



CPS Workbook
2022



Quality
of the
future

PROVEN IN EXTREME SITUATIONS

TURNOUT GEAR FROM TESIMAX™

Glossary

CPS	= Chemical protective suit
SCBA	= Self-contained breathing apparatus
F-AU	= Forced ventilation system with automatic changeover
NBC	= Nuclear, Biological, Chemical
CBRN	= Chemical, Biological, Radioactive, Nuclear
ET*	= Unlimited use for emergency teams/firefighters
B	= Protection against biological hazards

TESIMAX protective suits

- **ESK** Light-duty protective clothing (particle/liquid-tight, according to EN types 3–6, B) ESK 1, ESK 2, ESK 3, ...
(-> the higher the ESK number, the higher the protection level)
- **VSF 21** Totally encapsulated suits with forced ventilation (powered filter units, according to EN 943/EN 1073 type 1c/3B)
- **GS 3** Gas-tight protective suit with SCBA outside (gas-tight, according to EN 943 type 1b, B (ET))
- **GS 3** Like GS 3 but with permanently integrated mask (gas-tight according to EN 943 type 1b, B (ET))
- **VS 5** Totally encapsulated suits (gas-tight, according to EN 943 type 1a, B (ET)) with permanently integrated 3-layer laminated visor / 130 cm, gas-tight zip; alternatively with 180 cm gas-tight zip or upgrade to VS 20 series (ex factory)
- **VS 20** Totally encapsulated suits (gas-tight, according to EN 943 type 1a, B (ET)) with triple laminated interchangeable mask window (for ANGEL SENSOR systems), 180 cm gas-tight zip (Smart Handling)
- **VSF 20** Totally encapsulated suits with compressed air forced ventilation system (gas-tight)
- **VSF 5** according to EN 943 type 1c, B (ET) with triple laminated mask window, 130/180 cm (Smart Handling), gas-tight zip

Table of contents

P. 03	Table of contents
P. 04 – 17	The company
P. 18 – 51	Standards and overview
P. 52 – 65	VS 20 series (CBRN protection, types 1a ET, B)
P. 66 – 79	VS 5 series (CBRN protection, types 1a ET, B)
P. 80 – 95	VSF 5/ 20 series (NBC protection, types 1c, B)
P. 96 – 109	GS 3 series (CBRN protection/types 1b ET, B)
P. 110 – 127	VSF 21 series (CBRN/NBC protection, types 1–3, B)
P. 128 – 151	ESK series (CBRN/NBC protection, types 1–3, B)
P. 152 – 189	CPS Accessories
P. 190 – 207	Functional underwear
P. 208 – 225	CPS Service
P. 226 – 227	Legal Notice

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TESIMAX international



We are here for you

The intelligent protective suits

Who we are We make the best chemical protective suits, heat protection equipment and firefighter clothing in the world – for when it really matters. That is our guiding principle. It is what emergency services need at the “front line”.

We can look back on more than 40 years of success in achieving this aim, rooted in the leading-edge developments and motivation of our company founder and first-generation managing director Winfried Altinger. And we will continue to succeed.

People are at the core of our corporate culture. After all, team and network performance are vital for providing the most sophisticated technology and superior safety. That is our greatest strength.

Together with you, our employees and our partners, we will continue along this path. Step by step, following the TESIMAX philosophy. Join us in achieving this aim.

Sabine Egner & Sven Altinger

Managing Partners



High-Performance
PLASTICS



High-Performance
FLUORELASTOMERE



Performance
TP



PARA-ARAMID



Performance
PLASTICS



See for yourself

TESIMAX customers are welcome to visit us by appointment at our headquarters in the Black Forest region between Karlsruhe and Stuttgart. Take advantage of personal, face-to-face advice for our core product areas:

- Chemical Protection
- Heat shielding
- Firefighter clothing

We also offer a fringe programme that is tailored to your specific needs. We will help you find accommodation and with your journey to our premises (for example from Pforzheim railway station or Stuttgart airport).

PASSION AND PRECISION

In the TESIMAX factory, you will gain valuable insights into the construction of chemical protective suits for firefighters:

- Our guided tour covers all production areas – from the cutting room to final assembly.
- The factory, together with our head office is located in the Black Forest region.
- Around 40 employees and apprentices work here.

Incorporated into our European production network, gas-tight protective suits for firefighters and industry are produced here every day. On your visit, you can also gain an insight into the fabrication of personal protective equipment, which is made at our production network sites in Bulgaria and Romania.

Contact us for your personal day at TESIMAX.



Experience that you can trust

Innovative developments, such as SYKAN®, SILVERFLASH® and the patented ANGEL SENSOR SYSTEMS products (ANGEL LIGHT®, ANGEL SIGNAL®, ANGEL HEART®, ANGEL CONTROL® and ANGEL EYE®) clearly demonstrate:

We are committed to saving and protecting human lives. And don't think that it just stops there! Remaining true to our conviction we will continue to do what we do best!

Quality of the future

Technology Made in Germany

"There are companies in the world that are larger than TESIMAX," says Sven Altinger, who manages the company together with his sister Sabine Egner, "but in our sector, we are the technology leaders." And not just in Germany: Whether in Russia or China – wherever we go, we are understood, in a growing number of countries. With a worldwide centrally managed network, we are seen as a streamlined, convincing and flexible enterprise."



TESIMAX
YouTube channel

LEIPZIG-HALLE AIRPORT
fire.training@leipzig.ae



Black Forest Performance

X-FIGHTER COMPETITION SPORTS

Our personal protective equipment finds use in numerous sports events, such as the World Fire Fighter Games.

Automotive sector

The fire departments of numerous car manufacturers in Germany value the premium products from TESIMAX, especially in the field of chemical protection and firefighter turnout gear.

Chemical industry

"In my long and intensive working life, I was always impressed by the suits' protection performance and the excellent cooperation with TESIMAX... Highly recommended!"

(Former, deputy manager of a works fire brigade)

Utilities

"The safety requirements in German power stations are among the strictest in the world. That's why we have been using TESIMAX products for more than 25 years."

(Experts and managers of various utility companies and nuclear power stations in Germany)

(Maritime) industry

In industry, "Made in Germany" is synonymous with quality. This goes for every one of our products – down to the smallest detail. That's what matters.

Military and national authorities

Our products serve only to protect human life. We emphasize this fact with all of our customers.





Technology, safety, maximum

Three strong words which, for us, form one entity: TESIMAX

1990: The revolution. The VS 10 SYKAN 3 with HPF para-aramid.
Or the SILVERFLASH. Full heat and chemical protection in a single suit.

Light into the dark? ANGEL LIGHT will guide you.
Innovations resulting from this entity.

Like the protective suits in the SYKAN 4 series, for instance. Tested and approved in accordance with European guidelines, these products exceed the minimum requirements by a wide margin. In emergency situations, the chemical and mechanical protection characteristics provide thermal resilience from approx. -200 to +1000 °C. Continuous testing guarantees safety right down to the finest detail before equipment is delivered anywhere in the world.

TESIMAX protective suits have proven themselves in many extreme situations for more than 40 years: on high seas, in industry, in gas and oil fires, nuclear power stations, with fire brigades and disaster control units around the globe.

Consistent development ensures our position as technology leaders in personal protective equipment.

**Welcome to the world of intelligent protective suits
from TESIMAX. Suits that give you more.**



Looking for a patented solution? Look no further than ANGEL LIGHT.

A fully automatic LED lighting system integrated into the visor that turns night into day, without additional lamps.

This leaves the wearer's hands free to concentrate on the job in hand.

Other TESIMAX inventions, too, help the wearer and make their job easier even in extremely hazardous situations:

- ANGEL SIGNAL – the unique LED head-up display
- ANGEL EYE – the unique video transmission system
- ANGEL HEART – the heart frequency monitoring system
- ANGEL CONTROL – the unique smart sensor system

Patents & property rights

TESIMAX protective suits not only provide the highest protection level; they also redefine this benchmark.

This is reflected in numerous EU (PCR) patents and (DE) reg. utility models, such as:

- ANGEL SIGNAL, ANGEL LIGHT, ANGEL EYE, ANGEL CONTROL and ANGEL HEART
- PTFE SEAM COVER TAPES for SYKAN and SILVERFLASH
- TESIMAX CPS fabric structures (protected processes)
- TESIMAX CPS breathing air supply system
- TESIMAX CPS interchangeable mask window and visor structure (VS 20 & VS 5 series)
- Safe ventilation technology at the interface between powered filter unit and protective suit (VSF 21 series) and when using the protective suits & units in action
- Components such as CPS brace systems, integrated firefighter rescue harness systems and firefighter functional wear in PPE combination (EN 469)

We are pioneers that pave the way for new ideas.
For more than 40 years, TESIMAX has been continually extending its leading position as a developer.

**Further details at www.tesimax.de and on our
social media channels**

Made in Europe -
available throughout the world



Product sustainability

Product lifecycle

At TESIMAX, sustainability begins with product development. Every idea in the field of personal protective equipment is also scrutinised for its physiological (e.g. stress-reducing) psychological (e.g. mental stress) and environmental aspects (e.g. reusability). As well as benefiting from the products' characteristics, you profit from 100% sustainability and efficiency throughout their lifecycle.

And then? TESIMAX is committed to taking back all protective suits for controlled disposal. To save resources, some of the suit fabrics can be reconditioned for reuse and reusable CPS components can be recycled.

Modular design of TESIMAX products

At TESIMAX, customers can choose from a wide range of products to assemble a personal protection system best suited for the application. This avoids all excess and focuses on what is important, which also helps save resources.

TESIMAX Products – REAL REUSABLE

- In this age of throw-away culture, TESIMAX has achieved a reusability of its products of up to 90 %, both before and after operations. This is made possible by our extensive expertise.
- All reusable chemical protective suits have a service life of 10 years plus optionally a further 5 years.
- All reusable products can be repaired as long as economically viable.

Social responsibility

To ensure our continued success, secure jobs and the economic viability of our operational sites, sustainability is a core element of the TESIMAX strategy (see also "Product sustainability") – an opportunity for commercial, ecological and social progress.

This policy is integrated into our processes with clearly defined, transparent sustainability targets for all business units. As our customer, you can join us in achieving this aim.

In addition to the ongoing development and qualification of our employees, our company philosophy covers equal opportunities, diversity, participation in the decision making process, an ongoing improvement of work-life balance as well as fair, performance oriented pay. These are the core values of our family-owned company.

We fight against corruption and practice fair competition, respect adherence to internationally recognised human rights and categorically reject forced and child labour of any form.

TESIMAX supports, for example, the European Support Team in setting up a regional fire brigade and ambulance service in western Kenya.

TESIMAX is committed to the principles of the "Ethical Trading Initiative Base Code". These recommendations comply with the standards of the International Labour Organisation (ILO).

Environmental protection

The responsible use of natural resources is a further key aim of our company. This includes minimising the environmental impact of our development and production processes. Along the entire value chain, environmental compatibility and the efficient use of energy are continually monitored and improved where necessary.

Our electricity needs are drawn entirely from our own modern photovoltaic installation and other green energy sources.

This catalogue has been printed and produced according to FSC® guidelines.

The FSC® (Forest Stewardship Council) is a globally active independent organisation that promotes responsible, sustainable forest management to conserve the world's forests. It specifies strict criteria that are intended to prevent uncontrolled deforestation, breaches of human rights and environmental damage.



The fire salamander

The fire salamander is at home mostly in woodlands. In Germany, it is found especially in the central, western and south-western regions.

Being common in the region of Württemberg, in which the TESIMAX head office is located, the fire salamander stands for environmental protection at TESIMAX.



Confidence in textiles & quality

TESTED QUALITY

All TESIMAX products are tested, approved and monitored by/according to:

PPE EU STANDARDS/QM System

- PPE Regulation (EU) 2016/425
- ISO 9001 QM (NATO AQAP)
- Marine Equipment Directive according to module D
- PPE monitoring according to module C

NOTIFIED BODIES/INSPECTION BODIES

- EU NOB Institute: OETI (CE 0543) & Hohenstein (CE 0555)
- BG VERKEHR (CE 0736)

Our employees

TESIMAX is committed to a team-oriented working practice. Our modern production facilities, as well as ensuring high quality at reduced energy consumption (geothermal energy, photovoltaics, etc.) guarantee a safe and healthy working environment for our employees.

Because only a motivated team can guarantee quality state-of-the-art products. And as our products are designed to protect lives, that is extremely important.

Textiles you can trust

These are made of fabrics that are free from toxic substances. In our firefighter clothing, we use only fabrics tested to the OEKO-TEX 100 standard.

In production and assembly, we use state-of-the-art processes to protect also our employees' health.

Quality management and monitoring according to European PPE Regulation EU 2016/425, to which TESIMAX PPE is tested and certified (CE).

"Our products reflect our exceptionally high quality standards."
(EN ISO 9001)

The TESIMAX QM systems according to DIN EN ISO 9001, PPE Regulation EU 2016-425 Module C/Module D comply with the basic requirements of the NATO AQAP QM system.

"To maximise quality, we work together with experts, such as the maritime employers' liability insurance association in Hamburg."
Production quality control (Module D) – EC marine equipment/PPE Regulation (EU) 2016/425

CE Audit (PPE Regulation (EU) 2016/425)
Additional PPE monitoring through our partner institutes NOB & Hohenstein (Module C QM system)

Disclaimer

The use of these systems is at the end user's own risk. Always observe the product guidelines and all relevant safety regulations for your application, in particular the corresponding TESIMAX user manual for your protective suit. This document does not in any way represent a warranty by TESIMAX. TESIMAX is not under any circumstances liable for damages incurred by the buyer or commercial user of a protective suit in the event of injuries (including death), material loss or damage, consequential costs, loss of income or other damage or losses of any kind.





Technical data

The intelligent chemical protective suits

Every product of the TESIMAX® brand provides maximum safety, reliability and quality.

Our chemical protective suits, such as the VS 20 SILVERFLASH®, are considered state of the art throughout the world and provide the highest available protection level – products you can rely on to keep you safe in extreme situations.

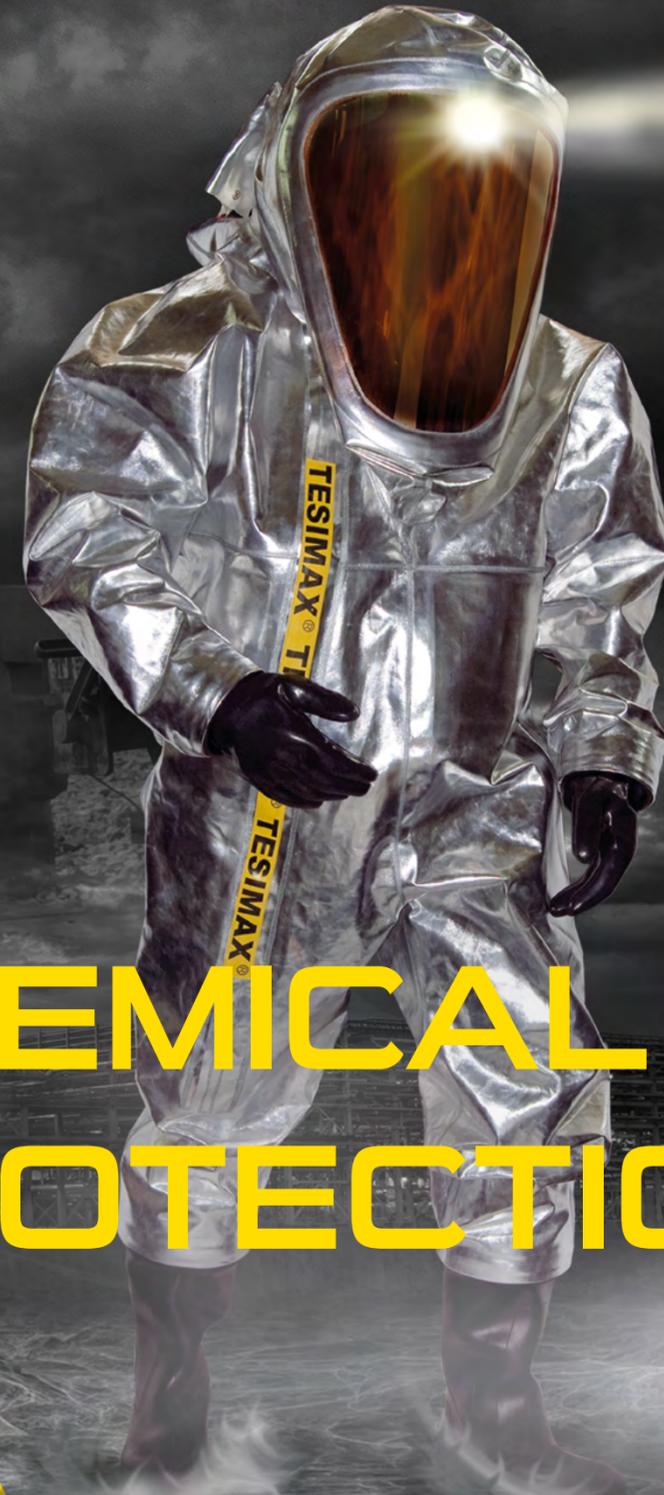
Chemical protective clothing – types

For all activities in the field of NBC (nuclear, biological, chemical) requiring special (chemical) protective clothing, we offer special solutions with a modular design:

1. Work and emergency assistance in hazard areas with a very high hazard potential (type 1, e.g. CPS series VS 5/20, VSF 5/20, GS 3/M)
2. Measurement and monitoring tasks at the perimeter of hazard areas with a manageable hazard potential (type 3, e.g. ESK series S3–S5 PE, VSF 21 series)
3. Tasks with a low hazard potential, such as decontamination (Types 4–6, e.g. ESK series ESK 1 PE, ESK 1 T plus, ESK 1 T)

Chemical protective clothing – applications

We manufacture chemical protective suits for firefighters, with built-in full-face masks for industry and military, suits with forced ventilation, training suits, contamination protective clothing for firefighters and nuclear installations, light chemical protective clothing for industry and civil authorities (disaster relief and prevention, police and fire prevention).



CHEMICAL PROTECTION



Industry



Military
Civil defence



Chemistry
Pharmaceuticals



Shipping



Clinics



Energy



Firefighters



The PPE* EN standards (*PPE = Personal Protective Equipment)

Classification of personal protective clothing according to European PPE Directive 89/686/EEC (PPE Regulation (EU) 2016/425)

Types 1a, 1b and 1c (ET) – gas-tight protective suits



DIN EN 943-1:2019-06 (CPS/protective suits permissible for industry/works fire brigades in Europe)

Protective clothing against dangerous solid, liquid and gaseous chemicals, including liquid and solid aerosols - Part 1: Performance requirements for Type 1 (gas-tight) chemical protective suits; German version EN 943-1:2015+A1:2019, including (supplementary standards):

- EN ISO 13688:2013: Protective clothing - General requirements (ISO 13688:2013)
- EN 388: Protective gloves against mechanical risks
- EN 14325:2018 Protective clothing against chemicals - Test methods and performance classification of chemical protective clothing materials, seams, joins and assemblages
- Protective clothing against solid airborne particles including radioactive contamination - Part 1: Requirements and test methods for compressed air line ventilated protective clothing, protecting the body and the respiratory tract
- EN standards for breathing apparatus: EN 132, EN 136, EN 12021, EN 13274, EN 14593, EN 14594

EN 943-2:2019-06 (CPS/protective suits permissible for voluntary and professional firefighters in Europe)

Protective clothing against dangerous solid, liquid and gaseous chemicals, including liquid and solid aerosols - Part 2:

Performance requirements for Type 1 (gas-tight) chemical protective suits for emergency teams (ET), including supplementary standards:

- EN 943-1:2015+A1:2019 and its supplementary standards
- EN 15090:2012, Footwear for firefighters
- ISO 17491-1: Protective clothing against dangerous solid, liquid and gaseous chemicals, including liquid and solid aerosols.
 - Test method: Determination of leak tightness of gas-tight protective suits (internal pressure test)

EN 943: INFO IDENTIFICATION IN ACCORDANCE WITH STANDARD (product label/user manual)

Code 1a, b and c = type classification (according to DIN EN 943-1:2019-06)

1a = SCBA inside/totally encapsulated suit, gas-tight

1b = SCBA outside/totally encapsulated suit, gas-tight

1c = without SCBA, with compressed/external air/
totally encapsulated suit, gas-tight (only for industry)

“ET” stands for Emergency Teams and includes approval for firefighting (according to EN 943-2:2019-06)

EN 943: Worldwide acceptance

- EN 943 for protective clothing has been the European standard since 2002 and is recognized and used throughout the world (Asia, Middle East, South America, Australia).
- Protective suits for the US economic area, where the NFPA Regulation applies, are excluded. The US NFPA regulations cannot be compared in detail with the European standards. The aim of protecting the wearer/end user (gas-tight, heat and chemicals resistance) is guaranteed independently by both standards (EN/USA). However, a protective suit can only be used with the correct approval (i.e. either EN (EU) or NFPA (USA)) in the respective economic area. A combination of standards for a protective suit is misleading for the end user and irrelevant for the respective economic area.
- ISO 17723-1:2019-08 PPE ensembles for firefighters undertaking hazardous materials response activities - Part 1: Gas-tight, vapour-protective ensembles for emergency response teams (type 1)
Protective suits according to EN 943 Parts 1 and 2 comply with ISO 17723-1:2019.

EN ISO: WARNINGS

- Only the EN standards apply Europe – without additional requirements or directives (inadmissible).
- Only EN 943-1:2019 (industry) / EN 943-2:2019 (firefighters) including their tested supplementary standards (see above) guarantee the maximum (gas-tight) protection for the end user and insurance coverage according to European law.
- Any national supplementary regulations are not legally sound and do not comply with the law.
- Any national supplementary guidelines are not a basis for insurance, as they “bypass” the EN ISO standardization and are therefore misleading & dangerous for the end user. They do not comply with the minimum requirements of EN 943 for gas-tight protective suits (Types 1a, b and c).
- Protective suits that are advertised as “gas- and air-tight” but do not comply with the EU minimum requirements (chemical, mechanical, gas-tight) of EN 943 (for industry/firefighters) are not permitted even if they are labelled “gas- and air-tight. TESIMAX defines these as “FAKE SUITS”!
- Always observe the manufacturer’s label of the CPS (Types 1–6, ET, standard, pictogram, CE mark, test number, notified body).
- Observe the validity of the product certificate (only with unique identifier/type declaration according to EN standards).
- Observe the validity of the necessary QM system (ISO, Module C, Module B, MED, etc.).

Type 3 – Liquid-tight protective suits

EN 14605:2009-08

Protective clothing against liquid chemicals – Performance requirements for clothing with liquid-tight (Type 3) or spray-tight (Type 4) connections, including items providing protection to parts of the body only (Types PB [3] and PB [4])



Type 4 – Spray-tight protective suits

EN 14605:2009-08

Protective clothing against liquid chemicals – Performance requirements for clothing with liquid-tight (Type 3) or spray-tight (Type 4) connections, including items providing protection to parts of the body only (Types PB [3] and PB [4])



Type 5 – Particle-tight protective suits

DIN EN ISO 13982-1:2011-02

Protective clothing for use against solid particulates - Part 1: Performance requirements for chemical protective clothing providing protection to the full body against airborne solid particulates (type 5 clothing) (ISO 13982-1:2004 + Amd. 1:2010); German version EN ISO 13982-1:2004 + A1:2010



DIN EN ISO 13982-2:2005-03

Protective clothing for use against solid particulates - Part 2: Test method of determination of inward leakage of aerosols of fine particles into suits (ISO 13982-2:2004)

Type 6 – Protective suits with limited spray-tightness

DIN EN 13034:2009-08

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); German version EN 13034:2005 + A1:2009



Additional specifications to which TESIMAX PPS are tested and certified, according to European PPE Regulation (EU) 2016/425.

Protective clothing against infective agents

EN 14126:2004-01

Protective clothing - Performance requirements and test methods for protective clothing against infective agents; German version EN 14126:2003

EN 14126 corrigenda 1:2005-02

Corrigenda to EN 14126:2004-01



Protective clothing tested according to EN 14126 guarantees resistance to the penetration of biologically contaminated liquids (germ penetration when wet). The special requirements for protective clothing materials against infective agents guarantee the protection of the skin and the wearer against possible contact with biological substances and help to prevent the spread of germs. Protective suits certified according to EN 14126 can be recognized by the pictogram for biological hazards and by the suffix “B” in the label/designation (e.g. type 3-B). The EN 14126 standard stipulates the following tests for the material of protective clothing:

Penetration test with artificial blood (ISO/FDIS 11603)

Resistance to viruses (ISO/FDIS 16604)

Resistance to bacteria (ISO/DIS 22610)

Resistance to bio aerosols (ISO/DIS 22611)

Resistance to contaminated dust (ISO/DIS 22612)

NOTE: Letter “B” in the product label (B = biological)

Protective suits with antistatic properties

Observe explosion protection (EN 1149-1) for working in explosion risk areas (Zones 0–22). The static inhibitor is effective only when the relative humidity lies above 25 percent. Note that only the clothing fabric is dissipative. To avoid sparks generation, make sure that protective clothing and wearer are properly earthed and use static inhibitor.



Protective suits for maritime use

(maritime shipping)

Protective suits tested and approved according to the MED (Maritime European Directive) Annex A1.



SOLAS 74/88 Chapter II/2 Regulation 19.3.6.1

Protective suits for nuclear protection

EN 1073-1:2018-10

Protective clothing against solid airborne particles including radioactive contamination - Part 1: Requirements and test methods for compressed air line ventilated protective clothing, protecting the body and the respiratory tract



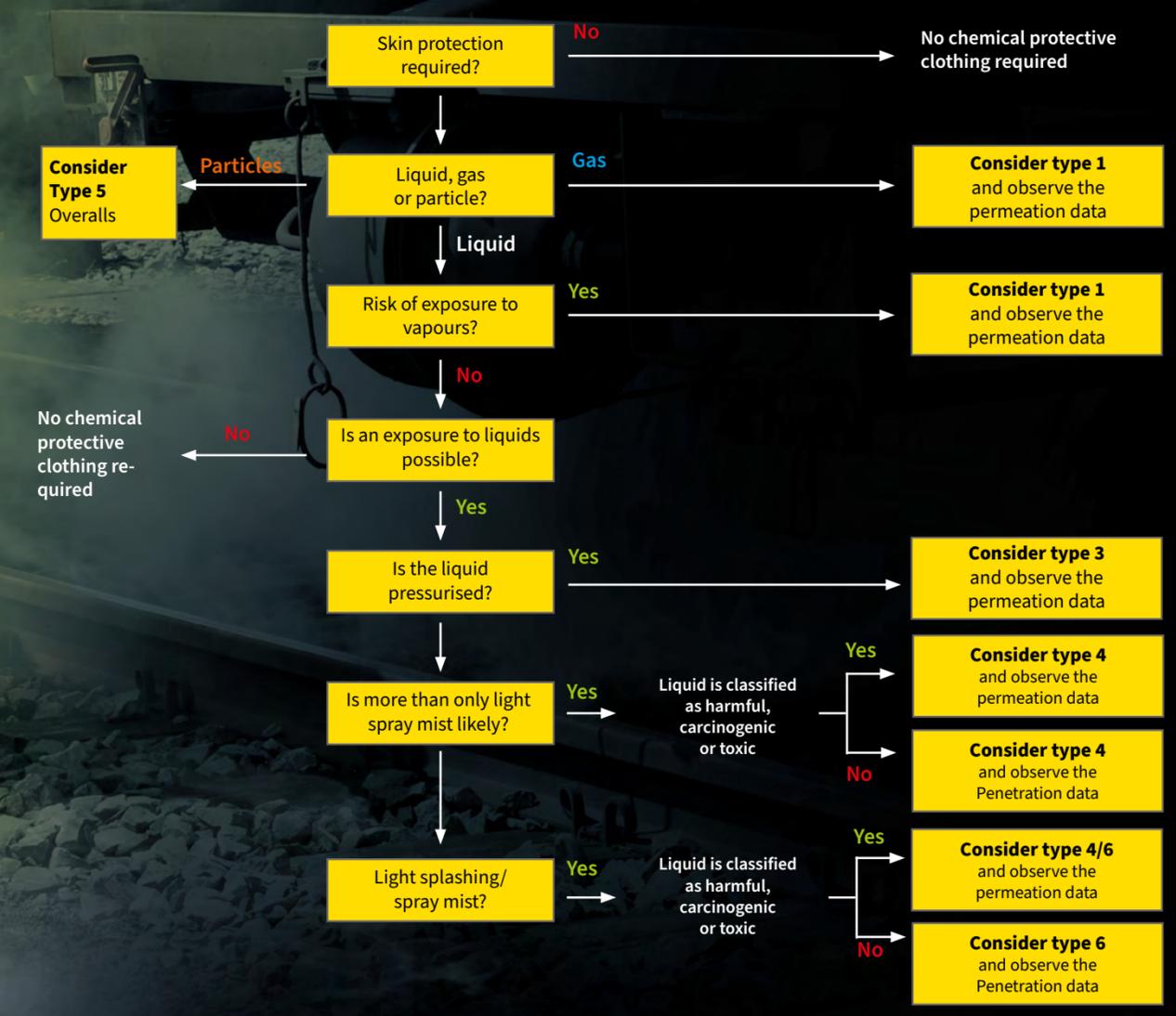


Your guide for the right chemical protection suit (CPS of types 1 to 6 according to EN standards)

Protective suit quick selector by specifications and protection level (Types 1 to 6)

Important note:
 This chart is a highly simplified quick selection aid. To determine the right chemical protective clothing for your specific application, a personal consultation with TESIMAX is always necessary. The responsibility for assessing the risks and hazard potential ultimately always lies with the end user, who therefore also has full liability (risk analysis according to national/international regulations). The end user should be a suitably qualified safety specialist.

- For further (detailed) information see also:**
- The technical Appendix of this catalogue
 - The user manual, incl. maintenance videos (separate customer information; please enquire)
 - Our website (short CPS presentation videos)
 - Contact TESIMAX directly; see www.tesimax.de.



PERFORMANCE in hazardous areas

What are Ex (explosion risk) areas?

According to the German ordinances on occupational safety and hazardous substances (BetrSichV and GefStoffV), an explosion risk area – also referred to as ex-area, hazardous area or hazardous location (HazLoc) – is an area in which a hazardous explosive mixture of air and flammable gases, vapours or mists is present either continuously, for long periods or frequently.

What is an explosion risk area?

An explosion risk (or hazardous) area is a place where a potentially explosive atmosphere may occur. A potentially explosive atmosphere exists when a mixture of gases, vapours, mists or dusts combines in such a way that it can ignite under certain conditions.

Classification into equipment groups

Equipment is divided into groups I and II, whereby group I covers underground/deep mining and group II all other applications.

Zone classification

Potentially explosive areas are classified into six zones, the classification being based on the likelihood, likely duration and likely frequency of a hazardous explosive atmosphere occurring. A distinction is made between flammable gases, mists, vapours and flammable dusts.

EN 1149-5: Protective clothing - Electrostatic properties - Part 5: Material performance and design requirements: What does this standard cover?

Antistatic clothing prevents electrostatic charges from creating sparks that can cause a fire or explosion.

The pictogram for this standard is a lightning bolt with the standard designation EN 1149-5 below it.

The standard specifies the requirements for electrically conductive protective clothing. This protective clothing is part of a fully earthed system (e.g. in combination with conductive footwear: see FIREMAN SA/BF and TESIMAX FR SAFE/SHIELD clothing and socks) and prevents sparks and thus explosions. Clothing that complies with this standard should always also comply with the standard for flame-retardant clothing (EN 531 or ISO 11612). Areas of application are places where there is a risk of explosion and therefore fire. Protective clothing that complies with the EN 1149-5 standard is often used in companies that have to comply with the ATEX directive.

TESIMAX chemical protective clothing complies with the requirements of EN 1149-5.

The TESIMAX ANGEL SENSOR SYSTEM complies with the ATEX directive. Contact us for further details.

		POLY-RAN-L/S/SUPERLIGHT	Duoform Tessaform CHEMBA	SYKAN 1-2-4	SILVERFLASH
Zone 0	An area in which an explosive atmosphere consisting of a mixture of air with flammable substances in the form of gas, vapour or mist is present continuously or for long periods.	✓	✓	✓	✓
Zone 1	An area in which an explosive atmosphere consisting of a mixture of air with flammable substances in the form of gas, vapour or mist is likely to occur under normal operating conditions.	✓	✓	✓	✓
Zone 2	An area in which an explosive atmosphere consisting of a mixture of air with flammable substances in the form of gas, vapour or mist could occur under abnormal conditions and is not likely to occur under normal operating conditions.	✓	✓	✓	✓
Zone 20	An area in which an ignitable concentration of dust is present in the air continuously, for long periods or frequently.	✓	✓	✓	✓
Zone 21	An area in which an ignitable concentration of dust in the air is likely to occur occasionally under normal operating conditions.	✓	✓	✓	✓
Zone 22	An area in which an ignitable concentration of dust in the air may occur for brief periods and is not likely to occur under normal operating conditions.	✓	✓	✓	✓

The Ex (explosion risk) zone classification tests were carried out at 23 °C and 30% relative humidity (inside and outside). For an optimal result (for the reusable protective suits), we use TESIMAX static inhibitor. This is applied to the protective suits at the factory (5-year storage capability with SMART STOCK packaging). The protective suit made of SILVERFLASH fabric is permanently conductive due to its chemical barrier outer layer (colour: silver metallic).

Note that only the clothing fabric is dissipative. Work in explosion risk zones: In your risk assessment, take into account that the integrated socks can have an insulating effect. It may therefore not be possible to earth the protective suit and wearer via the footwear, so that other measures must be taken to earth the suit and wearer. We recommend TESIMAX SAFE/SHIELD or THERMO-FLEECE functional underwear and socks treated with static inhibitor.

To avoid sparks generation, make sure that protective clothing and wearer are properly earthed. Note: Work and (TESIMAX) protective clothing must not be changed in explosion risk areas, i.e. donned and doffed, if there is a risk of minimum ignition spark energy.



High-performance materials

The base layer made of 100% para-aramid

In extreme situations, take advantage of the safety of TESIMAX para-aramid advanced quality Used in protective suits made of SYKAN® 4 and SILVERFLASH®:

Basic properties:

- Cut-resistant
- Low weight and very high tensile and tear strength – fibres have five times the strength of steel at the same weight
- Para-aramid fabrics are very lightweight
- Heat- and low-temperature resistant
 - Up to +180 °C, para-aramid retains its room-temperature properties almost unchanged.
 - It does not melt and is self-extinguishing.
 - Its charring point is at +425 °C.
 - No significant embrittlement or strength reduction down to -196 °C.
- Para-aramid is practically unaffected by solvents, fuels, lubricants and brine.

