MAMELUCO S110

Descripción:

Nuestra línea de buzos descartables STEELPRO brinda a los usuarios protección contra polvo y partículas líquidas, además de agentes no químicos que puedan ingresar al cuerpo.

El Buzo S110 es un traje básico de protección descartable para trabajos livianos, protegiendo la integridad del trabajador, brindando transpirabilidad y comodidad.

STEELPRO SAFETY

Características:

- Confeccionado en tela no tejida de 50 gramos, compuesta de 3 capas.
- Primera capa de 100% Polietileno, película respirable de 20 gramos.
- Segunda capa de recubrimiento termo fusible adhesiva de 2 gramos.
- Tercera capa de 100% Polipropileno de 28 gramos. 58% Polipropileno 42% Polietileno
- Tecnología con tratamiento laminado respirable, que permite la evaporación de la transpiración y presenta buen comportamiento como regulador de la temperatura corporal.
- Tela laminada microporosa SF50 de 50 g/m2

Certificaciones:

- EN ISO 13934-1:2013
- EN ISO 13935-2:2014
- ASTM E96/E96M-2016
- ISO 9073-2:1995
- ISO 9073-1:1989
- AATCC TM 35-2018

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Attention: Lenny Liu

The following sample was submitted and identified by the client as:

Sample Description:	Sample of white micro-porous coverall, in sizes, M, L, XL, XXL, 3XL & 4XL.
Date Sample(s) Received:	03rd June 2015
Testing Period:	Tested between 08/06/2015 and 01/07/2015
Test(s) Requested:	EN 14325:2004 as detailed in appendix A EN 1149-1: 2006 Protective clothing – Electrostatic properties Part 1: Measurement of Surface Resistivity EN 13034:2005 Resistance to penetration by liquids in the form of a light spray (mist test) EN ISO 13982-2:2004 Determination of inward leakage of aerosols of fine particles into suits.
Test Results:	Detailed in Appendix A

Signed for and on behalf of
SGS United Kingdom Ltd

Chris Walker B.Sc. (Hons)
Technical Manager

Appendix A: Test Results

BS EN 14325:2004 Protective clothing against chemicals
Test Methods and performance classification of chemical protective clothing materials, seams, joins and assemblages.

Section 4: Performance classification of materials.
Sample for testing in accordance with EN 14325:2004 were conditioned in standard atmosphere 23±2°C and 50% ±4% Relative Humidity for at least 24 hours prior to testing.

Clause		Test Method		Result	Class	Comments
4.2	Pre-conditioning (5 cycles of cleaning)	Not Applicable Limited Use		-	-	-
4.4	Abrasion Resistance	EN 530 Method 2		>10 Cycles (Visual assessment)	1	>10 but <100
4.5	Flex cracking resistance	ISO 7854 Method B		40,000 Cycles (Visual assessment)	5	>15,000 but <40,000
4.7	Trapezoidal tear resistance	ISO 9073-4		XD = 31.2 N MD= 52.9 N	2	
4.9	Tensile Strength	ISO 13934-1		XD = 42.1 N MD= 65.7 N	1	
4.10	Puncture Resistance	EN863		6.67 N	1	
4.12	Repellency to liquids*	EN ISO 6530:2005				
			30% H_2SO_4	97.5%	3	
			10% NaOH	97.5%	3	
			o-Xylene	96.4%	3	
			Butan-1-ol	97.7%	3	
4.13	Resistance to penetration by liquids*	EN ISO 6530:2005				
			30% H_2SO_4	0.0%	3	
			10% NaOH	0.0%	3	
			o-Xylene	0.0%	3	
			Butan-1-ol	0.0%	3	

Section 5: Performance requirements for seams joins and assemblages

Clause		Test Method	Result	Class	Comments
5.2	Pre-conditioning (5 cycles of cleaning)	Not applicable Limited Use	-	-	-
5.5	Seam Strength	ISO 13935-2	Waist seam = 73.7N Leg seam = 65.1N Arm seam = 77.7N Hood seam = 63.1N	2	Fabric tears

An estimation of uncertainty of measurement has not been taken into account when making a judgement on any pass/fail criteria.

EN 1149-1:2006 Protective clothing – Electrostatic properties
Part 1: Measurement of Surface Resistivity*
The sample was conditioned and tested at 23 ± 1 °C and 25 ± 5 % Relative Humidity

The surface resistivity of the test sample was determined according to the method specified in BS EN 1149-1:2006.

