

**Intertek**

**INTERTEK TEST REPORT**

3933 US ROUTE 11

CORTLAND, NEW YORK 13045

*All pages  
June 18 2010  
nyn*

Order No. G100037683

Page 1 of 9

Date: ~~May 3, 2010~~

REPORT NO.: G100037683CRT-001

RENDERED TO:

LAKELAND INDUSTRIES, INC.  
202 PRIDE LANE SOUTH WEST  
DECATUR, AL 35603

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**STANDARD AND TEST USED:**

ASTM F739-07, Standard Test Method for Resistance of Protective Clothing Materials to Permeation by Liquids or Gases Under Conditions of Continuous Contact.

**AUTHORIZATION:**

The tests were authorized by Purchase Order No. 04-87848.


**SPECIMEN DESCRIPTION:**

The tests were performed on a specimen identified by the client as Interceptor (Blue, Laminate.) This report describes the results of ASTM F739-07 that were performed on the specimen previously described and submitted by Lakeland Industries. The sample was received in pristine condition on 2/11/10 and the test evaluations were conducted at Intertek located in Cortland, NY between the dates of 4/9/10 and 4/26/10.

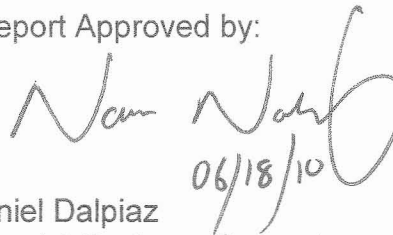
**CONCLUSION:**

The specimen previously described, submitted by Lakeland Industries Inc., was evaluated in accordance with ASTM F739-07, Standard Test Method for Resistance of Protective Clothing Materials to Permeation by Liquids or Gases Under Conditions of Continuous Contact. The test data sheets are attached as an appendix (7 pages following).

Tests Conducted by:

  
6/18/10  
Adrian Buzea  
Associate Chemist/Microbiologist  
Performance Group

Report Approved by:

  
06/18/10  
Daniel Dalpiaz  
Chemist Engineer/Supervisor  
Performance Group

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**APPENDIX  
ASTM F739-07  
CHEMICAL PERMEATION**

**MATERIAL NAME:** Interceptor (Blue, laminate fabric)  
**LOT ID/MFG. DATE:** N/A  
**COLLECTION MEDIUM VOLUME (mL):** N/A  
**COLLECTION MEDIUM FLOW RATE (mL/min):** 100  
**PRIOR CONDITIONING:** >24 hours ambient  
**CHALLENGE CHEMICAL:** Bromochlormethane  
**TEST DATE:** 4/16/10

**TEST TEMPERATURE (°C):** 27°C  
**SAMPLE AREA EXPOSED (cm<sup>2</sup>):** 4.9  
**TEST DURATION:** 8 Hours  
**CONCENTRATION:** 98%  
**CAS NO.:** 74-97-5  
**CHEMICAL SOURCE:** Alfa Aesar

TEST RESULTS	CELL 1	CELL 2	CELL 3	AVG	STD DEV
ACTUAL BREAKTHROUGH TIME (min)	> 480	> 480	> 480	> 480	0
NORMALIZED BREAKTHROUGH TIME (min) Using BT criteria of 0.1 µg/cm <sup>2</sup> /min	> 480	> 480	> 480	> 480	0
BREAKTHROUGH DETECTION TIME (min) (using EN 369 BT criteria if 1.0 µg/cm <sup>2</sup> /min)	> 480	> 480	> 480	> 480	0
PERMEATION RATE: µg/cm <sup>2</sup> /min Steady state rate X Maximum rate	< 0.05	< 0.05	< 0.05	< 0.05	0
UNIT AREA WEIGHT (g/m <sup>2</sup> )	310	303	316	310	6.51
SAMPLE THICKNESS (mils)	25	24	25	25	0.6
Time to 250ug cumulative permeation	>480	>480	>480	>480	0

MODIFICATIONS OF METHOD	1" Cells	TYPE OF CONTACT	Continuous
ANALYTICAL TECHNIQUE	Continuous photoionization	COLLECTION MEDIUM	Nitrogen
SAMPLING FREQUENCY	6 minutes	MIN. DETECTION LIMIT	1 ppm
CHEMICAL STATE	Liquid	MIN. DETECTABLE RATE	0.05 µg/cm <sup>2</sup> /min

