

TEST REPORT



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20678

TEST SUMMARY

Objective

Assessment of supplied sample to AS/NZS 4858:2004

Project

Assessment of ACTFLEX 988 CWP to AS/NZS 4858:2004

Report Number

0250-1 AS/NZS 4858:2004

Customer

NAME	Actech Protective Coatings
ADDRESS	22/872 Canterbury Road Roselands, NSW, 2196 Sydney
CONTACT PERSON	James Gilto
EMAIL	admin@actechpc.com.au
TELEPHONE	0424424178
MOBILE	0424424178

Name of test material

ACTFLEX 988 CWP

Description of test material

2-part cementitious acrylic polymer waterproofing

Date of receipt of test material

18/07/2023

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Testing Facility and Location

NAME	XTec Gen Pty Ltd
ADDRESS	30-32 Park Avenue Woodville North 5012
ABN	22634729294

LIMITATION

The test results reported here relate only to the items tested.

CUSTOMER SUPPLIED INFORMATION & DATA

2 coats @ 1.15mm. expected dry film 1.5mm

Dry Film Supplied

TERMS AND CONDITIONS

This report is issued in accordance with the Terms and Conditions as detailed and agreed in the *XTecGen Test Request and Sample Submission Form*.

SIGNATORIES

Author

Michael Bakanyozo

Head Laboratory Technician

Reviewer

Eric Scardigno

Laboratory Manager

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SUMMARY OF TESTS

AS4858 Requirements:

PROPERTY	METHOD	RESULT	ASSESSMENT CRITERIA	ASSESSMENT
Acceptance of Cyclic movement	AS4858 Appendix B	No failures observed	AS 4858 Appendix B Paragraph B4	PASS
Durability ¹ : Control Elongation at break	AS1145.3	239 %	AS 4858 Table 5.1	Class II
Durability ¹ : Control Tensile Strength		2.31 MPa		
Durability ¹ : Water Immersion Elongation at break	N/A	81 %	AS 4858 Table A1	CONDITIONAL PASS
Durability ¹ : Water immersion Tensile Strength		1.86MPa		
Durability ¹ : Bleach Immersion Elongation at break		76%		CONDITIONAL PASS
Durability ¹ : Bleach Immersion Tensile Strength		1.91MPa		
Durability ¹ : Detergent Immersion Elongation at break		86%		CONDITIONAL PASS
Durability ¹ : Detergent Immersion Tensile Strength		1.92MPa		
Durability ¹ : Heat aging Elongation at break	N/A	168%	AS 4858 Table A1	PASS

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Durability ¹ : Heat aging Tensile Strength		2.73MPa		
Water Absorption	AS 3558.1 (with sample size modified to be 50mm x 50mm by the thickness used in practice).	3.81%	AS 4858 Table 8.1	
Moisture vapour transmission rate	ASTM E96 Desiccant method	1.99g/m ² /24 hours	AS 4858 Table 8.1	Additional testing as per AS4858.1 Table 8.1 (e) is not required to establish suitability for use over particleboard.
†Suitability for use over particleboard	AS4858 Appendix C	Test not performed	AS 4858 Appendix C Paragraph C5	Test not performed

¹Durability of membranes is a combined group of assessments as detailed in AS4858 Appendix A, Table A4.

†This symbol indicates tests for which XTecGen Laboratory was not NATA accredited for at time of testing.

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CYCLIC MOVEMENT

Date of test: 07/08/2023-11/08/2023

Testing:

Testing carried out in accordance with AS 4858 Appendix B “Assessment of resistance of waterproofing membranes to cyclic movement”

Additions, deviations and/or exclusions from AS 4858 Appendix B:

Nil

Test Parameters:

PARAMETER	VALUE
Membrane class	II
Number of cycles	50
Cycle time	2 Hours
Cycle expansion	4.39mm
Sample Size	65 mm x 25 mm
Sample span	2 mm between plates
Sample thickness	1.208mm

Test Results:

TEST RESULT	VALUE
Number of cycles completed	50
Surface crazing	Nil
Surface tears	Nil
Membrane rupture	Nil

Test Observations:

DAY	DATE	NUMBER OF CYCLES	Failure Observed	
			RUPTURE/HOLING	OTHER
1	7/08/2023	0	☐ Yes ☒ No	
2	8/08/2023	12	☐ Yes ☒ No	
3	9/08/2023	24	☐ Yes ☒ No	
4	10/08/2023	36	☐ Yes ☒ No	
5	11/08/2023	50	☐ Yes ☒ No	

Passing requirement: “Any rupture holing the specimen or extending through the thickness for more than 1mm in from the edge of the specimen shall be taken as a failure and the number of cycles to failure shall be reported. If failure does not occur after 50 cycles it shall be reported together with the

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types of any surface defects that have been induced and the number of cycles at which onset of the defect occurred”

Result: Pass. Meets the requirement for CSIRO moving joint test as per AS 4858.1 Appendix B.

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DURABILITY OF MEMBRANE

CONTROL SET

Date of test: 26/07/2023

Testing: Test carried out in accordance with AS 1145.3.

Additions, deviations and/or exclusions from AS 1145.3: Nil

Test Parameters:

PARAMETER	VALUE
Ambient temperature (conditioning)	25.8-24°C
Ambient humidity (conditioning)	49.0-47.3% RH
Ambient temperature (testing)	25.4°C
Ambient humidity (testing)	30.9% RH
Accuracy grading of test machine	A
Specimen type	Type 5
Elongation measurement type:	Electronic internal measurement
Method of preparation of specimens	Dry Film supplied
Orientation of specimens to direction of cast	Parallel to direction of casting blade
Clamping device:	Pneumatic jaws
Testing speed:	50mm/min

Test Results:

Replicate	Sample thickness (mm)	Maximum Extension (mm)	Maximum Stress (MPa)	Maximum Strain (%)
1	1.31	109.2	2.22	290
2	1.33	107.0	2.24	261
3	1.34	102.3	2.32	216
4	1.35	97.0	2.34	197
5	1.39	93.6	2.45	229
Mean	1.34	101.8	2.31	239
Std Deviation	0.03	6.6	0.09	37

Requirement for Class III (high extensibility): $\geq 300\%$ elongation at break

Requirement for Class II (medium extensibility) 60-299% elongation at break

Requirement for Class I (low extensibility) $< 60\%$ elongation at break.

Classification: Class II

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DURABILITY OF MEMBRANE

WATER IMMERSION

Date of test: 16/08-04/10-2023

Testing:

Test carried out in accordance with AS 4858 Table A1.

Additions, deviations and/or exclusions from AS 4858 Table A1:

Nil

Test Parameters:

PARAMETER	VALUE
Ambient temperature (conditioning)	24.0-25.8°C
Ambient humidity (conditioning)	47.3-49.0% RH
Ambient temperature (testing)	21.0-25.4°C
Ambient humidity (testing)	29.2-51.3% RH
Minimum accuracy grading of test machine	A
Specimen type	Type 5
Elongation measurement type:	Electronic internal measurement
Method of preparation of specimens	Dry film supplied
Orientation of specimens to direction of cast	Parallel to direction of casting blade
Clamping device:	Pneumatic jaws
Testing speed:	50mm/min

Test Results:

Sample Number	Sample thickness (mm)	Maximum Extension (mm)	Tensile strength (MPa)	Elongation at break (%)
1	1.325	43.1	1.95	73
2	1.359	46.8	1.94	120
3	1.347	40.3	1.91	83
7 Day Means	1.34	43.4	1.93	92
7 Day Std Devs	0.02	3.3	0.02	25
4	1.41	39.8	1.86	92
5	1.44	39.6	1.87	80
6	1.43	33.1	1.81	73
28 Day Means	1.43	37.5	1.85	82
28 Day Std Devs	0.02	3.8	0.03	9
7	1.56	39.2	1.84	90

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8	1.46	35.6	1.91	80
9	1.52	34.9	1.84	73
56 Day Means	1.51	36.6	1.86	81
56 Day Std Devs	0.05	2.3	0.04	9

Passing Requirement: *“Elongation at break shall not be less than 50% of that of the controls for the bond breakers given in Table 6.1 [AS4848]. For an elongation between 50% and 25% of the controls the membrane requires additional bond relief above that given in [AS4858] Table 6.1. A failure is for less than 25% retention of elongation at break of the controls”.*

To pass this condition an elongation at break value of 60% or greater is required.

