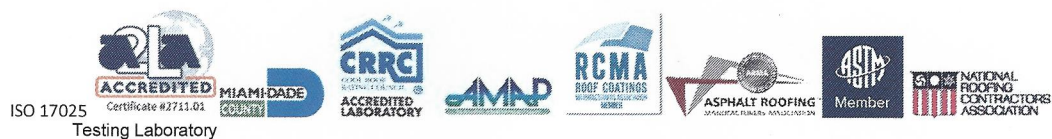


Technical Service Report



**MOMENTUM
TECHNOLOGIES
LABORATORIES**



**Testing Laboratory:****Momentum Technologies Laboratories, Inc.**

1507 Boettler Rd.
Uniontown OH 44685
Ph: 330-595-4293
Fax: 330-595-4142

Customer:**Topps Products**

Jeff Mingus

3201 E 66th Street

Cleveland OH 44127

jmingus@toppsproducts.com

Project #:

DX10K9A

Quote #:

2019-376

Date of Report:

Friday, January 10, 2020

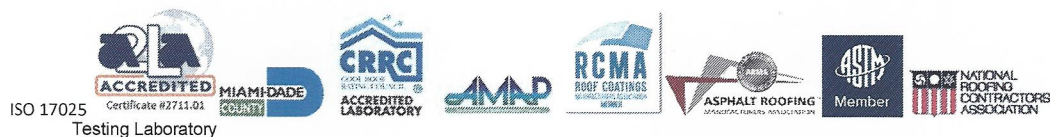
PO#:

19-299

Abstract:

Analysis of one (1) product (Topps Seal) in accordance with ASTM D6083-05e1 Standard Specification for Liquid Applied Acrylic Coating Used in Roofing.

MTI#	Description of Material	Receiving Date
MTI-180597	1 gallon can of Seam/RivetGuard	8/1/2018
MTI-180598	1 gallon can of Polyprene	8/1/2018
MTI-181197	One (1) gallon can labeled Topps Seal	1/29/2019
MTI-181746	One (1) gallon can labeled Topps Seal	7/2/2019
MTI-182362	One (1) quart can labeled Topps Seal	10/10/2019



Equipment

Equipment	Manufacturer	Model #	Serial #
Instron Testing Machine	Instron	5565	2704
Instron Load Cell	Instron	5KN	337
Instron Environmental Chamber	Instron	3119005	9700
Thickness Gauge	CDI	Q2110-1	141542203
Oven	Memmert GmbH & Co. KG	UF160	B518.0578
Oven	Memmert GmbH & Co. KG	UF160	B518.0579
Xenon Arc Accelerated Weathering Test	Q-Panel	Xe-3-HS	07-3381-27
Xenon Arc Accelerated Weathering Test	Q-Panel	Xe-3-HS	07-3429-27
Xenon Arc Accelerated Weathering Test	Q-Panel	Xe-3-HS	06-3095-22
Freezer	Revco Scientific	ULT 750-5-A14	0246-328229-PG
Balance	Mettler Toledo	XS304	B521969552
Balance	Sartorius	LP620S	70102250
Viscometer	Brookfield	KU-1P	K50702
Environmental Chamber, E96	MTI	Custom	51214
Mandrel, 1/2"	AVP	N/A	0928412

Results and Conclusion

Test #: 1

Method D 6083-05e1

Test/Description: Viscosity (Brookfield LVT) per ASTM D2196
Date: 3-1-19 @ 10:50 AM
Laboratory Conditions: 25°C, 45% RH
10.1.1 Brookfield, Model RVDVI+, Spindle #4 was used during test.
10.1.2 See Result section.
10.1.3 Specimen Temp: 25.5°C.
10.1.4 Done according to ASTM D6083 per ASTM D2196

Result: 13,100 cPs

Requirement 12,000 to 85,000 cPs

Conclusion: Pass

Test #: 2

Method D 6083-05e1

Test/Description: Viscosity (Stormer) per ASTM D562
Date: 3-1-19 @ 10:50 AM
Laboratory Conditions: 25°C, 45% RH
18.1.1 See Result section.
18.1.2 Temperature of specimen during test: 25.2°C with no correction applied

Result: 136.5 KU
912 gm

Requirement 85 to 141 KU

Conclusion: Pass

Results and Conclusion

Test #: 3

Method D 6083-05e1

Test/Description: Volume Solids per ASTM D2697
Date: 2-22-19 @ 11:55 AM
Laboratory Conditions: 23°C, 52% RH

Result: 38.3%

Requirement Greater than 50%

Conclusion: N/A (Solvent Based)

