

# TEST REPORT



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## TEST SUMMARY

### Objective

*Assessment of supplied sample to AS4654.1*

### Project

*Evaluation of Fosroc Proofex OFB to AS4654.1*

### Report Number

272-1 AS4654.1

### Customer

NAME	Parchem Construction Supplies Pty Ltd
ADDRESS	1956 Dandenong Rd Clayton VIC 3168
CONTACT PERSON	Phil Jones
EMAIL	Phil.jones@fosroc.co.nz
MOBILE	+64 21 833216

### Name of test material

Fosroc Proofex OFB

### Description of test material

Fleece-backed fully bonded synthetic TPO waterproofing membrane

### Date of receipt of test material

27/10/2023

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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

N/A

## 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

A handwritten signature in black ink, appearing to be "Michael Bakanyozo".

Author

*Michael Bakanyozo*

*Head Laboratory Technician*

A handwritten signature in black ink, appearing to be "Eric Scardigno".

Reviewer

*Eric Scardigno*

*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	<b>0.028mm</b>	AS 4654.1 Paragraph 2.3	Meets requirement for non-trafficable membrane
Abrasion Resistance: trafficable	AS 1580.403.2	<b>0.085mm</b>	AS 4654.1 Paragraph 2.3	Meets requirement for occasional and pedestrian traffic only
Bond Strength	ASTM C794	<b>52.14N</b>	State result	
Acceptance of Cyclic movement	AS 4654.1 Appendix B	<b>Failure not observed</b>	AS 4654.1 Appendix B, Paragraph B4	PASS
Dimensional Stability	ASTM D6207	<b>No change in membrane length</b>	State result	
Durability: Control Elongation at Break	AS1145.3	<b>1265%</b>	AS 4654.1 Appendix A, Table A1	CLASS III
Durability: Control Tensile Strength		<b>8.97MPa</b>	State result	
Durability <sup>1</sup> : Water Immersion Elongation at Break	AS 4654.1 Appendix A	<b>1269%</b>	AS 4654.1 Appendix A, Table A4	PASS
Durability: Water Immersion Tensile Strength		<b>10.26MPa</b>	State result	
Durability: Detergent Immersion Elongation at Break		<b>1270%</b>	AS 4654.1 Appendix A, Table A4	PASS
Durability: Detergent Immersion Tensile Strength		<b>8.89MPa</b>	State result	
Durability: Heat Aging Elongation at Break	N/A	<b>1271%</b>	AS 4654.1 Appendix A, Table A4	PASS
Durability: Heat Aging		<b>8.81MPa</b>	State result	

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Tensile Strength				<b>PASS</b>
Durability: UV Exposure Elongation at Break	<i>UV Lamp</i>	<b>1251%</b>	<i>AS 4654.1 Appendix A, Table A4</i>	
Durability: UV Exposure Tensile Strength		<b>7.80MPa</b>	<i>State result</i>	
Field Seam Strength	<i>AMTM005</i>	<b>378.72N/25mm</b>	<i>State result</i>	
Temperature Resistance	<i>AMTM004</i>	<b>0.05g/m<sup>2</sup>/24 hours</b>	<i>State result</i>	
Water Vapour Transmission	<i>ASTM E96</i>	<b>0.12g/m<sup>2</sup>/24 hours</b>	<i>State result</i>	
Tear Resistance	<i>BS EN 12310-1</i>	<b>&gt;931.632N</b>	<i>State result</i>	
†Puncture Resistance	<i>BS EN 12691</i>	<b>1400mm</b>	<i>State result</i>	
†Resistance to Root Penetration	<i>†PD CEN/TS 14416:2014</i>	<b>Root Penetration not observed</b>	<i>PD CEN/TS 14416:2014 Paragraph 6</i>	

†XTec Gen was not NATA accredited at the time of testing

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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: 13/03/2024

PARAMETER	VALUE
Abrasion assessment method	Depth of abrasion
Abrasive wheels: Model	CS-10
Panel 1 Abrasive wheels: Serial Number & Expiry Date	LR14C1 – JULY 2026
Panel 2 Abrasive wheels: Serial Number & Expiry Date	LR14C1 – JULY 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	4.726	4.684	0.042
	2	4.710	4.675	0.035
	3	4.745	4.709	0.036
2	1	4.610	4.609	0.001
	2	4.634	4.612	0.022
	3	4.648	4.619	0.029
Mean		4.679	4.651	0.028
Standard Deviation		0.018	0.018	0.015

**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:** 0.028mm. This sample is suitable for areas subjected only to maintenance access.

