ALLIANCE DE LA QUALITÉ COMPOST QUALITY ALLIANCE

www.compostquality.ca

SUMMARY OF ANALYSIS REPORT

To: Essex-Windsor SWA
360 Fairview Ave West
Essex, Ontario N8M 3G4

CQA Member#: 07-1200

Attention:

Sample I.D.: ROW"O-20"

Report#: C22090-10064
C22090-70006
C22102-70015

Sample Date: 2022-03-30
Reported Date: 2022-04-11
2022-04-13

Compost Manufactured in: Ontario
Feedstock: *Leaf & Yard Residues*

CQA COMPOST QUALITY & VALUE TESTING PARAMETERS REPORT

SAMPLE ID	RECOMMENDED END USE/MARKET
ROW"O-20"	**Category AA**
Regulatory	See Appendix I
Product Quality	See Appendix II
Product Value/ Soil Suitability*	See Appendix III (Soil, Enviro, Manure Compost)

The Compost Quality Alliance (CQA) is a voluntary quality monitoring program established by the Compost Council of Canada and the compost producers utilizing recognized standardized testing methodologies and uniform operating protocols to provide customer assurance in compost selection its use, and proper end-use utilization.

All analysis of this compost product was conducted and provided by A&L Canada Laboratories Inc. for the Compost Quality Alliance (CQA).

Haifeng Song, Senior Chemist

Ian McLachlin, Vice-President

A&L Canada Laboratories Inc.
London, Ontario Canada
(519) 457-2575

A proud member of

Fièrement membre du Conseil canadien du COMPOST Council of Canada
Proud to be a member

***PLEASE NOTE: Major Nutrients under the Fertilizer Act and Regulations (CFIA)**

Please see Appendix III for nutrient content (of impact to claims and labelling if used in declarations).

Compost is classified in Schedule II as a supplement, and as such nutrient guarantees are not mandatory. However, if any claims are made regarding nutritional value of the product, such as for composted manure, the product would then be classified as a supplement and a fertilizer, and the label would have to include the guarantees for the major nutrients. The guarantees for the major nutrients include the minimum amounts of Total Nitrogen (N), Available Phosphoric Acid (P2O5) and Soluble Potash K2O. Source: T-4-120 - Regulation of Compost under the Fertilizers Act and Regulations. http://www.inspection.gc.ca/plants/fertilizers/trade-memoranda/t-4-120/eng/1307910204607/1307910352783

Appendix I
Ontario Compost Guidelines 2012 & CFIA Fertilizer Act & Regulations

A. Maximum Concentrations for Trace Metals in Compost - Ontario†

Trace Elements	Test Results (ug/g)	Category AA	Category A	Category B
		Maximum Concentration within Product (mg/kg dry weight)		
Arsenic (As)	1.82	13	13	75
Cadmium (Cd)	BDL	3	3	20
Chromium (Cr)	8.67	210	210	1060
Cobalt (Co)	1.45	34	34	150
Copper (Cu)	28.18	100	400	760
Lead (Pb)	10.71	150	150	500
Mercury (Hg)	BDL	0.8	0.8	5
Molybdenum (Mo)	1.70	5	5	20
Nickel (Ni)	4.86	62	62	180
Selenium (Se)	BDL	2	2	14
Zinc (Zn)	95.95	500	700	1850

B. Foreign Matter in Compost - Ontario†

	Test Results	Category AA	Category A	Category B
Foreign Matter		Contains < 1% FM greater than 3mm and 0.5% plastics. Shall not contain any FM greater than 25mm/500mL		Contains < 2% FM greater than 3mm and 0.5% plastic. No FM > 25mm/500mL
Percent (%) FM > 3mm/500mL	0.14%			
Percent (%) Plastics > 3mm/500mL	BDL			
Pieces 25mm/500mL	0			
Sharp Foreign Matter		No sharp matter that can cause human or animal injury		No more than 3 pieces of sharp matter no greater than 12.5mm/500mL
Pieces > 3mm/500mL	0			
Pieces > 12.5mm/500mL	0			

