

# XEROS HIGH PERFORMANCE WORK WEAR, INC. TEST REPORT

## **SCOPE OF WORK**

Performance Testing of Outershell Material to  
NFPA 1971 *Standard on Protective Ensembles for  
Structural Fire Fighting and Proximity Fire Fighting*,  
2018 Edition, Modified

## **REPORT NUMBER**

103505017CRT-001

## **ISSUE DATE**

September 6, 2018

## **PAGES**

41

## **DOCUMENT CONTROL NUMBER**

RT-L-US-Test-3470 (9/1/2017)

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## TEST REPORT FOR XEROS HIGH PERFORMANCE WORK WEAR, INC.

Report No.: 103505017CRT-001

Date Issued: September 6, 2018

### MANUFACTURER

Xeros Technology Group  
195 Dupont Drive  
Providence, RI 02907  
USA

### TEST STANDARD

NFPA 1971 *Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*,  
2018 Edition, modified as described in the Test Procedure below

### AUTHORIZATION

**Proposal Number:** Qu-00876874

**Date Authorized:** April 17, 2018

### SAMPLE INFORMATION

**Dates Samples Received:** May 11, 2018 (Machine) and May 21, 2018 to June 19, 2018 (Fabric Samples)

**Condition of Samples:** Production Run

**Dates of Testing:** June 7, 2018 to July 30, 2018

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## SECTION 1

### TEST PROCEDURE

Performance testing of Structural Fire Fighting clothing was conducted in accordance with the below test methods of NFPA 1971 *Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*, 2018 Edition, after various laundering conditions.

Testing was done on outershell material, thermal liners, moisture barriers, moisture barrier seams, and reflective trim as outlined below. The number of specimens tested for each condition was in accordance with the annual recertification requirements of NFPA 1971-18 Section 4.4.2(3) and 4.4.2(4).

Two different laundering systems as detailed below were used, each having a sample set taken after 10, 30, and 50 cycles. In accordance with NFPA 1851 *Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*, 2014 Edition, the outershell and reflective trim samples were laundered separately from the thermal liner and moisture barrier samples. In order to create a full laundry load, retired structural firefighting garments were used as ballast material, outershells being separated from thermal liners and thermal liners being turned inside out. In order to maintain the same load size as samples were removed after 10 and 30 cycles, their mass was replaced in the laundry load with 7.5 oz/yd<sup>2</sup> woven 93 percent meta-aramid, 5 percent para-aramid, 2 percent antistat fiber ballast.

Laundered samples were 15 inch square fabric swatches for outershells, and thermal liners; samples for moisture barrier and moisture barrier seams were 15 inch composites of moisture barriers sewn to thermal liners; samples for reflective trim were 12 inch lengths of trim sewn to 15 inch outershell swatches.

OUTERSHELL TESTING	
SECTION	TEST
7.1.3	Flame Resistance 1
7.1.11	Tear Resistance
7.1.18	Water Absorption Resistance
7.2.4	Cleaning Shrinkage Resistance
7.2.5	Breaking Strength

MOISTURE BARRIER TESTING*	
SECTION	TEST
7.1.12	Tear Resistance
7.1.14	Water Penetration Resistance
7.1.15	Liquid Penetration Resistance <sup>1</sup>
7.1.16	Viral Penetration Resistance <sup>1</sup>

<sup>1</sup>Moisture Barrier Seam Testing

THERMAL LINER TESTING**	
SECTION	TEST
7.1.3	Flame Resistance 1
7.1.12	Tear Resistance

REFLECTIVE TRIM TESTING***	
SECTION	TEST
7.2.3	Retroreflectivity and Fluorescence

\*Moisture Barrier Testing reflected in Intertek Test Report 103505017CRT-002

\*\*Thermal Liner Testing reflected in Intertek Test Report 103505017CRT-003

\*\*\*Reflective Trim Testing reflected in Intertek Test Report 103505017CRT-004

## SAMPLE INFORMATION

**Outershell:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Black and Tan)  
 Omni Vantage (Dark Brown and Light Brown)

**Thermal Liner:** Defender™ M SL2

**Moisture Barrier:** Steadair 3000  
 Crosstech Black 2F

**Reflective Trim:** 3 inch Triple Trim Orange with Trim Trax  
 3 inch Perforated Diamond Triple Trim

## LAUNDERING SYSTEMS

### XEROS LAUNDERING SYSTEM

**Machine:** XEROS Model XGQ50FWL-60-215H

**Detergent:** XEROS, INC Pack-1 Laundry Detergent

**Additive:** 100% Corn Oil\*

\*50mL of corn oil used as foam suppression

### XEROS OUTERSHELL LAUNDERING PROGRAM

STEP #	DESCRIPTION	Detergent/Additives
1	Prepare water/detergent	150 mL detergent, 50 mL corn oil
2	Spray in	
3	Prepare extra wash water	
4	Spray in	
5	Top-up water, start beads	
6	First wash	
7	Drain, prepare water/detergent	100 mL detergent
8	Second wash	
9	Drain, prepare rinse water	
10	Spray in	
11	Drain, prepare rinse water	
12	Spray in	
13	Extract, prepare rinse water	
14	Spray in	
15	Prepare rinse water	
16	Spray in	
17	Extract	
18	Remove beads	

Water from cold inlet only

**XEROS LINER SYSTEMS LAUNDERING PROGRAM**

STEP #	DESCRIPTION	Detergent/Additives
1	Prepare water/detergent	150 mL detergent, 50 mL corn oil
2	Spray in	
3	Prepare extra wash water	
4	Spray in	
5	Top-up water, start beads	
6	First wash	
7	Drain, prepare water/detergent	100 mL detergent
8	Second wash	
9	Drain, prepare rinse water	
10	Spray in	
11	Drain, prepare rinse water	
12	Spray in	
13	Extract, prepare rinse water	
14	Spray in	
15	Prepare rinse water	
16	Spray in	
17	Extract	
18	Remove beads	

