# LIMITED LIFE GAS-TIGHT SUIT

**TYCHEM® TK**

RESPIREX™

## Description

This fully encapsulating **Type 1A - ET** regular robustness gas tight suit is designed to protect the emergency responder against toxic or corrosive gases, liquids and solid chemicals.

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
- Water Companies
- Nuclear
- Petro-Chemical
- Shipping
- Pharma-ceutical

## Certification

**TYPE 1A** | EN 943-2:2019 (ET)
Gas-Tight Chemical Protective Suits for Emergency Teams

**SOLAS** 1974/1988
Reg. II-2, 19.3.6.1

## 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.



: www.respirex.com : +44 (0)1737 778600

# Key Features

Encapsulating design for **Self Contained Breathing Apparatus (SCBA) worn inside the suit**

**Gas-tight zip** running from side of head to lower thigh, covered by zip flap with hook & loop fastener

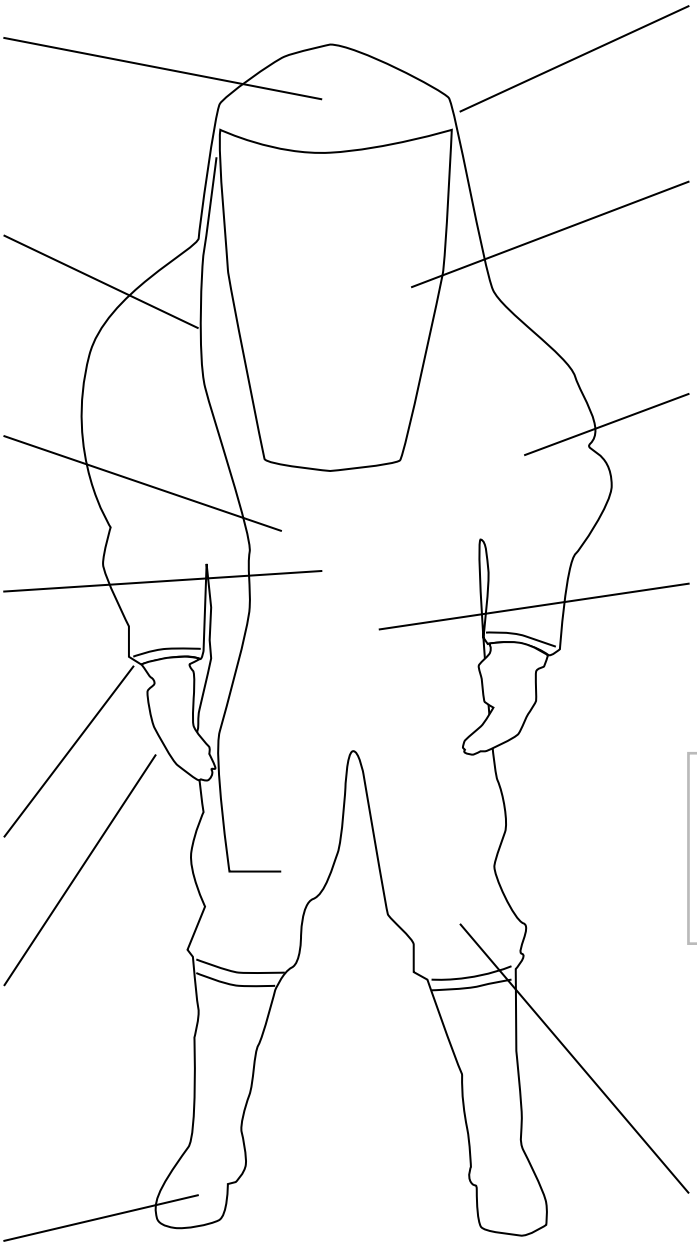
Protection against liquid & gaseous chemicals (**Type 1**), infective agents and chemical warfare agents

Inward Leakage tested to **EN 1073-2:2002, Class 3** with a Nominal Protection Factor (NPF) >9090

**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.

Choice of fixed or detachable **chemical safety boots or sock feet** (see below)



**Two exhalation valves** maintain a comfortable working pressure inside the suit

**Large chemically resistant flexible visor** for wide field of view

**Bat-wing sleeves** allow wearer to remove their hand from the glove to check gauges and other equipment inside the suit

Adjustable internal **support belt**

**Five year maintenance free shelf-life**, with annual test from year 5 up to the maximum shelf life of 10 years

Internal **pressure test to ISO 17491-1:2012** conducted prior to despatch to confirm the suit is gas-tight

# Foot or Boot Configuration

**Sock Foot and Outer Leg**

A sock foot of the suit fabric is fitted with an outer splash guard leg, allowing the use of customers own heat & flame resistant chemical safety boots (required as par of EN943-2). This also reduces pack size.

**Detachable Boots**

Detachable **Hazmax™ FPA** heat and flame resistant chemical safety boots are attached by a locking ring and can be replaced during suit servicing.

**Fixed Boots**

**Hazmax™ FPA** heat and flame resistant chemical safety boots are permanently attached to the suit. The suit needs to be returned to Respirex for boot replacement.

# Suit Options

### Suit/Brigade ID

Customer Identification names & codes can be added to the base of the visor or on the back of the suit.

### Pass-Through

Allows the connection of a second cylinder or an air-line to the second man attachment on the breathing apparatus during decontamination.

### Anchor Hook

External equipment attachment point

### Personal Line Attachment

External equipment attachment point

### DSU Attachment

External equipment attachment point for a Distress Signal Unit (DSU)

### Torch Ring Attachment

External equipment attachment point

# Accessories

### Hazbag Containment Bag

A hazardous material containment bag manufactured from Chemprotex™ 300 material. Supplied with a cable tie, tag and wallet for sealing and identification. Dimensions: 1050 x 1370mm

### Gas-Tight Suit Test Unit -

Computer controlled test unit that automatically inflates a suit from a compressed air supply and performs an internal pressure test to ISO 17491-1:2012 as required by clause 5.4 of EN 943-1:2015+A1:2019

### Training Suit

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

### Manual Gas-Tight Suit Test Box

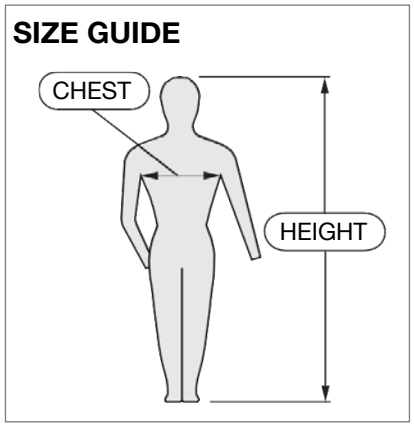
Operator controlled test unit that can be used to inflate a suit from a compressed air supply and perform an internal pressure test to ISO 17491-1:2012 as required by clause 5.4 of EN 943-1:2015+A1:2019

### Suit Care & Maintenance

A selection of suit care products including cleaning and deodorising agents, anti-fogging spray for visors and lubricating wax for zips.

## 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

**Tychem® TK GT 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/m² | 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 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**.



RESPIREX™

Living + Breathing Personal Protection

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