

**ORIGINATION INC
JILL FASER OR JOHN FALLIN
1300 MCKNIGHT RD N
MAPLEWOOD MN 55119**

REPORT OF ANALYSIS

For: (28415) ORIGINATION INC
K-CARB PLUS
FINISHED FEEDS

Analysis	Level Found		Units	Reporting		Analyst- Date	Verified- Date
	As Received	Dry Weight		Limit	Method		
Sample ID: K-CARB PLUS		Lab Number: 12327363					
Moisture	1.38	//////	%	0.01	AOAC 930.15 *	zlk8-2015/07/19	jpt1-2015/07/22
Dry matter	98.62	//////	%	0.010	Calculation *	Auto-2015/07/29	Auto-2015/07/29
Protein (crude)	0.40	0.43	%	0.20	AOAC 990.03 *	cmw4-2015/07/19	jpt1-2015/07/22
Fat (crude)	5.00	5.06	%	0.10	AOAC 945.16 *	kfl0-2015/07/19	jpt1-2015/07/22
Fiber (acid detergent)	n.d.	n.d.	%	0.5	ANKOM Tech. Method *	jpt1-2015/07/22	jpt1-2015/07/22
Ash	89.8	95.9	%	0.10	AOAC 942.05 *	vrn7-2015/07/22	jpt1-2015/07/22
Total digestible nutrients	8.0	8.6	%	0.1	Calculation *	Auto-2015/07/22	Auto-2015/07/29
Net energy (lactation)	0.04	0.04	Mcal/lbs	0.01	Calculation *	Auto-2015/07/22	Auto-2015/07/29
Net energy (maint.)	0.01	0.01	Mcal/lbs	0.01	Calculation *	Auto-2015/07/22	Auto-2015/07/29
Net energy (gain)	0.01	0.01	Mcal/lbs	0.01	Calculation *	Auto-2015/07/22	Auto-2015/07/29
Digestible energy	0.16	0.17	Mcal/lbs	0.01	Calculation *	Auto-2015/07/22	Auto-2015/07/29
Metabolizable energy	0.16	0.17	Mcal/lbs	0.01	Calculation *	Auto-2015/07/22	Auto-2015/07/29
Sulfur (total)	n.d.	n.d.	%	0.05	MWL ME PROC 26 *	cvs7-2015/07/19	mgn8-2015/07/22
Phosphorus (total)	n.d.	n.d.	%	0.05	MWL ME PROC 26 *	cvs7-2015/07/19	mgn8-2015/07/22
Potassium (total)	53.1	53.8	%	0.05	MWL ME PROC 26 *	cvs7-2015/07/19	mgn8-2015/07/22
Magnesium (total)	0.04	0.04	%	0.01	MWL ME PROC 26 *	cvs7-2015/07/19	mgn8-2015/07/22
Calcium (total)	0.27	0.29	%	0.01	MWL ME PROC 26 *	cvs7-2015/07/19	mgn8-2015/07/22
Sodium (total)	0.21	0.22	%	0.01	MWL ME PROC 26 *	cvs7-2015/07/19	mgn8-2015/07/22
Iron (total)	n.d.	n.d.	ppm	50.0	MWL ME PROC 26 *	cvs7-2015/07/19	mgn8-2015/07/22

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Manganese (total)	n.d.	n.d.	ppm	20.0	MWL ME PROC 26 *	cvs7-2015/07/19	mgn8-2015/07/22
Copper (total)	285	304	ppm	20.0	MWL ME PROC 26 *	cvs7-2015/07/19	mgn8-2015/07/22
Zinc (total)	67.9	72.5	ppm	20.0	MWL ME PROC 26 *	cvs7-2015/07/19	mgn8-2015/07/22
Lead (total)	n.d.	n.d.	mg/kg	5.0	EPA 6010 *	ras7-2015/07/23	bab2-2015/07/24
Cadmium (total)	n.d.	n.d.	mg/kg	0.50	EPA 6010 *	ras7-2015/07/23	bab2-2015/07/24
Arsenic (total)	n.d.	n.d.	mg/kg	10.0	EPA 6010 *	ras7-2015/07/23	bab2-2015/07/24
Antimony (total)	n.d.	n.d.	mg/kg	10	EPA 6010 *	ras7-2015/07/23	bab2-2015/07/24
Butyric (C4:0)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Caproic (C6:0)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Caprylic (C8:0)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Capric (C10:0)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Lauric (C12:0)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Tridecanoic (C13:0)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Myristic (C14:0)	0.14		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Myristoleic (C14:1 Trans)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Myristoleic (C14:1 Cis)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Pentadecanoic (C15:0)	0.01		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Palmitic (C16:0)	1.43		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Palmitelaidic (C16:1 Trans)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29