Water from cold inlet only

**MILNOR LAUNDERING SYSTEM**

**Machine:** Milnor Model 30022V6J

**Detergent:** Citrosqueeze® Personal Protective Clothing & Turnout Gear Cleaner

**Additive:** 100% Corn Oil\*

\*30mL of corn oil used as foam suppression

**MILNOR LAUNDERING PROGRAM**

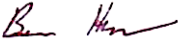
STEP #	DESCRIPTION	Detergent/Additives
1	Water Fill (40°C) / Detergent	177 mL detergent, 30 mL corn oil
2	Wash cycle (15 min)	
3	Drain (1 min)	
4	Low Spin (1 min)	
5	Water Fill (21°C)	
6	Rinse (5 min)	
7	Drain (1 min)	
8	Low Spin (1 min)	
9	Water Fill (21°C)	
10	Rinse (5 min)	
11	Drain (1 min)	
12	Low Spin (1 min)	
13	Water Fill (21°C)	
14	Rinse (6 min)	
15	Drain (1 min)	
16	Low Spin (4 min)	

**SECTION 2**  
**CONCLUSION**

This test report completes the testing covered by Proposal No. Qu-00876874.

If there are any questions regarding the results contained in this report, or any of the other services offered by Intertek, please do not hesitate to contact the undersigned.

Please note: this Test Report does not represent authorization for the use of any Intertek certification marks.

<b>Project Owner:</b>	Benjamin Hanna
<b>Title:</b>	Engineer
<b>Signature:</b>	 <hr/>
<b>Date</b>	<hr/> September 6, 2018

<b>Project Reviewer:</b>	Jason Allen
<b>Title:</b>	Technical Advisor
<b>Signature</b>	 <hr/>
<b>Date:</b>	<hr/> September 7, 2018

**SECTION 3**  
**NFPA 1971-2018 OUTERSHELL TEST DATA SHEETS**

**SECTION 7.1.3**  
**FLAME RESISTANCE TEST 1**

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Tan)  
**TEST METHOD:** In accordance with Section 7.1.3 and Section 8.2  
**CONDITIONING:** In accordance with Section 8.1.3  
**TEAR WEIGHT:** 200 g

**MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	6.9	11	No
2	0.0	9.4	11	No
AVG.	0.0	8.2	11	

**CROSS MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	7.3	11	No
2	0.0	6.9	12	No
AVG.	0.0	7.1	12	

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Tan)  
**TEST METHOD:** In accordance with Section 7.1.3 and Section 8.2  
**CONDITIONING:** Xeros outershell laundering 10 cycles, and in accordance with Section 8.1.3  
**TEAR WEIGHT:** 200 g

**MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	19.5	10	No
2	0.0	16.9	9	No
AVG.	0.0	18.2	10	

**CROSS MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	19.0	10	No
2	0.0	17.2	10	No
AVG.	0.0	18.1	10	

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Tan)

**TEST METHOD:** In accordance with Section 7.1.3 and Section 8.2

**CONDITIONING:** Xeros outershell laundering 30 cycles, and in accordance with Section 8.1.3

**TEAR WEIGHT:** 200 g

**MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	17.4	11	No
2	0.0	19.9	10	No
<b>AVG.</b>	0.0	18.7	11	

**CROSS MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	22.7	11	No
2	0.0	18.8	11	No
<b>AVG.</b>	0.0	20.8	11	

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Tan)

**TEST METHOD:** In accordance with Section 7.1.3 and Section 8.2

**CONDITIONING:** Xeros outershell laundering 50 cycles, and in accordance with Section 8.1.3

**TEAR WEIGHT:** 200 g

**MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	23.4	12	No
2	0.0	21.4	8	No
<b>AVG.</b>	0.0	22.4	10	

**CROSS MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	21.8	14	No
2	0.0	24.4	13	No
<b>AVG.</b>	0.0	23.1	14	



**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Tan)

**TEST METHOD:** In accordance with Section 7.1.3 and Section 8.2

**CONDITIONING:** Milnor outershell laundering 10 cycles, and in accordance with Section 8.1.3

**TEAR WEIGHT:** 200 g

**MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	16.2	9	No
2	0.0	15.5	10	No
<b>AVG.</b>	0.0	15.9	10	

**CROSS MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	16.2	10	No
2	0.0	17.4	11	No
<b>AVG.</b>	0.0	16.8	11	

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Black)

**TEST METHOD:** In accordance with Section 7.1.3 and Section 8.2

**CONDITIONING:** Milnor outershell laundering 30 cycles, and in accordance with Section 8.1.3

**TEAR WEIGHT:** 200 g

**MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	22.4	10	No
2	0.0	25.3	10	No
<b>AVG.</b>	0.0	23.9	10	

**CROSS MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	29.1	10	No
2	0.0	27.7	11	No
<b>AVG.</b>	0.0	28.4	11	

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Black)

**TEST METHOD:** In accordance with Section 7.1.3 and Section 8.2

**CONDITIONING:** Milnor outershell laundering 50 cycles, and in accordance with Section 8.1.3

**TEAR WEIGHT:** 200 g

**MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	24.3	10	No
2	0.0	26.9	11	No
<b>AVG.</b>	0.0	25.6	11	

**CROSS MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	29.3	11	No
2	0.0	27.5	11	No
<b>AVG.</b>	0.0	28.4	11	

Date: September 6, 2018

**SECTION 7.1.3****FLAME RESISTANCE TEST 1****PRODUCT DESCRIPTION:** Omni Vantage (Light Brown)**TEST METHOD:** In accordance with Section 7.1.3 and Section 8.2**CONDITIONING:** In accordance with Section 8.1.3**TEAR WEIGHT:** 200 g**MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	2.6	40	No
2	0.0	1.9	40	No
<b>AVG.</b>	0.0	2.3	40	