C. Maturity/Stability - Ontario†

Method	Test Results	Required Limits
CO_2 Respiration Rate CO_2 Respiration Rate	2.30	≤ 4 mg of carbon in the form of carbon dioxide per gram of organic matter per day
O_2 Uptake Respiration Rate O_2 Uptake Respiration Rate		≤ 400 mg oxygen/kg of volatile solids (or organic matter)/hour

D. Pathogens - Ontario†

Pathogen	Test Results	Required Limits
E. coli (MPN/g dry)	510	<1000 MPN/g total solids calculated on a dry weight basis
Salmonella (P-A/25g(ml))	NEGATIVE	<3 MPN/4g total solids calculated on a dry weight basis

†The following references are from the Ontario Compost Quality Standards Guidelines July 2012

*BDL = Below Detectable Limits

E. CFIA - Ontario

Parameter	Test Results
Total Organic Matter (%)	66.61%
Moisture (%)	52.86%

All analysis conducted and prepared by:
A L Canada Laboratories
2136 Jetstream Rd London, Ontario N5V 3P5 (519) 457-2575

Appendix II

Finished Compost Quality

Parameter	Test Results
pH	8.1
Carbon to Nitrogen Ratio	24:1
Particle Size/Texture (inch)+	1/4 Inch
Soluble Salts (ms/cm)	1.8
Sodium Base Saturation (%Na)	1.61%
Major Nutrients	
Available Potassium (%K)	12.73%
Available Magnesium (%Mg)	30.78%
Available Calcium (%Ca)	54.89%

+ Majority of sample passes through this sieve size

Reference Compost Quality Parameters for CQA

Use	pH	C:N	Moisture	Particle Size	Soluble Salts	%Na
Remediation	5.8-8.5	10-40	NA	<2 in	<20	<3%
Soil Amendment	5.8-8.5	10-30	NA	<1/2 in	<6	<2%
Landscaping	5.8-8.5	12-22	<50%	<1/2 in	<5	<2%
Planting Media	5.5-7.8	12-22	<50%	<1/2 in	<4	<2%
Turf Establishment & Topdressing	5.5-7.8	12-22	<50%	<3/8 in	<3	<1%
Greenhouse Seeding	6-7	12-22	<25%	<1/4 in	<2	<0.5%
Greenhouse Establishement	6-7	12-22	<30%	<1/2 in	2-3.5	<0.5%
Field Nursery	5.8-8	10-30	<50%	<1/2 in	<3.5	<1%
Agricultural Soil Amendments	6-8	10-30	<50%	<1/2 in	<20	none
Potting Soil	5.5-7.2	12-22	<50%	<1/4 in	<2	<1%

Unrestricted Use: Category AA and Category A - Compost that can be used in any application, such as agricultural lands, residential gardens, horticultural operations, the nursery industry, and other businesses. Category A criteria for trace elements are achievable using best source separated MSW feedstock, municipal biosolids, pulp and paper mill biosolids, or manure.

Restricted Use: Category B - Compost that has a restricted use because of the presence of sharp foreign matter or higher trace element content. Category B compost may require additional control when deemed necessary by a province or territory.

Note: For a compost to meet the unrestricted use category, it must meet the unrestricted (Category A) requirements for all trace elements and sharp foreign matter. If the compost fails one criterion of the guideline for unrestricted use but meets the criteria for restricted (Category B) use, then is is classified as a Category B product. Products that do not meet the criteria for either Category A or B must be used or disposed of appropriately.

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Appendix III

Compost Agricultural Product Value

as is basis

Agricultural End-Use	Analysis Result	Unit	Quantity in lbs/T
Physical Parameters			
Dry Matter	47.14%	%	
pH	8.1		
Bulk Density	438	kg/m3	
C:N Ratio	24:1		
Fertilizer Equivalent Minerals			
Nitrogen Total	1.62%	%	32.4
Ammonium Nitrogen	16.12	ppm	0.03
Total Phosphate (P as P205)	0.22%	%	4.4
Total Potash (K as K20)	0.52%	%	10.4
Calcium	2.06%	%	41.2
Magnesium	0.36%	%	7.2
Sulfur	916.40	ppm	1.8