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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: 13/03/2024

PARAMETER	VALUE
Abrasion assessment method	Depth of abrasion
Abrasive wheels: Model	H-22
Panel 1 Abrasive wheels: Serial Number	MG25B1
Panel 2 Abrasive wheels: Serial Number	MG25B1
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	4.593	4.511	0.082
	2	4.632	4.538	0.094
	3	4.634	4.578	0.056
2	1	4.604	4.522	0.082
	2	4.607	4.517	0.090
	3	4.600	4.493	0.107
Mean		4.612	4.527	0.085
Standard Deviation		0.023	0.034	0.017

### Passing Requirement:

***“Abrasion resistance for trafficable shall be as follows:***

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- 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.
- 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 foot traffic, the depth of abrasion shall be less than 0.05mm.”

**Result: 0.085mm. This sample is suitable for occasional service vehicle traffic, and pedestrian traffic only.**

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## BOND STRENGTH

Date of test: 13/03/2024

### Testing

Testing carried out in accordance with ASTM C794.

Additions, deviations and/or exclusions from ASTM C794:

Nil

### Specimen Preparation:

PARAMETER	VALUE
Substrate	Concrete block
Substrate preparation	Wiped with damp cloth, then primed
Substrate primer	Fosroc Proofex OFB Adhesive
Mesh preparation	Wiped with damp cloth, then primed
Mesh primer	Fosroc Proofex OFB Adhesive

### Test Results:

READING	PEAK PEEL FORCE (N)	MODE OF FAILURE			
		SUBSTRATE FAILURE (%)	ADHESIVE FAILURE (%)	COHESIVE FAILURE (%)	SCREEN DELAMINATION (%)
Specimen 1 Reading 1	36.14	0	0	0	100
Specimen 1 Reading 2	93.13	0	0	0	100
Specimen 1 Reading 3	56.00	0	0	0	100
Specimen 1 Reading 4	45.55	0	0	0	100
Specimen 2 Reading 1	13.70	0	0	0	100

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Specimen 2 Reading 2	42.58	0	0	0	100
Specimen 2 Reading 3	16.29	0	0	0	100
Specimen 2 Reading 4	44.87	0	0	0	100
Specimen 3 Reading 1	12.51	0	0	0	100
Specimen 3 Reading 2	60.56	0	0	0	100
Specimen 3 Reading 3	89.95	0	0	0	100
Specimen 3 Reading 4	114.36	0	0	0	100
Average	52.14				
Std Dev	32.81				

**Result: 52.14N**

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## CYCLIC MOVEMENT

Date of test: 20/11-24/11/2023

### Testing:

Testing carried out in accordance with AS 4654.1 Appendix B “Assessment of resistance of waterproofing membranes to cyclic movement”

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

Nil

### Test Parameters:

PARAMETER	VALUE
Membrane class	III
Number of cycles	50
Cycle time	2 Hours
Cycle expansion	4 mm
Sample Size	65 mm x 25 mm
Sample span	2 mm between plates
Sample thickness	2.124 mm

### 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	20/11/2023	0	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2	21/11/2023	13	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3	22/11/2023	24	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4	23/11/2023	35	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5	24/11/2023	50	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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: Meets the requirement for CSIRO moving joint test as per AS 4654.1 Appendix B.**

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## DIMENSIONAL STABILITY

Date of test: 21/01-24/01/2024

### 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 1000mm from lengthwise direction and width wise direction of the roll	

