COVERCO
AUSTRALIA
A.C.N. 066 616 126

CE

CE Technical File – General Information & Rational

The Coverco Anti-Static Spray Suit described in this technical file are certified by SAI Global (NB 2056) to EN 13034:2005 + Amend 1:2009 through the CE marking and certification scheme to the PPE directive 89/686/EEC as a Category III – Article 11A product and have had EC Certificate CEPPE20015 issued.

EC CERTIFICATE of CONFORMITY

SAI Global Assurance Services Limited ("SAI Global") (Notified Body No: NB2056) has examined the product and the related technical documentation as presented and certifies that the product complies with the Directive(s) and Standard or Specification as below and on the appendixes included with the certificate.

Certificate holder: **Coverco Australia Pty Ltd,**
2756 Glenrowan Myrtleford Rd,
Markwood, VIC 3678, Australia

Product Description: **Protective Clothing – Anti-Static Spray Suit - (Category III)**

Examined for compliance with: **Directive PPE 89/686/EEC**

Relevant Standard(s)/Technical Specification: **EN 13034: 2005 + A1: 2009 – 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)**

Additional Information:

Date of issue: ***07th April 2011***

Certificate No: ***CEPPE20015***

Authorized Signatory
Certification Chairman

This certificate remains the property of SAI Global and has been issued in accordance with the CE Scheme Conditions and Procedures of the SAI Global Assurance Services Ltd (EFSIS), Winterhill House, Snowdon Drive, Milton Keynes, MK6 1AX

.

THIS CERTIFICATE DOES NOT ENTITLE THE HOLDER TO USE ANY OF THE CERTIFICATION TRADEMARKS ISSUED BY SAI GLOBAL LIMITED OR OTHERWISE.

R-CES-13-1h Issue#3, May 08

APPENDIX 1

SAI Global Assurance Services Limited ("SAI Global") (Notified Body No: NB2056) has examined the product and the related technical documentation as presented and certifies that the product complies with the Directive(s) and Standard or Specification as below.

Product Description: **Protective Clothing – Anti-Static Spray Suit - (Category III)**

Model: **Coverco Anti-Static Spray Suit – Model CFO**

Examined for compliance with: **Directive PPE 89/686/EEC (Article 10 & 11a)**

Relevant Standard(s)/Technical Specification: **EN 13034: 2005 + A1: 2009 – 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)**

Technical file Reference No: **CEPPE20015 – CR10885**

Additional Information:

Date of issue: ***07th April 2011***

Certificate No: ***CEPPE20015A1***

Authorized Signatory
Certification Chairman

This certificate remains the property of SAI Global and has been issued in accordance with the CE Scheme Conditions and Procedures of the SAI Global Assurance Services Ltd (EFSIS), Winterhill House, Snowdon Drive, Milton Keynes, MK6 1AX

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AUSTRALIA
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AUTHORIZATION FOR USE OF TECHNICAL FILE

I, Glenn Forshaw, hereby authorize the **Coverco Anti-Static Spray Suit – Model CFO** described in this Technical File and certified by are certified by SAI Global (NB 2056) under Certificate No **CEPPE20015A1** will be provided to **Shaoxing Huanxin Imp & Exp Co Ltd**, as **SX Spray Suit** labeled product.

No changes to the product other than model number and company name on the product will differ from that on the original Test Report and CE Certificate as referenced.

Coverco Australia Pty Ltd takes full responsibility for ensuring that the same QA procedures as employed in the manufacture of the product as referenced on the original CE Certificate No. **CEPPE20015A1** ensuring all products(s) supplied meet the relevant clauses of EN 13034:2005 + Amend 1:2009, against which the product has been assessed and certified.

Signed on behalf of Coverco Australia Pty Ltd

Signature:

Print Name: Glenn Forshaw
Title: Director
Date Signed: 08/04/2011

CE Certification – Article 11A Testing
Coverco Australia Pty Ltd

Finished Product Testing

Internal Testing

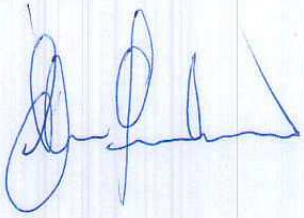
The following are the internal testing rates on finished product:

100% Visual Inspection of all manufactured product.

All In-process testing and final batch release testing will be conducted in accordance with the Coverco Australia quality control procedures.

External Testing – SAI Global

In addition to our internal inspection and testing procedures, Coverco Australia will ensure the CE certified Coverall will be tested by SAI Global at a minimum rate of once every year in accordance with Article 11A. This test will be conducted to meet the requirements of EN 13034: 2005 + A1: 2009



Name: Mr Glenn Forshaw Date: 04/04/2011
Title: Director
Mfg. Coverco Australia Pty Ltd

Declaration of Conformity to Basic Requirements (89/686/EEC Annex II)

The manufacturer:

Coverco Australia Pty Ltd,
2756 Glenrowan Myrtleford Rd,
Markwood, VIC 3678, Australia
Telephone +61 3 57271235 Fax +61 3 57271595

has considered all the requirements as found in Annex II of the directive as determined applicable to the device described below and assures the conformity of the device to same by utilizing Annex ZA of the applicable harmonized standard EN 13034:2005 + A1:2009