**ASTM F739-07  
CHEMICAL PERMEATION**

**MATERIAL NAME:** Interceptor (Blue, laminate fabric)  
**LOT ID/MFG. DATE:** N/A  
**COLLECTION MEDIUM VOLUME (mL):** 2  
**COLLECTION MEDIUM FLOW RATE (mL/min):** N/A  
**PRIOR CONDITIONING:** >24 hours ambient  
**CHALLENGE CHEMICAL:** Chloroacetyl chloride  
**TEST DATE:** 4/15/10

**TEST TEMPERATURE (°C):** 23°C  
**SAMPLE AREA EXPOSED (cm<sup>2</sup>):** 4.9  
**TEST DURATION:** 8 Hours  
**CONCENTRATION:** 98%  
**CAS NO.:** 79-04-9  
**CHEMICAL SOURCE:** Acros

TEST RESULTS	CELL 1	CELL 2	CELL 3	AVG	STD DEV
ACTUAL BREAKTHROUGH TIME (min)	> 480	> 480	> 480	> 480	0
NORMALIZED BREAKTHROUGH TIME (min) Using BT criteria of 0.1µg/cm <sup>2</sup> /min	> 480	> 480	> 480	> 480	0
BREAKTHROUGH DETECTION TIME (min) (using EN 369 BT criteria if 1.0 µg/cm <sup>2</sup> /min)	> 480	> 480	> 480	> 480	0
PERMEATION RATE: µg/cm <sup>2</sup> /min Steady state rate X Maximum rate	< 0.01	< 0.01	< 0.01	< 0.01	0
UNIT AREA WEIGHT (g/m <sup>2</sup> )	323	326	309	319	9.07
SAMPLE THICKNESS (mils)	26	25	25	25	0.6
Time to 250ug cumulative permeation	>480	>480	>480	>480	0

MODIFICATIONS OF METHOD	1" Cells	TYPE OF CONTACT	Continuous
ANALYTICAL TECHNIQUE	Conductivity	COLLECTION MEDIUM	Water
SAMPLING FREQUENCY	15 mins for the 1st hour, 30 mins thereafter	MIN. DETECTION LIMIT	1 ppm
CHEMICAL STATE	liquid	MIN. DETECTABLE RATE	0.01 µg/cm <sup>2</sup> /min

**ASTM F739-07  
CHEMICAL PERMEATION**

**MATERIAL NAME:** Interceptor (Blue, laminate fabric)  
**LOT ID/MFG. DATE:** N/A  
**COLLECTION MEDIUM VOLUME (mL):** 2  
**COLLECTION MEDIUM FLOW RATE (mL/min):** N/A  
**PRIOR CONDITIONING:** >24 hours ambient  
**CHALLENGE CHEMICAL:** Cyclohexylamine  
**TEST DATE:** 4/15/10

**TEST TEMPERATURE (°C):** 23°C  
**SAMPLE AREA EXPOSED (cm<sup>2</sup>):** 4.9  
**TEST DURATION:** 8 Hours  
**CONCENTRATION:** 99%  
**CAS NO.:** 108-91-8  
**CHEMICAL SOURCE:** Acros

TEST RESULTS	CELL 1	CELL 2	CELL 3	AVG	STD DEV
ACTUAL BREAKTHROUGH TIME (min)	> 480	> 480	> 480	> 480	0
NORMALIZED BREAKTHROUGH TIME (min) Using BT criteria of 0.1 µg/cm <sup>2</sup> /min	> 480	> 480	> 480	> 480	0
BREAKTHROUGH DETECTION TIME (min) (using EN 369 BT criteria if 1.0 µg/cm <sup>2</sup> /min)	> 480	> 480	> 480	> 480	0
PERMEATION RATE: µg/cm <sup>2</sup> /min Steady state rate X Maximum rate	< 0.01	< 0.01	< 0.01	< 0.01	0
UNIT AREA WEIGHT (g/m <sup>2</sup> )	317	312	321	317	4.51
SAMPLE THICKNESS (mils)	24	24	25	24	0.6
Time to 250ug cumulative permeation	>480	>480	>480	>480	0

MODIFICATIONS OF METHOD	1" Cells	TYPE OF CONTACT	Continuous
ANALYTICAL TECHNIQUE	Conductivity	COLLECTION MEDIUM	Water
SAMPLING FREQUENCY	15 mins for the 1st hour, 30 mins thereafter	MIN. DETECTION LIMIT	1 ppm
CHEMICAL STATE	liquid	MIN. DETECTABLE RATE	0.01 µg/cm <sup>2</sup> /min