Para-aramid is used in:

- Protective clothing
- Aerospace
- Bulletproof vests
- Ropes and cables, up to tethering ropes for offshore oil rigs
- Radial tyres for passenger and commercial vehicles
- Aircraft components, motor boat hulls and rocket engine shrouding

Quality certification:

Para-aramid is yellow and cannot be dyed!

- TESIMAX is known throughout the world for its use of this high-performance material in its SYKAN® 2 and SYKAN® 4 chemical protective suits, having used para-aramid for more than 40 years.
- TESIMAX has patented this technology for chemical protective suits (US Patent No. 51195159).
- Our protective clothing has therefore contributed to saving the lives of countless people throughout the world

Available only for models made of SYKAN and SILVERFLASH



PARA-ARAMID

The INSIDE/OUTSIDE COATING made of 100% HPF ELASTOMER HPF = High Performance Fluoro-elastomer

In extreme situations, take advantage of the safety of TESIMAX HPF elastomer – Advanced Quality Used in protective suits made of SYKAN® 4 and SILVERFLASH®:

Basic properties:

- Very good resistance to chemicals and gasses (low air permeability)
- Very high mechanical strength
- Self-extinguishing – the flame-retardant materials are incorporated in the fabric's fibres and remain harmless when they decompose (environment-friendly and safe for wearer)
- No fabric softener (environmentally friendly and safe for wearer)
- Electrically insulating (very good protection in hazardous (Ex) areas)
- Excellent ageing resistance (extremely ozone-resistant and long-term colourfast)
- A long service life even under dynamic load and harsh usage conditions.
- High elasticity and long service life, proven in practice
- Wide temperature range – continuous temperatures of -40 °C to +150 °C and -100 °C to +850 °C
- Excellent abrasion-resistance and mechanical strength
- High reuse potential – low operating costs and fewer non-usage times
- Nano-effect outer skin: very low to zero adhesion to all substances

Available only for models made of SYKAN and SILVERFLASH



High-Performance
FLUORELASTOMERE

The chemical SUPER BARRIER made of 100% PTFE.

In extreme situations, take advantage of the safety of TESIMAX HPP barrier – Advanced Quality Used in protective suits made of SYKAN® 4 and SILVERFLASH®:

Basic properties:

- Outstanding resistance to nearly all chemicals, gasses, particles and liquids.
- Excellent mechanical properties
- Flexible and elastic
- Outstanding electrical properties
- Free from additives – pure fabric of foodstuffs grade 9
- High temperature variance from -240 to +205 °C
- Very low to zero adhesion to all substances

PERFORMANCE PLASTICS

Smart derivation of the described HPP technology but for limited temperature range (-30 to +70 °C).

Performance TP

Smart derivation of the described HPP technology but with limited chemical protection capabilities (e.g. solvent) and temperature range (-30 to +70 °C)



High-Performance
PLASTICS



Performance
PLASTICS



Performance
TP



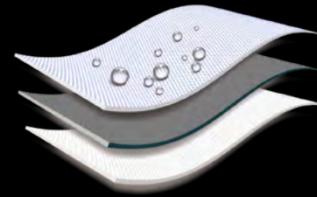
FABRIC SUPERSTRUCTURES

Fabric T/T plus

The T/T plus fabric is a newly developed spunbonded nonwoven, multi-layer polypropylene fabric with outstanding wearing and protection properties.

- Outstanding abrasion resistance, tear resistance and seam strength for a long service life
- Special protection is offered by the very high impermeability to dust (protection against radioactive dust) and the excellent impermeability index against numerous water-soluble chemicals. Despite these outstanding protection properties the fabric offers an excellent wearing comfort.
- Special feature, T: (Type 5-6, colour: white or blue), breathable, particle-tight, antistatic
- Special feature of T plus: (Type 4-6, colour: white), breathable, particle- and spray-tight, antistatic

PERFORMANCE T PLUS



PE-D fabric

The PE-D fabric (Duoform®) has good electrical properties, carries no electrostatic charge and has a residual potential discharge time that is neither too long nor too short. Protective clothing with seam covering with heat-activated adhesive tape (also Types 4, 5 and 6), with excellent NBC (nuclear, biological and chemical) protection and limited flame-retardance; self-extinguishing (Type 3b, colour: yellow)

- APPLICATION AREAS: Pest control; emergency operations after incidents with propagation and leakage of hazardous substances; petrochemical industry; metal processing; mining; production; treatment and transport of chemicals; military; waste processing; water treatment; veneering; PCB reconditioning, firefighters
- The PE-T material: The Tessaform® PE-T fabric offers increased mechanical as well as biological and high-quality chemical protection and is particle-tight (radioactive particles), liquid-tight and antistatic.
- The fabric offers superior mechanical properties for a limited use protection suit (Type 3-B, colour: grey).

PERFORMANCE ESK 1 PE-D



PERFORMANCE S3/S5 PE-T

CHEMBA® fabric

The CHEMBA (Eptaform®) fabric consists of a highly chemicals resistant multi-layer barrier laminate combined with a mechanically durable PA matrix base fabric. The unique MATERIAL DOUBLE PROTECTION SHIELD TECHNOLOGY offers superior, unlimited safety in use and complies with EN 943 (puncture resistance class 3). And yet the VS 5 CHEMBA protection suit is ultra-light and flexible.

The VS 5 CHEMBA protective suit offers:

- Excellent chemical protection and gas-tightness tested according to EN 943-2 ET for 15 reference chemicals, tested for over 150 chemicals with up to 8 h resistance
- Outstanding protection against gases, tested against liquid war gases according to Finabel 0.7 C, Nato standard with up to 24 h resistance
- Good protection against contaminated liquids (tested according to EN 14126 B)
- Good dust-tightness (e.g. radioactive particles; tested to EN 1073-2)
- High mechanical stability, including high-quality sewn and thermo-taped seam covers
- Gas-tight zip with cover panel made of suit material
- Good wearing comfort through ultra lightweight design (less than 2 kg for VS 5 CHEMBA!)
- Non-adhering top layers for better decontamination (nano effect)
- Good antistatic and insulating properties (tested to EN 1149 in combination with static inhibitor)
- Semi-rigid, flexible multi-layer barrier visor, antifog for a clear field of vision, excellent chemical resistance corresponding to the suit fabric.

Colour: signal orange

CHEMBA® POWER PERFORMANCE



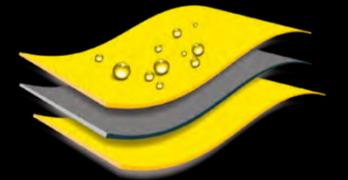
POLYRAN®-L-S fabric

Matrix PA base fabric coated on both sides with POLYRAN (Performance TP)

Characteristics

- Extremely light-weight and flexible
- Reusable, washable, very good mechanical properties (wear-, tear- and puncture-resistant)
- Excellent chemicals resistance to most acids and alkalis
- Low gas permeability (single war gas test)
- Applications: In (maritime) industry, pharmaceuticals, clinics or as training suit for firefighters and for decontamination measures
- Colour: yellow (L), red (S) or Nato olive

Also available as POLYRAN SUPERLIGHT, coated on one side.
Colour: white



PERFORMANCE TP POLYRAN®-L-S

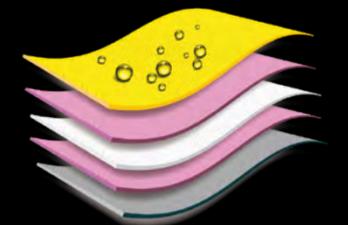


SYKAN® 1 fabric

The fabric consists of a five-layered laminate. SYKAN 1 has a 100% high-strength, rugged polyamide base fabric coated with high-performance fluorelastomers (HPF). Two additional high-performance plastic (HPP) layers on either side of the base fabric further protect the fabric. HPF (fluorelastomer) and HPP (high-performance plastic) films are unique protective suit material technology from Germany. This is a protective suit of the latest generation featuring hybrid technology. SYKAN fabric is quiet and is more comfortable to wear than "stiffer" foil protective suits. For further information, see the material sample card and the technical data.

Characteristics

- Reusable, washable, very good mechanical properties (wear-, tear- and puncture-resistant)
- Good ageing, weathering and ozone resistance
- Applications: Pharmaceuticals, clinics, military and civil defence, industry, maritime and fire brigades (unlimited)
- Outstanding chemicals resistance, for example against acids, alkalis and solvents
- Low gas permeability
- Colour: yellow or Nato olive



POWER PERFORMANCE SYKAN® 1



SYKAN® 2 fabric

The fabric consists of a four-layered laminate. SYKAN 2 has a 100% high-strength, rugged polyamide base fabric coated with high-performance fluorelastomers (HPF). An additional high-performance plastic (HPP) layer on the outside of the base fabric further protects the fabric. HPF (fluorelastomer) and HPP (PTFE fluorocarbon film) are unique protective suit material technology from Germany.

This is a protective suit of the latest generation featuring hybrid technology. SYKAN fabric is quiet and is more comfortable to wear than "stiffer" foil protective suits. For further information, see the material sample card and the technical data.

Characteristics

- Reusable, washable, very good mechanical properties (wear-, tear- and puncture-resistant)
- Outstanding chemicals resistance, for example against acids, alkalis and solvents.
- Lowest permeability (also against war gasses)
- Good ageing, weathering and ozone resistance
- Applications: Pharmaceuticals, clinics, military and civil defence, industry, maritime and fire brigades (unlimited)
- Colour: signal orange or Nato olive



POWER PERFORMANCE SYKAN® 2



FABRIC SUPERSTRUCTURES

SYKAN®4 material

The fabric consists of a four-layered laminate. SYKAN 4 has a 100% para-aramid base fabric coated with high-performance elastomers (HPF). An additional high-performance plastic (HPP) layer on the outside of the base fabric further protects the fabric. HPF (fluorelastomer) and HPP (PTFE fluorocarbon film) are unique protective suit material technology from Germany. This is a protective suit of the latest generation featuring hybrid technology. SYKAN fabric is quiet and is more comfortable to wear than “stiffer” foil protective suits.

For further information, see the material sample card and the technical data.

Properties as SYKAN 2 plus:

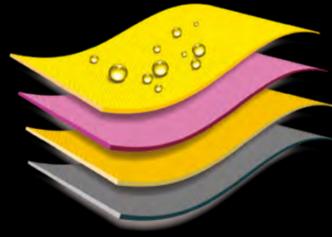
+ Extremely high thermal resilience:

+ For short periods down to 850 °C (combustion), which is twice as long as conventional structures

+ For short periods up to -196 °C (liquid nitrogen), which is twice as long as conventional structures

+ Outstanding mechanical strength over entire service life with very low fabric weight

• Colour: ■ signal yellow or ■ Nato olive



HIGH POWER PERFORMANCE SYKAN® 4



SILVERFLASH® fabric

The fabric consists of a five-layered laminate that is aluminised on the outside. SILVERFLASH has a 100% para-aramid base fabric coated with high-performance fluorelastomers (HPF). An additional high-performance plastic (HPP) layer on the outside of the base fabric further protects the fabric. HPF (fluorelastomer) and HPP (PTFE fluorocarbon film) are unique protective suit material technology from Germany. This is a protective suit of the latest generation featuring hybrid technology. SILVERFLASH fabric is quiet and is more comfortable to wear than “stiffer” foil protection suits.

For further information, see the material sample card and the technical data.

Characteristics

• The fabric's outside is permanently electrically conductive (DIN EN 1149-5:2008-04)

• Very good heat-resistance; outstanding weathering, ageing and ozone resistance

• Excellent chemicals resistance; very low gas permeability (also against war gasses)

• Applications: Pharmaceuticals, clinics, military and civil defence, industry, maritime and fire brigades (unlimited)

• Colour: ■ silver reflective (outside)

Extremely high thermal resilience:

- For short periods up to 1000 °C (combustion, tested on the Thermo-Man) – twice as long as conventional structures

+ For short periods up to -196 °C (liquid nitrogen), which is twice as long as conventional structures

- Blocks radiant heat and efficiently reflects solar radiations to improve the climate inside the suit or in action.

- Outstanding mechanical strength over entire service life with very low fabric weight



HIGH POWER PERFORMANCE SILVERFLASH®



SEAM TECHNOLOGY

High-performance seam technology

On normal protective suits, the seam is often the weak point. The TESIMAX-developed seam technology, which is used on all of our protective suits, is superior to conventional seams:

The TOP seam, for:

- The TESIMAX limited use protective suits (made of SMS50/Puntiform, Duoform, Tessaform or Eptaform/CHEMBA)
- The TESIMAX industry and training protective suits as well as environmental protection products (made of POLYRAN-L-S)
- Here the high-strength seams are sealed with seam covers made of the same material.
- This process fuses the materials together to form a homogeneous, 100 % impermeable fabric
- Exceptionally resilient against liquids, gasses, particles and chemicals, while retaining outstanding elasticity

The ULTRA seam (SYKAN, SILVERFLASH)

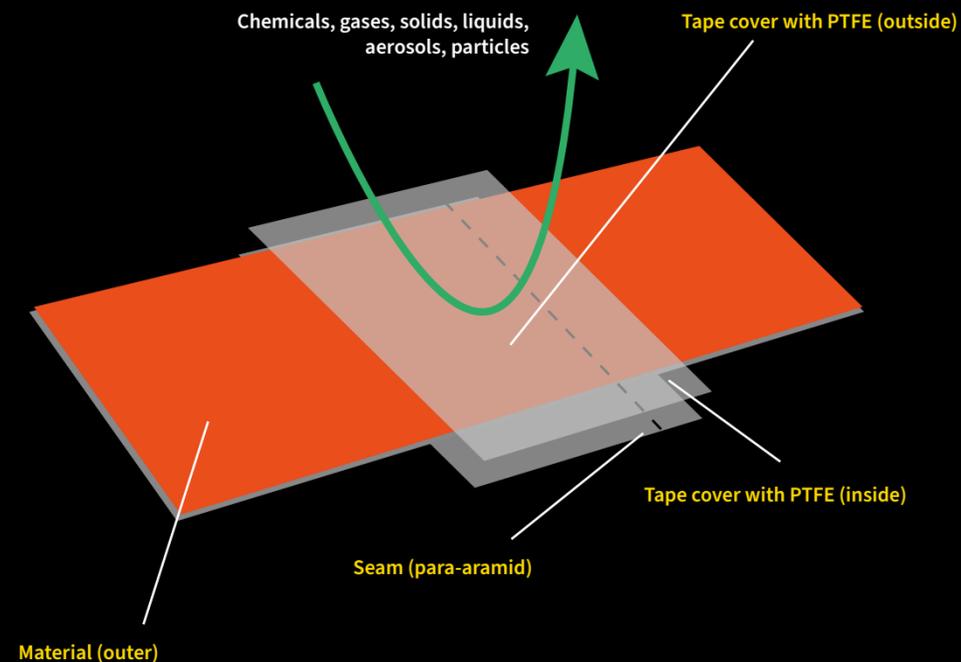
- The -ULTRA seam is a patented TESIMAX Advanced Quality process. It is used to apply an inner and outer coating (rather than adhesive) to the high-strength para-aramid seams.
- The elastomer tapes have a unique core made from a chemically universal barrier film made of 100% PTFE. This process fuses the materials together to form a homogeneous, ultra-impermeable fabric
- Exceptionally resilient against high and low temperatures, gasses, particles and aggressive chemicals, while retaining outstanding elasticity.

The TOP/ULTRA seam provides this protective layer already on the outside and not just on the inside.

• This also optimizes reparability – REAL REUSABLE.

• The SILVERFLASH features the ULTRA (inner) seam together with a high-performance combination of a seal and a barrier film that also offers mechanical and chemical protection (outer).

POWER PERFORMANCE SEAM TECHNOLOGIES



The ULTRA seam.

Outer: Tape with PTFE film (inside)

Material

Then: tape with PTFE film (inside)

The SILVERFLASH ULTRA seam

Outer: Silver tape with PTFE film (inside)

Then: wafer-thin protective film (like glue)

Material

Then: tape with PTFE film (inside)

The TOP seam.

Outer: Tape

Then: wafer-thin protective film (like glue)

Material

Then: wafer-thin protective film (like glue)

Inner: Tape

Chemical resistance

Material tables: Chemical permeation values according to EN 943 and EN 14325 Note: For further (chemical) data, please enquire (see TESIMAX permeation list)

GENERAL INFORMATION FOR ALL CHEM TABLES:

EN 943 – TESIMAX PERFORMANCE LEVEL

Classification of the chemical resistance performance according to DIN EN 943. 15 reference chemicals incl. resistance to war gases as well as further permeation data per material. The reference chemicals specified in EN 943 are usually the least harmful of their kind (see reason, EN 943-2)

Deployment against chemical, biological and nuclear risks

An important measure of safety is the permeation time. To determine how long a fabric withstands permeation by a particular chemical, the time it takes for the chemical at a specific concentration to reach the inner side of the fabric is timed. This permeation time is one of the most important measures for the possible deployment duration of a chemical protective suit.

- Gas-tight protective suits with a good performance, e.g. (Class 6, $x > 8.0$ h) usually also have a good general chemical permeation resistance. -> The higher the permeation time, the safer and more suitable is the protective suit or fabric for active operations.

- Based on their permeation times, chemical protective suits are categorised into six classes according to the test procedure specified in EN ISO 6529 (see table Classification by minutes above). Protective suits to EN 943 must have a permeation resistance of at least Class 2 (TESIMAX LEVEL: $x >$ Class 3 (permeation time $x > 60$ minutes) for 15 reference chemicals. This is the (chemical) minimum requirement for use by emergency teams (ET) or firefighting.

- EN 14325:2018-08 specifies that, in addition to the permeation time (TESIMAX permeation list), the end user/CPS wearer must be informed about the time that a specified amount of chemical takes to penetrate through a known area of material. For further information on conversion, see the TESIMAX user manual. Since the classification of the TESIMAX permeation resistance is based on an evaluation of the permeation time at a rate of $0.1 \mu\text{g}/\text{cm}^2/\text{min}$ or a permeation time $x \geq 480$ min, neither a review nor a reanalysis of existing data is necessary.

- The performance bar is based on the chemical minimum requirements of EN 943 (see above) and provides a summary for each fabric or protective suit.

EN 943 – TEST METHODS

The most important test methods for determining permeation times and permeation rates:

- EN 374-3 defines a standardised permeation rate of $1.0 \mu\text{m}/\text{cm}^2/\text{min}$
- ISO 6529:2001 defines the determination of results with the normalised permeation rates of $1.0 \mu\text{m}/\text{cm}^2/\text{min}$ or $0.1 \mu\text{m}/\text{cm}^2/\text{min}$ (->TESIMAX REAL REUSABLE TEST STANDARD up to $x \geq 480$ minutes)
- ASTM F739 specifies that the results must be recorded as permeation time at $0.1 \mu\text{m}/\text{cm}^2/\text{min}$.
- EN 14325:2018 Protective clothing against chemicals – Test methods and performance classification of chemical protective clothing materials, seams, joins and assemblages
- DIN EN ISO 6530 Protective clothing - Protection against liquid chemicals - Test method for resistance of materials to penetration by liquids (ISO 6530:2005); German version EN ISO 6530:2005

EN 943/EN14325 – CLASSIFICATION

TESIMAX CHEM SPECIFICATIONS ACCORDING TO EN 943 always apply to “the entire protective suit per material/type”, i.e.:

- Permanently integrated protective gloves (WIPAN B+/C/CK/CK+/overglove) and boots (HPF ULTRA CHEM/HPF CHEM P-L) and suit material footlets as well as their assemblages (exchange system or permanently integrated)

- Pressure relief valves (covered with protective material and angle prechamber) and forced air feedthrough (F-AU series)

- Closures (zip, covered with protective suit material): HPF-ULTRA (ET version)/P-L-S (industrial version)

- Seams (PTFE TOP/ULTRA seam)

- PTFE visors VS 5/VF 20/VSF 20/VSF 5/VSF 21 (type 1a – ET/type 1c)

- Face seals (HPF elastomer) with respiratory mask (GS 3/GS 3M type 1b – ET).

Cross-references/details about permeation data for reusable protective suit tables:

* /1 Class 1/2 not reached: This chemical protective suit is not suitable for prolonged exposure to this substance.

** The permeation resistance to ingress/diffusion of the reference chemicals/substances according to EN 943 is increased through the additional suit-material zip cover
Cover made of suit fabric (for values see column 1, Material). A possible ingress of gaseous materials can further be reduced with a higher internal suit pressure, provided the protective cover is intact. The zip cover made of suit fabric is resistant to solid, aerosol and liquid warfare agents (see Finabel Conv.0.7.C material report).

*** If the protective suit has footlets with drip cuffs made of suit fabric, also observe the safety instructions in the usage and care instructions (“Putting on the protective suit”). An approved protective boot is required.

**** Suitable safety gloves must be selected through risk assessment by the end user (for mechanical and chemical values, please enquire). TESIMAX always recommends the tested safety protective gloves (see Details per material table or accessories catalogue or enquire). The optional MECH Blue overglove improves mechanical and chemical protection.

***** For further permeation times/values, CHEMICALS/WAR GASSES (CWA/CWS), see the TESIMAX chemicals permeation list (please enquire).

Classification in minutes

Class 1	Class 2	Class 3	Class 4	Class 5	Class 6
> 10 minutes	> 30 minutes	> 60 minutes	> 120 minutes	> 240 minutes	> 480 minutes

SAFETY NOTE:

If the protective suit has been contaminated or exposed to thermal or mechanical strain, it must be serviced and tested before reuse. Otherwise it presents a risk of death. If necessary, have the protective suit disposed of following testing by a specialist service centre or by TESIMAX. If in doubt, contact your TESIMAX Service Pool contact (see TESIMAX Service Pool flyer). Further information on safe testing and reusability, see the TESIMAX user manual.



Chemical resistance

Overview of permeation resistance against chemicals, gasses and warfare agents for TESIMAX protective suits according to EN 943 Parts 1 and 2 (ET)

Chemical	Protective suit fabric	Chemical	protective suit fabric	Chemical	
• Dichloromethane	(1) - 6	• Toluene	(1) - 6	• Mustard gas (HD)	x > 17 h
• n-heptane/n-hexane	(1) - 6	• Methanol	(1) - 6	• Lewisite (L)	x > 1.5 h
• Acetone	(1) - 6	• Ethyl acetate	(1) - 6	• Soman (GD)	x > 2.0 h
• Acetonitrile	(1) - 6	• Tetrahydrofuran	(1) - 6	• Sarin (GB)	x > 2.0 h
• Diethylamine	(1) - 6	• Carbon disulphide	(1) - 6	• Tabun (GA)	x > 6.0 h
• NaOH-sol40%	(1) - 6	• Sulphuric acid 96%	(1) - 6	• VX	x > 6.0 h
• Ammonia	(1) - 6	• Chlorine	(1) - 6		
• Hydrogen chloride gas	(1) - 6				

* Permeation times to EN 943 Parts 1 and 2 (ET); for individual values, see test certificate. Illustrated are the reference values of Class 6 materials/seams according to EN 943 Part 2 (ET). For other tested values, see the respective user manual or the Technical data appendix in the catalogue.

** Permeation times according to Finabel 0.7.L (given are minimum values for SILVERFLASH and SYKAN); the following are also CWA-tested: seam, visor (respiratory mask), protective gloves (WIPAN B+/C/CK/CK+/overglove), protective boots (HPF ULTRA CHEM/HPF CHEM P-L) and the zip with cover/assemblages.

Note: Further information and performance characteristics, see the corresponding user manual and the TESIMAX Chem Data list. For further information please enquire.

Correlation of classification and time					
Class 1	Class 2	Class 3	Class 4	Class 5	Class 6
< 10 min	> 30 min	> 60 min	> 120 min	> 240 min	> 480 min

PERFORMANCE LEVEL Classification of Chemical Resistance rating to EN 943

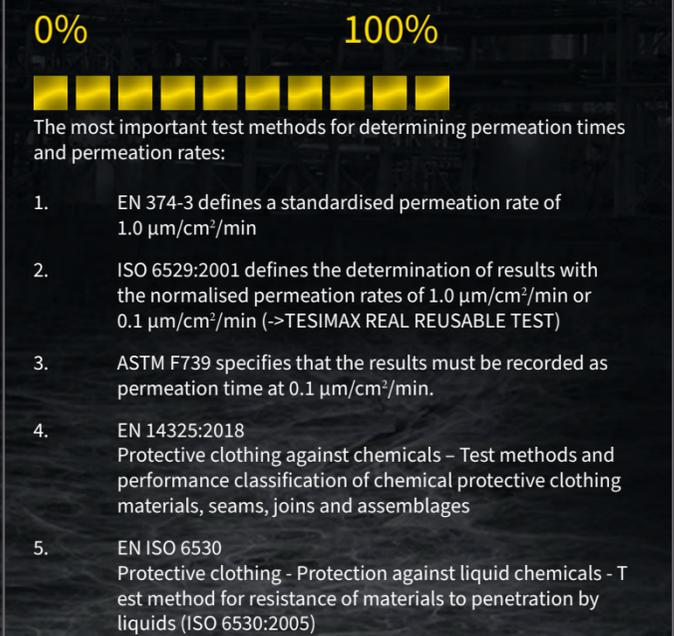
15 reference chemicals, including war gasses, and further permeation data by fabric. The reference chemicals specified in EN 943 are usually the least harmful of their kind (for the reason, see E DIN EN 943-2 D Appendix A and for further information, the TESIMAX Chem Guide). Gas-tight protective suits with a good performance, e.g. (Class 6, x > 8.0 h) usually also have a good general chemical permeation resistance.

The normalized permeation time (permeation resistance in minutes) of the reference chemicals according to EN 943 for TESIMAX protective suits are mostly >480 minutes (maximum, for the criterion 0.1 µg/min/cm²; see TESIMAX chem data list).

These suits therefore offer outstanding protection for the end user.

The performance bar is based on the chemical minimum requirements of EN 943 (see above) and provides a summary for each fabric or protective suit.

Chemical resistance:



Chemical resistance

Choosing the right protective suit/fabric for chemical, biological and radiation risks

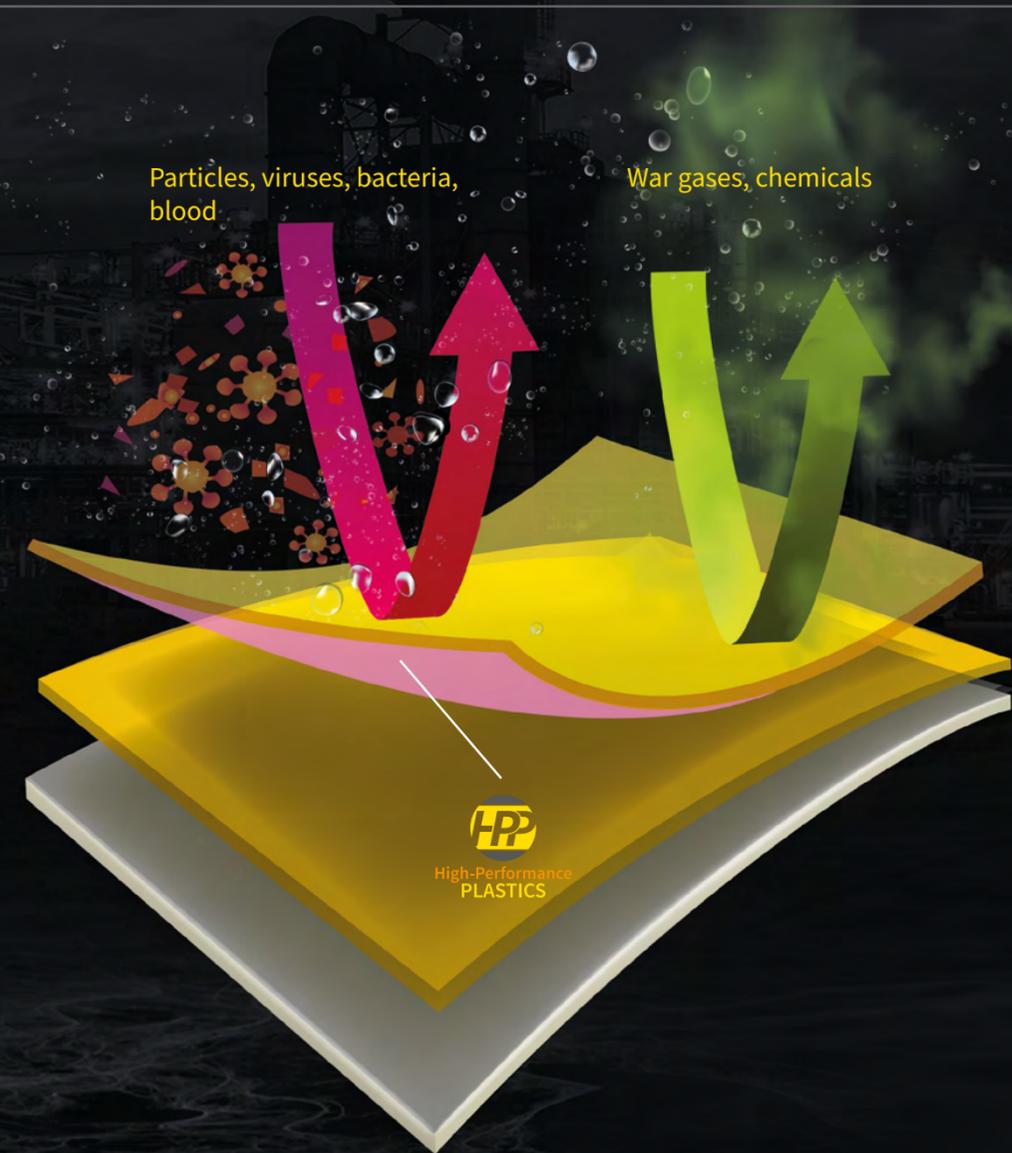
An important measure of safety is the permeation time. To determine how long a fabric withstands permeation by a particular chemical, the time it takes for the chemical at a specific concentration to reach the inner side of the fabric is timed.

This permeation time is one of the most important measures for the possible deployment duration of a chemical protective suit. The higher the permeation time, the safer and more suitable is the protective suit or fabric for active operations.

Based on their permeation times, chemical protective suits are categorised into six classes according to the test procedure specified in EN ISO 6529 (see table Classification by minutes above).

Protective suits to EN 943 must have a permeation resistance of at least Class 2 (permeation time x > 30 minutes) for 15 reference chemicals. This is the (chemical) minimum requirement for use by emergency teams (ET) or firefighting.

For further information please enquire.



Mechanical resistance

Laboratory-determined permeation data does not always reflect real-life conditions. Variables such as temperature, pressure and mechanical loads can influence the permeation times. When selecting chemical protective clothing, these physical properties must therefore also be tested. European standard EN 943 provides the best basis for comparing the physical properties of chemical protective suits (CPS). **Even the best barrier fabric has no effect if it is torn, cut, punctured or otherwise damaged.**

For limited use and reusable CPS, observe the following performance characteristics according to EN 943 and EN 14325:

Requirement	Limited use	Reusable
Abrasion resistance	Class 4	Class 6**
Flex cracking resistance	Class 1	Class 4**
Flex cracking resistance at low temperatures (-30 °C)	Class 2	Class 2**
Tear propagation strength (trapeziom method)	Class 3	Class 3**
Tensile strength	Class 4	Class 6**
Puncture resistance	Class 2	Class 3**
Ignition resistance	Class 1	Class 3**
Seam strength:	Class 5	Class 5

Further classes:
TENSILE FORCE TESTING to EN 943
Class 1 (lowest) to Class 6 (highest)

*NOTE ACCORDING TO EN 943-2

The difference between normal durability (limited use) and increased durability (TESIMAX REAL REUSABLE) protective suits lies in the strength and durability of the fabric or the suit design or both. Increased durability is provided for those tasks where the suits are expected to be exposed to high mechanical stress or will be repeatedly reused.

-> The EN 943 standard clearly states that only reusable protective suits (TESIMAX REAL REUSABLE made of POLYRAN, SYKAN and SILVERFLASH) must be used in the front line under all types of risk without limitation.

**Note:

- For performance characteristics, see the respective user manual.
- Protection suits to DIN 943 Part 1 have lower performance levels.

What mechanical performance criteria must a protective suit for my application fulfil?

Basic rule:

- Light-duty use: Limited use with standard durability
- Heavy-duty use: Reusable suit with increased durability



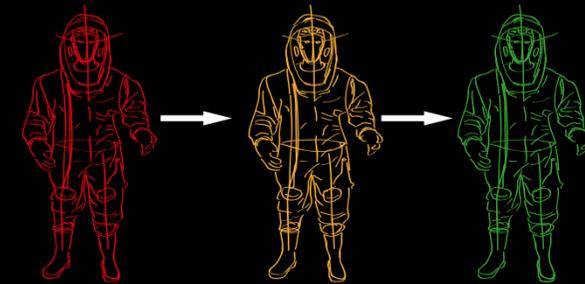
"REAL REUSABLE" protective suits must exceed the more stringent mechanical minimum requirements for reusable suits according to EN 943.

These minimum requirements are necessary for uses in which the suits are likely to be exposed to high mechanical stresses or if the suit will be used multiple times.

These suits also have a higher resistance to chemicals (see Chemical performance).

They are therefore the first choice for maximising the safety of emergency teams that are faced with unknown hazards.

For further information please enquire.



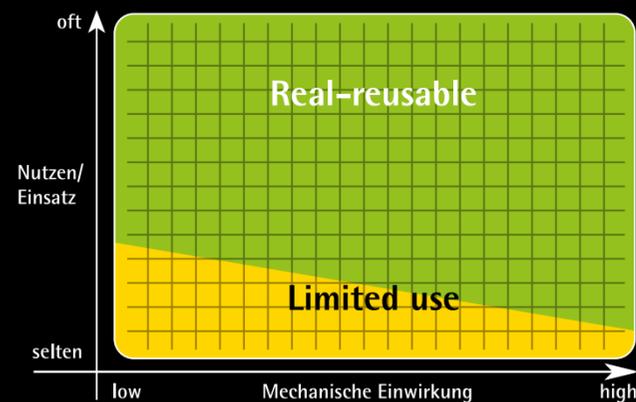
PERFORMANCE LEVEL: Classification of fabric performance properties (Table 3):

The performance bar is based on the mechanical minimum requirements of EN 943/EN 14325 (see above) and provides a summary for each fabric or protective suit.

