PO Box 1751
Adelaide SA 5001

250 Victoria Square
Adelaide SA 5000

Tel: 1300 653 366
Fax: 1300 883 171

Internet: www.awqc.com
Email: awqc@sawater.cc

Australian Water Quality Centre

Bermad CS Ltd
Attn: Reuven Perez
Evron, MP Galil Maaravi
2280800

ISRAEL

18/07/2019

Dear Reuven,

Please find the attached report to AS/NZS 4020:2005 for 700/ES/EN Series Control Valve (2" Representative Sample) 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

PO Box 1751
Adelaide SA 5001

250 Victoria Square
Adelaide SA 5000

Tel: 1300 653 366
Fax: 1300 883 171

Internet: www.awqc.com
Email: awqc@sawater.cc

Australian Water Quality Centre

FINAL REPORT

Report ID : 255502

Report Information

Submitting Organisation	00100339 : Bermad CS Ltd
Account :	143523 : Bermad CS Ltd
AWQC Reference :	143523-2018-CSR-2 : Prod Test: Control Valve 700 Series
Project Reference :	PT-3815
Product Designation :	700/ES/EN Series Control Valve (2" Representative Sample)
Composition of Product :	Epoxy Coated Metal Body, EPDM Seals & Stainless Steel Internal Parts (see attachment 1).
Product Manufacturer :	Bermad CS Ltd., Evron, 2280800, ISRAEL.
Use of Product :	In-Line/Control Valves.
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	18-Jul-2019
Project Comment :	The results presented herein demonstrate compliance of 700/ES/EN Series Control Valve (2" Representative Sample) to AS/NZS 4020 when tested at the 'In-the-Product' exposure with a 0.01 scaling factor 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

NATA
WORLD RECOGNISED ACCREDITATION

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

PO Box 1751
Adelaide SA 5001

250 Victoria Square
Adelaide SA 5000

Tel: 1300 653 366
Fax: 1300 883 171

Internet: www.awqc.com
Email: awqc@sawater.cc

Australian Water Quality Centre

FINAL REPORT

Report ID : 255502

Summary of Results

APPENDIX	RESULTS
C – Taste of Water Extract	Passed at the in-the-product exposure with a scaling factor of 0.01 applied.
D – Appearance of Water Extract	Passed at the in-the-product exposure with a scaling factor of 0.01 applied.
E – Growth of Aquatic Micro-organisms	Passed at the in-use exposure.
F – Cytotoxic Activity of Water Extract	Passed at the in-the-product exposure with a scaling factor of 0.01 applied.
G – Mutagenic Activity of Water Extract	Passed at the in-the-product exposure with a scaling factor of 0.01 applied.
H – Extraction of Metals	Passed at the in-the-product exposure with a scaling factor of 0.01 applied.

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 : Product range to include 2" to 16" Models 718, 720, 730, 735, 73Q, 740, 750-60, 750-66, 750-80 and 770.

PO Box 1751
Adelaide SA 5001

250 Victoria Square
Adelaide SA 5000

Tel: 1300 653 366
Fax: 1300 883 171

Internet: www.awqc.com
Email: awqc@sawater.cc

Australian Water Quality Centre

FINAL REPORT

Report ID : 255502

CLAUSE 6.2 Taste of Water Extract

Sample Description	The valve was tested at the in-the-product exposure. Each valve held approximately 650 mL of water. 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	A scaling factor of 0.01 was applied.
Results	Not detected (sample and controls).
Evaluation	The product passed the requirements of clause 6.2 when tested at the in-the-product exposure with a scaling factor of 0.01 applied.
Number of Samples	2.
Test Comment	Not applicable.

Michael Glasson
APPROVED SIGNATORY

NATA
WORLD RECOGNISED ACCREDITATION

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

PO Box 1751
Adelaide SA 5001

250 Victoria Square
Adelaide SA 5000

Tel: 1300 653 366
Fax: 1300 883 171

Internet: www.awqc.com
Email: awqc@sawater.cc

Australian Water Quality Centre

FINAL REPORT

Report ID : 255502

CLAUSE 6.3 Appearance of Water Extract

Sample Description The valve was tested at the in-the-product exposure. Each valve held approximately 650 mL of water. 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 A scaling factor of 0.01 was applied.

Results

	Test (- Blank)	Maximum Allowed	Units
Colour	<1	5	HU
Turbidity	0.3	0.5	NTU

Evaluation The product passed the requirements of clause 6.3 when tested at the in-the-product exposure with a scaling factor of 0.01 applied.

Number of Samples 1.

Test Comment Not applicable.