### MEASUREMENT

	Initial Pointer Setting	Date	Cycle 1				Cycle 2				sign
			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	805 mm	21/11	805mm	21/11	805 mm	22/11	805mm	23/11	805 mm	24/11	M B
Length wise	805 mm	21/11	805mm	21/11	805 mm	22/11	805mm	23/11	805 mm	24/11	M B

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## DURABILITY OF MEMBRANE

### CONTROL SET

Date of test: 7/11/2023

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)	22.7-23.8°C
Ambient humidity (conditioning)	49.8-51.8% RH
Ambient temperature (testing)	22.9°C
Ambient humidity (testing)	44.5% RH
Accuracy grading of test machine	A
Specimen type	Type 2
Elongation measurement type:	Electronic internal measurement
Method of preparation of specimens	Dry film
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)	Tensile Strength (MPa)	Elongation at Break (%)
1	2.11	633.9	7.96	>1268
2	2.13	634.3	9.01	>1269
3	2.14	634.6	9.68	>1269
4	2.11	625.7	9.70	1251
5	2.18	634.9	8.52	>1270
Mean	2.13	632.7	8.97	>1265
Std Deviation	0.03	3.9	0.75	8

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 III

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## DURABILITY OF MEMBRANE

### WATER IMMERSION

Date of test: 22/11/2023-10/01/2024

#### 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)	22.7-23.8°C
Ambient humidity (conditioning)	49.8-51.8% RH
Ambient temperature (testing)	23.1-24.8°C
Ambient humidity (testing)	41.2-60.3% RH
Minimum accuracy grading of test machine	A
Specimen type	Type 2
Elongation measurement type:	Electronic internal measurement
Method of preparation of specimens	Dry film
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	2.12	634.4	10.05	>1269
2	2.11	634.4	9.50	>1269
3	2.07	550.4	9.47	1101
7 Day Means	2.10	606.4	9.67	>1213
7 Day Std Devs	0.03	48.5	0.33	97
4	2.04	634.2	10.04	>1268
5	2.01	635.1	10.66	>1270
6	2.08	635.3	11.27	>1271
28 Day Means	2.04	634.9	10.66	>1270
28 Day Std Devs	0.04	0.6	0.61	1
7	2.13	634.3	9.24	>1269

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8	2.11	634.7	10.63	>1269
9	2.02	634.7	10.93	>1269
56 Day Means	2.09	634.6	10.26	>1269
56 Day Std Devs	0.06	0.2	0.90	0

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 317% or greater is required.

**Result: 1269% PASS**

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## DURABILITY OF MEMBRANE

### DETERGENT IMMERSION

Date of test: 22/11/2023-10/01/2024

#### 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)	21.8-23.9°C
Ambient humidity (conditioning)	37.6-61.9% RH
Ambient temperature (testing)	23.1-24.8°C
Ambient humidity (testing)	41.2-60.3% RH
Minimum accuracy grading of test machine	A
Specimen type	Type 2
Elongation measurement type:	Electronic internal measurement
Method of preparation of specimens	Dry film
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	2.06	634.4	9.00	>1269
2	2.14	634.8	9.15	>1269
3	2.11	611.8	8.83	1223
7 Day Means	2.10	627.0	8.99	>1254
7 Day Std Devs	0.04	13.2	0.16	26
4	2.17	635.5	8.94	>1271
5	2.29	635.1	8.41	>1270
6	2.08	635.1	9.30	>1270
28 Day Means	2.18	635.2	8.88	>1270
28 Day Std Devs	0.11	0.3	0.45	1
7	2.04	635.0	8.89	>1270

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8	2.06	635.3	9.03	>1271
9	2.10	635.0	8.75	>1270
56 Day Means	2.07	635.1	8.89	>1270
56 Day Std Devs	0.03	0.2	0.14	0

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 317% or greater is required.

**Result: 1270% PASS**

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## DURABILITY OF MEMBRANE

### HEAT AGING

Date of test: 23/11/2023

#### 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)	22.7-23.8°C
Ambient humidity (conditioning)	49.8-51.8% RH
Ambient temperature (testing)	24.8°C
Ambient humidity (testing)	42.6% RH
Accuracy grading of test machine	A
Specimen type	Type 2
Elongation measurement type:	Electronic internal measurement
Method of preparation of specimens	Dry film
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	2.18	635.6	8.71	>1271
2	2.18	635.7	8.61	>1271
3	2.16	636.0	9.10	>1272
Mean	2.17	635.7	8.81	>1271
Std Deviation	0.01	0.2	0.26	0

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 633% or greater is required.

