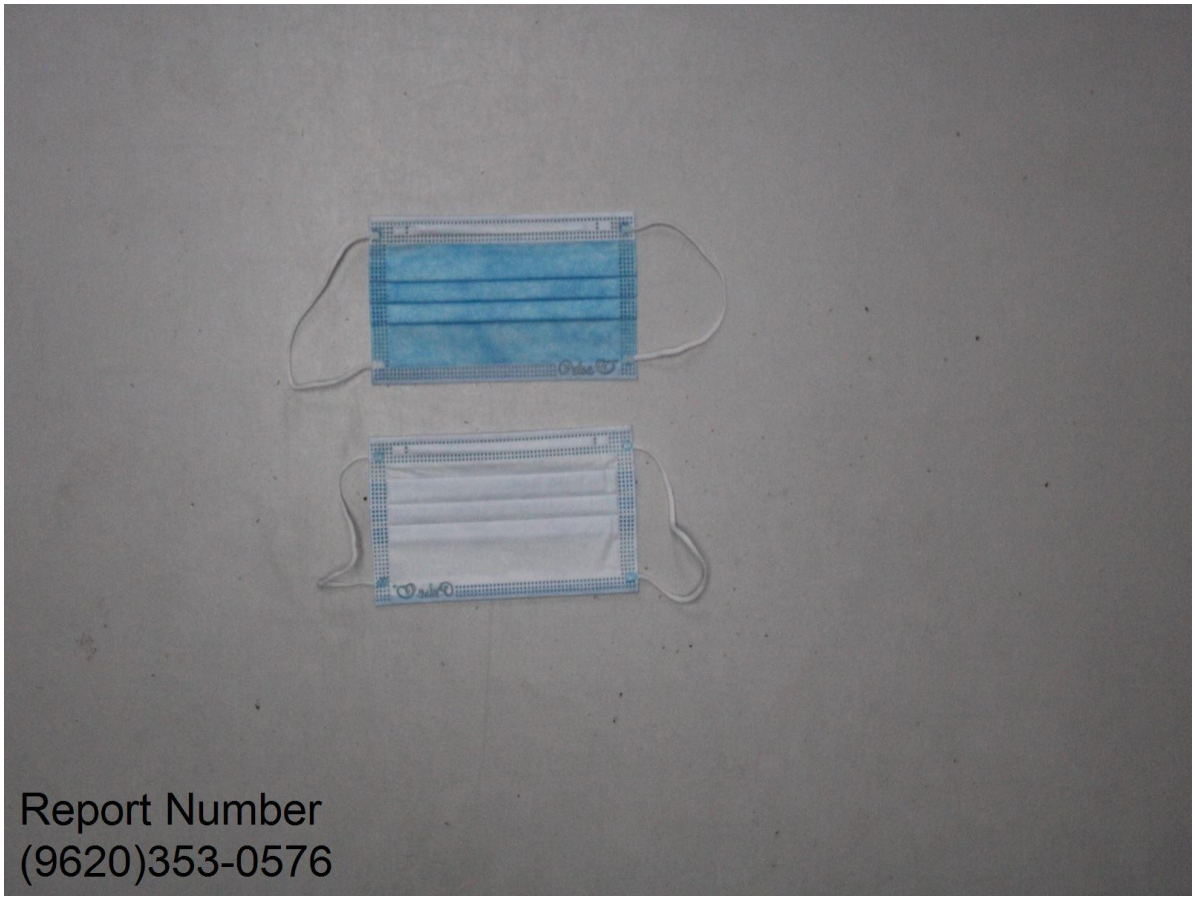
TEST REPORT

Technical Report: (9620)353-0576

January 18, 2021



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TEST REPORT

IMPULSE FASHION VIETNAM GARMENT EXPORTING LIMITED COMPANY
1482 TINH LO 8 STREET, TAN THANH DONG VILLAGE, CU CHI DISTRICT, HCM CITY

ATTN : ANA

LAB NO.:	(9620)353-0576
FORM NO.:	/
DATE IN:	Dec 18, 2020
MODIFIED DATE IN:	Dec 26, 2020
DATE OUT:	Jan 18, 2021
BUYER:	/
NO. OF WORKING DAYS:	18
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OVERALL RATING **PASS**

