



RESPIREX™



# **COMB series**

## **Chemical protective coveralls**

### **Instructions for use**



**EN14605:2005+A1:2009**

**TYPE 3**

**TYPE 4**



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## General information

Respirex COMB series one-piece chemical protective coveralls are supplied in two main styles; Siren (without integral hood) or Cowl (with integral hood); with a variety of options for termination of wrist and ankle; and in a range of sizes and materials. All coveralls are CE marked to indicate compliance with the EC Council Directive 89/686/EEC and Regulation (EU) 2016/425 on personal protective equipment (PPE) and comply with the harmonized standard EN 14605:2005+A1:2009 (protective clothing against liquid chemicals); this specifies the performance requirements both for the materials of construction and for the garment as a whole. Refer to the data sheet supplied for further information on the performance results for the garment's main material of construction.

## Limitations & warnings

- Always follow the instructions carefully otherwise the protection offered by the garment may be drastically affected. COMB series one-piece chemical protective coveralls should only be worn in areas where there is a low risk of chemical spillage occurring. In areas of high risk Respirex can advise on alternative items of PPE that will provide the necessary level of protection.
- End-users should carry out a suitable risk assessment in accordance with local legislation to ensure that appropriate PPE is selected for the intended use. Respirex International cannot accept responsibility for improper garment use.
- Cowl style one-piece chemical protective coveralls will meet the performance requirements of TYPE 3 (liquid-tight) and TYPE 4 (spray-tight) chemical protective clothing if worn in combination with a full face mask which is "tape sealed" to the integral hood, taping of the zipper flaps and appropriate safety gloves and boots. Dependant upon the style of wrist and ankle termination, it may also be necessary to tape cuffs and ankles to achieve the claimed protection.
- Siren style one-piece chemical protective coveralls will meet the performance requirements of TYPE 3 (liquid-tight) and TYPE 4 (spray-tight) chemical protective clothing provided they are worn in combination with a separate "tape sealed" hood which totally covers the head and neck, taping of the zipper flaps and appropriate gloves and safety boots. Dependant upon the style of wrist and ankle termination, it may also be necessary to tape cuffs and ankles to achieve the claimed protection.
- Wearers of COMB series one-piece chemical protective coveralls should be physically fit and capable of wearing the garments under the anticipated conditions of work. If in doubt please seek medical guidance before wearing.
- COMB series one-piece chemical protective coveralls are manufactured from non-breathable materials and should only be worn within a temperature range that maintains wearer's comfort and safety. Wearers are advised to take suitable precautions to avoid heat stress occurring, e.g. working to a planned work/rest schedule. Always leave the work area and remove the coveralls before becoming distressed.
- Materials used in the construction of COMB series one-piece chemical protective coveralls are not known to cause allergic reactions to the majority of individuals. Coveralls contain no components made from natural rubber latex.
- Always use compatible PPE, e.g. gloves and boots advised by Respirex.

For any further information, please contact the Respirex customer services department on  
Tel: +44(0) 1737 778600 or Fax: +44(0) 1737 779441

## Pre-checks

It is recommended that pre-checks are carried out in a clean area at least once per month, and always before the start of each shift cycle.

1. Visually inspect the coverall for any damage that may reduce the level of protection offered (see service and maintenance section)
2. Check that garment is free from contamination both externally and internally
3. Check that the gloves are correctly fitted (see overleaf)

Any garments having defects identified during the pre-checks should be withdrawn from use.

## Fitting gloves into soft rubber cuff

1. Insert the tapered cone approximately 3-4cms into the glove so that the glove stretches over the cone (see Fig. 1 & Fig. 2).
2. Slide the glove and cone down the garment sleeve and into the rubber cuff; make sure that the little finger of the glove is in-line with the seam of the sleeve (see Fig. 3).
3. Ensure that the glove and cone are pushed firmly into the cuff with equal pressure all around its circumference so that the cone sits as tightly as possible in the cuff (see Fig. 4).



