



**Registered Testing Authority - CSIRO**

24 April 2017

Our Ref: EN13 / 2499 03/0211

**TEST REPORT No. 8061.1**  
**[Supersedes Report No. 7861.1]**

**Requested by:** Wet-seal Management Pty Ltd  
6 Forge Drive  
Coffs Harbour  
NSW 2450

**On (date):** 20 February 2017  
**Product Descriptions:** Wet-seal Enviro-coat Waterproofing Membrane Internal IS 511

**Manufacturer:** UREKA

**Sampling Details**  
**Date:** 20 February 2017  
**How (methods):** Delivered to Clayton

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This test report consists of 11 pages.

**SUMMARY OF ASSESSMENTS REPORTED**

AS/NZS 4858:2004	Appendix A, Durability of waterproof membranes	Pass
AS/NZS 4858:2004	Appendix B, Resistance of Waterproofing Membranes to Cyclic Movement	Pass
AS 3558.-1999	Water Absorption	6.27%
ASTM E96	Moisture Vapour Transmission	Pass

**TERM OF VALIDITY**

This CSIRO wet area membrane report will lapse three years after the initial date of issue and assessment unless revalidation has been requested and granted.

**The validity date for report 8061.1 is 24 April 2020**



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### SUMMARY OF RESULTS

#### AS4858:2004 Wet Area Membranes

##### Appendix A: Assessment of Durability of waterproof membranes

The sample requires an elongation at break strain percentage greater than 37% at 56 days.

Note: (37% equates to 50% of control elongation at break strain percentage).

Durability of membranes: Elongation to break	Strain %	
Control	74%	<b>Class II</b>
Water Immersion	65%	PASS
Bleach Immersion	67%	PASS
Detergent Immersion	53%	PASS
Heat Ageing @ 50 °C	70%	PASS

Wet-seal Management Pty Ltd test sample, Wet-seal Enviro-coat Waterproofing Membrane Internal IS 511 achieves the performance requirements of AS/NZS 4858: 2004 Durability of Membranes for Class II membrane installation.

##### Appendix B: Assessment of resistance of waterproofing membranes to cyclic movement

Class II type membrane: 2mm gauge length for a 0.37mm extension, repeated 50 cycles.

Requirement: No fatigue cracking exhibited.

Result: **PASS**

**The Water Vapour Transmission (WVT) in accordance to ASTM E96: 1.21g/m<sup>2</sup>/24h**

##### Appendix C: Suitability of waterproofing membranes when used over particle board

Appendix C will not be required as the Wet-seal Enviro-coat Waterproofing Membrane Internal IS 511 has a water vapour transmission below 8g/m<sup>2</sup>/24h.

##### AS 3558.1 Methods of testing plastics & composite materials sanitary plumbing fixtures:

###### Method 1: Determination of water absorption characteristics

Water absorption:	Sample 1	5.95%	
	Sample 2	6.27%	
	Sample 3	3.67%	Maximum 6.27%

**Conclusion:** Wet-seal Enviro-coat Waterproofing Membrane Internal IS 511 does not require a 'Suitability over particleboard' to pass the requirements of AS/NZS 4858 Wet area membranes.



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TEST CARRIED OUT IN ACCORDANCE WITH AS4858:2004 Wet Area Membranes Test Date: 10 March 2017  
Appendix A: Assessment of Durability of waterproof membranes

RESULTS: Location: Ceramic Tile Laboratory  
Conditions: 7 days at 23°C 50%RH  
Sample Number: 8061.1 - 1 (Numbered 1 to 5)  
Samples: Average of 5 samples  
Load rate: 50mm/min

### Elongation at Break

#### CONTROL SET

Sample Number	Sample Thickness Mean (mm)	Maximum Load (N)	Maximum Extension (mm)	Maximum Stress MPa	Maximum Strain %
8061.1 – 1 1 to 5	0.90	29.57	24.51	5.48	74

