

### COMPOST 'TOTALS' ANALYSIS REPORT

1 sample supplied by Hardwood Residue Solutions on the 16 April 2024. Lab Job No. R3051.

Analysis requested by Ray Loy. **Your Job: No 1.**

455 Armidale Road SOUTH GRAFTON NSW 2460

		Product Name: Product Type: Manufacturing Site: Manufactured Date: Test Applicable:	Sample 1 No 1 Compost HRS .. CA-PACK-020	Guideline  AS4454:2012 Composted Product
Parameter	Method Reference		R3051/1	
Moisture Content (%)	**Inhouse S2 (105°C)		45	> 25
pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)		7.94	> 5
Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)		6.88	< 10
Total Carbon (%)	Inhouse S4a (LECO Trumac Analyser)		37.4	≥ 20
Total Nitrogen (%)			1.66	≥ 0.8
Carbon/Nitrogen Ratio	**Calculation - Total Carbon/Total Nitrogen		23	..
Estimated Organic Matter (% OM)	**Calculation - Total Carbon x 1.7		63.5	..
Total Calcium (%)			1.61	..
Total Magnesium (%)			0.45	..
Total Potassium (%)	Rayment & Lyons 2011 - 17C1 Aqua Regia Total Salts		1.11	..
Total Sodium (%)			0.30	< 1 Na
Total Sulphur (%)			0.35	..
Total Phosphorus (%)	Rayment & Lyons 2011 - 17C1 Aqua Regia		0.53	≤ 0.1 P
Total Zinc (mg/kg)			178	< 300 Zn
Total Manganese (mg/kg)			170	..
Total Iron (mg/kg)			2,950	..
Total Copper (mg/kg)	Rayment & Lyons 2011 - 17C1 Aqua Regia Total Metals		37.2	< 150 Cu
Total Boron (mg/kg)			7.15	< 100 B
Total Silicon (mg/kg)			976	..
Total Aluminium (mg/kg)			1,646	..
Total Molybdenum (mg/kg)			1.03	..
Total Cobalt (mg/kg)	Rayment & Lyons 2011 - 17C1 Aqua Regia Total Metals		3.41	..
Total Selenium (mg/kg)			<1	< 5 Se
Nitrogen/Sulphur Ratio	**Calculation - Total Nitrogen/Total Sulfur		4.8	..
Nitrogen/Phosphorus Ratio	**Calculation - Total Nitrogen/Total Phosphorus		3.2	..
Nitrogen/Potassium Ratio	**Calculation - Total Nitrogen/Total Potassium		1.5	..
Total Cadmium (mg/kg)			<0.5	< 1 Cd
Total Lead (mg/kg)			3.84	< 150 Pb
Total Arsenic (mg/kg)			2.75	< 20 As
Total Chromium (mg/kg)	Rayment & Lyons 2011 - 17C1 Aqua Regia Total Heavy Metals		5.56	< 100 Cr
Total Nickel (mg/kg)			3.29	< 60 Ni
Total Mercury (mg/kg)			<0.1	< 1 Hg
Total Silver (mg/kg)			<1	..
Salmonella spp (Absent in 25 g)	Sub** - Symbio Laboratories B1514477-A (M16.1 AS 5013.10)		ND	Absent in 25 g
E. coli (MPN/g DW)	Sub** - Symbio Laboratories B1514477-A (M8.3 - AS 5013.3 & AS 5013.15)		240.0	< 100 MPN/g
Faecal Coliforms (MPN/g DW)			240.0	< 1000 MPN/g
Viable Plant Propagules (7 days)			Nil	..
Viable Plant Propagules (21 days)	AS4454:2012 Appendix M		Nil	Nil after 21 days

**Notes:**

- All analysis is dry weight – Samples reported on an oven dried basis at 105°C (testing conducted on finely ground sample dried at 40°C).
- Methods from Rayment and Lyons, 2011. Soil Chemical Methods - Australasia.CSIRO Publishing: Collingwood.
- Indicative guidelines are based on those in AS4454:2012 for a composted product.
- Total Acid Extractable Nutrients indicate a store of nutrients.
- Conversions for 1 mg/kg = 1 ppm; 1 % = 10,000 ppm
- Conversions to kg/ha = mg/kg x 2.24
- The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
- < LOR Less than limit of reporting. ND Not detected. NA Not applicable. NR Not required.
- Testing completed in a NATA accredited laboratory.
- Analysis conducted between sample arrival date and reporting date.
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Quality Checked: Brian Smith  
 Compost & Landscape Soils Co-ordinator

## COMPOST 'AVAILABLES' ANALYSIS REPORT

1 sample supplied by Hardwood Residue Solutions on the 16 April 2024. Lab Job No. R3051.