Fig. 1



Fig. 2



Fig. 3



Fig. 4

## Fitting gloves into locking cuff

1. Firstly turn the sleeve of the garment inside out.
2. Insert the tapered cone approximately 3-4cms into the glove so that the glove stretches over the cone (see Fig. 5 & Fig. 6).
3. Slide the glove and cone down the garment sleeve and into the rubber cuff; make sure that the little finger of the glove is in-line with the seam of the sleeve (see Fig. 7).
4. Make sure that the glove and cone are pushed into the cuff body with equal pressure all around its circumference (see Fig. 8).



Fig. 5



Fig. 6



Fig. 7

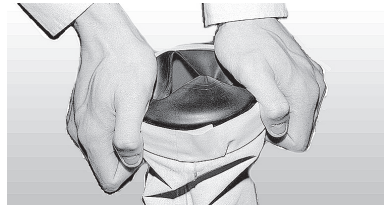


Fig. 8



Fig. 9

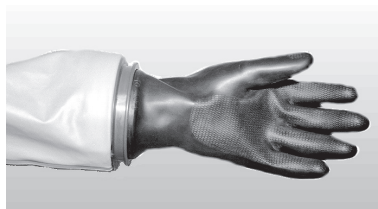


Fig. 10

5. Locate the locking ring over the gauntlet of the glove and screw into the cuff body (see Fig. 9). If necessary the gauntlet of the glove can be cut down if it is too long and interferes with the locking ring
6. Turn the sleeve the correct way out by pulling on the glove (see Fig. 10).

Check that there are no creases in the glove around the cuff seal. If there are any creases or the glove is pinched in any way it should be removed and re-fitted. If the cuff and glove have been assembled as described there should now be a gas-tight wrist seal.

## Donning procedure

Note: It is good practice for an assistant to help the wearer don and doff the coveralls. This will simplify the process and help to prevent the wearer from stumbling or tripping which may result in personal injury or damage to the garment. Consult the body measurement chart (see page 8) and select the correct size garment. Suitable underclothing should be worn beneath the coverall. As a minimum, a long sleeve shirt and long trousers or long underwear are recommended. After carrying out the pre-checks as detailed in these instructions, open the coveralls fully and where applicable fit gloves as detailed in the glove fitting instructions. Don the coverall in the following stages:

1. Remove any personal affects which may result in damage to the coverall (e.g. pens, badges, jewellery etc.)
2. Remove footwear.
3. Whilst seated place both legs into the coverall with your feet through the elastic stirrups (where fitted). Roll the outer legs (splash guards) upwards.
4. Don safety boots.
5. Carefully roll down the outer legs of the coverall over the exterior of the safety boots. Once rolled down, make sure that the seams where the outer legs are attached lie flat and do not form channels where liquid may collect. Any liquid spray or splash will be prevented from entering your boots once the outer legs are fully rolled downwards.
6. Don your full face mask in accordance with the manufacturer's instructions.
7. Stand up, lift the coveralls and place your arms into the sleeves one at a time until the hands are placed comfortably into the gloves.
8. Fasten the zipper to chest height.
9. Tilt your head slightly forwards and with the aid of the dressing assistant ease the hood of the coverall over your head and fasten the zipper to its fullest extent. The dressing assistant should stretch and manipulate the elasticated section of the hood until it fits closely around the face mask.
10. Using the Velcro closure, seal down the outer zip flaps trying to leave a minimum of gaps and ridges for the possible ingress of spray or splash. If any creases or gathers remain after sealing, it is strongly recommended that these be sealed with a suitable liquid impermeable tape (mentioned below).
11. The dressing procedure is now complete and you are ready to enter the work environment.
12. In order to ensure a complete seal against fluid ingress, where applicable Respirix recommends taping the hood to face mask, over and around the elasticated section; ankles to boots, over and around the elasticated hems; wrists to gloves, over and around the elasticated hems and outer zip flaps where they join together, using a suitable liquid impermeable tape (recommended tape width 75mm).

## Correct use of double elasticated cuff

1. Don the suit as usual.
2. Roll back the outer sleeve approximately 15 cm.
3. Put on the glove with the inner sleeve of the suit to the inside of the glove.
4. Roll the outer sleeve down over the exterior of the glove.

