



**POWERED RESPIRATOR
PROTECTIVE SUIT
PRPS**



INSTRUCTIONS FOR USE



Contents

Approvals.....	1
General Information.....	1
Warnings and Limitations ⚠	1
Indicator Lights and Alarming	3
Operating Conditions	5
Preparation for Use	5
Donning procedure.....	8
Doffing procedure (use of Hazbag optional)	12
Emergency self doffing procedure	13
Filter and Cartridges	13
Cleaning Instructions	13
Disposal	14
Maintenance	14
Spares and Accessories	14
Storage and Transportation	16
Sizing	17
Permeation Performance.....	18
Physical Properties Of Tychem® TK Material	19
Replacing the Exhalation Valve Diaphragm.....	20

Approvals

The Respirix powered respirator protective suit (PRPS) is intended for use by emergency response personnel after a chemical or biological incident. The suit should only be used after a process of detection, identification and monitoring which has established the potential hazard. A typical example of application for the suit would be to protect personnel decontaminating casualties following such an incident. It is important to note that the suit is NOT appropriate for use in environments where the chemical or biological hazard is unknown.

The product is type approved to a manufacturers specification, RILS0002, based upon the requirements for a limited use type 1b-ET gas-tight chemical protective suit as detailed in EN 943-2:2019 and satisfies the Basic Health and Safety Requirements, ANNEX II of the European PPE Regulation 2016/425 and PPE Regulation 2016/425 on personal protective equipment as amended to apply in GB. The specification for a full facemask has been replaced by that for a visor. Note: the total mass of the PRPS exceeds that stipulated for a normal EN 12941:1998 filtering device. The Malina Safety CleanAIR® Chemical 2F Plus, when used in conjunction with the Respirix™ PRPS suit, meets the requirements of European Standard EN 12941:1998+A2:2008 TH3 (Respiratory Protective Devices - Powered Filtering Devices).

The Malina Safety CleanAIR® Chemical 2F Plus, complies with European EMC directive 2014/30/EU. See <https://www.clean-air.cz/doc/>.

The system has additionally been tested against chemical warfare (CW) agents for permeation resistance and for respiratory protection against standard military challenges, similar to those defined in the NATO Respirator Triptych D/103:1991.

All declarations of conformity: <http://www.respirex.com/doc>

⚠ Particular attention should be given to warning statements where indicated.

General Information

The suit is manufactured from Tychem®TK., a high-performance chemical protective clothing material developed by DuPont for protection against gaseous, liquid and solid chemicals.

The suit is fitted with a Malina Safety CleanAIR® Chemical 2F Plus Air Filter Unit (or AFU). The AFU is battery powered and worn on a waist belt within the suit. The AFU draws air through externally mounted filters and feeds it through a breathing tube into the head space. A remote warning and indicator device (RDD), featuring three coloured lights, is mounted at chin level in the head space and connected to the AFU via a cable.

During operational use the AFU must be fitted with Malina TH3 A3B2E2K2P R filters, enhanced to provide additional protection against chemical and biological warfare agents (Ref: F02042/2). The filters, when used in conjunction with the AFU as part of an approved system, conform to the European standard EN 12941:1998. Please refer to the instructions for use supplied with the AFU for limitations, storage, cleaning instructions etc.

Garment features include:

- Large semi-rigid visor bonded to the suit.
- Four exhalation valves fitted to the rear of the suit.
- Integral safety boots with steel toe-caps and mid-soles.
- Dual glove system consisting of a laminated inner glove having good chemical resistance (Kemblok™) bonded to a outer Neoprene glove affording protection against mechanical risks as well as having some degree of chemical resistance. The gloves are fitted to the suit by means of the Respirix locking cone and grommet system.
- Optional re-hydration facility
- Exterior attachment point for distress signal unit

The PRPS is designed as a limited-use garment, i.e. designed to be worn until chemical contamination has occurred and disposal is required. A full hygienic cleaning service using specialist equipment is provided by Respirix.

Warnings and Limitations ⚠

Failure to follow all instructions on the use of this product may adversely affect the wearer's health, may lead to severe illness or permanent disability or even death. Failure to follow all instructions may also render any warranty null and void.

Only for use by trained competent personnel.

Do not use for respiratory protection against unknown atmospheric contaminants or when concentrations of contaminants are unknown or immediately dangerous to life or health (IDLH). PRPS suits should not be used in areas immediately dangerous to life or health (IDLH).

Tychem®TK. fabric is designed specifically for limited-use garments. Excessive flexing or folding can lead to weaknesses in the structure of the fabric which may have an adverse effect on the chemical resistance offered by the suit. However, extensive operational use of garments manufactured from Tychem®TK has demonstrated its durability beyond that of a single-use fabric. Continuity of performance for multiple use can be assured by a regular programme of inspection and analysis from a Respirix Service Technician.

If the suit is heavily contaminated or mechanically damaged in any way it MUST NOT be used and MUST be disposed of.