Test #: 4

Method D 6083-05e1

Test/Description: Weight Solids per ASTM D1644
Date: 2-22-19 @ 11:35 AM
Laboratory Conditions: 25°C, 48% RH

Result: 54.2%

Requirement Greater than 60%

Conclusion: N/A (Solvent Based)

Results and Conclusion

Test #: 5

Method D 6083-05e1

Test/Description: Initial Percent Elongation (Break) & Initial Tensile Strength @ 23°C per ASTM D2370

Date: 3-5-19 @ 12:10 PM

Laboratory Conditions: 23°C, 50% RH

12.1 See Section 2 in Conclusion.

12.2 See Result section

12.3 Sample (#)	Thickness (in.)	Width (in.)
1	0.0184	0.5
2	0.0184	0.5
3	0.0184	0.5
4	0.0184	0.5
5	0.0184	0.5
6	0.0184	0.5
7	0.0185	0.5
8	0.0183	0.5
9	0.0184	0.5
10	0.0183	0.5

12.3.1 See Result section.

12.3.2 See Result section.

12.3.3 Was not requested.

12.4.1 See section 1 in Conclusion.

12.4.2 See section 3 in Conclusion.

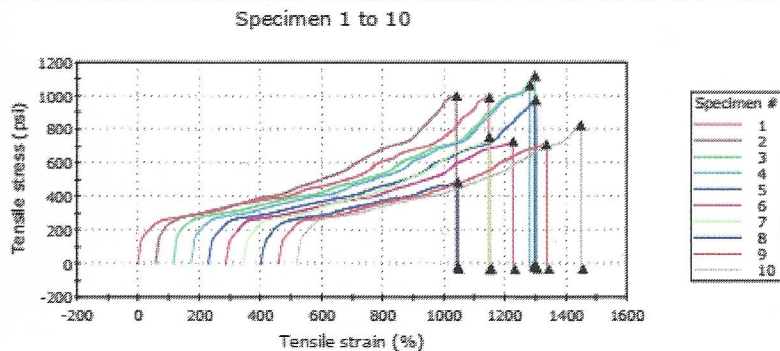
12.4.3 See section 4 in Conclusion.

12.4.4 See section 5 in Conclusion.

12.4.5 See section 6 in Conclusion

Result:

Sample (#)	Elongation (%)	Tensile (psi)
1	1150.3	990.3
2	986.8	1001.3
3	1182.9	1122.5
4	1120.3	1067.6
5	1073.3	977.4
6	943.2	729.7
7	809.4	756.1
8	645.0	486.8
9	881.7	712.2
10	935.6	826.9
Average	972.9	867.1



Requirement

Elongation: 100% min.
Tensile Strength: 200 psi min.

Conclusion:

Pass

Results and Conclusion

Test #: 6

Method D 6083-05e1

Test/Description: Initial Percent Elongation (Break) & Initial Tensile Strength @ -18°C per ASTM D2370

Date: 3-6-19 @ 10:20 AM

Laboratory Conditions: 24°C, 48% RH

12.1 See Section 2 in Conclusion.

12.2 See Result section

12.3 Sample (#)	Thickness (in.)	Width (in.)
1	0.0183	0.5
2	0.0184	0.5
3	0.0183	0.5
4	0.0184	0.5
5	0.0183	0.5
6	0.0184	0.5
7	0.0184	0.5
8	0.0185	0.5
9	0.0184	0.5
10	0.0184	0.5

12.3.1 See Result section.

12.3.2 See Result section.

12.3.3 Was not requested.

12.4.1 See section 1 in Conclusion.

12.4.2 See section 3 in Conclusion.

12.4.3 See section 4 in Conclusion.

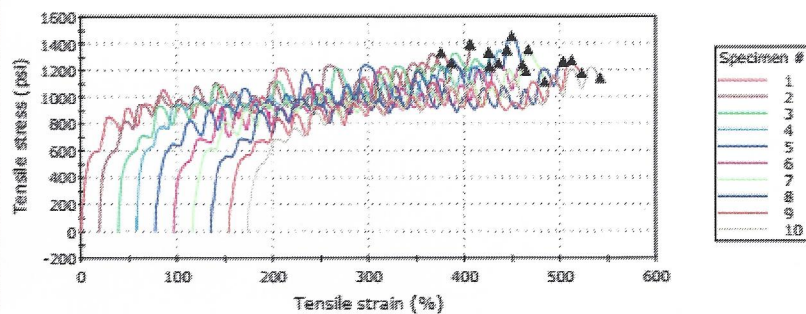
12.4.4 -18 +/- 2°C [-0.4 +/- 3.6°F] at 0% RH.

