

POWERED RESPIRATOR PROTECTIVE SUIT

TYCHEM® TK



RESPIREX™

Description

The Respirex Powered Respirator Protective Suit (PRPS) is a one piece **gas-tight** chemical protective suit for use by emergency response personnel after a CBRN incident.

The suit is manufactured from DuPont™ **Tychem® TK**, a high performance, seven layer, nonwoven, chemical barrier fabric that is also light in weight.

Applications



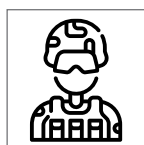
Fire
Brigades



Health
Authorities



Civil
Defence



Military



Performance



TYPE 1 | EN 943-2:2002 (ET)
Gas-Tight Chemical Protective Suits for
Emergency Teams



EN 12941:1998+A2:2008
Respiratory protective devices - Powered
filtering devices

**The Powered Respirator Protective Suit (PRPS) has been assessed by a notified body as satisfying Annex II of the PPE regulation (EU) 2016/425 using technical standards EN 943-2 'Protective clothing against liquid and gaseous chemicals, including liquid aerosols and solid particles Part 2: Performance requirements for "gas-tight" (Type 1) chemical protective suits for emergency teams (ET)' and EN 12941 'Respiratory protective devices - Powered filtering devices incorporating a helmet or a hood - Requirements, testing, marking'.*

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Material Performance



FINABEL 0.7.C
Chemical Warfare Agents



EN 14126:2003
Protective Clothing Against Infective Agents

Product Documentation



The CE Certificate, Declaration of Conformity and user instructions can all be downloaded from the product page on the Respirex website, links are in the downloads tab.

There are also additional photos and videos on donning procedure.

Key Features

Respiratory system comprising a **battery powered 3M™ Jupiter™** air filter unit fitted with a **visual display unit** mounted inside the suit at the base of the visor, and audible alarm

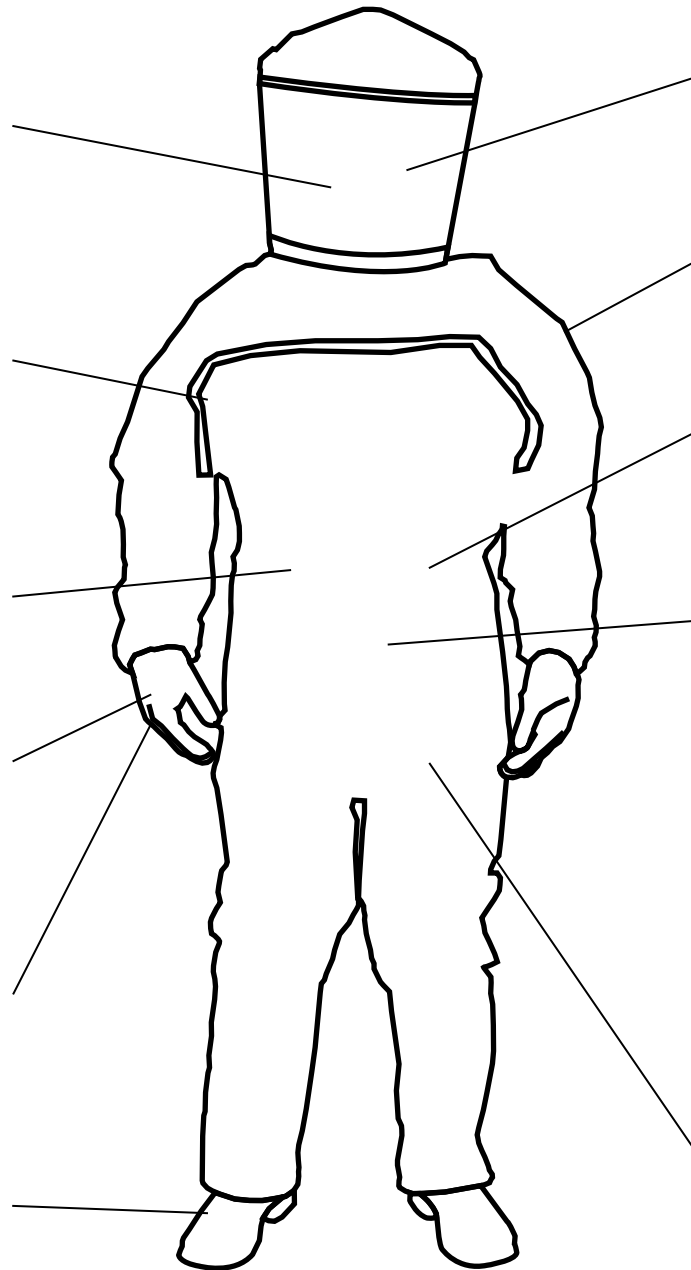
Heavy duty **gas tight zip** fitted across the chest enclosed by double external storm flaps with hook & loop fastener

Twin **JRF-85 gas & particle filters** (at the rear) provide protection against chemical and biological warfare agents

Gas-tight locking cuff system for changing gloves

Dual glove system consisting of a **Kemblok™** chemical barrier inner glove bonded to an outer neoprene glove for mechanical protection.

Permanently attached **Hazmax™ chemical safety boots**



Semi-rigid **laminated visor** for clear undistorted vision

Two exhalation valves maintain a comfortable working pressure inside the suit

Battery pack provides **1 hour operational use**, plus 15 minutes for decontamination

Adjustable internal **support belt**

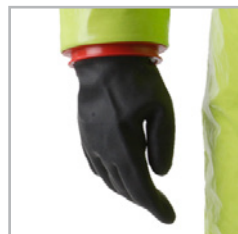
10 year shelf-life, with three service inspections & re-certifications over the life of the suit. Filters replaced at second service.