Mechanical resistance:



0% 100%



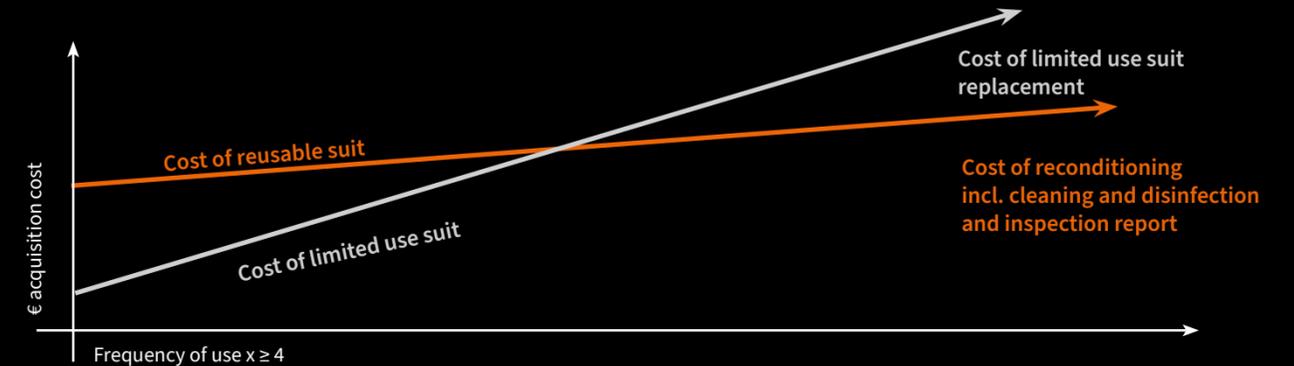
Economic viability of the TESIMAX REAL REUSABLE protective suits:

If suit will be used, for example, more than four times within 15 years, we recommend REAL REUSABLE protective suits. These offer a higher protection level and are more cost-effective in the long term than limited use protective suits, which must be replaced with new ones after each use.

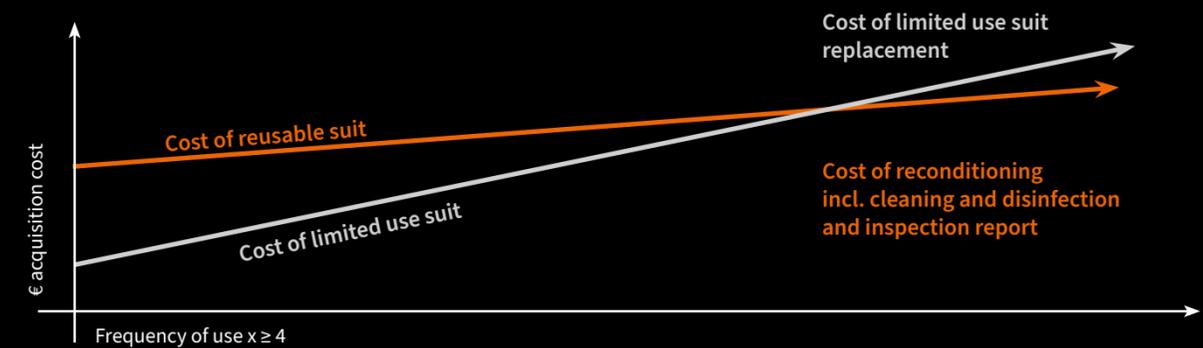
More than 90 % of reusable protective suits can be reconditioned (see also our Service Pool flyer).

LIMITED USE VS. REUSABLE

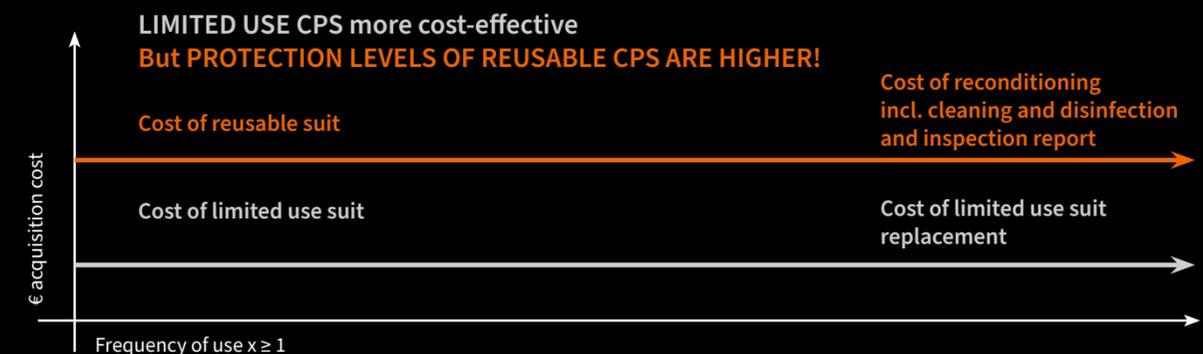
Economic efficiency for use under mechanical strain: REUSABLE CPS more cost-effective in 90% of cases



Economic efficiency for use under light/moderate contamination: REUSABLE CPS more cost-effective in 90% of cases



Economic efficiency in case of severe contamination: DISPOSABLE CPS more cost-effective in 90% of cases



Thermal resistance

PERFORMANCE LEVEL

Classification of fabric performance properties

The performance bar is based on the thermal minimum requirements (see above) and provides a summary for each fabric or protective suit.

Heat:

Contact heat at approx. 850 ± 50 °C
(approx. 5 seconds, then still gas-tight)
according to EN 13274-4

0% 100%



Contact heat at approx. 850 ± 50 °C
(approx. 10 seconds, then still gas-tight)
according to EN 13274-4 2 (double):



*** Superheated steam at approx. 350 ± 25 °C**
(approx. 30 seconds, then still gas-tight/reusable) at up to 10 bar pressure/
full contact



***/** Flashover Test at approx. 850 ± 50 °C**
(approx. 8 seconds, then still gas-tight)
according to ISO 13506:2008



***/** Radiant heat at approx. 1000 °C**
Distance approx. 2–3 m (approx. 1–3 minutes,
then still gas-tight) plus EN ISO 11612



Cold:

Contact cold* at -30 °C according to EN 943
(for up to 4 minutes, then still gas-tight/
reusable) e.g. ambient temperatures
in winter



Contact cold* at -80 °C according to EN 943
(for up to 30 minutes, then still gas-tight/reusable), e.g. ammonia



Contact cold* at -100 °C according to EN 943
(for up to 30 minutes, then still gas-tight/reusable), e.g. liquid nitrogen



*in combination with TESIMAX FR underclothing

**Only with appropriate TESIMAX real-time training (RTT) with CPS: VS 20 SILVERFLASH

EXPANSION RISK

At high (up to 850 °C at 8 seconds full contact) or low temperatures (-196 °C at 10 seconds full contact or -80 to -100 °C at up to 30 minutes full contact), the risk of, for example, mechanical material fatigue increases, which can result in tearing or leakage of the protective fabric.

For suits that protect against this situation, see the Heat/cold resistance performance bar graph for each suit or fabric.

For further information please enquire.

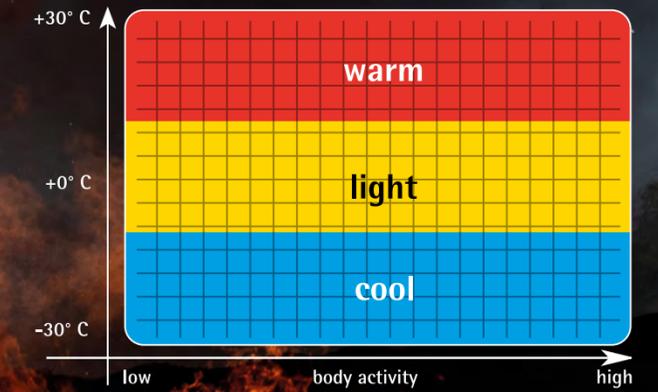
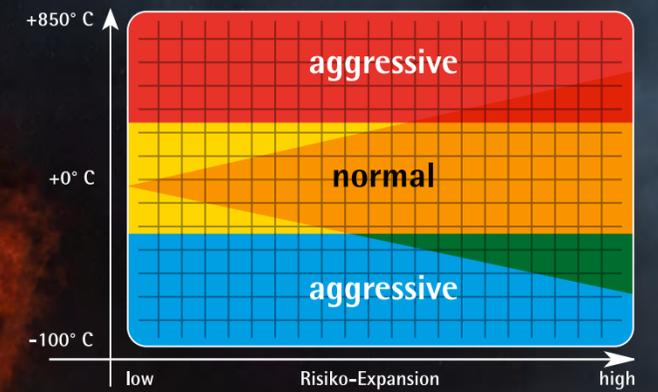
Body activity

Note:

Enhance your performance by using suitable tested functional underwear systems from TESIMAX, such as the PCS cooling vest, ESK 1 T, FR functional underwear and/or the THERMO-FLEECE overall.

PPE (personal protective equipment) combinations (respiratory protection, functional underwear, helmets, gloves, forced ventilation systems, etc.) are tested and approved for use with TESIMAX protective suits (see user manual).

For further information please enquire.



TESIMAX protective suits - model overview and Performance characteristics

- = not suitable
 • = suitable
 ** = very suitable
 *** = ideal

***Respiratory Protection:**
 SCBA: Self-contained breathing apparatus
 F = filter
 O = no optional respiratory protection or integrated (VSF 20)

ET = emergency teams

****Solids/aerosols/liquids**
 Infective agents
 Radioactive particles
 Spray mist
 See TESIMAX permeation list

***** Gasses**
 Known/
 unknown gasses
 See TESIMAX permeation list

******War gasses**
 to Finabel 0.7 protocol
 See TESIMAX permeation list

Model	Material	Respiratory protection	Type	Solids**	Aerosols**	Liquids**	Gases***	War gasses****
VS 5	CHEMBA	Inner: PA	Type 1a-ET	***	***	***	***	-
VS 5	POLYRAN-L/S/SUPERLIGHT	Inner: PA	Type 1a	***	***	****	***	-
VS 5	SYKAN 1 (5)	Inner: PA	Type 1a-ET	***	***	***	***	***
VS 5	SYKAN 2	Inner: PA	Type 1a-ET	***	***	***	***	***
VS 5	SYKAN 4	Inner: PA	Type 1a-ET	***	***	***	***	***
VS 20	POLYRAN-L/S/SUPERLIGHT	Inner: PA	Type 1a	***	***	***	***	-
VS 20	SYKAN 2	Inner: PA	Type 1a-ET	***	***	***	***	***
VS 20	SYKAN 4	Inner: PA	Type 1a-ET	***	***	***	***	***
VS 20	SILVERFLASH	Inner: PA	Type 1a-ET	***	***	***	***	***
GS 3/GS 3M	POLYRAN-L/S/SUPERLIGHT	Outer: PA/F	Type 1b	***	***	***	***	-
GS 3/GS 3M	SYKAN 1 (5)	Outer: PA/F	Type 1b-ET	***	***	***	***	***
GS 3/GS 3M	SYKAN 2	Outer: PA/F	Type 1b-ET	***	***	***	***	***
GS 3/GS 3M	SYKAN 4	Outer: PA/F	Type 1b-ET	***	***	***	***	***
GS 3/GS 3M	SILVERFLASH	Outer: PA/F	Type 1b-ET	***	***	***	***	***
VSF 5	SYKAN 2	Inner: O	Type 1c	***	***	***	***	***
VSF 20	SYKAN 2	Inner: O	Type 1c	***	***	***	***	***
VSF 20	SYKAN 4	Inner: O	Type 1c	***	***	***	***	***
VSF 21	POLYRAN-L/S/SUPERLIGHT	Inner: F (fan)	Type 1c/3	**	**	**	*	-
VSF 21	SYKAN 2	Inner: F (fan)	Type 1c/3	***	***	***	***	***
VSF 21 PE-D / T	Duoform/Tessaform	Inner: F (fan)	Type 3	**	**	**	-	-
ESK 3 P-SL	POLYRAN-L/S/SUPERLIGHT	Outer: O/F/PA	Type 3	**	**	**	-	-
ESK 3	SYKAN (1-2)	Outer: O/F/PA	Type 3	***	***	***	-	-
ESK S5 PE-T	Tessaform	Outer: O/F/PA	Type 3 (1c)	**	**	**	-	-
ESK S3 PE-T+/++	Tessaform	Outer: O/F/PA	Type 3	**	**	**	-	-
ESK 1PE +/++	Duoform	Outer: O/F/PA	Type 3	**	**	**	-	-
ESK 1T+	Puntiform	Outer: O/F/PA	Type 4	*	*	-	-	-
ESK 1 T	SMS 50	Outer: O/F/PA	Type 5-6	*	-	-	-	-

Chemical resistance	Mechanical stress	Flameover	Supercooled media	EX	Maritime use	Weight
***	(low) limited use	*	*	*	*	***
*	(high) reusable	*	*	*	*	*
***	(high) reusable	**	**	*	*	*
***	(high) reusable	**	**	*	*	**
***	(high) reusable	***	***	*	*	*
*	(high) reusable	*	*	*	*	*
***	(high) reusable	**	**	*	*	**
***	(high) reusable	**	**	*	*	*
***	(high) reusable	***	***	*	*	*
***	(high) reusable	**	**	**	-	*
***	(high) reusable	**	**	*	-	**
***	(high) reusable	***	***	*	-	**
*	(high) reusable	*	*	*	-	*
***	(high) reusable	**	**	*	-	**
**	(low) limited use	-	-	*	-	***
*	(high) reusable	*	*	*	-	*
***	(high) reusable	***	***	*	-	*
***	(low) limited use	-	-	*	-	***
***	(low) limited use	-	-	*	-	***
**	(low) limited use	-	-	*	*	***
*	(low) limited use	-	-	*	-	***
*	(low) limited use	-	-	*	-	***



Example ESK 1 series



Example ESK 3 series



Example GS 3 series



Example VSF 5 series



Example VS 5 series



Example VS 20 series



Example VSF 21 series



Example VS 20 SILVERFLASH

Table 0: CHEMICAL PROTECTION SUITS – OVERVIEW OF FEATURES						
	POLYRAN-L/S/	SYKAN 1	SYKAN 2	SYKAN 4	SILVERFLASH	
Types/series/info						
ESK: Light-duty protective clothing (particle/liquid-tight, according to EN Types 3-6, B) ESK 1, ESK 3 (-> the higher the ESK number, the higher the protection level)	x			x		
GS 3: Gas-tight protective suit with SCBA outside (gas-tight, according to EN 943 type 1b, B (ET))	x	x	x	x	x	
GS 3 M: As GS 3 but with permanently integrated mask (gas-tight according to EN 943 type 1b, B (ET))	x	x	x	x	x	
VS 5: Totally encapsulated suits for SCBA (gas-tight, according to EN 943 type 1a, B (ET)) with permanently integrated triple laminated visor; 130 cm gas-tight, fused and covered zip	x	x	x	x		
VS 20: Totally encapsulated suits for SCBA (gas-tight, according to EN 943 type 1a, B (ET)) with triple laminated interchangeable mask window (for ANGEL SENSOR systems); 180 cm gas-tight, fused and covered zip (easier donning and doffing, Smart Handling)	x	x	x	x	x	
VSF 21: Totally encapsulated suits with forced ventilation (powered filter units, according to EN 943/EN 1073 type 1c/3B)	x		x			
VSF 5: Totally encapsulated suits with forced ventilation system, steri-filter and flexible air valves, (gas-tight, according to EN 943 Type 1c, B (ET)) with triple laminated interchangeable mask window (for ANGEL SENSOR systems); 130 cm gas-tight zip	x		x			
VSF 20: Totally encapsulated suits with forced ventilation system (gas-tight, according to EN 943 type 1c, B (ET)) with triple laminated interchangeable mask window (for ANGEL SENSOR systems); 180 cm gas-tight zip (Smart Handling)	x	x	x	x		
Standards & performance data	Where to find further information					
Basic standards	See standards overview in the catalogue					
Performance according to standards/ap- plication	See Table 1 in the technical appendix					
Mechanical protection & performance	See Table 2 in the technical appendix					
Chemical protection & performance	See Table 3 in the technical appendix					
Thermal protection & performance	See Table 4 in the technical appendix					
Approvals & Verifications	See TESIMAX CPS approvals & certificates					
User manual	See TESIMAX CPS instruction manual					
Material & equipment	Where to find further information					
Material description and structure, colour:	See product description in catalogue	Yellow/red /Nato olive/ white	Yellow/ Nato olive	Orange/ Nato olive	Yellow/ Nato olive	Silver
Material and weight	See product description in catalogue	x	x	x	x	x
Material and seam description	See CPS, technical appendix	TOP seam	ULTRA seam	ULTRA seam	ULTRA seam	ULTRA seam
Standard & optional features	See product description in catalogue (stand- ard)	x	x	x	x	x
CPS service life	Note					
Storage period and service life	See catalogue, technical appendix and data (certificates, user manual)	15 years	15 years	15 years	15 years	15 years
Storage period and maintenance, CPS	Without SMART STOCK packaging	1 x per year				
Storage period and maintenance, CPS	With SMART STOCK packaging	5 years maintenance-free				
CPS Service	Note					
PPE and CPS: Service	See CPS TESIMAX Service Pool flyer, repair vid- eos, equipment maintenance training courses	See CPS Service Pool flyer				
PPE and CPS: Training	See real-time training (e.g. Leipzig Airport, Germany)	See CPS Service Pool flyer				

Table 1 – TESIMAX CHEMICAL PROTECTION: Standards		POLRAN-L/S/	SYKAN 1	SYKAN 2	SYKAN 4	SILVER- FLASH
Categorization by standards	Note					
PPE: Quality Management system (QM)	EU 2016/425 (Modules C & D) / QM ISO 9001:2015	PASS	PASS	PASS	PASS	PASS
PPE: Basic requirements of CE protective equipment	EN 13688	PASS	PASS	PASS	PASS	PASS
PPE: CPS CE approval (depending on series/ version)	EN 943-1/-2:2019 in conjunction with EN 14325	PASS	PASS	PASS	PASS	PASS
PPE: CPS combination/compatibility with other equipment	EN 943 (F-AU, helmets, SCBA, ...)	PASS	PASS	PASS	PASS	PASS
PPE: CPS maritime approval (depending on product)	Maritime approval (on-board)	PASS	PASS	PASS	PASS	PASS
PPE: CPS CE approval only ESK series	Liquid-tight chemical protective clothing EN 14605:2005	PASS	PASS	PASS	PASS	PASS
PPE: Biological protection (B) - Penetration resistance	EN 14126: Biological protection (labelled "B")	PASS	PASS	PASS	PASS	PASS
	Penetration test with artificial blood (ISO/FDIS 11603)	PASS	PASS	PASS	PASS	PASS
	Resistance to viruses (ISO/FDIS 16604)	PASS	PASS	PASS	PASS	PASS
	Resistance to bacteria (ISO/DIS 22610)	PASS	PASS	PASS	PASS	PASS
	Resistance to bio aerosols (ISO/DIS 22611)	PASS	PASS	PASS	PASS	PASS
	Resistance to contaminated dust (ISO/DIS 22612)	PASS	PASS	PASS	PASS	PASS
	Disinfection/reuse after explosive ordnance contamina- tion, tested by the Robert Koch Institute (Gran PPE study)	PASS	PASS	PASS	PASS	PASS
PPE against particles including radioactive contamination	DIN EN 1073-1: protective clothing against solid airborne particles including radioactive contamination - Part 1: Requirements and test methods for compressed air line ventilated protective clothing, protecting the body and the respiratory tract (inward leakage test - partly tested for the VSF 21 series POLYRAN/SYKAN 2 in conjunction with powered filter units and EN 943; inward leakage tested according to EN 943 for CPS types 1a,1b and 1c).	PASS	PASS	PASS	PASS	PASS
PPE: use against particles, radioactive particle protection	EN 1073-2: Blocking behaviour against r. particles Protective clothing against radioactive contamination - Part 2: Require- ments and test methods for non-ventilated protective clothing against particulate radioactive contamination (tested blocking behaviour according to EN 1073-2)	PASS	PASS	PASS	PASS	PASS
PPE: use in hazardous areas, antistatic discharge capability	according to EN 1149-5 (in combination with TESIMAX static inhibitor)	PASS	PASS	PASS	PASS	PASS
Comparison of EN 943 minimum require- ments with other standards worldwide	EN/NATO standard, further standards & individual tests					
PPE: TESIMAX CHECK* national guidelines	e.g. according to DGUV bgi_guv_i_8671	PASS	PASS	PASS	PASS	PASS
PPE: TESIMAX CHECK* national guidelines	e.g. according to BGR 189-190	PASS	PASS	PASS	PASS	PASS
PPE: TESIMAX CHECK* national guidelines	e.g. according to AMR-14-2 – G26 (BAUA)	PASS	PASS	PASS	PASS	PASS
PPE: TESIMAX CHECK* national guidelines	e.g. according to NFPA (US standard)	PASS	PASS	PASS	PASS	PASS
PPE: TESIMAX CHECK* national guidelines	e.g. according to GOST-R (Russian standard)	PASS	PASS	PASS	PASS	PASS
PPE: TESIMAX CHECK* national guidelines	e.g. according to JIS T8xxxx (Japanese standard)	PASS	PASS	PASS	PASS	PASS
PPE: TESIMAX CHECK* national guidelines	e.g. according to ÖBFV T8xxxx (Austrian EN standard)	PASS	PASS	PASS	PASS	PASS
PPE: TESIMAX CHECK* national guidelines	e.g. according to GA-GB (Chinese standard)	PASS	PASS	PASS	PASS	PASS
* The comparison (EN 943, national guidelines and worldwide standards) based on a manufacturer's assessment.		PASS	PASS	PASS	PASS	PASS
Advanced tests: high performance tests	Manufacturers' & national/international standards					
Minimum tensile strength requirements	According to EN 943 (for fitted boots, glove exchange system with approx. 1500 N and valves)	PASS	PASS	PASS	PASS	PASS
Combat gases test: material/seam	According to Finabel 0.7 C	PASS (mustard gas)	PASS	PASS	PASS	PASS
Combat gas test: assemblages, closures, components (mask, boot, glove)	According to Finabel 0.7 C	PASS (mustard gas)	PASS	PASS	PASS	PASS
Reuse rate after use with mechanical strain	Up to 100%: fully reusable	PASS	PASS	PASS	PASS	PASS
Reuse rate after use with chemical con- tamination	Up to 100%: fully reusable	PASS	PASS	PASS	PASS	PASS
Application restriction/recommendation according to EN 943 (DGUV, VFDB)	Unlimited	PASS	PASS	PASS	PASS	PASS

Table 2: MECHANICAL PROTECTION – Classification according to EN 943				POLRAN-L/S/	SYKAN 1	SYKAN 2	SYKAN 4	SILVERFLASH	
EN standard/approval				EN 943-1	EN 943-2	EN 943-2	EN 943-2	EN 943-2	
Mechanical material/seam properties		Minimum level according to EN 943 in conjunction with EN 14325			Mechanical classes				
See MECH performance rating table		EN 943 Part 1 (Industry)	EN 943 Part 2 (Emergency Teams) – limited use	EN 943 Part 2 (Emergency Team) – reusable	Real tested values according to EN 943 – EN 14325				
Abrasion resistance / EN ISO 12947-2		3	4	6	6	6 (6) *	6 (6) *	6 (6) *	6 (6) *
Flex cracking resistance / EN ISO 7854		1	1	4	6 (6) *	6 (6) *	4 (6) *	5 (6) *	5 (6) *
Flex cracking resistance at -30 °C / EN ISO 7855 (-30 °C)		2	2	2	2	6 (6) *	3 (6) *	4 (6) *	6 (6) *
Tear propagation strength / EN ISO 9073-4		4	3	3	4 (6)	3 (6) *	4 (6) *	5 (6) *	6 (6) *
Tensile strength / EN ISO 13934-1		3	4	6	6 (6)	6 (6) *	6 (6) *	6 (6) *	6 (6) *
Puncture resistance / EN 863		2	2	3	3	3 (6) *	3 (6) *	4 (6) *	5 (6) *
Seam strength / EN ISO 13935-2		5	5	5	6	6 (6) *	6 (6) *	6 (6) *	6 (6) *
Zip seam strength		3	3	3	6	6	6	6	6
Flame retardance		1	1	3	2	3	3	3	3

Value (value*) = values based on module C 2, each with +/-tolerances due to CIP (*as well as manufacturer's material performance data)

MECH	Abrasion resistance	Flex cracking resistance	Flex cracking resistance at -30 °C	Tear propagation strength	Puncture resistance	Permeation	Ignition	Seam strength	Permeation classes
Class 6	>2000	>50000	>4000	>150 N	>1000 N	>480 min.	Passed*	>500 N	>480 min.
Class 5	>1500	>20000	>2000	>100 N	>500 N	>240 min.	-	>300 N	>240 min.
Class 4	>1000	>8000	>1000	>60 N	>200 N	>120 min.	-	>125 N	>120 min.
Class 3	>500	>3000	>500	>40 N	>100 N	>60 min.	-	>75 N	>60 min.
Class 2	>100	>1250	>200	>20 N	>60 N	>30 min.	-	> 50 N	>30 min.
Class 1	>10	>500	>100	>10 N	>30 N	>10 min.	Not passed*	>30 N	>10 min.

Table 3a – CHEMICAL PROTECTION – Chemical permeation according to EN 943 – OVERVIEW 2020											
		POLY-RAN-L/S	SYKAN 1	SYKAN 2	SYKAN 4	SILVERFLASH					
		EN 943-1	EN 943-2	EN 943-2	EN 943-2	EN 943-2					
Chemical resistance		Minimum performance class according to EN 943 in conjunction with EN 14325/ISO 6529				Chemical classes					
		EN 943 minimum requirements		TESIMAX HPF requirements							
EN 943-1 Industry (one test chemical)		At least class 3 (for one test chemical)				Pass*/**	Pass*/**	Pass*/**	Pass*/**	Pass*/**	Pass*/**
EN 943-2 ET/firefighters (15 test chemicals)		EN 943-1		At least class 2-6 (for 15 reference chemical)			-	Pass*/**	Pass*/**	Pass*/**	Pass*/**

* For further chemical values, see chemical permeation tables for each material (user manual/certificate) and TESIMAX chem. permeation list (over 1000 substances listed, values for the whole suit, TESIMAX materials with maximum values for up to 8 h according to EN 14325. For permeation list, please enquire.)

** SYKAN/SILVERFLASH: Chemical permeation through contamination is effectively stopped already outside the fabric (material/seam with PTFE chemical barrier film – REAL REUSABLE)

Table 3b – CHEMICAL PROTECTION – Chemical permeation according to standard EN 943 – MATERIALS 2020								
Hazardous material	SYKAN 1		SYKAN 2		SYKAN 4		SILVERFLASH	
	Material	Seam	Material	Seam	Material	Seam	Material	Seam
Dichloromethane	6	6	4	6	6	6	6	6
Toluene	6	6	6	6	6	6	6	5
n-hexane	6	6	6	6	6	6	6	6
Methanol	6	6	6	6	6	5	6	6
Acetone	6	6	6	6	6	6	6	6
Ethyl acetate	6	6	6	6	6	6	6	6
Acetonitrile	6	6	6	6	6	6	6	6
Tetrahydrofuran	6	5	6	6	6	6	6	5
Diethylamine	6	6	6	6	6	6	6	6
Carbon disulphide	6	5	4	6	6	6	6	6
NaOH sol. 40%	6	6	6	6	6	6	6	6
Sulphuric acid 96%	6	6	6	6	6	6	6	6
Ammonia	6	6	6	6	6	6	6	6
Chlorine	6	6	6	6	6	6	6	6
Hydrogen chloride	6	6	6	6	6	6	6	6

Table 3c: CHEMICAL PROTECTION – Chemical permeation according to standard EN 943 – COMPONENTS 2020

	Visor		Face seal		Gloves		
	VS 5	VS 20	Without mask	With mask	WIPAN CK-PRO	WIPAN C WIPAN CK	WIPAN B+ WIPAN CK+
Dichloromethane	6	6	1	3	3	2	3 / 6
Toluene	6	6	2	3	6	6	6
n-hexane	6	6	1	3	6	6	6
Methanol	6	6	6	6	6	4	6
Acetone	6	6	6	6	4	1	6
Ethyl acetate	6	6	5	6	2	1	6
Acetonitrile	6	6	6	6	2	2	6
Tetrahydrofuran	6	6	2	3	1	1	6
Diethylamine	6	6	1	3	3	3	6
Carbon disulphide	6	6	6	3	5	6	6
NaOH sol. 40%	6	6	6	6	6	6	6
Sulphuric acid 96%	6	6	6	6	6	6	6
Ammonia	6	6	6	6	6	6	6
Chlorine	6	6	6	6	6	6	6
Hydrogen chloride	6	6	6	6	4	6	6
	Without tear-off visor		Must only be used with a mask		Over- and undergloves for special applications please enquire / P		

P: see permeation list for further information

Table 3c: CHEMICAL PROTECTION – Chemical permeation according to standard EN 943 – COMPONENTS 2020

	Boots		Footlets made of suit fabric		Zip	
	HPF CHEM	HPF ULTRA CHEM/P	Suit fabric	Plus boots	Zip without cover	Zip with cover
Dichloromethane	***	3 / 6	SILVERFLASH and SYKAN models with HPF ULTRA CHEM = Class 6 for all reference chemicals plus boots. For POLYRAN (SUPERLIGHT) and HPF CHEM, the class results from the permeation sum of the material and selected boots according to their properties.		4	6
Toluene	***	6 / 6			6	6
n-hexane	4	6 / 6			6	6
Methanol	***	6 / 6			6	6
Acetone	***	6 / 6			6	6
Ethyl acetate	***	6 / 6			6	6
Acetonitrile	***	6 / 6			6	6
Tetrahydrofuran	***	6 / 6			6	6
Diethylamine	***	6 / 6			6	6
Carbon disulphide	***	6 / 6			4	6
NaOH sol. 40%	6	6 / 6			6	6
Sulphuric acid 96%	6	6 / 6			6	6
Ammonia	6	6 / 6			6	6
Chlorine	6	6 / 6			6	6
Hydrogen chloride	6	6 / 6			6	6
	***For further values, please enquire					

Table 4: CHEMICAL PROTECTION – thermal properties/tests according to standard

Thermal behaviour: Material/seam properties	Min. performance class acc. to EN 943			POLYRAN-L/S	SYKAN 1	SYKAN 2	SYKAN 4	SILVERFLASH
	Class 1 (1 seconds)	Class 2 (3 seconds)	Class 3 (5 seconds)	Thermal classes				
STANDARD TEST REUSABLE CPS – contact heat - Short-term contact at up to approx. 850 °C for >5 seconds with gas tightness test				Class 2	Class 3	Class 3	Class 3	Class 3
STANDARD TEST according to Methods of test - Part 4: Flame test; German and English version (pr)EN 13274-4:2019				Pass	Pass	Pass	Pass	Pass
Thermal behaviour: + 4 h conditioning at approx. -30 °C/+20 °C up to approx. +65 °C (according to EN 943/EN ISO 139)				Pass	Pass	Pass	Pass	Pass
Thermal behaviour: + Contact heat (tested by TESIMAX) – short-term contact at up to approx. 850 °C for > 5 seconds				-	Pass	Pass	Pass	Pass
Thermal behaviour: + Contact heat (tested by TESIMAX) – short-term contact at up to approx. 850 °C for > 10 seconds				-	Pass	Pass	Pass	Pass
Thermal behaviour: + Superheated steam (tested by TESIMAX) – at about 350 °C for up to 30 seconds				-	Pass	Pass	Pass	Pass
Thermal behaviour: + Flashover test approx. 850 °C for 8 s (verified by inspection body)				-	-	-	Pass	Pass
Thermal behaviour: – Protective suit for not less than 4 h at a temperature of -30 ±3 °C (according to EN 943)				Pass	Pass	Pass	Pass	Pass
Thermal behaviour: Material tested by TESIMAX, (climatic test), for up to 10 min (verified by inspection body)				Pass	Pass	Pass	Pass	Pass
Thermal behaviour: - Material tested by TESIMAX, (climatic test), at -80 to approx. -100 °C for up to 10 minutes (verified by inspection body)				-	-	-	Pass	Pass
Thermal behaviour: - Material tested by TESIMAX (liquid nitrogen), short-term contact at approx. -196 °C for 10 s (verified by inspection body)				-	-	-	Pass	Pass
Protective clothing – Clothing for protection against heat and flame – Minimum performance requirements EN ISO 11612:2015)				-	-	-	-	Pass*

*Performance classes: A1, A2, B1, C3, D3, E3, N.A., W11

Size chart, VS 5/VSF 5/VSF 21 and VS 20/VSF 20 series						
Suit size	Overall height Stretched	Waist Circumference without backpack	Shoulder or sleeve length to gloves	Crotch to shoulder	Boot size Model: see * Standard: 46	Glove size (standard) Model: see Gloves table
S	Approx. 200 cm	Approx. 138 cm	Approx. 79 cm	Approx. 83 cm	43-48	10
M	Approx. 205 cm	Approx. 144 cm	Approx. 81 cm	Approx. 87 cm	43-48	10
L	Approx. 210 cm	Approx. 150 cm	Approx. 83 cm	Approx. 91 cm	43-48	10
XL (standard)	Approx. 215 cm	Approx. 156 cm	Approx. 85 cm	Approx. 95 cm	43-48	10
XXL	Approx. 220 cm	Approx. 162 cm	Approx. 87 cm	Approx. 99 cm	43-48	10

Body size chart/label		
Size	Chest measurement	Height
S	92-98 cm	150-165 cm
M	96-102 cm	160-175 cm
L	100-107 cm	170-185 cm
XL (standard)	105-113 cm	180-190 cm
XXL	110-118 cm	190-200 cm

Size chart, GS 3/GS 3 M series						
Suit size	Overall height Stretched	Waist Circumference without backpack	Shoulder or sleeve length to gloves	Crotch to shoulder	Boot size Model: see * Standard: 46	Glove size (standard) Model: see Gloves table
S	Approx. 205 cm	Approx. 105 cm	Approx. 58 cm	Approx. 85 cm	43-48	10
M	Approx. 210 cm	Approx. 110 cm	Approx. 60 cm	Approx. 90 cm	43-48	10
L	Approx. 215 cm	Approx. 115 cm	Approx. 62 cm	Approx. 95 cm	43-48	10
XL (standard)	Approx. 220 cm	Approx. 125 cm	Approx. 65 cm	Approx. 100 cm	43-48	10
XXL	Approx. 225 cm	Approx. 130 cm	Approx. 68 cm	Approx. 105 cm	43-48	10