PART NUMBERS : Coverco Anti-Static Spray Suit – Model CFO

Done at

Coverco Australia Pty Ltd,
2756 Glenrowan Myrtleford Rd,
Markwood, VIC 3678, Australia

Name: Mr Glenn Forshaw Date: 04/04/2011
Title: Director
Mfg. Coverco Australia Pty Ltd

EC Directive 89/686/EEC
Annex VI

Declaration of Conformity

The manufacturer or his authorized representative established in the Community:

Coverco Australia Pty Ltd,
2756 Glenrowan Myrtleford Rd,
Markwood, VIC 3678, Australia
Telephone +61 3 57271235 Fax +61 3 57271595

declares that the new PPE described hereafter

Coverco Anti-Static Spray Suit – Model CFO

is in conformance with the provisions of Council Directive 89/686/EEC and, where such is the case, with the harmonized standard EN 13034:2005 + A1:2009 and is identical to the PPE which is the subject of EC certificate of conformity No.CEPPE20015 as issued by:

SAI Global Assurance Services Ltd. trading as EFSIS Ltd.
Winterhill House
Snowdon Drive
Milton Keynes MK6 1AX
United Kingdom
Notified Body: 2056

This product is subject to the procedures as set out in Article 11A of EC Directive 89/686/EEC.

Name: Mr Glenn Forshaw Date: 04/04/2011
Title: Director
Mfg. Coverco Australia Pty Ltd

Suppliers Declaration of Compliance/Letter of Guarantee

(for all critical raw materials/ parts)

Vendor Information:

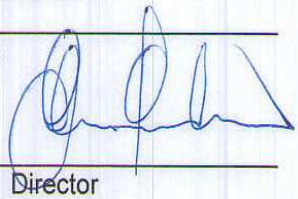
Vendor Name:	Coverco Australia Pty Ltd
Vendor Address:	2756 Glenrowan Myrtleford Rd, Markwood, VIC 3678, Australia
Vendor Representative:	Mr Glenn Forshaw
Telephone:	+61 3 57271235
Fax:	+61 3 57271595
Email Address:	glenn.forshaw@coverco.com.au

We, Coverco Australia Pty Ltd certify that all products will comply with the below requirements:

A. All products are in compliance with EN 13034: 2005 + A1: 2009 certified specifications.

Glenn Forshaw

Date: 04/04/2011

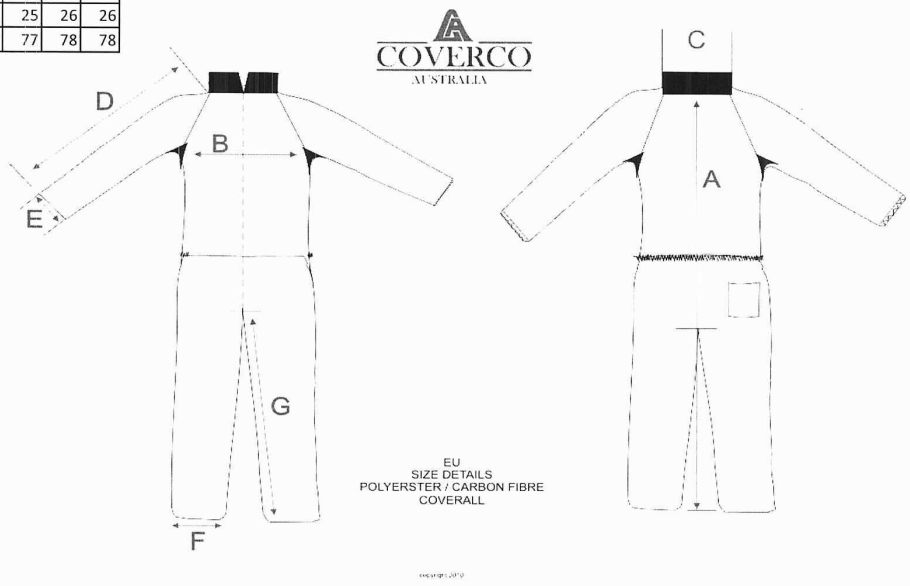
Signature: 

Position: Director

Company Name: Coverco Australia Pty Ltd

EU SIZES CHART							
SIZE (CM)		S	M	L	XL	XXL	XXXL
BACK LENGTH	A	154	158	162	166	170	174
CHEST	B	58	62	66	70	74	78
SHOULDER	C	46	50	54	58	62	66
SLEEVE LENDTH	D	62	63	64	65	66	66
CUFF	E	9	9	10	10	11	11
ANKLE	F	22	23	24	25	26	26
INSEAM	G	75	75	77	77	78	78

COVERCO
AUSTRALIA



EU
SIZE DETAILS
POLYERSTER / CARBON FIBRE
COVERALL

COVERCO
AUSTRALIA
A.C.N. 066 616 126

Po Box 909 Wangaratta, Vic Australia, 3676
Ph: 03 5727 1235 Fax: 03 5727 1595

CARE INSTRUCTIONS

Coverco Antistatic Spray Suit

CARE INSTRUCTIONS

- Designed and recommended for spray paint application with in appropriate spray painting booths

WASHING INSTRUCTIONS

- Fasten Front, Before Washing
- Warm Hand Or Warm Machine Wash Only
- Do Not Iron
- Do Not Tumble Dry
- Do Not Dry Clean

