



CSIRO

www.cmit.csiro.au

**CSIRO MANUFACTURING  
& INFRASTRUCTURE TECHNOLOGY**

Graham Road, Highett, Victoria 3190, Australia

**Postal Address**  
PO Box 56, Highett, Victoria 3190, Australia

Telephone 61 3 9252 6000  
Facsimile 61 3 9252 6244

## INDUSTRIAL RESEARCH SERVICES

**Registered Testing Authority - Building Code of Australia**

9 November, 2007

Our Ref. EN13/1013

### TEST REPORT No. 3727E

Requested by: Waterproofing Technologies  
on (date): 24 October 2006  
Manufacturer: Waterproofing Technologies  
Product Desc: ENVIRO FLEX 200P Membrane

Sampling details:  
Where: Highett  
Date: Delivered  
By Whom: Waterproofing Technologies  
How (methods): Own

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

# CSIRO



REPORT NO: 3727E  
 ISSUE DATE: 9 November, 2007  
 MANUFACTURER: Waterproofing Technologies  
 PRODUCT DESC: ENVIRO FLEX 200P Membrane

**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 176% at 56 days.

Note: ( 176% equates to 50% of control elongation at break strain percentage ).

DUABILITY OF MEMBRANES: Elongation to break	Strain %	
Control	352%	<b>Class III</b>
Water Immersion	194%	PASS
Detergent Immersion	198%	PASS
Bleach Immersion	134% (Conditional)	PASS
Heat Ageing	282%	PASS

**Waterproofing Technologies** test sample, Code; ENVIRO FLEX 200P Membrane achieves a conditional pass on performance requirements of AS 4858: 2004 Durability of Membranes for **Class III** membrane installation. Extra bond relief to be stated, as per ASA/NZS 4858 Table A1.

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

Class III type membrane: 2mm gauge length, repeated 50 cycles.

Requirement:	PASS	No Fatigue cracking exhibited.
Result:	<b>PASS</b>	No Fatigue cracking exhibited.

**The Water Vapour Transmission (WVT) in accordance to ASTM E96: 0.61g/m<sup>2</sup>/24h**

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

Appendix C **will not be** required as the ENVIRO FLEX 200P Membrane has a water vapour transmission below 8g/m<sup>2</sup>/24h.

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

**Method 1: Determination of water absorption characteristics**

Water absorption:	Sample 1	5.2%	
	Sample 2	5.2%	
	Sample 3	6.4%	Mean 5.6%

**Conclusion:** ENVIRO FLEX 200P Membrane satisfies the requirements of AS/NZS 4858 Wet area membranes.



**CSIRO**

REPORT NO: 3727E  
 ISSUE DATE: 9 November, 2007  
 MANUFACTURER: Waterproofing Technologies  
 PRODUCT DESC: ENVIRO FLEX 200P Membrane

TEST CARRIED OUT IN ACCORDANCE WITH

Test Date: 29 November 2006

**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: 3727E-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 %
3727E-1-1 to 5	1.5	42.70	116.74	4.55	352

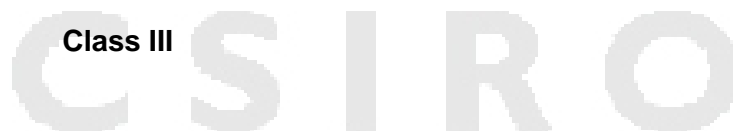
The sample ENVIRO FLEX 200P Membrane has a control elongation at break mean of 352%.

**Requirement for Class III:**

The control specimens have an average percentage strain >300%.

**Classification:**

**Class III**





**CSIRO**

www.cmit.csiro.au

REPORT NO: 3727E  
ISSUE DATE: 9 November, 2007  
MANUFACTURER: Waterproofing Technologies  
PRODUCT DESC: ENVIRO FLEX 200P Membrane

Page 4 of 8

TEST CARRIED OUT IN ACCORDANCE WITH

Test Date: 8 February 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: 3727E-1-3 (Numbered 1 to 12)  
Samples: Average of 3 samples  
Load rate: 150mm/min  
Solution: 1L of deionized water  
Sample Distortion: Slight growth

### Elongation at Break

### WATER IMMERSION

Sample and Number	Sample Thickness Mean (mm)	Maximum Load (N)	Maximum Extension (mm)	Maximum Stress MPa	Maximum Strain %
7 Days 3727E-1- 1 to 3	1.5	20.95	155.78	2.33	472
28 Days 3727E-1- 4 to 6	1.5	16.28	122.00	1.62	369
56 Days 3727E-1- 7 to 9	1.5	20.04	64.07	2.23	<b>194</b>

**Requirement:** The sample requires an elongation at break strain greater than **176%** at 56 days.

**Result:** **PASS Achieves requirement for Class III**

ENVIRO FLEX 200P Membrane achieved 194% at 56 days.