Body size chart/label		
Size	Chest measurement	Height
S	92-98 cm	150-165 cm
M	96-102 cm	160-175 cm
L	100-107 cm	170-185 cm
XL (standard)	105-113 cm	180-190 cm
XXL	110-118 cm	190-200 cm

* Model SYKAN-SV: STANDARD: HPF
 Ultra Chem Black SA-BF (alternatively: Ultra Chem Green Hazguard® EN) /
 POLYRAN model: HPF Chem Black
 Acifort® EN

GLOVE MODEL (5-finger protective gloves)	Size	Protection suit	Material
LIMITED USE protection suits			
NEO NBC elastomer protective glove	7-11 (depending on size)	ESK 1 PE-D+ and VSF 21 PE-D	Duoform
NEO NBC elastomer protective glove	7-11 (depending on size)	S3 PE+	Tessaform
NBC barrier protective glove (over- and undergloves recommended, optional)	7-11 (depending on size)	S3 PE++, S5 PE-T and VSF 21 PE-T	Tessaform
Reusable protective suits (Real Reusable)			
5-finger protective glove MECH-BLUE 351	8-10	VS 5, VS 20, VSF 5/20, GS 3 (M), VSF 21	POLYRAN-L-S
WIPAN B+ system: CBRN protective glove (IIR) in combination with integrated chemical protection barrier (HPPF)/BW underglove	7-11	VS 5, VS 20, VSF 5/20, GS 3 (M), VSF 21	SYKAN/SILVERFLASH/CHEMBA
WIPAN C system: CBRN protective gloves (HPF elastomer with triple protection) and integrated liner, with replacement system	9-10	VS 5, VS 20, VSF 5/20, GS 3 (M), VSF 21	SYKAN/SILVERFLASH
WIPAN CK system: CBRN protective gloves (HPF elastomer with triple protection) and integrated liner, reinforced with para-aramid	9-10	VS 5, VS 20, VSF 5/20, GS 3 (M), VSF 21	SYKAN/SILVERFLASH
WIPAN CK+ system: CBRN protective gloves (IIR) in combination with integrated chemical protection barrier (HPPF) and integrated liner, reinforced with para-aramid	7-11	VS 5, VS 20, VSF 5/20, GS 3 (M), VSF 21	SYKAN/SILVERFLASH
WIPAN CK-PRO system: CBRN protective gloves (UVEX PROFABUTYL) and integrated liner, reinforced with para-aramid	8-11	VS 5, VS 20, VSF 5/20, GS 3 (M), VSF 21	SYKAN/SILVERFLASH
OVERGLOVES (optional)			
MECH BLUE 351 overgloves (mechanical protection, short cuff)	8-10	All	All
MECH BLACK overglove (mechanical protection, long cuff, own production)	12	All	All
MECH SILVER overglove (mechanical protection, long cuff, own production)	12	All	All
Overglove 1000 V (electrical insulation protection, long cuff)	7-11	All	All
UNDERGLOVES (optional)			
Underglove ESD (for optimisation of electrical discharge, arc fault protection, for all CPS)	7-11	All	All
Underglove cotton (for ESK series and WIPAN B+ protective glove system)	6-11	All	All



VS 20 SERIES

VS 20 SERIES

ANGEL
SENSOR SYSTEMS

PTFE 3-layer interchangeable visor (antifog) with ANGEL LIGHT & SENSOR SYSTEMS (optional)



WIPAN C/CK/CK+
One glove for all
(optional: QUICK exchange system)



HPF CHEM BOOT (ULTRA or P-L)
Safety boots



HPF ULTRA
Zip
(SYKAN)

VS 20 series: Gas-tight totally encapsulated suit
- Internal SCBA

The standard equipment varies depending on the model

- One-piece complete (gas-tight) chemical/firefighter protective suit with interchangeable VS 20 3-layer PTFE visor (antifog), gas-tight zip (180 cm) partly with labyrinth cover, permanently fitted protective gloves/boots, integrated braces and pressure relief valves with dual cover/protection (incl. HPF membrane).
- CPS (chemical protective suit) for unlimited use in firefighting, industry, works fire brigades and military.
- Classification by standard: Type 1a = gas-tight chemical protective suit with breathing air supply worn inside the chemical protective suit, for example compressed air equipment.
- These CPS unite excellent workmanship with high-grade materials.
- All popular firefighter helmets and industrial hard hats can be worn under the suit. We recommend a helmet, for example according to EN 443 for firefighter helmets for technical rescue, to EN 397 for industrial hard hats and to EN 12492 for mountaineering helmets (see accessories).
- Service life: 15 years: 10 years, then inspection: + 5 years
- Optional: SMART STOCK (5 years maintenance-free, vacuum packaged with seal)
- Sizes: Four individual sizes (M to XXL)
- Optimum fit through range of sizes
- Perfect design also at critical points

VS 20 – approvals (according to PPE Regulation (EU) 2016/425)

Plus further supplementary standards/approvals (vary, depending on model)
Apply to VS 20 protective suits made of SYKAN®, POLYRAN-L-S or SILVERFLASH®:

- DIN EN ISO 13688 = protective clothing – General requirements
- EN 943-1/-2 = type 1a-ET protective clothing (Emergency Teams) made of SYKAN/SILVERFLASH
- EN 943-1 = type 1a protective clothing (industry) made of POLYRAN-L-S
- EN 14126 = protection against biological agents “B”
- EN 1073-2 = particle-tight protective clothing
- EN 1149 = antistatic properties, conductive
- SOLAS = national BG Verkehr approval for “maritime (on board) uses”
- SOLAS only for VS 20 SILVERFLASH, SYKAN 2 and SYKAN 4

For further options, see CPS Accessories.





Suit description, VS 20 POLYRAN-S (reusable)

POLYRAN-L-S protective suits – special features

- Flame-retardant, reusable CBRN protective suits with integrated chemical barrier (facing outwards) according to protection level EN 943, 1a/b/c
- Outstanding chemical protection for up to 8 h (industrial chemicals, EN 943) & according to 24-hour gas tests (CWA Finabel 0.7 C Nato standard)
- Chemical permeation protection according to manufacturer's list (against approx. 1000 hazardous substances)
- Patented material blend of chemicals- and abrasion-resistant HPF elastomers and barrier laminate on a PA matrix base fabric: Made in Germany.
- High protective performance, puncture- and abrasion-resistance as well as mechanical robustness ensure the wearer's safety (REAL REUSABLE protective suits)
- Approved for use in hazardous areas.
- Totally encapsulated suit type 1a ET (SCBA inside), 1b ET (SCBA outside) for work in confined spaces as well as 1c (without SCBA, with compressed air forced ventilation)
- These protective suits unite excellent quality with high-grade materials.

VS 20 POLYRAN-L-S

- One-piece (gas-tight) chemical protective suit (industry, works, firefighter CPS) with interchangeable VS 20 visor (permanent antifog inner coating), gas-tight zip (180 cm), permanently fitted protective gloves/boots, integrated braces (type 1) and pressure relief valves with triple cover and protection (incl. HPF membrane).
- Subsequently referred to as "CPS" (chemical protective suit) for unrestricted operational tasks in industry, plant fire brigades and military; classification according to EN 943-1 standard: type 1a = gas-tight chemical protective suit with an ambient air-independent breathing air supply worn inside the chemical protective suit, e.g. compressed air equipment.

POLYRAN-L/S FABRIC

- Matrix polyamide base fabric coated on both sides with POLYRAN® (Performance TP)

TOP SEAM

- Seam technology: high-quality stitching, chemical-thermal robustness (para-aramid thread) and double thermo-taped seam cover (inside and with outside)

EQUIPMENT

- Face shield with interchangeable VS 20 visor (antifog inner coating, triple laminate (mechanically robust), chemicals-resistant PTFE barrier in patented, robust HPF plastic-aluminium frame, screwed and secured. -> Optional: self-adhesive, exchangeable tear-off visor (included: with VS 20 SILVERFLASH®)

ZIP FASTENER

- With liquid- and gas-tight P-L-S elastomer zip (180 cm), chemicals and thermally resistant, sewn with protective suit and permanently welded (not glued) to TOP seam cover. Zip on the right side. Closes from bottom to top for safety.
- > Optional labyrinth fabric cover

PROTECTIVE GLOVES

- Standard interchangeable protective gloves: MECH BLUE 351 - standard size 10, NBC protective glove with integrated cotton lining; colour: blue
- > Other sizes please enquire.
- > Altern. Protective gloves (CBRN): WIPAN B+ (0.3, 0.5, 1.5), WIPAN CK-PRO, WIPAN C/CK or WIPAN CK+
- Standard WT protective gloves: Steel glove change system
- > Alternative: Quick-lock glove system

PROTECTIVE BOOTS

- Standard interchangeable protective boot: HPF CHEM POLYRAN ACIFORT® - standard size 46 HPF elastomer protective boot according to EN ISO 20345 S5 SRA AN; colour: black
- > Other sizes: 43 to 47 (please specify when ordering)
- > Alternatively: protective boots: HPF ULTRA-CHEM-GREEN HAZGUARD® / HPF ULTRA-CHEM-BLACK SA-BF (FPA)
- > Alternatively: footlets made of suit material with drip cuff

INTEGRATED EQUIPMENT

- Permanently integrated, exchangeable standard braces for size adjustment (type 1)
- Radio device pocket, inside
- Backpack padding, inside (normative mandatory)

APPLICATIONS: Pharmaceuticals, clinics, military and civil defence, industry, shipping and fire brigades (unlimited)

OVERVIEW OF STANDARDS

- **APPROVALS (according to PPE Regulation (EU) 2016/425)**
Additional sub-standards/approvals apply to protective suits made of SYKAN® 1-2-4, POLYRAN-L-S (superlight) and SILVERFLASH® protective suits:

- EN ISO 13688 = protective clothing – General requirements
- EN 943-1 = protective clothing type 1a (industry) made of POLYRAN-L-S
- EN 14126 = protection against biological agents "B"
- EN 1073-2 = particle-tight protective clothing
- EN 1149 = antistatic properties, dissipative (static inhibitor, ex factory)
- SOLAS = national BG Verkehr approval for "maritime (on board) uses"
- CBRN Finabel 0.7 GAS-TESTED (gases – complete protective suit with components)
- > Note: The current product certificate and technical product documentation apply.

SIZES: Four individual sizes (M to XXL)

- Optimum fit through range of sizes

PRODUCT REFERENCE

- VS 20 POLYRAN®-L-S
- COUNTRY OF ORIGIN: GERMANY

WEIGHT: approx. 6.5 kg without extras, in size L, with footlets/boots: approx. 1.75 kg

COLOUR: ■ signal yellow (outside), ■ signal red or ■ Nato olive (outside)

SERVICE LIFE: 15 years: 10 years, then inspection for a 5 year extension
-> optional: SMART STOCK (5 years maintenance free, vacuum packed with seal)

ORDERING DATA, VS 20 POLYRAN-L-S

-> Note: see size charts (standard gloves: size 10 (see size chart) or st. protective boots: size 46 (43-47))

Sizes 150 to 165 cm	Order no.: 0220-151 S
Sizes 160 to 175 cm	Order no.: 0220-151 M
Sizes 170 to 185 cm	Order no.: 0220-151 L
Sizes 180 to 190 cm	Order no.: 0220-151 XL (standard)
Sizes 190 to 200 cm	Order no.: 0220-151 XXL

ALL PRODUCTS INCLUDE

- Participation in TESIMAX SERVICE POOL for reusable protective suits, available worldwide
- Participation in TESIMAX RTT training for reusable protective suits, available in Germany
- Standard nylon storage bag, black

OPTIONAL FUNCTIONS AND ACCESSORIES -> see Accessories.

Property rating, VS 20 POLYRAN-L-S

Chemical resistance	■■■■■
Mechanical resistance	■■■■■
Heat: Contact heat at approx. 850 ±50 °C	■■■■■
Heat: Hot vapour at about 350 °C	■■■■■
Heat: Radiant heat at about 1000 °C	Not tested
Cold: Contact cold at -30 °C	■■■■■
Cold: Contact cold at -80 °C	not tested
Cold: Contact cold at -100 °C	not tested





Suit description, VS 20 SYKAN 2 (reusable)

MAIN FEATURES AND ADVANTAGES – SYKAN 2 protective suits

- Flame-retardant, reusable CBRN protective suits with integrated chemicals barrier (facing outwards) according to protection level EN 943-1/-2: 1a/b (ET)/1c
- Outstanding chemical protection for up to 8 h (industrial chemicals, EN 943) & according to 24-hour gas tests (CWA Finabel 0.7 C Nato standard)
- Chemical permeation protection according to manufacturer's list (against approx. 1000 hazardous substances)
- Patented material blend of chemicals- and abrasion-resistant HPF elastomers and barrier laminate on a PA matrix base fabric: Made in Germany.
- High protective performance, puncture- and abrasion-resistance as well as mechanical robustness ensure the wearer's safety (REAL REUSABLE protective suits)
- Approved for use in hazardous areas.
- Totally encapsulated suit type 1a ET (SCBA inside), 1b ET (SCBA outside) for work in confined spaces as well as 1c (without SCBA, with compressed air forced ventilation)
- These protective suits unite excellent quality with high-grade materials.

VS 20 SYKAN 2

- One-piece (gas-tight) chemical/firefighter protective suit (ET: Emergency Team) with interchangeable VS 20 3-layer PTFE visor (anti-fog), gas-tight zip (180 cm) with labyrinth cover, permanently fitted protective gloves/boots, integrated braces and pressure relief valves with triple cover and protection (incl. HPF membrane).
- Subsequently referred to as "CPS" (chemical protective suit) for unrestricted operational tasks in fire services, industry, plant fire brigades and military: ET (Emergency Teams); classification according to EN 943-1/-2 standard: type 1a ET = gas-tight chemical protective suit with an ambient air-independent breathing air supply worn inside the chemical protective suit, e.g. compressed air equipment.

SYKAN 2 FABRIC

- The fabric consists of a four-layered laminate. SYKAN® 2 has a 100% high-strength, rugged polyamide base fabric coated with high-performance fluorelastomers (HPF). An additional high-performance plastic (HPP) layer on the outside of the base fabric further protects the fabric. HPF (fluorelastomer) and HPP (PTFE fluorocarbon film) are unique protective suit material technology from Germany. This is a protective suit of the latest generation featuring hybrid technology. SYKAN® fabric is quiet and is more comfortable to wear than "stiffer" foil protection suits.

ULTRA SEAM

- Seam technology: high-quality stitching, chemical-thermal robustness (para-aramid thread) and double thermo-taped seam cover (inside and with external, patented PTFE barrier)

EQUIPMENT

- Face shield with interchangeable VS 20 visor (antifog inner coating, triple laminate (mechanically robust), chemicals-resistant PTFE barrier in patented, robust HPF plastic-aluminium frame, screwed and secured. -> Optional: self-adhesive, exchangeable tear-off visor (included: with VS 20 SILVERFLASH®)

ZIP FASTENER

- With liquid- and gas-tight HPF-ULTRA zip (180 cm), including barrier film, chemicals and thermally resistant, sewn with protective suit and permanently welded (not glued) with ULTRA seam cover. Closes from bottom to top for safety. Zip on the right side. -> Including labyrinth fabric cover

PROTECTIVE GLOVES

- Standard interchangeable protective gloves: WIPAN C – standard size 10 HPF elastomer CBRN protective glove with integrated cotton lining; colour: black
- > For other sizes, please enquire
- > altern. protective gloves (CBRN): WIPAN B+ (0.3, 0.5, 1.5), WIPAN CK-PRO, WIPAN CK or WIPAN CK+
- Standard WT protective gloves: Steel glove change system. -> Alternative: Quick-lock glove system

PROTECTIVE BOOTS

- Standard interchangeable protective boot: HPF ULTRA-CHEM-BLACK SA-BF; standard size: 46
- HPF elastomer protective boots with FPA approval according to EN 15090, EN ISO 20345 S5 HRO SRC, EN 13832-3, EN 13287; colour: black
- > Other sizes: 43-47 (please specify when ordering)
- > Alternatively: protective boot HPF ULTRA-CHEM-GREEN HAZGUARD® or HPF CHEM POLYRAN ACIFORT®
- > Alternatively: footlets made of suit material with drip cuff

INTEGRATED EQUIPMENT

- Permanently integrated, exchangeable standard braces for size adjustment (type 1)
- Radio device pocket, inside
- Backpack padding, inside (normative mandatory)

APPLICATIONS: Pharmaceuticals, clinics, military and civil defence, industry, shipping and fire brigades (unlimited)

OVERVIEW OF STANDARDS

- APPROVALS (according to PPE Regulation (EU) 2016/425)

Additional sub-standards/approvals apply to protective suits made of SYKAN® 1-2-4, POLYRAN-L-S (superlight) and SILVERFLASH® protective suits:

- EN ISO 13688 = protective clothing – General requirements
- EN 943-1/-2 = type 1a-ET (Emergency Teams) protective clothing made of SYKAN or SILVERFLASH
- EN 14126 = protection against biological agents "B"
- EN 1073-2 = particle-tight protective clothing
- EN 1149 = antistatic properties, dissipative (static inhibitor, ex factory)
- CBRN Finabel 0.7 GAS-TESTED (gases – complete protective suit with components)
- > Note: The current product certificate and technical product documentation apply.

SIZES: Four individual sizes (M to XXL)

- Optimum fit through range of sizes

PRODUCT REFERENCE

- VS 20 SYKAN® 2
- COUNTRY OF ORIGIN: GERMANY

WEIGHT: approx. 6.5 kg without extras, in size L, with footlets/boots: approx. 1.75 kg
COLOUR: ■ signal orange (outside) or ■ Nato olive (outside)

SERVICE LIFE: 15 years: 10 years, then inspection for a 5 year extension
 -> optional: SMART STOCK (5 years maintenance free, vacuum packed with seal)

ORDERING DATA, VS 20 SYKAN 2

-> Note: see size charts (standard gloves: size 10 (see size chart) or st. protective boots: size 46 (43-47))

Sizes 150 to 165 cm	Order no.: 0220-212 S
Sizes 160 to 175 cm	Order no.: 0220-212 M
Sizes 170 to 185 cm	Order no.: 0220-212 L
Sizes 180 to 190 cm	Order no.: 0220-212 XL (standard)
Sizes 190 to 200 cm	Order no.: 0220-212 XXL

ALL PRODUCTS INCLUDE

- Participation in TESIMAX SERVICE POOL for reusable protective suits, available worldwide
- Participation in TESIMAX RTT training for reusable protective suits, available in Germany
- Standard nylon storage bag, black

OPTIONAL FUNCTIONS AND ACCESSORIES -> see Accessories.

Property rating, VS 20 SYKAN 2

Chemical resistance	
Mechanical resistance	
Heat: Contact heat at approx. 850 ±50 °C	
Heat: Hot vapour at about 350 °C	
Heat: Radiant heat at about 1000 °C	Not tested
Cold: Contact cold at -30 °C	
Cold: Contact cold at -80 °C	
Cold: Contact cold at -100 °C	not tested





Suit description, VS 20 SYKAN 4

MAIN FEATURES AND ADVANTAGES – SYKAN 4 protective suits

- Flame-retardant, reusable CBRN protective suits with integrated chemicals barrier (facing outwards) according to protection level EN 943-1/-2: 1a/b (ET)/1c
- Outstanding chemical protection for up to 8 h (industrial chemicals, EN 943) & according to 24-hour gas tests (CWA Finabel 0.7 C Nato standard)
- Chemical permeation protection according to manufacturer's list (against approx. 1000 hazardous substances)
- Patented material blend of chemicals- and abrasion-resistant HPF elastomers and barrier laminate on a PA matrix base fabric: Made in Germany.
- High protective performance, puncture- and abrasion-resistance as well as mechanical robustness ensure the wearer's safety (REAL REUSABLE protective suits)
- Approved for use in hazardous areas.
- Totally encapsulated suit type 1a ET (SCBA inside), 1b ET (SCBA outside) for work in confined spaces as well as 1c (without SCBA, with compressed air forced ventilation)
- These protective suits unite excellent quality with high-grade materials.

VS 20 SYKAN 4

- One-piece (gas-tight) chemical/firefighter protective suit (ET: Emergency Team) with interchangeable VS 20 3-layer PTFE visor (anti-fog), gas-tight zip (180 cm) with labyrinth cover, permanently fitted protective gloves/boots, integrated braces and pressure relief valves with triple cover and protection (incl. HPF membrane).
- Subsequently referred to as "CPS" (chemical protective suit) for unrestricted operational tasks in fire services, industry, plant fire brigades and military: ET (Emergency Teams); classification according to EN 943-1/-2 standard: type 1a ET = gas-tight chemical protective suit with an ambient air-independent breathing air supply worn inside the chemical protective suit, e.g. compressed air equipment.

SYKAN 4 FABRIC

- The fabric consists of a four-layered laminate. SYKAN® 4 has a 100% para-aramid base fabric coated with high-performance fluorelastomers (HPF). An additional high-performance plastic (HPP) layer on the outside of the base fabric further protects the fabric. HPF (fluorelastomer) and HPP (PTFE fluorocarbon film) are unique protective suit material technology from Germany. This is a protective suit of the latest generation featuring hybrid technology. SYKAN® fabric is quiet and is more comfortable to wear than "stiffer" foil protection suits.

ULTRA SEAM

- Seam technology: high-quality stitching, chemical-thermal robustness (para-aramid thread) and double thermo-taped seam cover (inside and with external, patented PTFE barrier)

EQUIPMENT

- Face shield with interchangeable VS 20 visor (antifog inner coating, triple laminate (mechanically robust), chemicals-resistant PTFE barrier in patented, robust HPF plastic-aluminium frame, screwed and secured. -> Optional: self-adhesive, exchangeable tear-off visor (included: with VS 20 SILVERFLASH®)

ZIP FASTENER

- With liquid- and gas-tight HPF-ULTRA zip (130 cm), including barrier film, chemicals and thermally resistant, sewn with protective suit and permanently welded (not glued) with ULTRA seam cover. Closes from bottom to top for safety. Zip on the back. -> Including labyrinth fabric cover

PROTECTIVE GLOVES

- Standard interchangeable protective gloves: WIPAN CK – standard size 10 HPF elastomer CBRN protective glove with integrated cotton lining; colour: black
-> For other sizes, please enquire
-> altern. protective gloves (CBRN): WIPAN B+ (0.3, 0.5, 1.5), WIPAN CK-PRO, WIPAN CK or WIPAN CK+
- Standard WT protective gloves: Steel glove change system.
-> Alternative: Quick-lock glove system

PROTECTIVE BOOTS

- Standard interchangeable protective boot: HPF ULTRA-CHEM-BLACK SA-BF; standard size: 46
- HPF elastomer protective boots with FPA approval according to EN 15090, EN ISO 20345 S5 HRO SRC, EN 13832-3, EN 13287; colour: black
-> Other sizes: 43-47 (please specify when ordering)
-> Alternatively: protective boot HPF ULTRA-CHEM-GREEN HAZGUARD® or HPF CHEM POLYRAN ACIFORT®
-> Alternatively: footlets made of suit material with drip cuff

INTEGRATED EQUIPMENT

- Permanently integrated, exchangeable standard braces for size adjustment (type 1)
- Radio device pocket, inside
- Backpack padding, inside (normative mandatory)

APPLICATIONS: Pharmaceuticals, clinics, military and civil defence, industry, shipping and fire brigades (unlimited)

OVERVIEW OF STANDARDS

- APPROVALS (according to PPE Regulation (EU) 2016/425)
Additional sub-standards/approvals apply to protective suits made of SYKAN® 1-2-4, POLYRAN-L-S (superlight) and SILVERFLASH® protective suits:

- EN ISO 13688 = protective clothing – General requirements
- EN 943-1/-2 = type 1a-ET (Emergency Teams) protective clothing made of SYKAN or SILVERFLASH
- EN 14126 = protection against biological agents "B"
- EN 1073-2 = particle-tight protective clothing
- EN 1149 = antistatic properties, dissipative (static inhibitor, ex factory)
- CBRN Finabel 0.7 GAS-TESTED (gases – complete protective suit with components)
-> Note: The current product certificate and technical product documentation apply.

SIZES: Four individual sizes (M to XXL)

- Optimum fit through range of sizes

PRODUCT REFERENCE

- VS 20 SYKAN® 4
- COUNTRY OF ORIGIN: GERMANY

WEIGHT: approx. 6.5 kg without extras, in size L, with footlets/boots: approx. 1.75 kg
COLOUR: ■ signal yellow (outside) or ■ Nato olive (outside)

SERVICE LIFE: 15 years: 10 years, then inspection for a 5 year extension
-> optional: SMART STOCK (5 years maintenance free, vacuum packed with seal)

ORDERING DATA, VS 20 SYKAN 4

-> Note: see size charts (standard gloves: size 10 (see size chart) or st. protective boots: size 46 (43-47))

Sizes 150 to 165 cm	Order no.: 0220-214 S
Sizes 160 to 175 cm	Order no.: 0220-214 M
Sizes 170 to 185 cm	Order no.: 0220-214 L
Sizes 180 to 190 cm,	order no.: 0220-214 XL (standard)
Sizes 190 to 200 cm	Order no.: 0220-214 XXL

ALL PRODUCTS INCLUDE

- Participation in TESIMAX SERVICE POOL for reusable protective suits, available worldwide
- Participation in TESIMAX RTT training for reusable protective suits, available in Germany
- Standard nylon storage bag, black

OPTIONAL FUNCTIONS AND ACCESSORIES -> see Accessories.

Property rating, VS 20 SYKAN 4

Chemical resistance	■■■■■■■■■■
Mechanical resistance	■■■■■■■■■■
Heat: Contact heat at approx. 850 ±50 °C	■■■■■■■■■■
Heat: Hot vapour at about 350 °C	■■■■■■■■■■
Heat: Radiant heat at about 1000 °C	Not tested
Cold: Contact cold at -30 °C	■■■■■■■■■■
Cold: Contact cold at -80 °C	■■■■■■■■■■
Cold: Contact cold at -100 °C	■■■■■■■■■■



VS 20 SILVERFLASH



Suit description, VS 20 SILVERFLASH

SILVERFLASH protective suits – special features

- Flame-retardant, reusable CBRN protective suits with integrated chemicals barrier (facing outwards) according to protection level EN 943-1/-2: 1a/b (ET)
- Outstanding chemical protection for up to 8 h (industrial chemicals, EN 943) & according to 24-hour gas tests (CWA Finabel 0.7 C Nato standard)
- Chemical permeation protection according to manufacturer's list (against approx. 1000 hazardous substances)
- Patented material blend of chemicals- and abrasion-resistant HPF elastomers and barrier laminate on a PA matrix base fabric: Made in Germany.
- High protective performance, puncture- and abrasion-resistance as well as mechanical robustness ensure the wearer's safety (REAL REUSABLE protective suits)
- Approved for use in hazardous areas.
- Totally encapsulated suit type 1a ET (SCBA inside), 1b ET (SCBA outside) for work in confined spaces as well as 1c (without SCBA, with compressed air forced ventilation)
- These protective suits unite excellent quality with high-grade materials.

VS 20 SILVERFLASH

- One-piece (gas-tight) chemical/firefighter protective suit (ET: Emergency Team) with interchangeable VS 20 3-layer PTFE visor (antifog), gas-tight zip (180 cm) with labyrinth cover, permanently fitted protective gloves/boots, integrated braces and pressure relief valves with triple cover and protection (incl. HPF membrane).
- Subsequently referred to as "CPS" (chemical protective suit) for unrestricted operational tasks in fire services, industry, plant fire brigades and military: ET (Emergency Teams); classification according to EN 943-1/-2 standard: type 1a ET = gas-tight chemical protective suit with an ambient air-independent breathing air supply worn inside the chemical protective suit, e.g. compressed air equipment.

SILVERFLASH FABRIC

- The fabric consists of a five-layered laminate that is aluminised on the outside. SILVERFLASH has a 100% para-aramid base fabric coated with high-performance fluorelastomers (HPF). An additional high-performance plastic (HPP) layer on the outside of the base fabric further protects the fabric. HPF (fluorelastomer) and HPP (PTFE fluorocarbon film) are unique protective suit material technology from Germany. This is a protective suit of the latest generation featuring hybrid technology. SILVERFLASH® fabric is quiet and is more comfortable to wear than "stiffer" protection suits, including foil types.

ULTRA SEAM

- Seam technology: high-quality stitching, chemical-thermal robustness (para-aramid thread) and double thermo-taped seam cover (inside and with external, patented PTFE barrier)

EQUIPMENT

- Face shield with gold-plated interchangeable VS 20 visor (antifog inner coating, triple laminate (mechanically robust), chemicals-resistant PTFE barrier in patented, robust HPF plastic-aluminium frame, screwed and secured.
- > Optional: self-adhesive, exchangeable tear-off visor (included: with VS 20 SILVERFLASH®)

ZIP FASTENER

- With liquid- and gas-tight HPF-ULTRA zip (180 cm), including barrier film, chemicals and thermally resistant, sewn with protective suit and permanently welded (not glued) with ULTRA seam cover. Closes from bottom to top for safety. Zip on the right side.
- > Including labyrinth fabric cover

PROTECTIVE GLOVES

- Standard interchangeable protective gloves: WIPAN CK – standard size 10 HPF elastomer CBRN protective glove with integrated cotton lining; colour: black
- > For other sizes, please enquire
- > altern. protective gloves (CBRN): WIPAN B+ (0.3, 0.5, 1.5), WIPAN CK-PRO, WIPAN CK or WIPAN CK+
- Standard WT protective gloves: Steel glove change system.
- > Alternative: Quick-lock glove system

PROTECTIVE BOOTS

- Standard interchangeable protective boot: HPF ULTRA-CHEM-BLACK SA-BF; standard size: 46
- HPF elastomer protective boots with FPA approval according to EN 15090, EN ISO 20345 S5 HRO SRC, EN 13832-3, EN 13287; colour: black
- > Other sizes: 43-47 (please specify when ordering)
- > Alternatively: protective boot HPF ULTRA-CHEM-GREEN HAZGUARD® or HPF CHEM POLYRAN ACIFORT®
- > Alternatively: footlets made of suit material with drip cuff

INTEGRATED EQUIPMENT

- Permanently integrated, exchangeable standard braces for size adjustment (type 1)
- Radio device pocket, inside
- Backpack padding, inside (normative mandatory)

APPLICATIONS: Pharmaceuticals, clinics, military and civil defence, industry, shipping and fire brigades (unlimited)

STANDARDS OVERVIEW

- **APPROVALS (according to PPE Regulation (EU) 2016/425)**
Additional sub-standards/approvals apply to protective suits made of SYKAN® 1-2-4, POLYRAN-L-S (superlight) and SILVERFLASH® protective suits:

- EN ISO 13688 = protective clothing – General requirements
- EN 943-1/-2 = type 1a-ET (Emergency Teams) protective clothing made of SYKAN or SILVERFLASH
- EN 14126 = protection against biological agents "B"
- EN 1073-2 = particle-tight protective clothing
- EN 1149 = antistatic properties, dissipative (static inhibitor, ex factory)
- CBRN Finabel 0.7 GAS-TESTED (gases – complete protective suit with components)
- > Note: The current product certificate and technical product documentation apply.

SIZES: Four individual sizes (M to XXL)

- Optimum fit through range of sizes

PRODUCT REFERENCE

- VS 20 SILVERFLASH®
- COUNTRY OF ORIGIN: GERMANY

WEIGHT: approx. 6.5 kg without extras, in size L, with footlets/boots: approx. 1.75 kg

COLOUR: ■ silver reflective (outside)

SERVICE LIFE: 15 years: 10 years, then inspection for a 5 year extension
-> optional: SMART STOCK (5 years maintenance free, vacuum packed with seal)

ORDERING DATA VS 20 SILVERFLASH

-> Note: see size charts (standard gloves: size 10 (see size chart) or st. protective boots: size 46 (43-47))

Sizes 150 to 165 cm	Order no.: 0220-220 S
Sizes 160 to 175 cm	Order no.: 0220-220 M
Sizes 170 to 185 cm	Order no.: 0220-220 L
Sizes 180 to 190 cm	Order no.: 0220-220 XL (standard)
Sizes 190 to 200 cm	Order no.: 0220-220 XXL

ALL PRODUCTS INCLUDE

- Participation in TESIMAX SERVICE POOL for reusable protective suits, available worldwide
- Participation in TESIMAX RTT training for reusable protective suits, available in Germany
- Standard nylon storage bag, black

OPTIONAL FUNCTIONS AND ACCESSORIES -> see Accessories.

Property rating, VS 20 SILVERFLASH

Chemical resistance	■■■■■■■■■■
Mechanical resistance	■■■■■■■■■■
Heat: Contact heat at approx. 850 ±50 °C	■■■■■■■■■■
Heat: Hot vapour at about 350 °C	■■■■■■■■■■
Heat: Radiant heat at about 1000 °C	■■■■■■■■■■
Cold: Contact cold at -30 °C	■■■■■■■■■■
Cold: Contact cold at -80 °C	■■■■■■■■■■
Cold: Contact cold at -100 °C	■■■■■■■■■■





V S 5 SERIES

VS 5 SERIES

**PTFE 3-layer visor (antifog)
Power Resistance**



**WIPAN C/CK/CK+
One glove for all
(optional:
QUICK exchange system)**



HPF CHEM BOOT (ULTRA or P-L)



VS 5 series: Gas-tight totally encapsulated suit - Internal SCBA

The standard equipment varies depending on the model

- One-piece gas-tight chemical/firefighter protective suit with permanently integrated VS 5 3-layer PTFE visor (antifog), gas-tight zip (130 cm, optionally 180 cm) with partial labyrinth cover, permanently fitted protective gloves/boots, integrated braces and pressure relief valves with dual cover/protection (incl. HPF membrane).
- CPS (chemical protective suit) for unlimited use in firefighting, industry, works fire brigades and military.
- Classification by standard: Type 1a = gas-tight chemical protective suit with breathing air supply worn inside the chemical protective suit, for example compressed air equipment.
- These CPS unite excellent workmanship with high-grade materials.
- All popular firefighter helmets and industrial hard hats can be worn under the suit. We recommend a helmet, for example according to EN 443 for firefighter helmets for technical rescue, to EN 397 for industrial hard hats and to EN 12492 for mountaineering helmets (see accessories).
- Service life: 15 years: 10 years, then inspection; +5 years (10 years for limited use CHEMBA)
- Optional: SMART STOCK (5 years maintenance-free, vacuum packaged with seal)
- Sizes: Four individual sizes (M to XXL)
- Optimum fit through range of sizes
- Perfect design also at critical points

VS 5 approvals (according to PPE Regulation (EU) 2016/425)

Plus further supplementary standards/approvals (vary, depending on model)
Apply to VS 5 protective suits made of SYKAN® or POLYRAN-L/S/SUPERLIGHT:

- | | |
|--------------------|--|
| - DIN EN ISO 13688 | = Protective clothing – General requirements |
| - EN 943-1/-2 | = type 1a-ET protective clothing (Emergency Teams) made of SYKAN or CHEMBA (limited use) |
| - DIN EN 943-1 | = protective clothing type 1a- (industry) made of POLYRAN-L-S |
| - EN 14126 | = protection against biological agents “B” |
| - EN 1073-2 | = particle-tight protective clothing |
| - EN 1149 | = antistatic properties, conductive |
| - SOLAS | = national BG Verkehr approval for “maritime (on board) uses” |

For further options, see CPS Accessories.





