

Report Number: C13304-10888  
 Account Number: 95000

# A & L Canada Laboratories Inc.

2136 Jetstream Road, London, Ontario, N5V 3P5  
 Telephone: (519) 457-2575 Fax: (519) 457-2664



C13304-10888



To: ST.LAWRENCE RIVER INSTITUTE  
 2 ST.LAWRENCE DRIVE  
 CORNWALL, ON K6H 4Z1

For: ST.LAWRENCE RIVER INSTITU

Attn: JEN HALEY

P.O. Number: 267

Reported Date:2013-11-05  
 Printed Date:2013-11-13

## COMPOST REPORT

Page:1

Sample Number	Lab Number	pH	Lime Index	Available Organic Matter %	Phosphorus P ppm	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm
935-13 LOW SOD	29969	4.9	5.6	79.6	967	5358	406	657

Sulfur S ppm	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Sodium Na ppm	Nitrate-N NO3-N ppm	Soluble Salt ms/cm	Nitrogen (Total) (%)	Moisture %
322	8.6	11	21	1.2	1.3	2652	75	6.7	2.55	

### INTERPRETATION

CEC		Percent Base Saturation				Proportional Equivalents (meq)				Cation Ratio		C/N Ratio
meq/100g	% BS	% K	% Mg	% Ca	% Na	K	Mg	Ca	Na	Mg/K	Ca/Mg	
35.9	88.9	38.28	9.30	9.15	32.12	13.74	3.34	3.29	11.53		1:1	
Optimum Range:		3 - 5	8 - 20	60 - 80		0.5 - 1.3				7:1	5:1	

### CQA

\* Results reported on a dry weight basis.

The results of this report relate to the sample submitted and analyzed.

\* Crop yield is influenced by a number of factors in addition to soil fertility.

No guarantee or warranty concerning crop performance is made by A & L.

Results Authorized By:

Ian McLachlin, Vice President

Report Number: C13304-10888  
 Account Number: 95000

# A & L Canada Laboratories Inc.

2136 Jetstream Road, London, Ontario, N5V 3P5  
 Telephone: (519) 457-2575 Fax: (519) 457-2664



C13304-10888



To: ST.LAWRENCE RIVER INSTITUTE  
 2 ST.LAWRENCE DRIVE  
 CORNWALL, ON K6H 4Z1

For: ST.LAWRENCE RIVER INSTITU

Attn: JEN HALEY

P.O. Number: 267

Reported Date:2013-11-05  
 Printed Date:2013-11-13

## COMPOST REPORT

Page:2

Sample Number	Lab Number	pH	Lime Index	Available Organic Matter %	Phosphorus P ppm	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm
936-13 HIGH SOD	29970	5.3	5.9	69.7	1113	5983	385	759

Sulfur S ppm	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Sodium Na ppm	Nitrate-N NO3-N ppm	Soluble Salt ms/cm	Nitrogen (Total) (%)	Moisture %
274	10.4	11	15		1.1	5355	27	3.5	3.16	

### INTERPRETATION

CEC		Percent Base Saturation				Proportional Equivalents (meq)				Cation Ratio		C/N Ratio
meq/100g	% BS	% K	% Mg	% Ca	% Na	K	Mg	Ca	Na	Mg/K	Ca/Mg	
48.4	94.2	31.71	6.54	7.84	48.12	15.34	3.17	3.80	23.28		1:1	
Optimum Range:		3 - 5	8 - 20	60 - 80		0.5 - 1.3				7:1	5:1	

### CQA

\* Results reported on a dry weight basis.

The results of this report relate to the sample submitted and analyzed.

\* Crop yield is influenced by a number of factors in addition to soil fertility.

No guarantee or warranty concerning crop performance is made by A & L.

