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CNAS L0220

TEST REPORT

Number: GZHT90933190

Applicant: SEES GLOBAL INC.
#713~715 JINHUA BD.,
61 DONGHUA RD.,JIANGMEN,
GUANGDONG,529000 CHINA
Attn: ALISON LIN

Date: Dec 19, 2019

Sample Description:

Five (5) groups of submitted samples said to be:
(A) Thirty-Eight (38) pairs of FB-MX Fire Fighting Gloves in Brown
(B) One (1) piece of Brown Kevlar with Silicone coated fabric used for Palm & Back
(C) One (1) piece of Cognac Kangaroo Leather used for Patch on palm
(D) One (1) piece of Golden PBI fabric used for Cuff & Back
(E) One (1) piece of Yellow fabric with fleece backing used for Lining
(F) Several sets of component material used for Sample A

Standard	:	BS EN 420: 2003+A1: 2009 BS EN 388:2016+A1:2018 / EN 388:2016+A1:2018 BS EN 659:2003+A1:2008
Colors	:	Brown
Buyer	:	FIREBOLT
Size Range	:	XS-XL
Manufacturer	:	SEES GLOBAL INC.
Style Name	:	FB-MX
Palm	:	Silicone Coated Kevlar, Kangaroo Leather
Back	:	PBI, Silicone Coated Kevlar
Cuff	:	PBI
Lining	:	P, M-Aramid
Country Of Origin	:	Vietnam
Goods Exported To	:	Korea
Date Received/Date Test Started:		Dec 02, 2019/Nov 06, 2019
Date Final Information Confirmed/ Date Payment Received:		--/Dec 19, 2019

Test Result Please Refer To Attached Page(S).

Should you have any query on this report, you may contact at gzfootwear@intertek.com

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Tests Conducted (As Requested By The Applicant)

1 Cleaning (BS EN 420: 2003+A1: 2009, 4.4)

Sample (A) & (F)

As Care Instructions Were Provided, The Relevant Tests Of The Specific Standards Were Performed On The Gloves, Before And After They Had Been Subjected To The Maximum Recommended Number Of Cleaning Cycles.

Wash Condition:	
Washing Standard:	ISO 6330:2012
Machine:	Type A
Reagent:	Reference Detergent 3
Washing Procedure:	4H
Bleaching Procedure:	Do Not Bleach
Drying Procedure:	Tumble Drying Possible Low Temperature; Exhaust Temperature Max. 60℃
Ironing Procedure:	Do Not Iron
Professional Textile Care Procedure:	Do Not Dry Clean
Number Of Cycles:	5

2 Design And Construction (BS EN 420: 2003+A1: 2009, 4.1)

	(A)	Requirement	Pass/Fail
	Comply With Requirement	*	Pass

Remark: * = The Protective Glove Shall Be Designed And Manufactured So That In The Foreseeable Conditions Of Use For Which It Is Intended, The User Can Perform The Hazard Related Activity Normally Whilst Enjoying Appropriate Protection At The Highest Possible Level. If Required, The Glove Shall Be Designed To Minimize The Time Needed For Putting On And Taking Off.
When The Glove Construction Includes Seams, The Material And Strength Of The Seams Shall Be Such That The Overall Performance Of The Glove Is Not Significantly Decreased.

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Tests Conducted (As Requested By The Applicant)

3 Sizing (BS EN 420: 2003+A1: 2009, 6.1)

	(A)	Requirement	Pass/Fail
Size XS			
Glove Length:	261 mm	*	-
Corresponding Size:	10		
Size S			
Glove Length:	270 mm	*	-
Corresponding Size:	11		
Size M			
Glove Length:	272 mm	*	-
Corresponding Size:	11		
Size L			
Glove Length:	280 mm	*	-
Corresponding Size (By Extrapolation):	12 (#)		
Size XL			
Glove Length:	282 mm	*	-
Corresponding Size (By Extrapolation):	12 (#)		

Remark:
= The Size Is Derived By Extrapolation Of The Data In Below Table In Accordance With BS EN 420: 2003, 5.1