Vendor:	/	**Agent:**	/
Fabric Supplier/Mill:	/	**Factory/Manufacturer:**	/
P.O. No.:	/	**Style No.:**	PULSE + MASK -004
Sample Description:	NON-WOVEN MEDICAL MASK 4 PLY (5S) 1ST PLY: PP 30GSM 2ND PLY: SMS 25GSM 3RD PLY: MELT BLOWN 25GSM 4TH PLY: PP 30GSM		
Color:	BLUE	**Country of Destination:**	US, EU
Claimed Fabric Weight:	1ST & 3RD PLY: 25 GSM 2ND & 4TH PLY: 30GSM	**Claimed Fabric Count:**	/

Product Category	MASK COVER
Test Requested	INDIVIDUAL TESTS PER VENDOR'S REQUEST FOR FURTHER DETAILS, PLEASE REFER TO THE FOLLOWING PAGE(S).
Previous Report No.	/

Submitted Fiber Content	1ST, 2ND, 4TH PLY: NON WOVEN, PP 3RD PLY : NON-WOVEN, MELT BLOWN
Actual Fiber Content	/
Suggested Fiber Content	/
Submitted Care Instruction(s)	NO WASHING
Client Expected Care Instruction	/
Suggested Care Instruction(s)	/

C/N

TEST PROPERTY	COMMENTS
DIFFERENTIAL PRESSURE	PASS (LEVEL 3)
FLAMMABILITY OF CLOTHING TEXTILES	PASS
BARRIER TEST – PARTICLE FILTRATION EFFICIENCY (PFE %)	PASS (LEVEL 3)
BACTERIAL FILTRATION EFFICIENCY (BFE) TEST (a)	PASS (LEVEL 3)
SPLASH RESISTANCE (a)	PASS (LEVEL 3, Type IIR)

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BUREAU VERITAS CPS VIETNAM LTD.

MANDY TRUONG
LAB MANAGER - SOFTLINES

C/N

TEST RESULTS

TEST PROPERTY			**REQUIREMENTS**
DIFFERENTIAL PRESSURE (BS EN 14683: 2019 ANNEX C, FLOW RATE 8 L PER MIN)			
(Pa/ cm^2)			Type IIR: < 60 Pa/cm^2
1.		63	
2.		59.7	
3.		54.8	
4.		59.0	
5.		58.6	
Avg.		59.0	
FLAMMABILITY OF CLOTHING TEXTILES(16 CFR 1610)			
SHELL			
FABRIC SURFACE	PLAIN FIBER SURFACE		
DIRECTION TO BE TESTED	FACE LENGTHWISE		
AS RECEIVED		TIME OF FLAME SPREAD	BURNING CODE
	1	/	IBE
	2	/	IBE
	3	/	IBE
	4	/	IBE
	5	/	IBE
	AVG		
CLASSIFICATION	THE TESTING CONDUCTED AS RECEIVED ONLY. GARMENTS "DAMAGED" BY REFURBISHING PASS CLASS 1, NORMAL FLAMMABILITY OF COMMERCIAL STANDARD 16 CFR 1610, FORMERLY 191-53 OF UNITED STATES FLAMMABILITY FABRIC ACT.		CLASS 1
LINING			
FABRIC SURFACE	PLAIN FIBER SURFACE		
DIRECTION TO BE TESTED	FACE LENGTHWISE		
AS RECEIVED		TIME OF FLAME SPREAD	BURNING CODE
	1	/	IBE
	2	/	IBE
	3	/	IBE
	4	/	IBE
	5	/	IBE
	AVG		
CLASSIFICATION	THE TESTING CONDUCTED AS RECEIVED ONLY. GARMENTS "DAMAGED" BY REFURBISHING PASS CLASS 1, NORMAL FLAMMABILITY OF COMMERCIAL STANDARD 16 CFR 1610, FORMERLY 191-53 OF UNITED STATES FLAMMABILITY FABRIC ACT.		CLASS 1

