

MATERIAL SAFETY DATA SHEET

I. PRODUCT IDENTIFICATION

TRADE NAME: ALGAMIN
SYNONYMS: SOLUBLE SEAWEED POWDER

II. HAZARDOUS INGREDIENTS

MATERIAL OR COMPONENT	%	HAZARD DATA
Dehydrated Seaweed Extract	94	Non-corrosive
Moisture	6	

III. PHYSICAL DATA

Boiling Point 760 MM HG	N/A	Melting Point N/A
Apparent Density	500 g pr. liter	Vapor Pressure N/A
Vapor Density (Air-1)	N/A	Solubility in water % by wt. - 100% at 20 C
% Volatiles by vol.	N/A	Evaporation rate (Butyl Acetate-1) N/A

Appearance and odor: Brown/black flaky powder
typical for processed seaweed.

Flash point. Glows only,
forms a (test method) crust,
not flammable. N/A

Autoignition
Temperature

Flammable limits in air, %
by vol. Lower N/A Upper N/A

Extinguishing Media Water/CO₂

Special fire fighting procedures - None

Unusual fire and explosion hazard - None

IV. BODY CONTACT HAZARDS

By inhalation: Gargle/rinse with water
By eye contact: Rinse with water/ordinary eye wash
By skin contact: Rinse with water
Special precautions: None

V. STORAGE AND TRANSPORT

Storage stability: Stable at normal temp. and light conditions.
Hygroscopic when exposed to air humidity.

Special storage
precautions: Very stable under normal storage conditions when kept in
closed original container.

Special transport
handling precautions: None

GENERAL CHARACTERISTICS:

COLOR: Dark brown to black.
PHYSICAL STATE: Flaky powder-
 approx. 15% - 60 mesh
 approx. 99% - 15 mesh
ODOR: Characteristic for processed seaweed.
pH: 9.1 in a 10% water solution.

TYPICAL COMPOSITION:

Moisture content: 4 - 5 %
Organic Matters: 50 - 55%
Mineral matter: 45 - 50%

TYPICAL MINERAL ANALYSIS:

Nitrogen (N)	1.00%	Boron (B)	80 ppm
Phosphorous (P ₂ O ₅)	0.05%	Copper (Cu)	5 ppm
Potassium (K ₂ O)	10.00%	Iron (Fe)	1,200 ppm
Calcium (Ca)	12,000 ppm	Manganese (Mn)	12 ppm
Magnesium (Mg)	8,000 ppm	Zinc (Zn)	100 ppm
Sulfur (S)	37,000 ppm		

<u>Compound</u>	<u>Concentration (g/15 ml H₂O)</u>	
Abscissic Acid (ABA)	0.02 z	(200 ppm)
Adenine (<i>Cytokinin</i>)	0.03 z	(300 ppm)
Indole acetic Acid (IAA)	0.05 y	(500 ppm)

z - Based on 1 g. dried *Ascophyllum Nodosum* concentrates in 15 ml. H₂O following extraction with ethyl acetate : pH 7.7

y - Based on 1 g. dried *Ascophyllum Nodosum* concentrates in 15 ml. H₂O following methanol extraction and partitioning with methylene chloride : pH 7.7

Gas liquid chromatographic retention times for several solutions of growth regulating substances extracted from *Ascophyllum nodosum*.

<u>Compound</u>	<u>Retention time (seconds)</u>
Adenine	65 - 100
Adenosine	325 - 340
Zeatin	275 - 285
2-IP	157 - 172
IAA	85 - 112
ABA	180 - 195

z - Extraction with ethyl acetate

y - Methanol extraction followed by partitioning with methylene chloride

CARBOHYDRATES AND ORGANIC ACIDS

Ascophyllum Nodosum supplies a wide range of carbohydrates including mannitol and organic acids. Mannitol is a known chelating agent and explains in part why seaweed can release unavailable trace elements already in the soil.

<u>Carbohydrates</u>	<u>wt. % based on dry wt. of Ascophyllum Nodosum</u>
Mannitol	4.2%
Alginic Acid	26.7%
Laminarin	9.3%
Other Sugars	21.4%