

PRELIMINARY DATA

MANUS-BOND 64A-EPG Tape

1. PRODUCT DESCRIPTION:

Manus Bond 64A-EPG Tape is 100% solids preformed tape based on Ethylene Propylene Rubber. 64A-EPG has excellent adhesion to metals, glass, plastics and other porous and non porous surfaces. Adhesion improves with age and remains permanently flexible, even at low temperatures. Currently under AAMA 804, 806 and 807 testing.

2. TECHNICAL DATA:

Property	Test Method	Typical Value
Color	Visual	Gray, white and black
Solids Content	ASTM C 681	100%
Specific Gravity	ASTM D 71	1.69
Weight per Gallon	ASTM D 71	14.10 lbs.
Cone Penetration Hardness	ASTM D 217	100
Shear Strength		pending
Peel Strength via Climbing Drum	ASTM D1781	12 lbs.
Service Temperature	ASTM D 3359	-60°F—212°F
Shelf Life		1 year minimum when stored at or below 80°F

Note: All statements and information contained herein is published as general information only and is accurate to the best of our knowledge.

MANUS PRODUCTS INC.
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DALLAS LABORATORIES, INC.

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Chemical and Petroleum Chemists

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Submitted by: Manus Products, Inc.
866 Industrial Blvd. West
Waconia, MN 55387

Date: August 24, 2009

Attn: Brian Henjum

Report No: 41321-1A

REPORT

Lab Sample No:

41321-1 Manus Bond 64A, EPG, Black

A. Procedure

Submitted sample was tested according to AAMA 800-08 "Voluntary Specifications and Test Methods for Sealants," to determine compliance with AAMA 804.3-08, "Specification for Back Bedding Mastic Type Glazing Tapes."

B. Results

<u>Test</u>	<u>Observed Results</u>	<u>AAMA 804.3-08 Specification Number & Requirements</u>
2.1.2 Basic Visual Screening	Pass	Section 1.2.4.1 No surface cracks, bond loss, staining, or vehicle bleed.
a. 77±5°F – 21 days	None	
b. 180±5°F – 14 days	None	
c. Ultraviolet Exposure 140±10°F – 21 days	None	
2.2.2 Hardness Evaluation (Shore "OO" Hardness) (Average of 3 readings)	Pass	Section 1.2.4.2.1 Shore "OO" ≤ 80 and no more than 20% from original allowed.
a. 77±5°F – 21 days	72	
b. 180±5°F – 21 days	79 (+6.9% Change)	
2.5 Yield Strength (Average of 2)	Pass	Section 1.2.4.3 Unaged – 24 Hours 6 psi, Report % CS Oven aged – 14 days 6 psi, Report % CS
a. 77±5°F – 24 hours	15.7 lbs/in ² (95% CS)	
b. 180±5°F – 14 days	23.9 lbs/in ² (70% CS)	

<u>Test</u>	<u>Observed Results</u>	<u>AAMA 804.3-08 Specification Number & Requirements</u>
2.7.2 Sag 180±5°F – 14 days	Pass None	Section 1.2.4.4 ≤1/16 inch
2.8.2 Vehicle Migration (Average of 2)	Pass	
a. 77±5°F – 21 days	None/1	Section 1.2.4.5.1 No vehicle migration allowed. Report number of filter papers.
b. 180±5°F – 14 days	None/1	Section 1.2.4.5.2 ≤1/8 inch from edge of tape. Report number of filter papers.
c. Ultraviolet Exposure 140±10°F – 21 days	None/1	Section 1.2.4.5.2 ≤1/8 inch from edge of tape. Report number of filter papers.
2.9.2 Low Temperature Flexibility	Pass	Section 1.2.4.6 No cracks and/or loss of adhesion from the test panel.
2.11.2 Water Resistance	Pass	Section 1.2.4.7 No voids, cracks, separation, or breakdown.
2.13 Backing Removal	Pass	Section 1.2.4.9 Complete removal of backing paper or support. The backing paper or support must not tear or adhere to tape when being removed.

Date Testing Started: 7/27/09

Date Testing Completed: 8/24/09


Date Test Report Expires: 2/24/11

Sampled by: Initial Submittal

Testing Conducted at Dallas Laboratories, Inc., 1323 Wall Street, Dallas, Texas 75215.

The sample, as submitted, was found to comply with the specification requirements of AAMA 804.3-08 "Back Bedding Mastic Type Glazing Tapes."

DALLAS LABORATORIES, INC.


Kevan W. Jones, Vice President

Analyst: GF
KWJ:js

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Submitted by: Manus Products, Inc.
866 Industrial Blvd. West
Waconia, MN 55387

Date: August 24, 2009

Attn: Brian Henjum

Report No: 41321-1B

REPORT

Lab Sample No:

41321-1 Manus Bond 64A, EPG, Black

A. Procedure

Submitted sample was tested according to AAMA 800-08 "Voluntary Specifications and Test Methods for Sealants," to determine compliance with AAMA 806.3-08, "Specification for Back Bedding Mastic Type Glazing Tapes for Use with Architectural Aluminum."

