

## TEST REPORT

**2021EP0503**

### DATE OF RECEPTION

10/11/2020

### DATE TESTS

Starting: 10/11/2020

Ending: 10/02/2021

### APPLICANT

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### IDENTIFICATION AND DESCRIPTION OF SAMPLES

#### REFERENCES

D-Lab Bioclean Coverall: PS 3425

### TESTS CARRIED OUT

- ERGONOMICS.
- SIZING.
- DETERMINATION OF PH VALUE.
- DETERMINATION OF FORBIDDEN AZO COLORANTS (CANCEROGENIC ARYLAMINES).
- SPECIFIC DESIGN REQUIREMENTS.
- SEAM STRENGTH RESISTANCE.
- DETERMINATION OF THE ABRASION RESISTANCE OF FABRICS.
- DETERMINATION OF TEAR RESISTANCE.
- DETERMINATION OF BREAKING STRENGTH AND ELONGATION.
- PUNCTURE RESISTANCE.
- DETERMINATION OF RESISTANCE TO PENETRATION BY SPRAY.
- DETERMINATION OF FLEX CRACKING AND CRACK GROWTH.
- THICKNESS.
- THICKNESS\*.
- MASS PER UNIT AREA\*.
- RESISTANCE TO PENETRATION BY LIQUIDS UNDER PRESSURE\*.
- RESISTANCE OF MATERIALS USED IN PROTECTIVE CLOTHING TO PENETRATION BY SYNTHETIC BLOOD.
- RESISTANCE OF MATERIALS USED IN PROTECTIVE CLOTHING TO PENETRATION BY BLOOD-BORNE PATHOGENS USING PHI-X174.
- RESISTANCE TO WET BACTERIAL PENETRATION.
- TEST METHOD FOR RESISTANCE TO DRY BACTERIAL BARRIER PENETRATION.
- DETERMINATION OF INWARD LEAKAGE OF AEROSOLS OF FINE PARTICLES INTO SUITS.



## SAMPLE DESCRIPTION

### PHOTOGRAPHY

Numero de muestras analizadas

2



### Reference<sup>(1)</sup>

D-Lab Bioclean Coverall: PS 3425

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## RESULTS

### ERGONOMICS

#### STANDARD

EN ISO 13688:2013

#### REFERENCE

D-Lab Bioclean Coverall : PS 3425

#### TEST DATE

01/12/2020

#### REMARK

The ergonomics verification has been performed by physical dimensions commensurate with the size found.

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## RESULTS

### SIZING

**Standard**

EN ISO 13688:2013 Apdo. 6

**Test uncertainty**

The test uncertainty is  $\pm 1\%$  of the measurand's value, for a coverage value of  $K=2$  (95%)

**Size**

XL

Reference	D-Lab Bioclean Coverall : PS 3425	
Bust girth (cm)	Arm height (cm)	Total height (cm)
142,0	64,0	165,0

**Start and finish test date**

02/12/2020 - 02/12/2020

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## RESULTS

### DETERMINATION OF PH VALUE

**Standard**

EN ISO 3071:2006

**Determination date**

20/11/2020

**Extractor solution**A - H<sub>2</sub>O**pH Extractor solution**

6,40

**Temperature**

20.5 °C

Reference	pH	Uncertainty
D-Lab Bioclean Coverall : PS 3425	7.40	± 5 %

**REQUISITE**

In accordance with Standard EN ISO 13688:2013, the pH value shall be greater than 3.5, and less than 9.5.

**PASS**

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## RESULTS

### DETERMINATION OF FORBIDDEN AZO COLORANTS (CANCEROGENIC ARYLAMINES)

**Standard**

UNE-EN 14362-1:2017

**Test Methods**

GC/MSD

**Apparatus**

Gas Chromatograph 7890A

**Uncertainty**
 $\pm 9$  mg/Kg

**Detectors**

Mass Spectrometer 5975C

Reference	Results
D-Lab Bioclean Coverall : PS 3425 (WHITE FABRIC WITH COATING)	< 30* mg/Kg

\*For all forbidden azo dyes listed below.

The textile products subject to control are according to the Standard EN ISO 13688:2013 on the use of Azo Colorants which release carcinogenic amines listed in the Standard Test

<b>PASS</b>
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**Forbidden Azo dyes**

4-Aminodiphenyl, Benzidine, 4-Chlor-o-toluidine, 2-Naphthylamine, o-Aminoazotoluene, 2-Amino-4-nitrotoluene, p-Chloraniline, 2,4-Diaminoanisole, 4,4'-Diaminodiphenylmethane, 3,3'-Dichlorobenzidine, 3,3'-Dimethoxybenzidine, 3,3'-Dimethylbenzidine, 3,3'-Dimethyl-4,4'-diaminodiphenylmethane, p-Cresidine, 4,4'-Methylene-bis-2-chloraniline, 4,4'-Oxydianiline, 4,4'-Thiodianiline, o-Toluidine, 2,4-Toluylenediamine, 2,4,5-Trimethylaniline, o-Anisidine, 4-Aminoazobenzene

**REQUISITE**

In accordance with standard EN ISO 13688:2013, by detecting Azo colorants the limited established is not detected by standard EN 14362-1

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## RESULTS

### SPECIFIC DESIGN REQUIREMENTS

#### REFERENCE

D-Lab Bioclean Coverall : PS 3425

#### STANDARD

EN 340:2003 and EN ISO 13688:2013

#### DESIGN REQUIREMENTS

The protection clothing design makes easy its correct placement and wearing staying with no movement during the use period intended.	PASS
The design of the protective clothing applies elements from other protective or equipment clothing, which are used to create a comprehensive protective outfit.	PASS
The clothing has no rough, sharp or hard surfaces or edges that could damage or irritate the user.	PASS
The clothing is not enough narrow for causing flow blood restriction.	PASS
The clothing is not enough loose and heavy for interfering the user's movement.	PASS

#### Remark

N/A: Not applicable

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## RESULTS

### SPECIFIC DESIGN REQUIREMENTS

#### REFERENCE

D-Lab Bioclean Coverall : PS 3425

#### STANDARD

EN 14126:2003/AC, point 4.3

#### DESIGN REQUIREMENTS

Protective clothing against infective agents meets the requirements that apply of the Standard ISO 13688:2013	PASS
Protective clothing against infective agents meets the requirements specified in the appropriate chemical protection Standard	PASS
The garment allows the user to move freely, in as much comfort as possible, in accordance with the protection the garment provides.	PASS

