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Puratap Pty Ltd  
Attn: Steve May  
60 North Tce  
Kent Town  
SA 5067  
AUSTRALIA

9/09/2010

Dear Steve,

Please find the attached report to AS/NZS 4020:2005 for GI-2600 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", is written over a light blue horizontal line.

Michael Glasson  
Product Testing Team Leader



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## FINAL REPORT

### Report Information

**Report ID :** 73877

**Submitting Organisation :** 00109339 : Puratap Pty Ltd

**Account :** 130316 : Puratap Pty Ltd - AS/NZS 4020 Testing

**AWQC Reference :** 130316-2010-CSR-1 : Prod Test: Material

**Project Reference :** PT-1282

**Product Designation :** GI-2600

**Composition of Product :** Polyacetal. POM Kocetal K300 (Head of Purifier and Two Sumps). Supplier of Raw Material - Kolon Plastics.

**Product Manufacturer :** Puratap Pty Ltd., AUSTRALIA.

**Use of Product :** In-line Applications/Water Purifying Device.

**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 :** 09-Sep-2010

**Project Comment :** The results presented herein demonstrate compliance of the GI-2600 to AS/NZS 4020 when tested at the in-use exposure 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  
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### Summary of Results

APPENDIX	RESULTS
C – Taste of Water Extract	Passed when tested at the in-the-product exposure.
D – Appearance of Water Extract	Passed when tested at the in-the-product exposure.
E – Growth of Aquatic Micro-organisms	Passed when tested at the in-use exposure.
F – Cytotoxic Activity of Water Extract	Passed when tested at the in-the-product exposure.
G – Mutagenic Activity of Water Extract	Passed when tested at the in-the-product exposure.
H – Extraction of Metals	Passed when tested at the in-the-product exposure.

**Summary Comment :** Not applicable.

## FINAL REPORT

### CLAUSE 6.2 Taste of Water Extract

<b>Sample Description</b>	The housing was tested at the in-the-product exposure. Each system in contact with approximately 2000 mL of water. Extracts were prepared using 500 mL volumes of water.
<b>Extraction Temperature</b>	20°C ± 2°C.
<b>Test Method</b>	Taste of Water Extract (Appendix C)
<b>Test Information</b>	
<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 the in-the-product exposure.
<b>Number of Samples</b>	2.
<b>Test Comment</b>	Not applicable.



Peter Christopoulos  
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## FINAL REPORT

### CLAUSE 6.3 Appearance of Water Extract

**Sample Description** The housing was tested at the in-the-product exposure. Each system in contact with approximately 2000 mL of water. Extracts were prepared using 500 mL volumes of 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 the in-the-product exposure.

**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 non-metallic components (filter housing material and lubricated O-Ring) were immersed at the in-use exposures in the range 1000 mm<sup>2</sup>/L and 15000 mm<sup>2</sup>/L.

**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	7.5 mg/L
Mean Dissolved Oxygen Difference	Positive Reference	4.7 mg/L
	Negative Reference	<0.1 mg/L
	Test	1.30 mg/L

**Evaluation** The product passed the requirements of clause 6.4 when tested at the in-use exposure.

**Number of Samples** 1.

**Test Comment** Not applicable.



Stephanie Semczuk  
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### CLAUSE 6.5 Cytotoxic Activity of Water Extract

**Sample Description** The housing was tested at the in-the-product exposure. Each system in contact with approximately 2000 mL of water. Extracts were prepared using 500 mL volumes of 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 the in-the-product exposure.

**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 housing was tested at the in-the-product exposure. Each system in contact with approximately 2000 mL of water. Extracts were prepared using 500 mL volumes of 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	-	34, 48, 41	91, 88, 62	3363, 3225, 3557	<u>NPD</u> (20µg)
Mean ± Standard deviation		41.0 ± 7.0	80.3 ± 15.9	3381.7 ± 166.8	
	+	57, 35, 42	36, 24, 31	2534, 2699, 2908	<u>2-AF</u> (20µg)
Mean ± Standard deviation		44.7 ± 11.2	30.3 ± 6.0	2713.7 ± 187.4	
<i>Salmonella typhimurium</i> TA100	-	130, 126, 133	124, 100, 129	770, 769, 785	<u>Azide</u> (1.0µg)
Mean ± Standard deviation		129.7 ± 3.5	117.7 ± 15.5	774.7 ± 9.0	
	+	133, 145, 113	117, 124, 123	1037, 1023, 1047	<u>2-AF</u> (20µg)
Mean ± Standard deviation		130.3 ± 16.2	121.3 ± 3.8	1035.7 ± 12.1	
<i>Salmonella typhimurium</i> TA102	-	414, 451, 476	420, 446, 419	1445, 1744, 920	<u>Mitomycin C</u> (2µg)
Mean ± Standard deviation		447.0 ± 31.2	428.3 ± 15.3	1369.7 ± 417.1	
	+	654, 542, 572	536, 586, 615		
Mean ± Standard deviation		589.3 ± 58.0	579.0 ± 40.0		

**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 the in-the-product exposure.

**Number of Samples** 1.

**Test Comment** Not applicable.



Peter Christopoulos  
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### CLAUSE 6.7 Extraction of Metals

**Sample Description** The housing was tested at the in-the-product exposure. Each system in contact with approximately 2000 mL of water. Extracts were prepared using 500 mL volumes of 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	0.0006	<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	0.0002	<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	0.0002	<0.0001	<0.0001	0.01
Mercury	0.00003	0.00008	<0.00003	<0.00003	0.001
Molybdenum	0.0001	<0.0001	<0.0001	<0.0001	0.05
Nickel	0.0001	0.0002	<0.0001	<0.0001	0.02
Selenium	0.0001	<0.0001	<0.0001	<0.0001	0.01
Silver	0.002	<0.00003	<0.00003	<0.00003	0.1

**Evaluation** The product passed the requirements of clause 6.7 when tested at the in-the-product exposure.

**Number of Samples** 1.

**Test Comment** Not applicable.



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