12.4.5 See section 6 in Conclusion

Result:

Sample (#)	Elongation (%)	Tensile (psi)
1	375.2	1335.7
2	386.3	1393.8
3	386.3	1334.0
4	386.3	1352.4
5	371.8	1455.6
6	338.7	1255.8
7	350.5	1356.0
8	367.6	1268.2
9	357.0	1278.3
10	251.8	1229.4
Average	376.6	1325.9

Specimen 1 to 10



Requirement

Report Results

Conclusion:

N/A

Results and Conclusion

Test #: 7

Method D 6083-05e1

Test/Description: Tear Resistance per ASTM D624
 Date: 3-5-19 @ 3:35 PM
 Laboratory Conditions: 23°C, 50% RH
 12.1.1 See Result section.
 12.1.2 Die C was used to cut specimens from free film to get Type C pieces for testing.
 12.1.3 N/A.
 12.1.4 Sample Thickness

(#)	(in.)
1	0.0201
2	0.0199
3	0.0201

12.1.5 N/A
 12.1.6 With the Grain
 12.1.7 Sample Maximum force

(#)	(lbf/in.)
1	159.2
2	154.2
3	186.4

12.1.8 Test date: 3-5-19, Vulcanization date: 2-13-19 to 2-24-19.
 12.1.9 Standard laboratory conditions.
 12.1.10 Standard laboratory conditions.
 12.1.11 Instron Tensile Tester, and 1" x 2" grips were used for testing.
 12.1.12 N/A

Result: 159.2 lbf/in

Requirement Greater than 60 lbf/in

Conclusion: Pass

Results and Conclusion

Test #: **8**

Method **D 6083-05e1**

Test/Description: **Water Swelling per ASTM D471**

Start Date: 3-5-19 @ 9:10 AM

Laboratory Conditions: 24°C, 47% RH

End Date: 3-12-19 @ 9:10 AM

Laboratory Conditions: 24°C, 50% RH

19.1 Test was conducted in accordance with Test Method D471.

19.1.1 See Description of Material section.

19.1.2 Date: 3-5-19 to 3-12-19, Room Temperature: 24°C.

19.1.3 See Conclusion section 1.

19.1.4 3-5-19 to 3-12-19

19.1.5 Deionized water.

19.1.6 Temperature of exposure: 20.9°C.

19.1.7 Exposure period: 168 hrs.

19.1.8 Sample	Before Wt.	After Wt.
(#)	(g)	(g)
1	0.9425	0.9524
2	0.9557	0.9656
3	0.9515	0.9616

19.1.9 See Result section.

19.1.10 No noticeable change in specimens.

19.1.11 N/A

19.1.12 Test done in accordance to ASTM D6083 per ASTM D471

Result: **1.06%**

Requirement **max. 20% (mass)**

Conclusion: **Pass**

Results and Conclusion

Test #: **9**

Method **D 6083-05e1**

Test/Description: Permeance (water method, inverted) per ASTM D1653
 Start Date: 3-5 -19 @ 9:00 AM
 Laboratory Conditions: 23°C, 50% RH
 End Date: 3-26-19 @ 9:00 AM
 Laboratory Conditions: 23°C, 50% RH
 14.1.1 See section 11 in conclusion.
 14.1.2 Sample Thickness

(#)	(mm)
1	0.476
2	0.471
3	0.477

 14.1.3 None
 14.1.4 Method B (Wet Cup, Inverted).
 14.1.5 Test conditions: 23 +/- 2°C [73.4 +/- 3.6°F] at 50 +/- 10 % RH.
 14.1.6 See Result section

Result: **7.9 ng[Pa·s·m2] (0.1387 perms)**

Requirement max. 2875 ng[Pa·s·m2] (50 perms)