* = Sizes Of Gloves

Glove Size	Fit	
6	Hands Size 6	Min. 220 mm
7	Hands Size 7	Min. 230 mm
8	Hands Size 8	Min. 240 mm
9	Hands Size 9	Min. 250 mm
10	Hands Size 10	Min. 260 mm
11	Hands Size 11	Min. 270 mm

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4 Finger Dexterity Test (BS EN 420: 2003+A1: 2009, 6.2)

(A)	The Smallest Diameter Of Pin Picked Up
Specimen 1(Left Hand):	9.5 mm
Specimen 2(Right Hand):	9.5 mm
Specimen 3(Left Hand):	9.5 mm
Specimen 4(Right Hand):	9.5 mm
Performance Level:	2 (*)

Remark: * = The Classification Is Determined By The Smallest Diameter Of Pin Picked Up Of The Four Test Specimens.

Remark:

Performance Level	The Smallest Diameter Of Pin Shall Be Picked Up
Level 1	11 mm
Level 2	9.5 mm
Level 3	8 mm
Level 4	6.5 mm
Level 5	5 mm

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5 Abrasion Resistance After Washing (BS EN 388:2016+A1:2018 / EN 388:2016+A1:2018, 6.1, 9 kPa)

Adhesion Contact Time Of Test Specimen With The Double-Sided Adhesive Tape Under A Weight Of A Approximatley 10 Kg	At Least 5 Min
Surface Treatment Of Test Specimen In Order To Improve Adhesion	No Surface Treatment
Abradant	The Klingspor PL 31 B-Grit 180 Grain Aluminium Oxide
Double-Sided Adhesive Tape	3M™ Double-Sided Adhesive Tape

(A)		Specimen 1	Specimen 2	Specimen 3	Specimen 4
Layer 1 (Outer)	Observation After 100 Cycles: After 500 Cycles: After 2000 Cycles:	No Breakthrough No Breakthrough Breakthrough (#1)	No Breakthrough No Breakthrough Breakthrough	No Breakthrough No Breakthrough Breakthrough	No Breakthrough No Breakthrough Breakthrough
Layer 2 (Middle 1)	Observation After 100 Cycles: After 500 Cycles:	Specimen 1 No Breakthrough Breakthrough (#2)	Specimen 2 No Breakthrough Breakthrough (#2)	Specimen 3 No Breakthrough Breakthrough (#2)	Specimen 4 No Breakthrough Breakthrough (#2)
Layer 3 (Middle 2)	Observation After 100 Cycles:	Specimen 1 Breakthrough (#3)	Specimen 2 Breakthrough (#3)	Specimen 3 Breakthrough (#3)	Specimen 4 Breakthrough (#3)
Layer 4 (Inner)	Observation After 100 Cycles: After 500 Cycles:	Specimen 1 No Breakthrough Breakthrough (#4)	Specimen 2 No Breakthrough Breakthrough (#5)	Specimen 3 No Breakthrough Breakthrough (#5)	Specimen 4 No Breakthrough Breakthrough (#5)

	Specimen 1	Specimen 2	Specimen 3	Specimen 4
The Sum Of The Numbers Of Cycles For All Layers:	700	700	700	700

Performance Level: 2 (*)

Remark:
The Minimum Requirements For Each Level:
Level 1: 100 Cycles
Level 2: 500 Cycles
Level 3: 2000 Cycles
Level 4: 8000 Cycles

* = The Classification Is Based On The Sum Of The Numbers Of Cycles For All Layers.

