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NATIONAL ROOFING CONTRACTORS ASSOCIATION

Roof Coating Manufacurers Association

Final Test Report

Pazkar Limited
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Attn.:	Dr. Nitsa Galili
Date:	November 16, 2005
Testing Provided:	Analysis of performance requirements of ASTM D 6083.
Sample:	Received June 13, 2005, logged in as MTi-050481 and MTi-050482.
Project ID:	CX20F5A

1.0 Stormer Viscosity

By: ASTM D 6083 – Table 1 (ASTM D 562)
Temperature: 75°F

Measurement	Kreb Units, KU
1	122.0
2	122.0
3	122.0
Average	122.0
D 6083 Requirement	85 – 141

Results: Master Roof meets the requirements of ASTM D 6083 – Table 1 (ASTM D 562)

2.0 Brookfield Viscosity

By: ASTM D 6083 - Table 1 (ASTM D 2196)
No. 4 spindle, 6 rpm, 75°F
Brookfield Model: RVDV1+

Reading	Viscosity, cPs
1	22,000
2	21,900
3	22,000
Average	21,966.6
D 6083 Requirement	12,000 – 85,000

Results: Master Roof meets the requirements of ASTM D 6083 – Table 1 (ASTM D 2196)

3.0 Volume Solids

By: ASTM D 6083 – Table 1 (ASTM D 2697)

Measurement	% Solids
1	62.86
2	65.22
3	63.71
4	65.18
5	63.72
Average	64.14
D 6083 Requirement	50%, minimum

Results: Master Roof meets the requirements of ASTM D 6083 – Table 1 (ASTM D 2697)

4.0 Weight Solids

By: ASTM D 6083 – Table 1 (ASTM D 1644)

Measurement	% Solids
1	65.62
2	65.69
Average	65.65
D 6083 Requirement	60%, minimum

Results: Master Roof meets the requirements of ASTM D 6083 – Table 1 (ASTM D 1644)

5.0 Tensile and Elongation (original)

By: ASTM D 6083 – Table 2 (ASTM D 2370)
-Film Preparation as described in 6.3 of ASTM D 6083 (two coats to yield a finished coat thickness of 20 mils, cured at 25°C (73.4°F) and 50% RH).
-Specimen Size: ½ in. X 3 in.
-Cross Head Speed: 1.0 in/min
-Gage Length: 1.0 in.

Result	Tensile, psi, 73°F	Elongation, %, at 73°F	Tensile, psi, at 0°F	Elongation %, at 0°F
Mean	240.4	611.85	2407.3	28.46
D 6083 Requirement	200	100	NR	NR

Results: Master Roof meets the requirements of ASTM D 6083 – Table 2 (ASTM D 2370)

6.0 Tensile and Elongation (aged)

By: ASTM D 6083 – Table 2 (ASTM D 2370)
-Film Preparation as described in 6.3 of ASTM D 6083 (two coats to yield a finished coat thickness of 20 mils, cured at 25°C (73.4°F) and 50% RH).
-Specimen Size: ½ in. X 3 in.
-Aging Cycle: ASTM D 4798 (Cycle A, 1000 hours, 63°C, inner and outer borosilicate, 1260KJ/m^2 at 340nm, 151.2 MJ/m^2 at 300 to 400 nm)
-Cross Head Speed: 1.0 in/min
-Gage Length: 1.0 in.

Result	Tensile, psi, 73°F	Elongation, %, at 73°F
Mean	315.4	695.85
D 6083 Requirement	NR	100

Results: Master Roof meets the requirements of ASTM D 6083 – Table 2 (ASTM D 2370)

7.0 Permeance

By: ASTM D 6083 – Table 2 (ASTM D 1653)
-Film Preparation as described in 6.3 of ASTM D 6083 (two coats to yield a finished coat thickness of 20 mils, cured at 25°C (73.4°F) and 50% RH).
-Mean Film Thickness of Coatings: 0.022 in (0.56 mm)
-Method Used: Method B (Wet Cup Method)
-Temperature: 73.4 +/- 3.6°F
-Relative Humidity: 50 +/- 10%
-Permeance: 1.87 Perms

Results: Master Roof meets the requirements of ASTM D 6083 – Table 2 (ASTM D 1653)

Requirement: Maximum of 50 perms.

8.0 Water Swelling

By: ASTM D 6083 – Table 2 (ASTM D 471)
-Film Preparation as described in 6.3 of ASTM D 6083 (two coats to yield a finished coat thickness of 20 mils, cured at 25°C (73.4°F) and 50% RH).
-Sample Exposure: 168 hours beginning July 22, 2005 at 75°F (23°C) in distilled water.

Sample	Wt. Before, grams	Wt. After, grams	Wt. Gain, %
1	1.7783	1.9845	11.60
2	1.6331	1.8353	12.38
3	1.7239	1.9261	11.73
4	1.7330	1.9406	11.98
5	1.7525	1.9636	12.05
Average	1.7242	1.9300	11.95
D 6083 Requirement	NA	NA	20%, maximum

Results: Master Roof meets the requirements of ASTM D 6083 – Table 2 (ASTM D 471)

9.0 Peel Adhesion

By: ASTM D 6083 – Table 2 (ASTM D C 794/ASTM D 903)
-Specimens were prepared as described in Section 7.6.2 of ASTM D 6083. (Two coats to yield 20 mil total dry thickness with a cloth strip embedded between coats. Allowed to cure 336 hours at 73.4°F, 50%RH)
-Specimens were soaked in tap water at 73.4°F for 168 hours prior to testing.
-Cross Head Speed: 2 in/min.
-Tested at 75°F, 50% RH
-Substrates Tested: Aluminum, Galvanized Steel, Concrete, Sand Bituminous Membrane, and Granule Bituminous Membrane.