TEST RESULTS

TEST PROPERTY	**REQUIREMENTS**
DNI	DID NOT IGNITE.
IBE	IGNITED, BUT EXTINGUISHED.
SF uc	SURFACE FLASH, UNDER THE STOP THREAD, BUT DOES NOT BREAK THE STOP THREAD.
SF pw	SURFACE FLASH, PART WAY. NO TIME SHOWN BECAUSE THE SURFACE FLASH DID NOT REACH THE STOP THREAD.
SF poi	SURFACE FLASH, AT THE POINT OF IMPINGEMENT ONLY. (EQUIVALENT TO “DID NOT IGNITE” FOR PLAIN SURFACES.)
0.0 sec.	ACTUAL BURN TIME MEASURED AND RECORDED BY THE TIMING DEVICE.
0.0 SF only	TIME IN SECONDS, SURFACE FLASH ONLY. NO DAMAGE TO THE BASE FABRIC.
0.0 SFBB	TIME IN SECONDS, SURFACE FLASH BASE BURN STARTING AT PLACES OTHER THAN THE POINT OF IMPINGEMENT AS A RESULT OF SURFACE FLASH.
0.0 SFBB poi	TIME IN SECONDS, SURFACE FLASH BASE BURN STARTING AT THE POINT OF IMPINGEMENT. THIS RESULT DOES NOT QUALIFY AS A BASE BURN UNDER THE CURRENT INTERPRETATION OF PART OF 16 CFR PART 1610.
0.0 SFBB poi*	TIME IN SECONDS, SURFACE FLASH BASE BURN POSSIBLY STARTING AT THE POINT OF IMPINGEMENT. THE ASTERISK (*) IS ACCOMPANIED BY THE FOLLOWING STATEMENT: “UNABLE TO MAKE ABSOLUTE DETERMINATION AS TO SOURCE OF BASE BURNS.” THIS STATEMENT IS ADDED TO THE RESULT OF ANY SPECIMEN IF THERE IS A QUESTION AS TO ORIGIN OF THE BASE BURN.

TEST RESULTS

BARRIER TEST – PARTICLE FILTRATION EFFICIENCY (PFE %)

Summary: This procedure was performed to evaluate the non-viable particle filtration efficiency (PFE) of the test article. Monodispersed polystyrene latex spheres (PSL) were nebulized (atomized), dried, and passed through the test article. The particles that passed through the test article were enumerated using a laser particle counter.

A one-minute count was performed, with the test article in the system. A one-minute control count was performed, without a test article in the system, before and after each test article. Control counts were performed to determine the average number of particles delivered to the test article. The filtration efficiency was calculated using the number of particles penetrating the test article compared to the average of the control values. During testing and controls, the air flow rate is maintained at 1 cubic foot per minute (CFM) ± 5%.

The procedure employed the basic particle filtration method described in ASTM F2299, with some exceptions; notably the procedure incorporated a non-neutralized challenge. In real use, particles carry a charge, thus this challenge represents a more natural state. The non-neutralized aerosol is also specified in the FDA guidance document on surgical face masks. All test method acceptance criteria were met. Testing was performed in compliance with US FDA good manufacturing practice (GMP) regulations 21 CFR Parts 210, 211 and 820.

Test Side:	Inside
Area Tested:	91.5 cm^2
Particle Size:	0.1 µm
Laboratory Conditions:	21.7°C, 22% relative humidity (RH) at 2051; 21.9°C, 22% RH at 2140
Average Filtration Efficiency:	99.895%
Standard Deviation:	0.0547

Results:

Test Article Number	Test Article Counts	Average Control Counts	Filtration Efficiency (%)
1	12	11,026	99.89
2	22	11,281	99.80
3	11	11,847	99.907
4	6	11,338	99.947
5	8	10,844	99.926

Requirement: ≥98%

TEST RESULTS

TEST PROPERTY **REQUIREMENTS**

****APPENDIX 1: ** BACTERIAL FILTRATION EFFICIENCY (BFE)**

Requirement
Level 3 ≥98

1.1 Reference Standards Item ASTM 2101
Test Method used :ASTM F 2101
1.2 Environmental conditions: (21 ± 5 °C, RH 85 ± 5 %)
1.3 strain, medium and regent information:
Staphylococcus aureus (ATCC 6538)
Solid culture media used – Soybean casein digest agar

1.4 Test parameters:
Air flow rate 28.3 L/min
Mean particle diameter of bacterial aerosol (3.0 +/- 0.3) µm

Determination Of Bacterial Suspension Concentration									
Plate 1 (CFU)		**Plate 2 (CFU)**		**Dilution level**			**Concentration (CFU/mL)**		
54		**56**		**-4**			**5.5 x 10^5**		
Groups		**Plate 1**	**Plate2**	**Plate3**	**Plate4**	**Plate 5**	**Plate 6**	**Total**	**BFE**
Negative Control	**r**	1	0	0	0	0			**/**
	p	1	0	0	0	0		**1**	
Positive Control 1	**r**	13	19	22	67	12	4		**/**
	p	13	19	23	73	12	4	**144**	
Positive Control 2	**r**	26	36	44	125	23	9		**/**
	p	27	38	47	150	24	9	**295**	
Sample 1	**r**	2	3	3	13	2	1		**98.91**
	p	2	3	3	13	2	1	**24**	
Sample 2	**r**	3	4	4	14	2	1		**98.72**
	p	3	4	4	14	2	1	**28**	
Sample 3	**r**	3	4	5	17	3	1		**98.50**
	p	3	4	5	17	3	1	**33**	
Sample 4	**r**	4	5	6	20	3	1		**98.18**
	p	4	5	6	21	3	1	**40**	
Sample 5	**r**	3	4	5	16	2	1		**98.59**
	p	3	4	5	16	2	1	**31**	
Average of positive control		2195							