Caution: Tychem®TK. is a non-breathable material and the wearer's body temperature will rise whilst wearing the suit, particularly during periods of intense physical activity. Wherever possible operational procedures should be planned to minimise the risk of heat stress occurring. Use of the optional re-hydration facility is recommended.

At very high work rates, the pressure in the headtop may become negative at peak inhalation flow.

Leave the contaminated area immediately and remove the suit if:

- a) Any part of the system becomes damaged e.g. tears or punctures in the suit.
- b) Airflow into the suit decreases or stops, or visor misting occurs.
- c) Breathing becomes difficult.
- d) Dizziness or other distress occurs.
- e) You taste or smell contaminants or an irritation occurs.
- f) An alarm condition occurs.

Never modify or alter this product.

Tychem®TK. meets the resistance to ignition requirements of EN 943-1:2015+A1:2019 but nonetheless should not be exposed to flame. Flammable material, keep away from fire.

Tychem®TK. does not have any anti-static treatment or properties and should not be worn in flammable or potentially explosive environments.

The usable temperature range of the ensemble is -5°C to +40°C <90% humidity. Users should note that resistance to permeation by chemicals varies with temperature.

Continuous contact with certain chemicals can adversely effect the field of vision and protection offered by the visor. If the end-user notices any discolouration of the visor the suit MUST NOT be used.

NEVER change any component parts associated with the suit in a contaminated area.

Materials used in the construction of the system are not known to cause allergic reactions to the majority of individuals. The system contains no components made from natural rubber latex.

At very high work rates, the pressure in the headtop may become negative at peak inhalation flow

Do not use in atmospheres containing less than 19.5% oxygen. (Respirix definition. Individual countries may apply their own limits on oxygen deficiency. Seek advice if in doubt).

This equipment is not to be used in oxygen-deficient environments, e.g. confined spaces. For further information refer to the instructions for the Malina Safety CleanAIR® Chemical 2F Plus AFU.

Leave the contaminated area and remove the suit immediately if:

- | | |
|---|--|
| a). Any part of the system becomes damaged | b). Breathing becomes difficult |
| c). Airflow into the headtop decreases or stops | d). Dizziness or other stress occurs. |
| e). You smell or taste contaminants or irritation occurs. | f). If excessive fogging or misting of the visor is noticed. |
| g). If the alarm sounds (see page 3) | |

PRPS use in the 'power-off' state is not normal. Little or no protection is provided and a build up of carbon dioxide and depletion of oxygen within the suit may occur.

Replace parts only with original Respirix™ or CleanAIR® spare parts.

Only to be used with batteries and filters specified in this user instruction.

Do not use in explosive atmospheres.

For any enquiries please contact the Respirix customer services department on

Tel : +44(0) 1737 778600 or Fax : +44(0) 1737 779441.

© DuPont's registered trademark.

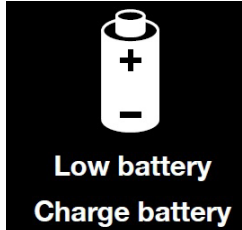
Indicator Lights and Alarming

- To check if the alarm works properly, close the air output with your palm and turn the unit on. You should hear and see alarm signals within 10 seconds.
- In an alarm condition the buzzer will beep with an appropriate warning symbol. This indicates either low airflow or a low battery.

⚠ If the alarm continues to sound immediately exit the contaminated area, then open the suit zip as soon as possible.



Blocked filter - if the unit cannot maintain the chosen airflow, the electronics will automatically decrease the airflow by one level and you will hear an acoustic signal. If the unit is unable to maintain the lowest possible airflow, you will be warned by an audiovisual alarm.



Low battery charge - an alarm notifies the user when the battery has run out. It is best to leave the contaminated area and replace or recharge the battery.



Filter expiration - the alarm should be preset manually before you start using new filters. Once you start using the filters, the unit starts the countdown from the preset time. When the preset time expires, the unit will start to warn you.

Remote Display Device (RDD) - Part Number: F02031

- Connect the RDD to the connection port on the top of the AFU battery
- During normal operation the green light will remain illuminated.
- In an alarm condition the red light will flash and the buzzer will beep. This indicates either low airflow or a low battery.

⚠ If the red light flashes or the alarm continues to sound immediately exit the contaminated area, then open the suit zip as soon as possible.

NOTE: The 'in-use' life of the product will vary with frequency and conditions of use. The timer indicates the duration of use and does not indicate the condition of the device.

The Remote Display Device (RDD) is connected to the AFU unit and is positioned in the hood of the PRPS suit for the wearer to identify the operational status of the AFU unit.

Blocked motor

In the event of a blocked motor, an intermittent flashing red LED signal alarm is displayed. It can either occur at the engine start or during the run.

Clogged filter/Low airflow

It is synchronized with the AFU alarm. Alternating red and blue LED signalling with a corresponding acoustic signal.

Low battery

A single beep and series of discrete red flashes are displayed periodically every second. It is not synchronous with the battery alarm of the AFU.

