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Laboratory Test Report

Report for:	Dermot Ennis International Insulation Products 8695 Transport Dr Orlando, FL 32882
Product Names:	Sol-R-Skin Class A Thermal Underlayment
Project No.:	2644T0002
Dates Tested:	December 2, 2023 – January 23, 2024
Test Methods:	ASTM D8257
Results Summary:	Compliant: Table 1 - Requirements for Polymeric Roof Underlayments

Purpose: Evaluate the identified product(s) for compliance with the physical requirements prescribed in ASTM D8257: *Standard Specification for Mechanically Attached Polymeric Roof Underlayment Used in Steep Slope Roofing*.

For the purpose of extended exposure limitation, the accelerated weathering (ASTM D4798) exposure was conducted for 667h total duration in lieu of the required 500h of exposure as prescribed in ASTM D8257: *Standard Specification for Mechanically Attached Polymeric Roof Underlayment Used in Steep Slope Roofing*.

Test Methods: Testing was conducted in compliance with ASTM D8257/D8257M - 20: *Standard Specification for Mechanically Attached Polymeric Roof Underlayment Used in Steep Slope Roofing*. Test methods referenced or utilized include ASTM D146/D146M: *Test Methods for Sampling and Testing Bitumen-Saturated Felts and Woven Fabrics for Roofing and Waterproofing*, ASTM D228/D228M: *Test Methods for Sampling, Testing, and Analysis of Asphalt Roll Roofing, Cap Sheets, and Shingles Used in Roofing and Waterproofing* D751 *Test Methods for Coated Fabrics*, ASTM D1204: *Test Method for Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperature*, ASTM D4533/D4533M: *Test Method for Trapezoid Tearing Strength of Geotextiles*, ASTM D4798/D4798M: *Practice for Accelerated Weathering Test Conditions and Procedures for Bituminous Materials (Xenon-Arc Method)*, ASTM D4869/D4869M: *Specification for Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing*, ASTM D5035: *Test Method for Breaking Force and Elongation of Textile Fabrics (Strip Method)*, ASTM E96/E96M: *Test Methods for Water Vapor Transmission of Materials*, ASTM F1667 *Specification for Driven Fasteners - Nails, Spikes, and Staples*, ASTM G151: *Practice for Exposing Nonmetallic Materials in Accelerated Test Devices that Use Laboratory Light Sources*, ASTM G155: *Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials*.

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Sampling: The following materials were received via common carrier by PRI.

<u>Product</u>	<u>Source</u>	<u>Date</u>	<u>Sampling</u>
Sol-R-Skin Class A Thermal Underlayment	Orlando, FL	Nov. 29, 2023	International Insulation Products

Table 1: Test Results:

Property	Test Method	Result					Requirement
Physical Requirements							
Unrolling, (Pass/Fail) 10in x 18in specimens; Cond. 24h @ 70±4°F & 50±5%RH; Expose 24h at temp; Unroll in 4-6s;	ASTM D8257 Section 7.2	1	2	3	4		Pass = No visible cracking, tearing or delamination of underlayment
	Temp=32°F	Pass	Pass	Pass	Pass		Pass
	Temp=140°F	Pass	Pass	Pass	Pass		Pass
Pliability, (Pass/Fail) 1in x 8in specimens; Conditioned for 24h @ 14±4°F; Bend 90° in 2s over 1/8" radius @14±4°F	ASTM D8257 Section 7.3	1	2	3	4	5	Pass = No visible cracking or delamination of underlayment
	MD	Pass	Pass	Pass	Pass	Pass	Pass
	CMD	Pass	Pass	Pass	Pass	Pass	Pass
Moisture Vapor Permeance, (Perms) 3.5in Ø specimens; Weathering side to ↑ Vapor pressure; Test @ 73±4°F & 50±5%RH	ASTM D8257 Section 7.4 ASTM E96 Procedure B	1	2	3	Avg.	St.Dev.	
		0.001	0.001	0.004	0.002	0.001	Report
Liquid Water Transmission, (Pass/Fail) 14° slope; Cond. 24h @ 70-85°F & 30-55%RH; 40-42 gal/h shower exposure for 4h;	ASTM D8257 Section 7.5 ASTM D4869	1	2				Pass = No wetness on either specimen underside or top of plywood and no visible deterioration
		Pass	Pass				Pass
Linear Dimensional Change, (%) 10" x 10" specimens; Cond. 40h @ 73±4°F & 50±10%RH; Exposed for 24h @ 185±2°F; Cond. 1h @ 73±4°F & 50±10%RH	ASTM D8257 Section 7.6 / ASTM D1204	1	2	Avg.	St.Dev.		
	MD	-0.6	-0.2	-0.5	0.06		-2.5 to +1
	CMD	-0.5	-0.06	-0.1	0.1		-2.5 to +1