RECOMMENDATIONS

- The Antistatic Properties within the Garment (Carbon Fibre Thread) can deplete Over a Period of Time; it is Recommended the Garment Should is replaced after 50 Washes or 3 Months of wear or whatever comes first, this is to ensure the highest Antistatic properties are achievable
- Keep Away From Sharp Objects
- Zips Must Be Closed Fully Whilst In Use
- Always Wear Head Cover (Hood) If Applicable
- Avoid chemical / Paint spillages directly onto garment
- Breathable
- Washable

This model is certified by:

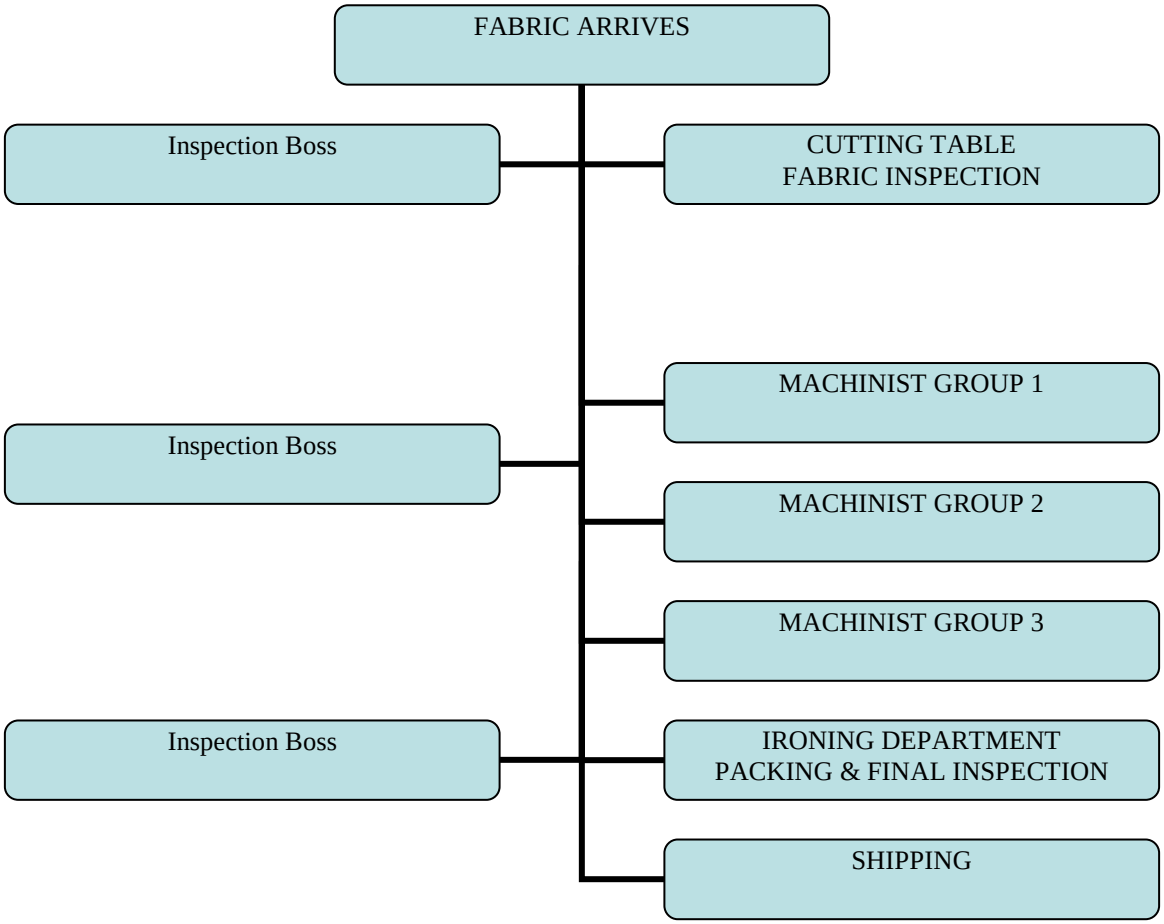
SAI Global Assurance Services Ltd. trading as EFSIS Ltd.
Winterhill House
Snowdon Drive
Milton Keynes MK6 1AX
United Kingdom
Notified Body: 2056

CE Certification - Production Quality Plan
Coverco Australia Pty Ltd

Quality Control Brief

1. Fabric is inspected for faults as is been laid out on cutting table, No garment is manufactured with faulty fabric, the fabric construction is 99% Polyester, 1% Carbon Fibre, it is critical the technical specification of the fabric is in excellent condition, prior to cutting. Colour is checked for appropriate job.
2. Patten layout is inspected for correct yardage, as and all fabric is cut in the correct direction.
3. Garments are manufactured is sizing groups, to ensure all sizing remain constant with production order
4. All cutting and manufacturing equipment is inspected prior to cutting to make sure all equipment is in good operational working order, all machines are checked at the start of each working day
5. Each machinist is given a brief on the garment they are manufacturing. Before any job starts,
6. When a machinist finishes the first few seams, their checked for correct sizing, prior to production
7. All accessories are inspected prior to installation to garments. After installation, seems of accessories are checked, before they move to the next department
8. All machinists' work is visually inspected buy following, to insure last Machinist work is correct. All machinists are responsible to ensure threads are trimmed as required, If any faults, correction boss will advise worker to fix or discard
9. Inspection boss also checks random garments, before next machinists receives job, Including, seams, seam strength, thread strength, there's no gathering of fabric under seams, over locking stitching is correct, all finished end seams are tied off, and measuring.
10. Finish garments are randomly measured, to ensure correct sizing
11. Final Inspection is done by garment finishing workers, who will inspect every garment, trim excess threads, fasten all zips, and prepare for Ironing and packing department.
12. Packing department will go over each garment as its being Ironed and packed before shipping.