Results Authorized By:

Ian McLachlin, Vice President

REPORT NO.  
C13304-70001

# A & L Canada Laboratories Inc.



ACCOUNT NUMBER  
95000

2136 Jetstream Road, London, ON, N5V 3P5 Tel: (519) 457-2575 Fax: (519) 457-2664

TO: ST. LAWRENCE RIVER INSTITUTE  
2 ST. LAWRENCE DRIVE  
CORNWALL, ON K6H 4Z1  
CANADA  
CANADA

ATTN: JEN HALEY



## CERTIFICATE OF ANALYSIS

PAGE: 1

PROJECT NO:  
PO#: 267  
LAB NUMBER: 3047003  
SAMPLE ID: LOW SODIUM

SAMPLE MATRIX: COMPOST  
DATE SAMPLED: 2013-10-30  
DATE RECEIVED: 2013-10-31  
DATE REPORTED: 2013-11-07  
DATE PRINTED: 2013-11-13

PARAMETER	RESULT	UNIT	DETECTION LIMIT	METHOD REFERENCE
Arsenic	BDL*	ug/g	1.00	TMECC.04.13; EPA 3050/6010 (mod*)
Cadmium	BDL*	ug/g	1.00	TMECC.04.06; EPA 3050/6010 (mod*)
Cobalt	BDL*	ug/g	1.00	TMECC.04.06; EPA 3050/6010 (mod)
Chromium	BDL*	ug/g	1.00	TMECC.04.06; EPA 3050/6010 (mod*)
Copper	6.04	ug/g	1.00	TMECC.04.06; EPA 3050/6010 (mod)
Mercury	BDL*	ug/g	0.10	TMECC.04.13A *
Molybdenum	BDL*	ug/g	2.00	TMECC.04.06; EPA 3050/6010 (mod*)
Nickel	BDL*	ug/g	1.00	TMECC.04.06; EPA 3050/6010 (mod)
Lead	BDL*	ug/g	1.00	TMECC.04.06; EPA 3050/6010 (mod)
Selenium	BDL*	ug/g	1.00	TMECC.04.13; EPA 3050/6010 (mod)
Zinc	23.19	ug/g	1.00	TMECC.04.06; EPA 3050/6010 (mod)

Comment:

Results reported on a dry weight basis

\* - accredited test

BDL - Below detectable levels

The results of this report relate to the sample submitted and analyzed.



C13304-70001

Results Authorized By:

Haifeng Song, Senior Chemist /  
Agriculture Supervisor

REPORT NO.  
C13304-70001

# A & L Canada Laboratories Inc.



ACCOUNT NUMBER  
95000

2136 Jetstream Road, London, ON, N5V 3P5 Tel: (519) 457-2575 Fax: (519) 457-2664

TO: ST. LAWRENCE RIVER INSTITUTE  
2 ST. LAWRENCE DRIVE  
CORNWALL, ON K6H 4Z1  
CANADA  
CANADA

ATTN: JEN HALEY



## CERTIFICATE OF ANALYSIS

PAGE: 2

PROJECT NO:  
PO#: 267  
LAB NUMBER: 3047004  
SAMPLE ID: LOW SODIUM

SAMPLE MATRIX: COMPOST  
DATE SAMPLED: 2013-10-30  
DATE RECEIVED: 2013-10-31  
DATE REPORTED: 2013-11-07  
DATE PRINTED: 2013-11-13

