TEST REPORT

Accredited for compliance with ISO/IEC 17025 – Testing
20678

TEST SUMMARY

Objective

Assessment of supplied sample to AS4654.1-2012

Project

Evaluation of Actflex Polyfin to AS4654.1-2012

Report Number

608-1 AS4654.1

Customer

NAME	Forspec Protective Coatings
ADDRESS	22/872 Canterbury Rd, Roselands 2196
CONTACT PERSON	James Gilto
EMAIL	James@forspec.com.au
TELEPHONE	02 8021 3517

Name of test material

Actflex Polyfin

Description of test material

PVC waterproofing membrane

Date of receipt of test material

18/05/2026

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608-1 AS 4654.1-2012	**18/08/2026**	**18/08/2029**

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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

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	Reviewer
Ruby Scardigno	*Eric Scardigno*
Head Laboratory Technician	*Laboratory Manager*

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SUMMARY OF TESTS

AS4654.1 Requirements:

PROPERTY	METHOD	RESULT	ASSESSMENT CRITERIA	ASSESSMENT
Abrasion Resistance: Non-Trafficable	*AS 1580.403.2*	***0.016 mm***	*AS 4654.1 Paragraph 2.3*	**Meets requirement for non-trafficable membrane**
Abrasion Resistance: Trafficable	*AS 1580.403.2*	***0.077 mm***	*AS 4654.1 Paragraph 2.3*	**Meets requirement for occasional vehicle and pedestrian traffic**
Dimensional Stability	*ASTM D6207*	***No changes observed***	*State result*	
Durability: Control Elongation at Break	*AS 1145.3*	***141 %***	*AS 4654.1 Appendix A, Table A1*	**CLASS II**
Durability: Control Tensile Strength		***12.85 MPa***	*State result*	
Durability: Water Immersion Elongation at Break	*AS 4654.1 Appendix A*	***168 %***	*AS 4654.1 Appendix A, Table A4*	**PASS**
Durability: Water Immersion Tensile Strength		***14.85 MPa***	*State result*	
Durability: Detergent Immersion Elongation at Break		***130 %***	*AS 4654.1 Appendix A, Table A4*	**PASS**
Durability: Detergent Immersion Tensile Strength		***15.36 MPa***	*State result*	
Durability: Heat Aging Elongation at Break	*N/A*	***135 %***	*AS 4654.1 Appendix A, Table A4*	**PASS**
Durability: Heat Aging Tensile Strength		***13.08 MPa***	*State result*	
Durability: UV Exposure Elongation at Break	*UV Lamp*	***320 %***	*AS 4654.1 Appendix A, Table A4*	**PASS**

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Durability: UV Exposure Tensile Strength		***10.88 MPa***	*State result*	[redacted]
Field Seam Strength	*AMTM005*	***383.71N/25mm***	*State result*	
Puncture Resistance	*BS EN 12691*	***1000mm***	*State result*	
Temperature Resistance	*AMTM004*	***0.52 g/m²/24 hours***	*State result*	
Water Vapour Transmission	*ASTM E96*	***0.65 g/m²/24 hours***	*State result*	

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ABRASION RESISTANCE: NON-TRAFFICABLE

Testing

Test carried out in accordance with AS 1580.403.2.

Additions, deviations and/or exclusions from AS1580.403.2:

Determination of abrasive wear performed as per AS4654.1, Paragraph 2.3.1

Results

Date of test: 23/06/2026

PARAMETER	VALUE
Abrasion assessment method	Depth of abrasion
Abrasive wheels: Model	CS-10
Panel 1 Abrasive wheels: Serial Number & Expiry Date	LX20C1 – Nov 2026
Panel 2 Abrasive wheels: Serial Number & Expiry Date	LX20C1 – Nov 2026
Mass applied to abrasive wheels	1000g
Model of abraser	Gester GT-C14B-2
Number of cycles per test panel	500

PANEL	READING	THICKNESS BEFORE ABRASION (mm)	THICKNESS AFTER ABRASION (mm)	LOSS OF MEMBRANE BUILD (mm)
1	1	1.507	1.491	0.016
	2	1.536	1.514	0.022
	3	1.515	1.506	0.009
2	1	1.536	1.503	0.033
	2	1.504	1.496	0.008
	3	1.499	1.490	0.009
Mean		1.516	1.500	0.016
Standard Deviation		0.015	0.012	0.010

Passing Requirement: "*When tested in accordance with AS 1580.403.2 using the CS-10 wheel with 500 cycles, for areas subjected only to maintenance access, the depth of abrasion shall be less than 0.2mm*"

Result: 0.016mm. This sample is suitable for areas subjected to only maintenance access.

