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Cameleon paints
Attn: Colin Sanfilippo
26 Paramount Drive
Wangara
WA 6065
AUSTRALIA

2/12/2011

Dear Colin,

Please find the attached report to AS/NZS 4020:2005 for Campoxy TLE599 High Build Tank Lining epoxy 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 : 94250

Submitting Organisation : 00121042 : Cameleon paints

Account : 141876 : Cameleon Paints

AWQC Reference : 141876-2011-CSR-1 : Prod Test: Campoxy TLE599

Project Reference : PT-1679

Product Designation : Campoxy TLE599 High Build Tank Lining epoxy

Composition of Product : Epoxy Coating.

Product Manufacturer : Cameleon Paints, Paramount Drive, Wangara, WESTERN AUSTRALIA.

Use of Product : In-Line/Epoxy Coating for Tank Lining Applications.

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 : 02-Dec-2011

Project Comment : The results presented herein demonstrate compliance to AS/NZS4020 for the Campoxy TLE599 High Build Tank Lining epoxy when tested at a surface area to volume ratio less than or equal to 12000 mm² per Litre and 20°C ± 2°C.

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 12000 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 12000 mm ² per Litre with a scaling factor of 0.8 applied.
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 : The Epoxy Coating 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 two glass slides each with a single side coated measuring 75 mm x 100 mm giving an approximate surface area of 12000 mm ² per Litre. Extracts were prepared using 1250 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 12000 mm ² per Litre.
Number of Samples	2.
Test Comment	Not applicable.



Peter Christopoulos
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CLAUSE 6.3 Appearance of Water Extract

Sample Description The sample consisted of two glass slides each with a single side coated measuring 75 mm x 100 mm giving an approximate surface area of 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.



Joanne Clark
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CLAUSE 6.4 Growth of Aquatic Micro-organisms

Sample Description The sample consisted of two glass slides each with a single side coated measuring 75 mm x 100 mm giving an approximate surface area of 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 0.8 was applied.

Results

Mean Dissolved Oxygen	Control	7.2 mg/L
Mean Dissolved Oxygen Difference	Positive Reference	4.6 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 12000 mm² per Litre with a scaling factor of 0.8 applied.

Number of Samples 1.

Test Comment The Mean Dissolved Oxygen Difference in the extracts exceeded the maximum allowable concentration. A scaling factor of 0.8 was applied.



Stephanie Semczuk
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CLAUSE 6.5 Cytotoxic Activity of Water Extract

Sample Description	The sample consisted of two glass slides each with a single side coated measuring 75 mm x 100 mm giving an approximate surface area of 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	The test extracts and blank extracts were used to prepare nutrient growth medium and subsequently used to grow a cell line (ATCC Number CCL 81) in the analysis. In addition zinc sulphate (0.4 mmol) was used for the positive control in the analysis.



Brendon King
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CLAUSE 6.6 Mutagenic Activity of Water Extract

Sample Description The sample consisted of two glass slides each with a single side coated measuring 75 mm x 100 mm giving an approximate surface area of 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

<u>Bacteria Strain</u>	<u>Number of Revertants per Plate</u>				
	S9	Blank	Sample Extract	Positive Controls	
<i>Salmonella typhimurium</i> TA98	-	36, 38, 44	48, 47, 50	2031, 1899, 2205	<u>NPD</u> (20µg)
Mean ± Standard deviation		39.3 ± 4.2	48.3 ± 1.5	2045.0 ± 153.5	
	+	36, 36, 31	45, 32, 44	1794, 2316, 2142	<u>2-AF</u> (20µg)
Mean ± Standard deviation		34.3 ± 2.9	40.3 ± 7.2	2084.0 ± 265.8	
<i>Salmonella typhimurium</i> TA100	-	165, 147, 185	187, 204, 166	599, 751, 631	<u>Azide</u> (1.0µg)
Mean ± Standard deviation		165.7 ± 19.0	185.7 ± 19.0	660.3 ± 80.1	
	+	214, 148, 158	208, 204, 179	1075, 1345, 1462	<u>2-AF</u> (20µg)
Mean ± Standard deviation		173.3 ± 35.6	197.0 ± 15.7	1294.0 ± 198.5	
<i>Salmonella typhimurium</i> TA102	-	500, 501, 606	434, 516, 532	1282, 1477, 2405	<u>Mitomycin C</u> (10µg)
Mean ± Standard deviation		535.7 ± 60.9	494.0 ± 52.6	1721.3 ± 600.0	
	+	341, 460, 382	453, 388, 438		
Mean ± Standard deviation		394.3 ± 60.5	426.3 ± 34.0		

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.



Peter Christopoulos
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CLAUSE 6.7 Extraction of Metals

Sample Description The sample consisted of two glass slides each with a single side coated measuring 75 mm x 100 mm giving an approximate surface area of 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, Selenium and Silver by Inductively Coupled Plasma Mass Spectrometry.

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	0.0003	<0.0003	<0.0003	<0.0003	0.007
Barium	0.0005	<0.0005	<0.0005	<0.0005	0.7
Cadmium	0.0001	0.0001	<0.0001	0.0002	0.002
Chromium	0.0001	<0.0001	<0.0001	<0.0001	0.05
Copper	0.0001	0.0001	<0.0001	<0.0001	2.0
Lead	0.0001	<0.0001	<0.0001	<0.0001	0.01
Mercury	0.00003	<0.00003	<0.00003	<0.00003	0.001
Molybdenum	0.0001	<0.0001	<0.0001	<0.0001	0.05
Nickel	0.0001	<0.0001	<0.0001	<0.0001	0.02
Selenium	0.0001	<0.0001	<0.0001	<0.0001	0.01
Silver	0.00003	<0.00003	<0.00003	<0.00003	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.



Dzung Bui
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