#### Remark

N/A: Not applicable

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## RESULTS

### SPECIFIC DESIGN REQUIREMENTS

#### REFERENCE

D-Lab Bioclean Coverall : PS 3425

#### STANDARD

EN ISO 13982-1:2004/A1:2010, point 4.3

#### DESIGN REQUIREMENTS

The type 5 chemical protection clothing meets the general requirements of the standard EN 340:2003	PASS
The clothing at least protects the torso, the arms and the legs, and is a one piece overall or a two piece suit.	PASS
The garment allows the user to move freely, in as much comfort as possible, in accordance with the protection the garment provides.	PASS

#### Remark

N/A: Not applicable

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## RESULTS

### SPECIFIC DESIGN REQUIREMENTS

#### REFERENCE:

D-Lab Bioclean Coverall : PS 3425

#### STANDARD

EN 13034:2005+A1:2009, point 5.1

#### DESIGN REQUIREMENTS

The type 6 chemical protection clothing meets the relevant requirements of the Standard EN 340:2003	PASS
The garment allows the user to move freely, in as much comfort as possible, in accordance with the protection the garment provides.	PASS
There are no special characteristics about the clothing where liquid chemical products can be collected and retained on the material surface (the pockets are protected)	PASS

#### Remark

N/A: Not applicable

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## RESULTS

### SEAM STRENGTH RESISTANCE

#### Standard

EN ISO 13935-2:2014

#### Apparatus

INSTRON Dynamometer

<b>Conditioning date</b>	03/12/2020	<b>Test date</b>	04/12/2020
<b>Gauge length</b>	100 mm		
<b>Atmosphere for conditioning testing</b>			
<b>Temperature</b>	(20±2) °C	<b>Relative humidity</b>	(65±4) %
<b>Number of specimens</b>			
Tested	5	Rejected	0

#### The break of the seam is produced for:

Torn fabric in clamps

#### Previous treatment

Null

#### Reference

D-Lab Bioclean Coverall : PS 3425

Average resistance (N)	C.V.(%)
45,78	
43,58	
43,38 <b>44,35</b>	2,77
43,42	
45,61	

#### Remarks

The relative expanded uncertainty of Seams resistance is  $\pm 6\%$  assay value of the measured, for a probability of coverage of 95%.

The test procedure described in the two versions of the Standard (EN ISO 13935-2:1999 and EN ISO 13935-2:2014) is the same.

**REQUISITE ACCORDING TO STANDARD EN 14126:2003/AC:2004; EN 14605:2005+A1:2009; EN ISO 13982-1:2004/A1:2010; EN 13034:2005+A1:2009**

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6
>30N	> 50N	> 75N	> 125N	> 300N	> 500N

**PERFORMANCE LEVEL 1**

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## RESULTS

### DETERMINATION OF THE ABRASION RESISTANCE OF FABRICS

**Standard**

EN 530:2010 Method 2

**Apparatus**

Martindale Abrasion Tester

<b>Conditioning date</b>	23/11/2020	<b>Test date</b>	22/12/2020
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**Atmosphere for conditioning testing**

<b>Temperature</b>	(20±2) °C	<b>Relative humidity</b>	(65±4) %
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**Testing conditions**

Rubbing against abradant paper 00

**Testing pressure**

9kPa

**End point**

Two thread broken

**Technical characteristics of the sample**

Not indicated by the client

**Previous treatment**

Null

**Reference**

D-Lab Bioclean Coverall : PS 3425

Specimens	Nº of cycles (n)
1	1500 < n < 2000
2	1500 < n < 2000
3	1500 < n < 2000
4	1500 < n < 2000

**Remarks**

The end test is performed by visual inspection.

The number of cycles corresponding to the rupture of the specimen.

The performance level is among the most unfavorable value of the pieces tested

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## RESULTS

### REQUISITE ACCORDING STANDARD EN 13034:2005+A1:2009

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6
> 10 cycles	> 100 cycles	> 500 cycles	> 1000 cycles	> 1500 cycles	> 2000 cycles

**PERFORMANCE LEVEL 5**

### REQUISITE ACCORDING STANDARD EN 14605:2005+A1:2009

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6
> 10 cycles	> 100 cycles	> 500 cycles	> 1000 cycles	> 1500 cycles	> 2000 cycles

**PERFORMANCE LEVEL 5**

### REQUISITE ACCORDING STANDARD EN 13982-1:2004/A1:2010

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6
> 10 cycles	> 100 cycles	> 500 cycles	> 1000 cycles	> 1500 cycles	> 2000 cycles

**PERFORMANCE LEVEL 5**

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## RESULTADOS / RESULTS

### DETERMINATION OF TEAR RESISTANCE

**Standard**

EN ISO 9073-4:1997

**Apparatus**

INSTRON Dynamometer

**Conditioning date**

21/01/2021

**Test date**

27/01/2021

**Atmosphere for conditioning testing**
**Temperature**

(20±2) °C

**Relative humidity**

(65±2) %

**N° of specimens**
**Tested**

5 for each direction

**Rejected**

0

**The calculation of averages has been made**

For electronic device

**Reference**

D-Lab Bioclean Coverall : PS 3425

Tear	Average load (N)	C.V. (%)
Lengthwise	50.42	4.62
	47.49	
	49.73 49.77	
	53.26	
	47.95	
Crosswise	19.98	17.01
	20.19	
	23.42 23.65	
	24.89	
	29.79	

**REQUISITE ACCORDING TO STANDARD EN 14605:2005+A1:2009**

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6
>10N	> 20N	> 40N	> 60N	> 100N	> 150N

<b>PERFORMANCE LEVEL 1</b>
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## RESULTS

### DETERMINATION OF BREAKING STRENGTH AND ELONGATION

#### Standard

EN ISO 13934-1:2013

#### Apparatus

INSTRON Dynamometer

<b>Conditioning date</b>	23/11/2020	<b>Test date</b>	04/01/2021
<b>Atmosphere for conditioning testing</b>			
<b>Temperature</b>	(20±2) °C	<b>Relative humidity</b>	(65±4) %
<b>Gauge length</b>			
<b>Lengthwise</b>	200 mm.	<b>Crosswise</b>	200 mm.
<b>Test velocity</b>			
<b>Lengthwise</b>	100 mm/min	<b>Crosswise</b>	100 mm/min
<b>Pretension</b>			
<b>Lengthwise</b>	2 N	<b>Crosswise</b>	2 N
<b>N° of specimens</b>			
<b>Tested</b>	5 for each direction	<b>Rejected</b>	0
<b>State of the specimens</b>	Conditioned		

#### Reference

D-Lab Bioclean Coverall : PS 3425

Direction	Maximum average load (N)	C.V. (%)	Average elongation (%)	C.V. (%)
<b>Lengthwise</b>	93	6	45	13.5
	95		50	
	82 <b>89</b>		35 <b>42</b>	
	86		39.5	
	88		42	
<b>Crosswise</b>	33	3	33	7.4
	33		36	
	34 <b>33</b>		33.5 <b>32.5</b>	
	32		30	
	34		31	

#### Remark

The relative expanded uncertainty of Tensile strength resistance is ±5% assay value of the measured, for a probability of coverage of 95%.