Suit description, VS 5 POLYRAN-S (reusable)

POLYRAN-L-S protective suits – special features

- Flame-retardant, reusable CBRN protective suits with integrated chemicals barrier (facing outwards) according to protection level EN 943-1(-2): 1a/b/c
- Outstanding chemical protection for up to 8 h (industrial chemicals, EN 943) & according to 24-hour gas tests (CWA Finabel 0.7 C Nato standard)
- Chemical permeation protection according to manufacturer's list (against approx. 1000 hazardous substances)
- Patented material blend of chemicals- and abrasion-resistant HPF elastomers and barrier laminate on a PA matrix base fabric: Made in Germany.
- High protective performance, puncture- and abrasion-resistance as well as mechanical robustness ensure the wearer's safety (REAL REUSABLE protective suits)
- Approved for use in hazardous areas.
- Totally encapsulated suit type 1a ET (SCBA inside), 1b ET (SCBA outside) for work in confined spaces as well as 1c (without SCBA, with compressed air forced ventilation)
- These protective suits unite excellent quality with high-grade materials.

VS 5 POLYRAN-L-S

- One-piece (gas-tight) chemical/firefighter protective suit (ET: Emergency Team) with interchangeable VS 5 3-layer PTFE visor (antifog), gas-tight zip (130 cm) with labyrinth cover, permanently fitted protective gloves/boots, integrated braces and pressure relief valves with triple cover and protection (incl. HPF membrane).
- Subsequently referred to as "CPS" (chemical protective suit) for unrestricted operational tasks in fire services, industry, plant fire brigades and military: ET (Emergency Teams); classification according to EN 943-1/-2 standard: type 1a ET = gas-tight chemical protective suit with an ambient air-independent breathing air supply worn inside the chemical protective suit, e.g. compressed air equipment.

POLYRAN-L/S FABRIC

- Matrix polyamide base fabric coated on both sides with POLYRAN® (Performance TP)

TOP SEAM

- Seam technology: high-quality stitching, chemical-thermal robustness (para-aramid thread) and double thermo-taped seam cover (inside and with outside)

EQUIPMENT

- Face shield with flexible VS 5 visor (antifog inner coating, triple laminate, mechanically robust, including chemically resistant PTFE barrier) permanently connected/integrated with the protective suit.
- > Optional: self-adhesive, exchangeable tear-off visor

ZIP FASTENER

- With liquid- and gas-tight P-L-S elastomer zip (130 cm), chemicals and thermally resistant, sewn with protective suit and permanently welded (not glued) to TOP seam cover. Closes from bottom to top for safety. Zip on the right side.
- > Optional labyrinth fabric cover

PROTECTIVE GLOVES

- Standard interchangeable protective gloves: MECH BLUE 351 - standard size 10, NBC protective glove with integrated cotton lining; colour: blue
- > Other sizes please enquire.
- > Altern. Protective gloves (CBRN): WIPAN B+ (0.3, 0.5, 1.5), WIPAN CK-PRO, WIPAN CK or WIPAN CK+
- Standard WT protective gloves: Steel glove change system.
- > Alternative: Quick-lock glove system

PROTECTIVE BOOTS

- Standard interchangeable protective boot: HPF CHEM POLYRAN ACI-FORT® - standard size 46 HPF elastomer protective boot according to EN ISO 20345 S5 SRA AN; colour: black
- > Other sizes: 43 to 47 (please specify when ordering)
- > Alternatively: protective boots: HPF ULTRA-CHEM-GREEN HAZGUARD® / HPF ULTRA-CHEM-BLACK SA-BF (FPA)
- > Alternatively: footlets made of suit material with drip cuff

INTEGRATED EQUIPMENT

- Permanently integrated, exchangeable standard braces for size adjustment (type 1)
- Radio device pocket, inside
- Backpack padding, inside (normative mandatory)

APPLICATIONS: Pharmaceuticals, clinics, military and civil defence, industry, shipping and fire brigades (unlimited)

OVERVIEW OF STANDARDS

- APPROVALS (according to PPE Regulation (EU) 2016/425)

Additional sub-standards/approvals apply to protective suits made of SYKAN® 1-2-4, POLYRAN-L-S (superlight) and SILVERFLASH® protective suits:

- EN ISO 13688 = protective clothing – General requirements
- EN 943-1 = protective clothing type 1a (industry) made of POLYRAN-L-S
- EN 14126 = protection against biological agents "B"
- EN 1073-2 = particle-tight protective clothing
- EN 1149 = antistatic properties, dissipative (static inhibitor, ex factory)
- CBRN Finabel 0.7 GAS-TESTED (gases – complete protective suit with components)
- > Note: The current product certificate and technical product documentation apply.

SIZES: Four individual sizes (M to XXL)

- Optimum fit through range of sizes

PRODUCT REFERENCE

- VS 5 POLYRAN®-L-S
- COUNTRY OF ORIGIN: GERMANY

WEIGHT: approx. 6 kg without extras, in size L, with footlets/boots: ■ approx. 1.75 kg ■ ■

COLOUR: signal yellow (outside), signal red or Nato olive (outside)

SERVICE LIFE: 15 years: 10 years, then inspection for a 5 year extension
-> optional: SMART STOCK (5 years maintenance free, vacuum packed with seal)

ORDERING DATA, VS 5 POLYRAN-L-S

-> Note: see size charts (standard gloves: size 10 (see size chart) or st. protective boots: size 46 (43-47))

Sizes 150 to 165 cm	Order no.: 0201-151 S
Sizes 160 to 175 cm	Order no.: 0201-151 M
Sizes 170 to 185 cm	Order no.: 0201-151 L
Sizes 180 to 190 cm	Order no.: 0201-151 XL (standard)
Sizes 190 to 200 cm	Order no.: 0201-151 XXL

ALL PRODUCTS INCLUDE

- Participation in TESIMAX SERVICE POOL for reusable protective suits, available worldwide
- Participation in TESIMAX RTT training for reusable protective suits, available in Germany
- Standard nylon storage bag, black

OPTIONAL FUNCTIONS AND ACCESSORIES -> see Accessories.

Property rating, VS 5 POLYRAN-L-S

Chemical resistance	■■■■■
Mechanical resistance	■■■■■
Heat: Contact heat at approx. 850 ±50 °C	■■■■■
Heat: Hot vapour at about 350 °C	■■■■■
Heat: Radiant heat at about 1000 °C	Not tested
Cold: Contact cold at -30 °C	■■■■■
Cold: Contact cold at -80 °C	not tested
Cold: Contact cold at -100 °C	not tested





Suit description, VS 5 CHEMBA (limited use)

CHEMBA protective suits – special features

- Limited use CBRN protective suits with integrated chemicals barrier (facing outwards) according to protection level EN 943-1/-2: 1a (ET)
- Outstanding chemical protection for up to 8 h (industrial chemicals, EN 943) & according to 24-hour gas tests (CWA Finabel 0.7 C Nato standard)
- Chemical permeation protection according to manufacturer's list (against approx. 150 hazardous substances)
- Unique, double-walled material structure (film laminates on both sides) made of chemical- and abrasion-resistant barrier laminates with superior puncture resistance, on a matrix plastic base material (centrally located).
- High protective performance, puncture- and abrasion-resistance as well as mechanical robustness ensure the wearer's safety
- Approved for use in hazardous areas.
- Totally encapsulated suit type 1a-ET (SCBA inside)
- These protective suits unite excellent quality with high-grade materials.

VS 5 CHEMBA

- One-piece (gas-tight) chemical/firefighter protective suit (ET: Emergency Team) with permanently integrated VS 5 3-layer PTFE visor (antifog), gas-tight zip (130 cm) with protective cover, permanently fitted protective gloves/boots, integrated strain-relief belt and pressure relief valves with triple cover and protection (incl. HPF membrane).
- Subsequently referred to as "CPS" (chemical protective suit) for unrestricted operational tasks in fire services, industry, plant fire brigades and military: ET (Emergency Teams); classification according to EN 943-1/-2 standard: type 1a ET = gas-tight chemical protective suit with an ambient air-independent breathing air supply worn inside the chemical protective suit, e.g. compressed air equipment.

CHEMBA FABRIC

- The CHEMBA® (Eptaform®) fabric consists of a highly chemicals resistant multi-layer barrier laminate combined with a mechanically durable PA matrix base fabric. The unique MATERIAL DOUBLE PROTECTION SHIELD TECHNOLOGY offers superior, unlimited safety in use and complies with EN 943 (puncture resistance class 3). And yet the VS 5 CHEMBA® protection suit is ultra-light and flexible. Bright orange signal colour for increased work safety.

TOP SEAM

- Seam technology: high-quality stitched, chemically and thermally robust thermo-taped seam covering

EQUIPMENT

- Face shield with flexible VS 5 visor (antifog inner coating, triple laminate, mechanically robust, including chemically resistant PTFE barrier) permanently connected/integrated with the protective suit.

ZIP FASTENER

- With liquid- and gas-tight HPP zip (approx. 130 cm), chemicals and thermally resistant, sewn with protective suit and permanently joined to TOP seam cover. Closes from top to bottom for safety. Zip on the right side.
- > Including fabric cover
- > Optional labyrinth fabric cover

PROTECTIVE GLOVES

- Standard interchangeable protective gloves: WIPAN C – standard size 10 HPF elastomer CBRN protective glove with barrier laminate inner glove; colour: black
- Protective gloves-standard: permanently integrated, not changeable.

FOOTLETS OF SUIT MATERIAL (STANDARD)

- The footlets made of suit material also have a drip cuff. This allows the wearer to slip into an optional protective boot and fold the drip cuffs over the boot for additional splash protection.
- > Optional: PROTECTIVE BOOTS: As VS 5 CHEMBA ST variant also available with fixed protective boots.

RECOMMENDED ADDITIONAL EQUIPMENT

- Standard protective boot: HPF ULTRA-CHEM-BLACK SA-BF; standard size: 46; HPF elastomer protective boot with FPA approval according to EN 15090, EN ISO 20345 S5 HRO SRC, EN 13832-3, EN 13287; colour: black
- > Other sizes: 43 to 47 (please specify when ordering)
- > Alternatively: protective boots HPF HPF ULTRA-CHEM-GREEN HAZGUARD® or HPF CHEM POLYRAN ACIFORT®
- Standard forced ventilation system: Narghilè system (360° rotatable external connection with internal Euro coupling – optionally available with TESIMAX F-AU T connector (internal air distribution with 2 plug-in nipples and a coupling for use with SCBA; see F-AU/CHEMBA user manual(s). Please enquire.

INTEGRATED EQUIPMENT

- Permanently integrated strain relief belt
- Cotton undershorts

APPLICATIONS: Pharmaceuticals, clinics, military and civil defence, industry, shipping and fire brigades (unlimited)

OVERVIEW OF STANDARDS

- APPROVALS (according to PPE Regulation (EU) 2016/425)

Additional sub-standards and approvals apply to protective suits made of CHEMBA (Eptaform), PE-D (Duoform) and PE-T (Tessaform)

- EN ISO 13688 = protective clothing – General requirements
- EN 943-1/-2 = type 1a-ET protective clothing (Emergency Teams) made of CHEMBA (Eptaform)
- EN 14126 = protection against biological agents "B"
- EN 1073-2 = particle-tight protective clothing
- EN 1149 = antistatic properties, dissipative (static inhibitor, ex factory)
- CBRN Finabel 0.7 GAS-TESTED (gases – complete protective suit with components) – only CHEMBA & PE-T
- > Note: The current product certificate and technical product documentation apply.

SIZES: Four individual sizes (M to XXL)

- Optimum fit through range of sizes

PRODUCT REFERENCE

- VS 5 CHEMBA® • COUNTRY OF ORIGIN: GERMANY

WEIGHT: approx. 2.5 kg without extras, in size L, with footlets/boots: approx. 1.75 kg

COLOUR:  signal orange (outside)

SERVICE LIFE: 15 years: 10 years, then inspection for a 5 year extension
-> optional: SMART STOCK (5 years maintenance free, vacuum packed with seal)

ORDERING DATA VS 5 CHEMBA

-> Note: see size charts (standard gloves: size 10 (see size chart) or st. protective boots: size 46 (43-47))

Sizes 150 to 165 cm	Order no.: 0201-163 S
Sizes 160 to 175 cm	Order no.: 0201-163 M
Sizes 170 to 185 cm	Order no.: 0201-163 L
Sizes 180 to 190 cm	Order no.: 0201-163 XL (standard)
Sizes 190 to 200 cm	Order no.: 0201-163 XXL

Version with forced ventilation Narghilè system:

Order no.: 0201-163 FNL (VS 5 CHEMBA FNL)

Version with forced permanently fitted protective boots:

Order no.: 0201-163 ST (VS 5 CHEMBA ST)

Version with forced ventilation and permanently fitted protective boots:

Order no.: 0201-163 ST (VS 5 CHEMBA ST FNL)

Recommended accessories for VS 5 CHEMBA FNL:

T-connector air distribution with 2 Euro sealing nipple and 1 x Euro coupling, order no.: 0250-025

ALL PRODUCTS INCLUDE

- Standard film packaging, transparent
- 5-finger cotton undershorts
- Technical documentation
- > Optional: different textile storage bag (hanging or lying storage)
- > Optional: plastic CPS transport boxes

OPTIONAL FUNCTIONS AND ACCESSORIES -> see Accessories.

Property rating, VS 5 CHEMBA

Chemical resistance	
Mechanical resistance	
Heat: Contact heat at approx. 850 ±50 °C	
Heat: Hot vapour at approx. 350 °C	Not tested
Heat: Radiant heat at about 1000 °C	Not tested
Cold: Contact cold at -30 °C	
Cold: Contact cold at -80 °C	not tested
Cold: Contact cold at -100 °C	not tested





VSFF 5 VSFF 20 SERIES

VSF 5/VSF 20 SERIES

PTFE 3-layer visor (antifog) with ANGEL LIGHT (optional)



WIPAN C/CK/CK+
One glove for all (standard: QUICK exchange system)



Power forced ventilation system F-AU 3 with integrated noise reduction (internal) and Safety coupling



HPF CHEM BOOT (ULTRA or P-L)
Safety boots



HPF ULTRA
Zip
(SYKAN)



VSF 5/20 series: Gas-tight totally encapsulated suit
- Forced breathing air supply with positive pressure (hose)

The standard equipment varies depending on the model

- **VSF 20:** One-piece (gas-tight) chemical/firefighter protective suit with interchangeable VSF 20 3-layer PTFE visor (antifog), gas-tight zip (180 cm), partly with labyrinth cover, permanently fitted protective gloves/boots, integrated braces and two T500 pressure relief valves with dual cover/protection (incl. HPF membrane).
- **VSF 5:** One-piece (gas-tight) chemical/firefighter protection suit with permanently fitted VS 5 triple PTFE visor (antifog), gas-tight zip (130 cm), permanently fitted protective gloves/boots, integrated braces, 3 x T500 pressure relief valves and 1 x special (spring-loaded) pressure relief valve, with dual cover (incl. HPF membrane).
- CPS (chemical protective suit) for unlimited use in industry
- Classification by standard: Type 1c = gas-tight chemical protective suit with positive pressure breathing air supply, e.g. from external compressed-air lines, cylinder carts or compressors (observe minimum pressures).
- These CPS unite excellent workmanship with high-grade materials.
- All popular firefighter helmets and industrial hard hats can be worn under the suit. We recommend a helmet, for example according to EN 443 for firefighter helmets for technical rescue, to EN 397 for industrial hard hats and to EN 12492 for mountaineering helmets (see accessories).
- Service life: 15 years: 10 years, then inspection: + 5 years
- Optional: SMART STOCK (5 years maintenance-free, vacuum packaged with seal)
- Sizes: Four individual sizes (M to XXL)
- Optimum fit through range of sizes
- Perfect design also at critical points

VSF 5/20 - approvals (according to PPE Regulation (EU) 2016/425)

Plus further supplementary standards/approvals (vary, depending on model)
Apply to VSF 20 protective suits made of SYKAN® and POLYRAN-L/S/SUPERLIGHT protective suits:

- DIN EN ISO 13688 = protective clothing - General requirements
- DIN EN 943-1 = protective clothing type 1a- (industry)
- EN 14126 = protection against biological agents "B"
- EN 1073-2 = particle-tight protective clothing
- EN 1149 = antistatic properties, conductive

For further options, see CPS Accessories.





Suit description, VSF 5 POLYRAN-L-S (reusable)

POLYRAN®-L-S protective suits – special features

- Flame-retardant, reusable CBRN protective suits with integrated chemicals barrier (facing outwards) according to protection level EN 943-1(-2): 1a/b/c
- Outstanding chemical protection for up to 8 h (industrial chemicals, EN 943) & according to 24-hour gas tests (CWA Finabel 0.7 C Nato standard)
- Chemical permeation protection according to manufacturer's list (against approx. 1000 hazardous substances)
- Patented material blend of chemicals- and abrasion-resistant HPF elastomers and barrier laminate on a PA matrix base fabric: Made in Germany.
- High protective performance, puncture- and abrasion-resistance as well as mechanical robustness ensure the wearer's safety (REAL REUSABLE protective suits)
- Approved for use in hazardous areas.
- Totally encapsulated suit type 1a ET (SCBA inside), 1b ET (SCBA outside) for work in confined spaces as well as 1c (without SCBA, with compressed air forced ventilation)
- These protective suits unite excellent quality with high-grade materials.

VSF 5 POLYRAN-L-S

- One-piece (gas-tight) chemical/firefighter protective suit with permanently fitted VS 5 visor (permanent antifog inner coating), gas, tight zip (130 cm), permanently fitted protective gloves/boots, integrated braces, 3 x T500 pressure relief valves and 1 x special (spring-loaded) pressure relief valve, with dual cover (incl. HPF membrane).
- Subsequently referred to as "CPS" (chemical protective suit) for unrestricted operational tasks in industry, plant fire brigades and military: classification according to EN 943-1(-2) standard: type 1c = gas-tight chemical protective suit with a positive-pressure breathing air supply, e.g. from external compressed air lines, cylinder carts or compressors (observe minimum pressures).

POLYRAN-L/S FABRIC

- Matrix polyamide base fabric coated on both sides with POLYRAN® (Performance TP)

TOP SEAM

- Seam technology: high-quality stitching, chemical-thermal robustness (para-aramid thread) and double thermo-taped seam cover (inside and with outside)

EQUIPMENT

- Face shield w interchangeable VS 20 visor (antifog inner coating, triple laminate (mechanically robust), chemicals-resistant PTFE barrier in patented, robust HPF plastic-aluminium frame, screwed and secured. -> Optional: self-adhesive, exchangeable tear-off visor (included: with VS 20 SILVERFLASH®)

ZIP FASTENER

- With liquid- and gas-tight P-L-S elastomer zip (180 cm), chemicals and thermally resistant, sewn with protective suit and permanently welded (not glued) to TOP seam cover. Closes from bottom to top for safety. Zip on the right side.
- > Optional labyrinth fabric cover

PROTECTIVE GLOVES

- Standard interchangeable protective gloves: MECH BLUE 351 - standard size 10, NBC protective glove with integrated cotton lining; colour: blue
- > Other sizes please enquire.
- > Altern. Protective gloves (CBRN): WIPAN B+ (0.3, 0.5, 1.5), WIPAN CK-PRO, WIPAN CK or WIPAN CK+
- Standard WT protective gloves: Steel glove change system
- > Alternative: Quick-lock glove system

PROTECTIVE BOOTS

- Standard interchangeable protective boot: HPF CHEM POLYRAN ACI-FORT® – standard size 46 HPF elastomer protective boot according to EN ISO 20345 S5 SRA AN; colour: black
- > Other sizes: 43 to 47 (please specify when ordering)
- > Alternatively: protective boots: HPF ULTRA-CHEM-GREEN HAZGUARD® / HPF ULTRA-CHEM-BLACK SA-BF (FPA)
- > Alternatively: footlets made of suit material with drip cuff GAS-TIGHT T-FIX ROPE GUIDE

FORCED VENTILATION SYSTEM

- For connection to a suitable compressed air supply hose system, external
- With integrated, automatic forced ventilation system (F-AU 3), LED monitoring (ANGEL SIGNAL) and flat-face power safety coupling (adapter to Euro coupling required). Internal ventilation with integrated silencer for optimised communication.
- > Alternatively: For further options for the ventilation system please enquire (F-AU series)

INTEGRATED EQUIPMENT

- Permanently integrated, exchangeable standard braces for size adjustment (type 1)
- Radio device pocket, inside
- Backpack padding, inside (normative mandatory)

APPLICATIONS: Pharmaceuticals, clinics, military and civil defence, industry, shipping and fire brigades (unlimited)

OVERVIEW OF STANDARDS

- APPROVALS (according to PPE Regulation (EU) 2016/425)

Additional sub-standards/approvals apply to protective suits made of SYKAN® 1-2-4, POLYRAN-L-S (superlight) and SILVERFLASH® protective suits:

- EN ISO 13688 = protective clothing – General requirements
- EN 943-1(-2)= protective clothing type 1c (industry) made of POLYRAN-L-S
- EN 14126 = protection against biological agents "B"
- EN 1073-2 = particle-tight protective clothing
- EN 1149 = antistatic properties, dissipative (static inhibitor, ex factory)
- CBRN Finabel 0.7 GAS-TESTED (gases – complete protective suit with components)
- > Note: The current product certificate and technical product documentation apply.

SIZES: Four individual sizes (M to XXL)

- Optimum fit through range of sizes

PRODUCT REFERENCE

- VSF 5 POLYRAN®-L-S • COUNTRY OF ORIGIN: GERMANY

WEIGHT: approx. 6.5 kg without extras, in size L, with footlets/boots: approx. 1.75 kg

COLOUR: ■ signal yellow (outside), ■ signal red (outside) or ■ Nato olive (outside)

SERVICE LIFE: 15 years: 10 years, then inspection for a 5 year extension -> optional: SMART STOCK (5 years maintenance free, vacuum packed with seal)

ORDERING DATA, VSF 5 POLYRAN-L-S

-> Note: see size charts (standard gloves: size 10 (see size chart) or st. protective boots: size 46 (43-47))

Sizes 150 to 165 cm	Order no.: 0202-151 S
Sizes 160 to 175 cm	Order no.: 0202-151 M
Sizes 170 to 185 cm	Order no.: 0202-151 L
Sizes 180 to 190 cm	Order no.: 0202-151 XL (standard)
Sizes 190 to 200 cm	Order no.: 0202-151 XXL

ALL PRODUCTS INCLUDE

- Participation in TESIMAX SERVICE POOL for reusable protective suits, available worldwide
- Participation in TESIMAX RTT training for reusable protective suits, available in Germany
- Standard nylon storage bag, black

OPTIONAL FUNCTIONS AND ACCESSORIES -> see Accessories.

Property rating, VSF 5 POLYRAN-L-S

Chemical resistance	■■■■■
Mechanical resistance	■■■■■
Heat: Contact heat at approx. 850 ±50 °C	■■■■■
Heat: Hot vapour at about 350 °C	■■■■■
Heat: Radiant heat at about 1000 °C	Not tested
Cold: Contact cold at -30 °C	■■■■■
Cold: Contact cold at -80 °C	not tested
Cold: Contact cold at -100 °C	not tested





Suit description, VSF 20 POLYRAN-L-S (reusable)

POLYRAN®-L-S protective suits – special features

- Flame-retardant, reusable CBRN protective suits with integrated chemicals barrier (facing outwards) according to protection level EN 943-1(-2): 1a/b/c
- Outstanding chemical protection for up to 8 h (industrial chemicals, EN 943) & according to 24-hour gas tests (CWA Finabel 0.7 C Nato standard)
- Chemical permeation protection according to manufacturer's list (against approx. 1000 hazardous substances)
- Patented material blend of chemicals- and abrasion-resistant HPF elastomers and barrier laminate on a PA matrix base fabric: Made in Germany.
- High protective performance, puncture- and abrasion-resistance as well as mechanical robustness ensure the wearer's safety (REAL REUSABLE protective suits)
- Approved for use in hazardous areas.
- Totally encapsulated suit type 1a ET (SCBA inside), 1b ET (SCBA outside) for work in confined spaces as well as 1c (without SCBA, with compressed air forced ventilation)
- These protective suits unite excellent quality with high-grade materials.

VSF 20 POLYRAN-L-S

- One-piece (gas-tight) chemical protective suit (industry) with interchangeable VS 20 visor (permanent antifog inner coating), gas-tight zip (180 cm), permanently fitted protective gloves/- boots, integrated braces (type 1) and pressure relief valves with triple cover and protection (incl. HPF membrane).
- Subsequently referred to as "CPS" (chemical protective suit) for unrestricted operational tasks in industry, plant fire brigades and military: classification according to EN 943-1(-2) standard: type 1c = gas-tight chemical protective suit with a positive-pressure breathing air supply, e.g. from external compressed air lines, cylinder carts or compressors (observe minimum pressures).

POLYRAN-L/S FABRIC

- Matrix polyamide base fabric coated on both sides with POLYRAN® (Performance TP)

TOP SEAM

- Seam technology: high-quality stitching, chemical-thermal robustness (para-aramid thread) and double thermo-taped seam cover (inside and with outside)

EQUIPMENT

- Face shield w interchangeable VS 20 visor (antifog inner coating, triple laminate (mechanically robust), chemicals-resistant PTFE barrier in patented, robust HPF plastic-aluminium frame, screwed and secured. -> Optional: self-adhesive, exchangeable tear-off visor (included: with VS 20 SILVERFLASH®)

ZIP FASTENER

- With liquid- and gas-tight P-L-S elastomer zip (180 cm), chemicals and thermally resistant, sewn with protective suit and permanently welded (not glued) to TOP seam cover. Closes from bottom to top for safety. Zip on the right side.
- > Optional labyrinth fabric cover

PROTECTIVE GLOVES

- Standard interchangeable protective gloves: MECH BLUE 351 - standard size 10, NBC protective glove with integrated cotton lining; colour: blue
- > Other sizes please enquire.
- > Altern. Protective gloves (CBRN): WIPAN B+ (0.3, 0.5, 1.5), WIPAN CK-PRO, WIPAN CK or WIPAN CK+
- Standard WT protective gloves: Steel glove change system
- > Alternative: Quick-lock glove system

PROTECTIVE BOOTS

- Standard interchangeable protective boot: HPF CHEM POLYRAN ACI-FORT® - standard size 46 HPF elastomer protective boot according to EN ISO 20345 S5 SRA AN; colour: black
- > Other sizes: 43 to 47 (please specify when ordering)
- > Alternatively: protective boots: HPF ULTRA-CHEM-GREEN HAZGUARD® / HPF ULTRA-CHEM-BLACK SA-BF (FPA)
- > Alternatively: footlets made of suit material with drip cuff GAS-TIGHT T-FIX ROPE GUIDE

INTEGRATED BELAY SYSTEM

- Particle-, gas- and liquid-tight rope guide with lanyard (inside) and steel eyelet (outside) as anchorage points for harness (inside) and vertical belay system (outside).

FORCED VENTILATION SYSTEM

- For connection to a suitable compressed air supply hose system, external
- With integrated, automatic forced ventilation system (F-AU 3), LED monitoring (ANGEL SIGNAL) and flat-face power safety coupling (adapter to Euro coupling required). Internal ventilation with integrated silencer for optimised communication.
- > Alternatively: For further options for the ventilation system please enquire (F-AU series)

INTEGRATED EQUIPMENT

- Permanently integrated, exchangeable standard braces for size adjustment (type 1)
- Radio device pocket, inside
- Backpack padding, inside (normative mandatory)

APPLICATIONS: Pharmaceuticals, clinics, military and civil defence, industry, shipping and fire brigades (unlimited)

OVERVIEW OF STANDARDS

- **APPROVALS (according to PPE Regulation (EU) 2016/425)**
Additional sub-standards/approvals apply to protective suits made of SYKAN® 1-2-4, POLYRAN-L-S (superlight) and SILVERFLASH® protective suits:

- EN ISO 13688 = protective clothing – General requirements
- EN 943-1(-2) = protective clothing type 1c (industry) made of POLYRAN-L-S
- EN 14126 = protection against biological agents "B"
- EN 1073-2 = particle-tight protective clothing
- EN 1149 = antistatic properties, dissipative (static inhibitor, ex factory)
- CBRN Finabel 0.7 GAS-TESTED (gases – complete protective suit with components)
- > Note: The current product certificate and technical product documentation apply.

SIZES: Four individual sizes (M to XXL)

- Optimum fit through range of sizes

PRODUCT REFERENCE

- VSF 20 POLYRAN®-L-S • COUNTRY OF ORIGIN: GERMANY

WEIGHT: approx. 6.5 kg without extras, in size L, with footlets/boots: approx. 1.75 kg

COLOUR: ■ signal yellow (outside), ■ signal red or ■ Nato olive (outside)

SERVICE LIFE: 15 years: 10 years, then inspection for a 5 year extension
-> optional: SMART STOCK (5 years maintenance free, vacuum packed with seal)

ORDERING DATA, VSF 20 POLYRAN-L-S

-> Note: see size charts (standard gloves: size 10 (see size chart) or st. protective boots: size 46 (43-47))

Sizes 150 to 165 cm	Order no.: 0221-151 S
Sizes 160 to 175 cm	Order no.: 0221-151 M
Sizes 170 to 185 cm	Order no.: 0221-151 L
Sizes 180 to 190 cm	Order no.: 0221-151 XL (standard)
Sizes 190 to 200 cm	Order no.: 0221-151 XXL

ALL PRODUCTS INCLUDE

- Participation in TESIMAX SERVICE POOL for reusable protective suits, available worldwide
- Participation in TESIMAX RTT training for reusable protective suits, available in Germany
- Standard nylon storage bag, black

OPTIONAL FUNCTIONS AND ACCESSORIES -> see Accessories.

Property rating, VSF 20 POLYRAN-L-S

Chemical resistance	■■■■■
Mechanical resistance	■■■■■
Heat: Contact heat at approx. 850 ±50 °C	■■■■■
Heat: Hot vapour at about 350 °C	■■■■■
Heat: Radiant heat at about 1000 °C	Not tested
Cold: Contact cold at -30 °C	■■■■■
Cold: Contact cold at -80 °C	not tested
Cold: Contact cold at -100 °C	not tested

Illustration with labyrinth cover





GS 3 SERIES

GS 3/GS 3M series

Can be combined with various full-face masks



One glove for all tasks –
WIPAN C/CK/CK+
(optional: QUICK exchange system)



HPF CHEM BOOT (+/P-L)
Safety boots



Betreten
verboten
Lebensgefahr!

GS 3(M) series: Gas-tight totally encapsulated suit - External SCBA (with mask)

The standard equipment varies depending on the model

- One-piece (gas-tight) chemical/firefighter protective suit, with super-soft face seal in the hood, for safe (gas-tight) closure under full-face breathing masks, gas-tight zip (on GS 3 130 cm horizontal at back, with vertical option; on GS 3M 130 cm horizontal at back, with 180 cm on right side optional – please specify when ordering), partly with labyrinth cover, permanently fitted protective gloves, boots and pressure relief valves, dual cover/protection (incl. HPF membrane).
- CPS (chemical protective suit) for unlimited use by firefighters This CPS unites an excellent workmanship with high-grade materials.

• **GS 3 SERIES**, EN 943 type 1b ET – protective suit with detachable mask: The open field of vision has a special high-performance fluorelastomer face seal in combination with a (firefighting) approved respiratory mask (flexible). The GS 3 series can be used with most (tested) breathing apparatus and full-face masks (for selection please enquire). Mask externally secured.

• **GS 3M series**, EN 943 type 1b ET – protective suit with permanently fitted mask: The open field of vision has a special high-performance fluorelastomer face seal in combination with an integrated, permanently fitted (firefighting) approved respiratory mask. The GS 3 M series can be used with most (tested) breathing apparatus and full-face masks (for selection please enquire) – mask externally secured.

- These CPS unite excellent workmanship with high-grade materials.
- All popular firefighter helmets and industrial hard hats can be worn with the suit. We recommend a helmet, for example according to EN 443 for firefighter helmets for technical rescue, to EN 397 for industrial hard hats and to EN 12492 for mountaineering helmets (see accessories).
- Service life: 15 years: 10 years, then inspection: + 5 years
- Optional: SMART STOCK (5 years maintenance-free, vacuum packaged with seal)
- Sizes: Four individual sizes (M to XXL)
- Optimum fit through range of sizes
- Perfect design also at critical points

GS 3(M) – approvals (according to PPE Regulation (EU) 2016/425)

Plus further supplementary standards/approvals (vary, depending on model)
Apply to GS 3(M) protective suits made of SYKAN®, POLYRAN-L/S/SUPERLIGHT or SILVERFLASH®:

- | | |
|--------------------|--|
| - DIN EN ISO 13688 | = Protective clothing – General requirements |
| - EN 943-1/-2 | = type 1b-ET protective clothing (Emergency Teams) made of SYKAN/SILVERFLASH |
| - EN 943-1 | = type 1b protective clothing (industry) made of POLY- |
| RAN-L-S | |
| - EN 14126 | = protection against biological agents “B” |
| - EN 1073-2 | = particle-tight protective clothing |
| - EN 1149 | = antistatic properties, conductive |
| - SOLAS | = national BG Verkehr approval for “maritime (on board) uses” |

For further options, see CPS Accessories.





