



Analytical Services Ltd

UNIT 2 AIRSIDE, AIRPORT BUSINESS PARK, KILLOWEN , WATERFORD.

SEAWEED CHEMICAL ANALYSIS REPORT

Test Report Number: 14-04-2961

Algaran Teoranta
The Cashlings
Kilcar
Co. Donegal
Att : Rosaria Pisieri.

Date of Sample:	30-March-2014	Test Report Number:	14-04-2961
Date of Receipt:	31-March-2014	Sample Type:	Organic Irish Wakame Seaweed Sample
Date of Report:	30-April-2014	Sample Reference:	Batch # MC01014
Laboratory Ref. Number:	14-5061	Sample Presentation: Volume of sample :	Sealed Plastic Sample Bag. 148.50 grams

Abbreviations :

% Vol : percentage volume. % wt: percentage weight.
mg/L : milligrams per litre (ppm). ppm : parts per million or mg per litre.
mg/gs: milligrams per gram.

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PARAMETER/TEST	METHOD REF.	METHOD OF ANALYSIS	RESULTS	UNITS
Arsenic as As (Inorganic)	EN 15517 2008	Hydride Generation AAS	<0.0002	mg/Kg.
Arsenic as As (Arsenosugars)	EN 14332 2004	Graphite Furnace AAS	11.455	mg/Kg.
Antimony as Sb.	EN 13805 2002	Pressure Digestion AAS	<0.002	µg/Kg.
Cadmium as Cd.	EN 14084 2003	Microwave Digestion AAS	<0.005	µg/Kg.
Mercury as Hg.	EN13806 2002	Cold Vapour AAS	<0.0001	µg/Kg.
Lead as Pb.	EN 14084 2003	Microwave Digestion AAS	<0.002	µg/Kg.
Chromium as Cr.	EN 14083 2003	Graphite Furnace AAS	<0.005	µg/Kg.
Nickel as Ni.	EN 13805 2002	Pressure Digestion AAS	<0.002	µg/Kg.
Silver as Ag.	EN 13805 2002	Pressure Digestion AAS	<0.0001	µg/Kg.
Vanadium as V.	EN 14083 2003	Graphite Furnace AAS	<0.0003	µg/Kg.
Manganese as Mn.	EN 14804 2003	Microwave Digestion AAS	0.075	µg/Kg.
Tin as Sn.	EN 15506 2007	Flame AAS	<0.005	µg/Kg.

Iodine as I ₂	EN 15111 2005	IC-ICP Speciation	983	mg/Kg.
Selenium as Se.	EN 14627 2005	Hydride Generation AAS	1.200	mg/Kg.

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Aluminium as Al.	J.Ag.Food 55	ICP-OES	0.546	ppm.
Boron as B.	J.Ag.Food 55	ICP-OES	1.580	ppm.
Barium as Ba.	J.Ag.Food 55	ICP-OES	4.550	ppm.
Calcium as Ca.	J.Ag.Food 55	ICP-OES	17,991	ppm.
Chlorine as Cl ₂	J.Ag.Food 55	ICP-OES	28,150	ppm.
Cobalt as Co.	J.Ag.Food 55	ICP-OES	2.850	ppm.
Copper as Cu.	J.Ag.Food 55	ICP-OES	3.000	ppm.
Fluorine as F ₂	J.Ag.Food 55	ICP-OES	10.200	ppm.
Iron as Fe.	J.Ag.Food 55	ICP-OES	668	ppm.
Potassium as K.	J.Ag.Food 55	ICP-OES	12,330	ppm.
Magnesium as Mg.	J.Ag.Food 55	ICP-OES	1,785	ppm.
Phosphorus as P.	J.Ag.Food 55	ICP-OES	1,669	ppm.
Molybdenum as Mo.	J.Ag.Food 55	ICP-OES	10.000	ppm.
Nitrogen as N	J.Ag.Food 55	ICP-OES	578	ppm.
Sodium as Na.	J.Ag.Food 55	ICP-OES	33,124	ppm.
Sulphur as S.	J.Ag.Food 55	Calorimetry	1,146	ppm.
Silicon as Si.	J.Ag.Food 55	ICP-OES	678	ppm.
Strontium as Sr.	J.Ag.Food 55	ICP-OES	289	ppm.
Zinc as Zn.	J.Ag.Food 55	ICP-OES	25.465	ppm.
Bromine as Br ₂	J.Ag.Food 55	IC-ICP	< 0.002	ppm.

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Total Protein Content	JG-FT-012	Kjeldahl	10.215	% weight
Total Moisture Content	JG-FT-017	Karl Fischer	89.100	% volume
Total Carbohydrate Content	JG-FT-009	HPLD-PDA	31.5	% weight
Reducing Sugars	JG-FT-010	HPLD-PDA	3.875	% weight
Ash Content	JG-FT-036	Muffle Furnace	8.375	% weight
Crude Fibre Content	JG-FT-032	Digestion	0.818	% weight
Total Fat Content	JG-FT-019	Extraction	2.125	% weight
Omega 3/ Omega 6	JG-FT-022	HPLC-PDA	0.200	% weight
Saturates	JG-FT-026	HPLC-PDA	0.546	% weight
Monounsaturates	JG-FT-025	HPLC-PDA	0.300	% weight
Polyunsaturates	JG-FT-029	HPLC-PDA	1.080	% weight
Lipids	JG-FT-018	HPLC-PDA	0.812	% weight
Alginic acid	JG-FT-040	IC-UHPLC	8.660	% weight
Mannitol	JG-FT-042	IC-UHPLC	7.334	% weight
Laminarins	JG-FT-048	IC-UHPLC	6.231	% weight

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Vitamin A	Dionex 216	IC-UHPLC	7.250	ppb.
Vitamin B1	Dionex 216	IC-UHPLC	5.450	ppb.
Vitamin B2	Dionex 216	IC-UHPLC	17.600	ppb.
Vitamin B3	Dionex 216	IC-UHPLC	12.460	ppb.
Vitamin B6	Dionex 216	IC-UHPLC	5.900	ppb.
Vitamin B12	Dionex 216	IC-UHPLC	5.000	ppb.
Vitamin C	Dionex 216	IC-UHPLC	21.900	ppb.
Vitamin D	Dionex 216	IC-UHPLC	11.250	ppb.
Vitamin E	Dionex 216	IC-UHPLC	12.800	ppb.
Vitamin K	Dionex 216	IC-UHPLC	21.750	ppb.
Vitamin B5	Dionex 216	IC-UHPLC	10.485	ppb.
Folates	Dionex 216	IC-UHPLC	7.060	ppb.
Biotin	Dionex 216	IC-UHPLC	4.600	ppb.

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Alanine	ISO 13903	UHPLC	10.500	mg/100g
Arginine	ISO 13903	UHPLC	66.200	mg/100g
Cystine	ISO 13903	UHPLC	27.000	mg/100g
Glycine	ISO 13903	UHPLC	81.500	mg/100g
Proline	ISO 13903	UHPLC	127.700	mg/100g
Serine	ISO 13903	UHPLC	67.600	mg/100g
Taurine	ISO 13903	UHPLC	9.500	mg/100g
Thiamine	ISO 13903	UHPLC	9.250	mg/100g
Tyrosine	ISO 13903	UHPLC	19.670	mg/100g
Methionine	ISO 13903	UHPLC	15.000	mg/100g
Valine	ISO 13903	UHPLC	28.500	mg/100g
Iso-leucine	ISO 13903	UHPLC	19.600	mg/100g
Tryptophan	ISO 13903	UHPLC	11.700	mg/100g

Signed : _____ Technical Director

Dated : 30th. April 2014