The test procedure described in the two versions of the Standard (EN ISO 13934-1:1999 and EN ISO 13934-1:2013) is the same.

**REQUISITE ACCORDING TO STANDARD EN 14126:2003/AC:2004; EN 13034:2005+A1:2009; EN 14605:2005+A1:2009**

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6
>30N	> 60N	> 100N	> 250N	> 500N	> 1000N

**PERFORMANCE LEVEL 1**

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## RESULTS

### PUNCTURE RESISTANCE

**Standard**

EN 863:1995

**Apparatus**

INSTRON Dynamometer

**Conditioning date** 19/11/2020

**Test date** 24/11/2020

**Atmosphere for conditioning testing**
**Temperature** (20±2) °C

**Relative humidity** (65±5) %

**Type of fabric**

Coated fabric

**Previous treatment**

Null

Reference	Maximum force (N)	Average resistance (N)
D-Lab Bioclean Coverall : PS 3425	6,35	6,67
	7,32	
	5,95	
	6,90	
	6,85	

**Remark**

The relative expanded uncertainty of puncture resistance is ±11% assay value of the measured, for a probability of coverage of 95%.

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## RESULTS

### REQUISITE ACCORDING TO STANDARD EN 13034:2005+A1:2009

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6
>5N	> 10N	> 50N	> 100N	> 150N	> 250N

PERFORMANCE LEVEL 1

### REQUISITE ACCORDING TO STANDARD EN 14605:2005+A1:2009

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6
>5N	> 10N	> 50N	> 100N	> 150N	> 250N

PERFORMANCE LEVEL 1

### REQUISITE ACCORDING TO STANDARD EN 13982-1:2004/A1:2010

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6
>5N	> 10N	> 50N	> 100N	> 150N	> 250N

PERFORMANCE LEVEL 1

### REQUISITE ACCORDING TO STANDARD EN 14126:2003/AC:2004

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6
>5N	> 10N	> 50N	> 100N	> 150N	> 250N

PERFORMANCE LEVEL 1

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## RESULTS

### RESISTANCE OF MATERIALS TO PENETRATION BY LIQUID

**Standard**

EN ISO 6530:2005, EN 13034:2005+A1:2009

**Atmosphere for conditioning and testing**

Temperature (20±2) °C      Relative Humidity (RH) (65±5) %

**Flow**

10 ml in 10 s

**Mass per unit area approximate of the sample tested**

Does not provided by the customer

**Pre-treatment**

As received

**Reference**

D-Lab Bioclean Coverall : PS 3425

**Measurement uncertainty**

Test liquid	Penetration index (%) <sup>1</sup>	Repellency index (%) <sup>1</sup>
Sulphuric Acid 30%	±0.3	±0.3
Sodium Hydroxide 10%	±1.1	±1.1
O-Xylene	±5.0	±7.8
1-Butanol	±5.8	±5.4

<sup>1</sup> On the measured value

**Material tested**

No-woven fabric, white colour

**Test date**

08/01/2021

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## RESULTS

<b>1. Test liquid</b>	Sulphuric Acid 30%
<b>Trade name</b>	SCHARLAU (Ref: AC20791000)
<b>Boiling point</b>	336.85 °C
<b>Evaporative losses prevision</b>	None

Direction	Specimen	Penetration index (%)		Repellency index (%)		Absorption index (%)	
Warp	1	0.0		98.6		1.4	
	2	0.0	0.0	99.0	98.6	1.0	1.4
	3	0.0		98.6		1.4	
Weft	1	0.0		99.3		0.7	
	2	0.0	0.0	98.8	98.7	1.2	1.3
	3	0.0		98.7		1.3	

### CLASSIFICATION ACCORDING TO EN 14325:2004

Class according to repellency index: **3**  
 Class according to penetration index: **3**

<b>2. Test liquid</b>	Sodium Hydroxide 10 %
<b>Trade name</b>	MERCK (Ref: 1055881000)
<b>Boiling point</b>	1390 °C
<b>Evaporative losses prevision</b>	None

Direction	Specimen	Penetration index (%)		Repellency index (%)		Absorption index (%)	
Warp	1	0.0		98.0		2.0	
	2	0.0	0.0	98.7	98.0	1.3	2.0
	3	0.0		98.0		2.0	
Weft	1	0.0		98.4		1.6	
	2	0.0	0.0	98.7	98.3	1.3	1.7
	3	0.0		98.3		1.7	

### CLASSIFICATION ACCORDING TO EN 14325:2004

Class according to repellency index: **3**  
 Class according to penetration index: **3**

>>>



## RESULTS

<b>3. Test liquid</b>	O-Xylene
<b>Trade name</b>	SCHARLAU (Ref: XI00252500)
<b>Boiling point</b>	139 °C
<b>Evaporative losses prevision</b>	None

Direction	Specimen	Penetration index (%)		Repellency index (%)		Absorption index (%)	
Warp	1	0.0		96.9		3.1	
	2	0.0	0.0	95.9	95.8	4.1	4.2
	3	0.0		95.8		4.2	
Weft	1	0.0		96.2		3.8	
	2	0.0	0.0	96.1	95.1	3.9	4.9
	3	0.0		95.1		4.9	

### CLASSIFICATION ACCORDING TO EN 14325:2004

Class according to repellency index: **3**  
 Class according to penetration index: **3**

<b>4. Test liquid</b>	1-Butanol
<b>Trade name</b>	SCHARLAU (Ref: AL01732500)
<b>Boiling point</b>	117.88 °C
<b>Evaporative losses prevision</b>	None

Direction	Specimen	Penetration index (%)		Repellency index (%)		Absorption index (%)	
Warp	1	0.0		96.9		3.1	
	2	0.0	0.0	96.8	96.4	3.2	3.6
	3	0.0		96.4		3.6	
Weft	1	0.0		96.9		3.1	
	2	0.0	0.0	96.6	96.6	3.4	3.4
	3	0.0		96.7		3.3	

### CLASSIFICATION ACCORDING TO EN 14325:2004

Class according to repellency index: **3**  
 Class according to penetration index: **3**

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## RESULTS

Classification of the repellency to the liquids according to standard EN 14325:2004

Class	Repellency index
3	> 95 %
2	> 90 %
1	> 80 %

Classification to the penetration by liquids according to standard EN 14325:2004

Class	Penetration index
3	< 1 %
2	< 5 %
1	< 10 %

ACCORDING TO STANDARD EN 13034:2005+A1:2009

PASS

### REQUISITES ACCORDING TO STANDARD EN 13034:2005+A1:2009

According to the Standard EN 13034:2005+A1:2009, for liquid repellency a performance level 3 shall be obtained for at least one of the chemicals referred to EN 14325:2004, and for resistance to penetration by liquids a performance level of at least 2 shall be obtained for at least one of the chemicals referred to EN 14325:2004.