**Result: 1271% PASS**

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## DURABILITY OF MEMBRANE

### ULTRAVIOLET EXPOSURE

Date of test: 30/01/2024

#### 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)	22.7-23.8°C
Ambient humidity (conditioning)	49.8-51.8% RH
Ambient temperature (testing)	24.5°C
Ambient humidity (testing)	53.8% RH
Accuracy grading of test machine	A
Specimen type	Type 2
Elongation measurement type:	Electronic internal measurement
Method of preparation of specimens	Dry film
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	2.17	635.1	7.90	>1270
2	2.21	606.2	7.56	1212
3	2.19	635.1	7.93	>1270
Mean	2.19	625.5	7.80	>1251
Std Deviation	0.02	16.7	0.20	34

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 507% or greater is required.

**Result: 1251% PASS**

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# TEST REPORT



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## FIELD SEAM STRENGTH

Date of test: 14/03/2024

Testing: Test carried out in accordance with AMTM005.

Additions, deviations and/or exclusions from AMTM005: Nil

### Test Parameters:

PARAMETER	VALUE
Ambient temperature (conditioning)	23.1-24.0°C
Ambient humidity (conditioning)	50.7-63.2% RH
Ambient temperature (testing)	23.3°C
Ambient humidity (testing)	65.7% RH
Accuracy grading of test machine	A
Elongation measurement type:	Electronic internal measurement
Orientation of specimens to direction of cast	Parallel to direction of casting blade
Clamping device:	Pneumatic jaws
Testing speed:	100mm/min

### Test Results:

Replicate	Peak Force (N/25mm)	Mode of Failure	
		Lap joint	Sheet
1	353.45	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	374.31	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	377.82	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	402.40	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	385.65	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mean	378.72		
Std Deviation	17.80		
Number of Failures		5	0
% Failure		100	0

**Result 378.72N/25mm**

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## TEMPERATURE RESISTANCE

Date of test: 15/01-29/01/2024

### Testing:

Test carried out in accordance with AMTM004.

Additions, deviations and/or exclusions from AMTM004:

Nil

### Test Parameters:

PARAMETER	VALUE
Cold exposure: Immersion date	8/01/2024
Cold exposure: Removal date	10/01/2024
Cold exposure: Temperature range	-15.6/-16.4
Heat exposure: Immersion date	10/01/2024
Heat exposure: Removal date	12/01/2024
Heat exposure: temperature range	85°C
WVT: Date of test	15/01-29/01/2024
WVT: Test temperature	23.8-25.0°C
WVT: Test humidity	54.0-63.0% 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 TRANSMISSION RATE (g/m <sup>2</sup> /24 hours)
			EQUATION	r <sup>2</sup> VALUE	
1	2.00	Side A, top of cast film	Mass <sub>(g)</sub> =0.000001(Time <sub>hr</sub> )+193.22	0.0004	0.00
2	2.04	Side A, top of cast film	Mass <sub>(g)</sub> =0.000009(Time <sub>hr</sub> )+192.23	0.5965	0.07
3	1.99	Side B, bottom of cast film	Mass <sub>(g)</sub> =0.00001(Time <sub>hr</sub> )+169.41	0.2095	0.07

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4	1.99	Side B, bottom of cast film	$Mass_{(g)} = 0.000006(Time_{hr}) + 170.83$	0.3027	0.04
Mean	2.00				0.05
Std Deviation	0.03				0.03

**Result: 0.05g/m<sup>2</sup>/24 hours.**

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# TEST REPORT



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## WATER VAPOUR TRANSMISSION RATE