#1= Breakthrough Occurred Before 1500 Cycles
#2= Breakthrough Occurred Before 200 Cycles
#3= Breakthrough Occurred Before 10 Cycles
#4= Breakthrough Occurred Before 400 Cycles
#5= Breakthrough Occurred Before 300 Cycles

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6 Blade Cut Resistance After Washing (BS EN 388:2016+A1:2018 / EN 388:2016+A1:2018, 6.2)

(A)

Specimen 1 (Index)	Specimen 2 (Index)
I_1: 9.5	I_6: 10.1
I_2: 9.0	I_7: 8.8
I_3: 10.8	I_8: 11.5
I_4: 12.2	I_9: 11.2
I_5: 10.7	I_{10}: 12.4
Average Index: 10.4	Average Index: 10.8

The Lowest Average Index: 10.4

Performance Level: 4 (*) & (#)

Remark:
The Minimum Requirements For Each Level:
Level 1: 1.2
Level 2: 2.5
Level 3: 5.0
Level 4: 10.0
Level 5: 20.0

* = The Performance Level Is Defined As The Lowest Average Index Values Of Two Test Specimens From The Different Gloves.
# = In Blade Cut Resistance Test, Test Specimens Did Not Dulled The Blade To Specified Degree. There Is No Need To Be Performed The EN ISO 13997:1999 Cut Resistance Method.

7 Resistance To Cutting By Sharp Objects After Washing (BS EN 388:2016+A1:2018 / EN 388:2016+A1:2018, 6.3 & EN ISO 13997:1999)

(A)

Test Condition:	Temperature (20±2)℃; Relative Humidity (65±4)%
Test Area:	Glove Palm
Blade Sharpness Correction Factor:	0.90

Result:

Normalized Cutting Stroke Length:	19.2 mm
Cutting Force (*):	17.8 N
Performance Level (*1):	Level D

Remark: * = Calculated Force That Would Be Required To Be Applied To A Blade Of Standard Sharpness To Just Cut Through A Material In A Blade Stroke Of Length 20 mm.
*1 = Levels Of Performance For Materials Tested With EN ISO 13997

	Level A	Level B	Level C	Level D	Level E	Level F
6.3 TDM: Cut Resistance (N)	2	5	10	15	22	30

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8 Puncture Resistance After Washing (BS EN 388:2016+A1:2018 / EN 388:2016+A1:2018, 6.5)

	(A)
Specimen 1:	150 N
Specimen 2:	165 N
Specimen 3:	223 N
Specimen 4:	138 N
Performance Level:	3 (*)

Remark:
Level 1: 20 N
Level 2: 60 N
Level 3: 100 N
Level 4: 150 N

Remark: * = The Classification Is Determined By The Lowest Value Of The Four Test Specimens.

9 Tear Resistance After Washing (BS EN 388:2016+A1:2018 / EN 388:2016+A1:2018, 6.4)

	(A)		
	Layer 1 (Outer)	Layer 2 (Inner)	Result (The Max. Force Of All Layers)
Specimen 1:	116 N	87 N	116 N
Specimen 2:	141 N	107 N	141 N
Specimen 3:	147 N	62 N	147 N
Specimen 4:	91 N	80 N	91 N
Performance Level:	4 (*)		

Remark:
The Minimum Requirements For Each Level:
Level 1: 10 N
Level 2: 25 N
Level 3: 50 N
Level 4: 75 N

* = The Classification Is Determined By Taking The Lowest Of The Four Values (Which Are The Highest Values Obtained On All Layers).

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10 Impact Test After Washing (BS EN 388:2016+A1:2018 / EN 388:2016+A1:2018, 6.6 & BS EN 13594:2015, 6.9)

Test Condition:
Mass Of Striker: 2.5 kg
Impact Energy: (5±0.1) J

Sample	Results			Requirement	Pass / Fail
(A)	Test Parts	The Highest Peak Force	Mean Force		
	Knuckles	8.0 kN (#1)	**7.7 kN** (#1)	* (#)	**Fail**
	Performance Level Of Impact Protection				- (#2)

Remark: # = In Addition, No Part Of The Test Piece Shall Crack Or Shatter Producing Sharp Edges, And The Soft Split Leather (Substance 0.8 mm ±0.1 mm) Between The Test Piece And The Anvil Shall Not Be Torn Or Holed.
#1= The Soft Split Leather Beyond The Test Piece Was Not Torn Or Developed Hole.
#2= Below The Minimum Performance Level For The Given Individual Hazard

