

Certificate of Analysis

| Product Code: AFG | Batch No: 026/1407 AFG | Best Before: July 2018 |
|-----------------------------------|-----------------------------|--|
| Product Name: Seagreens® | Date of Analysis: July 2014 | Storage Conditions: |
| Ascophyllum nodosum Fine Granules | | Store in a cool dry place below 25°C |
| Species: Ascophyllum nodosum | | Harvesting/Processing Location: |
| species. Ascophynum nodosum | | Scotland (Isle of Lewis, Outer Hebrides) |
| Plant Part Utilised: Thallus | | Country of Origin: UK |

Plant Part Utilised: Thallus

| IdentificationMatches standardAscophyllum nodosumVisual inspectiveBulk Density $0.600-0.730$ $0.600-0.730$ Internal meParticle Size $<400 \ \mu$ m $<400 \ \mu$ mInternal meNutrition $<$ $<400 \ \mu$ mInternal meNutrition $<$ 8.7% UD000 ¹ Iodine790mg/kg (+/- 24%)* $820 \ mg/kg$ $ICP-MS^2$ (dry weight)(s919mg/kg dry weight)(898mg/kg dry weight) $ICP-MS^2$ Toxic Elements $<$ $<$ $<$ Arsenic (inorganic) $<1 \ mg/kg$ $0.38 \ mg/kg$ $ICP-MS^2$ Cadmium $<$ $<$ $<$ $<$ $<$ $<$ $0.3 \ mg/kg$ $ICP-MS^2$ Lead $<$ $2 \ mg/kg$ $0.3 \ mg/kg$ $ICP-MS^2$ Mercury $<$ $<$ $10,000 \ cfu/g$ $ICP-MS^2$ Microbiology $<$ $<$ $<$ $I0,000 \ cfu/g$ $IM273^2$ Coliforms $<$ $1000 \ cfu/g$ $Negative$ $UM174^2$ Yeast and Mould $<$ $1000 \ cfu/g$ $Negative$ $UM174^2$ Escherichia coliNot detected/gNegative $UM266^2$ SalmonellaNot detected/gNegative $UM266^2$ Staphylococcus aureusNot detected/10gNegative $UM666^2$ | Parameter | Specification | Results | Analytical Metho |
|---|------------------------|------------------|---------------------|--------------------------------|
| Bulk Density0.600-0.730Internal meParticle Size<400 µm | Description | | | Visual inspection ¹ |
| Particle Size<400 µmInternal meNutritionMoisture $\leq 14\%$ 8.7% UD006 ¹ Iodine790mg/kg (+/- 24%) ⁴ 820 mg/kgICP-MS ² Iodine790mg/kg (t+/- 24%) ⁴ 820 mg/kg dry weight)ICP-MS ² Iodine790mg/kg (r/- 24%) ⁴ 820 mg/kg dry weight)ICP-MS ² Iotic Elements $(\$98mg/kg dry weight)$ ICP-MS ² Arsenic (inorganic) ≤ 1 mg/kg 0.38 mg/kgICP-MS ² Cadmium ≤ 0.5 mg/kg 0.11 mg/kgICP-MS ² Lead ≤ 2 mg/kg 0.3 mg/kgICP-MS ² Mercury ≤ 0.1 mg/kg <0.01 mg/kgICP-MS ² MicrobiologyTotal Plate Count $\leq 10,000$ cfu/g 70 cfu/gUM273 ³ Coliforms ≤ 1000 cfu/g 200 cfu/gUM356 ³ Yeast and Mould ≤ 1000 cfu/gNegativeUM174 ⁴ Escherichia coliNot detected/gNegativeUM209 ³ SalmonellaNot detected/gNegativeUM209 ³ Staphylococcus aureusNot detected/gNegativeUM466 ³ | Identification | Matches standard | Ascophyllum nodosum | Visual inspection ¹ |
| NutritionNutritionMoisture $\leq 14\%$ 8.7% UD006 ¹ odine790mg/kg (+/- 24%)* 820 mg/kgICP-MSdry weight)(≤ 919 mg/kg dry weight)(898 mg/kg dry weight)ICP-MSCoxic Elements 38 mg/kgICP-MSCadmium ≤ 0.5 mg/kg0.11 mg/kgICP-MScada ≤ 2 mg/kg0.3 mg/kgICP-MS.ead ≤ 2 mg/kg0.3 mg/kgICP-MS.ead ≤ 2 mg/kg0.1 mg/kgICP-MS.forcbiology 0.000 cfu/gICP-MSTotal Plate Count $\leq 10,000$ cfu/g70 cfu/gUM273Coliforms ≤ 100 cfu/gNegativeUM159/ ceast and Mould ≤ 1000 cfu/gNegativeUM174Escherichia coliNot detected/gNegativeUM174SalmonellaNot detected/gNegativeUM209SalmonellaNot detected/gNegativeUM266Staphylococcus aureusNot detected/gNegativeUM469 | Bulk Density | 0.600-0.730 | 0.600-0.730 | Internal method ² |