Date of test: 9/01-23/01/2024

### 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:	23.9-25.0°C
Test humidity:	54.0-62.6% 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 <sup>2</sup> /24 hours)
			EQUATION	r <sup>2</sup> VALUE	
1	2.11	Side A, top of cast film	Mass <sub>(g)</sub> = 0.000003(Time <sub>hr</sub> )+191.35	0.0538	0.02
2	2.12	Side A, top of cast film	Mass <sub>(g)</sub> = 0.000003(Time <sub>hr</sub> )+190.76	0.1365	0.02
3	1.98	Side B, bottom of cast film	Mass <sub>(g)</sub> = 0.00003(Time <sub>hr</sub> )+192.11	0.8726	0.22
4	1.96	Side B, bottom of cast film	Mass <sub>(g)</sub> = 0.00003(Time <sub>hr</sub> )+167.73	0.8272	0.22
Mean	2.04				0.12
Std Deviation	0.09				0.11

**Result: 0.12g/m<sup>2</sup>/24 hours. PASS**

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## TEAR RESISTANCE

Date of test: 9/02/2024

### Testing:

Test carried out in accordance with BS EN 12310-1.

Additions, deviations and/or exclusions from BS EN 12310-1:

Nil

### Test Parameters:

PARAMETER	VALUE
Test temperature:	23.9°C
Test humidity:	48.5% RH
Conditioning temperature:	22.7-23.8°C
Conditioning humidity:	49.8-51.8% RH
Grip separation speed	100mm/min

### Test Results

SAMPLE	THICKNESS (mm)	PEAK FORCE (N)
1	2.076	>931.632
2	2.013	>931.632
3	2.043	>931.632
4	2.010	>931.632
5	2.034	>931.632
Mean	2.04	>931.632
Std Deviation	0.03	0.00

**Result >931.632N**

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## PUNCTURE RESISTANCE

Date of test: 21/02/2024

### 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)	22.7-23.8°C
Ambient humidity (conditioning)	49.8-51.8% RH
Ambient temperature (testing)	23.1°C
Ambient humidity (testing)	40.7% RH
Method of preparation of specimens	Dry film

### Test Results:

RESULT	OUTCOME
Test Method (A or B per BS EN 12691)	Method A
Lowest height of dart released causing greater than 1 of 5 specimens to be punctured	1400 mm
Highest height resulting in less than 2 specimens punctured	1600 mm

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## ROOT RESISTNACE:

Date of test: 11/01/2024-7/03/2024

### Testing:

Testing carried out in accordance with PD CEN/TS 14416:2014

Additions, deviations and/or exclusions from PD CEN/TS 4416:2014:

Nil

### Test Parameters:

PARAMETER	VALUE
Growing media	Potting soil
Dimensions of pots: internal top diameter (mm)	240mm
Dimensions of pots: internal bottom diameter (mm)	135mm
Dimensions of pots: height (mm)	220mm
Number of seeds planted	40
Species of seeds	Russel Lupin
Date seeds planted	11/01/2024
Date plants inspected & evaluated	7/03/2024
Duration of cultivation	52 days

### Test Results:

TEST RESULT	CONTROL	REPLICATE 1	REPLICATE 2	REPLICATE 3
Number of seeds planted	40	40	40	40
Number of live plants at end of test	26	27	26	30
Maximum length of root development (approx. mm)	200mm	170mm	170mm	190mm
Root penetration observed (Y/N)	Yes	No	No	No

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## Root penetration of Fosroc Proofex OFB: Images

Replicate 1:



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*Showing root development on top of Fosroc  
Proofex OFB, but no root penetration through  
barrier.*

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Replicate 2:



*Showing root development on top of Fosroc Proofex OFB, but no root penetration through barrier.*

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Replicate 3:



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***Showing root development on top of Fosroc Proofex OFB, but no root penetration through barrier.***

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Control:



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***Showing profile view of control pot with root penetration through to bottom of lower soil level.***

## Discussion

Control pot showed good germination and root development of germinated plants indicating vitality of the planted seeds to be good.

Pot replicates 1, 2 and 3 all showed good plant germination and root development of germinated plants; however, no roots were observed to penetrate through the Fosroc Proofex OFB membrane indicating the barrier to be effective in preventing the root penetration.

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