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LAB N° 0033 L

Test Report 21RA08534

of 05/07/2021

Messrs
XIANTAO DINGCHENG NON-WOVEN PRODUCTS CO., LTD
Liukou Industrial Park
Xiantao City - Hubei - CN

Samples and identifications

Sample 21LA13486

Receipt date: **04/06/2021**

Sample receiving date: **28/05/2021**

Description

Description: **Nonwoven fabric for coverall item DCM702**

Color: **white**

Composition: **100% polypropylene + polyethylene film**

Mass per unit area:**63** g/m^2

Sampling carried out by: **customer**

This Test Report consists of the following results

90102 Protective clothing. Penetration by blood and body fluids. Synthetic blood method
90112 Protective clothing. Penetration by blood and other body fluids-born pathogens. Phi-X174 bacteriophage method
90123 Protective clothing. Wet bacterial penetration
90134 Protective clothing. Penetration by biologically contaminated aerosols
90135 Protective clothing. Penetration by biologically contaminated powders

Protective clothing. Penetration by blood and body fluids. Synthetic blood method

Product standard	UNI EN 14126:2004
Test method	ISO 16603:2004 + UNI EN 14126:2004 Par. 4.1.4.1
Test solution	Synthetic blood
Test equipment	Penetration test cell
Time and pressure protocol	Procedure D
Test time	5 min for each pressure tested
Specimens dimensions	(75x75) mm
Number of specimens	3
Specimens conditioning	24 h at (21 ± 5)°C - (60 ± 10)% U.R.
Pretreatment	No

Test began on: **28/06/2021** Test ended on: **28/06/2021**

Results for sample 21LA13486	UM	result
Specimen n°1 0kPa		**Pass**
Specimen n°2 0kPa		**Pass**
Specimen n°3 0kPa		**Pass**
Specimen n°1 1.75kPa		**Pass**
Specimen n°2 1.75kPa		**Pass**
Specimen n°3 1.75kPa		**Pass**
Specimen n°1 3.5kPa		**Pass**
Specimen n°2 3.5kPa		**Pass**
Specimen n°3 3.5kPa		**Pass**
Specimen n°1 7kPa		**Pass**
Specimen n°2 7kPa		**Pass**
Specimen n°3 7kPa		**Pass**
Specimen n°1 14kPa		**Pass**
Specimen n°2 14kPa		**Pass**
Specimen n°3 14kPa		**Pass**
Specimen n°1 20kPa		**Pass**
Specimen n°2 20kPa		**Pass**
Specimen n°3 20kPa		**Pass**

Pass. The specimen resist to penetration and synthetic blood doesn't pass through the fabric.
Fail. The specimen doesn't resist to penetration and the synthetic blood pass through the fabric.

Protective clothing. Penetration by blood and other body fluids-born pathogens. Phi-X174 bacteriophage method

Product standard	UNI EN 14126:2004
Test method	ISO 16604:2004 + UNI EN 14126:2004 Par. 4.1.4.1
Test equipment	Penetration test cell
Name of test microorganism	Bacteriophage Phi-X 174 (ATCC 13706-B1 LOT: CNCM 16415)
Specimens dimensions	(75x75) mm
Penetration survey method	Plaque-forming units (PFU)
Number of specimens	3
Procedure	Procedure D
Pretreatment	No

Test began on: **28/06/2021** Test ended on: **01/07/2021**

Results for sample 21LA13486 *	UM	result
Pre-test bacteriophage titer	PFU/ml	**5.8E+008**
Post-test bacteriophage titer	PFU/ml	**5.6E+008**
Test pressure	kPa	**20.0**
1st specimen		**Pass**
2nd specimen		**Pass**
3rd specimen		**Pass**
Negative control (polyethylene 10 µm)		**Pass**
Positive control		**Fail**

Pass. The specimen resist to penetration and micro-organism used for test doesn't pass through the fabric.
Fail. The specimen doesn't resist to penetration and micro-organism used for test pass through the fabric.
The sample pass the test when the viral particles don't penetrate them through the sample to one determined pressure and doesn't come found plaques due to cell lysis.

All acceptance criteria was met.

Protective clothing. Wet bacterial penetration

Product standard	UNI EN 14126:2004
Test method	UNI EN ISO 22610:2006 + UNI EN 14126:2004 Par. 4.1.4.2
Specimens conditioning	24 h a (20 ± 2)°C e (65 ± 5)% U.R.
Name of test microorganism	Staphylococcus aureus (ATCC 29213 LOT: DSM2569-0519-001)
Culture medium	Nutrient agar (Oxoid LOT. 3143660)
Donor material	Polyurethanic membrane; thick 30 µm
Testing time	5 steps of 15 minutes
Pretreatment	No

Test began on: **28/06/2021** Test ended on: **01/07/2021**

Results for sample 21LA13486	**UM**	**result**
Break through time	min	**>75**

Distanza media tra la superficie dell'agar ed il bordo delle piastre/ *Distance from agar surface to brim of petri dish* (mm): 3
Concentrazione della sospensione di prova (UFC/ml)/ *Concentration of test suspension*: 3.3*10^4