**CROSS MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	0.3	30	No
2	0.0	3.1	40	No
<b>AVG.</b>	0.0	1.7	35	

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)**TEST METHOD:** In accordance with Section 7.1.3 and Section 8.2**CONDITIONING:** In accordance with Section 8.1.3**TEAR WEIGHT:** 200 g**MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	22.1	56	No
2	0.0	29.8	61	No
<b>AVG.</b>	0.0	26.0	59	

**CROSS MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	25.5	53	No
2	0.0	29.0	50	No
<b>AVG.</b>	0.0	27.3	52	

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.1.3 and Section 8.2

**CONDITIONING:** Xeros outershell laundering 10 cycles, and in accordance with Section 8.1.3

**TEAR WEIGHT:** 200 g

**MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	17.8	52	No
2	0.0	16.6	55	No
<b>AVG.</b>	0.0	17.2	54	

**CROSS MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	15.6	58	No
2	0.0	19.6	50	No
<b>AVG.</b>	0.0	17.6	54	

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.1.3 and Section 8.2

**CONDITIONING:** Xeros outershell laundering 30 cycles, and in accordance with Section 8.1.3

**TEAR WEIGHT:** 200 g

**MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	20.5	65	No
2	0.0	26.1	56	No
<b>AVG.</b>	0.0	23.3	61	

**CROSS MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	23.8	62	No
2	0.0	22.4	64	No
<b>AVG.</b>	0.0	23.1	63	

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.1.3 and Section 8.2

**CONDITIONING:** Xeros outershell laundering 50 cycles, and in accordance with Section 8.1.3

**TEAR WEIGHT:** 200 g

**MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	17.5	61	No
2	0.0	22.4	65	No
<b>AVG.</b>	0.0	20.0	63	

**CROSS MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	27.1	56	No
2	0.0	32.7	60	No
<b>AVG.</b>	0.0	29.9	58	

**PRODUCT DESCRIPTION:** Omni Vantage (Light Brown)

**TEST METHOD:** In accordance with Section 7.1.3 and Section 8.2

**CONDITIONING:** Milnor outershell laundering 10 cycles, and in accordance with Section 8.1.3

**TEAR WEIGHT:** 200 g

**MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	2.6	35	No
2	0.0	2.0	40	No
<b>AVG.</b>	0.0	2.3	38	

**CROSS MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	3.6	23	No
2	0.0	1.9	40	No
<b>AVG.</b>	0.0	2.8	32	

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.1.3 and Section 8.2

**CONDITIONING:** Milnor outershell laundering 30 cycles, and in accordance with Section 8.1.3

**TEAR WEIGHT:** 200 g

**MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	20.6	70	No
2	0.0	19.3	59	No
<b>AVG.</b>	0.0	20.0	65	

**CROSS MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	13.8	61	No
2	0.0	26.7	60	No
<b>AVG.</b>	0.0	20.3	61	

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.1.3 and Section 8.2

**CONDITIONING:** Milnor outershell laundering 50 cycles, and in accordance with Section 8.1.3

**TEAR WEIGHT:** 200 g

**MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	25.3	65	No
2	0.0	23.6	60	No
<b>AVG.</b>	0.0	24.5	63	

**CROSS MACHINE DIRECTION**

SPECIMEN	AFTERFLAME (sec)	AFTER GLOW (sec)	CHAR LENGTH (mm)	DRIP/MELT (Yes/No)
1	0.0	25.3	57	No
2	0.0	21.1	61	No
<b>AVG.</b>	0.0	23.2	59	

**SECTION 7.1.11**  
**TEAR RESISTANCE TEST**

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Tan)

**TEST METHOD:** In accordance with Section 7.1.11 and Section 8.12

**CONDITIONING:** In accordance with Section 8.1.3

**MACHINE DIRECTION**

	<b>TEARING FORCE (N)</b>		<b>AVG.</b>
<b>PEAK</b>	<b>SPECIMEN 1*</b>	<b>SPECIMEN 2*</b>	
<b>1</b>	630.0	710.7	
<b>2</b>	678.8	749.0	
<b>3</b>	824.0	758.4	
<b>4</b>	882.5	938.6	
<b>5</b>	810.5	945.6	
<b>AVG.</b>	765.2	820.5	792.8

\*Specimen exhibited yarn distortion

**CROSS MACHINE DIRECTION**

	<b>TEARING FORCE (N)</b>		<b>AVG.</b>
<b>PEAK</b>	<b>SPECIMEN 1*</b>	<b>SPECIMEN 2*</b>	
<b>1</b>	617.9	593.8	
<b>2</b>	548.9	570.8	
<b>3</b>	545.9	632.2	
<b>4</b>	869.4	748.6	
<b>5</b>	697.0	872.4	
<b>AVG.</b>	655.8	683.6	669.7

\*Specimen exhibited yarn distortion

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Tan)  
**TEST METHOD:** In accordance with Section 7.1.11 and Section 8.12  
**CONDITIONING:** Xeros outershell laundering 10 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1*	SPECIMEN 2*	
1	565.4	663.7	
2	563.5	643.4	
3	578.5	697.5	
4	649.9	834.5	
5	777.1	879.2	
AVG.	626.9	743.7	685.3

\*Specimen exhibited yarn distortion

**CROSS MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1*	SPECIMEN 2*	
1	599.1	520.9	
2	612.4	493.0	
3	583.1	511.7	
4	625.1	533.6	
5	821.9	680.7	
AVG.	648.3	548.0	598.2