*= Minimum Level 1 (Requirements Of Impact Attenuation)		
Impact Attenuation Resistance (Knuckles, Back Of The Hand, Palm)	Level 1	Level 2
Single Result	≤ 9.0 kN	≤ 5.0 kN
Mean Transmitted Force	≤ 7.0 kN	≤ 4.0 kN

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Tests Conducted (As Requested By The Applicant)

11 Burning Behaviour (BS EN 659:2003+A1:2008, 3.7 & EN 407:2004, 5.1)

(A)			Requirement	Pass/Fail
Before Washing				
Flame Application Time	3 Seconds	15 Seconds		
After-Flame Time (Seconds)	0	0		
After-Glow Time (Seconds)	0	0		
Observation:	The Outside Material Of The Glove Showed No Sign Of Dripping. The Seam Did Not Come Apart In The Test Area. After Testing, The Innermost Lining Material Showed No Evidence Of Melting.	The Outside Material Of The Glove Showed No Sign Of Dripping. The Seam Did Not Come Apart In The Test Area. After Testing, The Innermost Lining Material Showed No Evidence Of Melting.	*	Pass
Performance Level:		4	Min. Level 4	Pass

After Washing			Requirement	Pass/Fail
Flame Application Time	3 Seconds	15 Seconds		
After-Flame Time (Seconds)	0	0		
After-Glow Time (Seconds)	0	0		
Observation:	The Outside Material Of The Glove Showed No Sign Of Dripping. The Seam Did Not Come Apart In The Test Area. After Testing, The Innermost Lining Material Showed No Evidence Of Melting.	The Outside Material Of The Glove Showed No Sign Of Dripping. The Seam Did Not Come Apart In The Test Area. After Testing, The Innermost Lining Material Showed No Evidence Of Melting.	*	Pass
Performance Level:		4	Min. Level 4	Pass

Remark: * = The Outside Material Of The Glove Shall Not Drip If The Material Melts. The Seam Shall Not Come Apart In The Test Area After An Ignition Time Of 15 S. After Testing, The Innermost Lining Material Shall Be Inspected, It Shall Show No Evidence Of Melting.

Performance Level	After-Flame Time (s)	After-Glow Time (s)
1	⩽ 20	No Requirement
2	⩽ 10	⩽ 120
3	⩽ 3	⩽ 25
4	⩽ 2	⩽ 5

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Tests Conducted (As Requested By The Applicant)

12 Contact Heat (BS EN 659:2003+A1:2008, 3.10 & EN 702:1995)

		(A)	Requirement	Pass/Fail
Before Washing Test Area: Glove Palm				
Dry Conditioning:	Temperature (20±2)℃ Relative Humidity (65±5)% Conditioned for at least 24 h			
Contact Temperature	Threshold Time (t_t)			
250℃	Specimen 1:	37.6 s	⩾ 10 s (*)	Pass
	Specimen 2:	35.2 s	⩾ 10 s (*)	Pass
	Specimen 3:	38.0 s	⩾ 10 s (*)	Pass
	Mean:	37 s		

		(A)	Requirement	Pass/Fail
After Washing Test Area: Glove Palm				
Dry Conditioning:	Temperature (20±2)℃ Relative Humidity (65±5)% Conditioned for at least 24 h			
Contact Temperature	Threshold Time (t_t)			
250℃	Specimen 1:	33.9 s	⩾ 10 s (*)	Pass
	Specimen 2:	35.0 s	⩾ 10 s (*)	Pass
	Specimen 3:	36.2 s	⩾ 10 s (*)	Pass
	Mean:	35 s		

Before Washing
Wet Conditioning: The Gloves Have Been Conditioned As Described In ISO 15383:2001(E), Clause 5.4.3.

Contact Temperature	Threshold Time (t_t)			
250℃	Specimen 1:	23.5 s	⩾ 10 s (*)	Pass
	Specimen 2:	23.4 s	⩾ 10 s (*)	Pass
	Specimen 3:	23.0 s	⩾ 10 s (*)	Pass
	Mean:	23 s		
	The Lowest Mean:	23 s	⩾ 10 s	Pass

After Washing

Contact Temperature	Threshold Time (t_t)			
250℃	Specimen 1:	24.0 s	⩾ 10 s (*)	Pass
	Specimen 2:	22.0 s	⩾ 10 s (*)	Pass
	Specimen 3:	23.2 s	⩾ 10 s (*)	Pass
	Mean:	23 s		
	The Lowest Mean:	23 s	⩾ 10 s	Pass

Remark: * = After Testing, The Innermost Lining Material Shall Be Inspected, It Shall Show No Evidence Of Melting.

