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Kwik-Zip Marketing Pty Ltd
Attn: Jason Linaker
3 Barnard St
Bunbury
WA 6230
AUSTRALIA

29/05/2014

Dear Jason,

Please find the attached report to AS/NZS 4020:2005 for HDX 125 Pipe Spacer (representative model) 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
Supervisor Product Testing



Corporate Accreditation No.1115
Chemical and Biological Testing
Accredited for compliance with ISO/IEC 17025

FINAL REPORT

Report ID : 138648

Report Information

Submitting Organisation : 00120267 : Kwik-Zip Marketing Pty Ltd
Account : 140780 : Kwik-Zip Marketing Pty Ltd
AWQC Reference : 140780-2014-CSR-1 : Prod Test: HDX Series Spacer (representative model)
Project Reference : PT-2328
Product Designation : HDX 125 Pipe Spacer (representative model)
Composition of Product : See attachment
Product Manufacturer : kwik-ZIP Spacers.
Use of Product : In-Line/Pipe Spacer.
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 : 29-May-2014
Project Comment : The results presented herein demonstrate compliance of HDX 125 Pipe Spacer to AS/NZS 4020 when exposed at area to volume ratios up to 15,000 mm²/L (Primary Part & Runner Wear Pad) and 1000 mm²/L (Rubber Grip Pad & Setting Screw) at 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
APPROVED SIGNATORY



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Summary of Results

APPENDIX	RESULTS
C – Taste of Water Extract	Passed at an exposure of 15000 mm ² /L and 1000 mm ² /L.
D – Appearance of Water Extract	Passed at an exposure of 15000 mm ² /L and 1000 mm ² /L.
E – Growth of Aquatic Micro-organisms	Passed at an exposure of 15000 mm ² /L and 1000 mm ² /L.
F – Cytotoxic Activity of Water Extract	Passed at an exposure of 15000 mm ² /L and 1000 mm ² /L.
G – Mutagenic Activity of Water Extract	Passed at an exposure of 15000 mm ² /L and 1000 mm ² /L.
H – Extraction of Metals	Passed at an exposure of 15000 mm ² /L and 1000 mm ² /L.

Test Methods

Test(s) in Appendix	AWQC Test Method	Reference Method
C	T0320-01	AS/NZS 4020:2005
D	TO029-01 & TO018-01	APHA 2130b
E	TO014-03	APHA 4500 O C
F	TM-001	AS/NZS 4020:2005
G	TM-002	AS/NZS 4020:2005
H	TIC-006	EPA 200.8

Summary Comment : See attachment 1 for Product Range.

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CLAUSE 6.2 Taste of Water Extract

Sample Description	The sample consisted of the Primary Part + Runner Wear Pad and Rubber Grip Pad + Setting Crew providing a surface area of approximately 15000 mm ² /L and 1000 mm ² /L. Extracts were prepared using 1000 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 15000 mm ² /L and 1000 mm ² /L.
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 the Primary Part + Runner Wear Pad and Rubber Grip Pad + Setting Crew providing a surface area of approximately 15000 mm²/L and 1000 mm²/L. 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.

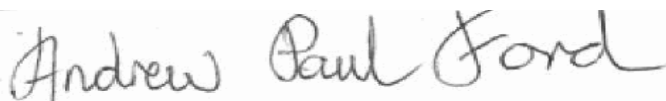
Results

	<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/L and 1000 mm²/L.

Number of Samples 1.

Test Comment Not applicable.



Andrew Ford
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CLAUSE 6.4 Growth of Aquatic Micro-organisms

Sample Description The sample consisted of the Primary Part + Runner Wear Pad and Rubber Grip Pad + Setting Crew providing a surface area of approximately 15000 mm²/L and 1000 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 200 mL

Scaling Factor Not applied.

Results

Mean Dissolved Oxygen	Control	7.3 mg/L
Mean Dissolved Oxygen Difference	Positive Reference	5.0 mg/L
	Negative Reference	0.1 mg/L
	Test	1.10 mg/L

Evaluation The product passed the requirements of clause 6.4 when tested at an exposure of 15000 mm²/L and 1000 mm²/L.

Number of Samples 1.

Test Comment Not applicable.



Thuy Diep
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CLAUSE 6.5 Cytotoxic Activity of Water Extract

Sample Description	The sample consisted of the Primary Part + Runner Wear Pad and Rubber Grip Pad + Setting Crew providing a surface area of approximately 15000 mm ² /L and 1000 mm ² /L. 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 /L and 1000 mm ² /L.
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 the Primary Part + Runner Wear Pad and Rubber Grip Pad + Setting Crew providing a surface area of approximately 15000 mm²/L and 1000 mm²/L. 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

Bacteria Strain	Number of Revertants per Plate				
	S9	Blank	Sample Extract	Positive Controls	
<i>Salmonella typhimurium</i> TA98	-	39, 40, 33	28, 24, 32	1784, 1722, 1804	<u>NPD</u> (20µg)
Mean ± Standard deviation		37.3 ± 3.8	28.0 ± 4.0	1770.0 ± 42.8	
	+	34, 27, 29	26, 22, 26	2163, 2265, 2755	<u>2-AF</u> (20µg)
Mean ± Standard deviation		30.0 ± 3.6	24.7 ± 2.3	2394.3 ± 316.5	
<i>Salmonella typhimurium</i> TA100	-	494, 557, 351	372, 391, 401	778, 836, 1307	<u>Azide</u> (1.0µg)
Mean ± Standard deviation		467.3 ± 105.6	388.0 ± 14.7	973.7 ± 290.1	
	+	212, 195, 278	178, 396, 239	2816, 2593, 3171	<u>2-AF</u> (20µg)
Mean ± Standard deviation		228.3 ± 43.8	271.0 ± 112.5	2860.0 ± 291.5	
<i>Salmonella typhimurium</i> TA102	-	572, 630, 706	669, 762, 748	2839, 3053, 2832	<u>Mitomycin C</u> (10µg)
Mean ± Standard deviation		636.0 ± 67.2	726.3 ± 50.1	2908.0 ± 125.6	
	+	725, 700, 645	700, 624, 703		
Mean ± Standard deviation		690.0 ± 40.9	675.7 ± 44.8		

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/L and 1000 mm²/L.

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 the Primary Part + Runner Wear Pad and Rubber Grip Pad + Setting Crew providing a surface area of approximately 15000 mm²/L and 1000 mm²/L. 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	<0.0001	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/L and 1000 mm²/L.

Number of Samples 1.

Test Comment Not applicable.



Dzung Bui
APPROVED SIGNATORY



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AS/NZS 4020:2005

REPORT NUMBER 138648

SAMPLE REFERENCE PT-2328

DATE 26/05/2014

Product Range to include:

GT 10
GT 20
GT 30
GT 40

155 HT-C
155 HT-D
155 HT-E

380 HT-D
380 HT-E

HD 30
HD 50
HD 75
HD 100

HDX 38
HDX 65
HDX 90
HDX 125