**ASTM F739-07  
CHEMICAL PERMEATION**

**MATERIAL NAME:** Interceptor (Blue, laminate fabric)  
**LOT ID/MFG. DATE:** N/A  
**COLLECTION MEDIUM VOLUME (mL):** 2  
**COLLECTION MEDIUM FLOW RATE (mL/min):** N/A  
**PRIOR CONDITIONING:** >24 hours ambient  
**CHALLENGE CHEMICAL:** Hydrofluoric Acid  
**TEST DATE:** 4/9/10

**TEST TEMPERATURE (°C):** 24°C  
**SAMPLE AREA EXPOSED (cm<sup>2</sup>):** 4.9  
**TEST DURATION:** 8 Hours  
**CONCENTRATION:** 50%  
**CAS NO.:** 7664-39-3  
**CHEMICAL SOURCE:** Fisher

TEST RESULTS	CELL 1	CELL 2	CELL 3	AVG	STD DEV
ACTUAL BREAKTHROUGH TIME (min)	> 480	> 480	> 480	> 480	0
NORMALIZED BREAKTHROUGH TIME (min) Using BT criteria of 0.1µg/cm <sup>2</sup> /min	> 480	> 480	> 480	> 480	0
BREAKTHROUGH DETECTION TIME (min) (using EN 369 BT criteria if 1.0 µg/cm <sup>2</sup> /min)	> 480	> 480	> 480	> 480	0
PERMEATION RATE: µg/cm <sup>2</sup> /min Steady state rate X Maximum rate	< 0.01	< 0.01	< 0.01	< 0.01	0
UNIT AREA WEIGHT (g/m <sup>2</sup> )	310	310	313	311	1.73
SAMPLE THICKNESS (mils)	24	24	24	24	0
Time to 250ug cumulative permeation	>480	>480	>480	>480	0

MODIFICATIONS OF METHOD	1" Cells	TYPE OF CONTACT	Continuous
ANALYTICAL TECHNIQUE	Conductivity	COLLECTION MEDIUM	Water
SAMPLING FREQUENCY	15 mins for the 1st hour, 30 mins thereafter	MIN. DETECTION LIMIT	1 ppm
CHEMICAL STATE	liquid	MIN. DETECTABLE RATE	0.01 µg/cm <sup>2</sup> /min

**ASTM F739-07  
CHEMICAL PERMEATION**

**MATERIAL NAME:** Interceptor (Blue, laminate fabric)  
**LOT ID/MFG. DATE:** N/A  
**COLLECTION MEDIUM VOLUME (mL):** 2  
**COLLECTION MEDIUM FLOW RATE (mL/min):** N/A  
**PRIOR CONDITIONING:** >24 hours ambient  
**CHALLENGE CHEMICAL:** Methacrylic Acid  
**TEST DATE:** 4/9/10

**TEST TEMPERATURE (°C):** 24°C  
**SAMPLE AREA EXPOSED (cm<sup>2</sup>):** 4.9  
**TEST DURATION:** 8 Hours  
**CONCENTRATION:** 99%  
**CAS NO.:** 79-41-4  
**CHEMICAL SOURCE:** Sigma

TEST RESULTS	CELL 1	CELL 2	CELL 3	AVG	STD DEV
ACTUAL BREAKTHROUGH TIME (min)	> 480	> 480	> 480	> 480	0
NORMALIZED BREAKTHROUGH TIME (min) Using BT criteria of 0.1 µg/cm <sup>2</sup> /min	> 480	> 480	> 480	> 480	0
BREAKTHROUGH DETECTION TIME (min) (using EN 369 BT criteria if 1.0 µg/cm <sup>2</sup> /min)	> 480	> 480	> 480	> 480	0
PERMEATION RATE: µg/cm <sup>2</sup> /min Steady state rate X Maximum rate	< 0.01	< 0.01	< 0.01	< 0.01	0
UNIT AREA WEIGHT (g/m <sup>2</sup> )	317	312	315	315	2.52
SAMPLE THICKNESS (mils)	25	24	25	24	0.6
Time to 250ug cumulative permeation	>480	>480	>480	>480	0

MODIFICATIONS OF METHOD	1" Cells	TYPE OF CONTACT	Continuous
ANALYTICAL TECHNIQUE	Conductivity	COLLECTION MEDIUM	Water
SAMPLING FREQUENCY	15 mins for the 1st hour, 30 mins thereafter	MIN. DETECTION LIMIT	1 ppm
CHEMICAL STATE	liquid	MIN. DETECTABLE RATE	0.01 µg/cm <sup>2</sup> /min