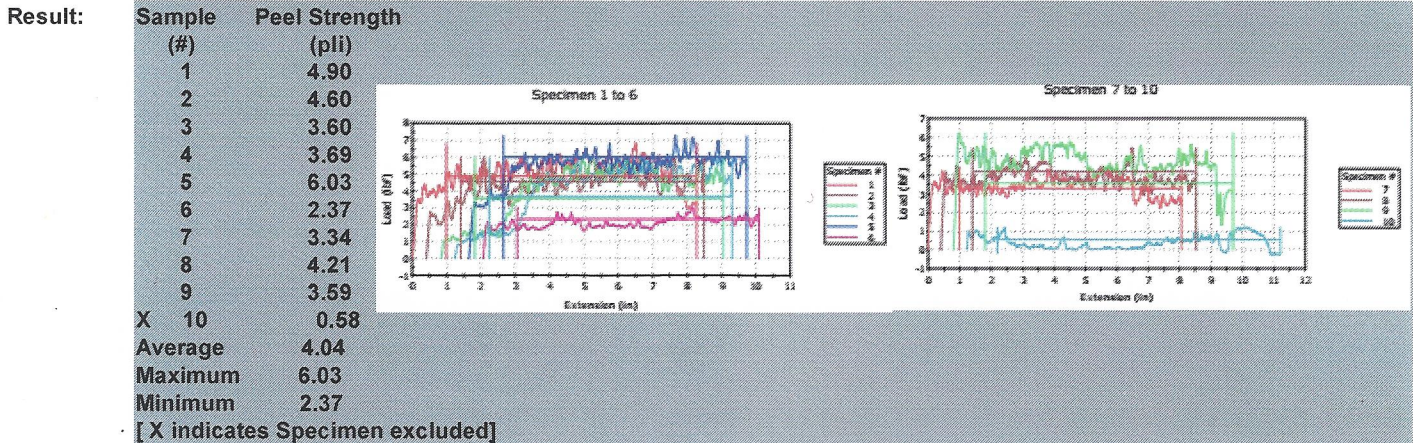
Conclusion: **Pass**

Results and Conclusion

Test #: 10

Method D 6083-05e1

Test/Description: Adhesion to Concrete per ASTM D903/C794
Date: 4-1-19 @ 1:45 PM
Laboratory Conditions: 24°C, 43% RH
10.1.1 See Description of Material section.
10.1.2 See section 7 in Conclusion.
10.1.3 See section 8 in Conclusion.
10.1.4 See section 5 in Conclusion.
10.1.5 See section 9 in Conclusion.
10.1.6 See section 10 in Conclusion.
10.1.7 See Result section.
10.1.8 See Result section.
10.1.9 See Result section.
10.1.10 Adhesive and Cohesive failures were present.



Requirement 2 pli min.

Conclusion: **Pass**

Results and Conclusion

Test #: 11

Method D 6083-05e1

Test/Description: Adhesion to Aged SBS Granulated per ASTM D903/C794

Date: 7-29-19 @ 8:30 AM

Laboratory Conditions: 23°C, 52% RH

10.1.1 See Description of Material section.

10.1.2 See section 7 in Conclusion.

10.1.3 See section 8 in Conclusion.

10.1.4 See section 5 in Conclusion.

10.1.5 See section 9 in Conclusion.

10.1.6 See section 10 in Conclusion.

10.1.7 See Result section.

10.1.8 See Result section.

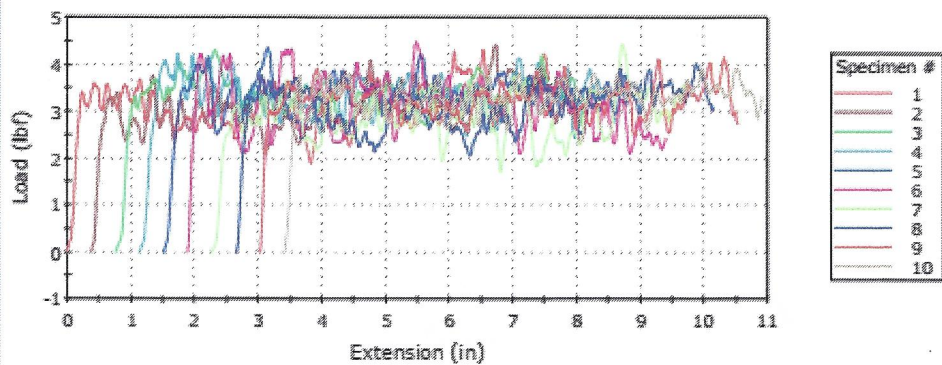
10.1.9 See Result section.

10.1.10 All specimens were Substrate failures.

Result:

Sample (#)	Peel Strength (pli)
1	3.39
2	3.50
3	3.64
4	3.70
5	3.74
6	3.81
7	3.36
8	3.23
9	3.51
10	3.56
Average	3.54
Maximum	3.81
Minimum	3.23

Specimen 1 to 10



Requirement 2 pli min.

