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Australian Water Quality Centre

LOW & BONAR GmbH
Attn: Dwayne Rickard
PO Box 339
Waterford
QLD 4133
AUSTRALIA

12/07/2019

Dear Dwayne,

Please find the attached report to AS/NZS 4020:2005 for Valmex 7616 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,

Michael Glasson
Supervisor Product Testing

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FINAL REPORT

Report ID : 255267

Report Information

Submitting Organisation	00100387 : LOW & BONAR GmbH
Account :	143623 : LOW & BONAR GmbH
AWQC Reference :	143623-2019-CSR-1 : Prod Test: Valmex 7616
Project Reference :	PT-3832
Product Designation :	Valmex 7616
Composition of Product :	Polyester fabric coated with PVC
Product Manufacturer :	Low & Bonal GmbH
Use of Product :	Container for drinking water
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-Jul-2019
Project Comment :	The results presented herein demonstrate compliance of Valmex 7616 to AS/NZS 4020 when exposed at area to volume ratios up to 7800 mm²/L at 20°C ± 2°C.

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
APPROVED SIGNATORY

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Summary of Results

APPENDIX	RESULTS
C – Taste of Water Extract	Passed at an exposure of 7800 mm² per Litre.
D – Appearance of Water Extract	Passed at an exposure of 15 000 mm² per Litre.
E – Growth of Aquatic Micro-organisms	Passed at an exposure of 7800 mm² per Litre.
F – Cytotoxic Activity of Water Extract	Passed at an exposure of 15 000 mm² per Litre.
G – Mutagenic Activity of Water Extract	Passed at an exposure of 15 000 mm² per Litre.
H – Extraction of Metals	Passed at an exposure of 15 000 mm² per Litre.

Test Methods

Test(s) in Appendix	AWQC Test Method	Reference Method
C	T0320-01	AS/NZS 4020:2018
D	TO029-01 & TO018-01	APHA 2130b
E	TO014-03	APHA 4500 O C
F	TM-001	AS/NZS 4020:2018
G	TM-002	AS/NZS 4020:2018
H	TIC-006	EPA 200.8

Summary Comment : Testing Commenced 04-Mar-2019

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CLAUSE 6.2 Taste of Water Extract

Sample Description	The sample consisted of a single panel with dimensions 78 mm x 50 mm and 1 mm thickness providing a total surface area of approximately 7800 mm²/L. Extracts were prepared using 1000 mL volumes of 50 mg/L hardness water.
Extraction Temperatur	20°C ± 2°C
Test Method	Taste of Water Extract (Appendix C)
Test Information	
Scaling Factor	Not applicable.
Results	Not detected (sample and controls).
Evaluation	The product passed the requirements of clause 6.2 when tested at an exposure of 7800 mm² 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 single panel with dimensions 75 mm x 100 mm and 1 mm thickness providing a total surface area of approximately 15 000 mm²/L. Extracts were prepared using 1000 mL volumes of 50 mg/L hardness water.

Extraction Temperatur 20°C ± 2°C

Test Method Appearance of Water Extract (Appendix D)

Scaling Factor Not applicable.

Results

	Test (- Blank)	Maximum Allowed	Units
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.

Melissa Phillips
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CLAUSE 6.4 Growth of Aquatic Micro-organisms

Sample Description The sample consisted of a single panel with dimensions 75 mm x 100 mm and 1 mm thickness providing a total surface area of approximately 15 000 mm²/L. 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 0.52 was applied.

Results

Mean Dissolved Oxygen	Control	7.4	mg/L
Mean Dissolved Oxygen Differenc	Positive Reference	3.9	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 15000 mm² per Litre with a scaling factor of 0.52 applied.

Number of Samples 1.

Test Comment Not applicable.

Kerrie Davey
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CLAUSE 6.5 Cytotoxic Activity of Water Extract

Sample Description	The sample consisted of a single panel with dimensions 75 mm x 100 mm and 1 mm thickness providing a total surface area of approximately 15 000 mm²/L. Extracts were prepared using 1000 mL volumes of 50 mg/L hardness water.
Extraction Temperatur	20°C ± 2°C
Test Method	Cytotoxic Activity of Water Extract (Appendix F)
Scaling Factor	Not applicable.
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.

Stella Fanok
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CLAUSE 6.6 Mutagenic Activity of Water Extract

Sample Description The sample consisted of a single panel with dimensions 75 mm x 100 mm and 1 mm thickness providing a total surface area of approximately 15 000 mm²/L. Extracts were prepared using 1000 mL volumes of 50 mg/L hardness water.

Extraction Temperatur 20°C ± 2°C

Test Method Mutagenic Activity of Water Extract (Appendix G)

Scaling Factor Not applicable.

Results

Bacteria Strain	S9	Blank	Sample Extract	Positive Controls	
		Number of Revertants per Plate			
Salmonella typhimurium TA98	-	25, 19, 20	26, 20, 33	2506, 3406, 3803	NPD (20µg)
Mean ± Standard deviation		21.3 ± 3.2	26.3 ± 6.5	3238.3 ± 664.6	
	+	20, 16, 23	29, 15, 26	3177, 3278, 3408	2-AF (20µg)
Mean ± Standard deviation		19.7 ± 3.5	23.3 ± 7.4	3287.7 ± 115.8	
Salmonella typhimurium TA100	-	116, 133, 124	100, 125, 123	827, 894, 731	Azide (1.0µg)
Mean ± Standard deviation		124.3 ± 8.5	116.0 ± 13.9	817.3 ± 81.9	
	+	115, 130, 135	132, 135, 134	2070, 2076, 2128	2-AF (20µg)
Mean ± Standard deviation		126.7 ± 10.4	133.7 ± 1.5	2091.3 ± 31.9	
Salmonella typhimurium TA102	-	517, 542, 517	489, 524, 544	4187, 4650, 3724	Mitomycin C(10µg)
Mean ± Standard deviation		525.3 ± 14.4	519.0 ± 27.8	4187.0 ± 463.0	
	+	509, 548, 588	479, 534, 571	3087, 2814, 3291	
Mean ± Standard deviation		548.3 ± 39.5	528.0 ± 46.3	3064.0 ± 239.3	

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.

Heather Menzies
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CLAUSE 6.7 Extraction of Metals

Sample Description The sample consisted of a single panel with dimensions 75 mm x 100 mm and 1 mm thickness providing a total surface area of approximately 15 000 mm²/L. Extracts were prepared using 1000 mL volumes of 50 mg/L hardness water.

Extraction Temperatur 20°C ± 2°C

Test Method Extraction of Metals (Appendix H)

Scaling Factor Not applicable.

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

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	<0.0001	0.002
Chromium	0.0001	<0.0001	<0.0001	<0.0001	0.05
Copper	0.0001	0.0003	<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	0.0010	<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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