Result: 81% CONDITIONAL PASS

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DURABILITY OF MEMBRANE

BLEACH IMMERSION

Date of test: 16/08-04/10-2023

Testing:

Test carried out in accordance with AS 4858 Table A1.

Additions, deviations and/or exclusions from AS 4858 Table A1:

Nil

Test Parameters:

PARAMETER	VALUE
Ambient temperature (conditioning)	24.0-25.8°C
Ambient humidity (conditioning)	47.3-49.0% RH
Ambient temperature (testing)	21.0-25.4°C
Ambient humidity (testing)	29.2-51.3% RH
Minimum accuracy grading of test machine	A
Specimen type	Type 5
Elongation measurement type:	Electronic internal measurement
Method of preparation of specimens	Dry film supplied
Orientation of specimens to direction of cast	Parallel to direction of casting blade
Clamping device:	Pneumatic jaws
Testing speed:	50mm/min

Test Results:

Sample Number	Sample thickness (mm)	Maximum Extension (mm)	Tensile strength (MPa)	Elongation at break (%)
1	1.38	28.1	1.85	57
2	1.38	35.3	1.85	69
3	1.36	26.9	1.83	59
7 Day Means	1.37	30.1	1.84	61
7 Day Std Devs	0.01	4.6	0.01	6
4	1.41	37.6	1.84	133
5	1.49	37.9	1.77	79
6	1.46	39.7	1.81	108
28 Day Means	1.45	38.4	1.81	107
28 Day Std Devs	0.04	1.2	0.03	27
7	1.56	37.0	1.86	89

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8	1.56	30.8	1.85	71
9	1.33	27.7	2.04	67
56 Day Means	1.48	31.8	1.91	76
56 Day Std Devs	0.13	4.7	0.11	12

Passing Requirement: *“Elongation at break shall not be less than 50% of that of the controls for the bond breakers given in Table 6.1 [AS4848]. For an elongation between 50% and 25% of the controls the membrane requires additional bond relief above that given in [AS4858] Table 6.1. A failure is for less than 25% retention of elongation at break of the controls”.*

To pass this condition an elongation at break value of 60% or greater is required.

Result: 76% CONDITIONAL PASS

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DURABILITY OF MEMBRANE

DETERGENT IMMERSION

Date of test: 16/08-4/10/2023

Testing:

Test carried out in accordance with AS 4858 Table A1.

Additions, deviations and/or exclusions from AS 4858 Table A1:

Nil

Test Parameters:

PARAMETER	VALUE
Ambient temperature (conditioning)	24.0-25.8°C
Ambient humidity (conditioning)	47.3-49.0% RH
Ambient temperature (testing)	21.0-25.4°C
Ambient humidity (testing)	29.2-51.3% RH
Minimum accuracy grading of test machine	A
Specimen type	Type 5
Elongation measurement type:	Electronic internal measurement
Method of preparation of specimens	Dry film supplied
Orientation of specimens to direction of cast	Parallel to direction of casting blade
Clamping device:	Pneumatic jaws
Testing speed:	50mm/min

Test Results: Detergent Immersion

Sample Number	Sample thickness (mm)	Maximum Extension (mm)	Tensile strength (MPa)	Elongation at break (%)
1	1.27	38.5	1.95	93
2	1.29	35.6	1.94	59
3	1.22	31.0	1.95	72
7 Day Means	1.26	35.0	1.94	75
7 Day Std Devs	0.03	3.8	0.01	17
4	1.25	34.2	1.98	159
5	1.20	39.4	2.06	124
6	1.29	33.8	1.90	100
28 Day Means	1.25	35.8	1.98	128
28 Day Std Devs	0.04	3.1	0.08	30
7	1.39	34.9	1.94	89

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8	1.40	37.6	1.93	87
9	1.44	38.0	1.90	83
56 Day Means	1.41	36.8	1.92	86
56 Day Std Devs	0.03	1.7	0.02	3

Passing Requirement: *“Elongation at break shall not be less than 50% of that of the controls for the bond breakers given in Table 6.1 [AS4848]. For an elongation between 50% and 25% of the controls the membrane requires additional bond relief above that given in [AS4858] Table 6.1. A failure is for less than 25% retention of elongation at break of the controls”.*

To pass this condition an elongation at break value of 60% or greater is required.

