

Test Certificate

Description: Fulvic-Humic Minerals
Sample ID: MSM-1-00319B
Lot No: MSM-1-00319B
Part Code:
Location:
PO No:
Received: 1/7/2019

Client: Morningstar Minerals
P.O. Box 9
Farmington, NM 87499

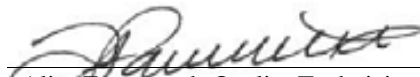
Lab No: 164030-01
Completed: 1/17/2019

Analysis	Result	Per Unit	Method
Aluminum	13.95	ppm	ICP-OES USP <730>
Antimony	0.566	ppm	ICP-OES USP <730>
Arsenic	0.006	ppm	ICP-MS USP <730>
Barium	0.711	ppm	ICP-OES USP <730>
Beryllium	0.724	ppm	ICP-OES USP <730>
Bismuth	<0.5	ppm	ICP-OES USP <730>
Boron	8.59	ppm	ICP-OES USP <730>
Cadmium	0.001	ppm	ICP-MS USP <730>
Calcium	115	ppm	ICP-OES USP <730>
Cerium	0.030	ppm	ICP-MS USP <730>
Cesium	<0.001	ppm	ICP-MS USP <730>
†Chloride	102	ppm	USP <221> Titration
Chromium	<0.5	ppm	ICP-OES USP <730>
Cobalt	<0.5	ppm	ICP-OES USP <730>
Copper	<0.5	ppm	ICP-OES USP <730>
Dysprosium	0.002	ppm	ICP-MS USP <730>
Erbium	0.001	ppm	ICP-MS USP <730>
Europium	0.001	ppm	ICP-MS USP <730>
†Fluoride	0.24	ppm	AOAC 939.11

THESE RESULTS APPLY ONLY TO THE SAMPLE SUBMITTED AND NOT TO THE PRODUCT FROM WHICH IT WAS TAKEN. THESE RESULTS ARE PROVIDED ONLY FOR THE BENEFIT OF CLIENT, WITHOUT REPRESENTATION OR WARRANTY OF ANY KIND, EXCEPT FOR THE EXPRESS LIMITED WARRANTY PROVIDED SOLELY TO CLIENT IN ADVANCED LABORATORIES' TERMS OF SERVICE.

THIS CERTIFICATE SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT WRITTEN APPROVAL FROM ADVANCED LABORATORIES.

Results Approved By:


Alisa Farnsworth-Quality Technician

Dated: 1/17/2019

Tests marked with † were done at Atlas Bioscience Labs, LLC, a joint venture with Advanced Laboratories. -
1775 S. Pantano Rd - Ste #110, Tucson, AZ 85710

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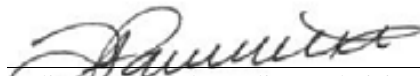
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Analysis	Result	Per Unit	Method
Gadolinium	0.003	ppm	ICP-MS USP <730>
Gallium	0.072	ppm	ICP-MS USP <730>
Germanium	0.007	ppm	ICP-MS USP <730>
Gold	<0.5	ppm	ICP-OES USP <730>
Hafnium	<0.001	ppm	ICP-MS USP <730>
Holmium	<0.001	ppm	ICP-MS USP <730>
Indium	<0.001	ppm	ICP-MS USP <730>
†Iodine	0.09	ppm	Titration
Iridium	<0.001	ppm	ICP-MS USP <730>
Iron	6.76	ppm	ICP-OES USP <730>
Lanthanum	<0.5	ppm	ICP-OES USP <730>
Lead	0.024	ppm	ICP-MS USP <730>
Lithium	<0.5	ppm	ICP-OES USP <730>
Lutetium	<0.001	ppm	ICP-MS USP <730>
Magnesium	11.25	ppm	ICP-OES USP <730>
Manganese	<0.5	ppm	ICP-OES USP <730>
Mercury	0.001	ppm	ICP-MS USP <730>
Molybdenum	<0.5	ppm	ICP-OES USP <730>
Neodymium	0.013	ppm	ICP-MS USP <730>

