



Industrial Research Services

Materials Science & Engineering, 37 Graham Road (PO Box 56), Highett, Victoria 3190, Australia
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Registered Testing Authority - Building Code of Australia

12 September 2007

Our Ref: EN13 / 1529 03/0211

TEST REPORT No. 3939 Rev A

Requested by: Equus Industries Ltd
Client: Mr Dean S. Barr
on (date): 12 June 2007
Product Descriptions: TEXTILE AFM waterproofing membrane
Manufacturer: Tex-Mastic Construction Materials

Sampling Details
Date: 12 June 2007
How (methods): Delivered to Highett

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This test report consists of 11 pages.

SUMMARY OF ASSESSMENTS REPORTED

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



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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 763% at 56 days.
Note: (763% equates to 50% of control elongation at break strain percentage).

Durability of membranes: Elongation to break	Strain %	
Control	1525%	Class III
Water Immersion	1535%	PASS
Detergent Immersion	1525%	PASS
Bleach Immersion	1213%	PASS
Heat Ageing	987%	PASS

Equus Industries Ltd test sample, TEXTILE AFM waterproofing membrane achieves the performance requirements of AS 4858: 2004 Durability of Membranes for Class III membrane installation.

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

Class III type membrane: 2.0mm gauge length for a 4.0mm extension, repeated 50 cycles.

Requirement: No Fatigue cracking exhibited.
Result: **PASS**

The Water Vapour Transmission (WVT) in accordance to ASTM E96: 0.007g/m²/24h

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

Appendix C will not be required as the TEXTILE AFM waterproofing membrane has a water vapour transmission below 8g/m²/24h.

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

Method 1: Determination of water absorption characteristics

Water absorption:	Sample 1	0.51%	
	Sample 2	0.39%	
	Sample 3	0.39%	Mean 0.43%

Conclusion: TEXTILE AFM waterproofing membrane 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
Appendix A: Assessment of Durability of waterproof membranes

Test Date: June 2007

RESULTS: Location: Ceramic Tile Laboratory
Conditions: 7 days at 23°C 55%RH
Sample Number: 3939 - 1 (Numbered 1 to 5)
Samples: Average of 5 samples
Load rate: 150mm/min

Elongation at Break

CONTROL SET

Sample Number	Sample Thickness Mean (mm)	Maximum Load (N)	Maximum Extension (mm)	Maximum Stress MPa	Maximum Strain %
3939 – 1 1 to 5	0.95	18.50	503.09	3.25	1525

Requirement for Class III: The specimens have an average percentage strain of $\geq 300\%$.

Classification: Class III (High Extensibility)

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AS4858:2004 Wet Area Membranes
Appendix A: Assessment of Durability of waterproof membranes

Test Date: August 2007

RESULTS: Location: Ceramic Tile Laboratory
Conditions: 7 days at 23°C 55%RH
Sample Number: 3939 - 3 (Numbered 1 to 12)
Samples: Average of 3 samples
Load rate: 150mm/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 %
7 Days 3939 – 3 1 to 3	1.0	35.48	394.87	5.91	1197
28 Days 3939 – 3 4 to 6	1.0	39.20	491.47	6.53	1489
56 Days 3939 – 3 7 to 9	1.0	56.89	506.44	9.98	1535

Requirement: The sample requires an elongation at break strain greater than 763% at 56 days without additional bond relief. Between 382% and 763% additional bond strength is required. Less than 382% - fail.

Result: 1535% **PASS**



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AS4858:2004 Wet Area Membranes
Appendix A: Assessment of Durability of waterproof membranes

Test Date: August 2007

RESULTS: Location: Ceramic Tile Laboratory
Conditions: 7 days at 23°C 55%RH
Sample Number: 3939 - 5 (Numbered 1 to 12)
Samples: Average of 3 samples
Load rate: 150mm/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 %
7 Days 3939 – 5 1 to 3	1.0	25.96	362.44	4.33	1098
28 Days 3939 – 5 4 to 6	1.0	57.05	528.76	9.51	1602
56 Days 3939 – 5 7 to 9	1.0	44.94	400.21	7.88	1213

Requirement: The sample requires an elongation at break strain greater than 763% at 56 days without additional bond relief. Between 382% and 763% additional bond strength is required. Less than 382% - fail.

