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Cantex Coatings Ltd
Attn: Jerry Van Velden
1329 Heine Court
Burlington, Ontario, L7L 6A7

CANADA

7/08/2009

Dear Jerry,

Please find the attached report to AS/NZS 4020:2005 for Premier Rubber Membrane submitted for testing.

Should you have any enquiries about the report or any other matters pertaining to the Standard please contact the laboratory on 61 8 7424 1512

Yours sincerely,

A handwritten signature in black ink, appearing to read "M Glasson".

Michael Glasson
Product Testing Team Leader



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FINAL REPORT

Report Information

Report ID : 55730

Submitting Organisation : 00120688 : Cantex Coatings Ltd

Account : 141324 : Cantex Coatings Ltd

AWQC Reference : 141324-2009-CSR-1 : Prod Test: Coating

Project Reference : PT-971

Product Designation : Premier Rubber Membrane

Composition of Product : Modified asphalt emulsion (see attachment for additional information).

Product Manufacturer : Cantex Coatings Ltd., Burlington, Ontario, Canada.

Use of Product : In-Line/Corrosion Protection.

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 : 31-Jul-2009

Project Comment : The results presented herein demonstrate compliance of Premier Rubber Membrane to AS/NZS 4020:2005 when exposed at area to volume ratios up to 5550 mm²/L.

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



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Summary of Results

APPENDIX	RESULTS
C – Taste of Water Extract	Passed at an exposure of 5550 mm ² per Litre.
D – Appearance of Water Extract	Passed at an exposure of 15000 mm ² per Litre.
E – Growth of Aquatic Micro-organisms	Passed at an exposure of 5550 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.

Summary Comment : Coating system was applied and cured by the submitting organisation.

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CLAUSE 6.2 Taste of Water Extract

Sample Description	The sample consisted of a single panel (coated on a single side) with dimensions 75 mm x 100 mm providing a total surface area of approximately 5550 mm ² per Litre. Extracts were prepared using 740 mL volumes of 50 mg/L hardness water.
Extraction Temperature	20°C ± 2°C.
Test Method	Taste of Water Extract (Appendix C)
Test Information	
Scaling Factor	Not applied.
Results	Not Detected
Evaluation	The product passed the requirements of clause 6.2 when tested at an exposure of 5550 mm ² per Litre.
Number of Samples	2.
Test Comment	Not applicable.



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CLAUSE 6.3 Appearance of Water Extract

Sample Description The sample consisted of two panels (coated on a single side) with dimensions 75 mm x 100 mm providing a total surface area of approximately 15000 mm² per Litre. Extracts were prepared using 1000 mL volumes of 50 mg/L hardness water.

Extraction Temperature 20°C ± 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 15000 mm² per Litre.

Number of Samples 1.

Test Comment Not applicable.



Roger Kennedy
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CLAUSE 6.4 Growth of Aquatic Micro-organisms

Sample Description The sample consisted of two panels (coated on a single side) with dimensions 75 mm x 100 mm providing a total 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 0.37 applied.

Results

Mean Dissolved Oxygen	Control	7.7 mg/L
Mean Dissolved Oxygen Difference	Positive Reference	6.3 mg/L
	Negative Reference	<0.1 mg/L
	Test	1.60 mg/L

Evaluation The product passed the requirements of clause 6.4 when tested at an exposure of 5550 mm² per Litre.

Number of Samples 1.

Test Comment The Mean Dissolved Oxygen Demand exceeded the maximum allowable. A scaling factor of 0.37 applied to the test result.



Stephanie Semczuk
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CLAUSE 6.5 Cytotoxic Activity of Water Extract

Sample Description	The sample consisted of two panels (coated on a single side) with dimensions 75 mm x 100 mm providing a total 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°C ± 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.
Test Comment	Not applicable.



Stella Fanok
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CLAUSE 6.6 Mutagenic Activity of Water Extract

Sample Description The sample consisted of two panels (coated on a single side) with dimensions 75 mm x 100 mm providing a total surface area of approximately 15000 mm² per Litre. Extracts were prepared using 1000 mL volumes of 50 mg/L hardness water.

Extraction Temperature 20°C ± 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	-	44, 38, 35	48, 48, 51	2085, 1984, 1964	<u>NPD</u> (20µg)
Mean ± Standard deviation		39.0 ± 4.6	49.0 ± 1.7	2011.0 ± 64.9	
	+	42, 33, 48	39, 46, 47	1656, 1638, 2005	<u>2-AF</u> (20µg)
Mean ± Standard deviation		41.0 ± 7.5	44.0 ± 4.4	1766.3 ± 206.9	
<i>Salmonella typhimurium</i> TA100	-	146, 165, 184	191, 186, 190	561, 782, 752	<u>Azide</u> (1.0µg)
Mean ± Standard deviation		165.0 ± 19.0	189.0 ± 2.6	698.3 ± 119.9	
	+	190, 213, 231	232, 273, 244	1483, 1390, 1517	<u>2-AF</u> (20µg)
Mean ± Standard deviation		211.3 ± 20.6	249.7 ± 21.1	1463.3 ± 65.7	
<i>Salmonella typhimurium</i> TA102	-	289, 271, 277	263, 366, 355	1475, 1457, 1843	<u>Mitomycin C</u> (2µg)
Mean ± Standard deviation		279.0 ± 9.2	328.0 ± 56.6	1591.7 ± 217.8	
	+	230, 288, 264	264, 305, 362		
Mean ± Standard deviation		260.7 ± 29.1	310.3 ± 49.2		

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.

Test Comment Not applicable.



Michael Glasson
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CLAUSE 6.7 Extraction of Metals

Sample Description The sample consisted of two panels (coated on a single side) with dimensions 75 mm x 100 mm providing a total surface area of approximately 15000 mm² per Litre. Extracts were prepared using 1000 mL volumes of 50 mg/L hardness water.

Extraction Temperature 20°C ± 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 based 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 spectrophotometry (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	<0.0005	<0.0005	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	0.001	<0.0010	<0.0010	<0.0010	2.0
Lead	0.0005	<0.0005	<0.0005	<0.0005	0.01
Mercury	0.00003	<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	<0.0002	<0.0002	<0.0002	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.

Test Comment Not applicable.



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