

**BIOGREAUX
848 ORION AVE
METAIRIE LA 70005**

REPORT OF ANALYSIS
For: (35240) BIOGREAUX
NUTRIENT ANALYSIS

Analysis	Level Found	Units	Reporting	Method	Analyst- Date	Verified- Date
	As Received		Limit			
Sample ID: CRAB SHELL Lab Number: 2359804						
Phosphate (total P205)	3.69	%	0.10	MWL WC PROC 04	Auto-2015/01/21	mgn8-2015/01/22
Potash (K2O)	0.34	%	0.05	Calculation	Auto-2015/01/21	mgn8-2015/01/22
Nitrate-nitrogen	n.d.	%	0.01	WC PROC 32	kbj4-2015/01/21	mgn8-2015/01/22
Ammonium nitrogen (total)	0.037	%	0.001	AOAC 920.03 (mod)	jar4-2015/01/20	mgn8-2015/01/22
Humic acid	n.d.	%	0.10	Calif 4A 4/JC	acm2-2015/01/22	mgn8-2015/01/22
pH	8.54	S.U.	0.00	EPA 9045	rmm8-2015/01/19	mgn8-2015/01/22
Carbon (total)	23.26	%	0.050	ASTM D 5373 (mod)	jjb4-2015/01/21	mgn8-2015/01/22
Bulk density (packed)	0.63	g/cm ³	0.01	WT/VOL *	kbj4-2015/01/21	mgn8-2015/01/22
Sulfur (total)	0.25	%	0.05	MWL ME PROC 26	cvs7-2015/01/20	mgn8-2015/01/22
Calcium (total)	17.6	%	0.01	MWL ME PROC 26	cvs7-2015/01/20	mgn8-2015/01/22
Magnesium (total)	0.81	%	0.01	MWL ME PROC 26	cvs7-2015/01/20	mgn8-2015/01/22
Sodium (total)	0.70	%	0.01	MWL ME PROC 26	cvs7-2015/01/20	mgn8-2015/01/22
Iron (total)	900	ppm	50.0	MWL ME PROC 26	cvs7-2015/01/20	mgn8-2015/01/22
Boron (total)	n.d.	mg/kg	5.00	EPA 6010	ras7-2015/01/22	kkh9-2015/01/23
Manganese (total)	431	ppm	20.0	MWL ME PROC 26	cvs7-2015/01/20	mgn8-2015/01/22
Arsenic (total)	n.d.	mg/kg	10.0	EPA 6010	ras7-2015/01/22	kkh9-2015/01/23
Cadmium (total)	n.d.	mg/kg	0.50	EPA 6010	ras7-2015/01/22	kkh9-2015/01/23
Cobalt (total)	n.d.	mg/kg	1.00	EPA 6010	ras7-2015/01/22	kkh9-2015/01/23
Chromium (total)	2.44	mg/kg	1.00	EPA 6010	ras7-2015/01/22	kkh9-2015/01/23

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	As Received		Limit	Method		
Sample ID: CRAB SHELL	Lab Number: 2359804 (con't)					
Lead (total)	n.d.	mg/kg	5.0	EPA 6010	ras7-2015/01/22	kkh9-2015/01/23
Mercury (total)	n.d.	mg/kg	0.05	EPA 7471	ccm2-2015/01/21	kkh9-2015/01/23
Molybdenum (total)	n.d.	mg/kg	1.0	EPA 6010	ras7-2015/01/22	kkh9-2015/01/23
Nickel (total)	n.d.	mg/kg	1.0	EPA 6010	ras7-2015/01/22	kkh9-2015/01/23
Selenium (total)	n.d.	mg/kg	10.0	EPA 6010	ras7-2015/01/22	kkh9-2015/01/23
Zinc (total)	57.3	mg/kg	2.0	EPA 6010	ras7-2015/01/22	kkh9-2015/01/23
Copper (total)	22.6	mg/kg	1.0	EPA 6010	ras7-2015/01/22	kkh9-2015/01/23
Percent solids	92.13	%	0.01	SM 2540 G-(1997) *	bjs0-2015/01/21	cmw2-2015/01/21
Chloride	0.41	%	0.01	Soil Sci. & Plant Anal. 1970	acm2-2015/01/20	mgn8-2015/01/22
Total Kjeldahl nitrogen (TKN)	4.43	%	0.01	AOAC 2001.11	jar4-2015/01/21	mgn8-2015/01/22
Moisture	7.87	%	0.10	SM 2540 G-(1997)	bjs0-2015/01/21	mgn8-2015/01/22
Salmonella	n.d.	MPN/4g	0.01	EPA 1682	sjb1-2015/01/23	kej7-2015/01/23
Fecal coliforms	n.d.	MPN/g	2	EPA 1681	sjb1-2015/01/20	kej7-2015/01/20
Water insoluble nitrogen (WIN)	4.09	%	0.01	AOAC 945.01	jar4-2015/01/21	mgn8-2015/01/22
Water soluble nitrogen	0.34	%	0.01	Calculation	Auto-2016/11/03	acm2-2016/11/04
Organic nitrogen	4.39	%	0.01	Calculation	Auto-2016/11/03	Auto-2016/11/04

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REPORT NUMBER

15-023-4047 v4

REPORT DATE
Jul 24, 2017

SEND TO
35240

RECEIVED DATE
Jan 19, 2015



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ISSUE DATE
Jul 24, 2017

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

This report was reissued on 2017-07-24 15:33:16 by raf4 for the following reason:
company name.