## Correct use of elasticated inner and outer legs

1. Step into the suit as usual with your feet through the elastic stirrups (where fitted) (see Fig. 11).
2. Roll the outer legs up approximately 20-23cms (see Fig. 11).
3. Step into safety boots (see Fig. 12).
4. Roll down outer legs over exterior of boots (see Fig. 13).

Exactly the same procedure should be utilised when wearing suits with elasticated inner legs and straight outer legs.



Fig. 11



Fig. 12



Fig. 13

## Velcro securing tab on outer legs

1. Step into the suit as usual with your feet through the elastic stirrups (where fitted), as previously described.
2. If fitted, roll outer legs up approximately 20-23cms.
3. Step into safety boots.
4. Roll down outer legs over exterior of boots.
5. Tighten the outer legs around the protective boots using the Velcro tabs (see Fig. 14 & Fig. 15).



Fig. 14



Fig. 15

## Hood instructions

1. Fasten the zip to its fullest extent, i.e. the neck or throat (see Fig. 16).
2. Close the outer zip flaps securely with the Velcro or press stud closure (see Fig. 17).
3. Pull the hood over the head. On suits with drawstring hoods tighten the drawstring so as to leave the minimum of gaps around the face area (see Fig. 18).
4. Fasten the hood flap (if fitted) to prevent the ingress of chemical spray or splash down the front of the suit (see Fig. 19).



Fig. 16



Fig. 17



Fig. 18



Fig. 19

## Doffing procedure

It is recommended that the doffing procedure is carried out with the aid of a dressing assistant. Depending upon the contaminant encountered, it may be necessary for the assistant to wear appropriate PPE selected by qualified safety personnel.

1. If fitted, remove all sealing tape from around the face mask, ankles, wrists and zip flaps.
2. Open the zip flaps by unfastening the Velcro closures, then unfasten the zipper.
3. Fold the hood of the coverall up and over the wearers head.
4. Continue to roll the coverall down over the wearer's shoulders keeping the exterior surfaces away from wearer at all times.
5. As the coverall continues to be rolled down to waist level the wearer's arms should be removed from the sleeves.
6. Finally the wearer should step out of the garment legs and safety boots and remove the face mask.
7. Used coveralls should be cleaned in accordance with the procedures detailed on page 7.

## Recommended cleaning procedures

If coveralls are contaminated by acid splash they should be drenched in a neutralising bath with a pH value of 9 for approximately 10 minutes. The recommended neutraliser is a solution of bicarbonate of soda and water (6% bicarbonate of soda W/V). If contaminated with an alkali, the alkali should be removed by drenching in clean water for approximately 10 minutes.

After decontamination the outer surfaces of the coveralls should be wiped with a sponge using a diluted solution of Citrikleen and warm water (temperature not exceeding 50°C). Mix one part Citrikleen to 19 parts water, i.e. 5% solution. Never use Citrikleen in neat form as this will cause damage to the garment materials. After wiping with the diluted Citrikleen solution the coveralls should be rinsed with cold water.

Limited light mechanical washing can be carried out using a 5% Citrikleen solution with a water temperature not exceeding 30°C. Note: excessive or hard mechanical washing could reduce the lifespan and level of protection offered by your garment.

Coveralls should be allowed to dry naturally or hung in a drying cabinet or warm room with a temperature not exceeding 30°C.

Garments used by more than one person must be cleaned, inspected and sanitised after each use; if not cleaned contamination may cause illness or disease.

Sanitise the garment by cleaning as described above or by liberally applying Synodor to the inside surface of the fabric.


LIGHT MECHANICAL WASHING ONLY 

DO NOT SPIN

DO NOT DRY CLEAN 

DO NOT BLEACH 

DO NOT IRON 

DO NOT TUMBLE DRY 

DO NOT USE AGGRESSIVE CLEANING POWDERS

DO NOT SCRUB THE SURFACE OF THE FABRIC

## Cleaning Accessories

For cleaning garment outer surfaces use Citrikleen, Part No. F00938.

For cleaning garment inner surfaces use Respirex Synodor Odor San, Part No.F00936.

To order these accessories contact Respirex customer services on Tel: +44(0) 1737 778600 or Fax: +44(0) 1737 779441.

