



www.compostquality.ca

# SUMMARY OF ANALYSIS REPORT

To: City Of Saskatoon  
330 Ontario Avenue  
Saskatoon, Saskatchewan S7

CQA Member#:

Attention: Roland Rusnell  
Report#: C18297-10845  
C18297-70002

Sample I.D.: BATCH 2017 LOT 3  
Sample Date:  
Reported Date: 2018-11-2

Compost to be Manufacture in: Saskatchewan  
Feedstock: Leaf & Yard Residues

## CQA COMPOST QUALITY & VALUE TESTING PARAMETERS REPORT

SAMPLE ID	RECOMMENDED END USE/MARKET
BATCH 2017 LOT 3	Category A
Regulatory	See Appendix I
Product Quality	See Appendix II
Product Value/ Soil	See Appendix III
Suitability*	(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



\*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



CCME Guidelines 2005 & CFIA Fertilizer Act & Regulations:

Alberta, Manitoba, New Brunswick, Nova Scotia, Newfoundland, Prince Edward Island & Territories

A. Maximum Concentrations for Trace Metals in Compost†

Trace Elements	Test Results (ug/g)	Category A	Category B
		Maximum Concentration within Product (mg/kg dry weight)	
Arsenic (As)	5.15	13	75
Cadmium (Cd)	BDL	3	20
Chromium (Cr)	16.56	210	**
Cobalt (Co)	5.32	34	150
Copper (Cu)	23.87	400	**
Lead (Pb)	10.08	150	500
Mercury (Hg)	BDL	0.8	5
Molybdenum (Mo)	1.40	5	20
Nickel (Ni)	12.45	62	180
Selenium (Se)	1.68	2	14
Zinc (Zn)	86.40	700	1850

\*\* Upper limits are not established in the Trade Memorandum.

B. Foreign Matter in Compost†

Test Results		Category A	Category B
<b>Foreign Matter</b>		Contains no more than 1 piece of foreign matter >25mm/500ml	Contains no more than 2 pieces of foreign matter > 25mm/500mL
Pieces >25mm/500mL	0		
<b>Sharp Foreign Matter</b>		No sharp foreign matter >3mm per 500ml	No more than 3 pieces of sharp matter < 12.5mm/500mL  Note: This compost shall not be used in pastures, parks, or residential
Pieces > 3mm/500mL	0		
Pieces > 12.5mm/500mL	0		

C. Maturity/Stability†

Method	Test Results	Required Limits
CO <sub>2</sub> Respiration Rate CO <sub>2</sub> Respiration Rate	0.50	≤ 4 mg of carbon in the form of carbon dioxide per gram of organic matter per day
O <sub>2</sub> Uptake Respiration Rate O <sub>2</sub> Uptake Respiration Rate		≤ 400 mg oxygen/kg of volatile solids (or organic matter)/hour

D. Pathogens†

Pathogen	Test Results	Required Limits
Fecal Coliform (MPN/g dry)	<3	<1000 MPN/g of 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 CCME guidelines (PN1340), October 2005

\*BDL = Below Detectable Limits

E. CFIA

Parameter	Test Results
Total Organic Matter (%)	30.86%
Moisture (%)	18.02%

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	7.7
Carbon to Nitrogen Ratio	13:1
Particle Size/Texture (inch)+	1/4 Inch
Soluble Salts (ms/cm)	1.9
Sodium Base Saturation (%Na)	1.58%
<b>Major Nutrients</b>	
Available Potassium (%K)	24.92%
Available Magnesium (%Mg)	19.20%
Available Calcium (%Ca)	54.29%

+ 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 Establishment	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	<1%
Potting Soil	5.5-7.2	12-22	<50%	<1/4 in	<2	<1%

These are examples of some of the many end uses suitable for compost

Unrestricted Use: 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 it 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.



**Appendix III**  
Compost Agricultural Product Value  
on as is basis



Agricultural End-Use	Analysis Result	Unit	Quantity in lbs/Ton
<b>Physical Parameters</b>			
Dry Matter	<b>81.98%</b>	%	
pH	<b>7.7</b>		
Bulk Density	<b>590</b>	kg/m3	
C:N Ratio	<b>13:1</b>		
<b>Fertilizer Equivalent Minerals</b>			
Nitrogen Total	<b>1.12%</b>	%	22.4
Ammonium Nitrogen	<b>103.22</b>	ppm	0.21
Total Phosphate (P as P2O5)	<b>0.35%</b>	%	7.0
Total Potash (K as K2O)	<b>0.81%</b>	%	16.2
Calcium	<b>1.96%</b>	%	39.2
Magnesium	<b>0.65%</b>	%	13.0
Sulfur	<b>1674.03</b>	ppm	3.3

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, mature 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 13:1 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 (% 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 iron, 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 (P2O5) and Soluble Potash (K2O).

