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**CSIRO MANUFACTURING
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INDUSTRIAL RESEARCH SERVICES

Registered Testing Authority - Building Code of Australia

14 February, 2006

Our Ref. EN13/1387

TEST REPORT No. 3429

Requested by: Neill Barrell
on (date): 09 December 2005
Manufacturer: A2Z Pty Ltd
Product Desc: Elaston-W80 Polyol Waterproof Membrane

Sampling details:

Where: Delivered
Date: 7 December 2005
By Whom: A2Z P/L
How (methods): Courier

The results reported relate only to the sample(s) tested and the information received.

No responsibility is taken for the accuracy of the sampling unless it is done under our own supervision. CSIRO cannot accept responsibility for deviations in the manufactured quality and performance of the product. The reproduction of this test report is only authorised in the form of a complete photographic facsimile. Our written approval is necessary for any partial reproduction.

This test report consists of 8 pages

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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 % greater than 160% at 56 days. (160% equates to 50% of control elongation at break strain percentage).

| DUABILITY OF MEMBRANES: Elongation to break | Strain % | |
|---|----------|-----------|
| Control | 321% | Class III |
| Water Immersion | 328% | PASS |
| Bleach Immersion | 313% | PASS |
| Detergent Immersion | 338% | PASS |
| Heat Ageing | 337% | PASS |

A2Z Pty Ltd test sample, Code; Elaston-W80 Polyol Waterproof Membrane achieves the performance requirements of AS 4858: 2004 Durability of Membranes for **Class III** membrane

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

Class III type membrane: 2mm gauge length for a 4.0mm extension, repeated 50 cycles.

Requirement: PASS No fatigue, no cracking, no break exhibited.
 Result: **PASS**

The Water Vapour Transmission in accordance to ASTM E96: 2.33 g/m²/24h

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

Appendix C will not be required as the Elaston-W80 Polyol Waterproof Membrane membrane had 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 | 0.78% | |
| | Sample 2 | 0.65% | |
| | Sample 3 | 0.79% | Mean 0.75% |



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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: 15 December 2005

RESULTS: Location: Ceramic Tile Laboratory
 Conditions: >7 days at 23°C 55%RH
 Sample Number: 3429-1-1 (Numbered 1 to 5)
 Samples: Average of 5 samples
 Load rate: 150mm/min

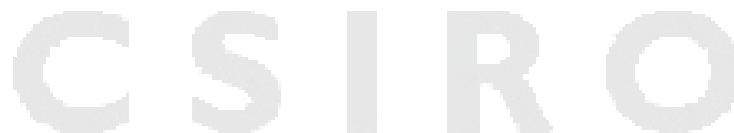
Elongation at Break

CONTROL SET

| Sample Number | Sample Thickness Mean (mm) | Maximum Load (N) | Maximum Extension (mm) | Maximum Stress MPa | Maximum Strain % |
|---------------|----------------------------|------------------|------------------------|--------------------|------------------|
| 3429-1-1 to 5 | 2.8 | 90.75 | 105.93 | 5.33 | 321 |

Requirement for Class II: The control specimens have an average percentage strain =>300%

Classification: Class III (High extensibility) 321%





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Test Date: 09 February 2006

RESULTS: Location: Ceramic Tile Laboratory
Conditions: 23°C 55%RH
Sample Number: 3429-3 (Numbered 1 to 12)
Samples: Average of 3 samples
Load rate: 150mm/min
Solution: 1L of deionized water

Elongation at Break
WATER IMMERSION

Table with 6 columns: Sample and Number, Sample Thickness Mean (mm), Maximum Load (N), Maximum Extension (mm), Maximum Stress MPa, Maximum Strain %. Rows include data for 7 Days, 28 Days, and 56 Days.

Requirement: The sample requires an elongation at break strain greater than 160% at 56 days.

Result: PASS



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TEST CARRIED OUT IN ACCORDANCE WITH

Test Date: 09 February 2006

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

RESULTS: Location: Ceramic Tile Laboratory
 Conditions: 23°C 55%RH
 Sample Number: 3429-5 (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

| Sample and Number | Sample Thickness Mean (mm) | Maximum Load (N) | Maximum Extension (mm) | Maximum Tensile MPa | Maximum Strain % |
|--------------------------|----------------------------|------------------|------------------------|---------------------|------------------|
| 7 Days 3429-5-1 to 3 | 2.7 | 76.20 | 104.06 | 4.79 | 315 |
| 28 Days 3429-5-4 to 6 | 2.5 | 68.33 | 100.67 | 4.23 | 305 |
| 56 Days 3429-5-7 to 9 | 2.7 | 74.62 | 103.45 | 5.08 | 313 |

Requirement: The sample requires an elongation at break strain greater than **160%** at 56 days.

Result: **PASS**



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Test Date: 09 February 2006

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

RESULTS: Location: Ceramic Tile Laboratory
 Conditions: 23°C 55%RH
 Sample Number: 3429-4 (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**

| Sample and Number | Sample Thickness Mean (mm) | Maximum Load (N) | Maximum Extension (mm) | Maximum Stress MPa | Maximum Strain % |
|--------------------------|----------------------------|------------------|------------------------|--------------------|------------------|
| 7 Days 3429-4-1 to 3 | 2.90 | 73.62 | 96.79 | 4.19 | 293 |
| 28 Days 3429-4-4 to 6 | 2.85 | 74.48 | 106.02 | 4.36 | 321 |
| 56 Days 3429-4-7 to 9 | 3.25 | 85.63 | 111.53 | 4.41 | 338 |

Requirement: The sample requires an elongation at break strain greater than **160%** at 56 days.

Result: **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: 09 February 2006

RESULTS: Location: Ceramic Tile Laboratory
Conditioning: 23°C 55%RH, 7 days 65°C, 2 days 23°C 55%RH
Sample Number: 3429-2 (Numbered 1 to 3)
Samples: Average of 3 samples
Load rate: 100mm/min

Elongation at Break

HEAT AGEING

Table with 6 columns: Sample and Number, Sample Thickness Mean (mm), Maximum Load (N), Maximum Extension (mm), Maximum Stress MPa, Maximum Strain %. Row 1: 7 Days 3429-2-1 to 3, 2.8, 104.22, 111.25, 6.20, 337.

Requirement: The sample requires an elongation at break strain greater than 160% at 7 days.

Result: PASS



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Date and Place 14 February, 2006, Highett, Vic

Name(s), Title(s) and Signatures(s):

**PETER WESTGATE
TECHNICAL MANAGER**

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