The Compost Quality Assurance program goes beyond the provincial requirements to establish full value and appropriate end-use. The Compost Report and Compost End-use table in Appendix II, has 10 different compost application uses from soil remediation, through to potting soil blends. Of note are available soluble salt limits and the percent available sodium for sensitive plants. Appendix III, lists the primary agricultural use parameters and quantitative nutrient content that reflects this compost samples agricultural end-use, and application value. This value includes macro and micro nutrients, soil building properties such as the addition of organic matter, increasing moisture holding capacity, and the soils slow release nutrients. These parameters improve beneficial soil health components soil structure and stability.

The results of our testing on this sample indicates that this product is a fine textured, compost (91%+ 1/4 in.), with rich mineral properties, which would meet criteria for agricultural soil amendment, blending and topdressing end-uses purposes. The C:N ratio 24:1 from Appendix II, on the soil suitability report indicates a low C:N ratio and indicating good nitrogen availability. The low C:N ratio in conjunction with the higher total nitrogen content listed in Appendix III indicates early high available nitrogen levels, and should be considered for crop planning.

The proportion of available sodium (1.61% Na), which if used in too heavy a proportion could cause some problems with sensitive species. The sodium levels of this compost sample though high, is suitable for agricultural broadcast field applications and are made to improve the organic matter level and major nutrients phosphorus, potassium and magnesium levels. The compost is also rich in available calcium, sulfur, and zinc, which make it ideal for soil enriching, and amendment. We recommend blending this material at a minimum of 2-3 parts soil blended to each part of this compost to dilute the sodium concentration.

Major Nutrients - Compost is classified in Schedule II (CFIA Fertilizer Act & Regulations) as a supplement, and as such, nutrient guarantees are not mandatory. However, if any claims are made regarding nutritional value of the product, such as for composted manure, the product would then be classified as a supplement and a fertilizer, and label would have to include the guarantees for the major nutrients. The guarantees for the major nutrients include the minimum amounts of Total Nitrogen (N), Available Phosphoric Acid (P205) and Soluble Potash (K20).

All analysis conducted and prepared by:
A L Canada Laboratories
2136 Jetstream Rd London, Ontario N5V 3P5 (519) 457-2575

Report Number: C22090-10064
Account Number: 98043

A & L Canada Laboratories Inc.

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

C22090-10064

To: ESSEX-WINDSOR SWA
360 FAIRVIEW AVE WEST
SUITE 211
ESSEX, ON N8M 3G4

519-776-6370

For: ROW"O-20"

Reported Date: 2022-04-08
Printed Date: Apr 11, 2022

COMPOST REPORT

Sample Number	Lab Number	pH	Lime Index	Available Organic Matter %	Phosphorus P ppm	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm
ROW"O-20"	**29449**	**8.1**	**6.9**	**57.8**	**393**	**2957**	**2229**	**6538**

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) (%)	Chloride ppm
92	**27.5**	**32**	**165**	**2.7**	**8.6**	**220**	**6**	**1.8**	**1.62**	**2900**

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	
59.6	**100.0**	**12.73**	**30.78**	**54.89**	**1.61**	**7.58**	**18.33**	**32.69**	**0.96**	**2:1**	**2:1**	**24:1**
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: C22090-10064
ACCOUNT NUMBER: 98043

A & L Canada Laboratories Inc.

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

REPORT OF ANALYSIS

TO: ESSEX-WINDSOR SWA
360 FAIRVIEW AVE WEST
SUITE 211
ESSEX, ON N8M 3G4

RE: ROW"O-20"

CQA2200110

DATE RECEIVED: 2022-03-31
DATE REPORTED: 2022-04-11

LAB NO.	SAMPLE ID	ANALYSIS	RESULT	UNIT	METHOD
29449	ROW"O-20"	Nitrogen (Total)	1.6	%	TMECC.04.02-D

C22090-10064

Results Authorized By:

REPORT NO.
C22090-70006

ACCOUNT NUMBER
98043

A & L Canada Laboratories Inc.

