

FINAL REPORT

Report Information

Report ID : 7514
Submitting Organisation : 00120011 : Caps Beta Pty Ltd
Account : 140089 : Caps Beta Pty Ltd
AWQC Reference : 140089-2005-CSR-2 :
Project Reference : PT-69
Product Designation : Multigum White.
Composition of Product : Refer to Material Safety Data Sheet.
Product Manufacturer : Bitum Limited, Israel.
Use of Product : UV Stable Waterproofing Membrane.
Sample Selection: As provided by the submitting organisation.
Testing Requested : **AS/NZS 4020:2005 TESTING OF PRODUCTS FOR USE IN CONTACT WITH DRINKING WATER**
Product Type : Composite
Samples : Samples were prepared and controlled as described in Appendix A of AS/NZS 4020:2005
Extracts : Extracts were prepared as described in Appendix C, D, E, F, G, H.
Project Completion Date : 08-Jun-2006

PLEASE NOTE THAT THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL

THE RESULTS STATED IN THIS REPORT RELATE TO THE SAMPLE OF THE PRODUCT SUBMITTED FOR TESTING. ANY CHANGES IN THE MATERIAL FORMULATION, PROCESS OF MANUFACTURE, THE METHOD OF APPLICATION, OR THE SURFACE AREA-TO-VOLUME RATIO IN THE END USE, COULD AFFECT THE SUITABILITY OF THE PRODUCT FOR USE IN CONTACT WITH DRINKING WATER



Michael Glasson
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Summary of Results

APPENDIX	RESULTS
C – Taste of Water Extract	Passed at an exposure of 6316 mm ² per Litre.
D – Appearance of Water Extract	Passed at an exposure of 6316 mm ² per Litre.
E – Growth of Aquatic Micro-organisms	Passed at an exposure of 6316 mm ² per Litre.
F – Cytotoxic Activity of Water Extract	Passed at an exposure of 15000 mm ² per Litre.
G – Mutagenic Activity of Water Extract	Passed at an exposure of 15000 mm ² per Litre.
H – Extraction of Metals	Passed at an exposure of 15000 mm ² per Litre.

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CLAUSE 6.2 Taste of Water Extract

Sample Description The sample was applied to the surface of a single glass slide with dimensions 75 mm x 100 mm providing a surface area of approximately 6316 mm² per Litre. Extracts were prepared using 1187 mL volumes of 50 mg/L hardness water.

Extraction Temperature 20 ± 2 C.

Test Method Taste of Water Extract (Appendix C)

Scaling Factor Not applied.

Results Not detected.

Evaluation The product passed the requirements of clause 6.2 when tested at an exposure of 6316 mm² per Litre.

Number of Samples 2.



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CLAUSE 6.3 Appearance of Water Extract

Sample Description The sample was applied to the surface of a single glass slide with dimensions 75 mm x 100 mm providing a surface area of approximately 6316 mm² per Litre. Extracts were prepared using 1187 mL volumes of 50 mg/L hardness water.

Extraction Temperature 20 ± 2 C.

Test Method Appearance of Water Extract (Appendix D)

Scaling Factor Not applied.

Results

	<u>Test (- Blank)</u>	<u>Maximum Allowed</u>	<u>Units</u>
Colour	<1	5	HU
Turbidity	<0.1	0.5	NTU

Evaluation The product passed the requirements of clause 6.3 when tested at an exposure of 6316 mm² per Litre.

Number of Samples 1.



Stephanie Semczuk
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CLAUSE 6.4 Growth of Aquatic Micro-organisms

Sample Description The sample was applied to the surface of two glass slides with dimensions 75 mm x 100 mm providing a surface area of approximately 15000 mm² per Litre. Extracts were prepared using 1000 mL volumes of test water.

Test Method Growth of Aquatic Micro-organisms (Appendix E)

Inoculum The volume of the inoculum was 100 mL

Scaling Factor A scaling factor of 0.4211 was applied.

Results

Mean Dissolved Oxygen	Control	7.0 mg/L
Mean Dissolved Oxygen Difference	Positive Reference	5.0 mg/L
	Negative Reference	<0.1 mg/L
	Test	3.8 mg/L

Evaluation A final MDOD value of 1.6 was achieved when a scaling factor of 0.4211 was applied to the test result. The product passed the requirements of clause 6.4 when tested at an exposure of 6316 mm² per Litre.

Number of Samples 1.



Phil Thomas
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CLAUSE 6.5 Cytotoxic Activity of Water Extract

Sample Description	The sample was applied to the surface of two glass slides with dimensions 75 mm x 100 mm providing a surface area of approximately 15000 mm ² per Litre. Extracts were prepared using 1000 mL volumes of 50 mg/L hardness water.
Extraction Temperature	20 ± 2 C.
Test Method	Cytotoxic Activity of Water Extract (Appendix F)
Scaling Factor	Not applied.
Results	Non-cytotoxic.
Evaluation	The product passed the requirements of clause 6.5 when tested at an exposure of 15000 mm ² per Litre.
Number of Samples	1.



