

FINAL REPORT


Report ID : 97883

Report Information

Submitting Organisation : 00109358 : Parchem Construction Supplies Pty Ltd
Account : 130335 : Parchem Construction Supplies Pty Ltd
AWQC Reference : 130335-2011-CSR-2 : Prod Test: Renderoc G
Project Reference : PT-1754
Product Designation : Renderoc G
Composition of Product : Cement Based - Silica Sand, Fly Ash, Aluminosilicate, Silica Fume Undensified and Portland Cement (see attachment for further information).
Product Manufacturer : Parchem Construction Supplies Pty Ltd, Lucca Rd, Wyong, NEW SOUTH WALES.
Use of Product : In-Line/Concrete Repair Mortar.
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 : 22-Feb-2012
Project Comment : The results presented herein demonstrate compliance to AS/NZS 4020 for Renderoc G at 20°C, exposed at an area to volume ratio up to 15000 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 mm2 per Litre.
D – Appearance of Water Extract	Passed at an exposure of 15000 mm2 per Litre.
E – Growth of Aquatic Micro-organisms	Passed at an exposure of 15000 mm2 per Litre.
F – Cytotoxic Activity of Water Extract	Passed at an exposure of 15000 mm2 per Litre.
G – Mutagenic Activity of Water Extract	Passed at an exposure of 15000 mm2 per Litre.
H – Extraction of Metals	Passed at an exposure of 15000 mm2 per Litre.

Summary Comment : Five sequential soakings were performed to obtain a pH < 9.0. In accordance with section A8 (Cementitious Products).

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CLAUSE 6.2 Taste of Water Extract

Sample Description	The sample consisted of a cementitious cylinder with a radius of 30.5 mm and height of 54 mm providing a surface area of approximately 15000 mm ² per Litre. Extracts were prepared using 1085 mL volumes of pre-conditioning water(AI 12.6).
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 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 a cementitious cylinder with a radius of 30.5 mm and height of 54 mm providing a surface area of approximately 15000 mm² per Litre. Extracts were prepared using 1085 mL volumes of pre-conditioning water(AI 12.6).

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	0.3	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 a cementitious cylinder with a radius of 30.5 mm and height of 54 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		7.1 mg/L
Mean Dissolved Oxygen Difference	Positive Reference		5.8 mg/L
	Negative Reference		<0.1 mg/L
	Test		0.40 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 a cementitious cylinder with a radius of 30.5 mm and height of 54 mm providing a surface area of approximately 15000 mm² per Litre. Extracts were prepared using 1085 mL volumes of pre-conditioning water(AI 12.6).

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 mm² 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 a cementitious cylinder with a radius of 30.5 mm and height of 54 mm providing a surface area of approximately 15000 mm² per Litre. Extracts were prepared using 1085 mL volumes of pre-conditioning water(AI 12.6).

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	-	46, 31, 28	29, 50, 58	2200, 2230, 1949	<u>NPD</u> (20µg)
Mean ± Standard deviation		35.0 ± 9.6	45.7 ± 15.0	2126.3 ± 154.3	
	+	28, 46, 39	45, 46, 36	2129, 1961, 2209	<u>2-AF</u> (20µg)
Mean ± Standard deviation		37.7 ± 9.1	42.3 ± 5.5	2099.7 ± 126.6	
<i>Salmonella typhimurium</i> TA100	-	145, 176, 251	117, 110, 133	754, 575, 642	<u>Azide</u> (1.0µg)
Mean ± Standard deviation		190.7 ± 54.5	120.0 ± 11.8	657.0 ± 90.4	
	+	75, 211, 219	165, 174, 154	1507, 1699, 2231	<u>2-AF</u> (20µg)
Mean ± Standard deviation		168.3 ± 80.9	164.3 ± 10.0	1812.3 ± 375.1	
<i>Salmonella typhimurium</i> TA102	-	566, 592, 603	343, 375, 428	1735, 1776, 1804	<u>Mitomycin C</u> (10µg)
Mean ± Standard deviation		587.0 ± 19.0	382.0 ± 42.9	1771.7 ± 34.7	
	+	563, 273, 439	443, 384, 387		
Mean ± Standard deviation		425.0 ± 145.5	404.7 ± 33.2		

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.



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CLAUSE 6.7 Extraction of Metals

Sample Description The sample consisted of a cementitious cylinder with a radius of 30.5 mm and height of 54 mm providing a surface area of approximately 15000 mm² per Litre. Extracts were prepared using 1085 mL volumes of pre-conditioning water(AI 12.6).

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	0.0310	0.0272	0.0277	0.7
Cadmium	0.0001	0.0001	<0.0001	<0.0001	0.002
Chromium	0.0001	0.0002	0.0003	0.0004	0.05
Copper	0.0001	0.4673	0.3738	0.3777	2.0
Lead	0.0001	0.0032	0.0033	0.0034	0.01
Mercury	0.00003	0.00011	0.00005	0.00011	0.001
Molybdenum	0.0001	0.0003	0.0008	0.0008	0.05
Nickel	0.0001	0.0035	0.0029	0.0029	0.02
Selenium	0.0001	<0.0001	<0.0001	<0.0001	0.01
Silver	0.00003	0.00004	<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.



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