Conclusion: Pass

Results and Conclusion

Test #: 12

Method D 6083-05e1

Test/Description: Adhesion to Aged SBS Smooth per ASTM D903/C794

Date: 7-29-19 @ 8:30 AM

Laboratory Conditions: 23°C, 52% RH

10.1.1 See Description of Material section.

10.1.2 See section 7 in Conclusion.

10.1.3 See section 8 in Conclusion.

10.1.4 See section 5 in Conclusion.

10.1.5 See section 9 in Conclusion.

10.1.6 See section 10 in Conclusion.

10.1.7 See Result section.

10.1.8 See Result section.

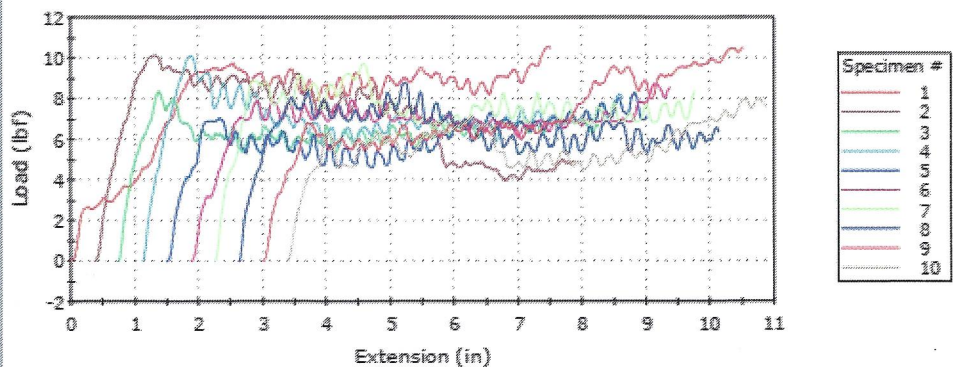
10.1.9 See Result section.

10.1.10 All specimens were Cohesive failures.

Result:

Sample (#)	Peel Strength (pli)
1	9.24
2	8.65
3	6.59
4	7.40
5	6.15
6	7.54
7	8.27
8	7.26
9	7.29
10	5.76
Average	7.42
Maximum	9.25
Minimum	5.76

Specimen 1 to 10



Requirement 2 pli min.

Conclusion: Pass

Results and Conclusion

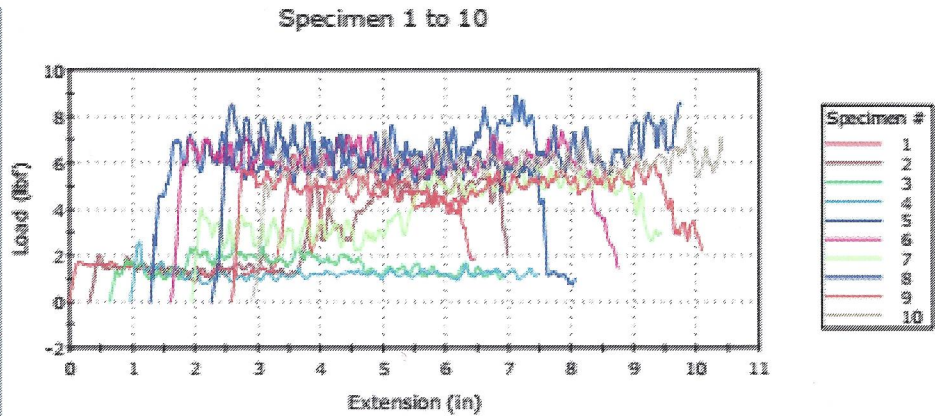
Test #: 13

Method D 6083-05e1

Test/Description: Adhesion to Aged Steel per ASTM D903/C794
Date: 8-29-19 @ 9:55 AM
Laboratory Conditions: 22°C, 45% RH
10.1.1 See Description of Material section.
10.1.2 See section 7 in Conclusion.
10.1.3 See section 8 in Conclusion.
10.1.4 See section 5 in Conclusion.
10.1.5 See section 9 in Conclusion.
10.1.6 See section 10 in Conclusion.
10.1.7 See Result section.
10.1.8 See Result section.
10.1.9 See Result section.
10.1.10 Adhesive and Cohesive failures were present.

Result:

Sample (#)	Peel Strength (pli)
1	4.75
2	3.65
3	2.02
4	1.38
5	7.24
6	6.67
7	4.45
8	6.94
9	5.31
10	6.51
Average	4.89
Maximum	7.24
Minimum	1.38



Requirement 2 pli min.