QUALITY FLOW CHART



HIGH PERFORMANCE MATERIALS

Confidential Report

OUR REF. 11/15753

1066

Notified Body
for PPE Directive,
Construction Products Directive &
Marine Equipment Directive
I.D. No. 0338 & 0339

Unit 14 Wheel Forge Way, Ashburton Road West,
Trafford Park, Manchester. M17 1EH
Tel: +44(0)161 873 6543 Fax: +44(0)161 848 7378

Part of BTTG Testing & Certification Ltd.

HIGH PERFORMANCE MATERIALS

BTTG Testing & Certification Ltd.
Unit 14, Wheel Forge Way
Ashburton Road West
Trafford Park
Manchester M17 1EH

CONFIDENTIAL TEST REPORT

Date: 7 March 2011
Our Ref : 11/15753/PJH
Your Ref :

Client:
COVERCO AUSTRALIA Pty Ltd.
PO Box 389
Moorabbin
Vic
3189
AUSTRALIA

Job Title: Tests on one coverall

Client's order no: -

Date of receipt: 24th January 2011
Date of test start: 27th January 2011

Description of sample(s): Three coveralls and three additional meters of woven material, identified as follows, were received for testing:

Coverall - 99% Polyester, 1% Carbon Fibre with Teflon Coating

Work requested: We were asked to make the following tests as specified in EN 14325: 2004, "Protective clothing against chemicals – Test methods and performance classification of chemical protective clothing materials, seams, joins and assemblages", and as required by EN 13034: 2005 + A1: 2009, "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).

Abrasion resistance EN 530 Method 2
Trapezoidal tear resistance EN ISO 9073-4
Tensile strength EN ISO 13934-1
Puncture resistance EN 863
Repellency to liquids EN 368
Resistance to penetration by liquids EN 368
Seam strength EN ISO 13935-2
*Resistance to penetration by liquids EN ISO 17491-4

* Sub-contracted test, not UKAS accredited

BTTG Testing & Certification Ltd.
Unit 14, Wheel Forge Way
Ashburton Road West
Trafford Park
Manchester M17 1EH

Date: 7 March 2011
Our Ref : 11/15753/PJH
Your Ref :

COVERCO AUSTRALIA Pty Ltd.

Sample was identified as follows:

Coverall - 99% Polyester, 1% Carbon Fibre with Teflon Coating

Laboratory Work
Where appropriate, the tests were made in Standard Atmosphere (65 ± 4% relative humidity at 20 ± 2ºC) the sample having been freely and continuously exposed to that atmosphere for at least 24 hours prior to testing. Specimens have been taken from the sample as described in the specified standards, except where indicated otherwise.

NOTE – The tests were made as specified in EN 14325: 2004, “Protective clothing against chemicals”,

Pre-conditioning
Prior to all testing, the samples were subjected to five cycles of cleaning in accordance with the manufacturers instructions. (Simulated wand wash at 40ºC with line drying).

Abrasion resistance
Abrasion resistance was carried out in accordance with EN 530: 2010, Method 2.

The Martindale Abrasion tester was employed in the inverted mode, i.e. the test specimen was placed on the abradant table and the abradant was mounted in the test-piece holder. Testing was carried out on the face of the specimens.

Four specimens were mounted over woven felt base-pads and abraded under a test head pressure of 9kPa using grade 00 abrasive cloth for a pre-determined number of cycles or until failure occurred.

It was not possible to assess the performance of the fabric using the pressure pot, as required by EN 14325, therefore, the end-point was determined using visual assessment as specified in EN 530: 2010.

Specimen breakdown in woven fabrics is when two separate threads are completely broken.

HIGH PERFORMANCE MATERIALS

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Your Ref :

COVERCO AUSTRALIA Pty Ltd.

Trapezoidal tear resistance
Trapezoidal tear resistance was measured in accordance with EN ISO 9073-4: 1997.

Five specimens were prepared in each direction as described in the standard. A force was applied, to steadily extend a cut in the test specimen. The mean average tear resistance is given in Newtons.

The performance of the material was classified using the mean result according to the performance levels given in Table 4.

Tensile Strength
Tensile strength was measured in accordance with EN ISO 13934-1: 1999.

Five specimens were prepared in each direction, each having an effective width of 50mm and long enough to enable a gauge length of 200mm to be used. The tests were made on a Testometric C.R.E. machine fitted with flat faced jaws operating at a rate of extension of 100 mm per minute. A pre-tension of 2 Newtons was employed.

Results are reported as required by the standard.

The performance of the material was classified using the mean result according to the performance levels given in Table 6.