Report Number: C18297-10845  
 Account Number: 06290

# A & L Canada Laboratories Inc.

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



C18297-10845



To: CITY OF SASKATOON  
 330 ONTARIO AVENUE  
 SASKATOON, SK S7K 2H5

For: BATCH 2017 LOT 3

Attn: ROLAND RUSNELL  
 306-975-2500

Reported Date:  
 Printed Date: Nov 2, 2018

## COMPOST REPORT

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Sample Number	Lab Number	pH	Lime Index	Available Organic Matter %	Phosphorus P ppm	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm
<b>LOT 3</b>	<b>81015</b>	<b>7.7</b>	<b>6.9</b>	<b>23.5</b>	<b>683</b>	<b>4293</b>	<b>1031</b>	<b>4796</b>

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 %
<b>173</b>	<b>16.9</b>	<b>79</b>	<b>110</b>	<b>1.1</b>	<b>5.8</b>	<b>161</b>	<b>212</b>	<b>1.9</b>	<b>1.12</b>	

### 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	
<b>44.2</b>	<b>100.0</b>	<b>24.92</b>	<b>19.20</b>	<b>54.29</b>	<b>1.58</b>	<b>11.01</b>	<b>8.48</b>	<b>23.98</b>	<b>0.70</b>	<b>1:1</b>	<b>3:1</b>	
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.**

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

Results Authorized By:

**Ian McLachlin, Vice President**

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REPORT NUMBER: C18297-10845  
ACCOUNT NUMBER: 06290

## REPORT OF ANALYSIS

TO: CITY OF SASKATOON  
330 ONTARIO AVENUE  
SASKATOON, SK S7K 2H5

RE: BATCH 2017 LOT 3

DATE RECEIVED: 2018-10-24  
DATE REPORTED: 2018-11-02  
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CQA1800552

Attn: ROLAND RUSNELL

LAB NO.	SAMPLE ID	ANALYSIS	RESULT	UNIT	METHOD
81015	LOT 3	Nitrogen (Total)	1.1	%	TMECC.04.02-D



C18297-10845

Results Authorized By:

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C18297-70002

ACCOUNT NUMBER  
06290

# A & L Canada Laboratories Inc.

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



TO:CITY OF SASKATOON  
330 ONTARIO AVENUE  
SASKATOON, SK S7K 2H5

FOR:2 BATCH 2017 LOT 3

ATTN:Roland Rusnell

Phone:306-975-3183  
Fax:306-975-2500

## CERTIFICATE OF ANALYSIS

PAGE: 1 / 3

PROJECT NO:

PO#:ROLAND RUSNELL  
LAB NUMBER:2977003  
SAMPLE ID:2 BATCH 2017 LOT 3

SAMPLE MATRIX:COMPOST  
DATE SAMPLED:2018-10-18  
DATE RECEIVED:2018-10-24  
DATE REPORTED:2018-11-01  
DATE PRINTED:2018-11-02

PARAMETER	Result	UNIT	DETECTION LIMIT	METHOD REFERENCE
Arsenic	5.15	ug/g	1.00	EPA 3050/6010 (mod) *
Cadmium	BDL	ug/g	1.00	TMECC.04.06;EPA 3050/6010(mod*
Cobalt	5.32	ug/g	1.00	TMECC.04.06;EPA 3050/6010(mod)
Chromium	16.56	ug/g	1.00	TMECC.04.06;EPA 3050/6010(mod*
Copper	23.87	ug/g	1.00	TMECC.04.06;EPA 3050/6010(mod)
Mercury	BDL	ug/g	0.10	EPA 7471 *
Molybdenum	1.4	ug/g	1.0	TMECC.04.06;EPA 3050/6010(mod*
Nickel	12.45	ug/g	1.00	TMECC.04.06;EPA 3050/6010(mod)
Lead	10.08	ug/g	1.00	TMECC.04.06;EPA 3050/6010(mod)
Selenium	1.68	ug/g	1.00	EPA 3050/6010 (mod) *
Zinc	86.40	ug/g	1.00	TMECC.04.06;EPA 3050/6010(mod)

\* - accredited test

BDL - Below detectable levels

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



C18297-70002

Results Authorized By:

