

Keika Ventures

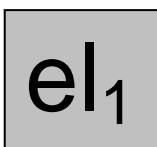
PO Box 4704
Chapel Hill, NC 27515

Project No: MXA100110

Hydrogen Cyanide

CARB Method 426 Analysis

Analytical Report
15377



Element One, Inc.
5022-C Wrightsville Av., Wilmington, NC 28403
910-793-0128 FAX: 910-792-6853 e1lab@e1lab.com

The following data for Analytical Report 15377
has been reviewed for completeness, accuracy,
adherence to method protocol,
and compliance with quality assurance guidelines.

Review by:

A handwritten signature in black ink, appearing to read "Daphne Woodman".

Daphne Woodman, Chemist
October 13, 2010

Report Reviewed and Finalized By:

A handwritten signature in black ink, appearing to read "Ken Smith".

Ken Smith, Laboratory Director
October 13, 2010

SUMMARY OF RESULTS

Summary of Analysis

Summary of CARB Method 426 Cyanide Analysis

Element	Run 1 e15377-1 Total µg	Run 2 e15377-2 Total µg	Run 2 e15377-2 dup Total µg	Run 3 e15377-3 Total µg	Reagent Blank e15377-4 Total µg
Cyanide	2057	1682	1637	1797	< 2.6
FV, mL	700	690	690	690	520

ANALYTICAL NARRATIVE

Element One Analytical Narrative

Client:	Keika Ventures	Element One #:	15377
Client ID:	Maxxam	Analyst:	MBM
Method:	CARB 426	Dates Received:	10/01/10
Analytes:	Hydrogen Cyanide	Dates Analyzed:	10/11-12/10

Summary of Analysis

The samples were prepared and analyzed in accordance with CARB Method 426 protocol. Beginning volumes were obtained for all sample fractions. Sample filters were then sonicated for 30 minutes after addition of 35 mL of 1.25 N NaOH followed by combination of all fractions of each sample. Aliquots of the samples were distilled on a Midi-Stil distillation unit. Samples were then colored and read on a HACH DR/2800 Spectrophotometer.

Detection Limits

The analytical reporting limit for cyanide is 0.005mg/L.

Analysis QA/QC

Duplicate analyses relative percent difference (RPD) and spike recovery data are summarized in the Quality Control section. All QA/QC data was within the criteria of the method.

Additional Comments

The reported results have not been corrected for any blank values or spike recovery values. Samples were preserved in 0.1 N NaHCO₃.

QUALITY CONTROL SUMMARY

Summary of Quality Control Data

Cyanide Duplicate Analysis RPD and Spike Recoveries

(Laboratory QC limits: <10% for RPD and $\pm 10\%$ for Spike Recoveries)

Element	Run 2 RPD	Run 3 Recovery
Cyanide	2.7%	90%

SAMPLE CUSTODY

15377

Send Report & invoice to Lori White (a Keika)

Element One, Inc.
ATTN: Paula Smith
5022-C Wrightsville Ave.
Wilmington, NC 28403
Tel.: 910-793-0128

Chain of Custody Record

From, Maxxam Analytical / Keika
5555 North Service Rd
Burlington Ontario Canada L7L 5H7
(905) 332-8788
Attn: A. Sebastian (905) 332-9169 fx

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DUE DATE

Final

Pls fax /email results by 10/08/10.

Sample Identification	Sample Type	Sample Vol (mls)	Container Type	Size	Date	Sampling Information	Reagents and/or Preservatives	Lab ID #
Run 1, cont 1, filler	1 G	50	1 G	250	9/14/2010	JMC	0.1N Sodium Bicarbonate	
Run 1, cont 2, P&N rinse	1 G	50	1 G	250	9/14/2010	JMC	0.1N Sodium Bicarbonate	
Run 1, cont 3, imp rinse	1 G	180	1 G	250	9/14/2010	JMC	0.1N Sodium Bicarbonate	
Run 1, cont 4, impingers	1 G	379	1 G	500	9/14/2010	JMC	0.1N Sodium Bicarbonate	
Run 2, cont 1, filler	1 G	50	1 G	250	9/14/2010	JMC	0.1N Sodium Bicarbonate	
Run 2, cont 2, P&N rinse	1 G	58	1 G	250	9/14/2010	JMC	0.1N Sodium Bicarbonate	
Run 2, cont 3, imp rinse	1 G	180	1 G	250	9/14/2010	JMC	0.1N Sodium Bicarbonate	
Run 2, cont 4, impingers	1 G	367	1 G	500	9/14/2010	JMC	0.1N Sodium Bicarbonate	
Run 3, cont 1, filler	1 G	50	1 G	250	9/14/2010	JMC	0.1N Sodium Bicarbonate	
Run 3, cont 2, P&N rinse	1 G	54	1 G	250	9/14/2010	JMC	0.1N Sodium Bicarbonate	
Run 3, cont 3, imp rinse	1 G	180	1 G	250	9/14/2010	JMC	0.1N Sodium Bicarbonate	
Run 3, cont 4, impingers	1 G	370	1 G	500	9/14/2010	JMC	0.1N Sodium Bicarbonate	
Blank, 0.1N sodium bicarbonate	1 G	476	1 G	500	9/14/2010	BEC	0.1N Sodium Bicarbonate	