C/N

TEST RESULTS

APPENDIX 3: SPLASH RESISTANCE
(LEVEL 3)

3.1 Reference Standards Item :ASTM F 2100
Test method used : ASTM F1862
3.2 Environmental conditions : 24 ^{o}C , 52%RH

3.3 Test parameters:

Pressure (mmHg)	Velocitiy (cm/s)	Time (s)
160	635	0.57

3.4 Sample After Tested image

Face side

Back side

Picture_160mmHg Sample after tested

3.5 Test Result

The samples were tested under pressure of 160mmHg no synthetic blood penetration on the medial side

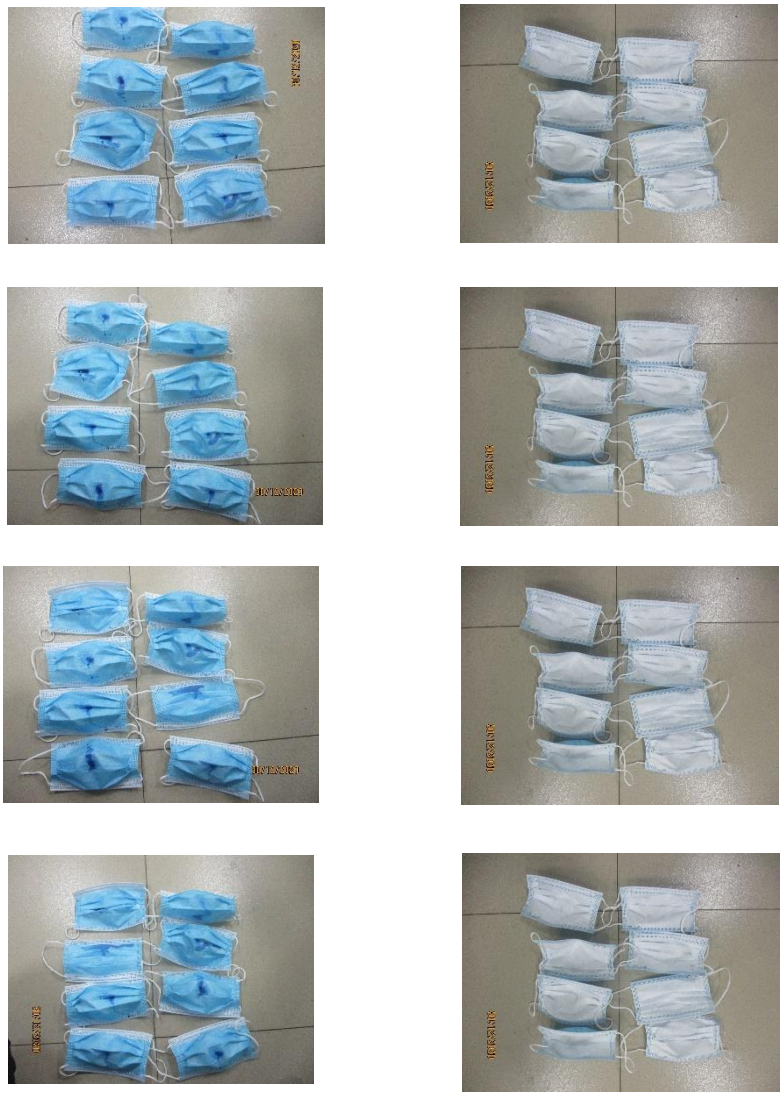
APPENDIX 3: SPLASH RESISTANCE
(Type II R)
3.1 Reference Standards Item : EN 14683-5.2.4
Test method used : ISO 22609: 2004
3.2 Environmental conditions : 24 ºC , 52%RH

3.3 Test parameters:

Pressure (kPa)	Velocitiy (cm/s)	Time (s)
16.0	550	0.66

3.4Sample After Tested image

Face side | Back side



Picture 16KPa Sample after tested

3.5 Test Result

The samples were tested under pressure of 16KPa, no synthetic blood penetration on the medial side

-END OF THE REPORT-