**CSIRO**

REPORT NO: 3727E  
 ISSUE DATE: 9 November, 2007  
 MANUFACTURER: Waterproofing Technologies  
 PRODUCT DESC: ENVIRO FLEX 200P Membrane

Page 5 of 8

TEST CARRIED OUT IN ACCORDANCE WITH

Test Date: 8 February 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: 3727E-1-4 (Numbered 1 to 12)  
 Samples: Average of 3 samples  
 Load rate: 150mm/min  
 Solution: 1L of 2% solution N8 detergent  
 Sample Distortion: Slight growth

**Elongation at Break**

**DETERGENT IMMERSION**

Sample and Number	Sample Thickness Mean (mm)	Maximum Load (N)	Maximum Extension (mm)	Maximum Tensile MPa	Maximum Strain %
7 Days 3727E-1- 1 to 3	1.5	16.34	114.70	1.82	348
28 Days 3727E-1- 4 to6	1.5	13.12	93.14	1.46	282
56 Days 3727E-1- 7 to 9	1.5	16.22	65.50	1.80	<b>198</b>

**Requirement:** The sample requires an elongation at break strain greater than **176%** at 56 days.

**Result:** **PASS Achieves requirement for Class III**

ENVIRO FLEX 200P Membrane achieved 198% at 56 days.



**CSIRO**

REPORT NO: 3727E  
 ISSUE DATE: 9 November, 2007  
 MANUFACTURER: Waterproofing Technologies  
 PRODUCT DESC: ENVIRO FLEX 200P Membrane

Page 6 of 8

TEST CARRIED OUT IN ACCORDANCE WITH

Test Date: 8 february 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: 3727E-1-4 (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  
 Sample Distortion: Slight growth

**Elongation at Break**

**BLEACH IMMERSION**

Sample and Number	Sample Thickness Mean (mm)	Maximum Load (N)	Maximum Extension (mm)	Maximum Stress MPa	Maximum Strain %
7 Days 3727E-5- 1 to 3	1.5	12.57	90.49	1.40	274
28 Days 3727E-5- 4 to 6	1.5	24.63	30.14	2.74	91
56 Days 3727E-5- 7 to 9	1.5	25.49	44.20	2.83	<b>134</b>

**Requirement:** The sample requires an elongation at break strain greater than **176%** at 56 days.

**Result:** **Conditional PASS** Achieves conditional requirement for Class III from **25% to 50% elongation at break of control set.**

ENVIRO FLEX 200P Membrane achieved 134% at 56 days.



CSIRO

www.cmit.csiro.au

REPORT NO: 3727E
ISSUE DATE: 9 November, 2007
MANUFACTURER: Waterproofing Technologies
PRODUCT DESC: ENVIRO FLEX 200P Membrane

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

Test Date: 7 December 2006

RESULTS: Location: Ceramic Tile Laboratory
Conditioning: 23°C 55%RH, 7 days at 50°C, 2 days at 23°C 55%RH
Sample Number: 3727E-2 (Numbered 1 to 3)
Samples: Average of 3 samples
Load rate: 150mm/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 3727E-2- 1 to 3, 1.5, 48.30, 93.08, 5.37, 282.

Requirement: The sample requires an elongation at break strain greater than 176% at 7 days.

Result: PASS Achieves requirement for Class III

ENVIRO FLEX 200P Membrane achieved 282% at 7 days heat ageing.



**CSIRO**

[www.cmit.csiro.au](http://www.cmit.csiro.au)

**CSIRO MANUFACTURING  
& INFRASTRUCTURE TECHNOLOGY**

Graham Road, Highett, Victoria 3190, Australia

**Postal Address**  
PO Box 56, Highett, Victoria 3190, Australia

Telephone 61 3 9252 6000  
Facsimile 61 3 9252 6244

---

REPORT NO:	3727E
ISSUE DATE:	9 November, 2007
MANUFACTURER:	Waterproofing Technologies
PRODUCT DESC:	ENVIRO FLEX 200P Membrane

---

Page 8 of 8

Date and Place 9 November, 2007, Highett, Vic

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

**PETER WESTGATE  
TECHNICAL MANAGER**

**SLIPS, SURFACES & FINISHES  
INDUSTRIAL RESEARCH SERVICES**

**CSIRO**