Filter timer

The signalling has a double period compared to the alarm in the AFU. The corresponding LED lights up between the alarms, depending on the unit status.

Elapsed time indicator on the Remote Display Device (RDD)

While in operation, the AFU unit has an elapsed time indicator to communicate to the wearer, via the RDD, the duration of time spent in the suit. The table below indicates how the RDD communicates the elapsed time after each hour. After 240 min the RDD will continue to indicate a consistent Amber pulse.

<u>RDD status before</u>	<u>Elapsed Time</u>	<u>Amber Pulse Series</u>			<u>RDD status after amber pulse series</u>
		<u>Number of Rapid Pulses</u>		<u>Number of Discreet Pulses</u>	
Green	60 min	4	+	2	Amber pulse
Amber pulse	75 min	4	+	-	Amber

Single Use Battery replacement (F02004)

see pictorial annex “How to insert the battery” and “How to remove the battery”

1. Grip the powered respiratory unit by the rim on the top side of the battery with your left hand. Release the safety lock located on the bottom of the unit between the filters. Then push the battery out of the unit using your thumb (press the rubber place on the battery).
2. Insert the battery into the corresponding opening of the unit until the clickin stop locks the battery in the right position.

How to take out the battery



IMPORTANT NOTICE:

Biological Agents and Hazards In the interests of clarity in the WARNINGS above, the term contaminant is deemed to include biological agents and hazards, subject to the following statement:

There are currently no safe exposure limits established for biological agents, therefore, while this respirator system will help reduce exposure it cannot be guaranteed to eliminate exposure or the risk of contracting illness, disease or infection.

SAFE USE OF COMMUNICATION RADIOS AND OTHER RADIO FREQUENCY TRANSMITTING DEVICES: If a communications radio, or other device that exhibits radio frequency interference is to be used with this system, please contact Respirex customer services department for advice.

Make sure the correct size suit is selected for each wearer. A suit of the incorrect size could lead to a reduction in protection level, and place unacceptable strain on the suit material.

Care must be taken not to over tighten the belt.

Beware of electrical hazards in your immediate vicinity.

CAUTION In hot conditions, consult local operating procedures to define “use time” guidelines to avoid heat stress of the user. Regular rest periods and use of absorbent undergarments may reduce heat stress.

The CleanAIR® Chemical 2F Plus is approved for use only with the Respirex™ PRPS range of suits. Respirex™ PRPS protective suits are approved for use only with the CleanAIR® Chemical 2F Plus. No other combination of protective suit and AFU unit are approved or permitted.

If a helmet is to be worn when using PRPS suits, please contact Respirex customer services department for advice.

To reduce the risk of injury due to impaired vision, if chemicals or other contaminants splash on the visor, wipe off immediately. If the visor is damaged, or vision obscured in any way, exit the contaminated area and doff the apparatus following the user instruction.

For the PRPS: the attached Kemblok™ gloves and visor offer a high level of chemical protection, refer to the Technical Specification for further information on permeation resistance of gloves and the visor.

Owing to the non-breathable nature of the gloves attached to the suit it is not uncommon for the wearer's hands to moisten due to sweating. For this reason it is recommended that cotton gloves are worn to absorb sweat and to assist with the donning and doffing procedure.

The breathing hose in this product is located on the inside of the suit. The clauses in EN 12941, clause 6.10.3 and 6.10.4 have therefore not been tested for this product.

Operating Conditions

The CleanAIR® Chemical 2F Plus AFU unit must only be used with the Respirix™ PRPS suit, and within the Operating Conditions: -5°C to +40°C when using the single use battery; <90% humidity and <4500mASL (Above Sea Level).

Preparation for Use

Inspection

The suit is supplied in a sealed bag, fully tested and in full working order. Nevertheless it is advisable for the following checks to be carried out in a clean area prior to donning the suit:

- 1). Visually inspect the suit for any damage that may reduce the level of protection; pay particular attention to the seam areas and gloves.
- 2). Check the suit is free from contamination both externally and internally.
- 3). Check vision through the visor is not impaired by scratches or heavy scuff marks.
- 4). Check the zip operates correctly and the pull tag is in good condition.
- 5). Verify the breathing tube and remote warning device are connected to the AFU and AFU battery (Fig. 2).