PARAMETER	RESULT	UNIT	DETECTION LIMIT	METHOD REFERENCE
E. coli	<3	MPN/g dry		MFHPB-19*
Fecal Coliform	<3	MPN/g dry		MFHPB-19*
Salmonella spp.	NEGATIVE	P-A/25.0g(ml)		MFLP-75 *
Total FM >8 mesh	BDL*	%	0.01	TMECC 03.08
Total FM > 2.8 mm*	BDL*	%	0.01	TMECC 03.08
Total FM > 25 mm	BDL*	%	.01	TMECC 03.08
Total FM > 25 mm	BDL*	pieces/500ml		TMECC 03.08
Total plastics > 8 mesh	BDL*	%	0.01	TMECC 03.08
Total plastics > 2.8 mm*	BDL*	%	0.01	TMECC 03.08
Total sharps > 2.36 mm	BDL*	pieces/500ml		TMECC 03.08
Total sharps > 2.8 mm*	BDL*	pieces/500ml		TMECC 03.08
Total sharps > 12.5 mm	BDL*	pieces/500ml		TMECC 03.08
OM @ 550 deg C	92.94	%	0.10	LOI@550C
Moisture	1.58	%	0.10	TMECC.03.09
C:N Ratio	19:1			TMECC.05.02
Sieve 2 Inch (% Passing)	100.00	%	0.10	ASTMD422
Sieve 1 Inch (% Passing)	100.00	%	0.10	ASTMD422
Sieve 1/2 Inch (% Passing)	98.20	%	0.10	ASTMD422
Sieve 3/8 Inch (% Passing)	96.30	%	0.01	ASTMD422
Sieve 1/4 Inch (% Passing)	92.00	%	0.01	ASTMD422
Compost Stability Index	8	---		TMECC.05.08-B
Respiration-CO <sub>2</sub> -C/g OM/day	BDL*	mgCO <sub>2</sub>	0.01	TMECC.05.08-B
Respiration - CO <sub>2</sub> -C/g TS/day	BDL*	mgCO <sub>2</sub>	0.01	TMECC.05.08-B

Results reported on a dry weight basis

\* - accredited test

BDL - Below detectable levels

The results of this report relate to the sample submitted and analyzed.



C13304-70001

Results Authorized By:

Haifeng Song, Senior Chemist /  
Agriculture Supervisor

REPORT NO.  
C13304-70001

# A & L Canada Laboratories Inc.



ACCOUNT NUMBER  
95000

2136 Jetstream Road, London, ON, N5V 3P5 Tel: (519) 457-2575 Fax: (519) 457-2664

TO: ST. LAWRENCE RIVER INSTITUTE  
2 ST. LAWRENCE DRIVE  
CORNWALL, ON K6H 4Z1  
CANADA  
CANADA

ATTN: JEN HALEY



## CERTIFICATE OF ANALYSIS

PAGE: 3

PROJECT NO:  
PO#: 267  
LAB NUMBER: 3047004  
SAMPLE ID: LOW SODIUM

SAMPLE MATRIX: COMPOST  
DATE SAMPLED: 2013-10-30  
DATE RECEIVED: 2013-10-31  
DATE REPORTED: 2013-11-07  
DATE PRINTED: 2013-11-13

PARAMETER	RESULT	UNIT	DETECTION LIMIT	METHOD REFERENCE
-----------	--------	------	-----------------	------------------

**Comment:**

Maturity Index: 8 - Inactive, highly matured compost, very well aged, possibly over-aged, like soil; no limitations for usage.

1. FM (Foreign matter) = glass, metal, plastic
2. Sharps = foreign matter pieces of a size or shape that can cause human or animal injury
3. 8 mesh screen = 2.36mm
4. \*2.8mm screen is used since 3.0mm screen does not exist

Results reported on a dry weight basis

\* - accredited test

BDL - Below detectable levels

The results of this report relate to the sample submitted and analyzed.



C13304-70001

Results Authorized By: \_\_\_\_\_

Haifeng Song, Senior Chemist /  
Agriculture Supervisor

REPORT NO.  
C13304-70001

# A & L Canada Laboratories Inc.



ACCOUNT NUMBER  
95000

2136 Jetstream Road, London, ON, N5V 3P5 Tel: (519) 457-2575 Fax: (519) 457-2664

TO: ST. LAWRENCE RIVER INSTITUTE  
2 ST. LAWRENCE DRIVE  
CORNWALL, ON K6H 4Z1  
CANADA  
CANADA

ATTN: JEN HALEY



## CERTIFICATE OF ANALYSIS

PAGE: 4

PROJECT NO:  
PO#: 267  
LAB NUMBER: 3047005  
SAMPLE ID: HIGH SODIUM

SAMPLE MATRIX: COMPOST  
DATE SAMPLED: 2013-10-30  
DATE RECEIVED: 2013-10-31  
DATE REPORTED: 2013-11-07  
DATE PRINTED: 2013-11-13

