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Australian Chemicals & Coatings

Attn: Greg Lewis
69 Quantum Close
Dandenong South
VIC 3175
AUSTRALIA

20/10/2008

Dear Greg,

Please find the attached report to AS/NZS 4020:2005 for Valveguard E-BL53220-S7 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 08 8259 0332

Yours sincerely,

A handwritten signature in black ink that reads "Michael Glasson". The signature is fluid and cursive, with a distinct "M" at the beginning.

Michael Glasson
Product Testing Team Leader



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FINAL REPORT

Report Information

Report ID : 42498
Submitting Organisation : 00120511 : Australian Chemicals & Coatings
Account : 141125 : Australian Chemicals & Coatings
AWQC Reference : 141125-2008-CSR-1 : Prod Test: Pipe and Fixture Coating
Project Reference : PT-718
Product Designation : Valveguard E-BL53220-S7
Composition of Product : Epoxy.
Product Manufacturer : Kinte, China.
Use of Product : In-Line Applications. Fusion Bonded Epoxy for Pipe Protection/Water Transfer.
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 : 12-Sep-2008
Project Comment : The results presented herein demonstrate compliance of Valveguard E-BL53220-S& to AS/NZS 4020 when exposed at area to volume ratios up to 15,000 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 15000 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 15000 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 : The product was applied and cured by the submitting organisation.

FINAL REPORT

CLAUSE 6.2

Taste of Water Extract

Sample Description	The sample consisted of two glass panels (coated to one side) 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	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 15000 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 glass panels (coated to one side) 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 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.



Stephanie Semczuk
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CLAUSE 6.4

Growth of Aquatic Micro-organisms

Sample Description

The sample consisted of two glass panels (coated to one side) 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

Not Applied.

Results

Mean Dissolved Oxygen	Control	7.5 mg/L
Mean Dissolved Oxygen Difference	Positive Reference	4.9 mg/L
	Negative Reference	<0.1 mg/L
	Test	0.10 mg/L

Evaluation

The product passed the requirements of clause 6.4 when tested at an exposure of 15000 mm² per litre

Number of Samples

1.

Test Comment

Not applicable.



Phil Thomas
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CLAUSE 6.5 Cytotoxic Activity of Water Extract

Sample Description	The sample consisted of two glass panels (coated to one side) 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.
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 glass panels (coated to one side) 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

	<u>Bacteria Strain</u>		<u>Number of Revertants per Plate</u>		
<i>Salmonella typhimurium</i> TA98	S9	Blank	Sample Extract	Positive Controls	
Mean ± Standard deviation	-	39, 37, 47	30, 36, 38	2082, 2035, 1897	<u>NPD</u> (20µg)
		41.0 ± 5.3	34.7 ± 4.2	2004.7 ± 96.2	
Mean ± Standard deviation	+	30, 38, 52	34, 47, 38	2221, 1876, 1748	<u>2-AF</u> (20µg)
		40.0 ± 11.1	39.7 ± 6.7	1948.3 ± 244.7	
<i>Salmonella typhimurium</i> TA100	-	138, 148, 141	110, 141, 172	504, 420, 520	<u>Azide</u> (1.0µg)
Mean ± Standard deviation		142.3 ± 5.1	141.0 ± 31.0	481.3 ± 53.7	
	+	178, 172, 155	143, 127, 164	822, 782, 623	<u>2-AF</u> (20µg)
Mean ± Standard deviation		168.3 ± 11.9	144.7 ± 18.6	742.3 ± 105.3	
<i>Salmonella typhimurium</i> TA102	-	423, 469, 421	337, 375, 345	954, 1888, 1675	<u>Mitomycin C</u> (2µg)
Mean ± Standard deviation		437.7 ± 27.2	352.3 ± 20.0	1505.7 ± 489.5	
	+	361, 282, 355	317, 283, 352		
Mean ± Standard deviation		332.7 ± 44.0	317.3 ± 34.5		

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.



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CLAUSE 6.7

Extraction of Metals

Sample Description	The sample consisted of two glass panels (coated to one side) 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	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	0.0029	0.0030	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	<0.0002	<0.0002	<0.0002	0.1

Evaluation	The product passed the requirements of clause 6.7 when tested at an exposure of 15000 mm ² per litre
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Number of Samples	1.
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Test Comment	Not applicable.
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Greg O'Neil

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