Puncture resistance
Puncture resistance was measured in accordance with EN 863: 1995.

Four specimens were tested with the outer face of the fabric to the probe. The maximum force required to push the spike through the specimen is recorded as puncture resistance.

The mean value is rounded to the nearest whole number, as required by the standard.

The performance of the material was classified using the mean result according to the performance levels given in Table 7.

HIGH PERFORMANCE MATERIALS

BTTG Testing & Certification Ltd.
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Manchester M17 1EH

Date: 7 March 2011
Our Ref : 11/15753/PJH
Your Ref :

COVERCO AUSTRALIA Pty Ltd.

Repellency to liquids and resistance to penetration by liquids
The tests were made in accordance with EN ISO 6530: 2005 (supersedes EN 368: 1992 which is withdrawn) against the following chemicals. The chemical was applied to the outer face.

Delivery rate: 10ml in 10±1s
Delivery temperature: 20ºC

Chemical 1:	30% H_2SO_4
Chemical 2:	10% NaOH
Chemical 3:	o-Xylene
Chemical 4:	Butan-1-ol

The sample was classified according to the performance levels given in Table 10 and Table 11 using the lowest single value.

Resistance to Ignition
Resistance to Ignition tests were made in accordance with EN 13274-4 Method 3.

The performance of the material was assessed according to Table 11.

Seam strength
Seam strength was measured in accordance with EN ISO 13935-2: 1999.

Three specimens were prepared as described in the standard. The tests were made on a Testometric M500 C.R.E. machine fitted with 25 mm grab jaws, set 100mm apart and operating at a constant rate of extension of 50 mm per minute. No pretension was used.

The mean result is reported as required by the standard.

The performance of the material was assessed using the result according to the performance levels given in Table 13.

Resistance to penetration by liquids
The tests were made following the EN ISO 17491-4: 2008, method A (low-level spray) procedure.

An aqueous spray, containing a fluorescent or visible dye tracer, is directed under controlled conditions at the chemical protective clothing worn by a human test subject. Inspection of the inside surface of the clothing and the outside surface of the absorbent overall worn under the test garment allows any points of inward leakage to be identified.

The results of all tests completed to date given in the tables on the following pages.

HIGH PERFORMANCE MATERIALS

BTTG Testing & Certification Ltd.
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Manchester M17 1EH

CONFIDENTIAL TEST REPORT

Date: 7 March 2011
Our Ref : 11/15753/PJH
Your Ref :

COVERCO AUSTRALIA Pty Ltd.

Sample Ref: Coverall - 99% Polyester, 1% Carbon Fibre with Teflon Coating

ABRASION RESISTANCE	
Class	**Number of Cycles**
6	**>2 000**
5	**>1 500**
4	**>1 000**
3	**>500**
2	**>100**
1	**>10**

Specimen Number	Number of Cycles	Class
1	>2000	**6**
2	>2000	
3	>2000	
4	>2000	
Lowest single result	**>2000**	

HIGH PERFORMANCE MATERIALS

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Date: 7 March 2011
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Your Ref :

COVERCO AUSTRALIA Pty Ltd.

Sample Ref: Coverall - 99% Polyester, 1% Carbon Fibre with Teflon Coating

TRAPEZOIDAL TEAR RESISTANCE (N)	
Class	**Tear Resistance**
6	**> 150**
5	**> 100**
4	**> 60**
3	**> 40**
2	**> 20**
1	**> 10**

Specimen Number	Tear through Warp	Tear through Weft	Class
1	228.55	79.63	**4**
2	223.51	67.33	
3	231.67	83.09	
4	217.18	97.86	
5	258.89	77.47	
Mean	**231.96**	**81.08**	

BTTG HIGH PERFORMANCE MATERIALS

BTTG Testing & Certification Ltd.
Unit 14, Wheel Forge Way
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CONFIDENTIAL TEST REPORT

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COVERCO AUSTRALIA Pty Ltd.

Sample Ref: Coverall - 99% Polyester, 1% Carbon Fibre with Teflon Coating

TENSILE STRENGTH (N)			
Class	**Tensile Strength**		
6	**> 1 000**		
5	**> 500**		
4	**> 250**		
3	**> 100**		
2	**> 60**		
1	**> 30**		
Specimen Number	**Warp**	**Weft**	**Class**
1	1395.60	722.10	**5**
2	1400.00	706.50	
3	1387.50	708.10	
4	1353.10	732.90	
5	1367.90	734.50	
Mean	**1400**	**720**	

HIGH PERFORMANCE MATERIALS

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Date: 7 March 2011
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Your Ref :

COVERCO AUSTRALIA Pty Ltd.

Sample Ref: Coverall - 99% Polyester, 1% Carbon Fibre with Teflon Coating

PUNCTURE RESISTANCE (N)		
Class	**Puncture Resistance**	
6	**> 250**	
5	**> 150**	
4	**> 100**	
3	**> 50**	
2	**> 10**	
1	**> 5**	
Specimen Number		**Class**
1	57.31	**3**
2	56.19	
3	57.37	
4	54.04	
Mean	**56**	

HIGH PERFORMANCE MATERIALS

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Date: 7 March 2011
Our Ref : 11/15753/PJH
Your Ref :

COVERCO AUSTRALIA Pty Ltd.