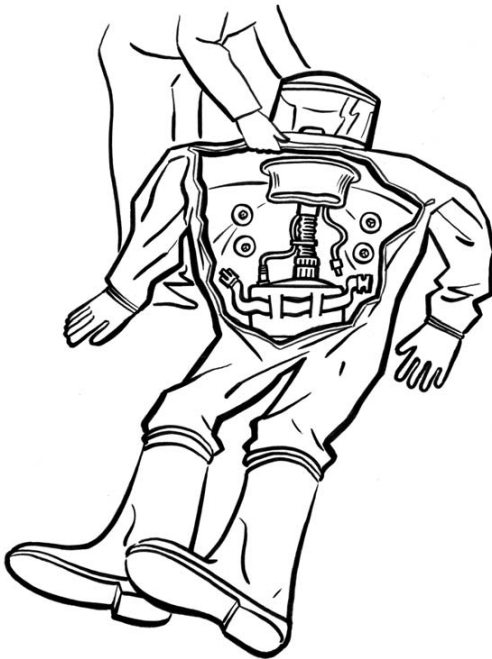


Fig. 1

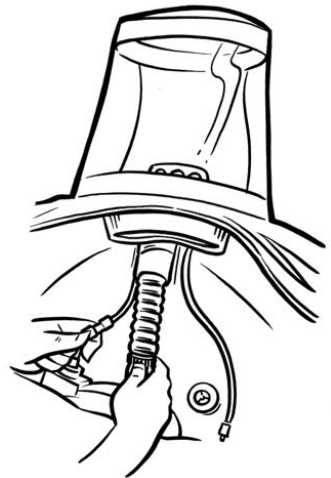


Fig. 2

6). Fit the battery to the AFU (Fig. 3)



Fig. 3

- 7). Select approved filters. **⚠ Only Malina Safety CleanAIR® filters can be used. Incorrect filters will not press the central opening pin that engages the "closing system" of the AFU air intake.** Screw the Malina Safety CleanAIR® filters into the filter adaptors (Fig. 4 and Fig. 5). Check that the filters are adequately tightened. Ensure that a pair of identical filters are fitted.
⚠ Double Filter Splash Covers (Respirex part number: F02032) must be fitted over the filters (Fig. 6 and Fig. 7). Ensure that the opening of the Double Filter Splash Cover is facing away from the suit.
⚠ Incorrect fitting of the filters will result in severely reduced product performance. They should be attached to the AFU unit only, using the filter adaptors as described.



Fig. 4

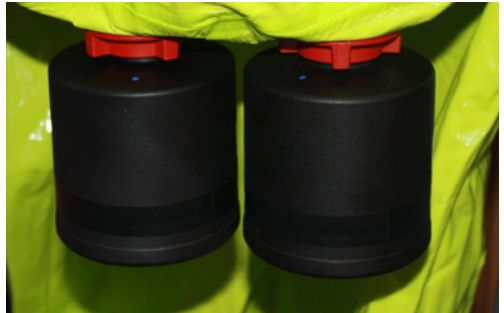


Fig. 5



Fig. 6



Fig. 7

- 8). **Turn on the AFU unit**, using either of the on/off buttons positioned on the AFU unit body (Fig. 8). The AFU unit will make a brief sound, and the lights on the RDD will cycle for a few moments, then show a green light. If a green light is not achieved, the battery may be flat or the particulate filter may be clogged. To check that the warning device is operational, block the breathing tube outlet by putting your hand into the headspace and covering the open end of the tube with a flat hand. Ensure that after a short time the buzzer begins to beep and the red light begins to flash. Remove hand from the outlet. The red light will go out, all three lights cycle for a short time then the green light will remain illuminated. **⚠ Do not don the PRPS(T) suit until a green light is achieved.**



Fig. 8



Fig. 9

Donning procedure

Make sure the suit has been visually inspected and is suitable for the intended use. Underclothing should be worn beneath the suit. As a minimum, a short sleeve shirt and long trousers or "long underwear" are recommended. Remove all personal affects which may result in damage to the suit (e.g. pens, badges, jewelry etc.). Remove footwear, the suit is fitted with it's own integral 'HAZMAX' safety boots. It is advisable to tuck trousers into socks to make donning of suit legs and boots easier.

Entry to the suit is made via an opening at the front that is sealed by a gas-tight zip fastener protected by overlapping flaps with a velcro strip.

It is good practice for an assistant to help the wearer don and doff the suit. This makes the process easier and quicker, and will help to avoid stumbling or tripping which may result in personal injury or damage to the suit.

NB: The suit must always be donned in a clean uncontaminated area.

Follow these steps in donning the suit:

- 1). If applicable, rinse and fill the re-hydration pack. Don the re-hydration pack and adjust straps until comfortable (Fig. 10).
- 2). Whilst seated, place both legs into the suit (Fig. 11).



Fig. 10



Fig. 11

- 3). Stand up and with the dressing assistant supporting the weight of the AFU at the rear of the suit, fasten the internal waist belt securely (fig. 12). If necessary adjust the belt until comfortable.
- 4). Lift the suit up above waist level and connect the drinking tube that runs from the headspace to the tube on the re-hydration pack (figs. 13 & 14).



Fig. 12



Fig. 13



Fig. 14

- 5). If required a peak-less safety helmet with chin strap can be now donned (Fig 15). NB Owing to the non-breathable nature of the laminate gloves attached to the suit it is not uncommon for the wearer's hands to moisten due to sweating. For this reason it is recommended that cotton gloves are worn to absorb sweat and to assist with donning and doffing procedure (Fig. 16).