B. Results

<u>Test</u>	<u>Observed Results</u>	<u>AAMA 806.3-08 Specification Number & Requirements</u>
2.1.2 Basic Visual Screening	Pass	Section 1.2.4.1 No surface cracks, bond loss, staining, or vehicle bleed.
a. 77±5°F – 21 days	None	
b. 180±5°F – 14 days	None	
c. Ultraviolet Exposure 140±10°F – 21 days	None	
2.2.2 Hardness Evaluation (Shore "A" Hardness) (Average of 3 readings)	Pass	Section 1.2.4.2.1 Shore "A" ≤ 60 and no more than 30% from original allowed.
a. 77±5°F – 21 days	17	
b. 180±5°F – 21 days	20 (+17.6% Change)	
2.5 Yield Strength (Average of 2)	Pass	Section 1.2.4.3 Unaged – 24 Hours 6 psi, Report % CS Oven aged – 14 days 6 psi, Report % CS
a. 77±5°F – 24 hours	15.7 lbs/in ² (95% CS)	
b. 180±5°F – 14 days	23.9 lbs/in ² (70% CS)	

<u>Test</u>	<u>Observed Results</u>	<u>AAMA 806.3-08 Specification Number & Requirements</u>
2.7.2 Sag 180±5°F – 14 days	Pass None	Section 1.2.4.4 ≤1/16 inch
2.8.2 Vehicle Migration (Average of 2)	Pass	
a. 77±5°F – 21 days	None/1	Section 1.2.4.5.1 No vehicle migration allowed. Report number of filter papers.
b. 180±5°F – 14 days	None/1	Section 1.2.4.5.2 ≤1/8 inch from edge of tape. Report number of filter papers.
c. Ultraviolet Exposure 140±10°F – 21 days	None/1	Section 1.2.4.5.2 ≤1/8 inch from edge of tape. Report number of filter papers.
2.9.2 Low Temperature Flexibility	Pass	Section 1.2.4.6 No cracks and/or loss of adhesion from the test panel.
2.11.2 Water Resistance	Pass	Section 1.2.4.7 No voids, cracks, separation, or breakdown.
2.13 Backing Removal	Pass	Section 1.2.4.9 Complete removal of backing paper or support. The backing paper or support must not tear or adhere to tape when being removed.

Date Testing Started: 7/27/09

Date Testing Completed: 8/24/09


Date Test Report Expires: 2/24/11

Sampled by: Initial Submittal

Testing Conducted at Dallas Laboratories, Inc., 1323 Wall Street, Dallas, Texas 75215.

The sample, as submitted, was found to comply with the specification requirements of AAMA 806.3-08 "Back Bedding Mastic Type Glazing Tapes for Use with Architectural Aluminum."

DALLAS LABORATORIES, INC.


Kevan W. Jones, Vice President

Analyst: GF
KWJ:js

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Submitted by: Manus Products, Inc.
866 Industrial Blvd. West
Waconia, MN 55387

Date: August 24, 2009

Attn: Brian Henjum

Report No: 41321-1C

REPORT

Lab Sample No:

41321-1 Manus Bond 64A, EPG, Black

A. Procedure

Submitted sample was tested according to AAMA 800-08 "Voluntary Specifications and Test Methods for Sealants," to determine compliance with AAMA 807.3-08, "Specification for Back Bedding Mastic Type Glazing Tapes."

B. Results

<u>Test</u>	<u>Observed Results</u>	<u>AAMA 807.3-08 Specification Number & Requirements</u>
2.1.2 Basic Visual Screening	Pass	Section 1.2.4.1 No surface cracks, bond loss, staining, or vehicle bleed.
a. 77±5°F – 21 days	None	
b. 180±5°F – 14 days	None	
c. Ultraviolet Exposure 140±10°F – 21 days	None	
2.2.2 Hardness Evaluation (Shore "OO" Hardness) (Average of 3 readings)	Pass	Section 1.2.4.2.1 Shore "OO" ≤ 80 and no more than 20% from original allowed.
a. 77±5°F – 21 days	72	
b. 180±5°F – 21 days	77 (+6.9% Change)	
2.5 Yield Strength (Average of 2)	Pass	Section 1.2.4.3 Unaged – 24 Hours 6 psi, Report % CS Oven aged – 14 days 6 psi, Report % CS
a. 77±5°F – 24 hours	15.7 lbs/in ² (95% CS)	
b. 180±5°F – 14 days	23.9 lbs/in ² (70% CS)	

<u>Test</u>	<u>Observed Results</u>	<u>AAMA 807.3-08 Specification Number & Requirements</u>
2.7.2 Sag 180±5°F – 14 days	Pass None	Section 1.2.4.4 ≤1/16 inch
2.8.2 Vehicle Migration (Average of 2)	Pass	
a. 77±5°F – 21 days	None/1	Section 1.2.4.5.1 No vehicle migration allowed. Report number of filter papers.
b. 180±5°F – 14 days	None/1	Section 1.2.4.5.2 ≤1/8 inch from edge of tape. Report number of filter papers.
c. Ultraviolet Exposure 140±10°F – 21 days	None/1	Section 1.2.4.5.2 ≤1/8 inch from edge of tape. Report number of filter papers.
2.9.2 Low Temperature Flexibility	Pass	Section 1.2.4.6 No cracks and/or loss of adhesion from the test panel.
2.11.2 Water Resistance	Pass	Section 1.2.4.7 No voids, cracks, separation, or breakdown.
2.13 Backing Removal	Pass	Section 1.2.4.9 Complete removal of backing paper or support. The backing paper or support must not tear or adhere to tape when being removed.

Date Testing Started: 7/27/09

Date Testing Completed: 8/24/09

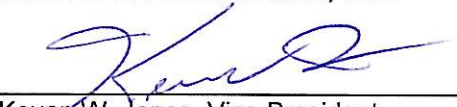
Date Test Report Expires: 2/24/11

Sampled by: Initial Submittal

Testing Conducted at Dallas Laboratories, Inc., 1323 Wall Street, Dallas, Texas 75215.

The sample, as submitted, was found to comply with the specification requirements of AAMA 807.3-08 "Back Bedding Mastic Type Glazing Tapes."

DALLAS LABORATORIES, INC.



Kevan W. Jones, Vice President

Analyst: GF
KWJ:js