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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

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 Test Date: June 2007
AS4858:2004 Wet Area Membranes
Appendix A: Assessment of Durability of waterproof membranes

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 ≥300%.

Classification: Class III (High Extensibility)

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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: 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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REPORT NO: **3939 Rev A**
ISSUE DATE: 12 September 2007
MANUFACTURER: Tex-Mastic Construction Materials
PRODUCT DESC: TEXTILE AFM waterproofing membrane

TEST CARRIED OUT IN ACCORDANCE WITH
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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PRODUCT DESC: TEXTILE AFM waterproofing membrane

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:	23ºC 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 Test Date: July 2007
AS4858:2004 Wet Area Membranes
Appendix B: Assessment of Durability of waterproof membranes

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 Crazing	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 > $8g/m^2/24$ hours, additional testing referred to in (e) of Table A1 will be required to establish suitability for use over particleboard.

Result: **$0.007g/m^2/24$ 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
TECHNICAL OFFICER
INDUSTRIAL RESEARCH SERVICES

TEX-MASTIC® CONSTRUCTION MATERIALS

533
1 page
PRODUCT DATA SHEET

Issue 1 - 08/07

Tex-Tile AFM

Wet Areas

Anti-fracture Membrane

Areas of Use:

Both wet and dry areas. In wet areas, when correctly laid, Tex-Tile AFM acts as a waterproofing membrane, whilst in dry area applications, Tex-Tile AFM acts as an anti-fracture membrane, inhibiting reflection of substrate cracks or joints through tiled surfaces.

Product:

Texmastic Tex-Tile is a composite membrane of polyester fabric upper surface and elastomeric bitumen self-adhesive mass, with siliconised protective released sheet.

Purpose:

Tex-Tile AFM is used under ceramic tiles or thin pavers laid in a thin-bed adhesive in both wet and dry areas. In wet areas, when correctly laid, **Tex-Tile AFM** acts as a waterproofing membrane, whilst in dry area applications, **Tex-Tile AFM** acts as an anti-fracture membrane, inhibiting reflection of substrate cracks or joints through tiled surfaces.

Compatibility:

Tex-Tile AFM can be used in conjunction with acrylic or latex modified thin-set cementitious tile adhesives or with tile bedding mortars laid on adhesive cementitious primers.

Colour & Form:

Tex-Tile AFM is a black modified bitumen sheet mass with a woven polyester face to which the tile adhesive is applied. It is supplied as a roll product.

Standard Pack:

Tex-Tile AFM is suppled as a roll 21.3m x 0.96m. It is also available on special order as a roll 22.5 x 0.3m. Other sizes can be supplied subject to minimum quantity orders.

Physical Properties:

Thickness:	1.0mm
Elongation:	1200% —Bituminous mass only (ASTM D412 modified)
Peel Adhesion:	>1.8 kgf/cm width (ASTM D1000)
Low Temp Flexibility:	No cracking - over mandrel at -26 degC (ASTM D146 modified)

Application:

The surface to which **Tex-Tile AFM** is applied must be clean, dry and dust free. Fill any non-moving cracks greater than 4mm wide prior to application. Apply **Aquasel P Primer** to the surface at a spreading rate of 10-12 sqm/litre and allow to dry to a slightly tacky surface. Apply by brush or roller, or spray for large areas. Unroll and cut roll of **Tex-Tile** to desired length. Re-roll. Remove release sheet from the roll at commencement of application and place the exposed adhesive on to the primed surface, ensuring roll is accurately aligned for unrolling. Smooth into place, trying to avoid blisters. Use roller pressure as the membrane is laid to ensure conformance and good bond to the underlying surface.

A) When used in wet areas: Prime a 75mm selvedge (lap) area and overlap the next roll — rolling down hard to create a good bond. Use a bead of Polyroof to ensure the lap is sealed.

B) When used in dry areas: Butt adjacent rolls tightly together and seal butt joint, if necessary, with a bead of Polyroof.
Note: this method is not applicable on decks or showers, bathrooms or laundry areas — use (A) above.

When used in cool conditions, store the rolls of **Tex-Tile AFM** in a warm area overnight ad lay using a hot-air gun, if necessary, to form cohesive joints.

Limitations:

Do not use **Tex-Tile AFM** in areas where there is a likelihood of constant immersion, eg pools, ponds, or external gutters that may not free-drain. Do not use over movement or expansion joints or where horizontal/ vertical displacement is anticipated.

Storage:

Store cartons containing rolls of **Tex-Tile AFM** in cool dry conditions. Do not leave in direct sunlight for long periods, either vertically or horizontally stacked. **Tex-Tile AFM** has anindefinite life-before-use when correctly stored.

Health & Safety:

Tex-Tile AFM contains no materials identified as being carcinogenic or hazardous to humans. It contains no VOC's and is not classified as restricted or hazardous for transport or storage purposes. We recommend the use of gloves when installing **Tex-Tile AFM** to prevent contamination of skin with bitumen residues.

Tested by CSIRO

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