Fig. 15



Fig. 16

- 6). The dressing assistant should now switch on the AFU to ensure that breathing air is supplied to the wearer (Fig. 17). NB NEVER attempt to wear a PRPS(T) suit without switching on the AFU and ensuring the green light is permanently illuminated (see indicator lights and warnings).
- 7). Place both arms into the suit (Fig. 18).

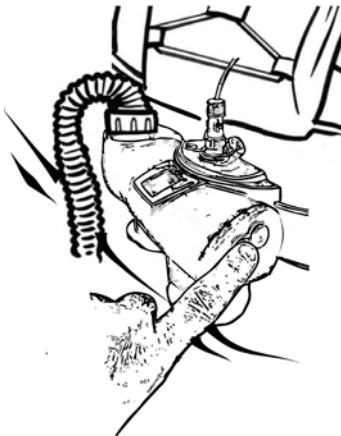


Fig. 17



Fig. 18

- 8). The wearer should duck forwards and the assistant should pull the hood of the suit over the head (Figs. 19 & 20). NB It may be necessary to re-adjust the helmet after this stage. Ensure that the knitted neck seal sits evenly around the wearer's neck.



Fig. 19



Fig. 20

- 9). With the wearer's arms in an outstretched position the assistant should fully fasten the zipper across the chest, (Fig. 21).
- 10). Seal down the zip flaps evenly to the suit, trying to leave a minimum of gaps and ridges for the possible ingress of spray or splash (Fig. 22). Note: when sealing down the upper flap you may find it easier to achieve a smooth seal by working from the centre outwards.

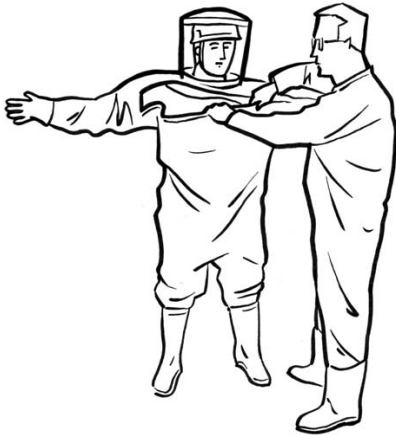


Fig. 21



Fig. 22

11). When fully donned the suit should appear as in Fig. 23



Fig. 23

Doffing procedure (use of Hazbag optional)

- 1). Lay the hazbag on the ground (*if supplied with suit), open end facing upwards. The wearer should stand in the open end of the hazbag in preparation for doffing (Fig. 24).
- 2). With the wearer's arms in an outstretched position the dressing assistant should break the velcro seal on the outer zip flaps and fully open the gas-tight zip across the chest (Fig. 25).
- 3). Wearers' should now withdraw their arms from the sleeves of the suit and unfasten both the waist belt attached to the AFU and the chin strap of the peak-less safety helmet (if worn). After unfastening the waist belt the wearer's arms should be crossed over the chest (Fig. 26 and Fig. 27).



Fig. 24



Fig. 25

*Hazbag shown not supplied with suit (see Spares and Accessories).

- 4). The wearer should duck forwards so that the dressing assistant can lift the hood of the suit up and over the wearer's head. Note: It is likely that if a safety helmet is being worn this will automatically come away from the wearer's head and remain in the head space of the suit. The helmet can be recovered from the suit on completion of the doffing procedure.



Fig. 26



Fig 27

5. If wearing the suit in combination with a re-hydration pack this should now be disconnected from the drinking tube attached to the suit.
6. The dressing assistant should carefully lower the suit to boot level (Fig. 27), and the wearer can now step out of the suit avoiding contact its exterior (Fig 28).



Fig. 28



Fig. 29

7. The dressing assistant should now switch off the AFU and unscrew the externally mounted filters for safe disposal (re-seal filters with the original plastic caps).
8. If necessary the peak-less safety helmet can now be recovered from the head space of the suit.
9. The suit, including attached AFU, can now be sealed in the hazbag using the plastic tie provided (Fig. 29).
If required enter all relevant information onto the hazbag tag.

Emergency self doffing procedure

1. Withdraw your right arm from the suit sleeve and push against the back of the zip at the pull tag end.
2. With your left hand unseal the outer velcro flap fastening and undo the zip.
3. Undo the AFU belt and unfasten the helmet chin strap (if worn).
4. Exit the suit.

Rapid self doffing may also be achieved by cutting the suit (this will render the suit unsuitable for any future use).

Filter and Cartridges

Powered Air Purifying Respirators (AFU) are designed to remove potentially harmful gases, vapours and/or particulates from the surrounding atmosphere by means of filtration of the air. Make sure that the filter and cartridge is suitable for the application. Use filters strictly in accordance with all instructions contained in this leaflet and the relevant filter user instructions. Filters need to be regularly changed. The frequency of change depends on usage time and the concentration of contaminant. The user should not confuse the markings on a filter relating to any standard other than EN 12941 with the classification of this device when used with this filter.