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## RESULTS

### DETERMINATION OF RESISTANCE TO PENETRATION BY SPRAY

**Standard**

EN 13034:2005+A1:2009

**Apparatus**

Spray equipment according to EN ISO 17491-4:2008+A1:2016 Method A with modifications according to the point 5 of the Standard EN 13034:2005+A1:2009

**Reference**

D-Lab Bioclean Coverall : PS 3425

**Description of the absorbent suit**

One piece suit made with white absorbent fabric

**Description of any additional equipment**

Gumboots, gloves and hood

**Surface tension measured of the water test and composition**

Composition: Water, lactophenol blue and citric acid

Surface tension: 54.6 mN/m

**Calibrated stain area**

2.01 cm<sup>2</sup>

**Spray nozzle**

Disk DC-03, core CR-23

**Pressure of the liquid source**

Noozle 1: 3 bar

Noozle 2: 3 bar

Noozle 3: 3 bar

Noozle 4: 3 bar

**Test date**

12/01/2021

**Temperature test**

21.5 °C

**Test uncertainty**

1.3 cm

**Conditioning**

Temperature (20±2) °C

Relative humidity (65±5) %

Time At least 24 hours

**Sizing of the garment**

XL

**Pre-treatment**

As received

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## RESULTS

### Sequence of movements according to standard

	Mov. 1	Mov. 2	Mov. 3	Mov. 4	Mov. 5	Mov. 6	Mov. 7
<b>Sample 1</b>	Pass	Pass	Pass	Pass	Pass	Pass	Pass
<b>Sample 2</b>	Pass	Pass	Pass	Pass	Pass	Pass	Pass
<b>Sample 3</b>	Pass	Pass	Pass	Pass	Pass	Pass	Pass

### Results

Sample 1	Penetration Zone	Total number of penetration spots	Stain area in the penetration zone (cm <sup>2</sup> )	Total stain area (cm <sup>2</sup> )	Calibrated stain area (cm <sup>2</sup> )	REQUIREMENT ACCORDING TO STANDARD EN 13034:2005+A1:2009
	--	--	--	--	2.01	≤ 6.03

Sample 2	Penetration Zone	Total number of penetration spots	Stain area in the penetration zone (cm <sup>2</sup> )	Total stain area (cm <sup>2</sup> )	Calibrated stain area (cm <sup>2</sup> )	REQUIREMENT ACCORDING TO STANDARD EN 13034:2005+A1:2009
	Crotch	2	1.40	5.20	2.01	≤ 6.03
	Rear	4	3.80			

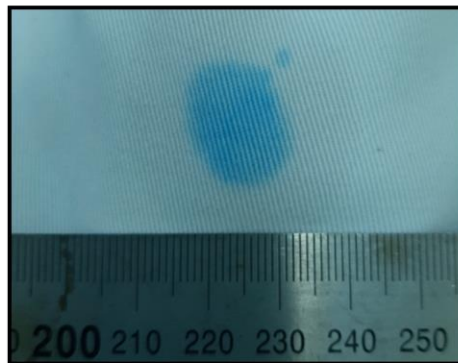
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## RESULTS

Sample 3	Penetration Zone	Total number of penetration spots	Stain area in the penetration zone (cm <sup>2</sup> )	Total stain area (cm <sup>2</sup> )	Calibrated stain area (cm <sup>2</sup> )	REQUIREMENT ACCORDING TO STANDARD EN 13034:2005+A1:2009
	--	--	--	--	2.01	≤ 6.03

Picture of the additional garment



Calibrated stain

### REQUIREMENT ACCORDING TO STANDARD EN 13034:2005+A1:2009

All chemical protective suits shall pass the test, i.e. there shall be no penetration of any suit. The total stain area on the undergarment shall be less than or equal to three times the total calibrated stain area.

ACCORDING TO STANDARD EN 13034:2005+A1:2009

PASS

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## RESULTS

### DETERMINATION OF FLEX CRACKING AND CRACK GROWTH

**Standard**

EN ISO 7854:1997 Method B

**Used apparatus**

Crumpleflex equipment.

**Number of specimens**

6

**Test temperature**

23,0 °C and 50,0 % RH

Reference	D-Lab Bioclean Coverall : PS 3425	
Specimen	Direction	Flex cycles
Specimen 1	Warp	>50000
Specimen 2	Warp	>50000
Specimen 3	Warp	>50000
Specimen 4	Weft	>50000
Specimen 5	Weft	>50000
Specimen 6	Weft	>50000

**Remark:**

According to EN 14126: 2003/AC: 2004, the mechanical requirements must be tested and classified according to EN 14325: 2018 point 4.5.2.1.

**PERFORMANCE LEVEL ACCORDING TO STANDARD EN 14325:2018    LEVEL 6**

Classification of resistance to flex cracking according to Standard EN 14325: 2018 point 4.5.2.1.

Performance levels	Cycles
6	> 50000
5	> 20000
4	> 8000
3	> 3000
2	> 1250
1	> 500

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## RESULTS

Reference Specimen	D-Lab Bioclean Coverall : PS 3425	
	Direction	Flex cycles
Specimen 1	Warp	>100000
Specimen 2	Warp	>100000
Specimen 3	Warp	>100000
Specimen 4	Weft	>100000
Specimen 5	Weft	>100000
Specimen 6	Weft	>100000

### Requirements according to Standard EN ISO 13982-1:2004+A1:2010

According the standard EN ISO 13982-1:2004+A1:2010 The materials of type 5 chemical protective clothing must be tested and classified in accordance with the provisions of EN 14325: 2004 pto. 4.5.

**PERFORMANCE LEVEL ACCORDING TO STANDARD EN 14325:2004 LEVEL 6**

### Requirements according to Standard EN 14605:2005+A1:2019

By the method of cell pressure examine the tightness of the specimens. Should obtain, at least, the level of benefit 1 in the classification according to EN 14605:2005+A1:2009.

**PERFORMANCE LEVEL ACCORDING TO STANDARD EN 14605:2005+A1:2009 PASS**

### Classification of resistance to flex cracking according to Standard EN 14325:2004

Performance levels	Cycles
6	> 100000
5	> 40000
4	> 15000
3	> 5000
2	> 2500
1	> 1000

///



## RESULTS

### DETERMINATION OF FLEX CRACKING AND CRACK GROWTH

**Standard**

EN ISO 7854:1997 Method B

**Used apparatus**

Crumpleflex equipment.