						Mean
Surface Resistance (Ω)	$>2.00 \times 10^{10}$	$>2.00 \times 10^{10}$	$>2.00 \times 10^{10}$	$>2.00 \times 10^{10}$	$>2.00 \times 10^{10}$	$>2.00 \times 10^{10}$
Surface Resistivity (Ω)	$>3.96 \times 10^{11}$	$>3.96 \times 10^{11}$	$>3.96 \times 10^{11}$	$>3.96 \times 10^{11}$	$>3.96 \times 10^{11}$	$>3.96 \times 10^{11}$

Note
As the sample is intended for single use, it did not require washing prior to testing.

For a material containing conductive threads in a stripe or grid pattern the spacing of the conductive threads in one direction shall not exceed 10mm.

The maximum acceptable resistance specified in EN 1149-5:2008 is $\leq 2.5 \times 10^{9}$ Ω measured on at least one surface. The tested sample fails to meets this requirement.

EN13034:2005 Protective clothing against liquid chemicals – Performance requirements for chemical protective clothing offering limited protective performance against liquid chemicals (Type 6 and Type PB [6] equipment)
Clause 5.2 Resistance to penetration by liquids in the form of a light spray (mist test)*

Test Method: The test method used was the total inward leakage method defined in ISO 17491-4

The standard calls for the testing to be carried out using three suits.

The physical dimensions of wearer(s) are shown below;

Wearer	Height (cm)	Chest (cm)	Suit Size
JA	182	98	XL

Undergarments as detailed in ISO 17491-4 and a "Sontara" absorbent suit were worn directly under the test garment.
The device is a white material hooded one piece coverall incorporating elasticated ankles, waist, hood and cuffs. There is a double action zip at the front of the suit which runs from crotch to the neck and is covered during use by a flap which is sealed onto the suit material by means of double sided tape.

At the request of the client the coveralls were taped onto a scott "promask" full face mask, wellington boots and rubber gloves.

The wearers were dressed in accordance with the manufacturer's dressing procedures.

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

After testing in accordance with the practical movements defined in EN13034 for type 6 clothing no damage was observed on the suit.

Surface tension measurements of the test solution were recorded in the reservoir and at the nozzle before and after testing and these ranged from 46.6 to 47.3$Nm^{-1}x10^{-5}$ and 44.9 to 46.6Nm^{-1} $x10^{-5}$ respectively.

A temperature measurement of 24.2°C was recorded in the test chamber immediately after testing.

Leakage stains were detected on the back, the front of the left leg and the right arm of the first dosimeter tested.

As the observed leakage areas were clearly in excess of three times the area of the calibrated stain, no further testing was carried out.

Assessment of Compliance
EN 130345 for type 6 clothing states that:
"All suits shall pass the test, i.e. the total area on any one undergarment of each suit shall be less than or equal to three times the total calibrated stain area".

For this suit as stains were detected, the sample therefore **fails to comply** with the requirements of EN13034 for type 6 clothing.

EN ISO 13982-1:2004 Protective clothing for use against solid particulates – Part 1: Performance requirements for chemical protective clothing providing protection to the full body against airborne solid particulates (type 5 clothing)*
EN ISO 13982:2004 Part 2 - Determination of inward leakage of aerosols of fine particles into suits
Test Methods: The test method used was the total inward leakage method defined in BS EN ISO 13982-2: 2004.

The physical dimensions of the wearers are shown below;

Wearer	Height (cm)	Chest (cm)	Suit Size
DB	178	96	L
JB	164	100	L
KWS	180	96	XL
LF	168	105	L
TW	177	105	XL

All wearers wore close fitting polyester/cotton long trousers and long sleeve T-shirts. The 2L/min air sample from the suit was replaced with clean air.

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The device is a white material one piece hooded coverall incorporating elasticated ankles, waist, hood and wrists. There is a double action zip at the front of the suit which runs from the crotch to the neck and is covered during use by a flap which is sealed onto the suit material by means of double sided tape.

The wearer was dressed in accordance with the manufacturer's instructions. At the request of the client the coveralls were worn with nitrile disposable gloves, wellington boots and Scott "Promask" full face mask.

Test results:
In response to the question "does the suit fit", all test subjects answered "Yes".