RESULTS

Sample Ref: Coverall - 99% Polyester, 1% Carbon Fibre with Teflon Coating

REPELLENCY TO LIQUIDS & RESISTANCE TO PENETRATION BY LIQUIDS 30% Sulphuric Acid (H_2SO_4)						
Specimen	1	2	3	4	5	6
Repellency, %	98.3	98.7	97.6	98.5	98.9	98.5
Penetration, %	0.0	0.0	0.0	0.0	0.0	0.0

REPELLENCY TO LIQUIDS & RESISTANCE TO PENETRATION BY LIQUIDS 10% Sodium Hydroxide (NaOH)						
Specimen	1	2	3	4	5	6
Repellency, %	98.7	99.6	99.5	98.7	99.4	99.4
Penetration, %	0.1	0.1	0.1	0.6	0.4	0.1

REPELLENCY TO LIQUIDS & RESISTANCE TO PENETRATION BY LIQUIDS* o-Xylene (undiluted)						
Specimen	1	2	3	4	5	6
Repellency, %	92.4	94.7	95.5	93.9	95.0	94.1
Penetration, %	3.6	3.5	2.7	4.0	2.8	2.2

REPELLENCY TO LIQUIDS & RESISTANCE TO PENETRATION BY LIQUIDS* Butan-1-ol (undiluted)						
Specimen	1	2	3	4	5	6
Repellency, %	92.3	94.0	91.4	86.2	85.9	78.9
Penetration, %	5.0	4.1	6.5	10.2	7.7	13.5

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CONFIDENTIAL TEST REPORT

Date: 7 March 2011
Our Ref : 11/15753/PJH
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RESULTS

Sample Ref: Coverall - 99% Polyester, 1% Carbon Fibre with Teflon Coating

REPELLENCY TO LIQUIDS & RESISTANCE TO PENETRATION BY LIQUIDS				
Class	**Repellency index (%)**	**Penetration Index (%)**		
3	>95	<1		
2	>90	<5		
1	>80	<10		
Chemical	**Results (lowest values)**	**Result (poorest values)**	**Class Repellency**	**Class Penetration**
30% Sulphuric Acid (H_2SO_4)	**97.6**	**0.0**	**3**	**3**
10% Sodium Hydroxide (NaOH)	**98.7**	**0.6**	**3**	**3**
o-Xylene	**92.4**	**4.0**	**2**	**2**
Butan-1-ol	**78.9**	**13.5**	**None**	**None**

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Date: 7 March 2011
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COVERCO AUSTRALIA Pty Ltd.

Sample Ref: Coverall - 99% Polyester, 1% Carbon Fibre with Teflon Coating

SEAM STRENGTH (N)		
Class	Seam Strength	
6	> 500	
5	> 300	
4	> 125	
3	> 75	
2	> 50	
1	> 30	
Seam Type		Class
1	270	4

BTTG Testing & Certification Ltd.
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Date: 7 March 2011
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COVERCO AUSTRALIA Pty Ltd.

RESULTS

Sample Ref: Coverall - 99% Polyester, 1% Carbon Fibre with Teflon Coating

***Resistance to penetration by liquids EN ISO 17491-4**

Product Standard: EN ISO 13034: 2009
Standard: EN ISO 17491-4: 2008, Method A
Test Equipment: Turn-table and system of hydraulic nozzles with angle spray at 75°
Test Liquid: Aqueous solution with dye water-soluble, with surface tension of 52 ± 7.5 x 10^{-3} N/m
Undergarment: White with hood (Nonwoven fabric)
Spray pressure: 3 bar
Flow: 0.47 ± 0.05 l/min
Type of hydraulic nozzle: hollow-cone
Preliminary test: Execution sequence of movements (7 steps)
Pre-treatment: Yes
Stain sample: 1cm^2
Maximum area of stains: 3 x 1cm^2
Size: XL
Height of wearer: 183cm
Chest of wearer: 93cm
Additional protective accessories: latex gloves, mask, hood, waterproof overalls

PENETRATION BY SPRAY		
	Total Number of Penetration Spots	Total Area of Penetration Spots (cm^2)
Test 1	**0**	**0**
Test 2	**0**	**0**
Test 3	**0**	**0**

* Subcontracted test, Not UKAS accredited

Reported by: ..... Mr P Hutchings
Operational Head

Countersigned by: ..... Mrs C Austin
Director

Unit 14 Wheel Forge Way, Ashburton Road West,
Trafford Park, Manchester, M17 1EH
Tel: +44(0)161 873 6543 Fax: +44(0)161 848 7378

Enquiries concerning this report should be addressed to Customer Services.

1066

Notified Body
for PPE Directive,
Construction Products Directive &
Marine Equipment Directive
I.D. No. 0338 & 0339

HIGH PERFORMANCE MATERIALS

BTTG Testing & Certification Ltd.
Unit 14, Wheel Forge Way
Ashburton Road West
Trafford Park
Manchester M17 1EH

CONFIDENTIAL TEST REPORT

Date: 7 March 2011
Our Ref : 11/15753/PJH
Your Ref :

Client:
COVERCO AUSTRALIA Pty Ltd.
PO Box 389
Moorabbin
Vic
3189
AUSTRALIA

Job Title: Tests on one coverall

Client's order no: -

Date of receipt: 24th January 2011
Date of test start: 27th January 2011

Description of sample(s): Three coveralls and three additional meters of woven material, identified as follows, were received for testing:

Coverall - 99% Polyester, 1% Carbon Fibre with Teflon Coating

Work requested: We were asked to make the following tests as specified in EN 14325: 2004, "Protective clothing against chemicals – Test methods and performance classification of chemical protective clothing materials, seams, joins and assemblages", and as required by EN 13034: 2005 + A1: 2009, "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).