| Moisture $\leq 14\%$ 8.7%UD006 ¹ lodine790mg/kg (+/- 24%) ⁴ 820 mg/kgICP-MS(dry weight)($\leq 919mg/kg dry weight$)($898mg/kg dry weight$)ICP-MSToxic Elements 1 mg/kg 0.38 mg/kgICP-MSCadmium ≤ 0.5 mg/kg 0.11 mg/kgICP-MSCadmium ≤ 0.5 mg/kg 0.11 mg/kgICP-MSLead ≤ 2 mg/kg 0.3 mg/kgICP-MSMercury ≤ 0.1 mg/kg 0.3 mg/kgICP-MSMicrobiology 1 mg/kg 0.1 mg/kg 0.1 mg/kgTotal Plate Count $\leq 10,000$ cfu/g70 cfu/gUM273 ¹ Coliforms ≤ 100 cfu/gNegativeUM159 ¹ Yeast and Mould ≤ 1000 cfu/gNegativeUM174 ¹ Escherichia coliNot detected/gNegativeUM209 ¹ SalmonellaNot detected/gNegativeUM209 ¹ SalmonellaNot detected/gNegativeUM209 ¹ SalmonellaNot detected/gNegativeUM209 ¹ Staphylococcus aureusNot detected/gNegativeUM666 ¹ | Particle Size | <400 µm | <400 µm | Internal method ¹ |
| Indefine790mg/kg (+/- 24%)4820 mg/kg (898mg/kg dry weight)ICP-MSIndefine(≤919mg/kg dry weight)(898mg/kg dry weight)ICP-MSIndefineImg/kg0.38 mg/kgICP-MSIndefine≤1 mg/kg0.38 mg/kgICP-MSCadmium≤0.5 mg/kg0.11 mg/kgICP-MSLead≤2 mg/kg0.3 mg/kgICP-MSMercury≤0.1 mg/kg<0.01mg/kg | Nutrition | | | |
| ICP-MSICP-MSICP-MSICP-MSICP-MSICP-MSICP-MSICP-MSArsenic (inorganic)≤1 mg/kg0.38 mg/kgICP-MSCadmium≤0.5 mg/kg0.11 mg/kgICP-MSLead≤2 mg/kg0.3 mg/kgICP-MSLead≤2 mg/kg0.3 mg/kgICP-MSMercury≤0.1 mg/kg<0.1 mg/kg | Moisture | ≤14% | 8.7% | UD006 ^{1, 3} |
| Arsenic (inorganic) $\leq 1 \text{ mg/kg}$ 0.38 mg/kg ICP-MSCadmium $\leq 0.5 \text{ mg/kg}$ 0.11 mg/kg ICP-MSLead $\leq 2 \text{ mg/kg}$ 0.3 mg/kg ICP-MSMercury $\leq 0.1 \text{ mg/kg}$ $< 0.01 \text{ mg/kg}$ ICP-MSMicrobiology $\leq 10.000 \text{ cfu/g}$ 70 cfu/g UM273Total Plate Count $\leq 1000 \text{ cfu/g}$ NegativeUM159Yeast and Mould $\leq 1000 \text{ cfu/g}$ 200 cfu/g UM356EnterobacteriaceaeNot detected/gNegativeUM174SalmonellaNot detected/l0gNegativeUM209Staphylococcus aureusNot detected/gNegativeUM666 | | 0 0 | 00 | ICP-MS ^{1,3} |
| Cadmium≤0.5 mg/kg0.11 mg/kgICP-MSLead≤2 mg/kg0.3 mg/kgICP-MSMercury≤0.1 mg/kg<0.01mg/kg | <u> Toxic Elements</u> | | | |
| Lead≤2 mg/kg0.3 mg/kgICP-MSMercury≤0.1 mg/kg<0.01mg/kg | Arsenic (inorganic) | ≤1 mg/kg | 0.38 mg/kg | ICP-MS ^{1,3} |
| Mercury≤0.1 mg/kg<0.01 mg/kgICP-MSMicrobiologyTotal Plate Count≤ 10,000 cfu/g70 cfu/gUM2731Coliforms≤ 100 cfu/gNegativeUM1591Yeast and Mould≤ 1000 cfu/g200cfu/gUM3561EnterobacteriaceaeNot detected/gNegativeUM1741Escherichia coliNot detected/gNegativeUM2091SalmonellaNot detected/10gNegativeUM6661Staphylococcus aureusNot detected/gNegativeUM4691 | Cadmium | ≤0.5 mg/kg | 0.11 mg/kg | ICP-MS ^{1,3} |
| Microbiology Total Plate Count ≤ 10,000 cfu/g 70 cfu/g UM273 ¹ Coliforms ≤ 100 cfu/g Negative UM159 ¹ Yeast and Mould ≤ 1000 cfu/g 200cfu/g UM356 ¹ Enterobacteriaceae Not detected/g Negative UM174 ¹ Escherichia coli Not detected/g Negative UM209 ¹ Salmonella Not detected/g Negative UM666 ¹ | Lead | ≤2 mg/kg | 0.3 mg/kg | ICP-MS ^{1,3} |