After testing in accordance with the movements defined in clause 4.3.2 of BS EN ISO 13982-1: 2004, no damage to the suit was observed.

Temperature and relative humidity measurements were recorded in the test chamber before and after each test and these ranged from 24.5 to 27.4°C and 47.1 to 59.6%, respectively.

Inward leakage results in terms of concentration of salt inside the suit as a percentage of the challenge concentration are shown in the following tables:

Table 1: NaCl inward leakage (%) individual results

Wearer	Position	Knee	Waist	Breast	Average
DB	Stand	2.247	2.156	2.881	2.428
	Walk	0.651	2.004	2.676	1.777
	Squat	3.253	8.774	2.384	4.804
	Average	2.050	4.311	2.647	3.003

Wearer	Position	Knee	Waist	Breast	Average
DB	Stand	1.084	1.411	1.903	1.466
	Walk	0.349	0.841	0.868	0.686
	Squat	1.684	4.137	3.156	2.992
	Average	1.039	2.129	1.976	1.715

Wearer	Position	Knee	Waist	Breast	Average
JB	Stand	0.314	1.645	2.242	1.401
	Walk	0.287	0.663	0.656	0.536
	Squat	1.964	11.733	8.183	7.293
	Average	0.855	4.681	3.694	3.077

Wearer	Position	Knee	Waist	Breast	Average
JB	Stand	0.895	3.001	2.276	2.057
	Walk	0.836	8.132	4.958	4.642
	Squat	0.529	6.422	6.138	4.363
	Average	0.753	5.852	4.457	3.688

Wearer	Position	Knee	Waist	Breast	Average
KWS	Stand	0.006	0.018	0.097	0.040
	Walk	0.342	0.437	0.931	0.570
	Squat	1.512	2.770	4.661	2.981
	Average	0.620	1.075	1.896	1.917

Wearer	Position	Knee	Waist	Breast	Average
KWS	Stand	0.111	0.348	0.535	0.332
	Walk	0.467	1.067	1.642	1.059
	Squat	2.574	25.514	6.749	11.612
	Average	1.051	8.976	2.975	4.334

Wearer	Position	Knee	Waist	Breast	Average
LF	Stand	0.005	0.05	0.043	0.017
	Walk	0.448	0.391	0.488	0.442
	Squat	0.875	4.153	4.330	3.113
	Average	0.442	1.510	1.620	1.191

Wearer	Position	Knee	Waist	Breast	Average
LF	Stand	0.124	0.114	0.082	0.107
	Walk	0.480	0.412	0.491	0.461
	Squat	0.769	2.058	3.081	1.970
	Average	0.458	0.861	1.218	0.846

Wearer	Position	Knee	Waist	Breast	Average
TW	Stand	0.876	0.499	0.607	0.660
	Walk	2.095	3.506	2.915	2.839
	Squat	16.684	8.744	8.885	11.438
	Average	6.551	4.250	4.135	4.979

Wearer	Position	Knee	Waist	Breast	Average
TW	Stand	0.048	0.132	0.221	0.134
	Walk	0.640	1.085	0.898	0.874
	Squat	1.264	4.967	12.243	6.158
	Average	0.651	2.062	4.454	2.389

Table 2: Total inward leakage (%) (Overall average, all wearers)

Position	Knee	Waist	Breast	Average
Stand	0.571	0.933	1.089	0.864
Walk	0.660	1.854	1.652	1.389
Squat	3.111	7.926	5.981	5.672
Average	1.447	3.571	2.907	2.642

Table 3: Total inward leakage per test subject

Wearer	Average
DB	2.359
JB	3.382
KWS	2.766
LF	1.018
TW	3.684
Average	2.642

Assessment of compliance:
BS EN ISO 13982-1 specifies the requirements and classes of type 5 suits as:
When tested in accordance with BS EN ISO 13982-2 the type 5 protective clothing shall be characterized by the following parameters:
$IL_{82/90}$: the inward leakage value (in percent), equal to or superior to 82/90 (91.1%) of all IL values measured (all exercises, all sampling positions, all suits);

TILS8/10: 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:
$IL_{82/90}$ <30% and
$TILS_{8/10<}$15%

For this suit, all of the IL results are less than 30% and all of the TILS are less than 15%.

The sample **complies** with the requirements of BS EN ISO 13982-1 (2004) for inward leakage of aerosol of solid

***** End of Report*****

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