Cleaning Instructions

Respirex do not recommend laundering the PRPS suit. When the suit becomes dirty it should be wiped with a sponge using warm water and Citikleen*, rinsed and allowed to dry naturally. The inner surfaces of the suit should be sanitized using Synodor*.

Do not use solvents or strong cleaning and disinfecting agents, these may degrade the materials from which the suit is constructed. Use a clean cloth dampened with a mild solution of water and liquid household soap to clean the Malina Safety CleanAIR® Chemical 2F Plus, filters, filter retainers and belt.

⚠ Do not submerge the filters in liquid. Do not use petrol, chlorinated degreasing fluids (such as trichloroethylene), organic solvents or abrasive cleaning agents to clean any part of the equipment. To disinfect use wipes as detailed in Reference Leaflet. Do not autoclave. Do not clean the chargers with solvents that can damage plastic parts.

Disposal

Tychem® TK disposal

Whilst the exact composition of the fabric is confidential to the manufacturer, it is known that Tychem TK consists of polymers which do not contain halogens in their structural formula. After use, Tychem TK can either be incinerated without harm to the environment, or can be buried in a responsible manner. It is important to note that the nature of any chemical contamination on the garment should be taken into account when deciding on the best method of disposal..

Battery disposal

CAUTION DO NOT dispose lithium and lithium ion batteries in a fire or send for incineration. Battery packs should be treated as special waste and in accordance with your local environmental regulations. The Respirax™ range of PRPS Suits are designed for single exposure only and should not be reused after exposure to hazardous environments. Contaminated products should be disposed as hazardous waste in accordance with local health and safety and environmental regulations. For the purposes of disposal a sealable hazbag is included with the system.

Filter disposal

In use, the Malina (A3B2E2K2P R SL) filter canister will absorb and retain any particulate contamination that is present in the immediate environment. Used filter canisters are potential reservoirs of any contamination that is present and should be disposed of accordingly. Disposal of used filters should be undertaken in accordance with local health and safety and environmental regulations. For further information refer to Malina user instructions.

Maintenance

Maintenance, servicing and repair must only be carried out by properly trained personnel.

⚠ Use of unapproved parts or unauthorised modification could result in danger to life or health and can invalidate any warranty.

Spares and Accessories

Cotton gloves	H01021
Sea boot socks	H00075
Peakless safety helmet	G01001
Re-hydration pack	G01002
Replacement neck seal	G01011
Hazbag with tie and tag	G01652
Malina A3B2E2K2P R SL filter (pack of 2)	F02042/2
Primary battery Chemical 2F for RDD, Lithiumn battery pack	F02004
'Fog-Off' anti-misting agent (100 ml)	F00934
'Synodor' anti-bacterial cleaner (5L)	F00937
'Citrikleen' cleaning agent (5L)	F00938

Product Labelling

1. Manufacturer of garment;
Respirex International Ltd.
2. Manufacturer's Style number
3. Material of Manufacture.
4. Manufacturer's Order No.
5. Customer Name.
6. Garment Size.

Size	Chest (cms)
S	86-94
M	94-102
L	102-112
XL	109-124
XXL	122-135


RESPIREX

Unit F Kingsfield Business Centre,
Philanthropic Road, Redhill, Surrey RH1 4DP. UK
TEL +44 (0)1737 778600
info@respirex.co.uk


Wilthener Straße 32 / Gebäude 4a,
D-02625, Bautzen, Germany
TEL +49 (0)3591-5311290
info@respirex.de






MODEL No: PRPS
STYLE/STYLE No: SAMPLE
SERIAL NO:
MATERIAL: TYCHEM TK A00097
SALES ORDER No: SAMPLE
CUSTOMER NAME: SAMPLE
DATE OF MANUFACTURE: March 2023






CHEMICAL PROTECTIVE CLOTHING

CE2797  **UKCA0086**

SIZE **L**

 COMPLIES WITH A TECHNICAL SPECIFICATION TO SATISFY ANNEX II OF THE PPE REGULATION (EU) 2016/425

LB077      **Issue F**

7. Date of manufacture; Day/Month/Year.
8. CE and UKCA mark including the Notified Body and Approved Body codes.
9. Protection against liquid chemicals
10. "Open Book Pictogram"; wearer must refer to the "Instructions for use" for further information.
11. Five care pictograms indicating that clothing is not suitable for cleaning and reuse.
 - Pictogram 1 Do not wash 
 - Pictogram 1 Do not bleach 
 - Pictogram 2 Do not iron 
 - Pictogram 3 Do not tumble dry 
 - Pictogram 4 Do not dry clean 

Storage and Transportation

These products should be stored in the packaging provided in dry, clean conditions away from direct sunlight, sources of high temperature, petrol and solvent vapours. Before initial use, always check that the product is within the stated shelf life (use by date).

Do not store the PRPS Suits, the AFU unit (Chemical 2F Plus) or the batteries outside the temperature range -10°C to +50°C or with the humidity above 90%.

