

**CALCIUM PRODUCTS INC
CALCIUM PRODUCTS INC
2520 N LOOP DR STE 7100
AMES IA 50010-8279**

REPORT OF ANALYSIS

For: (7294) CALCIUM PRODUCTS INC
FW WATER TREATMENT

Analysis	Level Found		Reporting		Method	Analyst- Date	Verified- Date
	As Received	Units	Limit				
Sample ID: BY-PRODUCT LIME	Lab Number: 2859973	Date Sampled: 2018-10-02					
Moisture	22.9	%	0.1		SM 2540 G-(1997)	bjs0-2018/10/22	asl4-2018/10/22
Calcium (total)	17.7	%	0.01		MWL ME PROC 26	crs5-2018/10/20	asl4-2018/10/22
Magnesium (total)	1.21	%	0.01		MWL ME PROC 26	crs5-2018/10/20	asl4-2018/10/22
Total neutralizing value (CaCO3 eq)	58.2	%	0.1		AOAC 955.01	eas2-2018/10/22	asl4-2018/10/22
ECCE	55.8	%	0.1		Calculation	Auto-2018/10/23	Auto-2018/10/24
% passing 4 sieve	99.4	%	0.1		ASTM E 276-13 (mod)	jaj4-2018/10/23	asl4-2018/10/24
% passing 8 sieve	98.4	%	0.1		ASTM E 276-13 (mod)	jaj4-2018/10/23	asl4-2018/10/24
% passing 20 sieve	97.1	%	0.1		ASTM E 276-13 (mod)	jaj4-2018/10/23	asl4-2018/10/24
% passing 30 sieve	95.6	%	0.1		ASTM E 276-13 (mod)	jaj4-2018/10/23	asl4-2018/10/24
% passing 60 sieve	94.0	%	0.1		ASTM E 276-13 (mod)	jaj4-2018/10/23	asl4-2018/10/24
% passing 80 sieve	92.8	%	0.0		ASTM E 276-13 (mod)	jaj4-2018/10/23	asl4-2018/10/24
% passing 100 sieve	92.0	%	0.1		ASTM E 276-13 (mod)	jaj4-2018/10/23	asl4-2018/10/24
% passing 200 sieve	89.6	%	0.1		ASTM E 276-13 (mod)	jaj4-2018/10/23	asl4-2018/10/24
% retained pan	89.6	%	0.1		ASTM E 276-13 (mod)	jaj4-2018/10/23	asl4-2018/10/24
Mercury (total)	n.d.	mg/kg	0.05		EPA 7471	ccm2-2018/10/23	bab2-2018/10/24
Zinc (total)	26.2	mg/kg	2.0		EPA 6010	ras7-2018/10/22	bab2-2018/10/24
Selenium (total)	n.d.	mg/kg	5.0		EPA 6010	ras7-2018/10/22	bab2-2018/10/24
Lead (total)	n.d.	mg/kg	5.0		EPA 6010	ras7-2018/10/22	bab2-2018/10/24
Nickel (total)	6.0	mg/kg	1.0		EPA 6010	ras7-2018/10/22	bab2-2018/10/24

The result(s) issued on this report only reflect the analysis of the sample(s) submitted.

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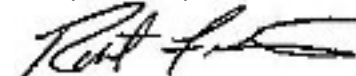
Analysis	Level Found	Units	Reporting		Analyst- Date	Verified- Date
	As Received		Limit	Method		
Sample ID: BY-PRODUCT LIME	Lab Number: 2859973 (con't)					
Molybdenum (total)	n.d.	mg/kg	1.0	EPA 6010	ras7-2018/10/22	bab2-2018/10/24
Cobalt (total)	2.15	mg/kg	1.00	EPA 6010	ras7-2018/10/22	bab2-2018/10/24
Cadmium (total)	n.d.	mg/kg	0.50	EPA 6010	ras7-2018/10/22	bab2-2018/10/24
Arsenic (total)	n.d.	mg/kg	5.0	EPA 6010	ras7-2018/10/22	bab2-2018/10/24
Aluminum (total)	3530	mg/kg	5.0	EPA 6010	ras7-2018/10/23	bab2-2018/10/24

Sample(s) was prepared for EPA 6010 analysis by EPA 3050b.

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

cc: Account(s) 29154 EFC EMAILING

For questions please contact:



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Detailed Method Description(s)**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.

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. Total minerals in fertilizers have been prepared by AOAC 957.02 using mineral acids and heat. Water soluble manganese is prepared by AOAC 972.03 and the other water soluble by AOAC 977.01. 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

AOAC 955.01

Analysis follows MWL WC 039 which is based on AOAC 955.01. A sample is treated with an excess of acid and then back-titrated with a known base to a phenolphthalein end point

Calculation

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

Wet Sieve

Sample analysis follows MWL WC 070 which is based on ASTM E 276. A known mass of a solid is obtained and a pre-determined set of sieves obtained. The sample is placed on the upper most (largest screen size) and the sample washed with water to wash the materials through the sieves. The material retained on the individual sieves is removed and weighed and the percent of the total passing through the sieve is calculated and reported.

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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.

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.

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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