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TEST REPORT

DC11800-035

REPORT ON TESTING OF GREY PARCHEM EMERPROOF AQUA BARRIER ADVANCED MEMBRANE TO THE REQUIREMENTS OF AS 4654.1 2012

CLIENT

Parchem Construction Supplies
7 Lucca Rd
Wyong, NSW 2259
Australia

PROJECT NUMBER:

DC11800

ISSUE DATE:

11 June 2020

REVIEW DATE:

11 June 2025

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TEST SUMMARY

Objective

Testing was completed of nominally 1.01 mm Grey Parchem Emerproof Aqua Barrier Advanced membrane to the requirements of AS4654.1 2012 *Waterproofing membranes for external above-ground use Part 1: Materials*.

Summary

Passing results were obtained for the Grey Parchem Emerproof Aqua Barrier Advanced, where requirements are stated in the AS4654.1 2012 Standard. The Grey Parchem Emerproof Aqua Barrier Advanced sample material submitted met the requirements to be classified as Class III (high extensibility).

Test sponsor

Parchem Construction Supplies
7 Lucca Rd
Wyong, NSW 2259
Australia

Description of test specimen

The client supplied sheet membrane samples to be tested. The samples were assigned the BRANZ Sample Reference 20/050.

LIMITATION

The results reported here relate only to the items tested.

TERMS AND CONDITIONS

This report is issued in accordance with the Terms and Conditions as detailed and agreed in the BRANZ Services Agreement for this work.



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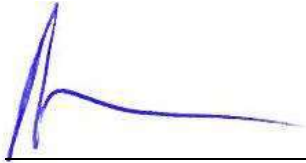
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SIGNATORIES



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1. SUMMARY

AS 4654.1 Table 2.1 Requirements – Fully Bonded Membranes – Grey Parchem Emerproof Aqua Barrier Advanced

PROPERTY REQUIRED	METHOD	RESULTS	
Abrasion resistance	AS 1580.403.2	Maintenance Access	
Bond strength (Average peel strength)	ASTM C794	Concrete 184 N Plywood 192 N	
Cyclic movement	Moving Joint Test		Pass
Dimensional stability	ASTM D6207	N/A	
Elongation at break	AS 4654.1 Appendix A	318% 3.29 MPa	Class III
Field seam strength	N/A	N/A	
Heat ageing	AS/NZS 4858	265% 4.28 MPa	Pass
Temperature resistance	AS 4654.1 Clause 2.6		Pass
Ultraviolet resistance	AS 4654.1 Table A4	226% 4.36 MPa	Pass
Tensile strength	AS 4654.1 Table A4	318% 3.29 MPa	
Thickness	Various methods	1.01 mm See Note 1	
Durability	AS 4654.1 Table A4	See Note 2	
Water vapour transmission rate	ASTM E96	2.20 g/m ² /24 hours	

Notes:

1. Thickness measurement – the product is a liquid applied waterproofing membrane. The thickness of the membrane will be determined by application.
2. Durability of membranes is a combined group of assessments as detailed in AS 4654.1 Appendix A, Table A4.

Control	318 %	3.29 MPa	
Water immersion	359 %	1.16 MPa	Pass
Detergent immersion	220 %	0.47 MPa	Pass
Heat ageing	265 %	4.28 MPa	Pass
Ultra-violet	226 %	4.36 MPa	Pass
Bioresistance	Manufacturing guidelines for bioresistance to be followed		



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2. ABRASION RESISTANCE

2.1 Testing

Test carried out on Parchem Emerproof Aqua Barrier Advanced in accordance with AS 1580.403.2.

Sample diameter: 100 mm

Number of samples: 2

Number of test points: 6

Abrader wheels: CS10

Number of revolutions: 500

2.2 Results

Mean loss: 0.04 mm

Clause 2.3.1 Non-trafficable

Maintenance access – abrasion depth less than 0.2 mm

3. BOND STRENGTH

3.1 Testing

Tested in accordance with ASTM C794.

3.2 Results

Results are an average of 4 samples.