Stella Fanok
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CLAUSE 6.6 Mutagenic Activity of Water Extract

Sample Description The sample was applied to the surface of two glass slides with dimensions 75 mm x 100 mm providing a surface area of approximately 15000 mm² per Litre. Extracts were prepared using 1000 mL volumes of 50 mg/L hardness water.

Extraction Temperature 20 ± 2 C.

Test Method Mutagenic Activity of Water Extract (Appendix G)

Scaling Factor Not applied.

Results

Bacteria Strain	Number of Revertants per Plate				
	S9	Blank	Sample Extract	Positive Controls	
<i>Salmonella typhimurium</i> TA98	-	29, 32, 27	31, 27, 27	3122, 2851, 2705	<u>NPD</u> (20µg)
Mean ± Standard deviation		29.3 ± 2.5	28.3 ± 2.3	2892.7 ± 211.6	
	+	36, 32, 31	33, 22, 29	2552, 2553, 2413	<u>2-AF</u> (20µg)
Mean ± Standard deviation		33.0 ± 2.6	28.0 ± 5.6	2506.0 ± 80.5	
<i>Salmonella typhimurium</i> TA100	-	121, 135, 135	148, 146, 162	577, 554, 513	<u>Azide</u> (1.0µg)
Mean ± Standard deviation		130.3 ± 8.1	152.0 ± 8.7	548.0 ± 32.4	
	+	147, 163, 133	130, 177, 164	1554, 1084, 1640	<u>2-AF</u> (20µg)
Mean ± Standard deviation		147.7 ± 15.0	157.0 ± 24.3	1426.0 ± 299.3	
<i>Salmonella typhimurium</i> TA102	-	419, 420, 378	379, 374, 384	821, 787, 744	<u>Mitomycin C</u> (2µg)
Mean ± Standard deviation		405.7 ± 24.0	379.0 ± 5.0	784.0 ± 38.6	
	+	445, 458, 398	370, 379, 422		
Mean ± Standard deviation		433.7 ± 31.6	390.3 ± 27.8		

Comments S9 was used as a metabolic activator. NPD (4-nitro-o-phenylenediamine), Azide, and Mitomycin C are specific positive controls for strains TA98, TA100 and TA102 respectively while 2 - AF (2-aminofluorene) when used in conjunction with S9 is a positive control for both TA98 and TA100

Evaluation The product passed the requirements of clause 6.6 when tested at an exposure of 15000 mm² per Litre.

Number of Samples 1.



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CLAUSE 6.7 Extraction of Metals

Sample Description The sample was applied to the surface of two glass slides with dimensions 75 mm x 100 mm providing a surface area of approximately 15000 mm² per Litre. Extracts were prepared using 1000 mL volumes of 50 mg/L hardness water.

Extraction Temperature 20 ± 2 C.

Test Method Extraction of Metals (Appendix H)

Scaling Factor Not applied.

Method of Analysis All methods used to determine concentrations of metals are base on those described in the 21st edition of Standard Methods for the Examination of Water and Wastewater published by the APHA, AWWA and WEF (2005). The methods have been adapted for the instrumentation in use at the Australian Water Quality Centre. Concentration of the metals described in Table 2 of the AS/NZS 4020:2005 are determined as follows:
Antimony, Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Mercury, Molybdenum, Nickel and Selenium by inductively coupled plasma mass spectrometry.
Silver by graphite furnace absorption spectriphotometry (Varian).

Results	Limit of Reporting mg/L	Blank mg/L	Test 1 mg/L	Test 2 mg/L	Max Allowed mg/L
Final Extract					
Antimony	0.0005	<0.0005	<0.0005	<0.0005	0.003
Arsenic	0.001	<0.001	<0.001	<0.001	0.007
Barium	0.0005	<0.0005	0.0022	0.0022	0.7
Cadmium	0.0005	<0.0005	<0.0005	<0.0005	0.002
Chromium	0.003	<0.003	<0.003	<0.003	0.05
Copper	0.0010	<0.0010	<0.0010	<0.0010	2.0
Lead	0.0005	<0.0005	<0.0005	<0.0005	0.01
Mercury	0.0003	<0.0003	<0.0003	<0.0003	0.001
Molybdenum	0.0005	<0.0005	<0.0005	<0.0005	0.05
Nickel	0.0005	<0.0005	<0.0005	<0.0005	0.02
Selenium	0.003	<0.003	<0.003	<0.003	0.01
Silver	0.002	<0.002	<0.002	<0.002	0.1

Evaluation The product passed the requirements of clause 6.7 when tested at an exposure of 15000 mm² per Litre.

Number of Samples 1.



Greg O'Neil
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