Analysis requested by Ray Loy. **Your Job: No 1.**

455 Armidale Road SOUTH GRAFTON NSW 2460

Parameter		Method reference	Sample 1 No 1 Compost HRS .. CA-PACK-020
			R3051/1
Soluble Calcium (mg/kg)			4,440
Soluble Magnesium (mg/kg)		**Inhouse S10 - Morgan 1	1,378
Soluble Potassium (mg/kg)			9,017
Soluble Phosphorus (mg/kg)			1,801
Phosphorus (mg/kg P)		**Rayment & Lyons 2011 - 9E2 (Bray 1) **Rayment & Lyons 2011 - 9B2 (Colwell) **Inhouse S3A (Bray 2)	846 3,247 2,346
Nitrate Nitrogen (mg/kg N)			21.3
Ammonium Nitrogen (mg/kg N)		**Inhouse S37 (KCl)	307
Sulfur (mg/kg S)			290
pH		Rayment & Lyons 2011 - 4A1 (1:5 Water)	7.94
Electrical Conductivity (dS/m)		Rayment & Lyons 2011 - 3A1 (1:5 Water)	6.884
Estimated Organic Matter (% OM)		**Calculation - Total Carbon x 1.7	63.5
Exchangeable Calcium (cmol <sub>e</sub> /kg)			17.1
Exchangeable Calcium (kg/ha)			7,689
Exchangeable Calcium (mg/kg)			3,433
Exchangeable Magnesium (cmol <sub>e</sub> /kg)			10.8
Exchangeable Magnesium (kg/ha)			2,928
Exchangeable Magnesium (mg/kg)		Rayment & Lyons 2011 - 15D1 (Ammonium Acetate)	1,307
Exchangeable Potassium (cmol <sub>e</sub> /kg)			13.5
Exchangeable Potassium (kg/ha)			11,814
Exchangeable Potassium (mg/kg)			5,274
Exchangeable Sodium (cmol <sub>e</sub> /kg)			4.60
Exchangeable Sodium (kg/ha)			2,370
Exchangeable Sodium (mg/kg)			1,058
Exchangeable Aluminium (cmol <sub>e</sub> /kg)			0.17
Exchangeable Aluminium (kg/ha)		**Inhouse S37 (KCl)	34.2
Exchangeable Aluminium (mg/kg)			15.3
Exchangeable Hydrogen (cmol <sub>e</sub> /kg)			<0.01
Exchangeable Hydrogen (kg/ha)		**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<1
Exchangeable Hydrogen (mg/kg)			<1
Effective Cation Exchange Capacity (ECEC) (cmol <sub>e</sub> /kg)		**Calculation - Sum of Ca,Mg,K,Na,Al,H (cmol <sub>e</sub> /kg)	46.14
Calcium (%)			37.1
Magnesium (%)			23.3
Potassium (%)		**Base Saturation Calculations - Cation cmol <sub>e</sub> /kg / ECEC x 100	29.2
Sodium - ESP (%)			9.97
Aluminium (%)			0.37
Hydrogen			0.00

		Product Name:	Sample 1
		Product Type:	No 1
		Manufacturing Site:	Compost
		Manufactured Date:	HRS
		Test Applicable:	..
			CA-PACK-020
Parameter	Method reference	R3051/1	
Zinc (mg/kg)	Rayment & Lyons 2011 - 12A1 (DTPA)	82.2	
Manganese (mg/kg)		42.1	
Iron (mg/kg)		98.2	
Copper (mg/kg)		8.46	
Boron (mg/kg)	**Rayment & Lyons 2011 - 12C2 (Hot CaCl <sub>2</sub> )	1.26	
Silicon (mg/kg Si)	**Inhouse S11 (Hot CaCl <sub>2</sub> )	116	
Total Carbon (%)	Inhouse S4a (LECO Trumac Analyser)	37.4	
Total Nitrogen (%)		1.66	
Carbon/Nitrogen Ratio	**Calculation - Total Carbon/Total Nitrogen	23	

**Notes:**

- All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
- Methods from Rayment and Lyons, 2011. Soil Chemical Methods - Australasia. CSIRO Publishing: Collingwood.
- Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
- 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and Lamonte Soil Handbook.
- Guidelines for phosphorus have been reduced for Australian soils.
- Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
- Total Acid Extractable Nutrients indicate a store of nutrients.
- Contaminant Guides based on 'Residential with gardens and accessible soil including childrens daycare centres, preschools, primary schools, town houses or villas' (NSW EPA 1998).
- Conversions for 1 cmol+/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
- The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
- < LOR Less than limit of reporting. ND Not detected. NA Not applicable. NR Not required.
- Testing completed in a NATA accredited laboratory.
- Analysis conducted between sample arrival date and reporting date.
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