

Analytical Report

Bill To: CETCO Drilling Products
Report To: CETCO Drilling Products
2870 Forbs Avenue
Hoffman Estates, IL, United
60192
Attn: Rick Hennessey
Sampled By:
Company:

Project:
ID:
Name: Cetco - Product Testing
Location:
LSD:
P.O.:
Acct code:

Lot ID: **1009156**
Control Number:
Date Received: Jun 19, 2014
Date Reported: Aug 27, 2014
Report Number: 1943382

Reference Number 1009156-6
Sample Date
Sample Time
Sample Location
Sample Description Supergel-X
Sample Matrix Pure Product

Analyte	Units	Result	Nominal Detection Limit
Hot Water Soluble			
Boron	Hot Water Soluble mg/kg	<4.0	0.2
Metals Strong Acid Digestion			
Mercury	Strong Acid mg/kg	0.01	0.01
Antimony	Extractable Strong Acid mg/kg	<0.2	0.2
Arsenic	Extractable Strong Acid mg/kg	3.1	0.2
Barium	Extractable Strong Acid mg/kg	279	1
Beryllium	Extractable Strong Acid mg/kg	1.5	0.1
Cadmium	Extractable Strong Acid mg/kg	0.41	0.01
Chromium	Extractable Strong Acid mg/kg	1.6	0.5
Cobalt	Extractable Strong Acid mg/kg	4.7	0.1
Copper	Extractable Strong Acid mg/kg	4.5	1
Lead	Extractable Strong Acid mg/kg	27.7	5
Molybdenum	Extractable Strong Acid mg/kg	1.5	1
Nickel	Extractable Strong Acid mg/kg	13.4	0.5
Selenium	Extractable Strong Acid mg/kg	0.4	0.3
Silver	Extractable Strong Acid mg/kg	0.2	0.1
Thallium	Extractable Strong Acid mg/kg	0.17	0.05
Tin	Extractable Strong Acid mg/kg	1.7	1
Uranium	Extractable Strong Acid mg/kg	5.3	0.5
Vanadium	Extractable Strong Acid mg/kg	9.3	0.1
Zinc	Extractable Strong Acid mg/kg	71	1
Microtox			
Threshold Level	kg/m ³	37.8	
EC50, product	15 minutes % Sample	6.30	

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Reference Number	1009156-6
Sample Date	
Sample Time	
Sample Location	
Sample Description	Supergel-X
Sample Matrix	Pure Product

Analyte	Units	Result	Nominal Detection Limit
Microtox - Continued			
EC50, product	5 minutes	% Sample	8.13
EC20, product	15 minutes	% Sample	2.42
EC20, product	5 minutes	% Sample	3.24
Lab Treatment		None	
Colour	As Received	Other	
Colour	As Tested	Pale Yellow	
95% Confidence Factor	(EC50 - 15 Minutes)	1.4	
95% Confidence Factor	(EC50 - 5 Minutes)	1.3	
95% Confidence Factor	(EC20 - 15 Minutes)	1.3	
95% Confidence Factor	(EC20 - 5 Minutes)	1.2	
Colour Corrected Data		No	
Barite Soil Analysis			
Barium	Extractable	mg/kg	12
			0.05

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Lot ID: **1009156**
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Reference Number 1009156-8
Sample Date
Sample Time
Sample Location
Sample Description Supergel-X 50 kg/m3
Sample Matrix Pure Product

Analyte	Units	Result	Nominal Detection Limit
Microtox			
Interpretation (ERCB D050)		Pass	
EC50	15 minutes %	>100	
EC50	5 minutes %	>100	
EC20	15 minutes %	48	
EC20	5 minutes %	65	
Lab Treatment		None	
Colour	As Tested	Clear	
Turbidity	As Tested	None	
Colour Corrected Data		No	

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Attn: Rick Hennessey	P.O.:	
Sampled By:	Acct code:	
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Reference Number	1009156-12
Sample Date	
Sample Time	
Sample Location	
Sample Description	Supergel-X 50 kg/m3
Sample Matrix	Pure Product

Analyte	Units	Result	Nominal Detection Limit
Microtox			
Interpretation (ERCB D050)		Pass	
EC50	15 minutes %	>100	
EC50	5 minutes %	>100	
EC20	15 minutes %	87	
EC20	5 minutes %	94	
Lab Treatment		None	
Sample Type		Sump Liquid	
pH	Clarified Sample-Initial	9.9	
Turbidity	As Received	High	
Colour	As Received	Brown	
Colour	As Tested	Clear	
Turbidity	As Tested	None	
pH	Clarified Sample-Final	7.3	
Colour Corrected Data		No	

Approved by: 
Anthony Neumann, MSc
Laboratory Operations Manager

Data have been validated by Analytical Quality Control and Exova's Integrated Data Validation System (IDVS).

Generation and distribution of the report, and approval by the digitized signature above, are performed through a secure and controlled automatic process.

Methodology and Notes

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Method of Analysis

Method Name	Reference	Method	Date Analysis Started	Location
Barium (Extractable) in soil (0.1 M CaCl ₂)	Ab Env	Analytical Method for Extractable Barium, 6.6.2	20-Jun-14	Exova Edmonton
Boron in general soil	McKeague	* Hot Water Soluble Boron - Azomethine-H Method, 4.61	20-Jun-14	Exova Edmonton
Mercury (Hot Block) in Soil	US EPA	* Determination of Hg in Sediment by Cold Vapor Atomic Absorption Spec, 245.5	20-Jun-14	Exova Edmonton
Metals ICP-MS (Hot Block) in soil	SW-846	* Acid Digestion of Sediments, Sludges, and Soils, EPA 3050B	20-Jun-14	Exova Edmonton
Microtox-15 Minute Multiple Concentration, EC50	Environment Canada	* Biological Test Method: Toxicity Test Luminescent Bacteria, 1/RM/24	04-Jul-14	Exova Edmonton
Microtox-15 Minute Multiple Concentration, EC50	Environment Canada	* Biological Test Method: Toxicity Test Luminescent Bacteria, 1/RM/24	11-Jul-14	Exova Edmonton
Microtox-Product 15 Minute Multiple Concentration Bioassay	Environment Canada	* Biological Test Method: Toxicity Test Luminescent Bacteria, 1/RM/24	23-Jun-14	Exova Edmonton

* Reference Method Modified

References

Ab Env	Alberta Environment, Soil Quality Guidelines for Barite
Environment Canada	Toxicity Test Using Luminescent Bacteria
McKeague	Manual on Soil Sampling and Methods of Analysis
SW-846	Test Methods for Evaluating Solid Waste
US EPA	US Environmental Protection Agency Test Methods

Comments:

- Reports were re-issued to include the results of each product on a single report as requested by Rick Hennessey on August 26, 2014.

Please direct any inquiries regarding this report to our Client Services group.

Results relate only to samples as submitted.

The test report shall not be reproduced except in full, without the written approval of the laboratory.