Special Instructions: rectemp 10.01.10 8.2°C

Submitted By: John M Callette Date: 9/23/2010 Received By: John M Callette Date: 9/23/2010

Relinquished By: Date: Relinquished By: Date: 9/29/10

QA/QC Report Package Compliance Non-compliance

Method Normal

Shipping date Sept. 30th

Log Banton 10.1.10 1215 via FedEx

ANALYTICAL DATA

elementOne

AIR TESTING SAMPLE SUBMISSION FORM

Lab ID 15377

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Analysis Due Date 10.11.10
QA/QC/Report Due Date 10.13.10

Client	Keika
Project No	

Date Rec	10.01.10
Time Rec	1215

Volume Marked Y / <u>N</u>	NaOH Lot:	Preservative	Ref. Method: CARB 426
Volume Loss Y / <u>N</u> ?	pH > 12.0 Y / N (If N note below)	0.1 N NaOH or 0.1N NaHCO ₃	

Sample Identification

1	Run 1	4	Reagent Blank				
2	Run 2						
	Run 2 Duplicate						
3	Run 3						
	Run 3 Spike						

Analyses Requested

Samples 1-4	CN
NOTE	Samples preserved in NaHCO ₃

Run / FB	Filter (Container 1)		Probe Rinse (Container 2)		Impinger Catch (Container 4)		Impinger Rinse		Combined Fractions	
LAB ID	BV, ml	pH	BV, ml	pH	BV, ml	pH	BV, ml	pH	FV, ml	pH
1	44	>10	150 53	>10	390	>10	180	>10	700	>10
2.D	43	↓	180 60	↓	375	↓	181	↓	690	↓
3.S	44	↓	180 56	↓	370	↓	183	↓	690	↓

CARB 426 Reagent Blank

MBM 10/11/10

Lab ID	Fraction	BV, ml	pH	Comments
4	C-5	0.1 N NaOH or 0.1N NaHCO ₃	470	>10
				FV=520 mL

Lab Communications

Impinger Rinse containers were not sealed with electrical tape

Container 3 is Impinger rinse—NOT Silica Gel fraction per the method—Combine all 4 fractions per client—PDS 10.05.10

Rec. C1, C2, C3, C4, C5—PDS 10.01.10—C3 is Impinger rinse—NOT Silica Gel fraction per the method

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SS by [Signature]
10/5/2010 12:28:00 PM

Prep By/Date MBM 10/11/10

Prep By/Date

Labeled By/Date MBM 10/7/10

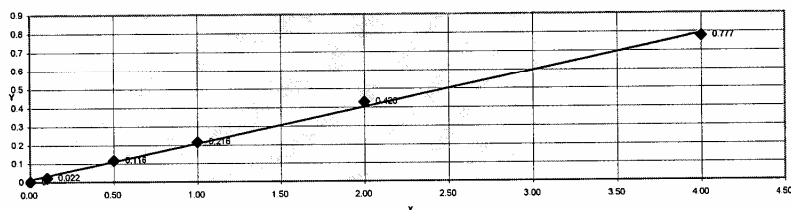
ID Verification By/Date BAC 10.07.10

elementOne

15377 Keika Report Packet

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	X	Y
uL Interm. Std.	ug	STD ABS
0.00	0.00	0
0.01	0.10	0.022
0.05	0.50	0.116
0.10	1.00	0.216
0.20	2.00	0.428
0.40	4.00	0.777



Daily Calibration Standard Verification via Titration

Submitted for QA/QC	Date: 10/13/10	By: (Print)	Michael McClellan	(sign): <i>Michael McClellan</i>
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