

INTERTEK TEST REPORT PK

3933 US ROUTE 11

CORTLAND, NEW YORK 13045

Order No. 3188000

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Date: August 19, 2009

REPORT NO.: 3188000CRT-001**RENDERED TO:****LAKELAND INDUSTRIES, INC
701 KOEHLER AVENUE
SUITE 7
RONKONKOMA, NY 11779-7410**

STANDARDS AND TESTS USED: ASTM F 903, Standard Test Method for Resistance of Materials Used in Protective Clothing to Penetration by Liquids, and ASTM F1671, Standard Test Method for Resistance of Materials Used in Protective Clothing to Penetration by Blood-Borne Pathogens Using PHI-X174 Bacteriophage Penetration as a Test System.

AUTHORIZATION: The tests were authorized by Purchase Order Number 01-86476

SPECIMEN DESCRIPTION: The tests were performed on specimens identified by the client as MicroMAX NS G-2, MicroMax Ns M-4 and MicroMax Ns K-6. The samples previously described were received in pristine condition on 8/14/09. The tests were performed at Intertek located in Cortland, NY between the dates of 8/14/09 and 8/19/09.

CONCLUSION: The specimens previously described, submitted by Lakeland Industries Inc., were evaluated in accordance with ASTM F 903 and ASTM F1671. Test data sheets are attached as an appendix (6 pages following).

Tests Conducted by:

Adrian Buzea
Associate Chemist
Performance Group

AB

Report Approved by:

Dean Moran
Technician
Performance Group

**APPENDIX
ASTM F 903
CHEMICAL PENETRATION RESISTANCE**

PRODUCT DESCRIPTION: MicroMAX Ns G-2

TEST DATE: 8/17/09

CONDITIONING: In accordance with Section 4 of FTMS 191A at a temperature $21^{\circ}\text{C} \pm 3^{\circ}\text{C}$ ($70^{\circ}\text{F} \pm 5^{\circ}\text{F}$) and a relative humidity of $65\% \pm 5\%$ until equilibrium is reached or for at least 24 hours, whichever is shorter.

PROCEDURE USED: C – 5 minutes ambient pressure, 1 minute @ 2psig, 54 minutes ambient pressure

CHALLENGE CHEMICAL: Bleach

SUPPLIER: Clorox Company

CONCENTRATION: Neat

CAS NUMBER: Mixture

TEST TEMPERATURE: 23°C

TEST RESULTS	SAMPLE 1	SAMPLE 2	SAMPLE 3	AVERAGE
THICKNESS (mils)	10	9	10	10
TIME TO PENETRATION (min)	>60	>60	>60	

DETECTION ENHANCEMENT: Blotting Paper

Note: Results obtained using a Stainless Steel Retention Screen. Test fail to pressurization time when no screen was used.



MicroMax Ns G-2 without screen shows pinpoint penetration to pressurization. (2psig)

**ASTM F 903
CHEMICAL PENETRATION RESISTANCE**

PRODUCT DESCRIPTION: MicroMAX Ns M-4

TEST DATE: 8/17/09

CONDITIONING: In accordance with Section 4 of FTMS 191A at a temperature $21^{\circ}\text{C} \pm 3^{\circ}\text{C}$ ($70^{\circ}\text{F} \pm 5^{\circ}\text{F}$) and a relative humidity of $65\% \pm 5\%$ until equilibrium is reached or for at least 24 hours, whichever is shorter.

PROCEDURE USED: C – 5 minutes ambient pressure, 1 minute @ 2psig, 54 minutes ambient pressure

CHALLENGE CHEMICAL: Bleach

SUPPLIER: Clorox Company

CONCENTRATION: Neat

CAS NUMBER: Mixture

TEST TEMPERATURE: 23°C

TEST RESULTS	SAMPLE 1	SAMPLE 2	SAMPLE 3	AVERAGE
THICKNESS (mils)	12	10	10	11
TIME TO PENETRATION (min)	>60	>60	>60	

DETECTION ENHANCEMENT: Blotting Paper

Note: Results obtained using a Stainless Steel Retention Screen. Test fail to pressurization time when no screen was used.

**ASTM F 903
CHEMICAL PENETRATION RESISTANCE**

PRODUCT DESCRIPTION: MicroMAX Ns K-6

TEST DATE: 8/17/09

CONDITIONING: In accordance with Section 4 of FTMS 191A at a temperature 21°C ± 3°C (70°F ± 5°F) and a relative humidity of 65% ± 5% until equilibrium is reached or for at least 24 hours, whichever is shorter.

PROCEDURE USED: C – 5 minutes ambient pressure, 1 minute @ 2psig, 54 minutes ambient pressure

CHALLENGE CHEMICAL: Bleach

SUPPLIER: Clorox Company

CONCENTRATION: Neat

CAS NUMBER: Mixture

TEST TEMPERATURE: 23°C

TEST RESULTS	SAMPLE 1	SAMPLE 2	SAMPLE 3	AVERAGE
THICKNESS (mils)	10	10	10	10
TIME TO PENETRATION (min)	<40	<40	<40	

DETECTION ENHANCEMENT: Blotting Paper

Note: Results obtained using a Stainless Steel Retention Screen. Test fail to pressurization time when no screen was used.