PARAMETER	RESULT	UNIT	DETECTION LIMIT	METHOD REFERENCE
Arsenic	BDL*	ug/g	1.00	TMECC.04.13; EPA 3050/6010 (mod*)
Cadmium	BDL*	ug/g	1.00	TMECC.04.06; EPA 3050/6010 (mod*)
Cobalt	BDL*	ug/g	1.00	TMECC.04.06; EPA 3050/6010 (mod)
Chromium	BDL*	ug/g	1.00	TMECC.04.06; EPA 3050/6010 (mod*)
Copper	3.20	ug/g	1.00	TMECC.04.06; EPA 3050/6010 (mod)
Mercury	BDL*	ug/g	0.10	TMECC.04.13A *
Molybdenum	BDL*	ug/g	2.00	TMECC.04.06; EPA 3050/6010 (mod*)
Nickel	BDL*	ug/g	1.00	TMECC.04.06; EPA 3050/6010 (mod)
Lead	BDL*	ug/g	1.00	TMECC.04.06; EPA 3050/6010 (mod)
Selenium	BDL*	ug/g	1.00	TMECC.04.13; EPA 3050/6010 (mod)
Zinc	26.13	ug/g	1.00	TMECC.04.06; EPA 3050/6010 (mod)

Comment:

Results reported on a dry weight basis

\* - accredited test

BDL - Below detectable levels

The results of this report relate to the sample submitted and analyzed.



C13304-70001

Results Authorized By:

Haifeng Song, Senior Chemist /  
Agriculture Supervisor

REPORT NO.  
C13304-70001

# A & L Canada Laboratories Inc.



ACCOUNT NUMBER  
95000

2136 Jetstream Road, London, ON, N5V 3P5 Tel: (519) 457-2575 Fax: (519) 457-2664

TO: ST. LAWRENCE RIVER INSTITUTE  
2 ST. LAWRENCE DRIVE  
CORNWALL, ON K6H 4Z1  
CANADA  
CANADA

ATTN: JEN HALEY



## CERTIFICATE OF ANALYSIS

PAGE: 5

PROJECT NO:  
PO#: 267  
LAB NUMBER: 3047006  
SAMPLE ID: HIGH SODIUM

SAMPLE MATRIX: COMPOST  
DATE SAMPLED: 2013-10-30  
DATE RECEIVED: 2013-10-31  
DATE REPORTED: 2013-11-07  
DATE PRINTED: 2013-11-13

PARAMETER	RESULT	UNIT	DETECTION LIMIT	METHOD REFERENCE
E. coli	<3	MPN/g dry		MFHPB-19*
Fecal Coliform	<3	MPN/g dry		MFHPB-19*
Salmonella spp.	NEGATIVE	P-A/25.0g(ml)		MFLP-75 *
Total FM >8 mesh	BDL*	%	0.01	TMECC 03.08
Total FM > 2.8 mm*	BDL*	%	0.01	TMECC 03.08
Total FM > 25 mm	BDL*	%	.01	TMECC 03.08
Total FM > 25 mm	BDL*	pieces/500ml		TMECC 03.08
Total plastics > 8 mesh	BDL*	%	0.01	TMECC 03.08
Total plastics > 2.8 mm*	BDL*	%	0.01	TMECC 03.08
Total sharps > 2.36 mm	BDL*	pieces/500ml		TMECC 03.08
Total sharps > 2.8 mm*	BDL*	pieces/500ml		TMECC 03.08
Total sharps > 12.5 mm	BDL*	pieces/500ml		TMECC 03.08
OM @ 550 deg C	92.04	%	0.10	LOI@550C
Moisture	7.98	%	0.10	TMECC.03.09
C:N Ratio	12:1			TMECC.05.02
Sieve 2 Inch (% Passing)	100.00	%	0.10	ASTMD422
Sieve 1 Inch (% Passing)	100.00	%	0.10	ASTMD422
Sieve 1/2 Inch (% Passing)	96.30	%	0.10	ASTMD422
Sieve 3/8 Inch (% Passing)	90.80	%	0.01	ASTMD422
Sieve 1/4 Inch (% Passing)	69.60	%	0.01	ASTMD422
Compost Stability Index	8	---		TMECC.05.08-B
Respiration-CO <sub>2</sub> -C/g OM/day	BDL*	mgCO <sub>2</sub>	0.01	TMECC.05.08-B
Respiration - CO <sub>2</sub> -C/g TS/day	BDL*	mgCO <sub>2</sub>	0.01	TMECC.05.08-B