\*Specimen exhibited yarn distortion

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Tan)  
**TEST METHOD:** In accordance with Section 7.1.11 and Section 8.12  
**CONDITIONING:** Xeros outershell laundering 30 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1*	SPECIMEN 2*	
1	627.6	304.9	
2	660.2	290.7	
3	668.0	312.1	
4	696.6	593.0	
5	847.7	847.0	
AVG.	700.0	469.5	584.8

\*Specimen exhibited yarn distortion

**CROSS MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1*	SPECIMEN 2*	
1	528.7	507.5	
2	531.1	507.0	
3	541.5	584.5	
4	657.5	644.0	
5	827.7	782.6	
AVG.	617.3	605.1	611.2

\*Specimen exhibited yarn distortion



**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Tan)  
**TEST METHOD:** In accordance with Section 7.1.11 and Section 8.12  
**CONDITIONING:** Xeros outershell laundering 50 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1*	SPECIMEN 2*	
1	527.0	523.1	
2	648.1	635.1	
3	595.5	665.5	
4	596.5	654.9	
5	563.7	608.2	
AVG.	586.2	617.4	601.8

\*Specimen exhibited yarn distortion

**CROSS MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1*	SPECIMEN 2*	
1	476.6	405.1	
2	485.5	400.6	
3	586.2	428.3	
4	781.2	589.1	
5	735.7	750.8	
AVG.	613.0	514.8	563.9

\*Specimen exhibited yarn distortion

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Black)  
**TEST METHOD:** In accordance with Section 7.1.11 and Section 8.12  
**CONDITIONING:** Milnor outershell laundering 10 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1*	SPECIMEN 2*	
1	635.8	517.9	
2	726.8	543.4	
3	735.6	570.2	
4	781.0	664.6	
5	839.0	849.3	
AVG.	743.6	629.1	686.4

\*Specimen exhibited yarn distortion

**CROSS MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1*	SPECIMEN 2*	
1	551.3	525.8	
2	576.2	562.4	
3	757.7	655.5	
4	770.2	836.0	
5	766.8	806.0	
AVG.	684.4	677.1	680.8

\*Specimen exhibited yarn distortion

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Black)  
**TEST METHOD:** In accordance with Section 7.1.11 and Section 8.12  
**CONDITIONING:** Milnor outershell laundering 30 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1*	SPECIMEN 2*	
1	505.7	260.2	
2	463.5	247.5	
3	480.1	460.4	
4	548.2	525.2	
5	524.8	383.6	
<b>AVG.</b>	504.5	375.4	439.9

\*Specimen exhibited yarn distortion

**CROSS MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1*	SPECIMEN 2*	
1	353.4	419.9	
2	386.5	508.2	
3	410.5	568.1	
4	410.4	646.4	
5	462.9	593.2	
<b>AVG.</b>	404.7	547.2	476.0

\*Specimen exhibited yarn distortion

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Black)  
**TEST METHOD:** In accordance with Section 7.1.11 and Section 8.12  
**CONDITIONING:** Milnor outershell laundering 50 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1*	SPECIMEN 2*	
1	224.3	229.4	
2	248.4	296.5	
3	245.7	252.6	
4	263.6	248.6	
5	242.0	217.5	
<b>AVG.</b>	244.8	248.9	246.9

\*Specimen exhibited yarn distortion

**CROSS MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1*	SPECIMEN 2*	
1	193.2	215.2	
2	245.7	256.6	
3	246.1	255.8	
4	223.2	240.8	
5	275.0	216.3	
<b>AVG.</b>	236.6	236.9	236.8

\*Specimen exhibited yarn distortion

**SECTION 7.1.11**  
**TEAR RESISTANCE TEST**

**PRODUCT DESCRIPTION:** Omni Vantage (Light Brown)

**TEST METHOD:** In accordance with Section 7.1.11 and Section 8.12

**CONDITIONING:** In accordance with Section 8.1.3

**MACHINE DIRECTION**

	<b>TEARING FORCE (N)</b>		<b>AVG.</b>
<b>PEAK</b>	<b>SPECIMEN 1</b>	<b>SPECIMEN 2</b>	
<b>1</b>	112.6	125.2	
<b>2</b>	119.5	121.5	
<b>3</b>	134.1	129.0	
<b>4</b>	141.3	123.2	
<b>5</b>	128.6	119.6	
<b>AVG.</b>	127.2	123.7	125.5

**CROSS MACHINE DIRECTION**

	<b>TEARING FORCE (N)</b>		<b>AVG.</b>
<b>PEAK</b>	<b>SPECIMEN 1</b>	<b>SPECIMEN 2</b>	
<b>1</b>	87.1	87.6	
<b>2</b>	95.8	99.4	
<b>3</b>	86.5	93.3	
<b>4</b>	97.4	87.3	
<b>5</b>	91.0	100.4	
<b>AVG.</b>	91.6	93.6	92.6

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.1.11 and Section 8.12

**CONDITIONING:** In accordance with Section 8.1.3

**MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1	SPECIMEN 2	
1	148.1	145.5	
2	150.8	146.1	
3	171.1	150.9	
4	154.2	149.4	
5	144.9	145.6	
AVG.	153.8	147.5	150.7

**CROSS MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1	SPECIMEN 2	
1	130.4	126.2	
2	134.6	123.0	
3	120.9	119.7	
4	117.2	137.5	
5	134.3	127.2	
AVG.	127.5	126.7	127.1

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.1.11 and Section 8.12

**CONDITIONING:** Xeros outershell laundering 10 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1	SPECIMEN 2	
1	125.4	129.6	
2	125.9	133.8	
3	128.4	128.0	
4	136.0	128.1	
5	136.5	125.7	
AVG.	130.4	129.0	129.7

**CROSS MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1	SPECIMEN 2	
1	120.9	104.7	
2	99.6	101.8	
3	100.0	99.1	
4	99.6	106.4	
5	107.8	99.1	
AVG.	105.6	102.2	103.9