Internal pressure test based on ISO 17491-1:2012 (Clause 5.3, Method 2) conducted before despatch **to confirm the suit is gas-tight**

Suit Options



- Or -



Lightweight Gloves

Inner Kemblok™ glove with lightweight nitrile overglove for greater manual dexterity

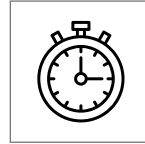
Heavy-Duty Gloves

Inner Kemblok™ glove with heavy-duty neoprene overglove for improved mechanical protection

Benefits



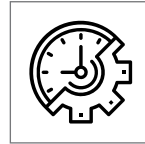
Can be used by wearers with **facial hair and/or glasses**



Improved operational duration over gas-tight suits with SCBA



No requirement for **face-fit testing**



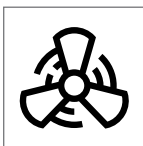
Up to six times the resource efficiency compared with gas-tight SCBA suits thanks to the lower physiological loading and increased duration



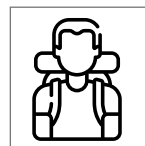
Training needs are reduced



Significantly **lighter and more comfortable**, with easier breathing and less equipment in body contact than with a gas-tight suit with SCBA



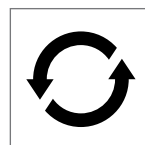
Powered respirator provides **cooling air over the head** and through the suit, making the wearer more comfortable and better able to focus on tasks



The lower weight and increased user comfort results in a **lower physiological load** than a conventional gas-tight suit



A **Large visor** provides reassurance to casualties and victims by maintaining non verbal communication through facial expression and aids speech recognition through visible lip movements.



Uncontaminated or 'decontamination-guaranteed' **suits can be re-used** following gas-tight re-test and re-certification

Accessories



Training Suit

A training version of the operational suit manufactured in green PVC and designed for multiple re-use with no testing required.



Batteries

Rechargeable battery (and separate charger) for use in training applications

Lithium battery for immediate operational use with an extended storage life



Hydration system

Camelback hydration system worn inside the suit

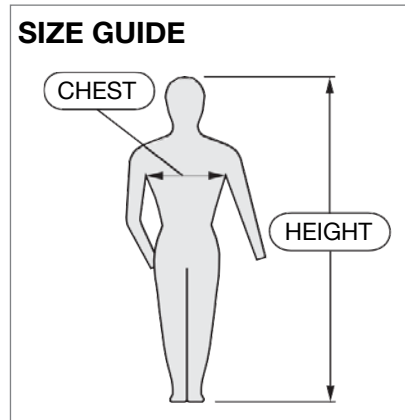


Hard Hat

Peakless hard hat that can be worn comfortably inside the PRPS suit

Sizing Chart

Size	Chest (cm)	Height (cm)
Small	88-96	163-175
Medium	96-104	169-182
Large	104-112	176-188
X-Large	112-124	182-194
XX-Large	124-136	188-200



Specifications

PRPS Suit

Pack Size (max)	26 x 58 x 36 cm
Pack Weight (max)	8 kg
Carton Qty	3
Outer Carton Size	84 x 62 x 40 cm
Outer Carton Weight (max)	26 kg
Commodity Code	62104000

Specifications are based on an XL sized suit with boots, but without optional accessories and are for guidance only

Material Properties

Property	Test Method	Property value of Tychem®TK.	Performance Class of Tychem® TK	Minimum Class Required for EN 943-2:2019
Basis Weight	ISO 536:1995	360 g/m ²	N/A	N/A
Thickness	ISO 534:1998	500 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
Trapezoidal tear resistance	EN ISO 9073-4	> 100 N	5 (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 Method 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 Annex A2†	> 500 N	6 (out of 6)	5

Material tested in accordance with Table 1 of EN943-2:2019 - Minimum performance requirements of chemical protective clothing materials for regular robustness suits.

* The suit may not be suitable for use where there is a high risk of puncture - see Respirex GTB Reusable gas-tight suit.

Chemical Permeation

Chemical	Physical State	Tychem®TK. Material	Suit Seams	Kemblok™ Glove	Visor
Acetone	Liquid	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Acetonitrile	Liquid	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Ammonia	Gas	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Carbon Disulphide	Liquid	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Chlorine	Gas	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Dichloromethane	Liquid	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Diethylamine	Liquid	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Ethyl Acetate	Liquid	> 480 mins	> 480 mins	> 480 mins	> 480 mins
n-Heptane	Liquid	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Hydrogen Chloride	Gas	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Methanol	Liquid	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Sodium Hydroxide 40%	Liquid	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Sulphuric Acid 98%	Liquid	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Tetrahydrofuran	Liquid	> 480 mins	> 480 mins	> 480 mins	> 480 mins
Toluene	Liquid	> 480 mins	> 480 mins	> 480 mins	> 480 mins

All tests carried out under laboratory conditions by independent accredited laboratories in accordance with EN ISO 6529 unless otherwise stated. Table shows average breakthrough times in minutes.

For full details of the chemical permeation performance of Tychem® TK and its performance against chemical warfare and infective agents, please visit the materials section of the Respirex website www.respirex.com.

Specifications, configurations and colours are subject to change without notice.



RESPIREX™

Living + Breathing Personal Protection

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