.2 Special hazards arising from the substance

- *Hazardous combustion products* Thermal decomposition or combustion may generate toxic and hazardous fumes of CO_x, NO_x.

5.3 Advice for firefighters

- *Technical actions for protection* Don't try to extinguish the fire without an autonomous respiratory device (SCBA) and protective adapted clothes.



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- *Special protective equipment for firefighters* Wear boots, overalls, gloves, eye and face protection and breathing apparatus. 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.

SECTION 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 significant release to the environment avoid letting the substance reach drains, surface water, 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.

Small spills

May be washed to drain.

Large spills

Contain spill with sand, sawdust, absorbent clay or similar material. Sweep up and transfer material into labelled containers for transfer to a safe place for disposal. Flush the area with plenty of water when all the spillage has been removed. This product will stain concrete.

Drainage

Prevent the spillage from entering watercourses, sewers or drains if possible. Inform the authorities if there is a threat of gross contamination of water or if this has occurred.

6.4 Reference to other sections

See also section 8 and 13.



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SECTION 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 personal hygiene: | Do not eat, drink and smoke in the working areas.
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 3 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/foiar spray for use in agriculture and horticulture: avoid contact with eyes, skin and inhalation of the vapours/fume/gas/mist/spray/dust.

The substance is not classified as dangerous according to the criteria of the Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation; 1272/2008/EC); therefore according to Article 14(4) of the REACH regulation an exposure assessment and a risk characterization are not required.

SECTION 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. |



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- 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 equipment 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.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance:	Liquid
Colour:	Black/ brown
Odour:	Marine
Odour Threshold:	Not determined
pH:	8.0 – 10.0
Melting point:	Not determined
Initial Boiling Point/Boiling Range:	Not determined
Flash point:	Not available
Octanol-water partition coefficient:	Log P = 3.3 at 22 °C
Flammability:	Not flammable
Relative density:	1.14 – 1.16 at 20°C
Water solubility:	≥99.5% water soluble at 20 °C
Surface tension:	Not determined
Explosive properties:	Non explosive



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Oxidising properties: Evaporation Rate:	Non oxidizing
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:	Not determined

9.2. Other information

NA

SECTION 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

Thermal decomposition or combustion may generate toxic and hazardous fumes of CO_x, NO_x.



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SECTION 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.



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SECTION 12 ECOLOGICAL INFORMATION

12.1. Toxicity

Fish:

Danio rerio

LC₅₀: > 100 mg/L/96h (OECD Guideline 203 and EPA OPPTS 850.1075)

Aquatic invertebrates:

Daphnia Magna

IC₅₀: > 100 mg//48h (OECD Guideline 202 and EC 440/2008- Council regulation)

Algae and aquatic plants:

Selenastrum

EC₅₀ (yield rate): 60.35 mg/L/72 h (OECD Guideline 201)

capricornutum

EC₅₀ (growth rate): > 100 mg/L/72 h (OECD Guideline 201)

Terrestrial plants

Zea

% inhibition (28 d): ca. 3 kg/ha length (cm) (estimated) based on growth

mays

% 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

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.



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SECTION 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.

SECTION 14 TRANSPORT INFORMATION

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

SECTION 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.

SECTION 16 OTHER INFORMATION

Revision n.11 dated 28/07/2015 (First Edition in accordance with Annex I of Regulation 453/2010/EU)

Bibliographic sources:

Ascophyllum nodosum extract - Chemical Safety Report

Acronyms / Abbreviations

- 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
- cP: Centipoise
- DNEL: Derived No-Effect Level
- DOT Regulations: Department of Transport regulations (USA) -
- DSD: Dangerous Substances Directive (67/548/EEC)
- 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



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- NOAEL: No Observed Adverse Effect Level)
- OECD: Organisation for Economic Co-operation and Development
- OEL: Occupational Exposure Limit
- PNEC: Predicted No Effect Concentration
- PPE: Personal protective Equipment
- PBT: Persistent, Bioaccumulative and Toxic substances
- RID: Regulation concerning the International carriage of Dangerous goods by rail
- SCBA: Self-Contained Breathing Apparatus
- STOT: Specific Target Organ Toxicity
- TLV/TWA: Threshold Limit Value/Threshold Weighted Average
- UVCB: Substance of Unknown or Variable composition, Complex reaction products or Biological materials -
vPvB: very Persistent, very Bioaccumulative

Additional information (Precautionary statements):

P332 + 313 If skin irritation occurs get medical advice/attention

P261: Avoid breathing dust/fumes/gas/mist/vapours/spray

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P102: Keep out of reach of children.

Restriction of use: None

Substance under authorisation: No

DISCLAIMER

This document aims to provide guidance and precaution for appropriate handling by qualified personnel or operating under the supervision of personnel trained in handling chemicals. The product should not be used for purposes other than those mentioned in section 1, unless adequate written information is given on how to handle the material. The provider of this document can not provide any warnings about the dangers of use or interaction with other chemicals or materials. The user is responsible for the proper use of the product, he is also responsible to check that the product fits for purpose and its proper disposal. The information should not be considered a declaration or guarantee, either expressed or implied, of merchantability, fitness for a particular purpose, quality, or any other. The information contained in this SDS are in accordance with Regulation (EC) n° 1907/2006, (EC) n° 1272/2008.