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.1.11 and Section 8.12

**CONDITIONING:** Xeros outershell laundering 30 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1	SPECIMEN 2	
1	129.1	115.2	
2	122.8	117.7	
3	123.0	126.2	
4	123.6	114.4	
5	129.9	119.1	
AVG.	125.7	118.5	122.1

**CROSS MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1	SPECIMEN 2	
1	92.4	99.1	
2	92.6	105.4	
3	98.3	94.6	
4	95.2	93.3	
5	93.9	93.1	
AVG.	94.5	97.1	95.8

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.1.11 and Section 8.12

**CONDITIONING:** Xeros outershell laundering 50 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1	SPECIMEN 2	
1	111.1	110.7	
2	112.9	103.7	
3	116.0	108.7	
4	115.2	104.7	
5	113.1	102.4	
AVG.	113.7	106.0	109.9

**CROSS MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1	SPECIMEN 2	
1	82.6	85.8	
2	82.8	84.4	
3	81.8	87.6	
4	91.8	83.3	
5	83.6	85.5	
AVG.	84.5	85.3	84.9

**PRODUCT DESCRIPTION:** Omni Vantage (Light Brown)

**TEST METHOD:** In accordance with Section 7.1.11 and Section 8.12

**CONDITIONING:** Milnor outershell laundering 10 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1	SPECIMEN 2	
1	90.9	106.0	
2	101.2	114.2	
3	99.0	113.9	
4	91.8	104.9	
5	89.3	104.1	
AVG.	94.4	108.6	101.5

**CROSS MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1	SPECIMEN 2	
1	70.3	81.0	
2	76.3	69.1	
3	74.1	77.3	
4	92.6	81.5	
5	78.5	87.3	
AVG.	78.4	77.2	77.8

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.1.11 and Section 8.12

**CONDITIONING:** Milnor outershell laundering 30 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1	SPECIMEN 2	
1	107.9	107.4	
2	107.8	114.7	
3	111.6	117.3	
4	110.7	125.7	
5	112.8	107.9	
AVG.	110.2	114.6	112.4

**CROSS MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1	SPECIMEN 2	
1	78.4	79.3	
2	77.2	87.5	
3	81.6	80.7	
4	81.6	77.1	
5	83.2	78.5	
AVG.	80.4	80.6	80.5

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.1.11 and Section 8.12

**CONDITIONING:** Milnor outershell laundering 50 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1	SPECIMEN 2	
1	107.6	109.1	
2	109.7	108.3	
3	108.0	113.1	
4	105.1	115.3	
5	102.2	108.9	
<b>AVG.</b>	106.5	110.9	108.7

**CROSS MACHINE DIRECTION**

PEAK	TEARING FORCE (N)		AVG.
	SPECIMEN 1	SPECIMEN 2	
1	68.3	74.2	
2	73.8	77.1	
3	77.1	77.0	
4	74.7	77.7	
5	68.4	80.0	
<b>AVG.</b>	72.5	77.2	74.8

**SECTION 7.1.18  
 WATER ABSORPTION RESISTANCE TEST**

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Tan)  
**TEST METHOD:** In accordance with Section 7.1.18 and Section 8.25  
**CONDITIONING:** In accordance with Section 8.1.3

SPECIMEN	WET WEIGHT (g)	DRY WEIGHT (g)	WATER ABSORPTION (%)
1	2.63	2.60	1.2

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Tan)  
**TEST METHOD:** In accordance with Section 7.1.18 and Section 8.25  
**CONDITIONING:** Xeros outershell laundering 10 cycles, and in accordance with Section 8.1.3

SPECIMEN	WET WEIGHT (g)	DRY WEIGHT (g)	WATER ABSORPTION (%)
1	2.92	2.69	8.6

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Tan)  
**TEST METHOD:** In accordance with Section 7.1.18 and Section 8.25  
**CONDITIONING:** Xeros outershell laundering 30 cycles, and in accordance with Section 8.1.3

SPECIMEN	WET WEIGHT (g)	DRY WEIGHT (g)	WATER ABSORPTION (%)
1	3.15	2.95	6.8

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Tan)  
**TEST METHOD:** In accordance with Section 7.1.18 and Section 8.25  
**CONDITIONING:** Xeros outershell laundering 50 cycles, and in accordance with Section 8.1.3

SPECIMEN	WET WEIGHT (g)	DRY WEIGHT (g)	WATER ABSORPTION (%)
1	3.23	2.99	8.0

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Black)  
**TEST METHOD:** In accordance with Section 7.1.18 and Section 8.25  
**CONDITIONING:** Milnor outershell laundering 10 cycles, and in accordance with Section 8.1.3

SPECIMEN	WET WEIGHT (g)	DRY WEIGHT (g)	WATER ABSORPTION (%)
1	3.03	2.84	6.7

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Black)  
**TEST METHOD:** In accordance with Section 7.1.18 and Section 8.25  
**CONDITIONING:** Milnor outershell laundering 30 cycles, and in accordance with Section 8.1.3