**ASTM F739-07  
CHEMICAL PERMEATION**

**MATERIAL NAME:** Interceptor (Blue, laminate fabric)  
**LOT ID/MFG. DATE:** N/A  
**COLLECTION MEDIUM VOLUME (mL):** 2  
**COLLECTION MEDIUM FLOW RATE (mL/min):** N/A  
**PRIOR CONDITIONING:** >24 hours ambient  
**CHALLENGE CHEMICAL:** Oleum  
**TEST DATE:** 4/9/10

**TEST TEMPERATURE (°C):** 24°C  
**SAMPLE AREA EXPOSED (cm<sup>2</sup>):** 4.9  
**TEST DURATION:** 8 Hours  
**CONCENTRATION:** 98%  
**CAS NO.:** 7664-93-9/7446-11-9  
**CHEMICAL SOURCE:** DuPont

TEST RESULTS	CELL 1	CELL 2	CELL 3	AVG	STD DEV
ACTUAL BREAKTHROUGH TIME (min)	> 480	> 480	> 480	> 480	0
NORMALIZED BREAKTHROUGH TIME (min) Using BT criteria of 0.1 µg/cm <sup>2</sup> /min	> 480	> 480	> 480	> 480	0
BREAKTHROUGH DETECTION TIME (min) (using EN 369 BT criteria if 1.0 µg/cm <sup>2</sup> /min)	> 480	> 480	> 480	> 480	0
PERMEATION RATE: µg/cm <sup>2</sup> /min Steady state rate X Maximum rate	< 0.01	< 0.01	< 0.01	< 0.01	0
UNIT AREA WEIGHT (g/m <sup>2</sup> )	328	314	308	317	10.3
SAMPLE THICKNESS (mils)	25	24	23	24	1.0
Time to 250ug cumulative permeation	>480	>480	>480	>480	0

MODIFICATIONS OF METHOD	1" Cells	TYPE OF CONTACT	Continuous
ANALYTICAL TECHNIQUE	Conductivity	COLLECTION MEDIUM	Water
SAMPLING FREQUENCY	15 mins for the 1st hour, 30 mins thereafter	MIN. DETECTION LIMIT	1 ppm
CHEMICAL STATE	liquid	MIN. DETECTABLE RATE	0.01 µg/cm <sup>2</sup> /min



**ASTM F739-07  
CHEMICAL PERMEATION**

**MATERIAL NAME:** Interceptor (Blue, laminate fabric)  
**LOT ID/MFG. DATE:** N/A  
**COLLECTION MEDIUM VOLUME (mL):** 2  
**COLLECTION MEDIUM FLOW RATE (mL/min):** N/A  
**PRIOR CONDITIONING:** >24 hours ambient  
**CHALLENGE CHEMICAL:** Sulfur trioxide  
**TEST DATE:** 4/26/10

**TEST TEMPERATURE (°C):** 24°C  
**SAMPLE AREA EXPOSED (cm<sup>2</sup>):** 4.9  
**TEST DURATION:** 8 Hours  
**CONCENTRATION:** saturated solution  
**CAS NO.:** 7446-11-9  
**CHEMICAL SOURCE:** Acros

TEST RESULTS	CELL 1	CELL 2	CELL 3	AVG	STD DEV
ACTUAL BREAKTHROUGH TIME (min)	> 480	> 480	> 480	> 480	0
NORMALIZED BREAKTHROUGH TIME (min) Using BT criteria of 0.1 µg/cm <sup>2</sup> /min	> 480	> 480	> 480	> 480	0
BREAKTHROUGH DETECTION TIME (min) (using EN 369 BT criteria if 1.0 µg/cm <sup>2</sup> /min)	> 480	> 480	> 480	> 480	0
PERMEATION RATE: µg/cm <sup>2</sup> /min Steady state rate X Maximum rate	< 0.01	< 0.01	< 0.01	< 0.01	0
UNIT AREA WEIGHT (g/m <sup>2</sup> )	310	314	306	310	4.00
SAMPLE THICKNESS (mils)	23	23	22	23	0.6
Time to 250ug cumulative permeation	>480	>480	>480	>480	0

<b>MODIFICATIONS OF METHOD</b>	1" Cells	<b>TYPE OF CONTACT</b>	Continuous
<b>ANALYTICAL TECHNIQUE</b>	Conductivity	<b>COLLECTION MEDIUM</b>	Water
<b>SAMPLING FREQUENCY</b>	15 mins for the 1st hour, 30 mins thereafter	<b>MIN. DETECTION LIMIT</b>	1 ppm
<b>CHEMICAL STATE</b>	Solid, powder	<b>MIN. DETECTABLE RATE</b>	0.01 µg/cm <sup>2</sup> /min