Conclusion: Pass

Results and Conclusion

Test #: 14

Method D 6083-05e1

Test/Description: Adhesion to Aged TPO per ASTM D903/C794

Date: 8-2-19 @ 8:30 AM

Laboratory Conditions: 23°C, 51% RH

10.1.1 See Description of Material section.

10.1.2 See section 7 in Conclusion.

10.1.3 See section 8 in Conclusion.

10.1.4 See section 5 in Conclusion.

10.1.5 See section 9 in Conclusion.

10.1.6 See section 10 in Conclusion.

10.1.7 See Result section.

10.1.8 See Result section.

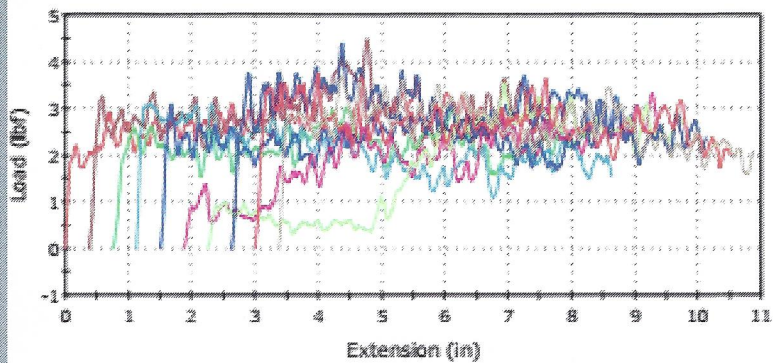
10.1.9 See Result section.

10.1.10 All specimens were Adhesive failures.

Result:

Sample (#)	Peel Strength (pli)
1	3.00
2	3.26
3	2.50
4	2.35
5	2.80
6	2.41
7	2.44
8	3.24
9	3.06
10	3.17
Average	2.82
Maximum	3.26
Minimum	2.35

Specimen 1 to 10



Specimen #
1
2
3
4
5
6
7
8
9
10

Requirement 2 pli min.

Conclusion: Pass

Results and Conclusion

Test #: 18

Method D 6083-05e1

Test/Description: Standard Practice for Accelerated Weathering Test Conditions and Procedures for Bituminous Materials (Xenon-Arc Method)
ASTM D4798 / D4798M - 11(2016) (1000 hours)
Start Date: 2-28-19 @ 9:00 AM for 1000 hours
9.1.1 Cycle A-1 was used. 51-min light-only exposure with device programmed to produce an uninsulated black panel temperature of 63 +/- 3°C at equilibrium conditions. This is followed by a 9-min period with the light on and with water sprayed on the front of the specimens.
9.1.2 Total radiant energy: 0.35 W/(m²·nm).
Uninsulated black panel temperature: 63 ± 3°C.
Chamber Relative Humidity: 50 +/- 10% RH.
Chamber air temperature: 44 +/- 2°C.
9.1.3 Low Temp Flex mean thickness: 13.9 mils, Dry film mean thickness: 19.6 mils
9.1.4 N/A

Result: No Cracking or Checking

Requirement No Cracking or Checking

Conclusion: Pass

Results and Conclusion

Test #: 19

Method D 6083-05e1

Test/Description: Final Percent Elongation (break) @ 23°C (after 1000 hrs Accelerated Weathering) per ASTM D2370

Date: 4-29-19 @ 8:30 AM

Laboratory Conditions: 21°C, 54% RH

12.1 See Section 2 in Conclusion.

12.2 See Result section

12.3 Sample (#)	Thickness (in.)	Width (in.)
1	0.0201	0.5
2	0.0199	0.5
3	0.0203	0.5
4	0.0199	0.5
5	0.0199	0.5
6	0.0195	0.5
7	0.0194	0.5
8	0.0193	0.5
9	0.0189	0.5
10	0.0196	0.5

12.3.1 See Result section.

12.3.2 See Result section.

12.3.3 Was not requested.

12.4.1 See section 1 in Conclusion.

12.4.2 See section 3 in Conclusion.

12.4.3 See section 4 in Conclusion.

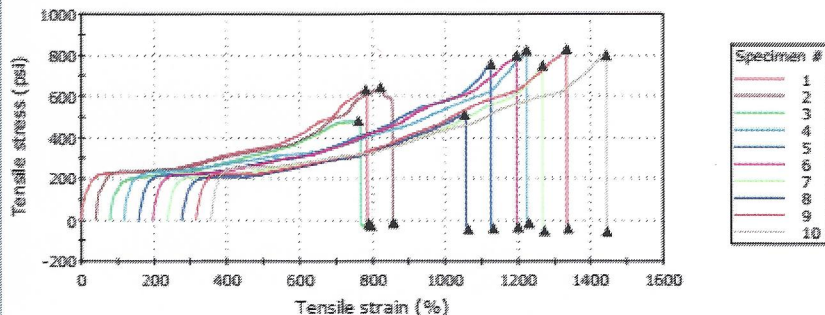
12.4.4 See section 5 in Conclusion.

12.4.5 Specimens were aged for 1000 hrs. per ASTM D4798 Cycle A-1, test specimens were conditioned for at least 24 h at 23 +/- 2°C (73.5 +/- 3.5°F) and 50 +/- 5 % relative humidity after Accelerated Weathering before testing.