Results reported on a dry weight basis

\* - accredited test

BDL - Below detectable levels

The results of this report relate to the sample submitted and analyzed.



C13304-70001

Results Authorized By:

Haifeng Song, Senior Chemist /  
Agriculture Supervisor

REPORT NO.  
C13304-70001

# A & L Canada Laboratories Inc.



ACCOUNT NUMBER  
95000

2136 Jetstream Road, London, ON, N5V 3P5 Tel: (519) 457-2575 Fax: (519) 457-2664

TO: ST. LAWRENCE RIVER INSTITUTE  
2 ST. LAWRENCE DRIVE  
CORNWALL, ON K6H 4Z1  
CANADA  
CANADA

ATTN: JEN HALEY



## CERTIFICATE OF ANALYSIS

PAGE: 6

PROJECT NO:  
PO#: 267  
LAB NUMBER: 3047006  
SAMPLE ID: HIGH SODIUM

SAMPLE MATRIX: COMPOST  
DATE SAMPLED: 2013-10-30  
DATE RECEIVED: 2013-10-31  
DATE REPORTED: 2013-11-07  
DATE PRINTED: 2013-11-13

PARAMETER	RESULT	UNIT	DETECTION LIMIT	METHOD REFERENCE
-----------	--------	------	-----------------	------------------

**Comment:**

Maturity Index: 8 - Inactive, highly matured compost, very well aged, possibly over-aged, like soil; no limitations for usage.

1. FM (Foreign matter) = glass, metal, plastic
2. Sharps = foreign matter pieces of a size or shape that can cause human or animal injury
3. 8 mesh screen = 2.36mm
4. \*2.8mm screen is used since 3.0mm screen does not exist

Results reported on a dry weight basis

\* - accredited test

BDL - Below detectable levels

The results of this report relate to the sample submitted and analyzed.

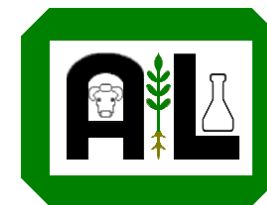


C13304-70001

Results Authorized By: \_\_\_\_\_

Haifeng Song, Senior Chemist /  
Agriculture Supervisor





**Compost Summary Report**

To: **St. Lawrence River Institute**  
 2 St. Lawrence Dr.  
 Cornwall, On. K6H 4Z1

Attn. Jen Haley

CQA Reports (inclusive): C13304-10888, C13304-70001

Results for Sample ID:

Low Sodium (Oct. 30, 2013)

Date Reported: November 12, 2013

**CQA Product Quality Test Requirements**

Sample I.D.#	Recommended Product Use	PH	C/N ratio	Moisture	Particle size	Soluble Salts	Maturity Index
Low Sodium (Oct. 30, 2013)	* Landscaping/Soil Amendment, Light topdressing	4.9	19:1	1.6 %	1/4 inch.	6.7 ms/cm	8 (Slovita) <0.01 mg CO <sub>2</sub> C/g O.M./day

Recommendations for product use are suggestions based on the analysis that was performed on this sample. This compost is primarily suited for general landscaping, soil mix blending/ amendment and light topdressing purposes due to its fine texture and physical properties. The suggested use is meant only as a guide for interpretation on what the best end use may be.

