



CONSTRUCTION MATERIALS

TECHNOLOGIES

LABORATORY TEST REPORT

Report for: Deksmart Vinyl Products Ltd.
364 Cherry Ave
Penticton, BC V2A 3L7
Canada

Product(s):	Deksmart Ultra 60mil Smoothback Decking Membrane	Manufacturer: O'Sullivan Films, Inc.
Date Received:	Aug. 7, 2017	Sampling: <i>Client provided samples</i>
PRI-CMT Project No.:	DKSM-002-02-01	Test Dates: Aug. 9, 2017 – Apr. 12, 2018

Purpose: Evaluate the physical properties for compliance with **CAN/CGSB 37.54-95 Polyvinyl Chloride Roofing and Waterproofing Membrane** Type IV, Class B. Type IV products are defined as "reinforced with an embedded fabric". Class B is defined as "exposed roofing".

Test Methods: Testing was completed in compliance with **CAN/CGSB 37.54-95 Polyvinyl Chloride Roofing and Waterproofing Membrane**. Test methods assigned or referenced include ASTM D 570: *Standard Test Method for Water Absorption of Plastics*; ASTM D 751: *Standard Test Method for Coated Fabrics*; ASTM D 1790: *Standard Test Method for Brittleness Temperature of Plastic Sheeting by Impact*; ASTM D 2136: *Standard Test Method for Coated Fabrics Low Temperature Bend Test*; ASTM D 2565: *Standard Practice for Xenon-Arc Exposure of Plastics Intended for Outdoor Applications*; ASTM E 96/E 96M: *Standard Test Methods for Water Vapor Transmission of Materials; and Waterproofing Materials*; and ASTM G 53: *Standard Practice for Operating Light- and Water-Exposure Apparatus (Fluorescent UV-Condensate Type) for Exposure of Nonmetallic Materials*.

Sampling: A roll of PVC decking membrane was provided in the color Driftwood Plank for testing by the O'Sullivan Films, Inc. from Winchester, VA on August 7, 2017.

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Results:

Property	Test Method	Results							Requirement
Thickness, (mm) Overall;	ASTM D 751I	1	2	3	4	5	Avg.	St. Dev.	
		1.6	1.6	1.6	1.6	1.5	1.6	0.0	≥ 1.2
Thickness, (mm) Over scrim;	CAN/CGSB 37.54-95	1	2	3	4	5	Avg.	St. Dev.	No individual measurement less than 0.32
		0.7	0.6	0.6	0.7	0.6	0.6	0.0	≥ 0.4
Breaking Strength, (kN/m) 5 specimens each direction; 102 x 152 mm Test @ 23±2°C & 50±5%RH; Rate = 5±2 mm/s	ASTM D 751	1	2	3	4	5	Avg.	St. Dev.	
	MD	65	67	60	60	61	63	3	≥ 35
	CMD	55	52	53	54	52	53	1	≥ 35
Elongation at Break, (%) 5 specimens each direction; 102 x 152 mm Test @ 23±2°C & 50±5%RH; Rate = 5±2 mm/s	ASTM D 751	1	2	3	4	5	Avg.	St. Dev.	PVC matrix intact at break
	MD	33	34	39	36	36	36	2	≥ 15
	CMD	37	37	37	38	36	37	1	≥ 15
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Property	Test Method	Results										Requirement							
Lap Joint Strength, (% of Breaking Strength) 5 specimens; 102 x 152 mm; Test @ 23±2°C & 50±5%RH; Rate = 5±2 mm/s	ASTM D 751	1	2	3	4	5	Avg.	St. Dev.											
		Initial – with no shearing of lap joint										94	86	97	99	90	93	5	≥ 75
		After 7 days in boiling water – with no delamination										126	125	122	125	136	127	5	≥ 70
Low Temperature Impact, (# of passing specimens) 10 specimens; Cond. 90 min @ -30±1°C; Test @ -30±1°C;	ASTM D 1790	1	2	3	4	5	6	7	8	9	10								
		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	8 of 10 specimens shall pass							
Low Temperature Flexibility, (Pass/Fail) 3 specimens; Cond. 4 h @ -40±1°C; Test @ -40±1°C; Bend 180° over 3.2 mm Ø steel rod	ASTM D 2136	1	2	3															
		Pass	Pass	Pass							Pass								
Water Vapor Transmission, (g/m ² in 24 h) 3 specimens; Test @ 23±1°C & 50±2% RH	ASTM E 96 Procedure A	1	2	3	Avg.	St. Dev.													
		0.7	0.7	0.7	0.7	0.0					≤ 4.0								
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Property	Test Method	Results							Requirement
Retention of Properties after Heat Aging, After 60 days at 80±1°C; 18h recovery	CAN/CGSB 37.54-95								
Breaking Strength – MD, (% of original) 5 specimens each direction; 102 x 152 mm Test @ 23±2°C & 50±5%RH; Rate = 5±2 mm/s	ASTM D 751	1	2	3	4	5	Avg.	St. Dev.	
	MD	108	106	108	103	103	106	2	≥ 90
	CMD	106	108	102	106	106	105	2	≥ 90
Elongation at Break, (% of original) 5 specimens each direction; 102 x 152 mm Test @ 23±2°C & 50±5%RH; Rate = 5±2 mm/s	ASTM D 751	1	2	3	4	5	Avg.	St. Dev.	PVC matrix intact at break
	MD	97	97	103	92	92	96	4	≥ 90
	CMD	92	95	89	95	95	93	2	≥ 90
Low Temperature Flexibility, (<i>Pass/Fail</i>) 3 specimens; Cond. 4 h @ -40±1°C; Test @ -40±1°C; Bend 180° over 3.2 mm Ø steel rod	ASTM D 2136	1	2	3					
		Pass	Pass	Pass					Pass
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Property	Test Method	Results										Requirement
Retention of Properties after Accelerated Weathering, UVA-340 bulbs; 8h light; 4h condensate; Black panel temp. 63±3°C; Condensate temp. 50±3°C;	ASTM G 53											
Visual Inspection	CAN/CGSB 37.54-95	Pass										No cracking, blistering, or appreciable color change
Elongation at Break, (% of original) 5 specimens CMD direction; 102 x 152 mm Test @ 23±2°C & 50±5%RH; Rate = 5±2 mm/s	ASTM D 751	1	2	3	4	5	Avg.	St. Dev.	PVC matrix intact at break			
		92	98	95	95	97	95	2	≥ 90			
Low Temperature Impact, (# of passing specimens) 10 specimens; Cond. 90 min @ -20±1°C; Test @ -20±1°C;	ASTM D 1790	1	2	3	4	5	6	7	8	9	10	
		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	8 of 10 specimens shall pass
Low Temperature Flexibility, (<i>Pass/Fail</i>) 3 specimens; Cond. 4 h @ -40±1°C; Test @ -40±1°C; Bend 180° over 6.4 mm Ø steel rod	ASTM D 2136	1	2	3								
		Pass	Pass	Pass								Pass
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Property	Test Method	Results							Requirement
Effect of Water Absorption After immersion for 7 days at 70±1°C									
Mass Increase, (% of original)	ASTM D 570	1	2	3	Avg.	St. Dev.			
		2.7	2.9	2.8	2.8	0.1			≤ 3.0
Breaking Strength, (% of original) 5 specimens each direction; 102 x 152 mm Test @ 23±2°C & 50±5%RH; Rate = 5±2 mm/s	ASTM D 751	1	2	3	4	5	Avg.	St. Dev.	
	MD	94	95	92	90	95	93	2	≥ 90
	CMD	94	98	92	100	94	96	3	≥ 90
Elongation at Break, (% of original) 5 specimens each direction; 102 x 152 mm Test @ 23±2°C & 50±5%RH; Rate = 5±2 mm/s	ASTM D 751	1	2	3	4	5	Avg.	St. Dev.	PVC matrix intact at break
	MD	92	92	89	86	92	90	2	≥ 90
	CMD	92	92	89	100	89	92	4	≥ 90
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Property	Test Method	Results							Requirement
Dimensional Change, (%) After 6 h at 80±1°C; Without Loading;	CAN/CGSB 37.54-95	1	2	3	4	5	Avg.	St. Dev.	
	MD	-0.3	-0.3	-0.3	-0.3	-0.2	-0.3	0.0	≤ 0.5
	CMD	0.0	-0.1	-0.1	0.0	0.0	0.0	0.1	≤ 0.5
Dimensional Change, (%) After 6 h at 80±1°C; With Loading;	CAN/CGSB 37.54-95	Left	Center	Right	Avg.	St. Dev.			
	MD	0.0	-0.1	-0.1	-0.1	0.0			≤ 0.5
	CMD	0.0	0.0	0.1	0.1	0.0			≤ 0.2
Cone Penetration, (N) 5 specimens; 50 x 50 mm; Test @ 23±2°C & 50±5%RH; Rate = 1.27 mm/min	CAN/CGSB 37.54-95	1	2	3	4	5	Avg.	St. Dev.	
		65	60	71	64	62	64	4	≥ 30

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Statement of Compliance:

The product tested has demonstrated compliance with the physical property requirements of **CAN/CGSB 37.54-95 Polyvinyl Chloride Roofing and Waterproofing Membrane** Type IV, Class B. The laboratory test results presented in this report are representative of the material supplied.

Signed: 

Zachary Priest, P.E.
Director

Report Issue History:

Issue #	Date	Pages	Revision Description (if applicable)
Original	05/01/2018	8	NA

END OF REPORT

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