Please see appropriate filter user instructions for storage guide.

When stored as stated, the expected shelf life of the Protective Suits is 10 years from the date of manufacture.

When stored as stated, the expected shelf life of the AFU unit (Chemical 2F Plus) is 5 years from date of manufacture.

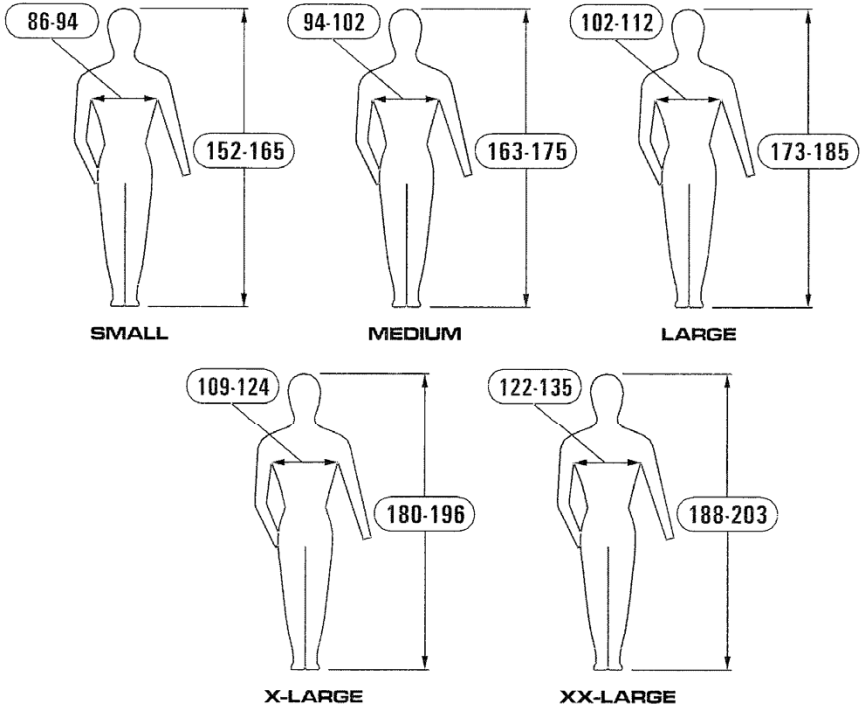
All parts of the CleanAIR® system must be stored at temperatures between -10 °C and 50 °C, with relative air humidity between 20 and 95% Rh.

Batteries will self-discharge during storage. Therefore, it is recommended to charge the battery for 1 hour at least every 3 months. The optimal battery charge level for longer storage is between 50 to 70% of capacity. After longer storage time it is necessary to repeat 3 charging cycles to reach battery's full capacity.

In order to maintain the level of protection offered, use original packaging when transporting the PRPS. Care should be taken to minimize the risk of damage occurring to the suits during transportation between work areas. It is recommended that the PRPS(T) suit is transported in a suitably sized rigid container resistant to penetration by sharp objects, abrasive surfaces, chemicals, oils, solvents etc.

Sizing

select appropriate size garment to allow sufficient movement for the task.



Label	Size	Height (cm)	Chest (cm)
S	Small	152 - 165	86 - 94
M	Medium	163 - 175	94 - 102
L	Large	173 - 185	102 - 112
XL	Extra Large	180 - 196	109 - 124
XXL	Extra, Extra Large	188 - 203	122 - 135

Permeation Performance

The following test results indicate resistance to permeation against each of the 15 liquid chemicals in the standardised test battery EN 943-2:2019. All tests carried out under laboratory conditions by independent accredited laboratories in accordance with ISO 6529: 2013.

Table shows average breakthrough times in minutes.

Chemical	Suit Fabric	KEMBLOK™ Glove	Visor	Suit Seams
	Tychem® TK			Tychem® TK
Acetone 100%	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Acetonitrile 99.9%	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Ammonia Gas 99.9%	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Carbon Disulphide 99.9%	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Chlorine Gas 99.5%	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Dichloromethane 99.9%	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Diethylamine 99.5%	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Ethyl Acetate 99.7%	> 480 mins	> 480 mins	> 480 mins	> 480 mins
n-Hexane 99%	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Hydrogen Chloride Gas 99.9%	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Methanol 99.9%	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Sodium Hydroxide 40%	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Sulphuric Acid 95-98%	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Tetrahydrofuran 99.9%	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Toluene 99.9%	> 480 mins	> 480 mins	> 480 mins	> 480 mins