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Property	Test Method	Result										Requirement			
Tensile Strength (lbf/in) Type IC-E; 1in x 6in specimens; Cond. 2h @ 73±4°F; Cut Strip Method; Test @ 73±4°F & 50±5%RH; Gage length = 3in; Rate = 12in/min	ASTM D8257 Section 7.7 / ASTM D5035	1	2	3	4	5	Avg.	St.Dev.							
	<i>As Received</i>	MD	90	98	97	98	90	95	4	≥ 20					
		CMD	77	77	78	73	78	77	2	≥ 20					
	<i>After Thermal Cycling</i>	MD	72	78	67	85	83	77	8	≥ 20					
		CMD	65	78	65	75	84	73	8	≥ 20					
	<i>After Laboratory Accelerated Weathering</i>	MD	98	88	90	94	88	92	4	≥ 20					
		CMD	83	84	73	88	71	80	7	≥ 20					
	Tearing Strength (lbf/in) 3in x 8in specimens; Dry condition; Cond. 24h @ 73±4°F; Test @ 73±4°F & 50±5%RH; Gage length = 1in; Rate = 12in/min	ASTM D8257 Section 7.8 / ASTM D4533	1	2	3	4	5	Avg.	St.Dev.						
		<i>As Received</i>	MD	38	37	37	37	35	37	1	≥ 15				
			CMD	40	41	45	41	42	42	2	≥ 15				
<i>After Thermal Cycling</i>		MD	33	42	38	37	45	39	5	≥ 15					
		CMD	40	40	36	43	37	39	3	≥ 15					
<i>After Laboratory Accelerated Weathering</i>		MD	46	49	44	49	50	48	2	≥ 15					
		CMD	52	46	72	28	41	48	16	≥ 15					
Fastener Pull- Through Resistance (lbf) 4in x 4in specimens; Cond. & Test @ 73±4°F & 50±5%RH; 1-1/2" long Galv. Roofing Nail; Gage length = 1in; Rate = 4in/min		ASTM D8257 Section 7.9 / ASTM D228	1	2	3	4	5	6	7	8	9	10	Avg.	St.Dev.	
		<i>As Received</i>	41	42	43	48	40	46	43	48	40	47	44	3	≥ 25
			49	43	41	43	42	48	39	45	50	47	45	4	≥ 25
	<i>After Thermal Cycling</i>	49	40	42	46	55	43	50	49	40	42	46	5	≥ 25	
		49	40	42	46	55	43	50	49	40	42	46	5	≥ 25	
	Hydrostatic Resistance [Pass/Fail] 3in x 3in specimens; Test @ 73±4°F & 50±5%RH; Exposed to 1psi for 5min; Mullen type hydrostatic tester	ASTM D8257 Section 7.10 / ASTM D751 Procedure A-2	1	2	3	4	5								Pass = No water shall pass through any specimen
		<i>As Received</i>	Pass	Pass	Pass	Pass	Pass								Pass
		<i>After Thermal Cycling</i>	Pass	Pass	Pass	Pass	Pass								Pass
		<i>After Laboratory Accelerated Weathering</i>	Pass	Pass	Pass	Pass	Pass								Pass

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Property	Test Method	Result	Requirement
Thermal Cycling [<i>Pass/Fail</i>] 8h @ 120±2°F followed by; 16h @-40±2°F	ASTM D8257 Section 7.11		Pass = No visible damage such as peeling, chipping, crazing, splitting, cracking, flaking or pitting
		Pass	Pass
Accelerated Weathering [<i>Pass/Fail</i>] Exposure 667h, ASTM D4798 Cycle A-1;	ASTM D8257 Section 7.12 / ASTM D4798 Cycle A-1		Pass = No visible damage such as peeling, chipping, crazing, splitting, cracking, flaking or pitting
		Pass	Pass
Other			
Net Mass, (lbs/100ft ²)	ASTM D228		
		9.81	Report

Notes: None

TAS 110 – 667h, ASTM D4798. Cycle A-1

Property	Test Method	Result							Requirement
Physical Requirements									
Pliability, (Pass/Fail) 1in x 8in specimens; Conditioned for 24h @ 14±4°F; Bend 90° in 2s over ½" radius @14±4°F	ASTM D8257 Section 7.3	1	2	3	4	5			Pass = No visible cracking or delamination of underlayment
	MD	Pass	Pass	Pass	Pass	Pass			Pass
	CMD	Pass	Pass	Pass	Pass	Pass			Pass
Tensile Strength (lbf/in) Type IC-E; 1in x 6in specimens; Cond. 2h @ 73±4°F; Cut Strip Method; Test @ 73±4°F & 50±5%RH; Gage length = 3in; Rate = 12in/min	ASTM D8257 Section 7.7 / ASTM D5035	1	2	3	4	5	Avg.	St.Dev.	
	MD	98	88	90	94	88	92	4	≥ 20
	CMD	83	84	73	88	71	80	7	≥ 20
Elongation (lbf/in) Type IC-E; 1in x 6in specimens; Cond. 2h @ 73±4°F; Cut Strip Method; Test @ 73±4°F & 50±5%RH; Gage length = 3in; Rate = 12in/min	ASTM D8257 Section 7.7 / ASTM D5035	1	2	3	4	5	Avg.	St.Dev.	
	MD	2	3	3	3	3	3	0.2	Report
	CMD	11	11	11	10	11	11	0.6	Report
	MD	4	3	3	3	3	3	0.4	Report
	CMD	3	2	3	3	2	3	0.3	Report

Notes: None

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Statement of Compliance: The product described herein complies with the physical requirements prescribed in ASTM D8257: *Standard Specification for Mechanically Attached Polymeric Roof Underlayment Used in Steep Slope Roofing*. The laboratory test results presented in this report are representative of the specimens supplied.

Extended Exposure Limitation: The product tested has demonstrated an exposure limitation of 120 days established through physical property testing of samples weathered as prescribed in TAS 110-2000 and in accordance with ASTM D 4798 (Cycle A-1) for 667 hours.

Report Issue History:

Issue #	Date	Pages	Revision Description (if applicable)
Draft	1/23/2024	5	Need location of manufacture

End of Report

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