

EARTHCREW, INC.**REPORT OF ANALYSIS**For: (38612) EARTHCREW, INC
FEED ANALYSIS
FINISHED FEEDS

Analysis	Level Found		Units	Reporting		Analyst- Date	Verified- Date
	As Received	Dry Weight		Limit	Method		
Sample ID: KELP MEAL		Lab Number: 12617434					
Moisture	11.86	//////	%	0.01	AOAC 930.15 *	vrm7-2016/04/01	cde2-2016/04/06
Dry matter	88.14	//////	%	0.010	Calculation *	Auto-2016/04/11	Auto-2016/04/11
Protein (crude)	19.4	22.0	%	0.20	AOAC 990.03 *	cmw4-2016/04/01	cde2-2016/04/06
Fat (crude)	0.14	0.16	%	0.10	AOAC 945.16 *	kfl0-2016/04/01	cde2-2016/04/06
Fiber (acid detergent)	41.5	47.1	%	0.5	ANKOM Tech. Method *	cde2-2016/04/06	cde2-2016/04/06
Ash	28.5	32.3	%	0.10	AOAC 942.05 *	cde2-2016/04/06	cde2-2016/04/06
Total digestible nutrients	38.5	43.7	%	0.1	Calculation *	Auto-2016/04/04	Auto-2016/04/11
Net energy (lactation)	0.38	0.43	Mcal/lbs	0.01	Calculation *	Auto-2016/04/04	Auto-2016/04/11
Net energy (maint.)	0.34	0.39	Mcal/lbs	0.01	Calculation *	Auto-2016/04/04	Auto-2016/04/11
Net energy (gain)	0.17	0.19	Mcal/lbs	0.01	Calculation *	Auto-2016/04/04	Auto-2016/04/11
Digestible energy	0.77	0.87	Mcal/lbs	0.01	Calculation *	Auto-2016/04/04	Auto-2016/04/11
Metabolizable energy	0.70	0.80	Mcal/lbs	0.01	Calculation *	Auto-2016/04/04	Auto-2016/04/11
Carbohydrates (calculated)	40.1	45.5	%	0.10	Calculation *	Auto-2016/04/06	Auto-2016/04/11
Aspartic acid	1.68	1.91	%	0.01	AOAC 994.12 (Alt. III) *	slg7-2016/04/11	tjp8-2016/04/11
Threonine	0.94	1.07	%	0.01	AOAC 994.12 (Alt. III) *	slg7-2016/04/11	tjp8-2016/04/11
Serine	0.94	1.07	%	0.01	AOAC 994.12 (Alt. III) *	slg7-2016/04/11	tjp8-2016/04/11
Glutamic acid	2.19	2.48	%	0.01	AOAC 994.12 (Alt. III) *	slg7-2016/04/11	tjp8-2016/04/11
Proline	1.00	1.13	%	0.01	AOAC 994.12 (Alt. III) *	slg7-2016/04/11	tjp8-2016/04/11
Glycine	1.24	1.41	%	0.01	AOAC 994.12 (Alt. III) *	slg7-2016/04/11	tjp8-2016/04/11

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Alanine	1.28	1.45	%	0.01	AOAC 994.12 (Alt. III) *	slg7-2016/04/11	tjp8-2016/04/11
Cystine	0.25	0.28	%	0.01	AOAC 994.12 (Alt. I) *	tjp8-2016/04/11	tjp8-2016/04/11
Valine	1.15	1.30	%	0.01	AOAC 994.12 (Alt. III) *	slg7-2016/04/11	tjp8-2016/04/11
Methionine	0.34	0.39	%	0.01	AOAC 994.12 (Alt. I) *	tjp8-2016/04/11	tjp8-2016/04/11
Isoleucine	0.88	1.00	%	0.01	AOAC 994.12 (Alt. III) *	slg7-2016/04/11	tjp8-2016/04/11
Leucine	1.44	1.63	%	0.01	AOAC 994.12 (Alt. III) *	slg7-2016/04/11	tjp8-2016/04/11
Tyrosine	0.52	0.59	%	0.01	AOAC 994.12 (Alt. III) *	slg7-2016/04/11	tjp8-2016/04/11
Phenylalanine	0.95	1.08	%	0.01	AOAC 994.12 (Alt. III) *	slg7-2016/04/11	tjp8-2016/04/11
Lysine (total)	0.74	0.84	%	0.01	AOAC 994.12 (Alt. III) *	slg7-2016/04/11	tjp8-2016/04/11
Histidine	0.24	0.27	%	0.01	AOAC 994.12 (Alt. III) *	slg7-2016/04/11	tjp8-2016/04/11
Arginine	0.96	1.09	%	0.01	AOAC 994.12 (Alt. III) *	slg7-2016/04/11	tjp8-2016/04/11
Tryptophan	0.23	0.26	%	0.01	AOAC 988.15 (mod) *	aln9-2016/04/08	tjp8-2016/04/11
Aluminum (total)	1000	1130	mg/kg	5.0	EPA 6010 *	ras7-2016/04/04	kkh9-2016/04/05
Calcium (total)	95970	108900	mg/kg	20.0	EPA 6010 *	ras7-2016/04/04	kkh9-2016/04/05
Cobalt (total)	n.d.	n.d.	mg/kg	1.00	EPA 6010 *	ras7-2016/04/04	kkh9-2016/04/05
Copper (total)	4.8	5.4	mg/kg	1.0	EPA 6010 *	ras7-2016/04/04	kkh9-2016/04/05
Iron (total)	1276	1448	mg/kg	5.0	EPA 6010 *	ras7-2016/04/04	kkh9-2016/04/05
Lead (total)	n.d.	n.d.	mg/kg	5.0	EPA 6010 *	ras7-2016/04/04	kkh9-2016/04/05
Magnesium (total)	3161	3586	mg/kg	5.0	EPA 6010 *	ras7-2016/04/04	kkh9-2016/04/05