## Servicing & maintenance

Coveralls manufactured from polymer rubber materials, e.g. Neoprene, can be repaired using a Respirix repair kit\*. Garments manufactured from thermoplastic materials, e.g. PVC, require specialist equipment and will need to be returned to the manufacturer for repairs.

\*Respirix does not guarantee any repairs carried out by the end-user.

It is recommended that used garments are periodically returned to our care and maintenance department for overhaul, repairs, and where necessary report on the condition of your equipment. When your garments should be returned for inspection will depend upon the extent of usage.

There is no pre-determined life expectancy for your garments; this will depend upon usage, maintenance and washing. However, the level of protection offered by your garment will be seriously diminished by the existence of the following;

1. Lifting seam tapes
2. Degradation/Thinning of materials
3. Broken closures
4. Holes/Tears
5. Excessive dirt
6. Stretched or worn cuff seals

For further enquiries on servicing & maintenance contact Respirix customer services on  
Tel: +44(0) 1737 778600 or Fax: +44(0) 1737 779441.

## Storage

Coveralls should always be stored in a clean and dry condition and if being stored for long periods of time, out of direct sunlight. The storage environment should be clean, dry and of ambient temperature.

Respirix recommends storing coveralls on a hanger; if being stored folded do not stack more than four high.

## Whole suit performance testing

Performance requirement	Test method	Property value	Result
EN14605:2005+A1:2009 clause 4.3.4.3	EN ISO 17491-3:2008	Resistance to penetration by a jet of liquid (jet test)	Pass
EN14605:2005+A1:2009 clause 4.3.4.2	EN ISO 17491-4:2008	Resistance to penetration by a spray of liquid (spray test)	Pass

For further information on the performance results of each specific material refer to the data sheet supplied with your garment.

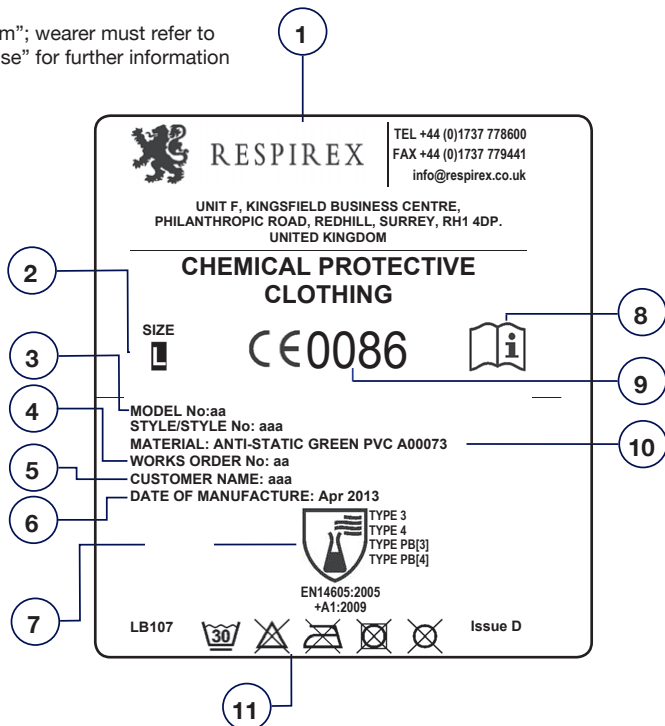
## Risk Assessment

The summary of the risks taken into account in the design of the COMB Suit.

- Full-body protective clothing with liquid-tight connections between different parts of the clothing (Type 3: liquid-tight clothing) and with liquid-tight connections to component parts, such as hoods, gloves, boots, visors or respiratory protective equipment, which may be specified in other European Standards.
- Full-body protective clothing with spray-tight connections between different parts of the clothing (Type 4: spray-tight clothing) and spray-tight connections to component parts, such as hoods, gloves, boots, visors or respiratory protective equipment, which may be specified in other European Standards.
- Partial body protection garments offering protection to specific parts of the body against permeation of chemical liquids. Partial body protection only protects the localised parts of the body that are covered by relevant PPE.