Suit description, GS 3 / GS 3 M POLYRAN L-S (reusable):

POLYRAN-L-S protective suits – special features

- Flame-retardant, reusable CBRN protective suits with integrated chemicals barrier (facing outwards) according to protection level EN 943-1(-2): 1a/b/c
- Outstanding chemical protection for up to 8 h (industrial chemicals, EN 943) & according to 24-hour gas tests (CWA Finabel 0.7 C Nato standard)
- Chemical permeation protection according to manufacturer's list (against approx. 1000 hazardous substances)
- Patented material blend of chemicals- and abrasion-resistant HPF elastomers and barrier laminate on a PA matrix base fabric: Made in Germany.
- High protective performance, puncture- and abrasion-resistance as well as mechanical robustness ensure the wearer's safety (REAL REUSABLE protective suits)
- Approved for use in hazardous areas.
- Totally encapsulated suit type 1a ET (SCBA inside), 1b ET (SCBA outside) for work in confined spaces as well as 1c (without SCBA, with compressed air forced ventilation)
- These protective suits unite excellent quality with high-grade materials.

GS 3 POLYRAN-L-S

- One-piece (gas-tight) chemical/firefighter protective suit, with super-soft face seal in the hood, for safe (gas-tight) closure under full-face breathing masks, gas-tight zip (on GS 3 130 cm horizontal at back, with vertical option; on GS 3M 130 cm horizontal at back, with 180 cm on right side optional – please specify when ordering), partly with labyrinth cover, permanently fitted protective gloves, boots and pressure relief valves, dual cover/protection (incl. HPF membrane).
- CPS (chemical protective suit) for unlimited industry/firefighter use This CPS unites an excellent workmanship with high-grade materials.
- **GS 3 SERIES**, EN 943 type 1b – protective suit with detachable mask: The open field of vision has a special high-performance fluorelastomer (HPF) face seal in combination with a (firefighting) approved respiratory mask (flexible). The GS 3 series can be used with most (tested) breathing apparatus and full-face masks. For selection, please enquire). **Mask externally secured.**
- **GS 3M series**, EN 943 type 1b – Protective suit with permanently fitted mask: The open field of vision has a special high-performance fluorelastomer (HPF) face seal in combination with an integrated, permanently fitted (firefighting) approved respiratory mask. The GS 3 M series can be used with most (tested) breathing apparatus and full-face masks (for selection please enquire) – **mask internally secured.**

POLYRAN-L/S FABRIC

- Matrix polyamide base fabric coated on both sides with POLYRAN® (Performance TP)

TOP SEAM

- Seam technology: high-quality stitching, chemical-thermal robustness (para-aramid thread) and double thermo-taped seam cover (inside and with outside)

EQUIPMENT

- Face seal
- With HPF moulded rubber seal in the hood, for secure (gas-tight) closure under full-face breathing masks, mechanically robust, chemically resistant, permanently connected/integrated with the protective suit.

ZIP FASTENER

- With liquid- and gas-tight P-L-S elastomer zip (130 cm), chemicals and thermally resistant, sewn with protective suit and permanently welded (not glued) to TOP seam cover. Closes from bottom to top for safety. Zip on the back.
- > Optional labyrinth fabric cover

PROTECTIVE GLOVES

- Standard interchangeable protective gloves: MECH C – standard size 10 HPF elastomer NBC protective glove with integrated cotton lining; colour: black
- > For other sizes, please enquire
- > altern. protective gloves (CBRN): WIPAN B+ (0.3, 0.5, 1.5), WIPAN CK-PRO, WIPAN CK or WIPAN CK+
- Standard WT protective gloves: Steel glove change system.
- > Alternative: Quick-lock glove system

PROTECTIVE BOOTS

- Standard interchangeable protective boots: HPF CHEM POLYRAN ACIFORT®, standard size: 46; HPF elastomer protective boot according to EN ISO 20345 S5 SRA AN; colour: black
- > Other sizes: 43-47 (please specify when ordering)
- > Alternatively: protective boot HPF ULTRA-CHEM-GREEN HAZGUARD® or HPF ULTRA-CHEM-BLACK SA-BF (FPA)
- > Alternative: footlets made of suit fabric, with drip cuff

INTEGRATED EQUIPMENT

- Permanently integrated, exchangeable standard braces for size adjustment (type 1)
- Radio device pocket, inside
- Backpack padding, inside (normative mandatory)

APPLICATIONS: Pharmaceuticals, clinics, military and civil defence, industry, shipping and fire brigades (unlimited)

OVERVIEW OF STANDARDS

- APPROVALS (according to PPE Regulation (EU) 2016/425)
Additional sub-standards/approvals apply to protective suits made of SYKAN® 1-2-4, POLYRAN-L-S (superlight) and SILVERFLASH® protective suits:

- EN ISO 13688 = protective clothing – General requirements
- DIN EN 943-1 = protective clothing type 1b (industry) made of POLYRAN-L-S
- EN 14126 = protection against biological agents “B”
- EN 1073-2 = particle-tight protective clothing
- EN 1149 = antistatic properties, dissipative (static inhibitor, ex factory)
- CBRN Finabel 0.7 GAS-TESTED (gases – complete protective suit with components)
- > Note: The current product certificate and technical product documentation apply.

SIZES: Four individual sizes (M to XXL)

- Optimum fit through range of sizes

PRODUCT REFERENCE

- GS 3 POLYRAN®-L-S • COUNTRY OF ORIGIN: GERMANY

WEIGHT: approx. 4 kg without extras, in size L, with footlets/boots: approx. 1.75 kg

COLOUR: ■ signal yellow (outside), ■ signal red or ■ Nato olive (outside)

SERVICE LIFE: 15 years: 10 years, then inspection for a 5 year extension
-> optional: SMART STOCK (5 years maintenance free, vacuum packed with seal)

ORDERING DATA, GS 3 POLYRAN-L-S

-> Note: see size charts (standard gloves: size 10 (see size chart) or st. protective boots: size 46 (43-47))

Sizes 150 to 165 cm	Order no.: 0222-151 S
Sizes 160 to 175 cm	Order no.: 0222-151 M
Sizes 170 to 185 cm	Order no.: 0222-151 L
Sizes 180 to 190 cm,	order no.: 0222-151 XL (standard)
Sizes 190 to 200 cm	Order no.: 0222-151 XXL

ORDERING DATA, GS 3 M POLYRAN-L-S

-> Note: see size charts (standard gloves: size 10 (see size chart) or st. protective boots: size 46 (43-47))

Sizes 150 to 165 cm	Order no.: 0223-151 S
Sizes 160 to 175 cm	Order no.: 0223-151 M
Sizes 170 to 185 cm	Order no.: 0223-151 L
Sizes 180 to 190 cm	Order no.: 0223-151 XL (standard)
Sizes 190 to 200 cm,	order no.: 0223-151 XXL

ALL PRODUCTS INCLUDE

- Participation in TESIMAX SERVICE POOL for reusable protective suits, available worldwide
- Participation in TESIMAX RTT training for reusable protective suits, available in Germany
- Standard nylon storage bag, black

OPTIONAL FUNCTIONS AND ACCESSORIES -> see Accessories.

Property rating, GS 3 (M) POLYRAN-L-S

Chemical resistance	■■■■■
Mechanical resistance	■■■■■
Heat: Contact heat at approx. 850 ±50 °C	■■■■■
Heat: Hot vapour at about 350 °C	■■■■■
Heat: Radiant heat at about 1000 °C	Not tested
Cold: Contact cold at -30 °C	■■■■■
Cold: Contact cold at -80 °C	not tested
Cold: Contact cold at -100 °C	not tested





Suit description, GS 3 & GS 3 M SILVERFLASH

MAIN FEATURES AND ADVANTAGES – SILVERFLASH protective suits

- Flame-retardant, reusable CBRN protective suits with integrated chemicals barrier (facing outwards) according to protection level EN 943-1/-2: 1a/b (ET)/1c
- Outstanding chemical protection for up to 8 h (industrial chemicals, EN 943) & according to 24-hour gas tests (CWA Finabel 0.7 C Nato standard)
- Chemical permeation protection according to manufacturer's list (against approx. 1000 hazardous substances)
- Patented material blend of chemicals- and abrasion-resistant HPF elastomers and barrier laminate on a PA matrix base fabric: Made in Germany.
- High protective performance, puncture- and abrasion-resistance as well as mechanical robustness ensure the wearer's safety (REAL REUSABLE protective suits)
- Approved for use in hazardous areas.
- Totally encapsulated suit type 1a ET (SCBA inside), 1b ET (SCBA outside) for work in confined spaces as well as 1c (without SCBA, with compressed air forced ventilation)
- These protective suits unite excellent quality with high-grade materials.

GS 3 SILVERFLASH

- One-piece (gas-tight) chemical/firefighter protective suit, with super-soft face seal in the hood, for safe (gas-tight) closure under full-face breathing masks, gas-tight zip (on GS 3 130 cm horizontal at back, with vertical option; on GS 3M 130 cm horizontal at back, with 180 cm on right side optional – please specify when ordering), partly with labyrinth cover, permanently fitted protective gloves, boots and pressure relief valves, dual cover/protection (incl. HPF membrane).
- CPS (chemical protective suit) for unlimited industry/firefighter use. This CPS unites an excellent workmanship with high-grade materials.

- **GS 3 SERIES**, EN 943 type 1b ET – protective suit with detachable mask: The open field of vision has a special high-performance fluorelastomer (HPF) face seal in combination with a (firefighting) approved respiratory mask (flexible). The GS 3 series can be used with most (tested) breathing apparatus and full-face masks (for selection please enquire). **Mask externally secured.**

- **GS 3M series**, EN 943 type 1b ET – protective suit with permanently fitted mask: The open field of vision has a special high-performance fluorelastomer (HPF) face seal in combination with an integrated, permanently fitted (firefighting) approved respiratory mask. The GS 3 M series can be used with most (tested) breathing apparatus and full-face masks (for selection please enquire) – **mask internally secured.**

SILVERFLASH FABRIC

- The fabric consists of a five-layered laminate that is aluminised on the outside. SILVERFLASH has a 100% para-aramid base fabric coated with high-performance fluorelastomers (HPF). An additional high-performance plastic (HPP) layer on the outside of the base fabric further protects the fabric. HPF (fluorelastomer) and HPP (PTFE fluorocarbon film) are unique protective suit material technology from Germany. This is a protective suit of the latest generation featuring hybrid technology. SILVERFLASH® fabric is quiet and is more comfortable to wear than “stiffer” protection suits, including foil types.

ULTRA SEAM

- Seam technology: high-quality stitching, chemical-thermal robustness (para-aramid thread) and double thermo-taped seam cover (inside and with external, patented PTFE barrier)

EQUIPMENT

- Face seal
- With HPF moulded rubber seal in the hood, for secure (gas-tight) closure under full-face breathing masks, mechanically robust, chemically resistant, permanently connected/integrated with the protective suit.

ZIP FASTENER

- With liquid- and gas-tight HPF-ULTRA zip (130 cm), including barrier film, chemicals and thermally resistant, sewn with protective suit and permanently welded (not glued) with ULTRA seam cover. Closes from bottom to top for safety. Zip on the back.
- > Including labyrinth fabric cover

PROTECTIVE GLOVES

- Standard interchangeable protective gloves: WIPAN CK – standard size 10 HPF elastomer CBRN protective glove with integrated cotton lining; colour: black
- > For other sizes, please enquire
- > altern. protective gloves (CBRN): WIPAN B+ (0.3, 0.5, 1.5), WIPAN CK-PRO, WIPAN CK or WIPAN CK+
- Standard WT protective gloves: Steel glove change system.
- > Alternative: Quick-lock glove system

PROTECTIVE BOOTS

- Standard interchangeable protective boot: HPF ULTRA-CHEM-BLACK SA-BF; standard size: 46
- HPF elastomer protective boots with FPA approval according to EN 15090, EN ISO 20345 S5 HRO SRC, EN 13832-3, EN 13287; colour: black
- > Other sizes: 43-47 (please specify when ordering)
- > Alternatively: protective boot HPF ULTRA-CHEM-GREEN HAZGUARD® or HPF CHEM POLYRAN ACIFORT®
- > Alternatively: footlets made of suit material with drip cuff

INTEGRATED EQUIPMENT

- Permanently integrated, exchangeable standard braces for size adjustment (type 1)
- Radio device pocket, inside
- Backpack padding, inside (normative mandatory)

APPLICATIONS: Pharmaceuticals, clinics, military and civil defence, industry, shipping and fire brigades (unlimited)

OVERVIEW OF STANDARDS

- APPROVALS (according to PPE Regulation (EU) 2016/425)

Additional sub-standards/approvals apply to protective suits made of SYKAN® 1-2-4, POLYRAN-L-S (superlight) and SILVERFLASH® protective suits:

- EN ISO 13688 = protective clothing – General requirements
- EN 943-1/-2 = type 1a-ET (Emergency Teams) protective clothing made of SYKAN or SILVERFLASH
- EN 14126 = protection against biological agents “B”
- EN 1073-2 = particle-tight protective clothing
- EN 1149 = antistatic properties, dissipative (static inhibitor, ex factory)
- CBRN Finabel 0.7 GAS-TESTED (gases – complete protective suit with components)

-> Note: The current product certificate and technical product documentation apply.

- SIZES:** Four individual sizes (M to XXL)
- Optimum fit through range of sizes

PRODUCT REFERENCE

- GS 3 (M) SILVERFLASH
- COUNTRY OF ORIGIN: GERMANY

WEIGHT: approx. 4 kg without extras, in size L, with footlets/boots: approx. 1.75 kg

COLOUR: ■ silver reflective (outside)

SERVICE LIFE: 15 years: 10 years, then inspection for a 5 year extension
-> optional: SMART STOCK (5 years maintenance free, vacuum packed with seal)

ORDERING DATA, GS SILVERFLASH

-> Note: see size charts (standard gloves: size 10 (see size chart) or st. protective boots: size 46 (43-47))

Sizes 150 to 165 cm	Order no.: 0222-222 S
Sizes 160 to 175 cm	Order no.: 0222-222 M
Sizes 170 to 185 cm	Order no.: 0222-222 L
Sizes 180 to 190 cm	Order no.: 0222-222 XL (standard)
Sizes 190 to 200 cm	Order no.: 0222-222 XXL

ORDERING DATA, GS 3 M SILVERFLASH

-> Note: see size charts (standard gloves: size 10 (see size chart) or st. protective boots: size 46 (43-47))

Sizes 150 to 165 cm	Order no.: 0223-222 S
Sizes 160 to 175 cm	Order no.: 0223-222 M
Sizes 170 to 185 cm	Order no.: 0223-222 L
Sizes 180 to 190 cm	Order no.: 0223-222 XL (standard)
Sizes 190 to 200 cm	Order no.: 0223-222 XXL

ALL PRODUCTS INCLUDE

- Participation in TESIMAX SERVICE POOL for reusable protective suits, available worldwide
- Participation in TESIMAX RTT training for reusable protective suits, available in Germany
- Standard nylon storage bag, black

OPTIONAL FUNCTIONS AND ACCESSORIES -> see Accessories.

Property rating, GS 3/GS 3M SILVERFLASH

Chemical resistance	■■■■■■■■■■
Mechanical resistance	■■■■■■■■■■
Heat: Contact heat at approx. 850 ±50 °C	■■■■■■■■■■
Heat: Hot vapour at about 350 °C	■■■■■■■■■■
Heat: Radiant heat at about 1000 °C	■■■■■■■■■■
Cold: Contact cold at -30 °C	■■■■■■■■■■
Cold: Contact cold at -80 °C	■■■■■■■■■■
Cold: Contact cold at -100 °C	not tested





VSF 221 SERIES

VSF 21 SERIES

PTFE visor (antifog)



Powered filter unit Chemical-2F



Viewing/function window



HPF CHEM BOOT (+/P-L)
Safety boots



VSF 21 series: Totally encapsulated suit for use with powered filter unit

The standard equipment varies depending on the model

- One-piece complete (ventilated) chemical/firefighter protective suit with permanently fitted visor (antifog), simple, liquid-tight/partly gas-tight zip (not covered), permanently fitted protective gloves, boots or footlets, partially integrated braces (SYKAN/POLYRAN) and 3 pressure relief valves with cover/protection (incl. HPF membrane).
- For (unrestricted) operations in fire brigades, industry, works fire brigades and military.
- Standards classification: Type 1c/3 = protective suit against liquid and (partly) gaseous CBRN*/chemicals, including liquid aerosols and solid particles, and is also approved for protection against infective agents. * only with TESIMAX C2F powered filter unit with C2F ABEK2P3-CBRN optional filter/spray protection cover caps – the powered filter unit (CF2) that is used with all VSF 21 CPS.

- These CPS unite excellent workmanship with high-grade materials.
- All popular firefighter helmets and industrial hard hats can be worn under the suit. We recommend a helmet, for example according to EN 443 for firefighter helmets for technical rescue, to EN 397 for industrial hard hats and to EN 12492 for mountaineering helmets (see accessories).
- Service life: 5 to 10 years (disposable) to 15 years (reusable) according to manufacturer's guideline
- Sizes: Four individual sizes (M to XXL)
- Optimum fit through range of sizes
- Perfect design also at critical points

VSF 21 – approvals (according to PPE Regulation (EU) 2016/425)

Plus further supplementary standards/approvals (vary, depending on model) apply to VSF 21 PE-D, POLYRAN-L/S/SUPERLIGHT and SYKAN® protection suits:

- DIN EN ISO 13688 Protective clothing – General requirements
- EN 943 in conjunction with EN 12941 = Protective clothing against dangerous solid, liquid and gaseous chemicals, including liquid and solid aerosols - Part 1: Performance requirements for Type 1 (gas-tight) chemical protective suits; German version EN 943-1:2015+A1:2019 in conjunction with EN 12941: Respiratory protective devices - Powered filter units incorporating a helmet or a hood - Requirements, testing, marking; German version EN 12941:1998+A1:2003+A2:2008 = liquid-tight protective clothing = protection against biological agents "B" = antistatic properties, dissipative = (radioactive) particle-tight protective clothing
- DIN EN 14605 (Type 3)
- EN 14126
- EN 1149
- EN 1073-2

For further options, see CPS Accessories.



HPF ULTRA
Zip (SYKAN)

VENTILATION SYSTEM: C2F Powered filter unit in combination with C2F ABEK2P3-CBRN

• The protective suit is ventilated through an internal powered filter unit, whose optical alarm signal is visible to the wearer from the outside through a newly developed, transparent material. This TESIMAX-developed technology allows a partner check in action, as has been confirmed by safety experts from fire services, disaster relief organizations and the police. The transparent material has exactly the same material properties as the protection suit fabric.

• With the internal system, the fan (inside) is securely screwed to the respiratory protection filters (outside) via a gas-tight, double HPF elastomer seal (developed by TESIMAX). The external filters can be fitted with an optional splash guard, which provides additional splash protection (liquids) and protection against solids (particles). The ventilation system ensures a comfortable climate and sufficient ventilation inside the whole suit at a constant air throughput. The areas around head and body are sufficiently ventilated.

Note: The ventilation system (powered filter unit) must be ordered separately.

TESIMAX TIP:

Alternatively, the powered filter unit can also be worn outside. Ideal for combination with ESK series protective suits and ventilated hoods.

New generation of powered breathing apparatus for the filtration of contaminants in the form of gases, vapours, particles and combinations thereof.

Despite its compact size and low weight, the Chemical 2F offers high mechanical and chemical resistance as well as UV-resistance. Its design and IP64 protection class allow decontamination in the shower. The unique automatic locking system prevents penetration of hazardous materials during filter changes. The full colour display shows all relevant information.

Features and benefits

- Compact design and low weight
- High mechanical and chemical resistance
- Resistance to penetration by liquids and solid particles – IP64
- Decontamination possible in a shower
- Unique automatic locking system
- Enhanced electronic warning system
- Full colour TFT display for clear indication of all relevant information
- Individual working modes HOOD/MASK
- Air flow 120–235 l/m
- Lithium-ion battery and quick charger (charging time <3 h)

Applications

- Chemical industry
- Laboratories
- Pharmaceutical industry
- Renovation work

The new high-performance lithium-ion battery is finally available as a smart option for Chemical 2F®. The high-performance battery increases the operating time to up to 16 hours.

This means that you no longer need to change or charge the battery for a longer period of time when using a combination of gas and vapour filters.

Technical data

- Air flow 120–235 l/m
- Operating time up to 10 hours with standard battery or up to 16 hours with high-performance battery
- Weight 960 g (with standard battery)
- Noise emission level max. 62 dB
- Dimensions 240 mm x 110 mm x 120 mm
- Standard battery lithium-ion 14.4 V, 2.6 Ah
- High-performance battery lithium-ion 14.4 V, 5.2 Ah
- Certification to EN 12941 TH3, EN 12942 TM3

Product description

Complete sets
Chemical 2F with accessories
(comfort belt, charger, battery and air flow indicator)

Product code

51 00 00FCA

Spare parts, accessories

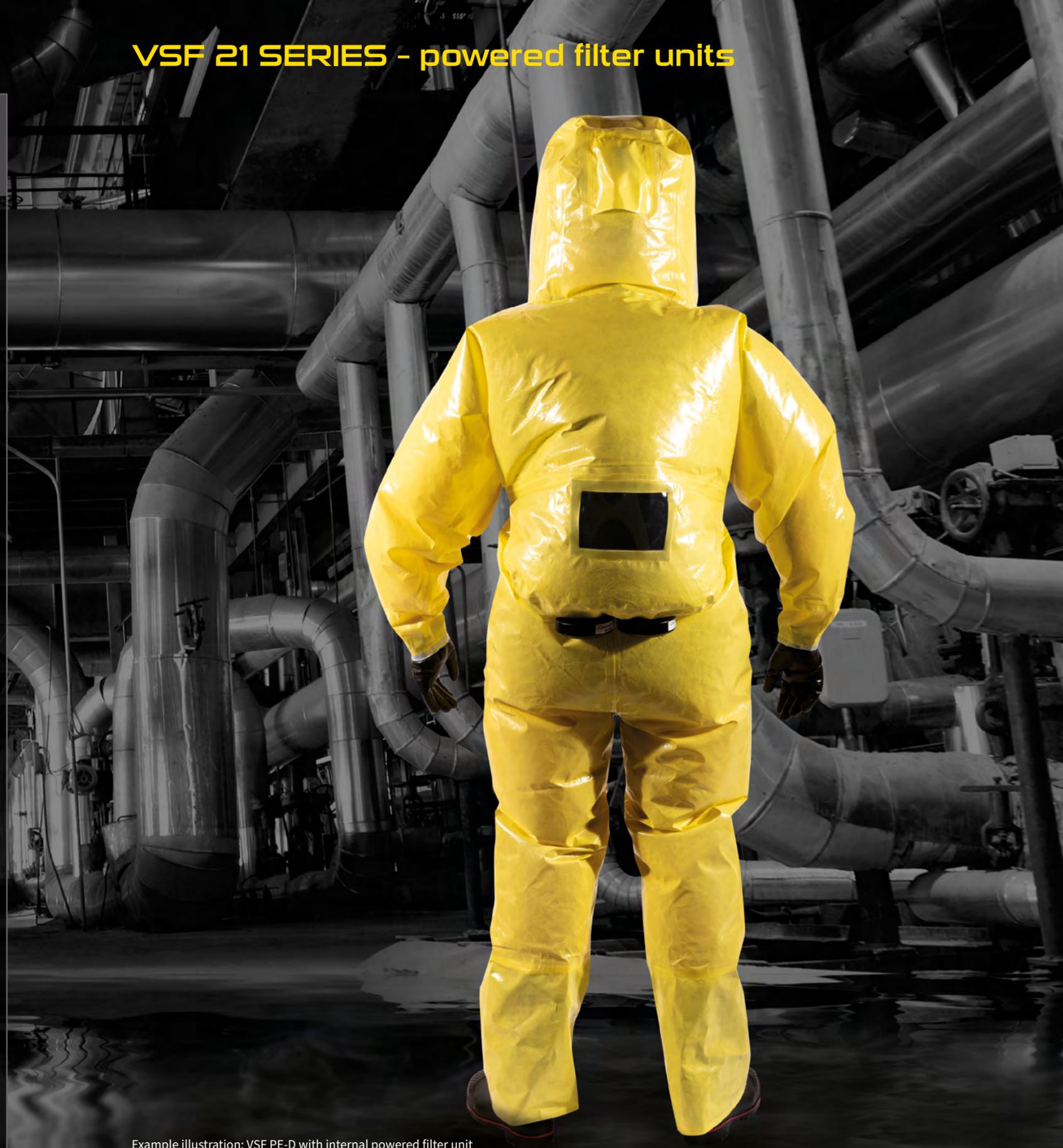
- Lightweight flexible QuickLOCK™ hose – CA40x1/7" 71 00 60
- QuickLOCK™ rubber hose – CA40x1/7" 71 00 86
- Padded comfort belt 2F 71 00 92
- Decontaminable belt 51 00 41
- Decontaminable harness 51 00 42
- Padded comfort harness 52 00 44.1
- Lithium-ion standard battery 14.4 V, 2.6 Ah 51 00 10
- Lithium-ion high-performance battery 14.4 V, 5.2 Ah 51 00 20
- Battery charger 51 00 30EUR
- Battery charger (UK plug) 51 00 30UK

Filters

- Particle filter P3 50 00 48
- Combined filter A2B2E2K2 P3 50 01 68
- Combined filter ABEK Hg P3 50 01 66

TESIMAX combination filter C2-F CBRN/NBC – A2B2E2K2P3 according to EN 12941, EN 12942, EN 14387, NBC gases

For our comprehensive range of filters, see this catalogue or enquire.



Example illustration: VSF PE-D with internal powered filter unit

VSF 21 SERIES - Filters for powered filter units

Our production program of CleanAIR® canister filters includes a wide range of filters for most industrial applications, the pharmaceutical industry, laboratories and agriculture.

The filters feature the standard connection thread RD40x1/7" according to EN 148-1.

Particle filters

They catch a wide range of solid particles in the form of liquid and solid aerosols such as dust, smoke, fibres, bacteria, viruses and radioactive particles.

Certification: EN 143, EN 12941, EN 12942

Gas filters

Provide protection against contaminants in the form of gases and vapours.

EN 14387, EN 12941, EN 12942

Combination filters

TESIMAX combination filter C2-F CBRN/NBC – A2B2E2K2P3 according to EN 12941, EN 12942, EN 14387, NBC gases

Provide protection against a combination of contaminants in the form of gases, vapours and solid particles. EN 14387, EN 12941, EN 12942

TYPES OF GAS FILTERS – APPLICATION EXAMPLES

Type: A • Colour code:

Areas of application: organic gases and vapours with a boiling point above 65 °C. The main group of these substances are hydrocarbons (e.g., toluene, benzene, xylene, styrene, cyclohexane, trichloroethylene, tetrachlormethane), organic solvents and thinners (petrol, kerosene, diesel, mineral turpentine, ethylene glycol, methyl isobutyl ketone, isobutanol, etc.).

Type: AX • Colour code:

Areas of application: organic gases and vapours with a boiling point below 65 °C. Substances with a low boiling point are, for example, acetone, acetaldehyde, acrylaldehyde, butane, butadiene, diethyl ether, dichloro ether, dichloromethane, ethylene oxide, methanol, trichloromethane and vinyl chloride.

Type: B • Colour code:

Inorganic gases and vapours, e.g., fluorine, chlorine, hydrogen sulphide, hydrogen cyanide, hydrogen bromide, hydrogen chloride, hydrogen peroxide.

Type: E • Colour code:

Areas of application: acid gases and vapours (e.g., carbon dioxide, sulphuric acid, hydrochloric acid, formic acid, hydrogen fluoride).

Type: K • Colour code:

Areas of application: Ammonia and organic amines (e.g. methylamine, ethylamine, dimethylamine).

Type: Hg- PSL • Colour code:

Areas of application: mercury vapour and its compounds (always supplied in combination with a filter against P3 particles).



VSF 21 SERIES - Chemical 2F Ex powered filter units

Chemical 2F Ex

The versatile, robust respiratory mask is now also available in an ATEX version that can be used in potentially explosive atmospheres.

Despite its compact design and low weight, Chemical 2F is characterized by outstanding durability, chemical resistance and increased ingress protection. The thought-out design with a smooth surface allows easy decontamination by shower or even full immersion. The unique automatic closing system prevents unwanted contamination while the filters are being changed. The smart Flow Control system maintains the air flow at a constant level regardless filter clogging or low battery charge. An audiovisual alarm indicates when a battery charge and/or filter replacement is required. Airflow is individually adjustable from 120 to 235 lpm.

PRODUCT DESCRIPTION AND PRODUCT CODE

• CleanAIR® Chemical 2F Ex incl. comfort belt Ex, lithium-ion battery, charger, light-weight, flexible QuickLOCK™ hose, air flow indicator 51 E0 00FC

TECHNICAL DATA

PARAMETER	VALUE
• Weight	960 g (incl. battery)
• Dimensions	240 mm x 110 mm x 120 mm
• Air flow	Adjustable 120–235 l/min
• Alarm	Audio, visual
• Operation*/charging time	<10 h/<3 h
• Battery	Li-ion 14.4 V/ 2.6 Ah (standard)
• Hose connection	CA40x1/7"
• Certification	EN 12941 TH3 EN 12942 TM3
• Ingress protection (ATEX classification)	IP64/IP65/IP68 II 3 G IIB T4 Gc II 3 D IIIC 135 °C Dc

* at 160 l/min with new P R SL filters and fully charged battery

FEATURES AND BENEFITS

- Compact design and low weight
- Specially adapted for use in potentially explosive atmospheres – approved to Zone 2
- Compatible with a hood, mask or ventilated protective suit
- High mechanical and chemical resistance
- Increased ingress protection allows decontamination by shower or even full immersion (IP64/IP65/IP68)
- Full colour display clearly shows all the relevant information – filter clogging, battery charge, airflow
- The flow control system maintains a constant airflow regardless of the filter clogging level or battery charge
- Short battery recharging time <3 hours
- Audiovisual alarm
- Multilingual user interface



VSF 21 SERIES - Accessories for powered filter units

PROTECTIVE HOSE

Protective hose with chemical resistance
Product code: 70 00 62C

FILTER ACCESSORIES

The prefilter catches coarse particles and thus extends the service life of the main filter.
In addition to trapping coarse particles, the odour filter removes unpleasant odours.

DECONTAMINABLE ACCESSORIES

Decontaminable Hypalon belt and carrying strap for 2F/3F

Made of Hypalon synthetic rubber, smooth surface without edges for easy decontamination

Decontaminable belt

Product code: 51 00 41

Decontaminable carrying strap

Product code: 51 00 42

Decontamination filter cover

Protects the filter from water ingress during decontamination
Product code: 58 00 13

Decontamination kit for Chemical 2F/3F

Decontamination kit for 2F 51 00 46
(2 connectors with external thread, 1 cap with internal thread)

SAFE TRANSPORT AND STORAGE

Carry bag

High quality materials and reinforced bottom for longer product life.
Adjustable, padded protective belt. Large zippered main compartment and large front compartment, light and versatile.
Dimensions: 250 x 250 x 520 mm
Product code: 70 00 07



Hypalon belt, protective hose



Carrying strap, decontaminable



Carry bag



Splash protection cap



Suit description, VSF 21 PE-D (limited use):

VSF 21 protective suits made of PE-D (Duiform) – special features

- The VSF 21 suits are CBRN totally encapsulated suits with forced ventilation (TESIMAX C2F powered filter unit Uni-Mask with ventilation system), which generates a permanent positive pressure inside the suit. As a result, the VSF 21 protective suit offers outstanding respiratory protection (class TH3) as well as protecting the entire body from contaminants (see approvals, type 3b). The exhaled air is safely discharged from the suit via pressure relief valves.

- The internal C2F powered filter unit with integrated TFT display (filter saturation, battery power) is easy to use with the suit. The unique Uni-Mask air distribution system ensures permanently fog-free vision, prevents heat build-up and can be used by all wearers (C2F = breathing apparatus weighing up to 3 kg and without breathing resistance, according to G26 classification and the German AMR and DGUV regulations). The blower supplies the Uni-Mask with an adjustable fresh air flow of 120–235 l/min via the breathing air hose.

-> For further information, see description of the TESIMAX C2F powered filter unit.

- An extensive range of filters is available for every application (particle and gas protection filters, incl. C2F ABEK2P3 combat gas filters as well as optional filter/splash protection covers). The VSF 21 can be used in contaminated environments, provided that the minimum oxygen concentration is greater than 17% by volume, to differentiate it from SCBA (self-contained breathing apparatus).

VSF 21 PE-D (Duiform)

- One-piece complete (ventilated) chemical/firefighter protective suit with permanently integrated visor (antifog), zip with single cover (with adhesive material cover), permanently integrated protective gloves, footlets and drip cuffs, pressure relief valves, covered and protected (incl. membrane) as well as optional TESIMAX CHEMICAL 2F powered filter unit with Uni-Mask ventilation system
- For operations in fire brigades, industry, works fire brigades and military.
- Subsequently referred to as “CPS” (chemical protective suit) for unrestricted use by firefighters, industry, industrial fire brigades and military; classification according to EN 14605 and EN 14126/EN 12941 (C2F) standard: type 3b (TH3)

DUOFORM FABRIC

- Highly chemicals resistant multi-layer foil laminate combined with a mechanically durable PA matrix base fabric

TOP SEAM

- Seam technology: high-quality stitched, chemically and thermally robust thermo-taped seam covering

EQUIPMENT

- Face shield with flexible VS 5 visor (antifog inner coating, triple laminate, mechanically robust, including chemically resistant barrier) permanently connected/integrated with the protective suit.

ZIP FASTENER

- Simple covered zip (with adhesive material cover), sewn with protective suit and permanently welded (not glued) to TOP seam cover. Closes from top to bottom for safety. Diagonal zip at front.

PROTECTIVE GLOVES

- Standard firmly integrated, elastomer protective gloves: NEO – standard size: 10, NBC protective gloves; colour: black
- > Other sizes please enquire.
- > Altern. Protective gloves (CBRN): WIPAN B (0.3, 0.5, 1.5) and cotton underglove (optional)

PROTECTIVE BOOTS

- Footlets made of suit fabric with drip cuff
- > For optional protective boots please enquire: HPF CHEM POLYRAN ACIFORT®; standard size: 46; HPF elastomer protective boot according to EN ISO 20345 S5 SRA AN; colour: black; or: HPF ULTRA-CHEM-GREEN HAZGUARD®, HPF ULTRA-CHEM-BLACK SA-BF

INTEGRATED EQUIPMENT

- Permanently integrated: prepared for powered filter unit

APPLICATIONS: Pharmaceuticals, clinics, military and civil defence, industry, shipping and fire brigades (unlimited)

OVERVIEW OF STANDARDS

APPROVALS (according to PPE Regulation (EU) 2016/425)

Additional sub-standards and approvals apply to protective suits made of CHEMBA (Eptaform), PE-D (Duiform) and PE-T (Tessaform):

- EN ISO 13688 = protective clothing – General requirements
- EN 14126 = protection against biological agents “B”
- Extended material tests
- DIN EN 943-1 = Resistance to normative reference chemicals
- EN 1073-2 = particle-tight protective clothing
- EN 1149 = antistatic properties, dissipative (static inhibitor, ex factory)
- CBRN Finabel 0.7 GAS-TESTED (gases – complete protective suit with components) – only CHEMBA & PE-T
- > Note: The current product certificate and technical product documentation apply.