All results are reported on an AS RECEIVED basis., n.d. = not detected , MPN = most probable number , ppm = parts per million, ppm = mg/kg

cc: Account(s) 35240 BIOGREAUX

For questions please contact:

Rob Ferris
Account Manager
rferris@midwestlabs.com (402)829-9871

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**REPORT OF ANALYSIS
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Detailed Method Description(s)

ICP Analysis Fertilizers AOAC 985.01 (mod)

Analysis follows MWL ME 026 which is based on AOAC 985.01. Samples have been prepared using MWL WC 056 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

WC PROC 32

The extraction phase is based on ASA (American Society of Agronomy) chapter 38 and uses potassium chloride as the extracting solution. The extract is analyzed by automated cadmium reduction based on EPA 353.2

AOAC 920.03 (mod)

Analysis follows WC 015 which is based on AOAC 920.03. A sample is placed in a distillation tube and a standard base added to convert ammonium to ammonia. The ammonia is distilled into an acid solution. The acid solution is titrated with a standard acid.

humic acid

Sample analysis follows MWL WC 059 which is based the California HA4/JC(revision 2: 3-11-09) procedure. Samples are dissolved by treatment with 1 N sodium hydroxide and then precipitated with hydrochloric acid. The resultant precipitate is dried and weighed and the result posted in %.

Carbon/nitrogen in coal ASTM D 5373 (mod)

Sample analysis follows MWL PR 263 which references ASTM D 5373 (modified). Samples are placed in a combustion instrument where carbon is oxidized in oxygen to produce carbon dioxide and nitrogen compounds are converted to elemental nitrogen and the levels determined. The modification indicated is the matrix analyzed is not part of the ASTM scope.

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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.

Chloride by Soil Sci. & Plant Anal. 1970

Sample analysis follows MWL WC 054 which is based on a method published in the 1970 volume of Soil Science and Plant Analysis pp 1-6. The sample is extracted with dilute sodium hydroxide and a silver chloride solution is used to titrate the extract to a potentiometric end point.

Total Kjeldahl Nitrogen (TKN)

Analysis follows MWL WC 048 which is based on AOAC 2001.11. Samples are placed in a Kjeldahl digest tube along with acid and a catalyst and placed in a hot block for digestion. After the samples are digested, they are placed on an automatic distillation/titration unit where ammonia-nitrogen levels are measured. The nitrogen result is multiplied by a factor (generally 6.25) to determine the level of protein in the sample

SM 2540 G

Analysis follows MWL WC 060 which is based on SM 2540 G. A sample is weighed placed in a vacuum drying oven to drive off the moisture and re-weighed. The sample is then placed in a muffle furnace at 550°C, cooled, and re-weighed. The residue remaining is the ash and the mass lost is the volatile matter.

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EPA 1682 - Salmonella

Sample analysis follows MWL MI 275 which is based on EPA 1682. Samples are homogenized and serial dilutions made into TSB (tryptic soy broth) and incubated at 35 degrees C. If tubes are turbid (positive) aliquots are added to MSR/V plates and incubated. If after incubation a white halo appears around the colony, confirmation is carried out on XLD, TSI, LIA, and urea broth. Final confirmation is agglutination by Salmonella Poly O.

Fecal Coliform EPA 1681

Sample analysis follows MWL MI 274 which is based on EPA 1681. A minimum of four (4) sample dilutions are required, while five (5) or more are preferred. Each sample is homogenized and serial dilutions are inoculated into five (5) test tubes containing A-1 medium and inverted vials. Sample tubes are incubated in an incubator at 35°C ± 0.5°C for 3 hours and then transferred to a water bath at 44.5°C ± 0.2°C. After 21 hours, tubes are examined for growth and gas production. Results of the MPN procedure are reported in terms of the most probable number (MPN/g) calculated from the number of positive A-1 culture tubes and percent total solids.

Nitrogen (water insoluble)

Sample analysis follows MWL WC 062 which is based on the sample preparation steps in AOAC 945.01 and the analysis of the filter residue by block digestion, distillation, and automated titration.

Calculation

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

AOAC 957.02 (P2O5 preparation)

Samples are treated with hydrochloric acid and nitric acid on a hot plate to destroy organic material and dissolve phosphate.

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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