Sample	Aluminum, pli	Galv. Steel, pli	Concrete, pli	Sand Bit., pli	Granule Bit., pli
1	6.165	4.979	9.573	2.070	3.318
2	6.112	5.902	7.797	2.328	3.298
3	8.253	4.763	8.436	2.205	3.430
4	5.989	4.414	8.230	2.502	4.276
5	5.323	5.425	7.041	2.125	3.885
6	5.122	5.514	10.772	1.485	4.799
Mean	6.160	5.166	8.642	2.129	3.834
D 6083 Requirement, mean	2.0 pli	2.0 pli	2.0 pli	2.0 pli	2.0 pli

Results: Master Roof meets the requirements of ASTM D 6083 – Table 2 (ASTM C 794 / ASTM D 903)

10.0 Fungi Resistance

By: ASTM D 6083 – Table 2 (ASTM G 21)
-Film Preparation as described in 6.3 of ASTM D 6083 (two coats to yield a finished coat thickness of 20 mils, cured at 25°C (73.4°F) and 50% RH).
-Replicate samples, measuring 1 X 1-inch were exposed to mixed fungal shore suspension consisting of Aspergillus niger, Aureobasidium pullulans, Chaetomium globosum, Gliocladium virens and Penicillium pinophilum.

-Fungal Growth Rating – Zero (Requirement- Zero Rating)

Results: Master Roof meets the requirements of ASTM D 6083 – Table 2 (ASTM G 21)

11.0 Tear Resistance

By: ASTM D 6083 – Table 2 (ASTM D 624)
-Film Preparation as described in 6.3 of ASTM D 6083 (two coats to yield a finished coat thickness of 20 mils, cured at 25°C (73.4°F) and 50% RH).
-Die C
-Test Temperature 75°F (23°C)
-Test Machine – Instron Model 5565

Sample	Tear Strength, lbf/in.
1	78.45
2	78.62
3	77.84
4	75.88
5	73.02
Mean	76.76
D 6083 Requirement	60, minimum

Results: Master Roof meets the requirements of ASTM D 6083 – Table 2 (ASTM D 624)

12.0 Visual Assessment after Xenon Arc Weathering

By: ASTM D 6083 – Table 2 (ASTM D 4798)
-Film Preparation as described in 6.3 of ASTM D 6083 (two coats to yield a finished coat thickness of 20 mils, cured at 25°C (73.4°F) and 50% RH).
-Aging Cycle: ASTM D 4798 (Cycle A, 1000 hours, 63°C, inner and outer borosilicate, 1260KJ/m^2 at 340nm, 151.2 MJ/m^2 at 300 to 400 nm)

-Visual Assessment – No cracking or checking

Results: Master Roof meets the requirements of ASTM D 6083 – Table 2 (ASTM D 4798)

Requirement: No Cracking or Checking

13.0 Low Temperature Flexibility after Xenon Arc Weathering

By: ASTM D 6083 – Table 2 (ASTM D 522)
-Film Preparation as described in 7.8 of ASTM D 6083 (one coat to yield a finished coat thickness of 14 mils to an aluminum substrate, cured at 25°C (73.4°F) and 50% RH for 72 hours followed by 120 hours at 122°F (50°C)).
-Aging Cycle: ASTM D 4798 (Cycle A, 1000 hours, 63°C, inner and outer borosilicate, 1260KJ/m^2 at 340nm, 151.2 MJ/m^2 at 300 to 400 nm)

-Samples exhibited no cracking when bent over a ½" (12.7 mm) mandrel at -15°F (-26°C).

Results: Master Roof meets the requirements of ASTM D 6083 – Table 2 (ASTM D 522)

Requirement: No Cracking

14.0 Reflectance

By: ASTM D 6083 – Table 2 (ASTM D 4798)
-Film Preparation as described in 6.3 of ASTM D 6083 (two coats to yield a finished coat thickness of 20 mils, cured at 25°C (73.4°F) and 50% RH).
-Requirement: None
-Test Machine – D & S Solar Spectrum Reflectometer Model SSR-E
-Total Solar Reflectance: 84.26%

Results: Master Roof meets the requirements of ASTM D 6083 – (ASTM C 1549)

15.0 Emittance

By: ASTM D 6083 – Table 2 (ASTM C1371)
-Film Preparation as described in 6.3 of ASTM D 6083 (two coats to yield a finished coat thickness of 20 mils, cured at 25°C (73.4°F) and 50% RH).
-Requirement: None
-Test Machine – D & S Scaling Digital Voltmeter Model RD1
- Emittance: 0.89

Results: Master Roof meets the requirements of ASTM D 6083 – (ASTM C 1371)

CONCLUSION: **Master Roof meets all requirements of ASTM D 6083.**

Verified by
David W. Dunn
Laboratory Manager

Tested by
Cindy L. Abbott
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