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13 Convective Heat (BS EN 659:2003+A1:2008, 3.8 & EN 367:1992)

Before Washing

	Glove Palm (HTI_{24})	Requirement	Pass/Fail
(A)			
Specimen 1:	56.2 Seconds	⩾ 13 Seconds (*)	Pass
Specimen 2:	58.0 Seconds	⩾ 13 Seconds (*)	Pass
Specimen 3:	52.2 Seconds	⩾ 13 Seconds (*)	Pass
Mean:	55 Seconds	⩾ 13 Seconds	Pass
Performance Level:	4	Min. Level 3	Pass
	Glove Back (HTI_{24})	Requirement	Pass/Fail
Specimen 1:	52.0 Seconds	⩾ 13 Seconds (*)	Pass
Specimen 2:	50.6 Seconds	⩾ 13 Seconds (*)	Pass
Specimen 3:	52.3 Seconds	⩾ 13 Seconds (*)	Pass
Mean:	52 Seconds	⩾ 13 Seconds	Pass
Performance Level:	4	Min. Level 3	Pass

After Washing

	Glove Palm (HTI_{24})	Requirement	Pass/Fail
(A)			
Specimen 1:	55.6 Seconds	⩾ 13 Seconds (*)	Pass
Specimen 2:	54.2 Seconds	⩾ 13 Seconds (*)	Pass
Specimen 3:	56.8 Seconds	⩾ 13 Seconds (*)	Pass
Mean:	56 Seconds	⩾ 13 Seconds	Pass
Performance Level:	4	Min. Level 3	Pass
	Glove Back (HTI_{24})	Requirement	Pass/Fail
Specimen 1:	52.6 Seconds	⩾ 13 Seconds (*)	Pass
Specimen 2:	53.8 Seconds	⩾ 13 Seconds (*)	Pass
Specimen 3:	50.9 Seconds	⩾ 13 Seconds (*)	Pass
Mean:	52 Seconds	⩾ 13 Seconds	Pass
Performance Level:	4	Min. Level 3	Pass

Remark: *= After Testing, The Innermost Lining Material Shall Be Inspected, It Shall Show No Evidence Of Melting.

Performance Level	Heat Transfer Index HTI_{24} (S)
1	⩾ 4
2	⩾ 7
3	⩾ 13
4	⩾ 18

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14 Radiant Heat (BS EN 659:2003+A1:2008, 3.9 & EN ISO 6942:2002, Heat Flux Density: 40 kW/m^2)

Before Washing

Test Area: Glove Back	(A) t_{24}	Requirement	Pass/Fail
Specimen 1:	63.6 Seconds	⩾ 18 Seconds (#)	Pass
Specimen 2:	60.1 Seconds	⩾ 18 Seconds (#)	Pass
Specimen 3:	62.2 Seconds	⩾ 18 Seconds (#)	Pass
RHTI 24 (*)	62 Seconds	⩾ 20 Seconds	Pass

After Washing

Test Area: Glove Back	(A) t_{24}	Requirement	Pass/Fail
Specimen 1:	56.2 Seconds	⩾ 18 Seconds (#)	Pass
Specimen 2:	58.6 Seconds	⩾ 18 Seconds (#)	Pass
Specimen 3:	61.0 Seconds	⩾ 18 Seconds (#)	Pass
RHTI 24 (*)	59 Seconds	⩾ 20 Seconds	Pass

Remark: * = The Value Of Radiant Heat Transfer Index (RHTI 24) Is Calculated As The Arithmetic Mean Of Three Values Of t_{24}.
= After Testing, The Innermost Lining Material Shall Be Inspected, It Shall Show No Evidence Of Melting.