SIZES: Four individual sizes (M to XXL)

- Optimum fit through range of sizes

PRODUCT REFERENCE

- VSF 21 PE-D (Duiform) • COUNTRY OF ORIGIN: GERMANY

WEIGHT: approx. 2 kg without extras, in size L, with footlets/boots: approx. 1.75 kg

COLOUR: ■ signal yellow (outside)

LIFE CYCLE: 10 years

Ordering data, VSF 21 PE-D

-> Note: see size charts (standard gloves: size 10 (see size chart) or st. protective boots: size 46 (43-47))

Sizes 150 to 165 cm	Order no.: 0450-163 S
Sizes 160 to 175 cm	Order no.: 0450-163 M
Sizes 170 to 185 cm	Order no.: 0450-163 L
Sizes 180 to 190 cm	Order no.: 0450-163 XL (standard)
Sizes 190 to 200 cm	Order no.: 0450-163 XXL

ALL PRODUCTS INCLUDE

- Standard film packaging, transparent
- Technical documentation
- > Optional: different textile storage bag (hanging or lying storage)
- > Optional: plastic CPS transport boxes

OPTIONAL FEATURES AND ACCESSORIES

- CHEMICAL 2F POWERED FILTER UNIT with FILTERS & ACCESSORIES
- > see Accessories.
- For further accessories and options, see CPS Accessories.

Property rating, VSF 21 PE-D

Chemical resistance	■■■■■■■■■■
Mechanical resistance	■■■
Heat: Contact heat at about 850 ±50 °C	Not tested
Heat: Hot vapour at approx. 350 °C	Not tested
Heat: Radiant heat at about 1000 °C	Not tested
Cold: Contact cold at -30 °C	■■■■■■■■■■
Cold: Contact cold at -80 °C	■■■■■■■■■■
Cold: Contact cold at -100 °C	not tested





Suit description, VSF 21 PE-T (limited use)

VSF 21 protective suits made of PE-T (Tessaform) – special features

- The VSF 21 suits are CBRN totally encapsulated suits with forced ventilation (TESIMAX C2F powered filter unit Uni-Mask with ventilation system), which generates a permanent positive pressure inside the suit. As a result, the VSF 21 protective suit offers outstanding respiratory protection (class TH3) as well as protecting the entire body from contaminants (see approvals, type 3b). The exhaled air is safely discharged from the suit via pressure relief valves.

- The internal C2F powered filter unit with integrated TFT display (filter saturation, battery power) is easy to use with the suit. The unique Uni-Mask air distribution system ensures permanently fog-free vision, prevents heat build-up and can be used by all wearers (C2F = breathing apparatus weighing up to 3 kg and without breathing resistance, according to G26 classification and the German AMR and DGVV regulations). The blower supplies the Uni-Mask with an adjustable fresh air flow of 120–235 l/min via the breathing air hose.

-> For further information, see description of the TESIMAX C2F powered filter unit.

- An extensive range of filters is available for every application (particle and gas protection filters, incl. C2F ABEK2P3 combat gas filters as well as optional filter/splash protection covers). The VSF 21 can be used in contaminated environments, provided that the minimum oxygen concentration is greater than 17% by volume, to differentiate it from SCBA (self-contained breathing apparatus).

VSF 21 PE-T (Tessaform)

- One-piece complete (ventilated) chemical/firefighter protective suit with permanently integrated visor (antifog), zip with single cover (with adhesive material cover), permanently integrated protective gloves, footlets and drip cuffs, pressure relief valves, covered and protected (incl. membrane) as well as optional TESIMAX CHEMICAL 2F powered filter unit with Uni-Mask ventilation system
- For operations in fire brigades, industry, works fire brigades and military.
- Subsequently referred to as “CPS” (chemical protective suit) for unrestricted use by firefighters, industry, industrial fire brigades and military; classification according to EN 14605 and EN 14126/EN 12941 (C2F) standard: type 3b (TH3)

TESSAFORM FABRIC

- Highly chemicals resistant multi-layer foil laminate combined with a mechanically durable PA matrix base fabric

TOP SEAM

- Seam technology: high-quality stitched, chemically and thermally robust thermo-taped seam covering

EQUIPMENT

- Face shield with flexible VS 5 visor (antifog inner coating, triple laminate, mechanically robust, including chemically resistant barrier) permanently connected/integrated with the protective suit.

ZIP FASTENER

- Simple covered zip (with adhesive material cover), sewn with protective suit and permanently welded (not glued) to TOP seam cover. Closes from top to bottom for safety. Diagonal zip at front.

PROTECTIVE GLOVES

- Standard permanently integrated protective gloves: Integrated NBC barrier protection glove (including separate cotton 5-finger under-glove; optional overglove, e.g.: Mech Blue 351 or WIPAN B); standard size: 10; colour: black
- > Other sizes please enquire.
- > Altern. Protective gloves (CBRN): WIPAN B+ (0.3, 0.5, 1.5) and cotton underglove (optional)

PROTECTIVE BOOTS

- Footlets made of suit fabric with drip cuff
- > For optional protective boots please enquire: HPF CHEM POLYRAN ACIFORT®; standard size: 46; HPF elastomer protective boot according to EN ISO 20345 S5 SRA AN; colour: black; or: HPF ULTRA-CHEM-GREEN HAZGUARD®, HPF ULTRA-CHEM-BLACK SA-BF

INTEGRATED EQUIPMENT

- Permanently integrated: prepared for powered filter unit

APPLICATIONS: Pharmaceuticals, clinics, military and civil defence, industry, shipping and fire brigades (unlimited)

OVERVIEW OF STANDARDS

APPROVALS (according to PPE Regulation (EU) 2016/425)
Additional sub-standards and approvals apply to protective suits made of CHEMBA (Eptaform), PE-D (Duoform) and PE-T (Tessaform):

- EN ISO 13688 = protective clothing – General requirements
- EN 14126 = protection against biological agents “B”
Extended material tests
- DIN EN 943-1 = Resistance to normative reference chemicals
- EN 1073-2 = particle-tight protective clothing
- EN 1149 = antistatic properties, dissipative (static inhibitor, ex factory)
- CBRN Finabel 0.7 GAS-TESTED (gases – complete protective suit with components) – only CHEMBA & PE-T
- > Note: The current product certificate and technical product documentation apply.

SIZES: Four individual sizes (M to XXL)

- Optimum fit through range of sizes

PRODUCT REFERENCE

- VSF 21 PE-T (Tessaform) • COUNTRY OF ORIGIN: GERMANY

WEIGHT: approx. 2 kg without extras, in size L, with footlets/boots: approx. 1.75 kg

COLOUR: ■ grey (outside)

LIFE CYCLE: 10 years

ORDERING DATA, VSF 21 PE-T

-> Note: see size charts (standard gloves: size 10 (see size chart) or st. protective boots: size 46 (43-47))

Sizes 150 to 165 cm	Order no.: 0450-166 S
Sizes 160 to 175 cm	Order no.: 0450-166 M
Sizes 170 to 185 cm	Order no.: 0450-166 L
Sizes 180 to 190 cm	Order no.: 0450-166 XL (standard)
Sizes 190 to 200 cm	Order no.: 0450-166 XXL

ALL PRODUCTS INCLUDE

- Standard film packaging, transparent
- Technical documentation
- > Optional: different textile storage bag (hanging or lying storage)
- > Optional: plastic CPS transport boxes

OPTIONAL FEATURES AND ACCESSORIES

- CHEMICAL 2F POWERED FILTER UNIT with FILTERS & ACCESSORIES -> see Accessories.
- For further accessories and options, see CPS Accessories.

Property rating, VSF 21 PE-T

Chemical resistance	■■■■■■■■■■
Mechanical resistance	■■■
Heat: Contact heat at about 850 ±50 °C	Not tested
Heat: Hot vapour at approx. 350 °C	Not tested
Heat: Radiant heat at about 1000 °C	Not tested
Cold: Contact cold at -30 °C	■■■■■■■■■■
Cold: Contact cold at -80 °C	■■■■■■■■■■
Cold: Contact cold at -100 °C	not tested

Shown with overglove
Mech Blue 351





Suit description, VSF 21 PE-T (reusable)

VSF 20 protective suits made of POLYRAN-L-S – special features

- The VSF 21 suits are CBRN totally encapsulated suits with forced ventilation (TESIMAX C2F powered filter unit Uni-Mask with ventilation system), which generates a permanent positive pressure inside the suit. As a result, the VSF 21 protective suit offers outstanding respiratory protection (class TH3) as well as protecting the entire body from contaminants (see approvals, type 3b). The exhaled air is safely discharged from the suit via pressure relief valves.
- The internal C2F powered filter unit with integrated TFT display (filter saturation, battery power) is easy to use with the suit. The unique Uni-Mask air distribution system ensures permanently fog-free vision, prevents heat build-up and can be used by all wearers (C2F = breathing apparatus weighing up to 3 kg and without breathing resistance, according to G26 classification and the German AMR and DGUV regulations). The blower supplies the Uni-Mask ventilation system with an adjustable fresh air flow of 120–235 l/min via the breathing air hose.

-> For further information, see description of the TESIMAX C2F powered filter unit.

- An extensive range of protective filters is available for every application (particle and gas protection filters, incl. C2F ABEK2P3 combat gas filters as well as optional filter/splash protection covers). The VSF 21 can be used in contaminated environments, provided that the minimum oxygen concentration is greater than 17% by volume, to differentiate it from SCBA (self-contained breathing apparatus).

VSF 21 POLYRAN-L-S

- One-piece complete (ventilated) chemical/firefighter protective suit with permanently integrated visor (antifog), zip with single cover (with adhesive material cover), permanently integrated protective gloves, footlets and drip cuffs, pressure relief valves, covered and protected (incl. membrane) as well as optional TESIMAX CHEMICAL 2F powered filter unit with Uni-Mask ventilation system
- For operations in fire brigades, industry, works fire brigades and military.
- Subsequently referred to as “CPS” (chemical protective suit) for unrestricted use by firefighters, industry, industrial fire brigades and military; classification according to EN 943-1 (EN 14605) and EN 14126/EN 12941 (C2F) standard: type 3b (TH3)

POLYRAN-L/S FABRIC

- Matrix polyamide base fabric coated on both sides with POLYRAN® (Performance TP)
- Material blend of chemicals- and abrasion-resistant HPF elastomers on a PA matrix base fabric: Made in Germany.
- High protective performance, puncture- and abrasion-resistance as well as mechanical robustness ensure the wearer's safety (REAL REUSABLE protective suits).
- Approved for use in hazardous areas.

TOP SEAM

- Seam technology: high-quality stitched, chemically and thermally robust thermo-taped seam covering

EQUIPMENT

- Face shield with flexible VS 5 visor (antifog inner coating, triple laminate, mechanically robust, including chemically resistant barrier) permanently connected/integrated with the protective suit.

ZIP FASTENER

- Simple covered zip (with adhesive material cover), sewn with protective suit and permanently welded (not glued) to TOP seam cover. Closes from top to bottom for safety. Diagonal zip at front.

PROTECTIVE GLOVES

- Standard interchangeable protective gloves: MECH BLUE 351 - standard size 10, NBC protective glove with integrated cotton lining; colour: blue
- > Other sizes please enquire.
- > Altern. Protective gloves (CBRN): WIPAN B+ (0.3, 0.5, 1.5) and cotton underglove (optional)

PROTECTIVE BOOTS

- Footlets made of suit fabric with drip cuff
- > For optional protective boots please enquire: HPF CHEM POLYRAN ACIFORT®; standard size: 46; HPF elastomer protective boot according to EN ISO 20345 S5 SRA AN; colour: black; or: HPF ULTRA-CHEM-GREEN HAZGUARD®, HPF ULTRA-CHEM-BLACK SA-BF

INTEGRATED EQUIPMENT

- Permanently integrated: prepared for powered filter unit

APPLICATIONS: Pharmaceuticals, clinics, military and civil defence, industry, shipping and fire brigades (unlimited)

OVERVIEW OF STANDARDS

APPROVALS (according to PPE Regulation (EU) 2016/425)

Additional sub-standards/approvals apply to protective suits made of SYKAN® 2 and POLYRAN-L-S:

- EN ISO 13688 = protective clothing – General requirements
- EN 14126 = protection against biological agents “B”
Extended material tests
- DIN EN 943-1 = Resistance to normative reference chemicals
- EN 1073-2 = particle-tight protective clothing
- EN 1149 = antistatic properties, dissipative (static inhibitor, ex factory)
- CBRN Finabel 0.7 GAS-TESTED (gases – complete protective suit with components)
- > Note: The current product certificate and technical product documentation apply.

SIZES: Four individual sizes (M to XXL)

- Optimum fit through range of sizes

PRODUCT REFERENCE

- VSF 21 POLYRAN®-L-S • COUNTRY OF ORIGIN: GERMANY

WEIGHT: approx. 4 kg without extras, in size L, with footlets/boots: approx. 1.75 kg

COLOUR: ■ signal yellow (outside), ■ signal red or ■ Nato olive (outside)

SERVICE LIFE: 15 years: 10 years, then inspection for an additional 5 years

-> Optional: SMART STOCK (5 years maintenance-free, vacuum packaged with seal)

ORDERING DATA, VSF 21 POLYRAN-L-S

-> Note: see size charts (standard gloves: size 10 (see size chart) or st. protective boots: size 46 (43-47))

Sizes 150 to 165 cm	Order no.: 0450-151 S
Sizes 160 to 175 cm	Order no.: 0450-151 M
Sizes 170 to 185 cm	Order no.: 0450-151 L
Sizes 180 to 190 cm	Order no.: 0450-151 XL (standard)
Sizes 190 to 200 cm	Order no.: 0450-151 XXL

ALL PRODUCTS INCLUDE

- Participation in TESIMAX SERVICE POOL for reusable protective suits, available worldwide
- Participation in TESIMAX RTT training for reusable protective suits, available in Germany
- Standard nylon storage bag, black
- Technical documentation: QR user manual and online TESIMAX Data Service (environmentally friendly)
- > Optional: different textile storage bag (hanging or lying storage)
- > Optional: plastic CPS transport boxes

OPTIONAL FEATURES AND ACCESSORIES

- CHEMICAL 2F POWERED FILTER UNIT with FILTERS & ACCESSORIES
- > see Accessories.
- For further accessories and options, see CPS Accessories.

Property rating, VSF 21 POLYRAN-L-S

Chemical resistance	■
Mechanical resistance	■
Heat: Contact heat at approx. 850 ±50 °C	■
Heat: Hot vapour at about 350 °C	■
Heat: Radiant heat at about 1000 °C	Not tested
Cold: Contact cold at -30 °C	■
Cold: Contact cold at -80 °C	not tested
Cold: Contact cold at -100 °C	not tested





Suit description, VSF 21 SYKAN (reusable)

MAIN FEATURES AND ADVANTAGES – SYKAN 2 protective suits

- The VSF 21 suits are CBRN totally encapsulated suits with forced ventilation (TESIMAX C2F powered filter unit Uni-Mask with ventilation system), which generates a permanent positive pressure inside the suit. As a result, the VSF 21 protective suit offers outstanding respiratory protection (class TH3) as well as protecting the entire body from contaminants (see approvals, type 3b). The exhaled air is safely discharged from the suit via pressure relief valves.
- The internal C2F powered filter unit with integrated TFT display (filter saturation, battery power) is easy to use with the suit. The unique Uni-Mask air distribution system ensures permanently fog-free vision, prevents heat build-up and can be used by all wearers (C2F = breathing apparatus weighing up to 3 kg and without breathing resistance, according to G26 classification and the German AMR and DGUV regulations). The blower supplies the Uni-Mask ventilation system with an adjustable fresh air flow of 120–235 l/min via the breathing air hose.

-> For further information, see description of the TESIMAX C2F powered filter unit.

- An extensive range of protective filters is available for every application (particle and gas protection filters, incl. C2F ABEK2P3 combat gas filters as well as optional filter/splash protection covers). The VSF 21 can be used in contaminated environments, provided that the minimum oxygen concentration is greater than 17% by volume, to differentiate it from SCBA (self-contained breathing apparatus).

VSF 21 SYKAN 2

- One-piece complete (ventilated) chemical/firefighter protective suit with permanently integrated visor (antifog), zip with single cover (with adhesive material cover), permanently integrated protective gloves, footlets and drip cuffs, pressure relief valves, covered and protected (incl. membrane) as well as optional TESIMAX CHEMICAL 2F powered filter unit with Uni-Mask ventilation system
- For operations in fire brigades, industry, works fire brigades and military.
- Subsequently referred to as “CPS” (chemical protective suit) for unrestricted use by firefighters, industry, industrial fire brigades and military; classification according to EN 943-1 (EN 14605) and EN 14126/EN 12941 (C2F) standard: type 3b (TH3)

SYKAN 2 FABRIC

- The fabric consists of a four-layered laminate. SYKAN® 2 has a 100% high-strength, rugged polyamide base fabric coated with high-performance fluorelastomers (HPF). An additional high-performance plastic (HPP) layer on the outside of the base fabric further protects the fabric. HPF (fluorelastomer) and HPP (PTFE fluorocarbon film) are unique protective suit material technology from Germany. This is a protective suit of the latest generation featuring hybrid technology. SYKAN® fabric is quiet and is more comfortable to wear than “stiffer” foil protection suits.

ULTRA SEAM

- Seam technology: high-quality stitching, chemical-thermal robustness (para-aramid thread) and double thermo-taped seam cover (inside and with external, patented PTFE barrier)

EQUIPMENT

- Face shield with flexible VS 5 visor (antifog inner coating, triple laminate, mechanically robust, including chemically resistant PTFE barrier) permanently connected/integrated with the protective suit.

-> Optional: self-adhesive, exchangeable tear-off visor (included with VS 20 SILVERFLASH®)

ZIP FASTENER

- With liquid- and gas-tight HPF-ULTRA zip (130 cm), including barrier film, chemicals and thermally resistant, sewn with protective suit and permanently welded (not glued) with ULTRA seam cover. Closes from bottom to top for safety. Diagonal zip at front.
- > Optional labyrinth fabric cover

PROTECTIVE GLOVES

- Standard interchangeable protective gloves: WIPAN C – standard size 10 HPF elastomer CBRN protective glove with integrated cotton lining; colour: black
- > Other sizes please enquire.
- > Altern. Protective gloves (CBRN): WIPAN B+ (0.3, 0.5, 1.5), WIPAN CK-PRO, WIPAN CK or WIPAN CK+
- Standard WT protective gloves: Steel glove change system
- > Alternative: Quick-lock glove system

PROTECTIVE BOOTS

- Standard interchangeable protective boot: HPF ULTRA-CHEM-BLACK SA-BF; standard size: 46; HPF elastomer protective boot with FPA approval according to EN 15090, EN ISO 20345 S5 HRO SRC, EN 13832-3, EN 13287; colour: black
- > Other sizes: 43 to 47 (please specify when ordering)
- > Alternatively: protective boots HPF HPF ULTRA-CHEM-GREEN HAZGUARD® or HPF CHEM POLYRAN ACIFORT®
- > Alternatively: footlets made of suit material with drip cuff

INTEGRATED EQUIPMENT

- Permanently integrated: prepared for powered filter unit
- Permanently integrated, exchangeable standard braces for size adjustment (type 1)
- Radio device pocket, inside
- Backpack padding, inside (normative mandatory)

APPLICATIONS: Pharmaceuticals, clinics, military and civil defence, industry, shipping and fire brigades (unlimited)

OVERVIEW OF STANDARDS

- APPROVALS (according to PPE Regulation (EU) 2016/425)

Additional sub-standards/approvals apply to protective suits made of SYKAN® 1-2-4, POLYRAN-L-S (superlight) and SILVERFLASH® protective suits:

- EN ISO 13688 = protective clothing – General requirements
- EN 943-1/-2 = type 1a-ET (Emergency Teams) protective clothing made of SYKAN or SILVERFLASH
- EN 14126 = protection against biological agents “B”
- EN 1073-2 = particle-tight protective clothing
- EN 1149 = antistatic properties, dissipative (static inhibitor, ex factory)
- CBRN Finabel 0.7 GAS-TESTED (gases – complete protective suit with components)
- > Note: The current product certificate and technical product documentation apply.

SIZES: Four individual sizes (M to XXL)

- Optimum fit through range of sizes

PRODUCT REFERENCE

- VSF 21 SYKAN® 2
- COUNTRY OF ORIGIN: GERMANY

WEIGHT: approx. 5.5 kg without extras, in size L, with footlets/boots: approx. 1.75 kg

COLOUR: ■ signal orange (outside) or ■ Nato olive (outside)

SERVICE LIFE: 15 years: 10 years, then inspection for a 5 year extension
-> optional: SMART STOCK (5 years maintenance free, vacuum packed with seal)

ORDERING DATA, VSF 21 SYKAN 2

-> Note: see size charts (standard gloves: size 10 (see size chart) or st. protective boots: size 46 (43-47))

Sizes 150 to 165 cm	Order no.: 0450-212 S
Sizes 160 to 175 cm	Order no.: 0450-212 M
Sizes 170 to 185 cm	Order no.: 0450-212 L
Sizes 180 to 190 cm	Order no.: 0450-212 XL (standard)
Sizes 190 to 200 cm	Order no.: 0450-212 XXL

ALL PRODUCTS INCLUDE

- Participation in TESIMAX SERVICE POOL for reusable protective suits, available worldwide
- Participation in TESIMAX RTT training for reusable protective suits, available in Germany
- Standard nylon storage bag, black

OPTIONAL FUNCTIONS AND ACCESSORIES -> see Accessories.

Property rating, VSF 21 SYKAN 2:

Chemical resistance	■■■■■■■■■■
Mechanical resistance	■■■■■■■■
Heat: Contact heat at approx. 850 ±50 °C	■■■■■■■■
Heat: Hot vapour at about 350 °C	■■■■■■■■
Heat: Radiant heat at about 1000 °C	Not tested
Cold: Contact cold at -30 °C	■■■■■■■■■■
Cold: Contact cold at -80 °C	■■■■■■■■■■
Cold: Contact cold at -100 °C	not tested





ESK SERIES

ESK SERIES

Respiratory protection



Elastomer CBRN protective gloves, partially double-layered and permanently integrated (various models)
Provides comprehensive protection, for example for CBRN operations or decontamination.



HPF CHEM BOOT (+/P-L) Safety boots



ESK series: One-piece protective suit

The standard equipment varies depending on the model

- One-piece chemical protective suit (CPS) with hood or face seal [ESK 1 PE-D/-T/ S3 PE-T] or visor [S5 PE-T/VSF 21 PE-D], which is cut such that it provides a firm seal around a full-face breathing mask.
- These protective suits offer splash and spray protection against liquid chemicals in the chemical, agricultural and food industry and for fire departments and rescue services.
- Versions with elasticated arm, leg and hood (standard) and (partly fixed) gloves
- Sewn and thermally fused seams (varies depending on model)
- Optimum fit through range of sizes
- Perfect design also at critical points

ESK models/approvals (according to PPE Regulation (EU) 2016/425)

Plus further supplementary standards/approvals (vary, depending on model) apply to ESK protective suits, in particular:

EN ISO 13688	= protective clothing – General requirements
ESK 3 SYKAN 4	Type 3 (EN 14605) = liquid-tight CPS (reusable)
ESK 3 POLYRAN-L	Type 3 (EN 14605) = liquid-tight CPS (reusable)
ESK S5 PE-T:	Type 3 (EN 14605) = liquid-tight CPS (limited use)
ESK 1 PE-D/+ / S3 PE-T/+ /++:	Type 3 (EN 14605) = liquid-tight CPS (limited use)
Incl. SOLAS (ESK 1 PE-D+, ESK S3 PE+/++ and ESK 3 POLYRAN-L)	= national BG Verkehr approval for “maritime (on board) uses”
ESK 1 T+:	Type 4 (EN 14605) = spray-tight CPS (limited use)
ESK 1 T:	Type 5/6 (EN 13034) = particle-tight CPS (limited use)

For further options, see CPS Accessories.

ESK S5 PE-T



Suit description, ESK S 5 PE-T:

One-piece protective suit with chemicals resistant visor (antifog) in the hood; for safe use/ combination with self-contained breathing apparatus (SCBA). This protective suit unites excellent quality with high-grade materials. This protective suit features a liquid-tight zip with adhesive tape cover (liquid-tight).

- With footlets and drip cuff as well as sleeves with permanently clipped-on gloves
- Glove system: Integrated NBC barrier protection glove (including separate cotton 5-finger underglove; optional overglove, e.g.: Mech Blue 351 or WIPAN B); flexible glove configuration available This offers maximum chemical, mechanical and thermal resistance of the glove system; size: 10 (for other sizes please enquire)
- Double zip cover with additional adhesive tape cover
- Liquid-tight zip

Fabric description, S 5 PE-T

The PE-T fabric has good electrical properties (according to EN 1149). It offers an exceptional protection against radioactive particles, biological hazards and chemicals; it is impermeable to liquids, antistatic, offers limited flame-retardance and is self-extinguishing (type 3-B; colour: grey).

Applications: Pharmaceuticals, clinics, military and civil defence, industry and firefighters

Properties, S 5 PE-T

- Colour: grey
- Approvals: Cat. 3 type 3-B – (antistatic) liquid-tight protective clothing against biological agents and Type 4, 5 and 6 with particle and aerosol protection (EN 1073-2, EN 14126, EN 14605, EN 13982, EN 13034, EN 1149, EN ISO 13688)
- Seam technology: High-quality stitched and thermo-fused seam covers
- Service life S5 PE-T: up to 5 years according to manufacturer's guideline

Ordering data:

- Sizes 164 to 170 cm Order no.: 0200-163 S (please enquire)
- Sizes 170 to 176 cm Order no.: 0200-163 M (please enquire)
- Sizes 176 to 182 cm Order no.: 0200-163 L (please enquire)
- Sizes 182 to 188 cm Order no.: 0200-163 XL (standard)
- Sizes 188 to 194 cm Order no.: 0200-163 XXL (standard)

Property rating, S 5 PE-T

Chemical resistance*	
Mechanical resistance*	
Liquid-tightness	
Infective agents – Resistance on contact with synthetic blood and body fluids Protection against biological hazards to DIN EN 14126 (B)	
Aerosol-tightness (spray-tightness)	
Particle-tightness (dust-tightness) Contaminating radiation in particle form	
Flammability	Self-extinguishing
Antistatic properties	EN 1149-1

*The chemical and physical resistance ratings have been determined according to the applicable standards and based on our current knowledge.

- For additional accessories (gloves, boots), please enquire.



ESK 3 SYKAN 4



Suit description ESK SYKAN 4:

- One-piece protective suit with rubber trim in the hood. This protective suit unites excellent quality with high-grade materials.
- Elastic foot loop on legs and drip cuffs
- Version with butyl sealing cuffs on the arm (allowing a flexible glove configuration)
- Zip with labyrinth cover

Fabric description, ESK 3 SYKAN® 4:

SYKAN 4 has a 100% para-aramid base fabric coated with high-performance elastomers. An incorporated high-performance plastic foil acts as a protective barrier for superior wearing comfort, low noise and highest quality.

- Reusable, washable, very good mechanical properties (wear-, tear- and puncture-resistant)
- Outstanding chemicals resistance, for example against acids, alkalis and solvents.
- Low gas permeability (also against war gasses)
- Good ageing, weathering and ozone resistance
- Applications: Industry
- Colour: signal yellow (outer)/grey (inner)
- Extremely high thermal resilience: For short periods up to 850 °C (combustion) - For short periods up to -196 °C (liquid nitrogen)
- Outstanding mechanical strength over entire service life; very low fabric weight
- Approvals: EN ISO 13688:2013, EN 14605:2005/A1:2009, Type 3-B (reusable suit)
- Weight: SUPERLIGHT (please enquire)
- Service life: up to 15 years according to manufacturer's guideline

Order variant: With gloves/boots

- Protective gloves are optional (please specify when ordering)
- Safety boots: optional (please specify size when ordering)

Ordering data, ESK 3 SYKAN® 4:

- Sizes 160 to 175 cm Order no.: 0198-214 M
- Sizes 170 to 185 cm Order no.: 0198-214 L
- Sizes 180 to 190 cm Order no.: 0198-214 XL (standard)
- Sizes 190 to 200 cm Order no.: 0198-214 XXL

Property rating, ESK 3 SYKAN 4:

Chemical resistance	
Mechanical resistance	
Heat: Contact heat at approx. 850 ±50 °C	
Heat: Radiant heat at about 350 °C	Not tested
Flashover-tested at approx. 850 ±50 °C (8 seconds) to ISO 13506:2008	Not tested
Heat: Radiant heat at about 1000 °C	Not tested
Cold: Contact cold at -30 °C	
Cold: Contact cold at -80 °C	
Cold: Contact cold at -100 °C	

For further options, see CPS Accessories.

For model variant ESK 3 SYKAN 1/2 please enquire



ESK S3 PE-T



Suit description, ESK S 3 PE-T:

- One-piece protection suit with form rubber seal in the hood for secure fit under full-face breathing masks. This protective suit unites excellent quality with high-grade materials. The wide face cutout is surrounded with a special elastomer face seal that allows the use of all popular full-face masks.
- With footlets and drip cuff, sleeves with integrated elastic closure with thumb loop
- Double zip cover with additional adhesive tape cover

Fabric description, S 3 PE-T

The PE-D fabric has good electrical properties (according to EN 1149). The fabric offers an exceptional protection against radioactive particles, biological hazards and chemicals; it is impermeable to liquids, antistatic, offers limited flame-retardance and is self-extinguishing (type 3-B; colour: grey). The PE-T is also very rugged mechanically.

- Applications: Pharmaceuticals, clinics, military and civil defence, industry and firefighters

Properties, S 3 PE-T

- Colour: grey
- Approvals: Cat. 3 type 3-B – (antistatic) liquid-tight protective clothing against biological agents and Type 4, 5 and 6 with particle and aerosol protection (EN 1073-2, EN 14126, EN 14605, EN 13982, EN 13034, EN 1149, EN ISO 13688)
- Seam technology: High-quality stitched and thermo-fused seam covers
- Service life:
 - S3 PE-T: up to 10 years according to manufacturer's guideline
 - S3 PE-T+/+: up to 5 years according to manufacturer's guideline

Ordering data:

- Sizes 164 to 170 cm **Order no.: 0200-224 S (please enquire)**
- Sizes 170 to 176 cm **Order no.: 0200-224 M (please enquire)**
- Sizes 176 to 182 cm **Order no.: 0200-224 L (please enquire)**
- Sizes 182 to 188 cm **Order no.: 0200-224 XL (standard)**
- Sizes 188 to 194 cm **Order no.: 0200-224 XXL (standard)**

Property rating, S 3 PE-T

Chemical resistance*	<div style="width:100%; height:10px; background-color:yellow;"></div>
Mechanical resistance*	<div style="width:80%; height:10px; background-color:grey;"></div>
Liquid-tightness Infective agents – Resistance on contact with synthetic blood and body fluids Protection against biological hazards to DIN EN 14126 (B)	<div style="width:100%; height:10px; background-color:blue;"></div>
Aerosol-tightness (spray-tightness)	<div style="width:100%; height:10px; background-color:blue;"></div>
Particle-tightness (dust-tightness) Contaminating radiation in particle form	<div style="width:100%; height:10px; background-color:blue;"></div>
Flammability	Self-extinguishing
Antistatic properties	EN 1149-1

*The chemical and physical resistance ratings have been determined according to the applicable standards and based on our current knowledge.

- For additional accessories (gloves, boots), please enquire.



ESK poncho jacket



Description: POLYRAN-L poncho jacket:

- Backpack for SCBA
- Long sleeves with elastic closure
- Elasticated waistband
- Covered front zip (velcro)
- Piped neckline
- Covered feedthrough below shoulder seam on right side
- Seams fused on the outside
- Colour: yellow
- Matrix PA base fabric coated on both sides with PA (Performance TP)

The poncho can only be used in combination with PPE approved according to EN Cat. III (Types 1 to 6, Type 1b overalls) and only serves as an additional dirt and mechanical protection barrier in case of contamination.

Ordering data:

- Sizes 164 to 170 cm **Order no.: 0198-200 S (please enquire)**
- Sizes 170 to 176 cm **Order no.: 0198-200 M (please enquire)**
- Sizes 176 to 182 cm **Order no.: 0198-200 L (please enquire)**
- Sizes 182 to 188 cm **Order no.: 0198-200 XL (please enquire)**
- Sizes 188 to 194 cm **Order no.: 0198-200 XXL (please enquire)**

S 3 PE: Order variants:

0200-225: S3 PE-T+

- integrated NEO NBC elastomer protective glove; size: 10 (for other sizes please enquire)
- Integrated footlets
 - Sizes S, M or L (please enquire)
 - Sizes XL or XXL (standard)

Specify sizes when ordering

0200-226: S3 PE-T++

Integrated NBC barrier protection glove (including separate cotton 5-finger underglove; optional overglove, e.g.: Mech Blue 351 or WIPAN B)

This glove system offers maximum chemical, mechanical and thermal resistance.