**Comments:**

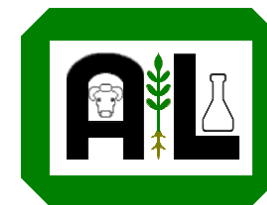
**Heavy Metals:** The results of our testing indicate the sample identified as “**Low Sodium (Oct. 30, 2013)**” meets the current Ontario type AA compost standards for maximum allowable trace metal content in compost.

**Microbiological:** The results of our testing indicate this sample meets the current Ontario type A compost standards for maximum allowable microbiological levels.

**Compost Quality Requirements:** \*The results of our testing indicate that this product is mineral rich, fine textured compost, with some evidence of sodium. Based on the properties, suggested uses would meet criteria for landscaping, soil amendment, blending, and light topdressing end-uses purposes. This compost indicates it is mature (8) < 0.01 mg CO<sub>2</sub> C/g O.M./day, is primarily 1/4 in. (92% + 1/4 in.) particle sized texture, and very rich in available potassium, calcium, and zinc, which make it ideal for landscaping, and amendment purposes. The sodium from a proportion standpoint (32.1 % Na.) is rated high. The recommended maximum allowable level of sodium for landscaping and soil amendment purposes is 2.0 % Na in the final soil mix. The sodium levels of this compost sample though higher is suitable for agricultural broadcast field applications and are

Lot: **Low Sodium (Oct. 30, 2013)**  
 Reports **C13304-10888, C13304-70001**

made to improve the organic matter levels and major nutrients phosphorus, potassium and magnesium levels. We would recommend a minimum of 18-20 parts soil to one part compost to minimize the affect of the sodium on any sensitive species.



**Compost Summary Report**

To: **St. Lawrence River Institute**  
 2 St. Lawrence Dr.  
 Cornwall, On. K6H 4Z1

Attn. Jen Haley

CQA Reports (inclusive): C13304-10888, C13304-70001

Results for Sample ID:

**High Sodium (Oct. 30, 2013)**

Date Reported: **November 12, 2013**

**CQA Product Quality Test Requirements**

Sample I.D.#	Recommended Product Use	PH	C/N ratio	Moisture	Particle size	Soluble Salts	Maturity Index
<b>High Sodium (Oct. 30, 2013)</b>	* Landscaping/Soil Amendment, Light topdressing	5.3	12:1	8.0 %	3/8 inch.	3.5 ms/cm	8 (Slovita) <0.01 mg CO <sub>2</sub> C/g O.M./day

Recommendations for product use are suggestions based on the analysis that was performed on this sample. This compost is primarily suited for general landscaping, soil mix blending/ amendment and light topdressing purposes due to its fine to medium texture and physical properties. The suggested use is meant only as a guide for interpretation on what the best end use may be.

**Comments:**

**Heavy Metals:** The results of our testing indicate the sample identified as “**high Sodium (Oct. 30, 2013)**” meets the current Ontario type AA compost standards for maximum allowable trace metal content in compost.

**Microbiological:** The results of our testing indicate this sample meets the current Ontario type A compost standards for maximum allowable microbiological levels.

**Compost Quality Requirements:** \*The results of our testing indicate that this product is mineral rich, fine to medium textured compost, with some evidence of sodium. Based on the properties, suggested uses would meet criteria for landscaping, soil amendment, blending, and light topdressing end-uses purposes. This compost indicates it is mature (8) < 0.01 mg CO<sub>2</sub> C/g O.M./day, is primarily 3/8 in. (91% + 3/8 in.) particle sized texture, and very rich in available potassium, calcium, and zinc, which make it ideal for landscaping, and amendment purposes. The sodium from a proportion standpoint (48.1 % Na.) is rated high. The recommended maximum allowable level of sodium for landscaping and soil amendment purposes is 2.0 % Na in the final soil mix. The sodium levels of this compost sample though higher is suitable for agricultural

Lot: **High Sodium (Oct. 30, 2013)**  
 Reports **C13304-10888, C13304-70001**

broadcast field applications and are made to improve the organic matter levels and major nutrients phosphorus, potassium and magnesium levels. We would recommend a minimum of 25-30 parts soil to one part compost to minimize the affect of the sodium on any sensitive species.