Result:

Sample (#)	Elongation (%)
1	788.1
2	816.3
3	715.8
4	1110.3
5	973.0
6	1002.1
7	1034.4
8	786.5
9	1021.1
10	1088.6
Average	933.6

Specimen 1 to 10



Requirement min. 100%

Conclusion: Pass

Results and Conclusion

Test #: **20**

Method **D 6083-05e1**

Test/Description: Low Temperature Flexibility @ -26°C (after 1000 hrs Weathering) per ASTM D522 {2 hours conditioning at temperature}
 Date: 4-28-19 @ 11:30 AM
 Laboratory Conditions: 23°C, 50% RH
 15.1.1 See Result section
 15.1.2 See Result section
 15.1.3 One coat using a 50 mil draw down bar was used over the aluminum substrates to result in a dry film thickness of 0.36 mm [0.014 in.] +/- 10 % and allow to cure 72 hours at 23 +/- 2°C [73.4 +/- 3.6°F] and 50 +/- 10 % relative humidity followed by 120 hours at 50°C [122°F] prior to entering Xenon for weathering.
 15.1.4 Test conditions were -26°C, 0% Rh.
 15.1.5 No replicate samples were used.
 15.1.6 Aluminum panels were used as substrates

Result:	Sample (#)	Thickness (in.)	Result
	1	0.0136	No Cracking or Breaking
	2	0.0141	No Cracking or Breaking
	3	0.0138	No Cracking or Breaking
	4	0.0138	No Cracking or Breaking
	5	0.0140	No Cracking or Breaking

Requirement Pass (around a 0.5 in. mandrel, No Cracking or Breaking)

Conclusion: **Pass**

Test #: **21**

Method **D 6083-05e1**

Test/Description: (*) Fungi Resistance per ASTM G21 (OUTSOURCED TEST) (Topps Seal)
 10.1.1 See MicroStar Lab Report: R2019-620.
 10.1.2 See MicroStar Lab Report: R2019-620.
 10.1.3 See MicroStar Lab Report: R2019-620.
 10.1.4 See MicroStar Lab Report: R2019-620.

Result: **Rating of Zero**

Requirement Zero Rating

Conclusion: **Pass**

Results and Conclusion

Conclusion:

Topps Seal sampled by customer at Topps Products, 3201 E 66th Street Cleveland, OH 44127 meets or exceeds the requirements per ASTM D6083-05e1 Standard Specification for Liquid Applied Acrylic Coating Used in Roofing.

- 1) Dry films were made by applying 2 coats, (1st coat was drawn down with a 40 mil bar on 2-13-19 at 12:10 PM, 2nd coat was drawn down at 40 wet mils on 2-14-19 at 1:50 PM) with a minimum of 4 h drying period between coats, on a polyethylene board so films will not tear upon removal. The film was allowed to thoroughly cure at 23 +/- 2°C [73.4 +/- 3.6°F] and 50 +/- 10 % relative humidity for 168 +/- 12 h. The film was removed from the polyethylene board and turned over after the first 168 h and finished curing in a Xenon on the D6083 cycle with the exception of the rain cycle for 77 h (Start 2-13-19, End 2-24-19).
- 2) Instron Tensile Tester, Bluehill Software were used to conduct Tensile and Elongation tests.
- 3) 100%/min.
- 4) Gage length: 25 +/- 0.5 mm [1.0 in.], Grip separation speed: 25 +/- 0.5 mm/min [1.0 in./min]
- 5) 23 +/- 2°C [73.4 +/- 3.6°F] at 50 % +/- 10 % RH.
- 6) Test specimens were conditioned for at least 24 h at 23 +/- 2°C (73.5 +/- 3.5°F) and 50 +/- 5 % relative humidity after dry films were fully dried and cured.
- 7) Topps Seal was mixed for a minimum of 10 min prior to any setup. The 1st coat of Topps Seal was brush applied with fabric strips imbedded in the coat on each substrate and was allowed a minimum of 4 hrs to dry. The 2nd coat of Topps Seal was brush applied on each substrate.
- 8) After the 2nd coat of Topps Seal was applied the panels were hung and allowed to dry for 168 +/- 12 h at 23 +/- 2°C [73.4 +/- 3.6°F] and 50 +/- 10 % relative humidity, then placed in a Xenon on the D6083 cycle with the exception of the rain cycle for 77 h prior to testing for wet adhesion. Specimens were then submerged for 168 +/- 6 hrs in tap water at 23 +/- 2°C [73.4 +/- 3.6°F] prior to testing for wet adhesion. Samples are tested immediately after soaking.
- 9) 10 specimens.
- 10) Cross head speed 50 mm/min [2 in./min].