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

REPORT NO.  
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ATTN: Roland Rusnell

Phone: 306-975-3183  
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## CERTIFICATE OF ANALYSIS

PAGE: 2 / 3

PROJECT NO:

PO#: ROLAND RUSNELL  
LAB NUMBER: 2977003  
SAMPLE ID: 2 BATCH 2017 LOT 3

SAMPLE MATRIX: COMPOST  
DATE SAMPLED: 2018-10-18  
DATE RECEIVED: 2018-10-24  
DATE REPORTED: 2018-11-01  
DATE PRINTED: 2018-11-02

PARAMETER	Result	UNIT	DETECTION LIMIT	METHOD REFERENCE
E. coli	<3	MPN/g dry	3	TMECC 07.01
Salmonella spp.	NEGATIVE	P-A/ 25.0g(ml)	1 CFU	MFLP-75 *
Fecal Coliform	<3	MPN/g dry	3	TMECC 07.01
Total sharps > 2.8 mm*	0	pieces/500ml		TMECC 03.08
Total sharps > 12.5 mm	0	pieces/500ml		TMECC 03.08
Total FM > 2.8 mm*	BDL	%	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	30.86	%	0.10	LOI@550C
Moisture	18.02	%	0.10	TMECC.03.09-A
C : N Ratio	13 : 1			TMECC.05.02-A
Sieve 2 Inch (% Passing)	100.00	%	0.10	ASTMD422
Sieve 1 Inch (% Passing)	100.00	%	0.10	ASTMD422
Sieve 1/2 Inch (% Passing)	99.60	%	0.10	ASTMD422
Sieve 3/8 Inch (% Passing)	96.40	%	0.01	ASTMD422
Sieve 1/4 Inch (% Passing)	91.40	%	0.10	ASTMD422
Compost Stability Index	8	---		TMECC.05.08-B
Respiration-mgCO <sub>2</sub> -C/g OM/day	0.50	mgCO <sub>2</sub> -C/ gOM/day	0.01	TMECC.05.08-B
Respiration - mgCO <sub>2</sub> -C/g TS/day	0.20	mgCO <sub>2</sub> -C/ gTS/day	0.01	TMECC.05.08-B

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

\* - accredited test

BDL - Below detectable levels

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



C18297-70002

Results Authorized By:

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



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PAGE: 3 / 3

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LAB NUMBER: 2977003  
SAMPLE ID: 2 BATCH 2017 LOT 3

SAMPLE MATRIX: COMPOST  
DATE SAMPLED: 2018-10-18  
DATE RECEIVED: 2018-10-24  
DATE REPORTED: 2018-11-01  
DATE PRINTED: 2018-11-02

PARAMETER	Result Dry Weight	Result As Received	UNIT	DETECTION LIMIT	METHOD REFERENCE
Total Solids (as received)		81.98	%	0.10	Gravimetric
<b>Nitrogen &amp; Carbon</b>					
Total Organic Carbon	17.1500	17.15	%	0.10	Combustion
Ammonia (NH <sub>3</sub> /NH <sub>4</sub> -N)	125.91	103.22	ug/g	.01	Colourimetric
<b>Metals</b>					
Potassium	8185.00	6710.06	ug/g	5.00	TMECC.04.06
Total Potassium (as K <sub>2</sub> O)	0.99	0.81	%	0.05	ICP
Phosphorus	1867.50	1530.98	ug/g	5.00	TMECC.04.06 *
Total Phosphorus (as P <sub>2</sub> O <sub>5</sub> )	0.43	0.35	%	0.05	ICP
Aluminum	6270.00	5140.15	ug/g	5.00	TMECC.04.06 *
Boron	39.51	32.39	ug/g	1.00	TMECC.04.06
Calcium	2.39	1.96	%	0.01	TMECC.04.06
Iron	9940.00	8148.81	ug/g	5.00	TMECC.04.06 *
Magnesium	0.79	0.65	%	0.01	TMECC.04.06
Manganese	320.05	262.38	ug/g	1.00	TMECC.04.06
Sodium	0.05	0.04	%	0.01	TMECC.04.05 *
Sulphur	2042.00	1674.03	ug/g	5.00	TMECC.04.06 *
<b>Additional Parameters</b>					
Bulk Density (as Recieved)		590	kg/m <sup>3</sup>	10	Gravimetric
Conductivity (@ 25 deg C)		3.91	ms/cm	0.02	Conductivity Meter

\* - accredited test

BDL - Below detectable levels

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



C18297-70002

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