

ANALYSIS REPORT

CLIENT:	Eclipse	REPORT NO:	2023_0487
TEST REQUEST:	AS 4454-2012 Test Methods B-G, I-J ⁽¹⁾	LAB SAMPLE ID:	2023_0487
ADDRESS:	40 Subiaco Square Rd, Subiaco WA	DATE RECEIVED:	7/06/2023
CLIENT SAMPLE ID:	Black Mulch ES666	DATE TESTED:	7/06/23-29/06/23
SAMPLING LOCATION:	Abercrombie	DATE REPORTED:	29/06/2023

TEST RESULTS

Analyte	Result	Unit	AS4454 Compliance Requirement	
			Raw mulch	Pasteurized product
Electrical Conductivity	0.45	mS/cm	≤10	≤10
pH _(CaCl₂)	6.8		> 5	>5
Ammonium-N (in extract)	0.32	mg/L	NA	NA
Ammonium-N (dry weight)	1.62	mg/kg		
Nitrate-N (in extract)	3.08	mg/L		
Nitrate-N (dry weight)	15.6	mg/kg	NR	NR
Total N (dry weight)	0.08	%	≥ 0.8 ⁽²⁾	≥ 0.8 ⁽²⁾
Phosphate-P (in extract)	0.13	mg/L	≤ 5 ⁽³⁾	≤ 5 ⁽³⁾ , <1 ⁽⁴⁾
Phosphate-P (dry weight)	0.63	mg/kg		
Total P (dry weight)	0.004	%	≤ 0.1 ⁽³⁾	≤ 0.1 ⁽³⁾
Carbon (dry weight)	47.8	%	≥ 20	≥ 20
C:N Ratio	>500			
Organic Matter (dry weight)	81.2	%		
Calcium (dry weight)	4500	mg/kg		
Magnesium (dry weight)	260	mg/kg		
Sodium (dry weight)	240	mg/kg	NR	< 10 000
Potassium (dry weight)	230	mg/kg		
Chemical Contaminants⁽⁵⁾				
Arsenic	<5	mg/kg	≤ 20	≤ 20
Cadmium	<0.1	mg/kg	≤ 1	≤ 1
Chromium	<1	mg/kg	≤ 100	≤ 100
Copper	<1	mg/kg	≤ 150 ⁽⁶⁾	≤ 150 ⁽⁶⁾
Lead	<1	mg/kg	≤ 150	≤ 150
Mercury	<0.02	mg/kg	≤ 1	≤ 1
Nickel	<1	mg/kg	≤ 60	≤ 60
Zinc	6.5	mg/kg	≤ 300 ⁽⁶⁾	≤ 300 ⁽⁶⁾

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TEST RESULTS

Analyte	Result	Unit	AS4454 Compliance Requirement	
			Raw mulch	Pasteurized product
Phytotoxicity	109	Growth Index %	NR	NR
Apparent Density	0.27	kg/L		
Dry Bulk Density	0.26	kg/L		
Moisture content (as received)	5.8	%	NR	25-87.2 ⁽⁷⁾
Particle Size Grading				
• > 16mm	28.5	%		
• > 5mm to < 16mm	58.7	%		
• < 5mm	12.8	%		
Physical Contaminants				
• glass, metal and hard plastic > 2mm	0	%	≤ 0.5	≤ 0.5
• light plastic, plastic film > 5mm	0	%	≤ 0.05	≤ 0.05
• stones and clods of clay >5mm	0.8	%	≤ 5	≤ 5

Analysis: Sample was processed and sampled in accordance with AS 4454-2012 Standards. Electrical conductivity, pH, Ammonium-N, Nitrate-N and Phosphate-P AS 4454-2012 Appendix B. Total N, Carbon, C:N Ratio calculation, Organic Matter calculation AS 4454-2012 Appendix C. Total P, calcium, magnesium, sodium, potassium, arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc AS 4454-2012 Appendix D. Phytotoxicity/Bioassay alternate method AS 4454-2012 Appendix F as per Zucconi et al. 1981. Wettability AS 4454-2012 Appendix E. Apparent density and dry bulk density calculation AS 4454-2012 Appendix J. Moisture content AS 4454-2012 Appendix I. Particle size grading AS 4454-2012 Appendix G. Contamination AS 4454-2012 Appendix I.

NA = Not Applicable, NR = No Requirement

1) Appendix D includes the following parameters not tested by Bioscience Pty. Ltd.: boron, selenium, molybdenum, organohalides, chlorinated organic pesticides (OCPs), polychlorinated biphenyls (PCBs), and pathogens (*Salmonella*, *Escherichia coli*, thermotolerant coliforms).

(2) If a contribution to plant nutrition is claimed.

(3) For products that claim to be for P-sensitive plants.

(4) If applied to sandy soils.

(5) Where there are no currently applicable federal and state or territory provisions for composts, soil conditioners and mulches, products shall comply with the list of chemical contaminant upper limit values and labelling provisions as listed here. Note: non-conformance with this Standard does not indicate that the product may not otherwise be suitable for a range of specified applications that comply with other state or territory government regulations, guidelines or specified end user requirements. (From AS 4454-2012 Clause 2.1).

(6) A product that contains levels of total copper between 100-150 mg/kg and/or total zinc between 200-300 mg/kg (dry weight) whilst not exceeding the limit values, shall provide a warning label in accordance with the labelling requirements of Clause 5.3 of AS 4454-2012.

(7) Maximum = % OM + 6, when OM > 40%; maximum = % OM + 10 when OM < 40%.

Classification as either raw mulch or pasteurised product depends on the material type and if the sample has undergone pasteurisation (that is, a process whereby organic materials are treated to significantly reduce the numbers of plant and animal pathogens and plant propagules – Clause 1.5.13). Raw mulch is defined as mulch from a single known plant material type that, by virtue of the nature and source of the material, embodies minimal risk of plant propagules, pathogens and other contaminants (Clause 1.5.9).

These results reflect our findings for the received sample only.

Tested by: SM HF GN TW Date: 29/06/2023

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