	Intervalli/ Interval (min)	n° colonie 1ª provetta/ n° colonies 1st specimen	n° colonie 2ª provetta/ n° colonies 2nd specimen	n° colonie 3ª provetta/ n° colonies 3rd specimen	n° colonie 4ª provetta/ n° colonies 4th specimen	n° colonie 5ª provetta/ n° colonies 5th specimen	Media/ Average
Piastra 1/ *Petri dish 1* (X1)	0-15	C	C	0	C	0	0
Piastra 2/ *Petri dish 2* (X2)	15-30	C	C	0	C	0	0
Piastra 3/ *Petri dish 3* (X3)	30-45	C	C	0	C	0	0
Piastra 4/ *Petri dish 4* (X4)	45-60	C	C	0	C	0	0
Piastra 5/ *Petri dish 5* (X5)	60-75	C	C	0	C	0	0
Piastra 6 (riferimento)/ *Petri dish 6 (reference)* (Z)		236	214	211	229	239	226
T		236	214	211	229	239	226
I_B (EPP)		6.0	6.0	6.0	6.0	6.0	6.0

Legenda
I_B (EPP) – indice di barriera
I_B (EPP) = 6 - (CUM1+CUM2+CUM3+CUM4+CUM5)

dove:
CUM1 – X1/T
CUM2 = (X2 + X1)/T
CUM3 = (X3 + X2 + X1)/T
CUM4 = (X4 + X3 + X2 + X1)/T
CUM5 – (X5 + X4 + X3 + X2 + X1)/T
T = Z + X5 + X4 + X3 + X2 + X1
X1, X2, X3, X4 e X5: numero di colonie presenti sulle piastre da 1 a 5
Z = numero di colonie presenti sulla piastra n° 6 (riferimento)

Legend
I_B (EPP) *= Barrier Index*
I_B (EPP) *= 6 - (CUM1+CUM2+CUM3+CUM4+CUM5)*

where:
CUM1 *– X1/T*
CUM2 *= (X2 + X1)/T*
CUM3 *= (X3 + X2 + X1)/T*
CUM4 *= (X4 + X3 + X2 + X1)/T*
CUM5 *– (X5 + X4 + X3 + X2 + X1)/T*
T *= Z + X5 + X4 + X3 + X2 + X1*
X1, X2, X3, X4 e X5*: number of colonies on the 5 plates in one replicate test*
Z *= number of colonies from the top side (plate n.6 reference)*

Protective clothing. Penetration by biologically contaminated aerosols

Product standard	UNI EN 14126:2004
Test method	ISO/DIS 22611:2003 + UNI EN 14126:2004 Par. 4.1.4.3
Culture medium	Nutrient agar (Oxoid LOT. 3143660)
Name of test microorganism	Staphylococcus aureus (ATCC 6538 LOT: DSM 799-0419-001)
Test equipment	Perspex box with Collison atomizer
Specimens dimensions	Diameter 25 mm
Number of specimens	4
Pretreatment	No

Test began on: **28/06/2021** Test ended on: **30/06/2021**

Results for sample 21LA13486 *	**UM**	**result**
Micro-organisms extract to membrane REFERENCE (Value A)		
1st specimen	CFU	**2.3E+002**
2nd specimen	CFU	**2.4E+002**
3rd specimen	CFU	**2.1E+002**
4th specimen	CFU	**2.1E+002**
Average (A)	CFU	**2.2E+002**
Micro-organisms extract to membrane specimen (Value B)		
1st specimen	CFU	**0**
2nd specimen	CFU	**0**
3rd specimen	CFU	**0**
4th specimen	CFU	**0**
Average (B)	CFU	**0.0**
Penetration ratio (A/B)	Log10 CFU	**>5**

Protective clothing. Penetration by biologically contaminated powders

Product standard	UNI EN 14126:2004
Test method	UNI EN ISO 22612:2005 + EC1-2011 + UNI EN 14126:2004 Par. 4.1.4.4
Name of test microorganism	Spores of Bacillus subtilis (ATCC 9372 LOT: Simicon 7 SU 10817/9-9)
Culture medium	TGE agar (Oxoid LOT. 1998611)
Test equipment	Vibrating apparatus
Number of specimens	10
Specimens dimensions	(200x200) mm
Test time	30 minutes
Pretreatment	No

Test began on: **29/06/2021** Test ended on: **01/07/2021**

Results for sample 21LA13486	UM	result
Talcum concentration	CFU/g	**8.3E+007**
1st specimen	CFU	**0**
2nd specimen	CFU	**0**
3rd specimen	CFU	**0**
4th specimen	CFU	**0**
5th specimen	CFU	**0**
6th specimen	CFU	**0**
7th specimen	CFU	**0**
8th specimen	CFU	**0**
9th specimen	CFU	**0**
10th specimen	CFU	**0**
Average	CFU	**0.0**
Penetration	Log10 CFU	**<1**

(*): no accredited by Accredia

Sampling carried out by customer: results refer to the sample as received; data and information indicated in the description field are given by customer for which it will be responsible

Issue date
05/07/2021

Microbiological Laboratory Manager
dott. Giovanni Tanchis

End of Test Report **21RA08534**