



ANALYSIS REPORT - COMPOSTED MATERIAL

Customer Information

PR Number
Composting Site
Grade (particle size range) *mm to mm*
Grade Type *lab constituted with water*
Certification Code *WESTT/BGDH/2019/0001*
Date Sampled *17/02/2019*
Batch Age When Sampled
Producer's Sample Code *Bangladesh - Coir Block*

Laboratory Information

Date Received 17/04/2019
Report No 2605
Sample Number RAM001/107/19
Reported By
Report Date 14/05/2019

SUMMARY ~ PAS 100 "PASS" OR "FAIL"

Parameter	Result	PAS 100 Upper Limit	Unit	Pass or Fail	Method Reference
E. coli at 44°C	<100	1000	CFU/g	Pass	BS ISO 16649-2
Salmonella spp. at 37°C	Absent	Absent	Absent or Present in 25g	Pass	BS EN ISO 6579, Schedule 2, Part II
Cadmium as Cd	0.9	1.50	mg/kg	Pass	BS EN 13650
Chromium as Cr	6.6	100.00	mg/kg	Pass	BS EN 13650
Copper as Cu ¹	8.5	200.00	mg/kg	Pass	BS EN 13650
Lead as Pb	<0.1	200.00	mg/kg	Pass	BS EN 13650
Mercury as Hg	<0.1	1.00	mg/kg	Pass	BS ISO 16772
Nickel as Ni	1.4	50.00	mg/kg	Pass	BS EN 13650
Zinc as Zn ¹	37	400.00	mg/kg	Pass	BS EN 13650
CO ₂ (Stability)	2.70	16.0	mg CO ₂ /g OM/d	Pass	ORG0020
Glass, Metal, Plastic & Other	0.00	0.25	% of 'air-dry' sample > 2 mm	Pass	AfOR MT PCS Issue 1, Revision 2, 05/12/2012
Plastic	0.00	0.12		Pass	
Sharps	0.00	R		R	
Stone in "mulch"	0.28	10.0	% of 'air-dry' sample > 4 mm	Pass	
Stone in other than "mulch"	0.28	8.0		Pass	

R Refer to composter's quality policy for upper limit allocated to the compost grade and intended market / end use, and evaluate sharps result against that limit.

¹ Zinc and copper are required by plants but, similarly as with other PTEs, can be toxic to some plant species at high concentrations. Such effects are influenced by other factors, so may not necessarily occur if corresponding PTE upper limits are exceeded. Check plant response test results for any toxic effects.



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WATER EXTRACTABLE NUTRIENTS ¹

Parameter	As Received (fresh)		In dry matter		Method Reference	Plant Significance
	Result	Unit	Result	Unit		
NH ₄ -N (ammonium-N)	0.5	mg/l*	7.5	mg/kg	BS EN 13652	Primary Nutrients
NO ₃ -N (nitrate-N)	0.9	mg/l	13.5	mg/kg	BS EN 13652	Primary Nutrients
NH ₄ -N plus NO ₃ -N	1.40	mg/l	21.0	mg/kg	Calculated	Primary Nutrients
Phosphorus as P	15.7	mg/l	236	mg/kg	BS EN 13652	Primary Nutrients
Potassium as K	281	mg/l	4217	mg/kg	BS EN 13652	Primary Nutrients
Calcium as Ca	35.3	mg/l	529	mg/kg	BS EN 13652	Secondary Nutrients
Magnesium as Mg	4.2	mg/l	63.6	mg/kg	BS EN 13652	Secondary Nutrients
Sulphur as S	6.5	mg/l	98.2	mg/kg	BS EN 13652	Secondary Nutrients
Boron as B	<0.1	mg/l	<0.1	mg/kg	BS EN 13652	Trace Nutrients
Copper as Cu	<0.1	mg/l	1.08	mg/kg	BS EN 13652	Trace Nutrients
Iron as Fe	1.6	mg/l	24.5	mg/kg	BS EN 13652	Trace Nutrients
Manganese as Mn	0.40	mg/l	6.01	mg/kg	BS EN 13652	Trace Nutrients
Molybdenum as Mo	0.10	mg/l	1.50	mg/kg	BS EN 13652	Trace Nutrients
Zinc as Zn	0.55	mg/l	8.25	mg/kg	BS EN 13652	Trace Nutrients
Chloride as Cl	272	mg/l	4079	mg/kg	BS EN 13652	See Footnote 2
Sodium as Na	44.1	mg/l	662	mg/kg	BS EN 13652	See Footnote 2

¹ Water extractable values are a measure of nutrient concentrations immediately available to plants.

