

TEST REPORT

DC16839-02-01

REPORT ON TESTING OF CHEVALINE DEXX MEMBRANE TO THE REQUIREMENTS OF AS/NZS4858:2004

CLIENT

Equus Industries Limited
7 Sheffield Street
Riverlands
Marlborough, 7274
New Zealand

branz.nz | 1222 Moonshine Rd, RD1, Porirua 5381, Private Bag 50 908, Porirua 5240, New Zealand | Phone +64 4237 1170 | branz@branz.co.nz

TEST SUMMARY

Objective

Testing was completed to the requirements of AS/NZS4858:2004 *Wet Area Membranes.*

Summary

Passing results were obtained for the 1.21 mm thick Chevaline Dexx membrane where requirements are stated in the AS/NZS 4858:2004 Standard. The Chevaline Dexx membrane samples supplied met the requirements to be classified as Class I (Low Extensibility).

Test sponsor

Equus Industries Limited
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Description of test specimen

The client supplied sheet membrane samples to be tested. The samples were assigned the BRANZ Sample Reference 22/835.

Date of test

Testing completed on 28 April 2023.

LIMITATION

The results reported here relate only to the item/s 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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SIGNATORIES

Author

Sarah Cooley
Contracting Scientist
Authorised to author this report

Reviewed by

Holly Moody
Senior Technician
Authorised to review this report

Authorised by

Cameron Tristram
Technical manager
Authorised to review this report

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1. SCOPE

The client requested testing of the Chevaline Dexx waterproofing membrane to the performance specifications of AS/NZS 4858 *Wet area membranes*. Samples were prepared under specified conditions and testing was completed to AS/NZS 4858 *Wet area membranes* and references the following standards: cyclic movement (CSIRO Moving Joint Test), water absorption (AS 3558.1) and water vapour transmission (ASTM E96). Tensile testing was completed on an Instron 5569 Universal testing machine with a 10 kN load cell to provide a constant rate of elongation.

2. SUMMARY

Table 1: Test result summary for Chevaline Dexx membrane based on AS/NZS 4858 specifications.

TEST	SPECIFICS	RESULTS
(a) Moisture Vapour Transmission Rate	ASTM E96 Desiccant method	2.31 g/m^2/d
(b) Water absorption (maximum)	AS 3558.1	8.63 %
(c) Resistance to Cyclic Movement	No fatigue cracking exhibited	Pass
(d) Thickness[1]	Various methods	N/A
(d) Durability[2]	Average retention of elongation at break compared to control samples	
7 days 28 days Deionised water at 23 ± 2°C 56 days	391% 550% 392%	Pass Pass Pass
7 days 28 days Bleach at 23 ± 2°C 56 days	1945% 1420% 868%	Pass Pass Pass
7 days 28 days Detergent at 23 ± 2°C 56 days	640% 399% 406%	Pass Pass Pass
(e) Heat Ageing 50°C ± 2°C for 7 days	82%	Pass

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/NZS 4858 Appendix A, Table A1.

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3. MOISTURE VAPOUR TRANSMISSION RATE

3.1 Testing

Three samples were tested following the desiccant method of ASTM E96.

3.2 Results

Results are an average of 3 samples.

Table 2: Moisture Vapour Transmission Results

Thickness (mm)	WVTR (g/m^2/24 hours)	Minimum result (g/m^2/24 hours)	Maximum result (g/m^2/24 hours)
1.21	2.31	2.24	2.40

4. WATER ABSORPTION

4.1 Testing

Test carried out in accordance with AS 3558.1, with a modified sample size of 50 mm x 50 mm by the thickness used in practice.

4.2 Results

Table 3: Water absorption

Sample	% water absorption
1	7.77
2	7.43
3	8.63

5. CYCLIC MOVEMENT

5.1 Resistance to Cyclic Movement AS/NZS 4858:2004 Appendix B

Samples of approximate dimensions 65 mm x 25 mm were subjected to 50 cycles whereby a gauge length of 2 mm was extended at a constant strain rate to 0.37 mm extension.

Observations were made when fully extended to examine for grazing, surface tears or membrane rupture. The result is reported in Table 7.

5.2 Testing

Testing carried out in accordance with AS 4654.1-2012 Appendix B Assessment of resistance of waterproofing membranes to cyclic movement.

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Sample	22/835
Material class	Class I
Test time	2 hours
Cyclic extension	0.37 mm
Rate of extension	0.31 mm/min

5.3 Results

Number of cycles completed:	50
Surface crazing:	Nil
Surface tears:	Nil
Membrane Rupture:	Nil
Results	Pass

6. DURABILITY

6.1 Durability Testing

Test specimens were prepared in accordance with AS 1145.3 (type 5 specimen) and were conditioned for 7 days at 23 ± 2°C and 65 ± 15% relative humidity prior to being tested. Testing was then carried out in accordance with AS/NZS 4858:2004 Appendix A.

6.2 Results

Table 4: Control results

Thickness (mm)	Max Load (N)	Max Stress (MPa)	Elongation at break (%)	Class
1.21	123.43	17.05	24.07	I (low extensibility)

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Table 5: Immersion ageing results

Solution	Aged period	Thickness (mm)	Max Load (N)	Max Stress (MPa)	Elongation at break (% of control)
De-ionised water	7 days	1.28	45.41	5.93	391
	28 days	1.30	50.09	6.40	550
	56 days	1.31	54.14	6.92	392
Bleach	7 days	1.22	7.10	0.97	1945
	28 days	1.27	9.00	1.18	1420
	56 days	1.33	7.54	0.94	868
Detergent	7 days	1.27	36.66	4.78	640
	28 days	1.31	49.45	6.32	399
	56 days	1.34	49.37	6.13	406

Requirement: The specimens require an elongation at break greater than 25% of the control sample.

Result: Pass

7. HEAT AGEING

7.1 Testing

Test specimens were prepared in accordance with AS 1145.3 (type 5 specimen) and were conditioned for 7 days at 23 ± 2°C and 65 ± 15% relative humidity prior to being aged in an oven at 50°C ± 2°C for 7 days. Testing was then carried out in accordance with AS/NZS 4858:2004 Appendix A.

7.2 Results

Table 6: Heat aged results

Thickness (mm)	Max Load (N)	Max Stress (MPa)	Elongation at break (% of control)
1.10	139.50	20.16	82

Requirement: The specimens require an elongation at break greater than 50% of the control sample.

Result: Pass

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