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Tests Conducted (As Requested By The Applicant)

15 Heat Resistance Of The Lining Material (BS EN 659:2003+A1:2008, 3.11, ISO 17493:2000, 180℃, 5 Minutes)

Before Washing

	(A)	Requirement	Pass/Fail
Lining Material Closet To The Skin			
Specimen 1:	The Specimen Showed No Melting, Dripping Or Ignition	*	Pass
Specimen 2:	The Specimen Showed No Melting, Dripping Or Ignition	*	Pass
Specimen 3:	The Specimen Showed No Melting, Dripping Or Ignition	*	Pass

After Washing

	(A)	Requirement	Pass/Fail
Lining Material Closet To The Skin			
Specimen 1:	The Specimen Showed No Melting, Dripping Or Ignition	*	Pass
Specimen 2:	The Specimen Showed No Melting, Dripping Or Ignition	*	Pass
Specimen 3:	The Specimen Showed No Melting, Dripping Or Ignition	*	Pass

Remark: * = The Specimen Shall Not Melt, Drip Or Ignite.

16 Heat Shrinkage (BS EN 659:2003+A1:2008, 3.12 & ISO 17493:2000, 180℃, 5 Minutes)

Before Washing

	(A)		Requirement	Pass/Fail
	Glove Length	Glove Width		
Specimen 1:	-1.0%	-0.8%	*	Pass
Specimen 2:	-1.6%	-1.0%	*	Pass
Specimen 3:	-1.5%	-1.1%	*	Pass

After Washing

	(A)		Requirement	Pass/Fail
	Glove Length	Glove Width		
Specimen 1:	-1.0%	-1.5%	*	Pass
Specimen 2:	-1.2%	-1.0%	*	Pass
Specimen 3:	-1.0%	-0.8%	*	Pass

Remark: * = The Specimen Shall Not Shrink More Than 5%.
(-) Means Shrinkage.

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17 Seam Breaking Strength (BS EN 659:2003+A1:2008, 3.14 & EN ISO 13935-2:1999)

Before Washing

	(A)	Requirement	Pass/Fail
Specimen 1:	550 N	Min. 350 N	Pass
Specimen 2:	520 N	Min. 350 N	Pass
Specimen 3:	890 N	Min. 350 N	Pass
Specimen 4:	470 N	Min. 350 N	Pass
Specimen 5:	480 N	Min. 350 N	Pass
Mean:	580 N	Min. 350 N	Pass

After Washing

	(A)	Requirement	Pass/Fail
Specimen 1:	800 N	Min. 350 N	Pass
Specimen 2:	520 N	Min. 350 N	Pass
Specimen 3:	440 N	Min. 350 N	Pass
Specimen 4:	460 N	Min. 350 N	Pass
Specimen 5:	510 N	Min. 350 N	Pass
Mean:	550 N	Min. 350 N	Pass

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18 Time For The Removal Of The Gloves (BS EN 659:2003+A1:2008, 3.15)

Before Washing

	(A)	Requirement	Pass/Fail
After Dry Conditioning (20±2℃, 65±5% R.H, 24 Hours):			
Sample 1:	1 Second		
Sample 2:	1 Second		
Sample 3:	1 Second		
Mean:	1 Second	Max. 3 seconds	Pass
After Wet Conditioning (Immerse In Water At 20±2℃ For 2 Min, Remove And Hung In Vertical Position For 5 Min):			
Sample 1:	2 Seconds		
Sample 2:	2 Seconds		
Sample 3:	2 Seconds		
Mean:	2 Seconds	Max. 3 seconds	Pass

After Washing

	(A)	Requirement	Pass/Fail
After Dry Conditioning (20±2℃, 65±5% R.H, 24 Hours):			
Sample 1:	1 Second		
Sample 2:	1 Second		
Sample 3:	1 Second		
Mean:	1 Second	Max. 3 seconds	Pass
After Wet Conditioning (Immerse In Water At 20±2℃ For 2 Min, Remove And Hung In Vertical Position For 5 Min):			
Sample 1:	2 Seconds		
Sample 2:	2 Seconds		
Sample 3:	3 Seconds		
Mean:	2 Seconds	Max. 3 seconds	Pass