**Requirement for Class II:** The specimens have an average percentage strain of  $\geq 60\%$  &  $\leq 299\%$

**Classification:** Class II (Medium extensibility)



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TEST CARRIED OUT IN ACCORDANCE WITH Test Date: 24 April 2017  
AS4858:2004 Wet Area Membranes  
Appendix A: Assessment of Durability of waterproof membranes

RESULTS: Location: Ceramic Tile Laboratory  
Conditions: 7 days at 23°C 50%RH  
Sample Number: 8061.1 - 3 (Numbered 1 to 9)  
Samples: Average of 3 samples  
Load rate: 50mm/min  
Solution: 1L of deionised water

### Elongation at Break

### WATER IMMERSION

Period & Sample Number	Sample Thickness Mean (mm)	Maximum Load (N)	Maximum Extension (mm)	Maximum Stress MPa	Maximum Strain %
<b>7 Days</b> 8061.1 – 3 1 to 3	0.61	35.70	18.21	9.75	55
<b>28 Days</b> 8061.1 – 3 4 to 6	0.65	24.31	22.11	6.23	67
<b>56 Days</b> 8061.1 – 3 7 to 9	0.69	29.90	21.49	7.22	65

**Requirement:** The sample requires an elongation at break strain greater than 37% at 56 days without additional bond relief. Between 37% and 19% additional bond strength is required. Less than 19% - fail.

**Result:** **65%** **PASS**



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TEST CARRIED OUT IN ACCORDANCE WITH Test Date: 24 April 2017  
AS4858:2004 Wet Area Membranes  
Appendix A: Assessment of Durability of waterproof membranes

RESULTS: Location: Ceramic Tile Laboratory  
Conditions: 7 days at 23°C 50%RH  
Sample Number: 8061.1 - 5 (Numbered 1 to 9)  
Samples: Average of 3 samples  
Load rate: 50mm/min  
Solution: 1L of 10.5 g/L sodium hypochlorite & 2.25 g/L of sodium hydroxide

### Elongation at Break

### BLEACH IMMERSION

Period & Sample Number	Sample Thickness Mean (mm)	Maximum Load (N)	Maximum Extension (mm)	Maximum Stress MPa	Maximum Strain %
<b>7 Days</b> 8061.1 – 5 1 to 3	0.74	26.16	26.40	5.89	80
<b>28 Days</b> 8061.1– 5 4 to 6	0.77	30.16	24.59	6.53	75
<b>56 Days</b> 8061.1 – 5 7 to 9	0.78	34.23	22.19	7.31	67

**Requirement:** The sample requires an elongation at break strain greater than 37% at 56 days without additional bond relief. Between 37% and 19% additional bond strength is required. Less than 19% - fail.

**Result:** **67%** **PASS**



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TEST CARRIED OUT IN ACCORDANCE WITH AS4858:2004 Wet Area Membranes Test Date: 24 April 2017  
Appendix A: Assessment of Durability of waterproof membranes

RESULTS: Location: Ceramic Tile Laboratory  
Conditions: 7 days at 23°C 50%RH  
Sample Number: 8061.1 - 4 (Numbered 1 to 9)  
Samples: Average of 3 samples  
Load rate: 50mm/min  
Solution: 1L of 2% solution N8 detergent

### Elongation at Break

### DETERGENT IMMERSION

Period & Sample Number	Sample Thickness Mean (mm)	Maximum Load (N)	Maximum Extension (mm)	Maximum Stress MPa	Maximum Strain %
<b>7 Days</b> 8061.1 – 4 1 to 3	0.81	34.01	25.37	7.00	77
<b>28 Days</b> 8061.1 – 4 4 to 6	0.83	45.93	21.06	9.11	64
<b>56 Days</b> 8061.1 – 4 7 to 9	0.84	41.36	17.62	8.21	53

**Requirement:** The sample requires an elongation at break strain greater than 37% at 56 days without additional bond relief. Between 37% and 19% additional bond strength is required. Less than 19% - fail.