## Product labelling

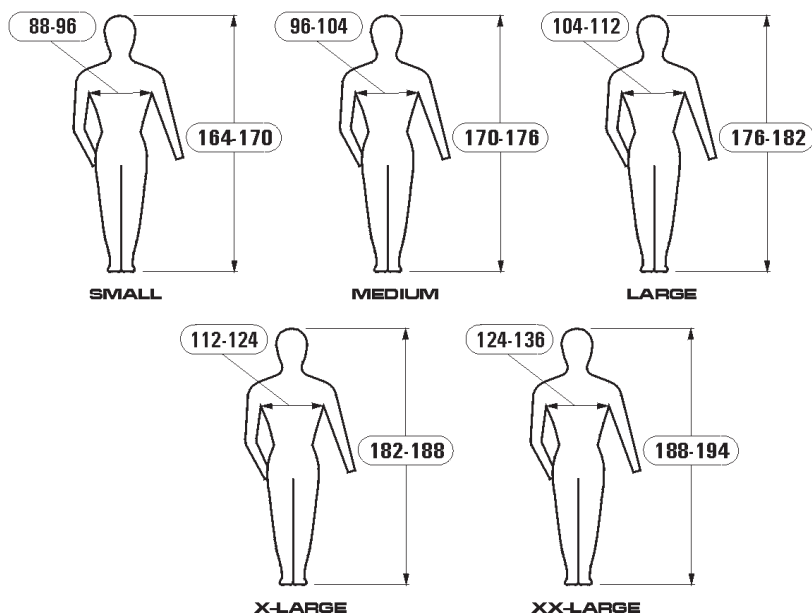
1. Manufacturer of garment and address:  
Respirex International Ltd.
2. Garment size
3. Manufacturer's Model number
4. Manufacturer's Order No.
5. Customer Name
6. Date of manufacture; Day/Month/Year
7. Symbol denoting protection against liquid chemicals
8. "Open Book Pictogram"; wearer must refer to the "Instructions for use" for further information



9. CE Mark and notified Body code
10. Material of Manufacture
11. Five care pictograms indicating that clothing is not suitable for cleaning and reuse
  - Pictogram 1 Light mechanical washing only
  - Pictogram 2 Do not bleach
  - Pictogram 3 Do not iron
  - Pictogram 4 Do not machine dry
  - Pictogram 5 Do not dry clean

## Sizes

The following pictograms designate the range of height & chest sizes suitable for specific sizes of coverall suit, check your body measurements and select the correct size of suit. Body measurements in cm.



Size	Height	Chest
S	164-170	88-96
M	170-176	96-104
L	176-182	104-112
XL	182-188	112-124
XXL	188-194	124-136

# EC Declaration of Conformity



RESPIREX™

## EC DECLARATION OF CONFORMITY

RESPIREX INTERNATIONAL LTD  
Unit F Kingsfield Business Centre,  
Philanthropic Road,  
Redhill,  
Surrey RH1 4DP  
United Kingdom

Declares that the PPE described hereafter:

**Respirex (logo) COMB series one piece chemical protective coveralls**

Meets the minimum requirements specified by product standards:

EN 14605:2005+A1:2009

*Type 3 & Type 4, full body chemical protective clothing with liquid tight & spray tight connections.*

- is identical to the PPE which is subject of EC type-examination certificate No GB\*\*/\*\*\*\*\* (Issue 1) issued by

SGS United Kingdom Ltd,  
Unit 202b Worle Parkway,  
Weston-super-Mare,  
BS22 6WA

- is subject to the procedure set out in Module D of the European PPE Regulation (EU) 2016/425 under the supervision of the notified body:

BSI  
Davy Avenue, Knowhill,  
Milton Keynes. MK5 8PP, United Kingdom  
EC Notified Body No 0086

These garments are described in the manufacturer's technical file TF085, Issue C.

Done at: RESPIREX, Redhill, Surrey, on 1<sup>st</sup> February 2018

Signed:.....

Mark Bellas Simpson (Managing Director)



Registered in England No. 592506 VAT No. GB 115 0754 43  
Directors: M. Bellas Simpson A.C.A. D.G. Mackie PJ Wilson

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**Notified Body No. 0120**

Module D Type **BSI**  
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ENGLAND

**Notified Body No. 0086**