Classification of permeation resistance

Class	Breakthrough time (mins)
6	> 480
5	> 240
4	> 120
3	> 60
2	> 30
1	> 10

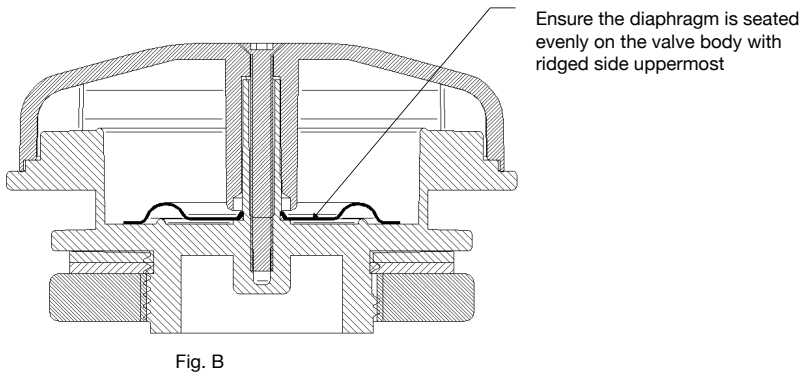
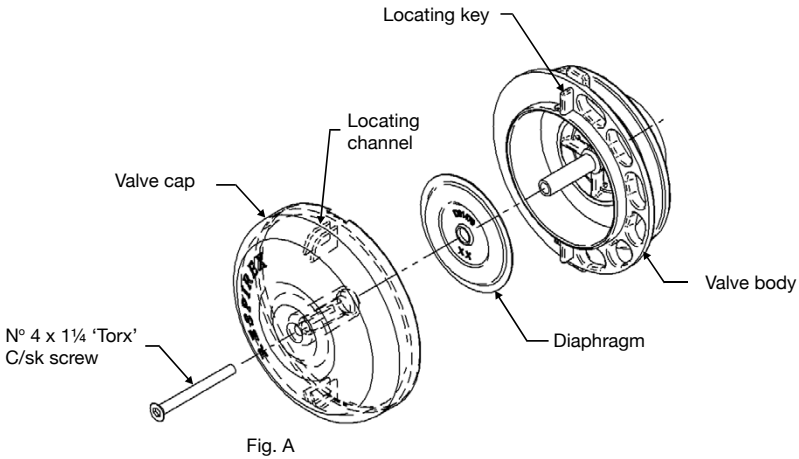
Physical Properties Of Tychem® TK Material

The samples submitted were tested in accordance with Table 1 of EN 943-2:2019.

Property	Test Method	Property value of Tychem® TK	Performance class of Tychem® TK	Minimum Performance Class Required For EN 943-2:2019
Basis Weight	ISO 6529:2013	380 g/m ²	N/A	N/A
Thickness	ISO 6529:2013	680 µm	N/A	N/A
Abrasion resistance	EN ISO 12947-2 (inc. pressure drop)	> 2000 cycles	6 (out of 6)	4
Flex cracking resistance	ISO 7854 Method B (inc. pressure drop)	> 1250 cycles	2 (out of 6)	1
Flex cracking resistance at -30 °C	ISO 7854 Method B (inc. pressure drop)	> 200 cycles	2 (out of 6)	2
Trapezoidal tear resistance	EN ISO 9073-4	> 150 N	6 (out of 6)	3
Puncture resistance	EN 863	> 10 N	2 (out of 6)	2
Tensile Strength	EN ISO 13934-1	> 250 N	4 (out of 6)	4
Resistance to flame	EN 13274-4:2001 Meth 3 modified (inc. pressure drop)	No part ignited or continued to burn on removal from the flame	2(out of 3)	1
Seam strength	ISO 5082:1982 Annex A2†	> 500 N	6 (out of 6)	5

Replacing the Exhalation Valve Diaphragm

1. Using a torque driver with a 'T8' Torx bit, loosen and remove the screw from the centre of the exhalation valve, then remove the cap.
2. Carefully slide the diaphragm up the central spigot and remove from the exhalation valve body.
3. Check that there is no dust, debris or contamination of any kind in the exhalation valve body.
4. Carefully slide a new diaphragm down the central spigot until it rests evenly on the valve body. Ensure the diaphragm is correctly orientated with the ridged side uppermost (see Fig B).
5. Replace the exhalation valve cap and ensure the two location channels engage with the locating keys on either side of the valve body. **Note:** When correctly located, the valve cap will not rotate independently on the valve body.
6. Replace the centre screw, turn by hand two times to engage the thread with the valve body, then fully tighten using a torque driver set to 23 ± 2 cNm.



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

Tel. +44 (0)1737 778 600
Fax. +44 (0)1737 779 441
www.respirex.com

RESPIREX GmbH,
Wilthener Straße 32
Gebäude 4a,
D-02625,
Bautzen
DEUTSCHLAND

Tel.: +49 (0)3591-5311290
Fax: +49 (0)3591-5311292
info@respirex.de

Type Examination
By :

BSI Assurance UK Ltd
Kitemark Court, Davy Avenue,
Knowlhill, Milton Keynes,
MK5 8PP
UNITED KINGDOM

UK Approved Body: 0086

BSI Group The Netherlands B.V.
Say Building, John M. Keynesplein 9,
1066 EP,
Amsterdam,
NETHERLANDS

Notified Body No. 2797