

## FINAL REPORT

### Report Information

**Report ID :** 45156

**Submitting Organisation :** 00109058 : WATTYL PAINTS LTD

**Account :** 130052 : Wattyl Paints Ltd - AS/NZS 4020 Testing

**AWQC Reference :** 130052-2008-CSR-1 : Prod Test: Topcoat 1

**Project Reference :** PT-766

**Product Designation :** Epinamel TL710

**Composition of Product :** Two component epoxy - Polyamine cured coating.

**Product Manufacturer :** Wattyl Australia Pty Ltd, Melbourne.

**Use of Product :** In-line/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 :** 04-Dec-2008

**Project Comment :** The results presented herein demonstrate compliance of the Epinamel TL710 to AS/NZS 4020 when exposed at area to volume ratios up to 8250 mm<sup>2</sup>/L. The coating was applied and cured by the submitting organisation.

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 8250 mm <sup>2</sup> per Litre.
D – Appearance of Water Extract	Passed at an exposure of 15000 mm <sup>2</sup> per Litre.
E – Growth of Aquatic Micro-organisms	Passed at an exposure of 8250 mm <sup>2</sup> per Litre.
F – Cytotoxic Activity of Water Extract	Passed at an exposure of 15000 mm <sup>2</sup> per Litre.
G – Mutagenic Activity of Water Extract	Passed at an exposure of 15000 mm <sup>2</sup> per Litre.
H – Extraction of Metals	Passed at an exposure of 15000 mm <sup>2</sup> per Litre.

**Summary Comment :** Not applicable.

## FINAL REPORT

### CLAUSE 6.2 Taste of Water Extract

<b>Sample Description</b>	The sample consisted of a single panel (coated on one side) with dimensions 75 mm x 100 mm providing a surface area of approximately 8250 mm <sup>2</sup> per Litre. Extracts were prepared using 910 mL volumes of 50 mg/L hardness water.
<b>Extraction Temperature</b>	20°C ± 2°C.
<b>Test Method</b>	Taste of Water Extract (Appendix C)
<b>Scaling Factor</b>	Not Applied.
<b>Results</b>	Not detected
<b>Evaluation</b>	The product passed the requirements of clause 6.2 when tested at an exposure of 8250 mm <sup>2</sup> per litre
<b>Number of Samples</b>	2.
<b>Test Comment</b>	Not applicable.



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### CLAUSE 6.3 Appearance of Water Extract

**Sample Description** The sample consisted of two panels (each coated on one side) with dimensions 75 mm x 100 mm providing a surface area of approximately 15000 mm<sup>2</sup> 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 mm<sup>2</sup> per litre

**Number of Samples** 1.

**Test Comment** Not applicable.



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### CLAUSE 6.4 Growth of Aquatic Micro-organisms

**Sample Description** The sample consisted of two panels (each coated on one side) with dimensions 75 mm x 100 mm providing a surface area of approximately 15000 mm<sup>2</sup> 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 0.55 was applied.

#### Results

Mean Dissolved Oxygen	Control	7.3 mg/L
Mean Dissolved Oxygen Difference	Positive Reference	4.9 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 8250 mm<sup>2</sup> per litre

**Number of Samples** 1.

**Test Comment** The arithmetic mean of the dissolved oxygen values exceeded the maximum allowable concentration. The product met the requirements of clause 6.4 when a scaling factor of 0.55 was applied to the test result.



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### CLAUSE 6.5 Cytotoxic Activity of Water Extract

<b>Sample Description</b>	The sample consisted of two panels (each coated on one side) with dimensions 75 mm x 100 mm providing a surface area of approximately 15000 mm <sup>2</sup> per Litre. Extracts were prepared using 1000 mL volumes of 50 mg/L hardness water.
<b>Extraction Temperature</b>	20°C ± 2°C.
<b>Test Method</b>	Cytotoxic Activity of Water Extract (Appendix F)
<b>Scaling Factor</b>	Not Applied.
<b>Results</b>	Non-cytotoxic
<b>Evaluation</b>	The product passed the requirements of clause 6.5 when tested at an exposure of 15000 mm <sup>2</sup> per litre
<b>Number of Samples</b>	1.
<b>Test Comment</b>	Not applicable.



Stella Fanok  
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### CLAUSE 6.6 Mutagenic Activity of Water Extract

**Sample Description** The sample consisted of two panels (each coated on one side) with dimensions 75 mm x 100 mm providing a surface area of approximately 15000 mm<sup>2</sup> 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	-	44, 45, 9	27, 25, 28	769, 756, 837		<u>NPD</u> (20µg)
Mean ± Standard deviation		32.7 ± 20.5	26.7 ± 1.5	787.3 ± 43.5		
	+	35, 38, 40	34, 32, 31	1865, 1891, 1901		<u>2-AF</u> (20µg)
Mean ± Standard deviation		37.7 ± 2.5	32.3 ± 1.5	1885.7 ± 18.6		
<i>Salmonella typhimurium</i> TA100	-	112, 104, 108	112, 92, 70	578, 672, 608		<u>Azide</u> (1.0µg)
Mean ± Standard deviation		108.0 ± 4.0	91.3 ± 21.0	619.3 ± 48.0		
	+	147, 91, 108	123, 71, 80	646, 656, 638		<u>2-AF</u> (20µg)
Mean ± Standard deviation		115.3 ± 28.7	91.3 ± 27.8	646.7 ± 9.0		
<i>Salmonella typhimurium</i> TA102	-	316, 291, 287	331, 354, 269	1965, 2340, 2944		<u>Mitomycin C</u> (2µg)
Mean ± Standard deviation		298.0 ± 15.7	318.0 ± 44.0	2416.3 ± 493.9		
	+	314, 350, 302	351, 328, 345			
Mean ± Standard deviation		322.0 ± 25.0	341.3 ± 11.9			

**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 mm<sup>2</sup> per litre

**Number of Samples** 1.

**Test Comment** Not applicable.



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### CLAUSE 6.7 Extraction of Metals

**Sample Description** The sample consisted of two panels (each coated on one side) with dimensions 75 mm x 100 mm providing a surface area of approximately 15000 mm<sup>2</sup> 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
<b>Final Extract</b>					
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	0.0010	<0.0010	<0.0010	<0.0010	2.0
Lead	0.0005	<0.0005	0.0020	0.0017	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	0.0002	<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 mm<sup>2</sup> per litre

**Number of Samples** 1.

**Test Comment** Not applicable.



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