Andrew Paul Ford

Andrew Ford
APPROVED SIGNATORY

NATA
WORLD RECOGNISED ACCREDITATION

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

PO Box 1751
Adelaide SA 5001

250 Victoria Square
Adelaide SA 5000

Tel: 1300 653 366
Fax: 1300 883 171

Internet: www.awqc.com
Email: awqc@sawater.cc

Australian Water Quality Centre

FINAL REPORT

Report ID : 255502

CLAUSE 6.4 Growth of Aquatic Micro-organisms

Sample Description The non-metallic components were immersed at the in-use exposure. The surface area was in the range 1000 mm² per Litre and 15,000 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	7.3	mg/L
Mean Dissolved Oxygen Differenc	Positive Reference	5.4	mg/L
	Negative Reference	<0.1	mg/L
	Test	0.30	mg/L

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

Number of Samples 1.

Test Comment Not applicable.

Thuy Diep
APPROVED SIGNATORY

NATA
WORLD RECOGNISED ACCREDITATION

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

PO Box 1751
Adelaide SA 5001

250 Victoria Square
Adelaide SA 5000

Tel: 1300 653 366
Fax: 1300 883 171

Internet: www.awqc.com
Email: awqc@sawater.cc

Australian Water Quality Centre

FINAL REPORT

Report ID : 255502

CLAUSE 6.5 Cytotoxic Activity of Water Extract

Sample Description	The valve was tested at the in-the-product exposure. Each valve held approximately 650 mL of water. 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	A scaling factor of 0.01 was applied.
Results	Non-cytotoxic (sample and controls).
Evaluation	The product passed the requirements of clause 6.5 when tested at the in-the-product exposure with a scaling factor of 0.01 applied.
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
APPROVED SIGNATORY

NATA
WORLD RECOGNISED ACCREDITATION

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

PO Box 1751
Adelaide SA 5001

250 Victoria Square
Adelaide SA 5000

Tel: 1300 653 366
Fax: 1300 883 171

Internet: www.awqc.com
Email: awqc@sawater.cc

Australian Water Quality Centre

FINAL REPORT

Report ID : 255502

CLAUSE 6.6 Mutagenic Activity of Water Extract

Sample Description The valve was tested at the in-the-product exposure. Each valve held approximately 650 mL of water. 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 A scaling factor of 0.01 was applied.

Results

Bacteria Strain	S9	Blank	Sample Extract	Positive Controls	
Salmonella typhimurium TA98	-	35, 29, 30	28, 34, 29	3417, 3519, 3389	NPD (20µg)
Mean ± Standard deviation		31.3 ± 3.2	30.3 ± 3.2	3441.7 ± 68.4	
	+	38, 37, 40	31, 32, 32	3325, 3140, 3214	2-AF (20µg)
Mean ± Standard deviation		38.3 ± 1.5	31.7 ± 0.6	3226.3 ± 93.1	
Salmonella typhimurium TA100	-	107, 109, 109	101, 104, 77	889, 833, 821	Azide (1.0µg)
Mean ± Standard deviation		108.3 ± 1.2	94.0 ± 14.8	847.7 ± 36.3	
	+	169, 141, 107	132, 124, 121	2074, 1978, 2069	2-AF (20µg)
Mean ± Standard deviation		139.0 ± 31.0	125.7 ± 5.7	2040.3 ± 54.0	
Salmonella typhimurium TA102	-	400, 399, 430	371, 329, 329	4074, 3055, 4460	Mitomycin C(10µg)
Mean ± Standard deviation		409.7 ± 17.6	343.0 ± 24.2	3863.0 ± 725.9	
	+	487, 502, 400	476, 484, 426	2333, 2576, 2074	
Mean ± Standard deviation		463.0 ± 55.1	462.0 ± 31.4	2327.7 ± 251.0	

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 with a scaling factor of 0.01 applied.

Number of Samples 1.

Test Comment Not applicable.

Michael Glasson
APPROVED SIGNATORY

NATA
WORLD RECOGNISED ACCREDITATION

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

PO Box 1751
Adelaide SA 5001

250 Victoria Square
Adelaide SA 5000

Tel: 1300 653 366
Fax: 1300 883 171

Internet: www.awqc.com
Email: awqc@sawater.cc

Australian Water Quality Centre

FINAL REPORT

Report ID : 255502

CLAUSE 6.7 Extraction of Metals

Sample Description The valve was tested at the in-the-product exposure. Each valve held approximately 650 mL of water. 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 A scaling factor of 0.01 was 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

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	0.0013	0.0012	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 the in-the-product exposure with a scaling factor of 0.01 applied.

Number of Samples 1.

Test Comment Not applicable.

Dzung Bui
APPROVED SIGNATORY

NATA
WORLD RECOGNISED ACCREDITATION

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