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TEST REPORT

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ABRASION RESISTANCE: TRAFFICABLE

Testing

Test carried out in accordance with AS 1580.403.2.

Additions, deviations and/or exclusions from AS 1580.403.2:

Determination of abrasive wear performed as per AS4654.1, Paragraph 2.3.2

Results

Date of test: 23/06/2026

PARAMETER	VALUE
Abrasion assessment method	Depth of abrasion
Abrasive wheels: Model	H-22
Panel 1 Abrasive wheels: Serial Number	KL31B1
Panel 2 Abrasive wheels: Serial Number	KL31B1
Mass applied to abrasive wheels	1000g
Model of abraser	Gester GT-C14B-2
Number of cycles per test panel	1000

PANEL	READING	THICKNESS BEFORE ABRASION (mm)	THICKNESS AFTER ABRASION (mm)	LOSS OF MEMBRANE BUILD (mm)
1	1	1.495	1.440	0.055
	2	1.584	1.459	0.125
	3	1.514	1.453	0.061
2	1	1.571	1.478	0.093
	2	1.516	1.452	0.064
	3	1.528	1.465	0.063
Mean		1.535	1.458	0.077
Standard Deviation		0.047	0.010	0.027

Passing Requirement:

"Abrasion resistance for trafficable shall be as follows:

a) When tested in accordance with AS 1580.403.2 using the H-22 wheel with 1000 cycles, for areas subjected only to pedestrian traffic, the depth of abrasion shall be less than 0.2mm.

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b) When tested in accordance with AS1580.403.2 using the H-22 wheel with 1000 cycles, for areas subjected only to occasional service vehicle traffic, the depth of abrasion shall be less than 0.1mm.

c) When tested in accordance with AS 1580.403.2 using the H-22 wheel with 1000 cycles, for areas subjected to regular vehicle traffic, the depth of abrasion shall be less than 0.05mm."

Result: 0.077mm. This sample is suitable for pedestrian traffic and occasional service vehicle traffic.

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DIMENSIONAL STABILITY

Date of test: 13-16/07/2026

Testing:

Testing carried out in accordance with ASTM D6207 "Standard Test Method for Dimensional Stability of Fabrics to Changes in Humidity and Temperature"

Additions, deviations and/or exclusions from ASTM D6207:

Nil

Test Parameters:

PARAMETER	MEASUREMENT INSTRUMENT	
Preconditioning temperature at 24Hrs	32°C	AMTE042A
Precondition humidity at 24Hrs	15%RH	AMTE042A
Method of sampling used	Test Specimens 150 by 800mm from lengthwise direction and width wise direction of the roll	

MEASUREMENT

			Cycle 1				*Cycle 2*			
	Initial Pointer Setting	*Date*	*Pointer Reading at 95% RH & 20°C*	*Date*	*Pointer Reading at 15% RH & 32°C*	Date	*Pointer Reading at 95% RH & 20°C*	*Date*	*Pointer Reading at 15% RH & 32°C*	*Date*
Width wise	700mm	13/07/2026	700mm	14/07/2026	700mm	15/07/2026	700mm	15/07/2026	700mm	16/07/2026
Length wise	700mm	13/07/2026	700mm	14/07/2026	700mm	15/07/2026	700mm	15/07/2026	700mm	16/07/2026

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TEST REPORT

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DURABILITY OF MEMBRANE

CONTROL SET

Date of test: 2/06/2026

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)	23.1-23.6°C
Ambient humidity (conditioning)	48.3-52.1% RH
Ambient temperature (testing)	22.5°C
Ambient humidity (testing)	54.6% RH
Accuracy grading of test machine	A
Specimen type	Type 2
Elongation measurement type:	Electronic internal measurement
Clamping device:	Pneumatic jaws
Testing speed:	50mm/min

Test Results:

Replicate	Sample thickness (mm)	Maximum Extension (mm)	Tensile Strength (MPa)	Elongation at Break (%)
1	1.50	69.0	15.31	138
2	1.55	70.2	10.85	140
3	1.51	66.1	14.21	132
4	1.51	81.3	12.08	162
5	1.51	67.2	11.81	134
Mean	1.52	70.8	12.85	141
Std Deviation	0.02	6.1	1.84	12

Requirement for Class III (high extensibility): ≥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: 9/06-28/07/2026

Testing:

Test carried out in accordance with AS 4654.1 Appendix A.