² Sodium together with chloride, influences nutrient uptake by plants and can inhibit this at high concentrations.

* The QP Manager (the 'web tool') requires the test result associated with this unit.

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TOTAL NUTRIENTS ¹

Parameter	As Received (fresh)		In dry matter		Method Reference	Plant Significance
	Result	Unit	Result	Unit		
Nitrogen as N	597	mg/l	8950	mg/kg	Dumas, BS EN 13654-2 ²	Primary Nutrients
Nitrogen as N	0.17	% m/m	0.90	% m/m	Dumas, BS EN 13654-2 ²	Primary Nutrients
Phosphorus as P	31.1	mg/l	466	mg/kg	BS EN 13650	Primary Nutrients
Phosphorus as P	<0.1	% m/m	<0.1	% m/m*	BS EN 13650	Primary Nutrients
Potassium as K	709	mg/l	10630	mg/kg	BS EN 13650	Primary Nutrients
Potassium as K	0.21	% m/m	1.06	% m/m*	BS EN 13650	Primary Nutrients
Calcium as Ca	508	mg/l	7615	mg/kg	BS EN 13650	Secondary Nutrients
Calcium as Ca	0.15	% m/m	0.76	% m/m	BS EN 13650	Secondary Nutrients
Magnesium as Mg	139	mg/l	2085	mg/kg	BS EN 13650	Secondary Nutrients
Magnesium as Mg	<0.1	% m/m	0.21	% m/m	BS EN 13650	Secondary Nutrients
Sulphur as S	66.4	mg/l	996	mg/kg	BS EN 13650	Secondary Nutrients
Sulphur as S	<0.1	% m/m	<0.1	% m/m*	BS EN 13650	Secondary Nutrients
Boron as B	0.6	mg/l	9.4	mg/kg	BS EN 13650	Trace Nutrients
Iron as Fe	297	mg/l	4451	mg/kg	BS EN 13650	Trace Nutrients
Manganese as Mn	4	mg/l	63	mg/kg	BS EN 13650	Trace Nutrients
Molybdenum as Mo	0.2	mg/l	2.6	mg/kg	BS EN 13650	Trace Nutrients
Sodium as Na	136	mg/l	2044	mg/kg	BS EN 13650	See Footnote 3

¹ This method uses a hydrochloric- and nitric-acid extractant ("aqua regia") and approximates "total" rather than "bioavailable" concentrations of the above elements.

² Unsuitable for materials containing free ammonia because this may be lost when samples are flushed with oxygen during the procedure, e.g. if compost sample contains > 500 mg/l ammonium.

³ Together with chloride, influences nutrient uptake by plants and can inhibit this at high concentrations.

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POTENTIALLY TOXIC ELEMENTS ¹

Parameter	As Received (fresh)		In dry matter		PAS100 Upper Limit	Pass or Fail	Method Reference
	Result	Unit	Result	Unit			
Cadmium as Cd	<0.1	mg/l	0.9	mg/kg*	1.50	Pass	BS EN 13650
Chromium as Cr	0.4	mg/l	6.6	mg/kg*	100.00	Pass	BS EN 13650
Copper as Cu ¹	0.6	mg/l	8.5	mg/kg*	200.00	Pass	BS EN 13650
Lead as Pb	<0.1	mg/l	<0.1	mg/kg*	200.00	Pass	BS EN 13650
Mercury as Hg	<0.1	mg/l	<0.1	mg/kg*	1.00	Pass	BS ISO 16772
Molybdenum as Mo	0.2	mg/l	2.6	mg/kg	N/A	N/A	BS EN 13650
Nickel as Ni	<0.1	mg/l	1.4	mg/kg*	50.00	Pass	BS EN 13650
Zinc as Zn ¹	2	mg/l	37	mg/kg*	400.00	Pass	BS EN 13650

¹ Zinc and copper are required by plants but, similarly as with other PTEs, can be toxic to some plant species at high concentrations. Such effects are influenced by other factors, so may not necessarily occur if corresponding PTE upper limits are exceeded. Check plant response test results for any toxic effects.