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19 Resistance Of Glove Material To Water Penetration For Textile (BS EN 659:2003+A1:2008, 3.16 & BS EN ISO 811:2018, Pressure Gradient At 60 mbar/min Water Pressure)

Before Washing

	(F)	Requirement	Pass/Fail
Specimen 1:	> 5000 mm H_2O	-	-
Specimen 2:	> 5000 mm H_2O	-	-
Specimen 3:	> 5000 mm H_2O	-	-
Specimen 4:	> 5000 mm H_2O	-	-
Specimen 5:	> 5000 mm H_2O	-	-
Mean:	> 5000 mm H_2O	-	-

After Washing

		Requirement	Pass/Fail
Specimen 1:	> 5000 mm H_2O	-	-
Specimen 2:	> 5000 mm H_2O	-	-
Specimen 3:	> 5000 mm H_2O	-	-
Specimen 4:	> 5000 mm H_2O	-	-
Specimen 5:	> 5000 mm H_2O	-	-
Mean:	> 5000 mm H_2O	-	-

20 Whole Glove Integrity Test (BS EN 659:2003+A1:2008, 3.17 & ISO 15383:2001, 6.4.3 Annex A)

Before Washing

Sample	Size	Results		Requirement	Pass/Fail
(A)	XS	Left	No Leakage	*	Pass
		Right	No Leakage	*	Pass
	L	Left	No Leakage	*	Pass
		Right	No Leakage	*	Pass
	XL	Left	No Leakage	*	Pass
		Right	No Leakage	*	Pass

After Washing

Sample	Size	Results		Requirement	Pass/Fail
(A)	XS	Left	No Leakage	*	Pass
		Right	No Leakage	*	Pass
	L	Left	No Leakage	*	Pass
		Right	No Leakage	*	Pass
	XL	Left	No Leakage	*	Pass
		Right	No Leakage	*	Pass

Remark: *= No Leaks Present After 5 Minutes

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21 pH Value

As Per BS EN 420: 2003+A1: 2009, 4.3.2, With Reference To BS EN ISO 3071:2006 For Textile, KCl Solution Was Used For Extraction, pH Value Was Measured By pH Meter.

As Per BS EN 420: 2003+A1: 2009, 4.3.2, With Reference To EN ISO 4045:2008 For Leather, pH Value Was Measured By pH Meter.

Tested Components	Results	Requirement
(1)	6.2	*
(2)	3.60	*
(3)	5.8	*
(4)	6.5	*
(5)	5.6	*
(6)	4.9	*
(7)	5.4	*

Temperature Of The Extracting Solution: 23.3℃
pH Of The Extracting Solution: 6.52

Remark: * = The pH Value Shall Be Greater Than 3.5 And Less Than 9.5 And For Method EN ISO 4045:2008 The Difference Figure Do Not Need To Test.

Tested Components: Please See Component List In The Last Section Of This Report.

Conclusion:

Standard	Result
BS EN 420: 2003+A1: 2009 For pH Value	Pass

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Tests Conducted (As Requested By The Applicant)

22 Detection Of Amines Derived From Azocolourants and Azodyes

With Reference To Test Method: Textile Method (EN 14362-1: 2012)
Leather Method (ISO 17234-1:2010)
P-Aminoazobenzene (ISO 17234-2:2011)

Amines Content Was Determined By Gas Chromatography-Mass Spectrometry (GC-MS)