Substrate	Average peel strength (N)
Concrete	184
Plywood	192

4. CYCLIC MOVEMENT

4.1 Testing

Testing carried out in accordance with AS 4654.1 Appendix B Assessment of resistance of waterproofing membranes to cyclic movement.



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4.2 Results

Number of cycles:	50
Cycle Time:	2 hours
Cycle expansion:	4 mm
Sample size:	65 mm x 25 mm
Sample span:	2 mm between plates
Sample thickness:	1.01 mm

The 1.01 mm thick test sample achieved a control elongation at break of 318% as per AS 4654 Appendix A. For this Class III membrane the extension movement used for cycling is 4 mm.

Number of cycles completed:	50
Surface crazing:	Nil
Surface tears:	Nil
Membrane rupture:	Nil

Result: Meets the requirement for the Moving Joint Test

5. ELONGATION AT BREAK

5.1 Testing

Test carried out in accordance with AS 4654.1 Appendix A.

5.2 Results

Results are an average of 6 samples.

Mean sample thickness (mm)	Tensile strength (MPa)	Elongation at break (%)
1.01	3.29	318

Requirement for Class III: The specimens have an elongation at break of $\geq 300\%$.

Classification: Class III (high extensibility)

6. HEAT AGEING

6.1 Testing

Testing carried out in accordance with AS 4654.1 Appendix A. This involved conditioning the test specimens in an oven set at $80 \pm 2^\circ\text{C}$ for a period of 14 days



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followed by 2 days at $23 \pm 2^\circ\text{C}$ and $65 \pm 15\%$ relative humidity before being tested for strength and elongation at break.

6.2 Results

Mean sample thickness (mm)	Tensile strength (MPa)	Elongation at break (%)
0.85	4.28	265

Requirement: The specimens require an elongation at break greater than 50% of the control sample, 318%. An elongation of less than 159% is a fail.

Result: Pass

7. TEMPERATURE RESISTANCE

7.1 Testing

Testing is being carried out in accordance with AS 4654.1 Appendix A. Samples have been exposed for 2 days at 85°C and for 2 days at -15°C .

7.2 Results

Results are an average of 6 samples.

Mean sample thickness (mm)	Tensile strength (MPa)	Elongation at break (%)
0.94	4.58	274

Requirement: The membrane shall remain waterproof when subjected to temperatures likely to be encountered in use: for Australia these would be within the range -15°C to 85°C .

Samples shall exhibit no cracking, fractures or surface defects after exposure.

Result: Pass

8. TENSILE STRENGTH

8.1 Testing

Testing carried out in accordance with AS 4654.1 Appendix A.



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8.2 Results

Results are an average of 6 samples.

Mean sample thickness (mm)	Tensile strength (MPa)	Elongation at break (%)
1.01	3.29	318

9. ULTRAVIOLET RESISTANCE

9.1 Testing

Testing carried out in accordance with AS4654.1 Appendix A.

9.2 Results

Results are an average of 6 samples.

Mean sample thickness (mm)	Tensile strength (MPa)	Elongation at break (%)
1.12	4.36	226

Requirement: The specimens require an elongation at break greater than 40% of the control sample, 318%. An elongation of less than 127% is a fail.

Result: Pass

10. DURABILITY

10.1 Testing

Testing carried out in accordance with AS 4654.1 Appendix A. Samples were tested after 7, 28 and 68 days of immersion. The planned 56 day immersion tests were extended by the New Zealand Government's response to COVID-19.

10.2 Results

	Tensile Strength	Elongation at break	Pass/ Fail
Control	318%	3.29 MPa	N/A
Water immersion	359%	1.16 MPa	Pass
Detergent immersion	220%	0.47 MPa	Pass
Heat ageing	265%	4.28 MPa	Pass
Ultra-violet	226%	4.36 MPa	Pass
Bioresistance	Manufacturing guidelines for bioresistance to be followed		



11. WATER VAPOUR TRANSMISSION RATE

11.1 Testing

Testing carried out in accordance with ASTM E96 desiccant method. Water vapour transmission rate (WVTR) was determined for 2 replicate samples.

11.2 Results

Thickness (mm)	WVTR (g/m ² /24 hours)
1.01	3.21



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