



PRODUCT SPECIFICATION	REVISION: 01
Seaweed Meal	

Latin Name:	Ascophyllum Nodosum
Trade Name:	Hebridean Seaweed Meal
Manufacturer:	Hebridean Seaweed Company Ltd
Appearance:	Green or Brown Powder
Dry Matter Content	86 - 94%
Storage:	Store in a Cool Dry Place

Nutritional analysis of Hebridean *Ascophyllum* seaweed meal:

1. Heavy metal and Iodine analysis (Tab. 1)

There appear to be no published guidelines for acceptable levels of heavy metals in sea vegetables for Ireland or UK.

The Health Council and National Medicine Academy of France have set the following levels:

- Lead  $\leq 5$  mg/kg
- Cadmium  $\leq 0.5$  mg/kg
- Mercury  $\leq 0.1$  mg/kg
- Arsenic  $\leq 3$  mg/kg
- in all cases, heavy metal levels in Hebridean *Ascophyllum* are below the recommended guidelines set in France
- Iodine levels are well below recommended intake levels.

**Table 1. Heavy metal analysis of *Ascophyllum nodosum***

Heavy metals	Units	Hebridean <i>Ascophyllum</i>
Lead	mg/kg	1.341
Cadmium	mg/kg	0.248
Mercury	mg/kg	0.005
Arsenic	g/100g	0.004
Iodine	g/100g	0.067

2. Amino acid analysis (Tab. 2)

- Hebridean *Ascophyllum* has a balanced amino acid profile in terms of its nutritional value.
- Of the 20 naturally occurring amino acids, 15 are present in a bound form and 4 in free form

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PRODUCT SPECIFICATION HSC002	REVISION: 01
SEAQUIM ELITE	

- 9 amino acids are deemed essential for nutrition and all are found present in Hebridean *Ascophyllum* with the exception of methionine
- Hebridean *Ascophyllum* has higher levels of free amino acids and some of these e.g. glutamic acid and alanine are important for flavour in seaweeds

**Table 2. Free and bound amino acid content of *Ascophyllum nodosum***

Hebridean <i>Ascophyllum</i>		
<b>Free amino acids</b>		
Cystine (free)	g/100g	
Aspartic acid (free)	g/100g	0.023
Threonine (free)	g/100g	0.034
Serine (free)	g/100g	
Glutamic acid (free)	g/100g	0.068
Proline (free)	g/100g	
Glycine (free)	g/100g	
alanine (free)	g/100g	0.047
Valine (free)	g/100g	
Isoleucine (free)	g/100g	
Leucine (free)	g/100g	
Tyrosine (free)	g/100g	
Phenylalanine (free)	g/100g	
Histidine (free)	g/100g	
Lysine (free)	g/100g	
Arginine (free)	g/100g	
Methionine (free)	g/100g	
Tryptophane (free)	g/100g	
<b>Acid hydrolysis</b>		
Alanine (AH)	g/100g	0.391
Aspartic acid (AH)	g/100g	0.720
Arginine (AH)	g/100g	0.243
Glutamic acid (AH)	g/100g	1.403
Glycine (AH)	g/100g	0.305
Histidine (AH)	g/100g	0.098
Isoleucine (AH)	g/100g	0.233
Leucine (AH)	g/100g	0.407
Lysine (AH)	g/100g	0.272
Phenylalanine (AH)	g/100g	0.266
Proline (AH)	g/100g	0.236
Serine (AH)	g/100g	0.266
Threonine (AH)	g/100g	0.283
Tyrosine (AH)	g/100g	0.144
Valine (AH)	g/100g	0.296
Ornithine (AH)	g/100g	

### 3. nutritional analysis (Tab. 3)

- in general the nutritional composition of Hebridean *Ascophyllum* fits within previously reported values for elsewhere
- Hebridean *Ascophyllum* is high in carbohydrates and fat and consequently high energy values
- Hebridean *Ascophyllum* is low in protein (at low end of reported range)

### 4. Key mineral analysis (Tab. 3)

- Hebridean *Ascophyllum* is high in calcium, iron, potassium and zinc
- Calcium, iron and potassium levels in particular are at the high end of those previously reported for North Atlantic *Ascophyllum*

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PRODUCT SPECIFICATION HSC002	REVISION: 01
SEAQUIM ELITE	

Table 3. Key nutritional and mineral content of *Ascophyllum nodosum*

Seaweeds	Hebridean Ascophyllum
per 100g dry weight	
Energy (k joules)	1195.00
Energy (k calories)	282.00
Total protein (g)	5.40
Total carbohydrate (g)	57.90
Total fat (g)	3.20
saturates (g)	0.60
monosaturates (g)	1.60
polyunsaturates (g)	0.88
trans fatty acids (g)	<0.10
Moisture (g)	11.60
Ash (g)	21.93
Calcium (g)	1.50
Iron (g)	0.07
Magnesium (g)	0.64
Potassium (g)	3.10
Sodium (g)	2.70
Zinc (mg/kg)	40

5. Dioxins & Furans 0.0048ng/Kg