| Total Plate Count $\leq 10,000 \text{ cfu/g}$ 70 cfu/gUM273Coliforms $\leq 100 \text{ cfu/g}$ NegativeUM159Yeast and Mould $\leq 1000 \text{ cfu/g}$ 200cfu/gUM356EnterobacteriaceaeNot detected/gNegativeUM174Escherichia coliNot detected/gNegativeUM209SalmonellaNot detected/10gNegativeUM666Staphylococcus aureusNot detected/gNegativeUM469 | Mercury | ≤0.1 mg/kg | <0.01mg/kg | ICP-MS ^{1,3} |
| Coliforms $\leq 100 \text{ cfu/g}$ NegativeUM159Yeast and Mould $\leq 1000 \text{ cfu/g}$ 200cfu/gUM356EnterobacteriaceaeNot detected/gNegativeUM174Escherichia coliNot detected/gNegativeUM209SalmonellaNot detected/10gNegativeUM666Staphylococcus aureusNot detected/gNegativeUM469 | Microbiology | | | |
| Yeast and Mould $\leq 1000 \text{ cfu/g}$ 200cfu/gUM3561EnterobacteriaceaeNot detected/gNegativeUM1741Escherichia coliNot detected/gNegativeUM2091SalmonellaNot detected/10gNegativeUM6661Staphylococcus aureusNot detected/gNegativeUM4691 | Total Plate Count | ≤ 10,000 cfu/g | 70 cfu/g | UM273 ^{1, 3} |
| EnterobacteriaceaeNot detected/gNegativeUM1741Escherichia coliNot detected/gNegativeUM2091SalmonellaNot detected/10gNegativeUM6661Staphylococcus aureusNot detected/gNegativeUM4691 | Coliforms | ≤ 100 cfu/g | Negative | UM159 ^{1, 3} |
| Escherichia coliNot detected/gNegativeUM2091SalmonellaNot detected/10gNegativeUM6661Staphylococcus aureusNot detected/gNegativeUM4691 | Yeast and Mould | ≤ 1000 cfu/g | 200cfu/g | UM356 ^{1, 3} |
| SalmonellaNot detected/10gNegativeUM6661Staphylococcus aureusNot detected/gNegativeUM4691 | Enterobacteriaceae | Not detected/g | Negative | UM174 ^{1, 3} |
| SalmonellaNot detected/10gNegativeUM6661Staphylococcus aureusNot detected/gNegativeUM4691 | Escherichia coli | Not detected/g | Negative | UM209 ^{1, 3} |
| Staphylococcus aureus Not detected/g Negative UM469 ¹ | Salmonella | Not detected/10g | Negative | UM666 ^{1, 3} |
| | Staphylococcus aureus | Not detected/g | _ | UM469 ^{1, 3} |
| /ibrio spp. Not detected/g Negative UM706 ¹ | | - | | UM706 ^{1, 3} |

¹ Denotes tests performed every batch.

² Denotes tests performed on a monitoring only basis.



Contaminants/allergens

| Pesticide Residues | Not detected | Not detected | SP111/101 ^{2, 3} |
|-------------------------------------|--------------|--------------|---------------------------|
| Other Environmental Contaminants | Not detected | Not detected | JC00V ^{2, 3} |
| Histamine | Not detected | Not detected | C0320 ^{2, 3} |
| Crustacean DNA | Not detected | Not detected | UD01T ^{1, 3} |
| Mollusc DNA | Not detected | Not detected | UD02X ^{2, 3} |
| Fish DNA | Not detected | Not detected | UD01V ^{1,3} |
| Gluten / Gliadin | Not detected | Not detected | UD772 ^{1, 3} |

This is a natural product wild harvested from the sea and customers should satisfy themselves that it is suitable for their end use before any further manufacturing or packaging

Seagreens Human Food Seaweed[™] is produced to Seagreens proprietary standard (Patents Pending)

Approved and signed by Craig Rose, PhD MRes BSc (Hons)

EU and USA Organic and Kosher Certified



GB-ORG-06 / Registration no. 398



² Denotes tests performed on a monitoring only basis.