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Palmitoleic (C16:1 Cis)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Heptadecanoic (C17:0)	0.058		g/100g	0.010	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
10-Heptadecanoic (C17:1)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Stearic (C18:0)	3.45		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Eliadic (C18:1 Trans)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Oleic (C18:1 Cis)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Linolelaidic (C18:2 Trans)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Linoleic (C18:2 Cis)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
gamma-Linolenic (C18:3 gamma)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Nonadecanoic (C19:0)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
alpha-Linolenic (C18:3 alpha)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Arachidic (C20:0)	0.06		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
11-Eicosenoic (C20:1)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
11-14 Eicosadienoic (C20:2)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Homo-gamma linolenic (C20:3)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
11-14-17 Eicosatrienoic (C20:3)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Arachidonic (C20:4)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Eicosapentaenoic (C20:5)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Heneicosanoic (C21:0)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29

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	As Received	Dry Weight		Limit	Method		
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Behenic (C22:0)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Erucic (C22:1)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Docosadienoic (C22:2)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Docosapentaenoic (C22:5)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Docosahexaenoic (C22:6)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Tricosanoic (C23:0)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Lignoceric (C24:0)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Nervonic (C24:1)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Saturated fat (total)	4.98		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Polyunsaturated fats (total)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Monounsaturated fats (total)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Trans fatty acids (total)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Omega 3 fatty acids (total)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Omega 6 fatty acids (total)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Omega 9 fatty acids (total)	n.d.		g/100g	0.01	AOAC 996.06 *	-2015/07/23	tjp8-2015/07/29
Iodine (total)	0.78	0.83	ppm	0.10	USP <233>	cjm4-2015/07/24	bab2-2015/07/24
Selenium (total)	n.d.	n.d.	ppm	10.0	EPA 6010 *	ras7-2015/07/23	bab2-2015/07/24
Fiber (neutral detergent)	n.d.	n.d.	%	1.0	ANKOM Tech. Method *	sdh7-2015/07/22	jpt1-2015/07/22
NFE	n.d.		g/100g	1.00	Calculation *	Auto-2015/07/22	Auto-2015/07/29

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REPORT NUMBER

15-572-9675

REPORT DATE
July 29, 2015
RECEIVED DATE
July 18, 2015

SEND TO
28415



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ISSUE DATE
July 29, 2015

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Analysis	Level Found		Units	Reporting		Analyst- Date	Verified- Date
	As Received	Dry Weight		Limit	Method		

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

For questions please contact:

Sue Ann Seitz
Client Service Representative
sueann.seitz@midwestlabs.com (402)829-9892

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Detailed Method Description(s)**Moisture**

Analysis follows MWL FD PROC 16 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 oC 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

Fatty Acid Profile

Sample prep follows MWL HPLC PROC 08 and analysis follows HPLC PROC 04 which are both based on AOAC 996.06. The fat in the sample is extracted and saponified and the fatty acids methylated to form the fatty acid methyl esters (FAMES). The methyl ester extract (FAMES) is injected into a GC that uses a flame ionization detector (GC/FID). The response generated during analyses of the individual FAME is compared to standards which are used to quantitate the levels of fatty acids found in the sample. The standard reporting level is 0.01% of the fat.

ICP Analysis Fertilizers AOAC 985.01 (mod)

Analysis follows MWL ME PROC 26 which is based on AOAC 985.01. Samples have been prepared using MWL WC PROC 56 which is based on AOAC 957.02 using mineral acids and heat. Sample analysis involves moving the sample extract into the ICP where it is nebulized and introduced into the high temperature plasma which energizes the electrons of the dissolved minerals/metals. As the energized electrons of the minerals/metals return to ground state, energy is released as light. The emitted wavelength(s) and light intensities are used to identify and quantitate the minerals/metals in the sample

ME 042

Samples are digested using acid and heat and the extracts analyzed by EPA 6010 which the laboratory has referenced in MWL ME PROC 42. The determination of metal levels is based on introducing the sample aerosol into the plasma and when the excited elements return to ground state, specific wavelengths of light are emitted. The photon detection devices measures the intensity of individual wavelengths which is used for identification and quantitation.

Calculation

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

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K-CARB PLUS
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Analysis follows MWL FD PROC 21 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

Protein (Crude)

Analysis follows MWL FD PROC 70 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 PROC 26 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

Ash

Analysis follows MWL FD PROC 19 which is based on AOAC 942.05. The sample is weighed and placed in a muffle furnace at 600 oC. 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.

Fertilizer Prep AOAC 957.02

Samples are prepared using a combination of nitric acid and heat. The heating takes place in a block digester

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