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

TO:ESSEX-WINDSOR SWA
360 FAIRVIEW AVE WEST
SUITE 211
ESSEX, ON N8M 3G4

FOR: Row 0-20

Phone:800-563-3377
Fax:519-776-6370

CERTIFICATE OF ANALYSIS

PROJECT NO:

PO#:
LAB NUMBER:907017
SAMPLE ID:ROW 0-20

SAMPLE MATRIX:COMPOST
DATE SAMPLED:2022-03-30
DATE RECEIVED:2022-03-31
DATE REPORTED:2022-04-08
DATE PRINTED:2022-04-11

PARAMETER	Result	UNIT	DETECTION LIMIT	METHOD REFERENCE
Arsenic	1.82	ug/g	1.00	EPA 3050B/6010B(mod) *
Cadmium	BDL	ug/g	1.00	EPA 3050B/6010B(mod) *
Cobalt	1.45	ug/g	1.00	TMECC 4.06;EPA 3050/6010(mod)*
Chromium	8.67	ug/g	1.00	TMECC.04.06;EPA 3050/6010(mod*
Copper	28.18	ug/g	1.00	TMECC 4.06;EPA 3050/6010(mod)*
Mercury	BDL	ug/g	0.10	EPA 7471 *
Molybdenum	1.7	ug/g	1.0	TMECC.04.06;EPA 3050/6010(mod*
Nickel	4.86	ug/g	1.00	TMECC 4.06;EPA 3050/6010(mod)*
Lead	10.71	ug/g	1.00	EPA 3050B/6010B(mod) *
Selenium	BDL	ug/g	1.00	EPA 3050/6010 (mod) *
Zinc	95.95	ug/g	1.00	TMECC 4.06;EPA 3050/6010(mod)*

* - accredited test
BDL - Below detectable levels

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

C22090-70006

Results Authorized By:

Haifeng Song, Ph.D., C.Chem. Lab Director

A&L Canada Laboratories Inc. is accredited by the Standards Council of Canada for specific tests as listed on www.scc.ca and by the Canadian Association for Laboratory Accreditation as listed on www.cala.ca
Additional information available upon request

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SUITE 211
ESSEX, ON N8M 3G4

FOR: Row 0-20

Phone: 800-563-3377
Fax: 519-776-6370

CERTIFICATE OF ANALYSIS

PROJECT NO:

PO#:
LAB NUMBER: 907017
SAMPLE ID: ROW 0-20

SAMPLE MATRIX: COMPOST
DATE SAMPLED: 2022-03-30
DATE RECEIVED: 2022-03-31
DATE REPORTED: 2022-04-08
DATE PRINTED: 2022-04-11

PARAMETER	Result	UNIT	DETECTION LIMIT	METHOD REFERENCE
E. coli	510	MPN/g dry	3	TMECC 07.01
Salmonella spp.	NEGATIVE	P-A/ 25.0g(ml)	1 CFU	MFLP-75 *
Total sharps > 2.8 mm*	2	pieces/500ml		TMECC 03.08
Total sharps > 12.5 mm	0	pieces/500ml		TMECC 03.08
Total FM > 2.8 mm*	0.14	%	0.01	TMECC 03.08
Total FM > 25 mm	0	pieces/500ml		TMECC 03.08
Total plastics > 2.8 mm*	BDL	%	0.01	TMECC 03.08
Total Organic Matter @ 550 deg C	66.61	%	0.10	LOI@550C
Moisture	52.86	%	0.10	TMECC.03.09-A
Sieve 2 Inch (% Passing)	100.00	%	0.10	ASTMD422
Sieve 1 Inch (% Passing)	100.00	%	0.10	ASTMD422
Sieve 1/2 Inch (% Passing)	100.00	%	0.10	ASTMD422
Sieve 3/8 Inch (% Passing)	98.60	%	0.01	ASTMD422
Sieve 1/4 Inch (% Passing)	90.50	%	0.10	ASTMD422
Compost Stability Index	7	---		TMECC.05.08-B
Respiration-mgCO2-C/g OM/day	2.30	mgCO2-C/ gOM/day	0.01	TMECC.05.08-B
Respiration - mgCO2-C/g TS/day	1.50	mgCO2-C/ gTS/day	0.01	TMECC.05.08-B

Maturity Index: 7 - Well matured, aged compost, cured; few limitations for usage.