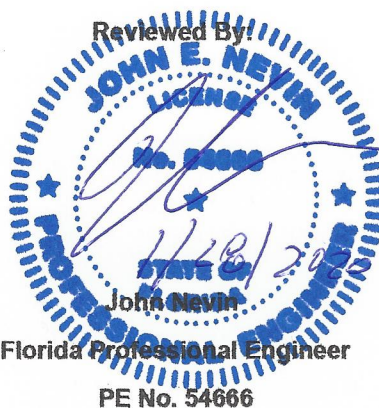
Tested By:



Andrew Jambor

Laboratory Technician

Reviewed By:



John E. Nevin
Florida Professional Engineer
PE No. 54666

Verified By:



Rodney Armstrong

Director of Laboratory Services

Revision Log

Results and Conclusion

Revision #	Date	Revision
0	1/10/2020	Original

The information presented in this publication is based upon the research of Momentum Technologies Laboratories, Inc. (MT Labs) and is to the best of its knowledge accurate. However, no guarantee of its accuracy can be made since MT Labs has no control over the conditions under which its products may be used by others. MT Labs assumes no liability for its use, or the failure of products described herein. MT Labs MAKES NO WARRANTIES EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS, PATENT INFRINGEMENT, OR OTHERWISE. MT Labs SHALL NOT BE LIABLE FOR SPECIAL, INCIDENTAL AND/OR CONSEQUENTIAL DAMAGES. No statement contained herein shall be construed as a recommendation or inducement to infringe existing patents or as an endorsement of products of specific manufacturers. ALL TEST REPORTS SHALL NOT BE REPRODUCED, EXCEPT IN FULL WITHOUT THE WRITTEN APPROVAL OF MT Labs

ASTM G21-15

Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi

FINAL REPORT: R2019-620

Prepared for:
Momentum Technologies
Laboratories
1507 Boettler Rd Suite 800
Uniontown, OH 44685

Accredited Testing Provided by:



130 Erick Street
Crystal Lake, IL 60014
815.526.0954
TESTING CERT: #2832.01

*Testing Initiated: November 7, 2019
Testing Completed: December 5, 2019
Report Issued: December 11, 2019*

Performed By: Marcy Aaron
Title: Staff Scientist

Approved By: Debbie Koester
Title: Quality Manager



Objective:

To evaluate the mold resistance properties of one sample as seen in the ASTM G21 fungal resistance test.

Test Sample Identification:

1. DX10K9A

Test Procedure Summary:

Samples are placed onto the surface of ASTM G21 nutrient salts agar and sprayed with a mixed spore suspension of five fungal strains. The nutrient salts agar provides all of the trace nutritional elements needed by fungi to support growth. However, to achieve a heavy growth, the fungi must use the test material as its primary carbon source. Inoculated samples are incubated and then examined for fungal growth.

Test Variables

Test Organisms:	<i>Aspergillus brasiliensis</i> ¹	ATCC 9642
	<i>Talaromyces pinophilus</i> ²	ATCC 11797
	<i>Chaetomium globosum</i>	ATCC 6205
	<i>Trichoderma virens</i> ³	ATCC 9645
	<i>Aureobasidium pullulans</i>	ATCC 15233
Sample Description:	2" x 2" white coupons	
Number of Replicates per Sample:	Three	
Positive Growth Control:	Sterile Filter Paper	
Media Used:	Nutrient-Salts Agar prepared according to standard	
Environmental Conditions:	28 - 30°C; ≥85% relative humidity	
Incubation Duration:	28 days	
Deviations from Standard Test Method:	None, testing performed per ASTM G21 without deviation.	

¹ *Aspergillus brasiliensis* formerly classified as *Aspergillus niger*

² *Talaromyces pinophilus* formerly identified as *Penicillium funiculosum*

³ *Trichoderma virens* formerly classified as *Gliocladium virens*



Results:

The results for the test pieces can be found in the data table below. The filter paper control pieces had copious fungal growth at Day 14. Temperature and relative humidity were maintained for the duration of the test. These results pertain only to the samples tested.

At week 4, samples rating a "0" or "1" were examined microscopically to confirm the ratings.

The rating scale for this test is as follows:

Rating	Observed Growth
0	No Growth
1	Trace of Growth (less than 10% coverage)
2	Light Growth (10-30% coverage)
3	Medium Growth (30-60% coverage)
4	Heavy Growth (60-100% coverage)

Sample Identification	Rep	Week 1	Week 2	Week 3	Week 4
DX10K9A	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0