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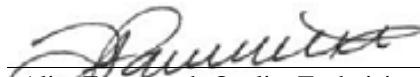
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Analysis	Result	Per Unit	Method
Nickel	<0.5	ppm	ICP-OES USP <730>
Niobium	0.715	ppm	ICP-OES USP <730>
Osmium	0.001	ppm	ICP-MS USP <730>
Palladium	0.092	ppm	ICP-MS USP <730>
Phosphorus	<0.5	ppm	ICP-OES USP <730>
Platinum	<0.001	ppm	ICP-MS USP <730>
Potassium	289	ppm	ICP-OES USP <730>
Praseodymium	0.003	ppm	ICP-MS USP <730>
Rhenium	<0.001	ppm	ICP-MS USP <730>
Rhodium	<0.001	ppm	ICP-MS USP <730>
Rubidium	0.046	ppm	ICP-MS USP <730>
Ruthenium	<0.001	ppm	ICP-MS USP <730>
Samarium	0.002	ppm	ICP-MS USP <730>
Scandium	<0.001	ppm	ICP-MS USP <730>
Selenium	<0.5	ppm	ICP-OES USP <730>
Silicon	<0.5	ppm	ICP-OES USP <730>
Silver	5.08	ppm	ICP-OES USP <730>
Sodium	17.46	ppm	ICP-OES USP <730>
Strontium	<0.5	ppm	ICP-OES USP <730>

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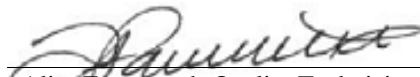
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Sulfur	62.1	ppm	ICP-OES USP <730>
Tantalum	<0.001	ppm	ICP-MS USP <730>
Tellurium	<0.5	ppm	ICP-OES USP <730>
Terbium	<0.001	ppm	ICP-MS USP <730>
Thallium	<0.5	ppm	ICP-OES USP <730>
Thorium	<0.5	ppm	ICP-OES USP <730>
Thulium	<0.001	ppm	ICP-MS USP <730>
Tin	0.012	ppm	ICP-MS USP <730>
Titanium	1.43	ppm	ICP-OES USP <730>
Tungsten	1.47	ppm	ICP-OES USP <730>
Vanadium	<0.5	ppm	ICP-OES USP <730>
Ytterbium	0.002	ppm	ICP-MS USP <730>
Yttrium	<0.5	ppm	ICP-OES USP <730>
Zinc	0.675	ppm	ICP-OES USP <730>
Zirconium	<0.5	ppm	ICP-OES USP <730>
†Fulvic Acid	0.864	%	Modified Larry G. Butler
†Humic Acid	0.225	%	Modified Larry G. Butler

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 Email: utlab@advancedlabsinc.com
FDA Registration #3006423386

If you liked our service, please tell a friend. If you didn't, please tell us!

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Humic Acid analysis performed pre and post hydrolysis on a SEC column with isocratic mobile phase of 5 mM boric acid (pH 7.0 adjusted by 10 mM NaOH) and elution on a TSKgel G3000SWXL (300 x 8.5 mm) with PDA detection. Authentic humic acid reference material obtained from Sigma-Aldrich

Fulvic Acid analyzed as total vanillin-catechin conjugates using modified methodology of Larry G. Butler et al., "Vanillin Assay for Proanthocyanidins [Condensed Tannins]: Modification of the solvent for Estimation of the degree of Polymerization" as published in J. Agric. Food Chem., 30, 1087-1089, vanillin reagent prepared as 750ml with 15g ammonium iron sulfate in n-butanol/hydrochloric acid (95:5). For the determination of total catechin on 2% sol of initial extract in a 50ml volumetric flask containing 25ml of methanol; 2.5ml of Vanillin reagent added and heated to 95°C for 40mins after cooling diluted to volume with methanol, the absorbance of both the standard solutions and sample is measured at 550nm. Authentic reference material obtained from Sigma-Aldrich.

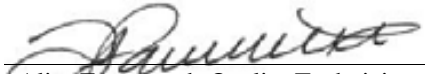
Chloride <221> titration procedure with AgNO3 precipitation reaction.

Fluoride AOAC 939.11.

Iodine analysis performed by sodium 0.1N thiosulfate titration of acidified digest centrifuged supernatant. Starch indicator solution was used to determine the end-point of the titration. Reagents employed were obtained from Sigma-Aldrich.

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