**Number of specimens**

6

**Test temperature**

-30 °C

Reference	D-Lab Bioclean Coverall : PS 3425	
Specimen	Direction	Flex cycles
Specimen 1	Warp	>4000
Specimen 2	Warp	>4000
Specimen 3	Warp	>4000
Specimen 4	Weft	>4000
Specimen 5	Weft	>4000
Specimen 6	Weft	>4000

**Remark:**

According to EN 14126: 2003/AC: 2004, the mechanical requirements must be tested and classified according to EN 14325: 2018 point 4.6

**PERFORMANCE LEVEL ACCORDING TO STANDARD EN 14325:2018    LEVEL 6**

**Classification of resistance to flex cracking according to Standard EN 14325: 2018 point 4.6**

Performance levels	Cycles
6	> 4000
5	> 2000
4	> 1000
3	> 500
2	> 200
1	> 100

>>>

/



## RESULTS

Reference	D-Lab Bioclean Coverall : PS 3425	
Specimen	Direction	Flex cycles
Specimen 1	Warp	>4000
Specimen 2	Warp	>4000
Specimen 3	Warp	>4000
Specimen 4	Weft	>4000
Specimen 5	Weft	>4000
Specimen 6	Weft	>4000

### Requirements according to Standard EN ISO 13982-1:2004+A1:2010

According the standard EN ISO 13982-1:2004+A1:2010 The materials of type 5 chemical protective clothing must be tested and classified in accordance with the provisions of EN 14325: 2004 pto. 4.6

**PERFORMANCE LEVEL ACCORDING TO STANDARD EN 14325:2004 LEVEL 6**

### Requirements according to Standard EN 14605:2005+A1:2019

By the method of cell pressure examine the tightness of the specimens. Should obtain, at least, the level of benefit 1 in the classification according to EN 14605:2005+A1:2009.

**PERFORMANCE LEVEL ACCORDING TO STANDARD EN 14605:2005+A1:2009 PASS**

### Classification of resistance to flex cracking according to Standard EN 14325:2004 pto. 4.6

Performance levels	Cycles
6	> 4000
5	> 2000
4	> 1000
3	> 500
2	> 200
1	> 100

///



## RESULTS

### THICKNESS

**Standard**

EN ISO 2286-3:2017

**Apparatus**

Thickness meter MESDAN LAB

**Conditioning date** 03/12/2020

**Test date** 04/12/2020

**Atmosphere for conditioning testing**
**Temperature** (20±2) °C

**Relative humidity** (65±5) %

**Test pressure**

2 kpa ± 0.2 KPa

**Type of fabric**

Coated fabric

**Pressure foot**

(50.5 ± 0.2) mm

**N° of specimens**

5

**Reference**

D-Lab Bioclean Coverall : PS 3425

Minimal thickness (mm)	Average thickness (mm)	Maximum thickness (mm)
0,88	0,97	1,10

///



## RESULTS

### THICKNESS\*

**Standard**

EN ISO 9073-2:1996. Method A

**Apparatus**

Thickness meter

**Conditioning date** 23/11/2020**Test date** 25/11/2020**Atmosphere for conditioning testing****Temperature** (20±2) °C**Relative humidity** (65±5) %**Test pressure**

0.5 kPa

**Reference**

D-Lab Bioclean Coverall : PS 3425 (SEAMS)

Average thickness	CV (%)
1,25	8,15

///



## RESULTS

### MASS PER UNIT AREA\*

**Standard**

ISO 3801:1977, Method 5

**Conditioning date** 03/12/2020 **Test date** 04/12/2020**Atmosphere for conditioning testing****Temperature** (20±2) °C **Relative humidity** (65±2) %**Type of fabric**

Coated fabric

**State of the specimens**

Original

**Reference**

D-Lab Bioclean Coverall : PS 3425

Mass per unit area (g/m <sup>2</sup> )	CV (%)
73,16	3,24

///



## RESULTS

### MASS PER UNIT AREA\*

**Standard**

ISO 3801:1977, Method 5

<b>Conditioning date</b>	25/11/2020	<b>Test date</b>	26/11/2020
<b>Atmosphere for conditioning testing</b>			
<b>Temperature</b>	(20±2) °C	<b>Relative humidity</b>	(65±2) %
<b>Type of fabric</b>			
Coated fabric			
<b>State of the specimens</b>			
Original			
<b>Reference</b>			
D-Lab Bioclean Coverall : PS 3425 (Seams)			

Mass per unit area (g/m <sup>2</sup> )	CV (%)
73,3	2,78

///





## RESULTS

### RESISTANCE TO PENETRATION BY LIQUIDS UNDER PRESSURE\*

Standard: ISO 13994:2005

Method: A

- 0 kPa for 5 min
- 13.8 kPa for 10 min

Test liquid: Distilled water

Temperature: 22 °C ± 2 °C

Test date : 17/12/2020

Reference	Resistance to Penetration
D-LAB BIOCLEAN COVERALL : PS 3425	PASS
	PASS
	PASS



## RESULTS

### DETERMINATION OF THE ABRASION RESISTANCE OF FABRICS

**Standard**

EN ISO 12947-2:2016

**Apparatus**

Martindale Abrasion Tester

**Conditioning date**

19/11/2020

**Test date**

04/01/2020

**Atmosphere for conditioning and testing according accordance EN ISO 139:2005/A1:2011**
**Temperature**

(20±2) °C

**Relative humidity**

(65±4) %

**Testing conditions**

Abrasive paper Trizact Grit A65

**Technical characteristics of the sample**

Not indicated by the client

**Testing pressure**

9 kPa

**End point**

Specimen breakdown

**Reference**

D-Lab Bioclean Coverall : PS 3425

Specimens	No. of cycles in the inspection interval before the end of the test is reached
1	400 < n < 1000
2	400 < n < 1000
3	400 < n < 1000
4	400 < n < 1000
<b>Lowest individual result</b>	<b>400 &lt; n &lt; 1000</b>

**Remarks**

The end test is performed by hydrostatic head end-point determination, according standard EN 14325:2018, point 4.4.2.3.

**REQUISITE ACCORDING STANDARD EN 14126:2003**

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6
> 10 cycles	> 40 cycles	> 100 cycles	> 400 cycles	> 1000 cycles	> 2000 cycles

<b>PERFORMANCE LEVEL 4</b>
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&gt;&gt;&gt;



## RESULTS

### WATER PENETRATION RESISTANCE. TEST UNDER HYDROSTATIC PRESSURE

**Standard**

EN 20811:1992 (Obsolete)

**Apparatus**

Hydrostatic Head Tester

**Atmosphere for conditioning and testing**

**Temperature** (20±2) °C      **Relative humidity** (65±4) %

**Water temperature**

20 °C

**Rate of increase of water pressure**

10 cm H<sub>2</sub>O/min ((980±50)Pa/min)

**Surface exposed**

External side

**After abrasion test**

According to standard EN 14325:2018 pto. 4.4.

