



Transform Compost Products

healthy soil, healthy future

Worm Castings Verification Process

November 2020

Transform's worm castings are produced according to the requirements specified by the Canadian General Standards Board Document CAN/CGSB-32.311-2015 Amended March 2018 – Organic Production Systems Permitted Substances Lists. The requirements also refer and comply with CAN/CGSB-32.310 215E – General Principles and Management Standards; and the CCME Guidelines for Compost Quality.

Table 4.2 in CAN/CGSB-32.311 identifies the requirements for worm castings:

“Worm castings (also called vermicompost, worm compost, vermicasts, worm humus or worm manure) are the end product of the breakdown of organic matter and compounds by some earthworm species.

Feedstocks for earthworms shall meet the criteria in Table 4.2 Compost feedstocks.

The operator shall be able to demonstrate that:

- a) worm castings produced either on the farm or obtained from off farm sources meet the limits for acceptable levels (MPN/g total solids) of human pathogens as specified in Guidelines for Compost Quality; or*
- b) that best practices known to eliminate human pathogens during vermicomposting have been used.”*

The earthworm species used to create Transform Compost Products' worm castings is the *Eisenia fetida* or red wiggler worm.

The compost feedstocks used to create Transform Compost Products' worm castings is 100% separated dairy cattle manure, where the animals are able to roam freely in a barn, and are not kept permanently in the dark, which conforms to the criteria specified in 5.5.1 of CAN/CGSB-32.310 which states:

“Animal manure produced on the operation shall be used first. When all available manure is used up, organic manure from other sources may be used. If organic manure is not commercially available, non-organic manure is permitted provided that:

- a) the non-organic source is not a fully caged system in which livestock cannot turn 360°, and*
- b) livestock is not permanently kept in the dark, and*
- c) the source and quantity of manure, type of livestock, and evaluation of the criteria in 5.5.1 a) and 5.5.1 b) shall be recorded.”*

Transform Compost Products' worm castings have a fecal coliform content of 10 MPN/g dry solids, and no *Salmonella* (analysis attached), which meets the limits for acceptable levels of human pathogens as specified in the Guidelines for Compost Quality:

“Organism content shall meet the following: “Fecal coliforms < 1000 most probable number (MPN/g) of total solids calculated on a dry weight basis, and No Salmonella sp. With a detection level <MPN/4g total solids calculated on a dry weight basis”

Best practices known to eliminate human pathogens during the vermicomposting process have been used, including precomposting the feedstock.

Transform Compost Products' worm castings meet the trace element requirements of the Guidelines for Compost Quality, and contain no foreign matter or other contaminants.

This report prepared by John Paul, PhD PAg

REPORT NO.
C20260-70003

ACCOUNT NUMBER
95000

A & L Canada Laboratories Inc.

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



TO: TRANSFORM COMPOST PRODUCTS
3911 MT LEHMAN RD
ABBOTSFORD, BC V2T 5W5

FOR: WORM CASTINGS



Phone: 519-457-2575

CERTIFICATE OF ANALYSIS

PAGE: 1 / 3

PROJECT NO:
PO#: TCP 2020
LAB NUMBER: 2607009
SAMPLE ID: WORM CASTINGS

SAMPLE MATRIX: COMPOST
DATE SAMPLED: 2020-09-14
DATE RECEIVED: 2020-09-16
DATE REPORTED: 2020-09-28
DATE PRINTED: 2020-09-28

PARAMETER	RESULT	UNIT	DETECTION LIMIT	METHOD REFERENCE
Arsenic	2.35	ug/g	1.00	EPA 3050B/6010B(mod) *
Cadmium	BDL	ug/g	1.00	EPA 3050B/6010B(mod) *
Cobalt	4.75	ug/g	1.00	TMECC.04.06; EPA 3050/6010(mod)
Chromium	18.87	ug/g	1.00	TMECC.04.06; EPA 3050/6010(mod)*
Copper	59.00	ug/g	1.00	TMECC.04.06; EPA 3050/6010(mod)
Mercury	BDL	ug/g	0.10	EPA 7471 *
Molybdenum	2.7	ug/g	1.0	TMECC.04.06; EPA 3050/6010(mod)*
Nickel	9.82	ug/g	1.00	TMECC.04.06; EPA 3050/6010(mod)
Lead	7.02	ug/g	1.00	EPA 3050B/6010B(mod) *
Selenium	BDL	ug/g	1.00	EPA 3050/6010 (mod) *
Zinc	192.95	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.



C20260-70003

Results Authorized By:

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

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PROJECT NO:
PO#: TCP 2020
LAB NUMBER: 2607010
SAMPLE ID: WORM CASTINGS

SAMPLE MATRIX: COMPOST
DATE SAMPLED: 2020-09-14
DATE RECEIVED: 2020-09-16
DATE REPORTED: 2020-09-28
DATE PRINTED: 2020-09-28

PARAMETER	RESULT	UNIT	DETECTION LIMIT	METHOD REFERENCE
E. coli	10	MPN/g dry	3	TMECC 07.01
Salmonella spp.	NEGATIVE	P-A/25.0g(ml)	1 CFU	MFLP-75 *
Fecal Coliform	24	MPN/g dry	3	TMECC 07.01
Total Potassium (as K2O)	0.99	%	0.05	ICP
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
Total Phosphorus (as P2O5)	0.89	%	0.05	ICP
Total Organic Matter @ 550 deg C	42.99	%	0.10	LOI@550C
Moisture	62.28	%	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)	100.00	%	0.01	ASTMD422
Sieve 1/4 Inch (% Passing)	100.00	%	0.10	ASTMD422
Compost Stability Index	8	---		TMECC.05.08-B
Respiration-mgCO2-C/g OM/day	BDL	mgCO2-C/ gOM/day	0.01	TMECC.05.08-B
Respiration - mgCO2-C/g TS/day	BDL	mgCO2-C/gTS/ day	0.01	TMECC.05.08-B

Comment:

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BDL - Below detectable levels

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PARAMETER	RESULT	UNIT	DETECTION LIMIT	METHOD REFERENCE
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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

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Report Number: C20260-10377
 Account Number: 95000

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 Telephone: (519) 457-2575 Fax: (519) 457-2664



C20260-10377



To: TRANSFORM COMPOST PRODUCTS
 3911 MT LEHMAN RD
 ABBOTSFORD, BC V2T 5W5

For: WORMCASTINGS

P.O. Number: TCP2020

Reported Date:
 Printed Date: Sep 28, 2020

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
WORMCASTINGS	55727	7.0	6.9	34.7	615	2811	977	2580

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
130	43.0	17	159	3.7	3.0	509	1638	3.1	2.04	1412

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	
30.4	100.0	23.74	26.47	42.50	7.29	7.21	8.03	12.90	2.21	1:1	2:1	11:1
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

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ABBOTSFORD, BC V2T 5W5

RE: WORMCASTINGS

DATE RECEIVED: 2020-09-16

DATE REPORTED: 2020-09-28

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P.O. NUMBER: TCP2020

LAB NO.	SAMPLE ID	ANALYSIS	RESULT	UNIT	METHOD
55727	WORMCASTINGS	Nitrogen (Total)	2.0	%	TMECC.04.02-D



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