* - accredited test
BDL - Below detectable levels

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

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TO: ESSEX-WINDSOR SWA
360 FAIRVIEW AVE WEST
SUITE 211
ESSEX, ON N8M 3G4

FOR: Row 0-20

Phone: 800-563-3377
Fax: 519-776-6370

CERTIFICATE OF ANALYSIS

PROJECT NO:

PO#:
LAB NUMBER: 907017
SAMPLE ID: ROW 0-20

SAMPLE MATRIX: COMPOST
DATE SAMPLED: 2022-03-30
DATE RECEIVED: 2022-03-31
DATE REPORTED: 2022-04-08
DATE PRINTED: 2022-04-11

PARAMETER	Result Dry Weight	Result As Received	UNIT	DETECTION LIMIT	METHOD REFERENCE
Total Solids (as received)		47.14	%	0.10	Gravimetric
Nitrogen & Carbon					
Total Organic Carbon		37.00	%	0.10	Combustion
Ammonia (NH3/NH4-N)	34.20	16.12	ug/g	.01	Colourimetric
Metals					
Potassium	9135.00	4306.24	ug/g	5.00	TMECC.04.04*
Total Potassium (as K20)	1.10	0.52	%	0.05	ICP
Phosphorus	2044.50	963.78	ug/g	5.00	TMECC.04.03 *
Total Phosphorus (as P205)	0.47	0.22	%	0.05	ICP
Aluminum	1735.50	818.11	ug/g	5.00	TMECC.04.07 *
Boron	65.70	30.97	ug/g	1.00	TMECC.04.05 *
Calcium	4.38	2.06	%	0.01	TMECC.04.05*
Iron	4304.00	2028.91	ug/g	5.00	TMECC.04.05 *
Magnesium	0.76	0.36	%	0.01	TMECC.04.05 *
Manganese	109.25	51.50	ug/g	1.00	TMECC.04.05 *
Sodium	0.09	0.04	%	0.01	TMECC.04.05 *
Sulphur	1944.00	916.40	ug/g	5.00	TMECC.04.05 *
Additional Parameters					
Bulk Density (as Recieved)		438	kg/m3	10	Gravimetric

* - accredited test
BDL - Below detectable levels
The results of this report relate to the sample submitted and analyzed.

C22090-70006

Results Authorized By:

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Additional information available upon request

REPORT NO.
C22102-70015

ACCOUNT NUMBER
98043

A & L Canada Laboratories Inc.

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

TO:ESSEX-WINDSOR SWA
360 FAIRVIEW AVE WEST
SUITE 211
ESSEX, ON N8M 3G4

FOR: Row 0-20
FM RETEST

Compost Analysis Proficiency Testing Program

Phone:800-563-3377
Fax:519-776-6370

CERTIFICATE OF ANALYSIS

PROJECT NO:
PO#:
LAB NUMBER:1027023
SAMPLE ID:ROW 0-20

SAMPLE MATRIX:COMPOST
DATE SAMPLED:2022-04-11
DATE RECEIVED:2022-04-12
DATE REPORTED:
DATE PRINTED:2022-04-13

PARAMETER	RESULT	UNIT	DETECTION LIMIT	METHOD REFERENCE
Total sharps > 2.8 mm*	BDL	pieces/500ml		TMECC 03.08
Total sharps > 12.5 mm	BDL	pieces/500ml		TMECC 03.08
Total FM > 2.8 mm*	BDL	%	0.01	TMECC 03.08
Total FM > 25 mm	BDL	pieces/500ml		TMECC 03.08
Total plastics > 2.8 mm*	BDL	%	0.01	TMECC 03.08

Comment:

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.

C22102-70015

Results Authorized By:

Haifeng Song, Ph.D., C.Chem. Lab Director

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