Result: **1213%** **PASS**



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AS4858:2004 Wet Area Membranes
Appendix A: Assessment of Durability of waterproof membranes

Test Date: August 2007

RESULTS: Location: Ceramic Tile Laboratory
Conditions: 7 days at 23°C 55%RH
Sample Number: 3939 - 4 (Numbered 1 to 12)
Samples: Average of 3 samples
Load rate: 150mm/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 %
7 Days 3939 – 4 1 to 3	1.0	56.36	553.93	9.39	1679
28 Days 3939 – 4 4 to 6	1.0	48.43	529.52	8.07	1605
56 Days 3939 – 4 7 to 9	1.0	53.40	507.42	9.37	1538

Requirement: The sample requires an elongation at break strain greater than 763% at 56 days without additional bond relief. Between 382% and 763% additional bond strength is required. Less than 382% - fail.

Result: **1538%** **PASS**



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TEST CARRIED OUT IN ACCORDANCE WITH
AS4858:2004 Wet Area Membranes
Appendix A: Assessment of Durability of waterproof membranes

Test Date: July 2007

RESULTS: Location: Ceramic Tile Laboratory
Conditioning: 23°C 55%RH
Sample Number: 3939 - 2 (Numbered 1 to 4)
Samples: Average of 3 samples
Load rate: 150mm/min

Elongation at Break

HEAT AGEING

Sample Number	Sample Thickness Mean (mm)	Maximum Load (N)	Maximum Extension (mm)	Maximum Stress MPa	Maximum Strain %
3939 - 2 1 to 4	1.0	15.70	325.86	2.62	987

Requirement: The sample requires an elongation at break strain greater than 763% at 7 days. Less than 763% - fail.

Result: **987% PASS**

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TEST CARRIED OUT IN ACCORDANCE WITH
AS4858:2004 Wet Area Membranes
Appendix B: Assessment of Durability of waterproof membranes

Test Date: July 2007

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: 2mm between header plates
Sample Thickness: 1.0 mm

The test sample achieved a control Elongation of Break of 1525% as per AS4858 Appendix A. For a Class III membrane type the extension movement used for cycling is 4.0 mm extension.

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

Result: Meets the requirement for Moving Joint Test

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TEST CARRIED OUT IN ACCORDANCE WITH
AS4858:2004 Wet Area Membranes
ASTM E96: Moisture Vapour Transmission

Test Date: August 2007

RESULTS: Location: Ceramic Tile Laboratory
Open mouth dish: Diameter 100mm
Test Period: 528 hours
Conditions: 23°C / RH 50%
Membrane to dish sealant: wax
Desiccant: Silica gel

Desiccant Method (Procedure A)

Sample	Thickness mm	Water Vapour Transmission	
		g/m ² /hr	g/m ² /24/hr
Specimen 1	1.0	0.0003	0.0068
Specimen 2	1.0	0.0003	0.0068
Specimen 3	1.0	0.0003	0.0068
Mean			0.007

Requirement: If > 8g/m²/24 hours, additional testing referred to in (e) of Table A1 will be required to establish suitability for use over particleboard.

Result: **0.007g/m²/24 hours PASS**

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TEST CARRIED OUT IN ACCORDANCE WITH
AS4858:2004 Wet Area Membranes
AS 3558.-1999: Water Absorption

Test Date: July 2007

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	1.0	7.79	7.83	0.51
Specimen 2	1.0	7.64	7.67	0.39
Specimen 3	1.0	7.78	7.81	0.39
Mean				0.43

Requirement: Determine maximum water absorption as mean difference %

Result: **0.43 %**

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Date and Place 12 September 2007 Highett, Vic

Name, Title and Signature:



**D.R. WEEKS
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