SPECIMEN	WET WEIGHT (g)	DRY WEIGHT (g)	WATER ABSORPTION (%)
1	3.29	2.98	10.4



**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Black)

**TEST METHOD:** In accordance with Section 7.1.18 and Section 8.25

**CONDITIONING:** Milnor outershell laundering 50 cycles, and in accordance with Section 8.1.3

SPECIMEN	WET WEIGHT (g)	DRY WEIGHT (g)	WATER ABSORPTION (%)
1	3.44	3.05	12.8

**SECTION 7.1.18**

**WATER ABSORPTION RESISTANCE TEST**

**PRODUCT DESCRIPTION:** Omni Vantage (Light Brown)

**TEST METHOD:** In accordance with Section 7.1.18 and Section 8.25

**CONDITIONING:** In accordance with Section 8.1.3

SPECIMEN	WET WEIGHT (g)	DRY WEIGHT (g)	WATER ABSORPTION (%)
1	2.81	2.78	1.1

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.1.18 and Section 8.25

**CONDITIONING:** In accordance with Section 8.1.3

SPECIMEN	WET WEIGHT (g)	DRY WEIGHT (g)	WATER ABSORPTION (%)
1	2.65	2.63	0.8

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.1.18 and Section 8.25

**CONDITIONING:** Xeros outershell laundering 10 cycles, and in accordance with Section 8.1.3

SPECIMEN	WET WEIGHT (g)	DRY WEIGHT (g)	WATER ABSORPTION (%)
1	2.91	2.72	7.0

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.1.18 and Section 8.25

**CONDITIONING:** Xeros outershell laundering 30 cycles, and in accordance with Section 8.1.3

SPECIMEN	WET WEIGHT (g)	DRY WEIGHT (g)	WATER ABSORPTION (%)
1	3.08	2.72	13.2

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.1.18 and Section 8.25

**CONDITIONING:** Xeros outershell laundering 50 cycles, and in accordance with Section 8.1.3

SPECIMEN	WET WEIGHT (g)	DRY WEIGHT (g)	WATER ABSORPTION (%)
1	3.30	2.73	20.9

**PRODUCT DESCRIPTION:** Omni Vantage (Light Brown)

**TEST METHOD:** In accordance with Section 7.1.18 and Section 8.25

**CONDITIONING:** Milnor outershell laundering 10 cycles, and in accordance with Section 8.1.3

SPECIMEN	WET WEIGHT (g)	DRY WEIGHT (g)	WATER ABSORPTION (%)
1	3.46	3.05	13.4

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.1.18 and Section 8.25

**CONDITIONING:** Milnor outershell laundering 30 cycles, and in accordance with Section 8.1.3

SPECIMEN	WET WEIGHT (g)	DRY WEIGHT (g)	WATER ABSORPTION (%)
1	3.22	2.73	17.9

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.1.18 and Section 8.25

**CONDITIONING:** Milnor outershell laundering 50 cycles, and in accordance with Section 8.1.3

SPECIMEN	WET WEIGHT (g)	DRY WEIGHT (g)	WATER ABSORPTION (%)
1	3.73	2.77	34.7

**SECTION 7.2.4  
 CLEANING SHRINKAGE RESISTANCE**

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Tan)  
**TEST METHOD:** In accordance with Section 7.2.4 and Section 8.24  
**CONDITIONING:** Xeros outershell laundering 10 cycles, and in accordance with Section 8.1.3

SPECIMEN	1			AVG.
PRE-TEST LENGTH (mm)	255	255	255	255
POST-TEST LENGTH (mm)	251	250	251	251
% CHANGE IN LENGTH	-1.6	-2.0	-1.6	-1.7
PRE-TEST WIDTH (mm)	254	255	255	255
POST-TEST WIDTH (mm)	254	255	254	254
% CHANGE IN WIDTH	0.0	0.0	-0.4	-0.1

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Tan)  
**TEST METHOD:** In accordance with Section 7.2.4 and Section 8.24  
**CONDITIONING:** Xeros outershell laundering 30 cycles, and in accordance with Section 8.1.3

SPECIMEN	1			AVG.
PRE-TEST LENGTH (mm)	255	255	255	255
POST-TEST LENGTH (mm)	249	248	248	248
% CHANGE IN LENGTH	-2.4	-2.7	-2.7	-2.6
PRE-TEST WIDTH (mm)	254	254	254	254
POST-TEST WIDTH (mm)	253	252	253	253
% CHANGE IN WIDTH	-0.4	-0.8	-0.4	-0.5

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Tan)  
**TEST METHOD:** In accordance with Section 7.2.4 and Section 8.24  
**CONDITIONING:** Xeros outershell laundering 50 cycles, and in accordance with Section 8.1.3

SPECIMEN	1			AVG.
PRE-TEST LENGTH (mm)	254	255	255	255
POST-TEST LENGTH (mm)	248	248	249	248
% CHANGE IN LENGTH	-2.4	-2.7	-2.4	-2.5
PRE-TEST WIDTH (mm)	254	255	254	254
POST-TEST WIDTH (mm)	252	252	251	252
% CHANGE IN WIDTH	-0.8	-1.2	-1.2	-1.0

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Black)  
**TEST METHOD:** In accordance with Section 7.2.4 and Section 8.24  
**CONDITIONING:** Milnor outershell laundering 10 cycles, and in accordance with Section 8.1.3

SPECIMEN	1			AVG.
PRE-TEST LENGTH (mm)	254	254	254	254
POST-TEST LENGTH (mm)	249	248	248	248
% CHANGE IN LENGTH	-2.0	-2.4	-2.4	-2.2
PRE-TEST WIDTH (mm)	254	254	253	254
POST-TEST WIDTH (mm)	252	252	252	252
% CHANGE IN WIDTH	-0.8	-0.8	-0.4	-0.7

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Black)  
**TEST METHOD:** In accordance with Section 7.2.4 and Section 8.24  
**CONDITIONING:** Milnor outershell laundering 30 cycles, and in accordance with Section 8.1.3

SPECIMEN	1			AVG.
PRE-TEST LENGTH (mm)	254	254	254	254
POST-TEST LENGTH (mm)	249	248	248	248
% CHANGE IN LENGTH	-2.0	-2.4	-2.4	-2.2
PRE-TEST WIDTH (mm)	254	254	254	254
POST-TEST WIDTH (mm)	249	250	252	250
% CHANGE IN WIDTH	-2.0	-1.6	-0.8	-1.4