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PHYSICO-CHEMICAL PROPERTIES

Parameter	As Received (fresh)		In dry matter		Method Reference
	Result	Unit	Result	Unit	
Bulk Density ¹	342	g/l*	67	g/l	BS EN 13040
Dry Matter	19.5	% m/m	N/A		BS EN 13040
Moisture	275	g/l	N/A		BS EN 13040
Moisture	80.5	% m/m*	N/A		BS EN 13040
Organic Matter (Loss On Ignition)	98.0	% m/m	89.7	% m/m*	BS EN 13039
Organic Carbon (LOI ÷ 1.72)	57.0	% m/m	52.2	% m/m*	Calculated
pH	6.97	N/A*	N/A		BS EN 13037
Electrical Conductivity	274	µS/cm@25°C	N/A		BS EN 13038
Electrical Conductivity	27.4	mS/m @ 25°C	N/A		BS EN 13038

¹ Bulk density in dry matter is termed 'Dry Weight Density' and expressed in (g/l). DWD = fresh bulk density (g/l) - volumetric moisture content (g/

² 'The Fertilisers (Sampling and Analysis) Regulations 1996' Schedule 2, Part II Section 6 - 'Determination of the neutralising value of liming materials.' Method adaptation: the stage of passing the sample through a 1 mm sieve is omitted and results are expressed as % by weight of CaO on the undried sample, as received.

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PATHOGENS

Parameter	As Received (fresh)			Pass or Fail	Method Reference
	Result	PAS100 Upper Limit	Unit		
E. coli at 44°C	<100	1000	CFU/g	Pass	BS ISO 16649-2
Salmonella spp. at 37°C	Absent	Absent	Absent or Present in 25g	Pass	BS EN ISO 6579, Schedule 2, Part II

STABILITY / MATURITY

Parameter	As Received (fresh)			Pass or Fail	Method Reference
	Result	PAS100 Upper Limit	Unit		
Carbon Dioxide (evolution rate)	2.70	16	mg CO ₂ / g organic matter / day	Pass	ORG0020
Proportion of particles < 20 mm	100	N/A	% g/g	N/A	ORG0020
Parameter	As Received (fresh)		In Dry Matter		Method Reference
	Result	Unit	Result	Unit	
NH ₄ -N : NO ₃ -N (ratio)	0.56	:1	0.56	:1	Calculated
Carbon : Nitrogen (ratio)	58.4	:1	58.4	:1	Calculated



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PHYSICAL CONTAMINANTS

Sieve Apertures ¹	Glass	Metal	Plastic	Other ²	Description	Total ³	Of which Sharps ⁴	Stones ⁵	Method Reference: AfOR MT PC&S ¹ 05/12/2012
mm	g	g	g	g		g	g	g	
31.5	0	0	0	0		0	0	0	
16.0	0	0	0	0		0	0	0	
8.0	0	0	0	0		0	0	0	
4.0	0	0	0	0		0	0	0.25	
2.0	0	0	0	0		0	0	0	
1.0	0	0	0	0		0	0	0	
Pan	0	0	0	0		0	0	0	
% of total sample > 2 mm	0.00	0.00	0.00	0.00		0.00	0.00	N/A	
% of total sample > 4 mm	N/A	N/A	N/A	N/A		N/A	N/A	0.28	
PAS 100 upper limit for "mulch"			0.12			0.25	R	10.0	
Pass or Fail			Pass			Pass	R	Pass	
PAS 100 upper limit for other than "mulch"			0.12			0.25	R	8.0	
Pass or Fail			Pass			Pass	R	Pass	

Contaminants Key - Other²

A = Paper/Card B = Fibre C = String/Twine D = Rubber E = Matting

¹ 10 or 12.5 omitted

² Any different physical contaminant type; use key to identify or name in 'Description'

³ 'Total' is for glass, metal, plastic and 'other'. N.B.: excludes stones

⁴ Sharps > 2 mm, of any inorganic physical contaminant type (excludes woody fragments)

⁵ Stones and other consolidated mineral contaminants

R Refer to composter's quality policy for upper limit allocated to the compost grade and intended market / end use, and evaluate sharps result against that limit.



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PARTICLE SIZE DISTRIBUTION (air-dry sample)

Sieve Apertures ¹ mm	Sample		of which compost		Cumulative		Method Reference: Afor MT PC&S ¹ 05/12/2012
	Retained g	Retained g	Retained %	Passing %			
31.5	0.0	0.0	0.0	100.0			
16.0	0.0	0.0	0.0	100.0			
8.0	0.0	0.0	0.0	100.0			
4.0	0.7	0.0	0.0	100.0			
2.0	7.5	8.0	9.0	91.0			
1.0	28.4	28.0	40.4	59.6			
Pan	53.1	53.0	100.0	0.0			
Total	89.7	89.0					

¹ 10 or 12.5 omitted

Note: Moisture at 40°C = 37.45 % m/m