**Result:** **53%** **PASS**



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TEST CARRIED OUT IN ACCORDANCE WITH AS/NZS 4654.1:2012 Wet Area Membranes Test Date: 18 April 2017  
Appendix A: Assessment of Durability of waterproof membranes

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RESULTS: Location: Ceramic Tile Laboratory  
Conditioning: 23°C 50%RH  
Sample Number: 8061.1 - 2 (Numbered 1 to 4)  
Samples: Average of 4 samples  
Load rate: 50mm/min

### Elongation at Break

### HEAT AGEING @ 50 °C

Sample Number	Sample Thickness Mean (mm)	Maximum Load (N)	Maximum Extension (mm)	Maximum Stress MPa	Maximum Strain %
8061.1-2 1 to 4	0.94	38.25	23.07	6.78	70

**Requirement:** The sample requires an elongation at break strain greater than 37% at 7 days. Less than 37% - fail.

**Result:** **70% PASS**



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TEST CARRIED OUT IN ACCORDANCE WITH Test Date: 31 March 2017  
AS4858:2004 Wet Area Membranes  
Appendix B: Assessment of Resistance of  
Waterproofing Membranes to Cyclic Movement

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RESULTS: Location: Laboratory  
Test Rig: Applied Test Systems  
Series 904 Vertical Sealant Tester  
Number of Cycles: 50  
Type of Cycle: Full cycle  
Cycle Time: 2 hours to complete full cycle  
Cycle expansion: 50% of Control elongation at break  
Sample Size: 65mm x 25mm  
Sample Span: 4mm between header plates  
Sample Thickness: 0.95mm

The test sample achieved a control Elongation of Break of 74% as per AS4858 Appendix A. For a Class II membrane type the extension movement used for cycling is 0.37mm extension.

Number of Cycles completed	50
Surface Crazeing	Nil
Surface Tears	Nil
Membrane Rupture	Nil

**Result: PASS**





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TEST CARRIED OUT IN ACCORDANCE WITH Test Date: 24 March 2017  
ASTM E96: Moisture Vapour Transmission Rate

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RESULTS: Location: Ceramic Tile Laboratory  
Open mouth dish: Diameter 100mm  
Test Period: 456 hours  
Conditions: 23°C / RH 50%  
Desiccant: Silica gel

### Desiccant Method (Procedure A)

Sample	Thickness (mm)	Water Vapour Tx g/m <sup>2</sup> /24hr	Permeance Perms (in. lbs)
Specimen 1	0.81	1.16	22.33
Specimen 2	0.79	1.33	25.62
Specimen 3	0.77	1.14	21.93
<b>Mean</b>	<b>0.79</b>	<b>1.21</b>	<b>23.29</b>

**Requirement:** If > 8g/m<sup>2</sup>/24 hours, additional testing referred to in (e) of Table A1 will be required to establish suitability for use over particleboard.

**Permeance:** 23.29 Perms (in. lbs)

**Water Vapour Tx:** 1.21g/m<sup>2</sup>/24 hours

**Result:** PASS



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TEST CARRIED OUT IN ACCORDANCE WITH AS 3558.1-1999: Water Absorption Test Date: 11 April 2017

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RESULTS: Location: Ceramic Tile Laboratory  
Test Period: 24 hours  
Conditions: 23°C / RH 50%

Sample	Thickness (mm)	Water Absorption		
		Mass (m1)	Mass (m2)	% Mass Difference
Specimen 1	0.87	7.90	8.37	5.95
Specimen 2	0.79	7.98	8.48	6.27
Specimen 3	0.79	8.72	9.04	3.67
Mean	<b>0.82</b>	<b>8.20</b>	<b>8.63</b>	<b>5.30</b>

**Requirement:** Determine maximum water absorption as mean difference %

**Result:** 6.27%



## **Infrastructure Technologies**

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Date and Place 24 April 2017 Clayton, Vic

Name, Title and Signature:



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TECHNICAL OFFICER  
SLIPS, SURFACES & FINISHES  
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