



ANALYSIS REPORT

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| | | | | |
|-----------------|---|--------------------------|----------------------|------|
| Client: | EcoCast Limited | Lab No: | 1166471 | CPv1 |
| Contact: | EcoCast Limited 5 Seaview Lane WHAKATANE 3120 | Date Registered: | 13-Aug-2013 | |
| | | Date Reported: | 21-Aug-2013 | |
| | | Quote No: | | |
| | | Order No: | | |
| | | Client Reference: | | |
| | | Submitted By: | Dr. Michael Quintern | |

Sample Type: Compost

| Sample Name: | | Ecocast Compost 08 - 2013 | | Guideline NZS 4454:2005* | BioGro Std 2009 Appendix A** |
|----------------------------------|----------|---------------------------|---|---|------------------------------|
| Lab Number: | | 1166471.1 | | | |
| Water Extractable Results | | | | | |
| pH | pH Units | 8.3 | - | 5.0 - 8.5 | - |
| Electrical Conductivity (EC) | mS/cm | 1.7 | - | - | - |
| Nitrate-N | mg/L | 13 | - | - | - |
| Ammonium-N | mg/L | 38 | - | - | - |
| Phosphorus | mg/L | 3 | - | - | - |
| Potassium | mg/L | 322 | - | - | - |
| Sulphur | mg/L | 29 | - | - | - |
| Calcium | mg/L | 22 | - | - | - |
| Magnesium | mg/L | 8 | - | - | - |
| Sodium | mg/L | 48 | - | - | - |
| Total Analysis Results | | | | | |
| Organic Matter* | % | 20.9 | - | Greater than 25 | - |
| Total Carbon* | % | 12.1 | - | - | - |
| Total Nitrogen* | % | 0.93 | - | Greater than 0.6 (if a contribution to plant nutrition is claimed) | - |
| C/N Ratio* | | 13.0 | - | - | - |
| Dry Matter* | % | 59.0 | - | - | - |
| 'Total' Phosphorus* | mg/kg | 2,140 | - | - | - |
| 'Total' Phosphorus* | % | 0.21 | - | Greater than 0.1 (if a contribution to plant nutrition is claimed) | - |
| 'Total' Sulphur* | mg/kg | 1,227 | - | - | - |
| 'Total' Sulphur* | % | 0.12 | - | - | - |
| 'Total' Potassium* | mg/kg | 4,540 | - | - | - |
| 'Total' Potassium* | % | 0.45 | - | - | - |
| 'Total' Calcium* | mg/kg | 18,070 | - | - | - |
| 'Total' Calcium* | % | 1.81 | - | - | - |
| 'Total' Magnesium* | mg/kg | 5,840 | - | - | - |
| 'Total' Magnesium* | % | 0.58 | - | - | - |
| 'Total' Sodium* | mg/kg | 1,062 | - | - | - |
| 'Total' Sodium* | % | 0.11 | - | - | - |
| 'Total' Iron* | mg/kg | 10,300 | - | - | - |
| 'Total' Manganese* | mg/kg | 300 | - | - | - |
| 'Total' Zinc* | mg/kg | 137 | - | Less than 600 | Less than 300 |
| 'Total' Copper* | mg/kg | 34 | - | Less than 300 | Less than 60 |



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.
The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked *, which are not accredited.

| Sample Type: Compost | | | | |
|----------------------|-------|---------------------------|---------------------------------|-------------------------------------|
| Sample Name: | | Ecocast Compost 08 - 2013 | Guideline NZS 4454:2005* | BioGro Std 2009 Appendix A** |
| Lab Number: | | 1166471.1 | | |
| 'Total' Boron* | mg/kg | 18 | - | 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 clean 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.

| Sample Type: Compost | | | |
|-------------------------------------|--|-------------------------|---------|
| Test | Method Description | Default Detection Limit | Samples |
| Sample Registration* | Samples were registered according to instructions received. | - | 1 |
| Media & Compost Prep (Dry & Grind)* | Oven dried at 105°C for 24 hours and ground to pass through a 2.0mm screen. | - | 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 |
| 'Total' Sulphur* | Calculated from 'Total' Sulphur result for mg/kg (reported on a dry weight basis). | 0.01 % | 1 |
| pH | 1:1.5 (v/v) Water extraction followed by potentiometric pH determination. | 0.1 pH Units | 1 |
| Electrical Conductivity | 1:1.5 (v/v) Water extraction followed by potentiometric conductivity determination (25°C). | 0.1 mS/cm | 1 |
| Nitrate-N | 1:1.5 (v/v) Water extraction followed by Salicylate colorimetry. | 1 mg/L | 1 |
| Ammonium-N | 1:1.5 (v/v) Water extraction followed by Berthelot colorimetry. | 1 mg/L | 1 |
| Phosphorus | 1:1.5 (v/v) Water extraction followed by ICP-OES. | 1 mg/L | 1 |
| Sulphur | 1:1.5 (v/v) Water extraction followed by ICP-OES. | 1 mg/L | 1 |
| Potassium | 1:1.5 (v/v) Water extraction followed by ICP-OES. | 1 mg/L | 1 |
| Calcium | 1:1.5 (v/v) Water extraction followed by ICP-OES. | 1 mg/L | 1 |
| Magnesium | 1:1.5 (v/v) Water extraction followed by ICP-OES. | 1 mg/L | 1 |
| Sodium | 1:1.5 (v/v) Water extraction followed by ICP-OES. | 1 mg/L | 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 |

| Sample Type: Compost | | | |
|----------------------|--|-------------------------|---------|
| Test | Method Description | Default Detection Limit | Samples |
| '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. | 40 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. | 60 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 |
| '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. | 6 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. | 20 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. | 2 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.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

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A handwritten signature in blue ink, appearing to read 'S Edhouse', with a horizontal line underneath.

Shelley Edhouse
Quality Assurance Officer - Agriculture Division