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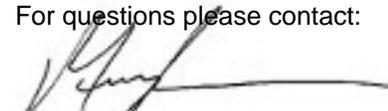
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Mercury (total)	0.024	0.027	ppm	0.010	EPA 7471 *	ccm2-2016/04/04	kkh9-2016/04/05
Molybdenum (total)	n.d.	n.d.	mg/kg	1.0	EPA 6010 *	ras7-2016/04/04	kkh9-2016/04/05
Phosphorus (total)	2518	2857	mg/kg	5.0	EPA 6010 *	ras7-2016/04/04	kkh9-2016/04/05
Potassium (total)	1529	1735	mg/kg	10.0	EPA 6010 *	ras7-2016/04/04	kkh9-2016/04/05
Zinc (total)	37.4	42.4	mg/kg	2.0	EPA 6010 *	ras7-2016/04/04	kkh9-2016/04/05
Sodium (total)	6366	7223	mg/kg	5.0	EPA 6010 *	ras7-2016/04/04	kkh9-2016/04/05

n.d. = not detected , ppm = parts per million, ppm = mg/kg

For questions please contact:


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13611 "B" Street • Omaha, Nebraska 68144-3693 • (402) 334-7770 • FAX (402) 334-9121
www.midwestlabs.com**EARTHCREW, INC.****REPORT OF ANALYSIS**

For: (38612) EARTHCREW, INC

FEED ANALYSIS

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Detailed Method Description(s)**Moisture**

Analysis follows MWL FD 016 which is based on AOAC 930.15. A sample is blended, mixed, or ground to obtain a homogenous sub-sample. The sample aliquot is placed in a pre-weighed tin, weighed to get a sample weight and then placed in a 135°C convection oven for two (2) hours. The sample is then removed, cooled in a desiccator and reweighed. The loss in weight is reported as % moisture

Calculation

Analytical results are entered into applicable formulas to provide a calculated result which is reported.

Protein (Crude)

Analysis follows MWL FD 070 which is based on AOAC 990.03. The sample is placed in a combustion instrument and the amount of nitrogen is obtained. The nitrogen value is multiplied by a factor of 6.25 and that value reported as crude protein.

Crude Fat

Analysis follows MWL FD 026 which is based on AOAC 945.16. The sample is extracted with drip immersion of the sample in petroleum (pet) ether. The pet ether is poured into a pre-weighed container and then evaporated. The container is re-weighed and the increase in weight is reported as crude fat

Acid Detergent Fiber

Analysis follows MWL FD 021 which is based on Ankom Technology method. The sample is sealed in a small bag and the bag immersed in a solution that dissolves certain materials. The bag is washed and dried and re-weighed. The material remaining in the bag is reported as acid detergent fiber

Ash

Analysis follows MWL FD 019 which is based on AOAC 942.05. The sample is weighed and placed in a muffle furnace at 600°C. After a period of time, the sample is removed and the remaining material weighed and reported as ash. Moisture and organic material is driven off.

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EARTHCREW, INC**REPORT OF ANALYSIS**For: (38612) EARTHCREW, INC
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A small amount of a homogenous sample is digested using a combination of heat and hydrochloric acid to break down the peptide bonds between the amino acids. The extract is treated to clean it up and then an aliquot is injected into the HPLC using a post-column derivatization apparatus and ninhydrin as the chromophore. This method cannot determine tryptophan. The amino acids cystine and methionine must undergo special treatment before they can be analyzed by this procedure.

AOAC 994.12 (Alt. I) - cystine & methionine

Sample analysis follows MWL HPLC 019 which is based on AOAC 994.12 (Alt I). A small amount of a homogenous sample initiall treated with performic acid to prevent oxidation of cystine and methionine and then this extract is digested using a combination of heat and hydrochloric acid to break down the peptide bonds between the amino acids. The extract is treated to clean it up and then an aliquot is injected into the HPLC using a post-column derivatization apparatus and ninhydrin as the chromophore.

AOAC 988.15 - tryptophan

Sample analysis follows MWL HPLC 025 which is based on AOAC 988.15. A small amount of a homogenous sample is hydrolyzed using a base (sodium hydroxide) and nitrogen blanketed extraction and heat. After the hydrolysis, the extract is cleaned-up and injected into the liquid chromatogram (LC) using a mass selective detector (LC/MS).

ME 042

Analysis follows MWL ME 042 which is based on EPA 6010b, Inductively Coupled Plasma (ICP).

A light emission technique where prepared samples are injected into a high energy plasma that forces the elements in the injected sample to emit light energies which are proportional to the level of minerals and metals present. The light is then detected and correlated to the levels of minerals and metals in the original sample.

ME 067

Samples are analyzed for mercury using MWL ME 067 which is based upon EPA 7471, cold vapor atomic absorption (CVAA).

Samples are prepared via MWL ME 037 that uses a series of digestion steps involving hot mineral acids and oxidizers so as to destroy organic matter and solubilize mercury. The mercury is reduced by use of stannous chloride to elemental mercury that is then aerated to the light path of a mercury light of an atomic absorption spectrometer (AAS). The absorption of the mercury light at 253.7 nm is then correlated to the level of mercury present in the original sample.

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