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Black)  
**TEST METHOD:** In accordance with Section 7.2.4 and Section 8.24  
**CONDITIONING:** Milnor outershell laundering 50 cycles, and in accordance with Section 8.1.3

SPECIMEN	1			AVG.
PRE-TEST LENGTH (mm)	255	254	255	255
POST-TEST LENGTH (mm)	249	251	250	250
% CHANGE IN LENGTH	-2.4	-1.2	-2.0	-1.8
PRE-TEST WIDTH (mm)	254	254	254	254
POST-TEST WIDTH (mm)	246	246	246	246
% CHANGE IN WIDTH	-3.1	-3.1	-3.1	-3.1

**SECTION 7.2.4  
 CLEANING SHRINKAGE RESISTANCE**

**PRODUCT DESCRIPTION:** Omni Vantage (light brown)

**TEST METHOD:** In accordance with Section 7.2.4 and Section 8.24

**CONDITIONING:** Xeros outershell laundering 10 cycles, and in accordance with Section 8.1.3

<b>SPECIMEN</b>	<b>1</b>			<b>AVG.</b>
<b>PRE-TEST LENGTH (mm)</b>	255	255	255	255
<b>POST-TEST LENGTH (mm)</b>	253	253	253	253
<b>% CHANGE IN LENGTH</b>	-0.8	-0.8	-0.8	-0.8
<b>PRE-TEST WIDTH (mm)</b>	254	255	255	255
<b>POST-TEST WIDTH (mm)</b>	250	251	251	251
<b>% CHANGE IN WIDTH</b>	-1.6	-1.6	-1.6	-1.6

**PRODUCT DESCRIPTION:** Omni Vantage (light brown)

**TEST METHOD:** In accordance with Section 7.2.4 and Section 8.24

**CONDITIONING:** Xeros outershell laundering 30 cycles, and in accordance with Section 8.1.3

<b>SPECIMEN</b>	<b>1</b>			<b>AVG.</b>
<b>PRE-TEST LENGTH (mm)</b>	255	255	255	255
<b>POST-TEST LENGTH (mm)</b>	253	253	254	253
<b>% CHANGE IN LENGTH</b>	-0.8	-0.8	-0.4	-0.7
<b>PRE-TEST WIDTH (mm)</b>	255	255	255	255
<b>POST-TEST WIDTH (mm)</b>	248	249	249	249
<b>% CHANGE IN WIDTH</b>	-2.7	-2.4	-2.4	-2.5

**PRODUCT DESCRIPTION:** Omni Vantage (light brown)

**TEST METHOD:** In accordance with Section 7.2.4 and Section 8.24

**CONDITIONING:** Xeros outershell laundering 50 cycles, and in accordance with Section 8.1.3

<b>SPECIMEN</b>	<b>1</b>			<b>AVG.</b>
<b>PRE-TEST LENGTH (mm)</b>	255	255	255	255
<b>POST-TEST LENGTH (mm)</b>	254	254	253	254
<b>% CHANGE IN LENGTH</b>	-0.4	-0.4	-0.8	-0.5
<b>PRE-TEST WIDTH (mm)</b>	254	255	255	255
<b>POST-TEST WIDTH (mm)</b>	248	249	248	248
<b>% CHANGE IN WIDTH</b>	-2.4	-2.4	-2.7	-2.5

**PRODUCT DESCRIPTION:** Omni Vantage (light brown)

**TEST METHOD:** In accordance with Section 7.2.4 and Section 8.24

**CONDITIONING:** Milnor outershell laundering 10 cycles, and in accordance with Section 8.1.3

SPECIMEN	1			AVG.
PRE-TEST LENGTH (mm)	255	255	256	255
POST-TEST LENGTH (mm)	252	251	253	252
% CHANGE IN LENGTH	-1.2	-1.6	-1.2	-1.3
PRE-TEST WIDTH (mm)	254	255	255	255
POST-TEST WIDTH (mm)	249	248	249	249
% CHANGE IN WIDTH	-2.0	-2.7	-2.4	-2.4

**PRODUCT DESCRIPTION:** Omni Vantage (light brown)

**TEST METHOD:** In accordance with Section 7.2.4 and Section 8.24

**CONDITIONING:** Milnor outershell laundering 30 cycles, and in accordance with Section 8.1.3

SPECIMEN	1			AVG.
PRE-TEST LENGTH (mm)	255	255	255	255
POST-TEST LENGTH (mm)	253	252	253	253
% CHANGE IN LENGTH	-0.8	-1.2	-0.8	-0.9
PRE-TEST WIDTH (mm)	254	254	255	254
POST-TEST WIDTH (mm)	248	247	247	247
% CHANGE IN WIDTH	-2.4	-2.8	-3.1	-2.8

**PRODUCT DESCRIPTION:** Omni Vantage (light brown)

**TEST METHOD:** In accordance with Section 7.2.4 and Section 8.24

**CONDITIONING:** Milnor outershell laundering 50 cycles, and in accordance with Section 8.1.3

SPECIMEN	1			AVG.
PRE-TEST LENGTH (mm)	255	255	256	255
POST-TEST LENGTH (mm)	253	252	253	253
% CHANGE IN LENGTH	-0.8	-1.2	-1.2	-1.0
PRE-TEST WIDTH (mm)	255	255	255	255
POST-TEST WIDTH (mm)	247	246	247	247
% CHANGE IN WIDTH	-3.1	-3.5	-3.1	-3.3

**SECTION 7.2.5  
BREAKING STRENGTH TEST**

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Tan)

**TEST METHOD:** In accordance with Section 7.2.5 and Section 8.50

**CONDITIONING:** In accordance with Section 8.1.3

**MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	1781
2	1698
AVG.	1740

**CROSS MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	1559
2	1665
AVG.	1612

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Tan)