Reference	Specimen	Pressure (mm/H <sub>2</sub> O)
D-Lab Bioclean Coverall : PS 3425	1	>200
	2	>200
	3	>200
	4	>200

**Remark**

The edition of the standard used, does not correspond to the latest version released.

///



## RESULTS

### RESISTANCE OF MATERIALS USED IN PROTECTIVE CLOTHING TO PENETRATION BY SYNTHETIC BLOOD

Standard: ISO 16603:2004 Procedure: C

Principle:

A specimen is subjected to a body fluid stimulant (synthetic blood) for a specified time and pressure sequence. A visual observation is made to determine when, or if, penetration occurs. Any evidence of synthetic blood penetration constitutes failure. Results are reported as PASS / FAIL.

In the method, the specimen is inserted in the penetration cell with the normal outside surface of the textile towards the cell reservoir which is further filled with synthetic blood. The other face is in contact with retaining screen (which ensures a good bearing of the textile during the pressure application).

The pressure application procedure is the following:

- 0 KPa for 5 min
- 1,75 KPa for 5 min
- 3,5 KPa for 5 min
- 7 KPa for 5 min
- 14 KPa for 5 min
- 20 KPa for 5 min

Test date: 17/12/2020

Environmental condition: 22 °C and 40 % H.R

Tested side: External side

Pretreatment: ---



## RESULTS

### RESISTANCE OF MATERIALS USED IN PROTECTIVE CLOTHING TO PENETRATION BY SYNTHETIC BLOOD

Results:

Reference of the sample	D-Lab Bioclean Coverall : PS 3425		
Results	Replicate 1	Replicate 2	Replicate 3
0 KPa for 5 min	PASS	PASS	PASS
1,75 KPa for 5 min	PASS	PASS	PASS
3,5 KPa for 5 min	PASS	PASS	PASS
7 KPa for 5 min	PASS	PASS	PASS
14 KPa for 5 min	PASS	PASS	PASS
20 KPa for 5 min	PASS	PASS	PASS
Retaining screen specifications	Not used		



## RESULTS

### RESISTANCE OF MATERIALS USED IN PROTECTIVE CLOTHING TO PENETRATION BY BLOOD-BORNE PATHOGENS USING Phi-X174

**Standard:** ISO 16604:2004.

**Procedure:** C.

**Principle:**

In the method, the material is placed in the test cell. The good side of the test material is directly in contact with a suspension of bacteriophage (phi-X174) After assembly, the cell is placed in the apparatus as defined in the standard and the corresponding pressure is applied:

- 5 minutes in contact without pressure application.
- 5 minutes at 20 kPa.

End of test, the sample surface that has not been in contact with the bacteriophage suspension is clarified. The rinsing liquid is then placed on an agar plate which has previously been inoculated with *Escherichia coli* (used as host bacteria of bacteriophage). The plates are incubated for 24 hours at 37 ° C, the presence of colonies on the agar surface means that the bacteriophage has passed through the sample.

Results are expressed in the form: PASS or FAIL test. The detection of only one plaque constitutes a failure of the textile.

**Date test:** 09/12/2020 – 10/12/2020

**Dimension of the test specimens:** 7,5 cm x 7,5 cm.

**Bacteriophage:** Bacteriophage Phi-X174 (ATCC 13706-B1).

**Host bacteria of the used of bacteriophage:** *Escherichia Coli* (ATCC 13706).

**Retaining screen:** not use.

**Environmental condition:** 22 °C y/and 39 % H.R

**Bacteriophage concentration:**

- Starting:  $3,06 \cdot 10^8$  (PFU/ml)
- Ending:  $2,16 \cdot 10^8$  (PFU/ml)

**Compatibility ratio:** 1,04

**Pretreatment:** ---



## RESULTS

### RESISTANCE OF MATERIALS USED IN PROTECTIVE CLOTHING TO PENETRATION BY BLOOD-BORNE PATHOGENS USING Phi-X174

#### Results:

Reference	<u>Test 1</u>	<u>Test 2</u>	<u>Test 3</u>
D-Lab Bioclean Coverall : PS 3425	PASS (-)	PASS (-)	PASS (-)
<b>Negative Control</b>	(-)	(-)	(-)
<b>Positive Control</b>	(+)	(+)	(+)

#### Remarks:

- Symbols used in the table of results meaning the following:

(+) = Penetration of bacteriophages.

(-) = No penetration of bacteriophages.

- In accordance with the standard EN 14126:2003 point 4.1.4.1, the product should be classify as **CLASS 6** according with the following table:

Table of classification of resistance to penetration of contaminated liquids under hydrostatic pressure.

Class	Hydrostatic pressure at which the material passes the test
6	20 kPa
5	14 kPa
4	7 kPa
3	3,5 kPa
2	1,75 kPa
1	0 kPa <sup>a</sup>

<sup>a</sup> Means that the material is only exposed to the hydrostatic pressure of the liquid in the test cell.



## RESULTS

### RESISTANCE TO WET BACTERIAL PENETRATION

**Standard**

EN 14126:2003/AC:2004; EN ISO 22610:2006

**Test date**

11/12/2020 - 14/12/2020

**Verifications of equipment operation performed**

- Adjustment of the force of the finger to  $3 \pm 0,02$  N according to point 8.3.
- Verification with carbon paper according to point 10.2.
- Verification with reference material according to point 10.3.

**Environmental conditions**

- Temperature (°C): 21
- Relative humidity (%): 38

**Distance from the agar surface to the edge of the Petri dish (mm):**

3

**Size specimens:**

25 cm x 25 cm

**Carrier material**

Material de PU (Schuett-biotec GmbH)

**Staphylococcus aureus suspension ATCC 29213 (CECT 794) (cfu/mL)**

21,100

**Nº tested specimens**

5

**Pre-treatment**

—————>>>





## RESULTS

### Sample reference

D-Lab Bioclean Coverall : PS 3425

### Batch n°

---

### Results

Replica	1	2	3	4	5
Test time	ufc	ufc	ufc	ufc	ufc
15 min	0	0	0	7	0
30 min	1	0	1	8	1
45 min	2	1	2	1	0
1 h	1	0	4	3	0
1h 15min	0	0	1	1	1
Test specimen upside down	288	260	289	234	205
cfu/plate maximum	2	1	4	8	1

### Calculated barrier index I<sub>B</sub>

Replica	1	2	3	4	5	Average <sup>(2)</sup>
I <sub>B</sub>	6,0	6,0	5,9	5,7	6,0	5,9 ± 0,2

### Remarks

- <sup>(2)</sup>Average value (n = 5) ± U (extended uncertainty) for a probability of coverage of 95%

>>>



## RESULTS

### Remarks

In accordance with the standard EN 14126:2003/AC:2004 point 4.1.4.2, the product should be classified as **CLASS 1** according with the following table:

Table. Classification of resistance to penetration of biological agents by mechanical contact with substances containing contaminated liquids.