Abrasion resistance EN 530 Method 2
Trapezoidal tear resistance EN ISO 9073-4
Tensile strength EN ISO 13934-1
Puncture resistance EN 863
Repellency to liquids EN 368
Resistance to penetration by liquids EN 368
Seam strength EN ISO 13935-2
*Resistance to penetration by liquids EN ISO 17491-4

* Sub-contracted test, not UKAS accredited

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Sample was identified as follows:

Coverall - 99% Polyester, 1% Carbon Fibre with Teflon Coating

Laboratory Work
Where appropriate, the tests were made in Standard Atmosphere (65 ± 4% relative humidity at 20 ± 2ºC) the sample having been freely and continuously exposed to that atmosphere for at least 24 hours prior to testing. Specimens have been taken from the sample as described in the specified standards, except where indicated otherwise.

NOTE – The tests were made as specified in EN 14325: 2004, “Protective clothing against chemicals”,

Pre-conditioning
Prior to all testing, the samples were subjected to five cycles of cleaning in accordance with the manufacturers instructions. (Simulated wand wash at 40ºC with line drying).

Abrasion resistance
Abrasion resistance was carried out in accordance with EN 530: 2010, Method 2.

The Martindale Abrasion tester was employed in the inverted mode, i.e. the test specimen was placed on the abradant table and the abradant was mounted in the test-piece holder. Testing was carried out on the face of the specimens.

Four specimens were mounted over woven felt base-pads and abraded under a test head pressure of 9kPa using grade 00 abrasive cloth for a pre-determined number of cycles or until failure occurred.

It was not possible to assess the performance of the fabric using the pressure pot, as required by EN 14325, therefore, the end-point was determined using visual assessment as specified in EN 530: 2010.

Specimen breakdown in woven fabrics is when two separate threads are completely broken.

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Trapezoidal tear resistance
Trapezoidal tear resistance was measured in accordance with EN ISO 9073-4: 1997.

Five specimens were prepared in each direction as described in the standard. A force was applied, to steadily extend a cut in the test specimen. The mean average tear resistance is given in Newtons.

The performance of the material was classified using the mean result according to the performance levels given in Table 4.

Tensile Strength
Tensile strength was measured in accordance with EN ISO 13934-1: 1999.

Five specimens were prepared in each direction, each having an effective width of 50mm and long enough to enable a gauge length of 200mm to be used. The tests were made on a Testometric C.R.E. machine fitted with flat faced jaws operating at a rate of extension of 100 mm per minute. A pre-tension of 2 Newtons was employed.

Results are reported as required by the standard.

The performance of the material was classified using the mean result according to the performance levels given in Table 6.

Puncture resistance
Puncture resistance was measured in accordance with EN 863: 1995.

Four specimens were tested with the outer face of the fabric to the probe. The maximum force required to push the spike through the specimen is recorded as puncture resistance.

The mean value is rounded to the nearest whole number, as required by the standard.

The performance of the material was classified using the mean result according to the performance levels given in Table 7.

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Repellency to liquids and resistance to penetration by liquids
The tests were made in accordance with EN ISO 6530: 2005 (supersedes EN 368: 1992 which is withdrawn) against the following chemicals. The chemical was applied to the outer face.

Delivery rate: 10ml in 10±1s
Delivery temperature: 20ºC

Chemical 1:	30% H_2SO_4
Chemical 2:	10% NaOH
Chemical 3:	o-Xylene
Chemical 4:	Butan-1-ol

The sample was classified according to the performance levels given in Table 10 and Table 11 using the lowest single value.

Resistance to Ignition
Resistance to Ignition tests were made in accordance with EN 13274-4 Method 3.

The performance of the material was assessed according to Table 11.

Seam strength
Seam strength was measured in accordance with EN ISO 13935-2: 1999.

Three specimens were prepared as described in the standard. The tests were made on a Testometric M500 C.R.E. machine fitted with 25 mm grab jaws, set 100mm apart and operating at a constant rate of extension of 50 mm per minute. No pretension was used.

The mean result is reported as required by the standard.

The performance of the material was assessed using the result according to the performance levels given in Table 13.

Resistance to penetration by liquids
The tests were made following the EN ISO 17491-4: 2008, method A (low-level spray) procedure.

An aqueous spray, containing a fluorescent or visible dye tracer, is directed under controlled conditions at the chemical protective clothing worn by a human test subject. Inspection of the inside surface of the clothing and the outside surface of the absorbent overall worn under the test garment allows any points of inward leakage to be identified.

The results of all tests completed to date given in the tables on the following pages.