	Forbidden Amine	CAS No.	Result (mg/kg)						
			(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	4-Aminodiphenyl	92-67-1	ND	ND	ND	ND	ND	ND	ND
2.	Benzidine	92-87-5	ND	ND	ND	ND	ND	ND	ND
3.	4-Chloro-o-toluidine	95-69-2	ND	ND	ND	ND	ND	ND	ND
4.	2-Naphthylamine	91-59-8	ND	ND	ND	ND	ND	ND	ND
5.	o-Aminoazotoluene	97-56-3	ND	ND	ND	ND	ND	ND	ND
6.	2-Amino-4-nitrotoluene	99-55-8	ND	ND	ND	ND	ND	ND	ND
7.	p-Chloroaniline	106-47-8	ND	ND	ND	ND	ND	ND	ND
8.	2,4-Diaminoanisole	615-05-4	ND	ND	ND	ND	ND	ND	ND
9.	4,4'-Diaminodiphenylmethane	101-77-9	ND	ND	ND	ND	ND	ND	ND
10.	3,3'-Dichlorobenzidine	91-94-1	ND	ND	ND	ND	ND	ND	ND
11.	3,3'-Dimethoxybenzidine	119-90-4	ND	ND	ND	ND	ND	ND	ND
12.	3,3'-Dimethylbenzidine	119-93-7	ND	ND	ND	ND	ND	ND	ND
13.	3,3'-Dimethyl-4,4'diaminodiphenylmethane	838-88-0	ND	ND	ND	ND	ND	ND	ND
14.	p-Cresidine	120-71-8	ND	ND	ND	ND	ND	ND	ND
15.	4,4'-Methylene-bis(2-chloroaniline)	101-14-4	ND	ND	ND	ND	ND	ND	ND
16.	4,4'-Oxydianiline	101-80-4	ND	ND	ND	ND	ND	ND	ND
17.	4,4'-Thiodianiline	139-65-1	ND	ND	ND	ND	ND	ND	ND
18.	o-Toluidine	95-53-4	ND	ND	ND	ND	ND	ND	ND
19.	2,4-Toluylenediamine	95-80-7	ND	ND	ND	ND	ND	ND	ND
20.	2,4,5-Trimethylaniline	137-17-7	ND	ND	ND	ND	ND	ND	ND
21.	o-Anisidine	90-04-0	ND	ND	ND	ND	ND	ND	ND
22.	4-Aminoazobenzene	60-09-3	ND	ND	ND	ND	ND	ND	ND

Remark: ND = Not Detected
Detection Limit = 5 mg/kg
Limit = 30 mg/kg

Tested Components: Please See Component List In The Last Section Of This Report.

Conclusion:

Standard	Result
REACH Regulation (EC) No.1907/2006 Annex XVII Item 43 and its Amendments No. 552/2009 and 126/2013 (Formerly Known As Directive 2002/61/EC)	Pass

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23 Chromium (Vi)(Cr(Vi)) Content

As Per BS EN 420: 2003+A1: 2009, 4.3.3, With Reference To BS EN ISO 17075:2007, The Hexavalent Chromium Content Was Determined By UV-Visible Spectrophotometry.

Tested Component	Result (mg/kg)	Requirement
(2)	ND	ND (< 3 mg/kg)

Remark: Detection Limit = 3 mg/kg
ND = Not Detected
mg/kg = milligram per kilogram

Tested Component: Please See Component List In The Last Section Of This Report.

Conclusion:

Standard	Result
BS EN 420: 2003+A1: 2009 For Chromium (Vi) Content	Pass

24 Pentachlorophenol (PCP) Content:

With Reference To ISO 17070:2015, Analysis By Gas Chromatographic-Mass Spectrometric (GC-MS)

Tested Component	Result In mg/kg	Limit In mg/kg
(2)	ND	5

Remark: Detection Limit = 0.5 mg/kg
ND=Not Detected

Tested Component: Please See Component List In The Last Section Of This Report.

Conclusion:

Test Item	Result
Pentachlorophenol (PCP) Content	Pass

Component List:
(1) Brown Kevlar With Silicone Coated Fabric (Sample B).
(2) Dark Brown Cognac Kangaroo Leather (Sample C).
(3) Golden Fbi Fabric (Sample D).
(4) Yellow Fabric With Fleece Backing (Sample E).
(5) Black Velcro (Hook Of Fastener Of Sample A).
(6) Black Velcro (Loop Of Fastener Of Sample A).
(7) Silvery Retroreflective Tap With Black/Red Printing (Patch On Cuff Of Sample A).

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End Of Report

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