Additions, deviations and/or exclusions from AS 4654.1 Appendix A:

Nil

Test Parameters:

PARAMETER	VALUE
Ambient temperature (conditioning)	23.1-23.6°C
Ambient humidity (conditioning)	48.3-52.1% RH
Ambient temperature (testing)	22.9-23.4°C
Ambient humidity (testing)	46.5-50.6% RH
Minimum accuracy grading of test machine	A
Specimen type	Type 2
Elongation measurement type:	Electronic internal measurement
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	1.50	103.1	11.53	206
2	1.50	89.5	13.39	179
3	1.50	91.7	13.08	183
7 Day Means	1.50	94.8	12.67	189
7 Day Std Devs	0.00	7.3	0.99	15
4	1.50	85.5	14.42	171
5	1.50	81.5	14.28	163
6	1.48	98.7	15.23	197
28 Day Means	1.49	88.5	14.64	177
28 Day Std Devs	0.01	9.0	0.51	18
7	1.50	98.9	15.52	198
8	1.51	71.0	15.90	142

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9	1.51	82.6	13.12	165
56 Day Means	1.51	84.2	14.85	168
56 Day Std Devs	0.00	14.0	1.51	28

Passing Requirement*: "Elongation at break shall not be less than 25% retention of elongation at break of the controls"58] 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 36% or greater is required.

Result: 168% PASS

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DURABILITY OF MEMBRANE

DETERGENT IMMERSION

Date of test: 9/06-28/07/2026

Testing:

Test carried out in accordance with AS 4654.1 Appendix A.

Additions, deviations and/or exclusions from AS 4654.1 Appendix A:

Nil

Test Parameters:

PARAMETER	VALUE
Ambient temperature (conditioning)	23.1-23.6°C
Ambient humidity (conditioning)	48.3-52.1% RH
Ambient temperature (testing)	22.9-23.4°C
Ambient humidity (testing)	46.5-50.6% RH
Minimum accuracy grading of test machine	A
Specimen type	Type 2
Elongation measurement type:	Electronic internal measurement
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	1.50	58.6	13.56	117
2	1.51	67.5	14.55	135
3	1.50	87.1	15.32	174
7 Day Means	1.50	71.1	14.48	142
7 Day Std Devs	0.01	14.6	0.88	29
4	1.51	85.1	12.91	170
5	1.51	77.5	14.41	155
6	1.50	67.3	15.91	135
28 Day Means	1.51	76.6	14.41	153
28 Day Std Devs	0.00	8.9	1.50	18
7	1.50	62.5	17.66	125
8	1.50	65.3	14.36	131

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9	1.50	67.7	14.07	135
56 Day Means	1.50	65.2	15.36	130
56 Day Std Devs	0.00	2.6	1.99	5

Passing Requirement: *"Elongation at break shall not be less than 25% retention of elongation at break of the controls".*

To pass this condition an elongation at break value of 36% or greater is required.

Result: 130% PASS

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DURABILITY OF MEMBRANE

HEAT AGING

Date of test: 2/07/2026

Testing:

Test carried out in accordance with AS 4654.1 Appendix A.

Additions, deviations and/or exclusions from AS 4654.1 Appendix A:

Nil

Test Parameters:

PARAMETER	VALUE
Ambient temperature (conditioning)	23.1-23.6°C
Ambient humidity (conditioning)	48.3-52.1% RH
Ambient temperature (testing)	22.5°C
Ambient humidity (testing)	53.6% RH
Accuracy grading of test machine	A
Specimen type	Type 2
Elongation measurement type:	Electronic internal measurement
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	1.58	64.0	13.15	128
2	1.68	72.8	11.35	145
3	1.58	66.1	14.75	132
Mean	1.61	67.6	13.08	135
Std Deviation	0.06	4.6	1.70	9

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

To pass this condition an elongation at break value of 71% or greater is required.

Result: 135% PASS

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DURABILITY OF MEMBRANE

ULTRAVIOLET EXPOSURE

Date of test: 31/07/2026

Testing:

Test carried out in accordance with AS 4654.1 Appendix A.

Additions, deviations and/or exclusions from AS 4654.1 Appendix A:

Nil

Test Parameters:

PARAMETER	VALUE
Ambient temperature (conditioning)	23.1-23.6°C
Ambient humidity (conditioning)	48.3-52.1% RH
Ambient temperature (testing)	23.5°C
Ambient humidity (testing)	50.6% RH
Accuracy grading of test machine	A
Specimen type	Type 2
Elongation measurement type:	Electronic internal measurement
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	1.52	157.2	11.23	314
2	1.53	159.3	10.11	319
3	1.52	164.4	11.30	329
Mean	1.52	160.3	10.88	320
Std Deviation	0.01	3.7	0.67	7

Passing Requirement*: "Elongation at break shall be not less than 40% of the result recorded for the controls ".*

To pass this condition an elongation at break value of 57% or greater is required.