Class	Penetration time (t min)
6	$t > 75$
5	$60 < t \leq 75$
4	$45 < t \leq 60$
3	$30 < t \leq 45$
2	$15 < t \leq 30$
1	$\leq 15 \text{ min}$

- <sup>(1)</sup>Data provided by the Customer.

///



## RESULTS

### TEST METHOD FOR RESISTANCE TO DRY BACTERIAL BARRIER PENETRATION

**Standard**

EN ISO 22612:2005

**Test date**

01/12/2020 - 02/12/2020

**Principle**

The test is carried out on test pieces fixed each in a container. In each container except one a portion of talc contaminated with *Bacillus subtilis* is poured on the test piece. One container is left uncontaminated as a control. A sedimentation plate is inserted at base of each container at a short distance below the test piece.

The apparatus supporting the containers is then brought into vibration by a pneumatic ball vibrator. The talc that penetrates is captured on the sedimentation plate. The sedimentation plates are removed and incubated; the numbers of colonies produced are counted.

**Equipment**

- 9 cm diameter Petri dishes containing TGE agar.
- 50 g of talc (95% < 15 $\mu$ ).
- Purified spores of *Bacillus subtilis* in a concentration of  $8,8 \cdot 10^8$  ufc/g talc.
- 12 test pieces 20x20 cm, of reference barrier material.

**Pre-treatment**

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>>>



## RESULTS

### Sample reference

D-Lab Bioclean Coverall : PS 3425

### Batch number<sup>(1)</sup>

---

### Results

Test pieces	log (ufc)
1	0,00
2	0,48
3	0,00
4	0,00
5	0,00
6	0,00
7	0,00
8	0,00
9	0,00
10	0,00
<b>Average</b>	<b>0,05</b>

**CLASS 3**

### Remarks

In accordance with the standard EN 14126:2003/AC:2004 point 4.1.4.4, the product should be classify as **CLASS 3** according with the following table:

Table. Classification of the Contaminated solid particles penetration resistance:

Class	Penetration log (ufc)
3	$\leq 1$
2	$1 < \log(\text{ufc}) \leq 2$
1	$2 < \log(\text{ufc}) \leq 3$

- <sup>(1)</sup>Data provided by the Customer.

///



## RESULTS

### DETERMINATION OF INWARD LEAKAGE OF AEROSOLS OF FINE PARTICLES INTO SUITS

**Standard**

EN ISO 13982-2:2004

**Test date**

16/12/2020

**Reference**

D-Lab Bioclean Coverall : PS 3425

The physical dimensions of the wearers are shown below

Wearer	Height (m)	Chest (cm)	Size of the suit
JAM	1.75	102	XL
MAB	1.78	105	XL
NIC	1.79	98	XL
MAU	1.75	100	XL
CRI	1.76	96	XL

**Pre-treatment**

As received

**Description of the suit**

The suit is a white material one-piece hooded coverall incorporating elasticated wrists, waist, ankles and hood. There is a single action zip at the front of the suit, which runs from the crotch to the neck, which is covered during use by one flap with an adhesive.

**Description of the undergarment**

Wearer wore close fitting polyester/cotton long trousers and long sleeve T-shirts.

**Description of any additional equipment**

Half mask, wellington boots and nitrile disposable gloves.

**Deviation of the standard**

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## RESULTS

### Ambient conditions test

Temperature= (20.2 – 22.6)°C

Relative Humidity= (49.6 – 53.2)%

### The outcomes of the tests were as follows:

In response to the question "does the suit fit", test subject answered "Yes".

After testing in accordance with the movements defined in clause 4.3.2 of EN ISO 13982-2:2004, no damage to the suit was observed.

### Sequence of movements according to standard

	Mov. 1	Mov. 2	Mov. 3
<b>Suit 1</b>	Pass	Pass	Pass
<b>Suit 2</b>	Pass	Pass	Pass
<b>Suit 3</b>	Pass	Pass	Pass
<b>Suit 4</b>	Pass	Pass	Pass
<b>Suit 5</b>	Pass	Pass	Pass
<b>Suit 6</b>	Pass	Pass	Pass
<b>Suit 7</b>	Pass	Pass	Pass
<b>Suit 8</b>	Pass	Pass	Pass
<b>Suit 9</b>	Pass	Pass	Pass
<b>Suit 10</b>	Pass	Pass	Pass

>>>



## RESULTS

### Measurement of concentrations

	Concentration				
	Before the test (%)			Inside the chamber after the stabilization (mg/m <sup>3</sup> )	Inside the chamber at the end of all exercises of the test (mg/m <sup>3</sup> )
	Knee	Waist	Chest		
<b>Suit 1</b>	0.002	0.001	0.001	5.12	4.78
<b>Suit 2</b>	0.001	0.001	0.001	5.06	4.86
<b>Suit 3</b>	0.002	0.002	0.002	5.01	4.70
<b>Suit 4</b>	0.001	0.002	0.002	5.32	5.36
<b>Suit 5</b>	0.002	0.001	0.002	4.74	4.78
<b>Suit 6</b>	0.004	0.001	0.001	5.13	4.92
<b>Suit 7</b>	0.003	0.002	0.002	5.32	5.74
<b>Suit 8</b>	0.003	0.003	0.003	5.24	5.33
<b>Suit 9</b>	0.006	0.006	0.006	5.99	6.48
<b>Suit 10</b>	0.005	0.0015	0.005	5.92	6.24

—————>>>



## RESULTS

Inward leakage individual results are (%):

WEARER	POSITION	Knee	Waist	Chest	Average
JAM	Stand	2.430	5.380	13.200	7.003
	Walk	4.550	8.130	9.920	7.533
	Squat	16.110	17.160	18.910	17.393
	Average	7.697	10.223	14.010	10.643
JAM	Stand	7.040	8.850	12.830	9.573
	Walk	3.620	4.110	7.090	4.940
	Squat	8.120	16.860	24.010	16.330
	Average	6.260	9.940	14.643	10.281
MAB	Stand	5.380	7.430	13.090	8.633
	Walk	3.790	5.020	7.960	5.590
	Squat	26.030	22.990	22.150	23.723
	Average	11.733	11.813	14.400	12.649
MAB	Stand	6.570	8.350	14.900	9.940
	Walk	4.160	4.870	6.250	5.093
	Squat	22.240	20.550	21.490	21.427
	Average	10.990	11.257	14.213	12.153
NIC	Stand	1.530	3.460	10.320	5.103
	Walk	4.560	3.560	10.410	6.177
	Squat	17.250	15.110	19.030	17.130
	Average	7.780	7.377	13.253	9.470
NIC	Stand	3.860	5.270	7.360	5.497
	Walk	2.910	3.270	6.310	4.163
	Squat	14.200	15.150	15.290	14.880
	Average	6.990	7.897	9.653	8.180
MAU	Stand	4.970	11.920	12.040	9.643
	Walk	4.290	5.410	8.860	6.187
	Squat	17.380	17.090	16.500	16.990
	Average	8.880	11.473	12.467	10.940
MAU	Stand	4.370	4.420	7.040	5.277
	Walk	1.820	0.490	1.530	1.280
	Squat	13.580	9.180	9.980	10.913
	Average	6.590	4.697	6.183	5.823
CRI	Stand	1.830	4.410	8.080	4.773
	Walk	2.560	2.400	6.500	3.820
	Squat	10.480	11.200	10.820	10.833
	Average	4.957	6.003	8.467	6.476
CRI	Stand	3.400	4.320	6.380	4.700
	Walk	2.440	1.970	3.250	2.553
	Squat	8.050	5.820	4.950	6.273
	Average	4.630	4.037	4.860	4.509