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ABRASION RESISTANCE	
Class	**Number of Cycles**
6	**>2 000**
5	**>1 500**
4	**>1 000**
3	**>500**
2	**>100**
1	**>10**

Specimen Number	Number of Cycles	Class
1	>2000	**6**
2	>2000	
3	>2000	
4	>2000	
Lowest single result	**>2000**	

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TRAPEZOIDAL TEAR RESISTANCE (N)	
Class	**Tear Resistance**
6	**> 150**
5	**> 100**
4	**> 60**
3	**> 40**
2	**> 20**
1	**> 10**

Specimen Number	Tear through Warp	Tear through Weft	Class
1	228.55	79.63	**4**
2	223.51	67.33	
3	231.67	83.09	
4	217.18	97.86	
5	258.89	77.47	
Mean	**231.96**	**81.08**	

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TENSILE STRENGTH (N)			
Class	**Tensile Strength**		
6	**> 1 000**		
5	**> 500**		
4	**> 250**		
3	**> 100**		
2	**> 60**		
1	**> 30**		
Specimen Number	**Warp**	**Weft**	**Class**
1	1395.60	722.10	**5**
2	1400.00	706.50	
3	1387.50	708.10	
4	1353.10	732.90	
5	1367.90	734.50	
Mean	**1400**	**720**	

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PUNCTURE RESISTANCE (N)		
Class	**Puncture Resistance**	
6	**> 250**	
5	**> 150**	
4	**> 100**	
3	**> 50**	
2	**> 10**	
1	**> 5**	
Specimen Number		**Class**
1	57.31	**3**
2	56.19	
3	57.37	
4	54.04	
Mean	**56**	

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RESULTS

Sample Ref: Coverall - 99% Polyester, 1% Carbon Fibre with Teflon Coating

REPELLENCY TO LIQUIDS & RESISTANCE TO PENETRATION BY LIQUIDS 30% Sulphuric Acid (H_2SO_4)						
Specimen	1	2	3	4	5	6
Repellency, %	98.3	98.7	97.6	98.5	98.9	98.5
Penetration, %	0.0	0.0	0.0	0.0	0.0	0.0

REPELLENCY TO LIQUIDS & RESISTANCE TO PENETRATION BY LIQUIDS 10% Sodium Hydroxide (NaOH)						
Specimen	1	2	3	4	5	6
Repellency, %	98.7	99.6	99.5	98.7	99.4	99.4
Penetration, %	0.1	0.1	0.1	0.6	0.4	0.1

REPELLENCY TO LIQUIDS & RESISTANCE TO PENETRATION BY LIQUIDS* o-Xylene (undiluted)						
Specimen	1	2	3	4	5	6
Repellency, %	92.4	94.7	95.5	93.9	95.0	94.1
Penetration, %	3.6	3.5	2.7	4.0	2.8	2.2

REPELLENCY TO LIQUIDS & RESISTANCE TO PENETRATION BY LIQUIDS* Butan-1-ol (undiluted)						
Specimen	1	2	3	4	5	6
Repellency, %	92.3	94.0	91.4	86.2	85.9	78.9
Penetration, %	5.0	4.1	6.5	10.2	7.7	13.5

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REPELLENCY TO LIQUIDS & RESISTANCE TO PENETRATION BY LIQUIDS				
Class	**Repellency index (%)**	**Penetration Index (%)**		
3	>95	<1		
2	>90	<5		
1	>80	<10		
Chemical	**Results (lowest values)**	**Result (poorest values)**	**Class Repellency**	**Class Penetration**
30% Sulphuric Acid (H_2SO_4)	**97.6**	**0.0**	**3**	**3**
10% Sodium Hydroxide (NaOH)	**98.7**	**0.6**	**3**	**3**
o-Xylene	**92.4**	**4.0**	**2**	**2**
Butan-1-ol	**78.9**	**13.5**	**None**	**None**

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SEAM STRENGTH (N)		
Class	Seam Strength	
6	> 500	
5	> 300	
4	> 125	
3	> 75	
2	> 50	
1	> 30	
Seam Type		Class
1	270	4

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***Resistance to penetration by liquids EN ISO 17491-4**

Product Standard: EN ISO 13034: 2009
Standard: EN ISO 17491-4: 2008, Method A
Test Equipment: Turn-table and system of hydraulic nozzles with angle spray at 75°
Test Liquid: Aqueous solution with dye water-soluble, with surface tension of 52 ± 7.5 x 10^{-3} N/m
Undergarment: White with hood (Nonwoven fabric)
Spray pressure: 3 bar
Flow: 0.47 ± 0.05 l/min
Type of hydraulic nozzle: hollow-cone
Preliminary test: Execution sequence of movements (7 steps)
Pre-treatment: Yes
Stain sample: 1cm^2
Maximum area of stains: 3 x 1cm^2
Size: XL
Height of wearer: 183cm
Chest of wearer: 93cm
Additional protective accessories: latex gloves, mask, hood, waterproof overalls

PENETRATION BY SPRAY		
	Total Number of Penetration Spots	**Total Area of Penetration Spots (cm^2)**
Test 1	**0**	**0**
Test 2	**0**	**0**
Test 3	**0**	**0**

* Subcontracted test, Not UKAS accredited

Reported by: ..... Mr P Hutchings
Operational Head

Countersigned by: ..... Mrs C Austin
Director

Enquiries concerning this report should be addressed to Customer Services.