



## Certificate of Analysis

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<b>Client:</b>	Revital Fertilisers	<b>Lab No:</b>	2305748	CPV1
<b>Contact:</b>	Revital Fertilisers C/- Remediation (NZ) Limited PO Box 8045 New Plymouth 4342	<b>Date Received:</b>	16-Jan-2020	
		<b>Date Reported:</b>	24-Jan-2020	
		<b>Quote No:</b>	95130	
		<b>Order No:</b>	29804	
		<b>Client Reference:</b>	Uruti Drilling Mud for Compost	
		<b>Submitted By:</b>	D Gibson	

### Sample Type: COMPOST, General

Sample Name:	Pad 3 Compost	Guideline NZS 4454:2005*	BioGro Std 2009 Appendix A**
Lab Number:	2305748.1		
<b>Water Extractable Results</b>			
pH	pH Units	7.2	5.0 - 8.5
Electrical Conductivity (EC)	mS/cm	3.2	-
<b>Total Analysis Results - Dry Weight Basis</b>			
Organic Matter*	%	23.3	Greater than 25
Total Carbon*	%	13.5	-
Total Nitrogen*	%	0.61	Greater than 0.6 (if a contribution to plant nutrition is claimed)
C/N Ratio*		22	-
Dry Matter*	%	59.8	-
'Total' Phosphorus*	mg/kg	1,900	-
'Total' Phosphorus*	%	0.19	Greater than 0.1 (if a contribution to plant nutrition is claimed)
'Total' Sulphur*	mg/kg	3,360	-
'Total' Sulphur*	%	0.34	-
'Total' Potassium*	mg/kg	2,710	-
'Total' Potassium*	%	0.27	-
'Total' Calcium*	mg/kg	46,100	-
'Total' Calcium*	%	4.61	-
'Total' Magnesium*	mg/kg	3,980	-
'Total' Magnesium*	%	0.40	-
'Total' Sodium*	mg/kg	1,339	-
'Total' Sodium*	%	0.13	-
'Total' Iron*	mg/kg	17,800	-
'Total' Manganese*	mg/kg	300	-
'Total' Zinc*	mg/kg	186	Less than 600
'Total' Copper*	mg/kg	107	Less than 300
'Total' Boron*	mg/kg	12	Less than 200

\* New Zealand Standard Composts, Soil Conditioners and Mulches: NZS 4454:2005, Table 3.1. Test results apply to the sample(s) submitted for analysis and do not necessarily imply that the product meets all the requirements of the standard. Note that the laboratory methods used for these test results may differ slightly to those referred to in the standard.

\*\* Bio-Gro NZ Organic Standards 2009, Appendix A, Table A3: Limits for Heavy Metals in Soils and Composts: BioGro Standard for compost - ingredients other than household waste. Other limits apply for compost with ingredients including household waste.



## Analyst's Comments

### Sample 1 Comment:

Note 1: Reporting Units.

% = g/100g = g analyte/100g compost (dry weight basis)

mg/kg = ppm = mg analyte/kg compost (dry weight basis)

Electrical Conductivity units mS/cm = dS/m

Note 2: % x 10 = kg/T

Note 3: To calculate results to a fresh weight basis:

Result (dry matter basis) x (Dry Matter % / 100) = Result (fresh weight basis)

### Sample 1 Comment:

Organic Matter Note: The relationship between carbon and organic matter varies according to organic matter type and soil type if soil is present in the product. Commonly used conversion factors range from 1.65 to 2.2 (Ref: NZS 445:2005). A Loss on Ignition (LOI) test may be requested if a more accurate organic matter value is required.

## Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

### Sample Type: COMPOST, General

Test	Method Description	Default Detection Limit	Sample No
'Total' Sulphur*	Calculated from 'Total' Sulphur result for mg/kg (reported on a dry weight basis).	0.01 %	1
'Total' Sulphur*	Nitric/hydrochloric digestion (based on US EPA 200.2) followed by ICP-OES. (Total recoverable nutrients reported on a dry weight basis) The levels from this method are referred to as 'Totals' in quotation marks, as they will be a slight under-estimation of the true Totals for some elements.	45 mg/kg	1
pH	1:1.5 (v/v) Water extraction followed by potentiometric pH determination. In-house.	0.1 pH Units	1
Electrical Conductivity	1:1.5 (v/v) Water extraction followed by potentiometric conductivity determination (25°C). In-house.	0.1 mS/cm	1
Total Carbon*	Sample dried and ground and analysed by Dumas combustion. Results expressed on a dry weight basis.	0.2 %	1
Total Nitrogen*	Sample dried and ground and analysed by Dumas combustion. Results expressed on a dry weight basis.	0.04 %	1
Organic Matter*	Dumas combustion. Organic Matter is 1.72 x Total Carbon.	0.2 %	1
Dry Matter*	Weight loss on drying at 105°C for 24 hours.	0.5 %	1
'Total' Phosphorus*	Calculated from 'Total' Phosphorus result for mg/kg (reported on a dry weight basis).	0.01 %	1
'Total' Phosphorus*	Nitric/hydrochloric digestion (based on US EPA 200.2) followed by ICP-OES. (Total recoverable nutrients reported on a dry weight basis) The levels from this method are referred to as 'Totals' in quotation marks, as they will be a slight under-estimation of the true Totals for some elements. In-house.	65 mg/kg	1
'Total' Potassium*	Calculated from 'Total' Potassium result for mg/kg (reported on a dry weight basis).	0.01 %	1
'Total' Potassium*	Nitric/hydrochloric digestion (based on US EPA 200.2) followed by ICP-OES. (Total recoverable nutrients reported on a dry weight basis) The levels from this method are referred to as 'Totals' in quotation marks, as they will be a slight under-estimation of the true Totals for some elements.	70 mg/kg	1
'Total' Calcium*	Calculated from 'Total' Calcium result for mg/kg (reported on a dry weight basis).	0.01 %	1
'Total' Calcium*	Nitric/hydrochloric digestion (based on US EPA 200.2) followed by ICP-OES. (Total recoverable nutrients reported on a dry weight basis) The levels from this method are referred to as 'Totals' in quotation marks, as they will be a slight under-estimation of the true Totals for some elements.	100 mg/kg	1
'Total' Magnesium*	Calculated from 'Total' Magnesium result for mg/kg (reported on a dry weight basis).	0.01 %	1

Sample Type: COMPOST, General			
Test	Method Description	Default Detection Limit	Sample No
'Total' Magnesium*	Nitric/hydrochloric digestion (based on US EPA 200.2) followed by ICP-OES. (Total recoverable nutrients reported on a dry weight basis) The levels from this method are referred to as 'Totals' in quotation marks, as they will be a slight under-estimation of the true Totals for some elements.	40 mg/kg	1
'Total' Sodium*	Calculated from 'Total' Sodium result for mg/kg (reported on a dry weight basis).	0.01 %	1
'Total' Sodium*	Nitric/hydrochloric digestion (based on US EPA 200.2) followed by ICP-OES. (Total recoverable nutrients reported on a dry weight basis) The levels from this method are referred to as 'Totals' in quotation marks, as they will be a slight under-estimation of the true Totals for some elements.	20 mg/kg	1
'Total' Iron*	Nitric/hydrochloric digestion (based on US EPA 200.2) followed by ICP-OES. (Total recoverable nutrients reported on a dry weight basis) The levels from this method are referred to as 'Totals' in quotation marks, as they will be a slight under-estimation of the true Totals for some elements.	40 mg/kg	1
'Total' Manganese*	Nitric/hydrochloric digestion (based on US EPA 200.2) followed by ICP-OES. (Total recoverable nutrients reported on a dry weight basis) The levels from this method are referred to as 'Totals' in quotation marks, as they will be a slight under-estimation of the true Totals for some elements.	4 mg/kg	1
'Total' Zinc*	Nitric/hydrochloric digestion (based on US EPA 200.2) followed by ICP-OES. (Total recoverable nutrients reported on a dry weight basis) The levels from this method are referred to as 'Totals' in quotation marks, as they will be a slight under-estimation of the true Totals for some elements.	4 mg/kg	1
'Total' Copper*	Nitric/hydrochloric digestion (based on US EPA 200.2) followed by ICP-OES. (Total recoverable nutrients reported on a dry weight basis) The levels from this method are referred to as 'Totals' in quotation marks, as they will be a slight under-estimation of the true Totals for some elements.	4 mg/kg	1
'Total' Boron*	Nitric/hydrochloric digestion (based on US EPA 200.2) followed by ICP-OES. (Total recoverable nutrients reported on a dry weight basis) The levels from this method are referred to as 'Totals' in quotation marks, as they will be a slight under-estimation of the true Totals for some elements.	6 mg/kg	1

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Dates of testing are available on request. Please contact the laboratory for more information.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.

Shelley Edhouse  
Quality Assurance Coordinator - Agriculture