Result: 86% CONDITIONAL PASS

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DURABILITY OF MEMBRANE

HEAT AGING

Date of test: 18/08/2023

Testing:

Test carried out in accordance with AS 4858 Table A1.

Additions, deviations and/or exclusions from AS 4858 Table A1:

Nil

Test Parameters:

PARAMETER	VALUE
Ambient temperature (conditioning)	24-25.8°C
Ambient humidity (conditioning)	47.3-49% RH
Ambient temperature (testing)	24.3°C
Ambient humidity (testing)	35.8% RH
Accuracy grading of test machine	A
Specimen type	Type 5
Elongation measurement type:	Electronic internal measurement
Method of preparation of specimens	Dry Film supplied
Orientation of specimens to direction of cast	Parallel to direction of casting blade
Clamping device:	Pneumatic jaws
Testing speed:	50mm/min

Test Results:

Number of replicates	Sample thickness (mm)	Maximum Extension (mm)	Tensile strength (MPa)	Elongation at break (%)
1	1.30	70.1	2.75	151
2	1.30	66.9	2.84	168
3	1.41	82.8	2.61	185
Mean	1.33	73.3	2.73	168
Std Deviation	0.06	8.4	0.12	17

Passing Requirement: "Elongation at break shall not be less than 50% of the result recorded for the control"

To pass this condition an elongation at break value of 120% or greater is required.

Result: 168% PASS

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WATER ABSORPTION

Date of test: 15-16/08/2023

Testing:

Test carried out in accordance with AS 3558.1.

Additions, deviations and/or exclusions from AS 3558.1:

Per AS 4858, sample dimensions modified to be 50mm*50mm.

Test Results:

SAMPLE	THICKNESS (mm)	WATER ABSORPTION		
		MASS (m1) (g)	MASS (m2) (g)	MASS DIFFERENCE (%)
1	1.27	5.3591	5.5423	3.42
2	1.29	5.393	5.6179	4.17
3	1.36	5.7313	5.9511	3.84
Mean	1.30	5.49	5.70	3.81
Std Deviation	0.05	0.21	0.22	0.38

Result: 3.81%

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WATER VAPOUR TRANSMISSION RATE

Date of test: 13/09-27/09/2023

Testing:

Test carried out in accordance with ASTM E96 Desiccant Method.

Additions, deviations and/or exclusions from ASTM E96 Desiccant Method:

Nil

Test Parameters:

PARAMETER	VALUE
Test temperature:	22.8-24.2°C
Test humidity:	47.8-53.4% RH
Cup design:	Round cup with sealing flange
Sealant:	Paraffin Wax
Desiccant:	Anhydrous Calcium Chloride

Test Results

SAMPLE	THICKNESS (mm)	SIDE OF SPECIMEN HIGHER VAPOUR PRESSURE WAS APPLIED TO	REGRESSION		WATER VAPOUR TRANSMISSION RATE (g/m ² /24 hours)
			EQUATION	r ² VALUE	
1	1.23	Side A, top of cast film	Mass _(g) =0.0003x(Time _{hr})+170.11	0.9972	2.16
2	1.24	Side A, bottom of cast film	Mass _(g) =0.0002x(Time _{hr})+194.47	0.9971	1.45
3	1.33	Side B, top of cast film	Mass _(g) =0.0004x(Time _{hr})+193.43	0.999	2.89
4	1.29	Side B, bottom of cast film	Mass _(g) =0.0002x(Time _{hr})+169.23	0.9984	1.44
Mean	1.27				1.99
Std Deviation	0.05				0.69

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Passing requirement: If $>8\text{g/m}^2/24$ hours, additional testing referred to in [AS 4858.1 Table 8.1] (e) will be required to establish suitability for use over particleboard.

Result: $1.99\text{ g/m}^2/24$ hours Additional testing as per AS4858.1 Table 8.1 (e) is not required to establish suitability for use over particleboard.

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