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Laboratory Test Status

To: McGuire Roofing Products **Date:** October 29, 2024

From: Bill Hinkle
Product(s) 0.060in. FlexGuard TPO
Summary: ASTM D6878

Results:

Physical Properties	Test Method	Results							Requirement[1]
As received									
Thickness (overall), Sheet-overall; Across the width of the sheet; Cond. 24h @ 73±4°F & 50±5%RH; Test @ 73±4°F & 50±5%RH;	ASTM D 751	1	2	3	4	5	**Avg.**	St.Dev.	
	in.	0.062	0.062	0.064	0.062	0.062	**0.062**	0.894	≥ 0.039
	% from specified[1]	+3	+3	+7	+3	+3	**+3**	+4	+15, -10
Thickness (over scrim), in. Coating over fabric or scrim, Cond. 24h @ 73±4°F & 50±5%RH; Test @ 73±4°F & 50±5%RH;	ASTM D 7635	1	2	3	4	5	6	**Avg.**	
		0.021	0.020	0.021	0.022	0.023	0.023	**0.022**	≥ 0.015
Breaking Strength, (lbf) 4" x 6" specimens; Grab Method; Cond. 24h @ 73±4°F & 50±5%RH; Test @ 73±4°F & 50±5%RH; Rate = 12±0.5in./min;	ASTM D 751 Proc. A	1	2	3	4	5	**Avg.**	St.Dev.	
	MD	401	407	408	385	378	**396**	14	≥ 220
	CMD	364	374	376	365	376	**371**	6	≥ 220
Elongation at Reinforcement Break, % 4" x 6" specimens; Grab Method; Cond. 24h @ 73±4°F & 50±5%RH; Test @ 73±4°F & 50±5%RH; Rate = 12±0.5in./min;	ASTM D 751 Proc. A	1	2	3	4	5	**Avg.**	St.Dev.	
	MD	30	29	30	30	30	**30**	1	≥ 15
	CMD	27	28	27	27	28	**28**	1	≥ 15
Tearing Strength, lbf 8" x 8" specimens; Tongue Tear Method; Cond. 24h @ 73±4°F & 50±5%RH; Test @ 73±4°F & 50±5%RH; Rate = 2±0.1in./min;	ASTM D 751 Proc. B	1	2	3	4	5	**Avg.**	St.Dev.	
	MD	92	93	92	91	90	**91**	1	≥ 55
	CMD	83	82	83	81	81	**82**	1	≥ 55
Brittleness Point, °F Type A Specimens; Cond. 48h @ 73±4°F & 50±5%RH; Test @ *Temp*; Medium = Methanol;	ASTM D 2137 Method B	1	2	3	4	5			
		-40	-40	-40	-40	-40			≤ -40

2597T0001

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Physical Properties	Test Method	Results							Requirement[1]
Ozone Resistance, (Pass/Fail) Static Strain 3in. Ø mandrel; Test @ $P(O_3)$ = 100mPa; Test @ 104°F; Expose for 166h; Inspect @ 7x mag.	ASTM D 1149 Mod. Method B Proc. B2	1	2	3	4	5			Pass = "No cracks or crazing"
		Pass	Pass	Pass	Pass	Pass			Pass
Linear Dimensional Change, % 10" x 10" specimens; Cond. 24h @ 73±4°F & 50±5%RH; Test 1h @ 212°F	ASTM D 1204	1	2	3	**Avg.**	St.Dev.			
	MD	-0.25	-0.23	-0.13	**-0.20**	0.1			± 1
	CMD	-0.05	-0.07	-0.03	**-0.05**	0.02			± 1
Water Absorption, % by mass Test Liquid = water; Cond. 24h @ 73±4°F & 50±5%RH; Test 166h @ 158°F;	ASTM D 471 Proc. For One Surface only	1	2	3	**Avg.**	St.Dev.			
		0.1	0.0	0.0	**0.0**	0.0			± 3.0
Factory Seam Strength, 1" x 12" specimens w/seam ; Cond. 24h @ 73±4°F & 50±5%RH; Test @ 73±4°F & 50±5%RH;	ASTM D 751 Mod. Proc. A	1	2	3	4	5	**Avg.**	St.Dev.	
Rate = 2±0.5in./min;	lbf	176	154	159	151	151	**158**	11	≥ 66
After Heat Aging									
Heat Aging 2" x 6" specimens; Cond. 24h @ 73±4°F & 50±5%RH; Exposure: 56d @ 275±2°F;	ASTM D 573								
Weight Change, % Cond. 166h @ 240±2°F;	ASTM D 573	1	2	3	**Avg.**	St.Dev.			
		-0.2	-0.2	-0.3	**-0.2**	0.1			± 1.5
Visual Inspection, (Pass/Fail) Wrap around 3" Ø mandrel; Inspect @ 7x mag.;	ASTM D 6878	1	2	3					Pass = "No cracks or crazing"
		Pass	Pass	Pass					Pass
After Accelerated Weathering									
Accelerated Weathering Sheet specimens; Exposure: 10,080 $kJm^{2}\cdot m$ @ 340nm 690min light, 30min light+H_2O spray; 80±3°C black panel; 50±5%RH;	ASTM D 6878 / ASTM G 155								
Visual Inspection, (Pass/Fail) Inspect immediately upon removal; Wrap around 3" Ø mandrel; Inspect @ 7x mag.;	ASTM D 6878	1	2	3					Pass = "No cracks or crazing"
		IP	IP	IP					Pass
Breaking Strength, lbf 4" x 6" specimens; Grab Method; Cond. 24h @ 73±4°F & 50±5%RH; Test @ 73±4°F & 50±5%RH; Rate = 12±0.5in./min;	ASTM D 751 Proc. A	1	2	3	Avg.	St.Dev.	**% Retained**		% Retained
	MD	IP	IP	IP	IP	IP			Report
	CMD	IP	IP	IP	IP	IP			Report

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Physical Properties	Test Method	Results						Requirement[1]
Elongation at Reinforcement Break, % 4" x 6" specimens; Grab Method; Cond. 24h @ 73±4°F & 50±5%RH; Test @ 73±4°F & 50±5%RH; Rate = 12±0.5in./min;	ASTM D 751 Proc. A	1	2	3	Avg.	St.Dev.	**% Retained**	
	MD	IP	IP	IP	IP	IP		Report
	CMD	IP	IP	IP	IP	IP		Report
Other Properties – TAS 110-2000								
Static Puncture Resistance, (N) 7.9" x 7.9" specimens; Over Type IX EPS; Cond. 8h @ 73±4°F & 50±5%RH;	ASTM D 5602	1	2	3	Avg.	St.Dev.		
Load 24±0.25h @ 73±4°F;		Pass	Pass	Pass	-	-		Report
Dynamic Puncture Resistance, (J) 9.8" x 9.8" specimens; Over Type IX EPS; Cond. 8h @ 73±4°F & 50±5%RH;	ASTM D 5635	1	2	3	Avg.	St.Dev.		
Load @ 73±4°F;		16.8	16.8	19.3	17.6	1.4		Report

Note(s): 1- Requirements provided from ASTM D 6878-17, -19, & -21 and TAS 110-2000
2- As specified in manufacturer's published data

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