>>>





## RESULTS

Total inward leakage by wearer (%):

WEARER	Average
JAM	10.462
MAB	12.401
NIC	8.825
MAU	8.382
CRI	5.492
Average	9.112

Total inward leakage (%):

POSITION	Knee	Waist	Chest	Average
Stand	4.138	6.381	10.524	7.014
Walk	3.470	3.923	6.808	4.734
Squat	15.344	15.111	16.313	15.589
Average	7.651	8.472	11.215	9.112

>>>



## RESULTS

**IL<sub>82/90</sub>**: the inward leakage value (in percent). equal to or superior to 82/90 (91.1%) of all IL values measured (all exercises. all sampling position. all suits):

Ordination	Value	Ordination	Value	Ordination	Value	Ordination	Value
1	0.490	24	4.370	47	7.430	69	13.580
2	1.530	25	4.410	48	7.960	70	14.200
3	1.530	26	4.420	49	8.050	71	14.900
4	1.820	27	4.550	50	8.080	72	15.110
5	1.830	28	4.560	51	8.120	73	15.150
6	1.970	29	4.870	52	8.130	74	15.290
7	2.400	30	4.950	53	8.350	75	16.110
8	2.430	31	4.970	54	8.850	76	16.500
9	2.440	32	5.020	55	8.860	77	16.860
10	2.560	33	5.270	56	9.180	78	17.090
11	2.910	34	5.380	57	9.920	79	17.160
12	3.250	35	5.380	58	9.980	80	17.250
13	3.270	36	5.410	59	10.320	81	17.380
14	3.400	37	5.820	60	10.410	82	18.910
15	3.460	38	6.250	61	10.480	83	19.030
16	3.560	39	6.310	62	10.820	84	20.550
17	3.620	40	6.380	63	11.200	85	21.490
18	3.790	41	6.500	64	11.920	86	22.150
19	3.860	42	6.570	65	12.040	87	22.240
20	4.110	43	7.040	66	12.830	88	22.990
21	4.160	44	7.040	67	13.090	89	24.010
22	4.290	45	7.090	68	13.200	90	26.030
23	4.320	46	7.360				

**TILS<sub>8/10</sub>**: the “total inward leakage per suit” value. equal or superior to 80% of all TILS-values:

Suit	Average
1	4.509
2	5.823
3	6.476
4	8.180
5	9.470
6	10.281
7	10.643
8	10.940
9	12.153
10	12.649

>>>



## RESULTS

### REQUIREMENTS ACCORDING TO STANDARD EN ISO 13982-2:2004

When tested in accordance with EN ISO 13982-2:2004 the type 5 protective clothing shall be characterized by the following parameters according to EN ISO 13982-1:2004/A1:2010:

- $IL_{82/90}$ : the inward leakage value (in percent), equal to or superior to 82/90 (91.1%) of all IL values measured (all exercises, all sampling position, all suits)
- $TILS_{8/10}$ : the “total inward leakage per suit” value, equal or superior to 80% of all TILS-values.

Type 5 chemical protective clothing shall meet at least the following requirements:

- $IL_{82/90} \leq 30\%$  and
- $TILS_{8/10} \leq 15\%$

$IL_{82/90}$	18.910
$TILS_{8/10}$	10.940

ACCORDING TO STANDARD EN ISO 13982-1:2004/A1:2010

PASS

///



**Lucia Martinez**  
**Head of PPE and Ballistics department**

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- 3.- The Offer and / or Order to which the applicant gives approval through signature and seal, constitutes the Legally Executable Agreement in which AITEX is responsible for safeguarding and guaranteeing the absolute confidentiality of the management of all the information obtained or created during the performance of the contracted activities.
- 4.- In the eventuality of discrepancies between reports, a check to settle the same will be carried out in the head offices of AITEX. Also, the applicants undertake to notify AITEX of any complaint received by them as a result of the report, exempting this Centre from all liability if such is not done, the periods of conservation of the samples being taken into account.
- 5.- AITEX is not responsible for the information provided by customers, which is reflected in the Report, and may affect the validity of the results.
- 6.- AITEX will provide at the request of the person concerned, the treatment of complaints procedure.
- 7.- AITEX is not responsible for an inadequate state of the sample received that could compromise the validity of the results, expressing such circumstance, in the test reports.
- 8.- AITEX may include in its reports, analyses, results, etc., any other evaluation which it considers necessary, even when it has not been specifically requested.
- 9.- When a Declaration of Conformity is requested, if not indicated otherwise, the decision rule will be applied according to ILAC-G8 & ISO 10576-1, in case of ambiguity, or indeterminacy
- 10.- The uncertainties of tests, which are made explicit in the Results Report, have been estimated for a  $k = 2$  (95% probability of coverage). If not informed, they are available to the client in AITEX.
- 11.- The original materials and rests of samples, not subject to test, will be retained in AITEX during the twelve months following the issuance of the report, so that any check or claim which, in his case, wanted to make the applicant, should be exercised within the period indicated.
- 12.- This report may only be sent or delivered by hand to the applicant or to a person duly authorised by the same.
- 13.- The results of the tests and the statement of compliance with the specification in this report refer only to the test sample as it has been analyzed / tested and not the sample / item which has taken the test sample.
- 14.- The client must attend at all times, to the dates of the realization of the tests.
- 15.- According to Resolution EA (33) 31, the test reports must include the unique identification of the sample, and any brand or label of the manufacturer may be added. It is not allowed to re-issue test reports of untested sample names (references), they can only be re-issued for error correction or inclusion of omitted data that were already available at the time of the test. The laboratory can not assume responsibility for declaring that the product with the new trade name / trademark is strictly identical to the one originally tested; This responsibility belongs to the client.
- 16.- This report may not be partially reproduced without the written approval of the issuing laboratory.