MicroMax Ns K-6 testing detail

**ASTM F1671
VIRAL PENETRATION RESISTANCE**

PRODUCT DESCRIPTION: MicroMAX Ns M-4

TEST DATE: 8/19/09

CONDITIONING: 24 hours at 23°C and a relative humidity of 65% .

SPECIMEN EXPOSURE PROCEDURE: B

MATERIAL: Roll Goods

SUPPORT SCREEN: Yes (Stainless Steel Mesh)

ASSAY VOLUME: 5 ml

	PFU/ml		
Positive Control (microporous membrane)	> 150	X Acceptable (valid test)	Unacceptable (repeat test)
Negative Control (mylar film)	0	X Acceptable (valid test)	Unacceptable (repeat test)
E. coli Control (pfu/ml)	0	X Acceptable (valid test)	Unacceptable (repeat test)
Pre-Test Bacteriophage Titer (pfu/ml)	3.0×10^8	X Acceptable (valid test)	Unacceptable (repeat test)
Post-Test Bacteriophage Titer (pfu/ml)	2.6×10^8	X Acceptable (valid test)	Unacceptable (repeat test)
Settle Plates	0	X Acceptable (valid test)	Unacceptable (repeat test)

COMPATIBILITY TEST (CONTROL ASSAY/MATERIAL ASSAY): 1:1

Cell No.	Blank		Cell 1		Cell 2		Cell 3		Avg.
	Plate 1	Plate 2	Plate 1	Plate 2	Plate 1	Plate 2	Plate 1	Plate 2	
No. of Plaques	0	0	0	0	0	0	0	0	
Assay Titer (pfu/mL)	0		0		0		0		0
Sample Thickness (mils)	12		12		12		13		12
Sample Weight (g/m ²)	0.3723		0.3776		0.3702		0.3936		0.3805
Test Terminated due to Liquid Penetration	No		No		No		No		

**ASTM F1671
VIRAL PENETRATION RESISTANCE**

PRODUCT DESCRIPTION: MicroMAX Ns G-2

TEST DATE: 8/19/09

CONDITIONING: 24 hours at 23°C and a relative humidity of 65% .

SPECIMEN EXPOSURE PROCEDURE: B

MATERIAL: Roll Goods

SUPPORT SCREEN: Yes (Stainless Steel Mesh)

ASSAY VOLUME: 5 ml

	PFU/ml		
Positive Control (microporous membrane)	> 150	X Acceptable (valid test)	Unacceptable (repeat test)
Negative Control (mylar film)	0	X Acceptable (valid test)	Unacceptable (repeat test)
E. coli Control (pfu/ml)	0	X Acceptable (valid test)	Unacceptable (repeat test)
Pre-Test Bacteriophage Titer (pfu/ml)	3.0×10^8	X Acceptable (valid test)	Unacceptable (repeat test)
Post-Test Bacteriophage Titer (pfu/ml)	2.6×10^8	X Acceptable (valid test)	Unacceptable (repeat test)
Settle Plates	0	X Acceptable (valid test)	Unacceptable (repeat test)

COMPATIBILITY TEST (CONTROL ASSAY/MATERIAL ASSAY): 1:1

Cell No.	Blank		Cell 1		Cell 2		Cell 3		Avg.
	Plate 1	Plate 2	Plate 1	Plate 2	Plate 1	Plate 2	Plate 1	Plate 2	
No. of Plaques	0	0	0	0	0	0	0	0	
Assay Titer (pfu/mL)	0		0		0		0		0
Sample Thickness (mils)	11		11		10		11		11
Sample Weight (g/m2)	0.3321		0.3387		0.3360		0.3399		0.3382
Test Terminated due to Liquid Penetration	No		No		No		No		

**ASTM F1671
VIRAL PENETRATION RESISTANCE**

PRODUCT DESCRIPTION: MicroMAX Ns K-6

TEST DATE: 8/19/09

CONDITIONING: 24 hours at 23°C and a relative humidity of 65% .

SPECIMEN EXPOSURE PROCEDURE: B

MATERIAL: Roll Goods

SUPPORT SCREEN: Yes (Stainless Steel Mesh)

ASSAY VOLUME: 5 ml

	PFU/ml		
Positive Control (microporous membrane)	> 150	X Acceptable (valid test)	Unacceptable (repeat test)
Negative Control (mylar film)	0	X Acceptable (valid test)	Unacceptable (repeat test)
E. coli Control (pfu/ml)	0	X Acceptable (valid test)	Unacceptable (repeat test)
Pre-Test Bacteriophage Titer (pfu/ml)	3.0×10^8	X Acceptable (valid test)	Unacceptable (repeat test)
Post-Test Bacteriophage Titer (pfu/ml)	2.6×10^8	X Acceptable (valid test)	Unacceptable (repeat test)
Settle Plates	0	X Acceptable (valid test)	Unacceptable (repeat test)

COMPATIBILITY TEST (CONTROL ASSAY/MATERIAL ASSAY): 1:1

Cell No.	Blank		Cell 1		Cell 2		Cell 3		Avg.
	Plate 1	Plate 2	Plate 1	Plate 2	Plate 1	Plate 2	Plate 1	Plate 2	
No. of Plaques	0	0	0	0	0	0	0	0	
Assay Titer (pfu/mL)	0		0		0		0		0
Sample Thickness (mils)	10		10		11		11		11
Sample Weight (g/m ²)	0.3486		0.3500		0.3505		0.3478		0.3494
Test Terminated due to Liquid Penetration	No		No		No		No		