Result: 320% PASS

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FIELD SEAM STRENGTH

Date of test: 6/07/2026

Testing: Test carried out in accordance with AMTM005.

Additions, deviations and/or exclusions from AMTM005: Nil

Test Parameters:

PARAMETER	VALUE
Ambient temperature (conditioning)	23.1-23.6°C
Ambient humidity (conditioning)	48.3-52.1% RH
Ambient temperature (testing)	22.9°C
Ambient humidity (testing)	49.3% RH
Elongation measurement type:	Electronic internal measurement
Clamping device:	Pneumatic jaws
Testing speed:	100 mm/min

Test Results:

Replicate	Peak Force (N/25mm)	Mode of Failure	
		Lap joint	Sheet
1	380.93	☒	☐
2	358.97	☒	☐
3	421.51	☒	☐
4	367.88	☒	☐
5	389.26	☒	☐
Mean	383.71		
Std Deviation	24.14		
Number of Failures		5	0
% Failure		100	0

Result 383.71 N/25mm

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PUNCTURE RESISTANCE

Date of test: 9/07/2026

Testing:

Test carried out in accordance with BS EN 12691.

Additions, deviations and/or exclusions from BS EN 12691:

Nil

Test Parameters:

PARAMETER	VALUE
Ambient temperature (conditioning)	23.1-23.6°C
Ambient humidity (conditioning)	48.3-52.1% RH
Ambient temperature (testing)	22.6°C
Ambient humidity (testing)	51.7% RH

Test Results:

RESULT	OUTCOME
Test Method (A or B per BS EN 12691)	Method A
The drop height which has not caused leakage of the flexible sheet in 4 out of 5 specimens.	1000 mm

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TEMPERATURE RESISTANCE

Date of test: 13-27/07/2026

Testing:

Test carried out in accordance with AMTM004.

Additions, deviations and/or exclusions from AMTM004: Nil

Test Parameters:

PARAMETER	VALUE
Cold exposure: 6-8/07/2026	-17.8 / -14.4°C
Heat exposure: 8-10/07/2026	85°C
WVT: Test temperature	23.2-23.9°C
WVT: Test humidity	48.2-54.5% RH
WVT: Cup design	Round, anodised aluminium cup
WVT: Cup sealant	Paraffin Wax
WVT: Desiccant	Anhydrous Calcium Chloride

Test Results- Temperature Resistance

SAMPLE	THICKNESS (mm)	SIDE OF SPECIMEN HIGHER VAPOUR PRESSURE WAS APPLIED TO	REGRESSION		WATER VAPOUR TRANSMISSON RATE (g/m^2/24 hours)
			EQUATION	r^2 VALUE	
1	1.50	Side A, top of cast film	$Mass_{(g)}=0.00007(Time_{hr})+171.74$	0.9919	0.51
2	1.49	Side A, top of cast film	$Mass_{(g)}=0.00007(Time_{hr})+171.32$	0.9975	0.51
3	1.50	Side B, bottom of cast film	$Mass_{(g)}=0.00007(Time_{hr})+163.57$	0.9896	0.50
4	1.51	Side B, bottom of cast film	$Mass_{(g)}=0.00008(Time_{hr})+159.68$	0.9921	0.58
Mean	1.50				0.52
Std Deviation	0.01				0.04

Result: 0.52 g/m^2/24 hours.

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WATER VAPOUR TRANSMISSION RATE

Date of test: 30/06-15/07/2026

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:	22.6-23.9°C
Test humidity:	48.2-57.5% RH
Cup design:	Round, anodised aluminium cup
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	1.52	Side A, top of cast film	$Mass_{(g)}=0.0001(Time_{hr})+192.66$	0.9920	0.72
2	1.51	Side A, top of cast film	$Mass_{(g)}=0.0001(Time_{hr})+189.88$	0.9899	0.72
3	1.49	Side B, bottom of cast film	$Mass_{(g)}=0.00009(Time_{hr})+173.24$	0.6869	0.65
4	1.51	Side B, bottom of cast film	$Mass_{(g)}=0.00007(Time_{hr})+171.61$	0.9798	0.51
Mean	1.51				0.65
Std Deviation	0.01				0.10

Result: 0.65 g/m^2/24 hours.

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