**TEST METHOD:** In accordance with Section 7.2.5 and Section 8.50

**CONDITIONING:** Xeros outershell laundering 10 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	1428
2	1576
AVG.	1502

**CROSS MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	1491
2	1450
AVG.	1470

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Tan)

**TEST METHOD:** In accordance with Section 7.2.5 and Section 8.50

**CONDITIONING:** Xeros outershell laundering 30 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	1293
2	1318
AVG.	1306

**CROSS MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	1600
2	1503
AVG.	1552

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Tan)

**TEST METHOD:** In accordance with Section 7.2.5 and Section 8.50

**CONDITIONING:** Xeros outershell laundering 50 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	1409
2	1279
AVG.	1344

**CROSS MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	1233
2	1341
AVG.	1287



**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Black)

**TEST METHOD:** In accordance with Section 7.2.5 and Section 8.50

**CONDITIONING:** Milnor outershell laundering 10 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	1281
2	1371
AVG.	1326

**CROSS MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	1253
2	1246
AVG.	1250

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Black)

**TEST METHOD:** In accordance with Section 7.2.5 and Section 8.50

**CONDITIONING:** Milnor outershell laundering 30 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	1176
2	1298
AVG.	1237

**CROSS MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	1062
2	1028
AVG.	1045

**PRODUCT DESCRIPTION:** PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Black)

**TEST METHOD:** In accordance with Section 7.2.5 and Section 8.50

**CONDITIONING:** Milnor outershell laundering 50 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	1078
2	1121
AVG.	1100

**CROSS MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	1000
2	1104
AVG.	1052

**SECTION 7.2.5**

**BREAKING STRENGTH TEST**

**PRODUCT DESCRIPTION:** Omni Vantage (Light Brown)

**TEST METHOD:** In accordance with Section 7.2.5 and Section 8.50

**CONDITIONING:** In accordance with Section 8.1.3

**MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	934
2	963
AVG.	948

**CROSS MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	820
2	894
AVG.	857

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.2.5 and Section 8.50

**CONDITIONING:** In accordance with Section 8.1.3

**MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	1229
2	1202
AVG.	1216

**CROSS MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	988
2	997
AVG.	992

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.2.5 and Section 8.50

**CONDITIONING:** Xeros outershell laundering 10 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	1141
2	1055
AVG.	1098

**CROSS MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	1054
2	967
AVG.	1011

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.2.5 and Section 8.50

**CONDITIONING:** Xeros outershell laundering 30 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	1006
2	946
AVG.	976

**CROSS MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	756
2	815
AVG.	786

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.2.5 and Section 8.50

**CONDITIONING:** Xeros outershell laundering 50 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	973
2	901
AVG.	937

**CROSS MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	849
2	760
AVG.	805

**PRODUCT DESCRIPTION:** Omni Vantage (Light Brown)

**TEST METHOD:** In accordance with Section 7.2.5 and Section 8.50

**CONDITIONING:** Milnor outershell laundering 10 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	799
2	677
AVG.	738

**CROSS MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	726
2	699
AVG.	712

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.2.5 and Section 8.50

**CONDITIONING:** Milnor outershell laundering 30 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	887
2	896
AVG.	891

**CROSS MACHINE DIRECTION**

SPECIMEN	BREAKING STRENGTH (N)
1	841
2	830
AVG.	836

**PRODUCT DESCRIPTION:** Omni Vantage (Dark Brown)

**TEST METHOD:** In accordance with Section 7.2.5 and Section 8.50

**CONDITIONING:** Milnor outershell laundering 50 cycles, and in accordance with Section 8.1.3

**MACHINE DIRECTION**

<b>SPECIMEN</b>	<b>BREAKING STRENGTH (N)</b>
1	786
2	902
<b>AVG.</b>	844

**CROSS MACHINE DIRECTION**

<b>SPECIMEN</b>	<b>BREAKING STRENGTH (N)</b>
1	699
2	798
<b>AVG.</b>	748

**SECTION 4**  
**PHOTOGRAPHS**



**OMNI VANTAGE (LIGHT BROWN) CLEANING SHRINKAGE SAMPLES**

**TOP:** XEROS OUTERSHELL LAUNDERING 10 CYCLES, 30 CYCLES, 50 CYCLES

**BOTTOM:** MILNOR OUTERSHELL LAUNDERING 10 CYCLES, 30 CYCLES, 50 CYCLES

**LEFT:** PRISTINE



**PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Tan and Black) CLEANING SHRINKAGE SAMPLES**  
**TOP:** XEROS OUTERSHELL LAUNDERING 10 CYCLES, 30 CYCLES, 50 CYCLES  
**BOTTOM:** MILNOR OUTERSHELL LAUNDERING 10 CYCLES, 30 CYCLES, 50 CYCLES  
**LEFT:** PRISTINE



**OMNI VANTAGE (LIGHT AND DARK BROWN) LAUNDERED FABRIC SWATCHES**  
**TOP:** DARK BROWN PRISTINE, XEROS OUTERSHELL LAUNDERING 10 CYCLES (DARK BROWN), 30 CYCLES (DARK BROWN), 50 CYCLES (DARK BROWN)  
**BOTTOM:** LIGHT BROWN PRISTINE, MILNOR OUTERSHELL LAUNDERING 10 CYLCES (LIGHT BROWN), 30 CYCLES (DARK BROWN), 50 CYCLES (DARK BROWN)





**PBI Max 7.0 oz/yd<sup>2</sup> with Teflon FPPE (Tan and Black) LAUNDERED FABRIC SWATCHES**  
**TOP:** XEROS OUTERSHELL LAUNDERING 10 CYCLES, 30 CYCLES, 50 CYCLES  
**BOTTOM:** MILNOR OUTERSHELL LAUNDERING 10 CYCLES, 30 CYCLES, 50 CYCLES  
**LEFT:** PRISTINE