- Approvals: Cat. 3 type 3-B – (antistatic) liquid-tight protective clothing against biological agents and Type 4, 5 and 6 with particle and aerosol protection (EN 1073-2, EN 14126, EN 14605, EN 13982, EN 13034, EN 1149, EN ISO 13688)
 - Sizes S, M or L (please enquire)
 - Sizes XL or XXL (standard)

Specify sizes when ordering



ESK 3 POLYRAN-L

Suit description, ESK 3 POLYRAN-L:

One-piece protective suit with balaclava inside the hood for secure fit for facepieces or full-face respiratory masks. This protective suit unites excellent quality with high-grade materials. • Zip with labyrinth cover with velcro
• Elasticated hood, arm and leg cuffs (standard)

Fabric description, ESK 3 POLYRAN-L:

- Matrix PA base fabric coated on both sides with POLYRAN (Performance TP)
- Extremely light-weight and flexible
- Reusable, washable, very good mechanical properties (wear-, tear- and puncture-resistant)
- Excellent chemicals resistance to most acids and alkalis
- Applications: Maritime industry pharmaceuticals, clinics and decontamination measures/applications
- Colour: ■ yellow
- Approvals: Cat. 3 Type 3b, antistatic, liquid-tight protective clothing EN 14605:2005, EN 14126 (B), EN 1149, EN 1073-2
- Seam technology: High-quality stitched and thermo-fused seam covers

Ordering data:

- Sizes 164 to 170 cm Order no.: 0198-151 S (please enquire)
- Sizes 170 to 176 cm Order no.: 0198-151 M (please enquire)
- Sizes 176 to 182 cm Order no.: 0198-151 L (please enquire)
- Sizes 182 to 188 cm Order no.: 0198-151 XL (standard)
- Sizes 188 to 194 cm Order no.: 0198-151 XXL (standard)

ESK 3 POLYRAN-L Art. No. 0198-151+

Additional equipment for the series:

- With foot strap and drip cuff, version with butyl cuff seals

ESK 3 POLYRAN-L Art. No. 0198-151++

Additional equipment for the series:

- With gloves and footlets with drip cuffs

ESK 3 POLYRAN-L Art. No. 0198-151+++

Additional equipment for the series:

- With footlets and drip cuff, version with butyl cuff seals
- With face seal
- With zip at back

Property rating, ESK 3 POLYRAN-L:

Chemical resistance*	<div style="width: 20%; background-color: yellow; height: 10px;"></div>
Mechanical resistance*	<div style="width: 40%; background-color: gray; height: 10px;"></div>
Liquid-tightness Infective agents – Resistance on contact with synthetic blood and body fluids Protection against biological hazards to DIN EN 14126 (B)	<div style="width: 100%; background-color: blue; height: 10px;"></div>
Aerosol-tightness (spray-tightness)	<div style="width: 100%; background-color: blue; height: 10px;"></div>
Particle-tightness (dust-tightness) Contaminating radiation in particle form	<div style="width: 100%; background-color: blue; height: 10px;"></div>
Flammability	Self-extinguishing
Antistatic properties	EN 1149-1, static inhibitor

*The chemical and physical resistance ratings have been determined according to the applicable standards and based on our current knowledge. Please contact us for details. For additional accessories, please enquire.



ESK 3 POLYRAN-L SUPERLIGHT

Suit description, ESK 3 POLYRAN-L SUPERLIGHT:

One-piece protective suit with balaclava inside the hood for secure fit for facepieces or full-face respiratory masks. This protective suit unites excellent quality with high-grade materials. • Zip with labyrinth cover with velcro
• Elasticated hood, arm and leg cuffs (standard)

Fabric description, ESK 3 POLYRAN-L SUPERLIGHT:

- Matrix PA base fabric coated on one side with PA (Performance TP)
- Extremely light-weight and flexible
- Reusable, washable, very good mechanical properties (wear-, tear- and puncture-resistant)
- Excellent chemicals resistance to most acids and alkalis
- Applications: Maritime industry pharmaceuticals, clinics and decontamination measures/applications
- Colour: ■ white
- Approvals: Cat. 3 Type 3-B, antistatic, liquid-tight protective clothing to EN 14605:2005, EN 14126 (B), EN 1149, EN 1073-2
- Seam technology: High-quality stitched and thermo-fused seam covers

Ordering data:

- Sizes 164 to 170 cm Order no.: 0198-154 S (please enquire)
- Sizes 170 to 176 cm Order no.: 0198-154 M (please enquire)
- Sizes 176 to 182 cm Order no.: 0198-154 L (please enquire)
- Sizes 182 to 188 cm Order no.: 0198-154 XL (standard)
- Sizes 188 to 194 cm Order no.: 0198-154 XXL (standard)

ESK 3 POLYRAN-L SUPERLIGHT Art. No. 0198-154+

Additional equipment for the ESK 3 POLYRAN-L SUPERLIGHT+:

- With foot strap and drip cuff
- Version with butyl cuff seals on arm

ESK 3 POLYRAN-L SUPERLIGHT Art. No. 0198-154++

Additional equipment for the ESK 3 POLYRAN-L SUPERLIGHT++:

- With gloves and footlets with drip cuffs

ESK 3 POLYRAN-L SUPERLIGHT Art. No. 0198-154+++

Additional equipment for the series:

- With footlets and drip cuff, version with butyl cuff seals
- With face seal with zip at back

Property rating, ESK 3 POLYRAN-L SUPERLIGHT:

Chemical resistance*	<div style="width: 20%; background-color: yellow; height: 10px;"></div>
Mechanical resistance*	<div style="width: 40%; background-color: gray; height: 10px;"></div>
Liquid-tightness Infective agents – Resistance on contact with synthetic blood and body fluids Protection against biological hazards to DIN EN 14126 (B)	<div style="width: 100%; background-color: blue; height: 10px;"></div>
Aerosol-tightness (spray-tightness)	<div style="width: 100%; background-color: blue; height: 10px;"></div>
Particle-tightness (dust-tightness) Contaminating radiation in particle form	<div style="width: 100%; background-color: blue; height: 10px;"></div>
Flammability	Self-extinguishing
Antistatic properties	EN 1149-1, static inhibitor

*The chemical and physical resistance ratings have been determined according to the applicable standards and based on our current knowledge. Please contact us for details. For additional accessories, please enquire.



ESK 1 T / limited use



Suit description, ESK 1 T

One-piece protective suit (ESK 1 T in blue) with balaclava inside the hood for secure fit for facepieces or full-face masks. This protective suit unites excellent quality with high-grade materials.

- Simple zip cover
- Thumb loop and foot strap for reliable position retention (anti-slip)

Fabric description, ESK 1 T

- The fabric is a newly developed spunbonded nonwoven polypropylene fabric (SMS 50) with four layers with outstanding wearing comfort and protection properties. Outstanding abrasion resistance, tear resistance and seam strength for a long service life.
- Special protection is offered by the very high impermeability to dust (protection against radioactive dust) and the excellent impermeability index against numerous water-soluble chemicals. Despite these outstanding protection properties, the fabric offers an excellent wearing comfort.
- Special feature: Breathable
- Colour: ■ blue = standard with hood
- Approvals: Cat. 3 type 5-6-B – (antistatic) protective clothing against biological agents and Type 4, 5 and 6 with particle and aerosol protection (EN 1073-2, EN 13982, EN 13034, EN 1149, EN ISO 13688)
- Seams: Sewn
- Service life: up to 10 years according to manufacturer's guideline

Ordering data (standard blue with hood):

- Sizes 164 to 170 cm Order no.: 0290-195 S (please enquire)
- Sizes 170 to 176 cm Order no.: 0290-195 M (please enquire)
- Sizes 176 to 182 cm Order no.: 0290-195 L (please enquire)
- Sizes 182 to 188 cm Order no.: 0290-195 XL (standard)
- Sizes 188 to 194 cm Order no.: 0290-195 XXL (standard)

Ordering option: ESK 1 T o.K.

Without hood, colour: ■ white Order no.: 0290-194 S-XXL

Property rating, ESK 1 T

Chemical resistance*	<div style="width: 20px; height: 10px; background-color: yellow; border: 1px solid black;"></div>
Mechanical resistance*	<div style="width: 20px; height: 10px; background-color: gray; border: 1px solid black;"></div>
Liquid-tightness Infective agents – Resistance on contact with synthetic blood and body fluids Protection against biological hazards to DIN EN 14126 (B)	Not tested
Aerosol (spray) tightness	Not tested
Particle-tightness (dust-tightness) Contaminating radiation in particle form	<div style="width: 60px; height: 10px; background-color: blue; border: 1px solid black;"></div>
Flammability	Self-extinguishing
Antistatic properties	EN 1149

*The chemical and physical resistance ratings have been determined according to the applicable standards and based on our current knowledge.

Please contact us for details.
For additional accessories, please enquire.



ESK 1 T Plus / limited use



Suit description, ESK 1 T plus

One-piece protective suit with balaclava inside the hood for secure fit for facepieces or full-face respiratory masks. This protective suit unites excellent quality with high-grade materials.

- Simple zip cover
- Thumb loop for reliable position retention (anti-slip)
- Footlets

Fabric description, ESK 1 T plus

- The fabric is a newly developed spunbonded nonwoven polypropylene fabric (Puntiform®) with four layers with outstanding wearing and protection properties. Outstanding abrasion resistance, tear resistance and seam strength for a long service life.
- Special protection is offered by the very high impermeability to dust (protection against radioactive dust) and the excellent impermeability index against numerous water-soluble chemicals. Despite these outstanding protection properties, the fabric offers an excellent wearing comfort.
- Special feature: Breathable fabric with additional outer coating.
- Colour: ■ white
- Approvals: Cat. 3 type 4-6-B – (antistatic) protective clothing against biological agents and Type 4, 5 and 6 with particle and aerosol protection (EN 1073-2, EN 14126, EN 14605, EN 13982, EN 13034, EN 1149, EN ISO 13688)
- Seams with covered, sealed thermo tapes
- Service life: up to 10 years according to manufacturer's guideline

Ordering data:

- Sizes 164 to 170 cm Order no.: 0290-196 S (please enquire)
- Sizes 170 to 176 cm Order no.: 0290-196 M (please enquire)
- Sizes 176 to 182 cm Order no.: 0290-196 L (please enquire)
- Sizes 182 to 188 cm Order no.: 0290-196 XL (standard)
- Sizes 188 to 194 cm Order no.: 0290-196 XXL (standard)

Property rating, ESK 1 T plus

Chemical resistance*	<div style="width: 20px; height: 10px; background-color: yellow; border: 1px solid black;"></div>
Mechanical resistance*	<div style="width: 20px; height: 10px; background-color: gray; border: 1px solid black;"></div>
Liquid-tightness Infective agents – Resistance on contact with synthetic blood and body fluids Protection against biological hazards to DIN EN 14126 (B)	Not tested
Aerosol-tightness (spray-tightness)	<div style="width: 60px; height: 10px; background-color: blue; border: 1px solid black;"></div>
Particle-tightness (dust-tightness) Contaminating radiation in particle form	<div style="width: 60px; height: 10px; background-color: blue; border: 1px solid black;"></div>
Flammability	Self-extinguishing
Antistatic properties	EN 1149

*The chemical and physical resistance ratings have been determined according to the applicable standards and based on our current knowledge.

Please contact us for details.
For additional accessories, please enquire.





Limited use

Suit description, ESK 1 PE-D:

One-piece protective suit with balaclava inside the hood for secure fit for facepieces or full-face respiratory masks. This protective suit unites excellent quality with high-grade materials.

- With footlets and drip cuff, sleeves with drip cuff and integrated elastic closure with thumb loop
- Double zip cover with additional adhesive tape cover
- Thumb loop and foot strap for reliable position retention (anti-slip)

Fabric description, ESK 1 PE-D

- PERFORMANCE PE-D fabric with antistatic properties:
The ESK 1 PE-D protective clothing has good electrical properties, carries no electrostatic charge and has a residual potential discharge time according to EN 1149 that is neither too long nor too short. The fabric offers an exceptional protection against radioactive particles, biological hazards and chemicals; it has limited flame-retardance and is self-extinguishing.
- Applications: Pharmaceuticals, clinics, military and civil defence, industry and firefighters
- Special feature: Excellent chemicals resistance
- Colour: yellow
- Approvals: Cat. 3 Type 3b (antistatic, liquid-tight protective clothing), also Types 4, 5 and 6 with NBC protection (nuclear to EN 1073-2, biological to EN 14126:2003 and chemical to EN 14605)
- Seam technology: High-quality stitched and thermo-fused seam covers
- Service life:
ESK 1 PE-D: up to 10 years according to manufacturer's guideline
ESK 1 PE-D+: up to 5 years according to manufacturer's guideline

Ordering data:

- Sizes 164 to 170 cm Order no.: 0290-206 S (please enquire)
- Sizes 170 to 176 cm Order no.: 0290-206 M (please enquire)
- Sizes 176 to 182 cm Order no.: 0290-206 L (please enquire)
- Sizes 182 to 188 cm Order no.: 0290-206 XL (standard)
- Sizes 188 to 194 cm Order no.: 0290-206 XXL (standard)

Ordering option: ESK 1 PE-D+:

With additional features: order no. 0292-206

- With glove system: integrated NEO NBC elastomer overglove; size: 10 (for other sizes please enquire)
- With integrated footlets
- For additional accessories (boots), please enquire
- In sizes S, M, L (please enquire), XL and XXL (standard)

Property rating, ESK 1 PE-D:

Chemical resistance*	<div style="width: 100%; height: 10px; background-color: yellow;"></div>
Mechanical resistance*	<div style="width: 20%; height: 10px; background-color: gray;"></div>
Liquid-tightness	<div style="width: 100%; height: 10px; background-color: blue;"></div>
Infective agents – Resistance on contact with synthetic blood and body fluids Protection against biological hazards to DIN EN 14126 (B)	<div style="width: 100%; height: 10px; background-color: blue;"></div>
Aerosol-tightness (spray-tightness)	<div style="width: 100%; height: 10px; background-color: blue;"></div>
Particle-tightness (dust-tightness) Contaminating radiation in particle form	<div style="width: 100%; height: 10px; background-color: blue;"></div>
Flammability	Self-extinguishing
Antistatic properties	EN 1149-1

*The chemical and physical resistance ratings have been determined according to the applicable standards and based on our current knowledge. Please contact us for details. For additional accessories, please enquire.



ESK 3 ANTIVIR ONE



Suit description, ESK 3 ANTIVIR ONE:

One-piece reusable protection suit with balaclava inside the hood, for secure sealing of full-face masks. This protective suit unites excellent quality with high-grade materials.

Features:

- Zip with labyrinth cover with velcro
- Elasticated hood, arm and leg cuffs (standard)

Fabric description – ANTIVIR (trilaminate)

- Extra light trilaminate tested against virus and bacteria contamination

Optimum protection

- Against viruses, bacteria and infective agents
- Liquids, (radioactive) particles and dusts

Sustainable & environment-friendly

- Reusable up to 100 times, washable up to 95 °C

Extremely robust

- More tear-resistant, abrasion-resistant and puncture-resistant than conventional limited use protective suits

Superior wearing comfort

- Breathable membranes
- Ultralight and flexible

Excellent resistance to certain chemicals

- See list of chemicals for ESK 3 ANTIVIR protective suits
- Seam technology: High-quality stitched and thermo-fused seam covers

- Colour: ■ turquoise

Applications

For use in industry, pharmaceuticals, hospitals, rescue and emergency services

Approvals:

EN 14126 (B): Protective clothing – Performance requirements and test methods for protective clothing against infective agents (and EN ISO 13688). Further tested material properties against bacterial/virus penetration, water tightness/water vapour, particles, microbiological purity, biocompatibility according to EN ISO 10993 and EN 13795 (surgical clothing and drapes)

Ordering data:

Sizes 164 to 170 cm Order no.: 0198-155 S (please enquire)

Sizes 170 to 176 cm Order no.: 0198-155 M (please enquire)

Sizes 176 to 182 cm Order no.: 0198-155 L (please enquire)

Sizes 182 to 188 cm Order no.: 0198-155 XL (standard)

Sizes 188 to 194 cm Order no.: 0198-155 XXL (standard)

Property rating, ESK 3 ANTIVIR ONE:

Chemical resistance*	<div style="width: 20px; height: 10px; background-color: yellow; border: 1px solid black;"></div>
Mechanical resistance*	<div style="width: 40px; height: 10px; background-color: grey; border: 1px solid black;"></div>
Liquid-tightness Infective agents – Resistance on contact with synthetic blood and body fluids Protection against biological hazards to DIN EN 14126 (B)	Not tested
Aerosol-tightness (spray-tightness)	<div style="width: 60px; height: 10px; background-color: blue; border: 1px solid black;"></div>
Particle-tightness (dust-tightness) Contaminating radiation in particle form	<div style="width: 60px; height: 10px; background-color: blue; border: 1px solid black;"></div>

*The chemical and physical resistance ratings have been determined according to the applicable standards and based on our current knowledge.

Please contact us for details.

For additional accessories, please enquire.



ESK 3 ANTIVIR TWO



Suit description, ESK 3 ANTIVIR TWO

One-piece reusable protection suit with balaclava inside the hood, for secure sealing of full-face masks. This protective suit unites excellent quality with high-grade materials.

Additional equipment:

- Zip with labyrinth cover with velcro
- With footlets and drip cuff
- Version with butyl cuff seals on arm and in head area (face seal)

Fabric description – ANTIVIR (trilaminate)

- Extra light trilaminate tested against virus and bacteria contamination

Optimum protection

- Against viruses, bacteria and infective agents
- Liquids, (radioactive) particles and dusts

Sustainable & environment-friendly

- Reusable up to 100 times, washable up to 95 °C

Extremely robust

- More tear-resistant, abrasion-resistant and puncture-resistant than conventional limited use protective suits

Superior wearing comfort

- Breathable membranes
- Ultralight and flexible

Excellent resistance to certain chemicals

- See list of chemicals for ESK 3 ANTIVIR protective suits
- Seam technology: High-quality stitched and thermo-fused seam covers

- Colour: ■ turquoise

Applications

For use in industry, pharmaceuticals, hospitals, rescue and emergency services

Approvals:

EN 14126 (B): Protective clothing – Performance requirements and test methods for protective clothing against infective agents (and EN ISO 13688). Further tested material properties against bacterial/virus penetration, water tightness/water vapour, particles, microbiological purity, biocompatibility according to EN ISO 10993 and EN 13795 (surgical clothing and drapes)

Ordering data:

Sizes 164 to 170 cm Order no.: 0198-155+ S (please enquire)

Sizes 170 to 176 cm Order no.: 0198-155+ M (please enquire)

Sizes 176 to 182 cm Order no.: 0198-155+ L (please enquire)

Sizes 182 to 188 cm Order no.: 0198-155+ XL (standard)

Sizes 188 to 194 cm Order no.: 0198-155+ XXL (standard)

Property rating, ESK 3 T ANTIVIR TWO:

Chemical resistance*	<div style="width: 20px; height: 10px; background-color: yellow; border: 1px solid black;"></div>
Mechanical resistance*	<div style="width: 40px; height: 10px; background-color: grey; border: 1px solid black;"></div>
Liquid-tightness Infective agents – Resistance on contact with synthetic blood and body fluids Protection against biological hazards to DIN EN 14126 (B)	Not tested
Aerosol-tightness (spray-tightness)	<div style="width: 60px; height: 10px; background-color: blue; border: 1px solid black;"></div>
Particle-tightness (dust-tightness) Contaminating radiation in particle form	<div style="width: 60px; height: 10px; background-color: blue; border: 1px solid black;"></div>
Flammability	Self-extinguishing
Antistatic properties	EN 1149

*The chemical and physical resistance ratings have been determined according to the applicable standards and based on our current knowledge.



Example illustration: ESK ANTIVIR ONE with external powered filter unit



VENTILATION SYSTEM C2F powered filter unit Ex (hazardous area) and MEDICAL versions also available (colour: green)

- The suit is ventilated with a powered filter unit, for example with a ventilated face shield filter. These products feature a visual indication and alarm for remaining battery power and filter saturation. The visual signal is visible both to the wearer and other team members, allowing a partner check during operations, as has been confirmed by safety experts from fire services, disaster relief organizations and the police.
- This system also allows easy putting on and connection of the air supply equipment. The powered filter system is worn on the outside (ESK series).
- The filters can optionally be protected with splash guards, providing protection for elastomer guards. The ventilation system ensures a comfortable climate and sufficient ventilation at a constant air throughput. The area around head is sufficiently ventilated.

Note: The ventilation system (powered filter unit) and the required hood/mask/face shield must be ordered separately.
You can find a suitable selection under CPS accessories.

New generation of powered breathing apparatus for the filtration of contaminants in the form of gases, vapours, particles and combinations thereof.

Despite its compact size and low weight, the Chemical 2F offers high mechanical and chemical resistance as well as UV-resistance. Its design and IP64 protection class allow decontamination in the shower. The unique automatic locking system prevents penetration of hazardous materials during filter changes. The full colour display shows all relevant information.

Features and benefits

- Compact design and low weight
- High mechanical and chemical resistance
- Resistance to penetration by liquids and solid particles – IP64
- Decontamination possible in a shower
- Unique automatic locking system
- Enhanced electronic warning system
- Full colour TFT display for clear indication of all relevant information
- Individual working modes HOOD/MASK
- Air flow 120–235 l/m
- Lithium-ion battery and quick charger (charging time <3 h)

Applications

- Chemical industry
- Laboratories
- Pharmaceutical industry
- Renovation work



The new high-performance lithium-ion battery is finally available as a smart option for Chemical 2F®. The high-performance battery increases the operating time to up to 16 hours.

This means that you no longer need to change or charge the battery for a longer period of time when using a combination of gas and vapour filters.

Technical data

- Air flow 120–235 l/m
- Operating time up to 10 hours with standard battery and up to 16 hours with high-performance battery
- Weight 960 g (with standard battery)
- Noise emission level max. 62 dB
- Dimensions 240 mm x 110 mm x 120 mm
- Standard battery lithium-ion 14.4 V, 2.6 Ah
- High-performance battery lithium-ion 14.4 V, 5.2 Ah
- Certification to EN 12941 TH3, EN 12942 TM3

Product description

Complete sets
Chemical 2F with accessories
(comfort belt, charger, battery and
Air flow indicator and hose, without mask and/or ventilated face shield)

Product code

Article number:

**0270-300
plus code:**

Code C2F:
MIC51 00 00FC

Spare parts, accessories

- Lightweight flexible QuickLOCK™ hose – CA40x1/7" 71 00 60
- QuickLOCK™ rubber hose – CA40x1/7" 71 00 86
- Padded comfort belt 2F 71 00 92
- Decontaminable belt 51 00 41
- Decontaminable harness 51 00 42
- Padded comfort harness 52 00 44.1
- Lithium-ion standard battery 14.4 V, 2.6 Ah 51 00 10
- Lithium-ion high-performance battery 14.4 V, 5.2 Ah 51 00 20
- Battery charger 51 00 30EUR
- Battery charger (UK plug) 51 00 30UK
- Hood CA-10, grey, chem. resistant 721002
- Hood CA-1 (short), orange 720102
- Hood CA-1 (short), blue 720102B
- Hood CA-2 (long), orange 720202
- Hood CA-2 (long), blue 720202 B
- UniMask, grey 720300.01
- UniMask "neoprene" 720300.08

Filter (article number "Filter": 0270-304 plus filter code)

- Particle filter P3 50 00 48
- Combined filter A2B2E2K2 P3 50 01 68
- Combined filter ABEK Hg P3 50 01 66

TESIMAX combination filter C2-F CBRN/NBC – A2B2E2K2P3 according to EN 12941, EN 12942, EN 14387, NBC gases

For our comprehensive range of filters, see the next page.

For a suitable selection of hoods and ventilated face shield systems, see "CPS accessories" in this catalogue.

What should I do with ESK protective suits after using them as protection against COVID-19?

Answer:

There is currently no evidence that respiratory viruses such as COVID-19 are transmitted via textiles or bed linen.

However, as diseases can be transmitted via droplets, we recommend immediate reconditioning/washing of the protective suits. If a resident or patient has become infected with COVID-19, take the following steps:

- Take off the suit in the same way as a limited use protective suit.
- Take care to touch the protective suits as little as possible. Do not touch your nose, mouth, eyes or face under any circumstances while handling the product.
- For cleaning, place the protective suits directly in the washing machine or, if available first in a water soluble laundry bag (30/60 °C, available from TESIMAX) and do not take them out again before putting them in the washing machine.
- Wash the protection suits at minimum temperature (up to 40 °C for POLYRAN, between 40 and 60 °C (recommended) or 95 °C for ANTI-VIR; steam sterilization is also possible) using a suitable detergent*. Then dry them according to the applicable instructions/procedure, e.g. by hanging them up to dry. ANTI-VIR protective suits can also be tumble-dried.
- Wash your hands and face often and thoroughly using hand disinfectant.
- In the laundry and during transport, keep clean protective suits strictly separate from dirty laundry. Disinfect all hard surfaces that come into contact with clean and dirty protective clothing with an EPA-registered disinfectant for hard surfaces that is effective against COVID-19.

Must contaminated protective clothing be disposed of by incineration?

- **No.** Only clothing contaminated with highly infective agents must be decontaminated at the place of usage/contamination. Protective clothing that is contaminated with coronavirus is not highly infectious.

Is laundry contaminated with the coronavirus considered highly infectious laundry?

- **No.** It can be fed into a disinfecting washing process with scope B. Scope B = suitable for inactivation of viruses.

Suitable detergent

- Like hospital laundry, washing procedures for protective clothing used in the emergency/ambulance service must have proven disinfection efficacy. This is given if the products are listed by an approved body, such as the RKI (Robert Koch Institute) and/or the VAH (Verbund angewandter Hygiene) in Germany.
- The RKI is a federal institute under the auspices of the Federal Ministry of Health and is the central institution of the German federal government in the field of disease monitoring and prevention.

- Contact TESIMAX for further information on appropriate disinfectants and proper laundry handling procedures.

USAGE TIP:

- **EASY WASH with VIRUSBLOCK:** As an alternative to quick disinfection for (private) end users, washing and gentle drying at 40 °C in a domestic washing machine is possible for ANTI-VIR protective suits with VIRUSBLOCK (see user manual).

- Service providers and medical staff should wear ESK series protective suits to avoid infection with COVID-19 (droplets, aerosols).

- Firefighters and first responders should wear ESK series protective suits to avoid infection with COVID-19 (droplets, aerosols).

- Hotel and hospital employees should wear suitable personal protective equipment when handling dirty bedding.

- Others as well as service providers who are at an increased risk of contact with COVID-19 infected persons should use ESK protective clothing.

- Brief your employees thoroughly regarding correct hand washing as well as putting on and taking off protective equipment.

Water soluble laundry bag

- For cold water >30 °C (for hot water >60 °C) (standard bag)
- The laundry bags are available in various sizes. The standard colours are neutral and red. As standard, hot water bags have a red sealing tape and cold water bags with blue one.

Applications:

Packaging of bedding infested with bugs, infectious laundry or dirty laundry in clinics, old people's and nursing homes, hotels, prisons, kindergartens as well as in the public sector, police, firefighters, disaster relief and others.

All products are biodegradable.

To ensure that the soluble laundry bag has fully dissolved, add detergent or disinfectant only after the pre-wash programme.

ESK SERIES standard: EN 14126 Protective clothing – Performance requirements and test methods for protective clothing against infective agents

Applications

This standard specifies the requirements and test methods for reusable protective clothing against infective agents that is limited in use.

Performance requirements for material

1. Mechanical requirements and flammability requirements (chemical requirements where applicable) shall be tested and classified in accordance with the test procedures and performance classification system specified in the relevant sections of EN 14325.

2. Performance requirements for resistance to penetration by infective agents are verified by the following tests:

Resistance to penetration of contaminated fluids under hydrostatic pressure. Resistance to penetration by infective agents due to mechanical contact with substances containing contaminated liquids. Resistance to penetration of contaminated liquid aerosols. Resistance to penetration of contaminated solid particles. Performance requirements for seams, joints and assemblages.

Seams, joints and assemblages for protective clothing against infective agents must be tested and classified in accordance with the requirements of the relevant sections of EN 14325.

Requirements for the whole suit

Protective clothing against infective agents must meet the relevant requirements of EN 13688 (general requirements for protective clothing) as well as the requirements for the entire suit as specified in the relevant standard for chemical protective clothing.

Markings

The clothing must be labelled according to the applicable requirements of the relevant standard for chemical protective clothing. The marking for protective clothing against infective agents must contain the following additional information:

1. The number of this European standard.
2. The type of protective clothing with the initial letter "B".
3. The biohazard pictogram



ANTIVIR ONE apron

Description of ANTIVIR ONE apron:

One-piece apron, for safe working e.g. in the dental sector. This apron suit unites excellent quality with high-grade materials.

Features:

- With ties at neck and waist
- Elasticated arm cuffs (standard)

Fabric description – ANTIVIR (trilaminate)

- Light trilaminate tested against virus and bacteria contamination
- Standard 100 by OEKO-TEX
- Reusable, washable
- Breathable
- Optimal protection and durability, excellent wearing comfort
- Trilaminate complies with EN 13795 – Surgical clothing and drapes
- Seam technology: High-quality stitched and thermo-fused seam covers

- Colour: ■ turquoise

Approvals:

EN 14126 (B): Protective clothing – Performance requirements and test methods for protective clothing against infective agents (and EN ISO 13688). Further tested material properties against bacterial/virus penetration, water tightness/water vapour, particles, microbiological purity, biocompatibility according to EN ISO 10993 and EN 13795 (surgical clothing and drapes)

Ordering data

ANTIVIR apron: Article number: 0245-155 (one size)

Property rating (ESK 3) ANTIVIR ONE:

Chemical resistance*	<div style="width: 20px; height: 10px; background-color: yellow; border: 1px solid black;"></div>
Mechanical resistance*	<div style="width: 20px; height: 10px; background-color: gray; border: 1px solid black;"></div>
Liquid-tightness Infective agents – Resistance on contact with synthetic blood and body fluids Protection against biological hazards to DIN EN 14126 (B)	Not tested
Aerosol-tightness (spray-tightness)	<div style="width: 60px; height: 10px; background-color: blue; border: 1px solid black;"></div>
Particle-tightness (dust-tightness) Contaminating radiation in particle form	<div style="width: 60px; height: 10px; background-color: blue; border: 1px solid black;"></div>

*The chemical and physical resistance ratings have been determined according to the applicable standards and based on our current knowledge.

Please contact us for details.

For additional accessories, please enquire.



ANTIVIR ONE cap/bandana

Description of ANTIVIR ONE cap and bandana:

Cap and bandana, for safe working e.g. in the dental sector. This cap unites excellent quality with high-grade materials.

Features of the cap: Elasticated seam

Features of the bandana: with opening for hairs at back

Fabric description – ANTIVIR (trilaminate)

- Light trilaminate tested against virus and bacteria contamination
- Standard 100 by OEKO-TEX
- Reusable, washable
- Breathable
- Optimal protection and durability, excellent wearing comfort
- Trilaminate complies with EN 13795 – Surgical clothing and drapes
- Seam technology: High-quality stitched and thermo-fused seam covers

- Colour: ■ turquoise

Approvals:

EN 14126 (B): Protective clothing – Performance requirements and test methods for protective clothing against infective agents (and EN ISO 13688). Further tested material properties against bacterial/virus penetration, water tightness/water vapour, particles, microbiological purity, biocompatibility according to EN ISO 10993 and EN 13795 (surgical clothing and drapes)

Ordering data ANTIVIR cap: Article number: 0670-155 (one size)

Packing: 1 std. pack = 10 pieces

Ordering data ANTIVIR bandana: Article number: 0672-155 (one size)

Packing: 1 std. pack = 10 pieces

Property rating (ESK 3) ANTIVIR ONE:

Chemical resistance*	<div style="width: 20px; height: 10px; background-color: yellow; border: 1px solid black;"></div>
Mechanical resistance*	<div style="width: 20px; height: 10px; background-color: gray; border: 1px solid black;"></div>
Liquid-tightness Infective agents – Resistance on contact with synthetic blood and body fluids Protection against biological hazards to DIN EN 14126 (B)	Not tested
Aerosol-tightness (spray-tightness)	<div style="width: 60px; height: 10px; background-color: blue; border: 1px solid black;"></div>
Particle-tightness (dust-tightness) Contaminating radiation in particle form	<div style="width: 60px; height: 10px; background-color: blue; border: 1px solid black;"></div>

*The chemical and physical resistance ratings have been determined according to the applicable standards and based on our current knowledge.

Please contact us for details.

For additional accessories, please enquire.



ESK SERIES - Accessories

GONDOR protective goggles

Applications & usage:

Liquids | coarse dust | molten metal

Features

- Full-view safety goggles for a very wide range of applications
- Tight wraparound seal
- Indirect ventilation system prevents lens fogging
- Wide, flexible textile strap ensures a firm fit
- GONDOR CHEM: Version with elastic headband
- GONDOR NV: Particulate version without air inlets
- Available with shatter-proof polycarbonate lenses
- Can be used with a prescription lens insert using the RX-Clip

Properties:

Weight: 135 g

Glass material: Polycarbonate/acetate

UV protection: 100%

Coatings: HC = scratch-proof | AF AS = antifog, antistatic, scratch resistant |
HC AF AS = scratch-proof, antifog, antistatic

Frame colours: smoke | black and red

Order no.: 4000-035



Protective boots HPF CHEM P-L

- Safety class: EN ISO 20345:2011 – S5 – SRA
- Electrical insulation: Antistatic
- Toe protection: Steel cap
- Sole puncture protection: Steel midsole
- Outer fabric: PVC/nitrile rubber for longer service life
- Additional feature: Ankle support
- Colour: Black
- Lining: antibacterial fabric
- Sole: PVC, conditionally resistant to oil, petrol and acids; antistatic
- Available sizes: EU39 to EU48
- SRA-CERTIFIED ANTI-SLIP OUTSOLE:
- PROTECTIVE CAP AND MIDSOLE:
- Perfect fit and comfortable to wear in everyday use.
- One hundred percent waterproof to keep your feet dry.
- OIL-RESISTANT OUTSOLE:
- SHOCK ABSORPTION: The boots feature shock absorbers in the heel region
- CHEMICALS RESISTANCE: Protection against many different chemicals.

Package content: 1 pair of HPF CHEM P-L in the size and colour of your choice

Order no.: 0176-005



ESK SERIES - Accessories

Ultranitril 492 protective glove

Good mechanical resistance and long-lasting chemical protection

- Dexterity and wearing comfort due to the anatomical shape and the quality of the flock-lining
- Longer service life: excellent mechanical resistance (abrasion, puncture resistance)

Applications:

- Treating/degreasing metals with solvents
- Machining parts using cutting oil
- Handling aggressive chemical products
- Handling PVC-based glues
- Preparing coatings and varnishes
- Handling oils, solvents and detergents
- Handling plant treatment products

Properties:

Material: Nitrile

Length: 32 cm

Thickness: 0.38 mm

Wrist: Straight cuff edge

Colour: Green

Inner finish: Flock-lining

Outer finish: Embossed texture on palm

Sizes: 6, 7, 8, 9, 10, 11

Packaging: 1 pair/bag, 10 pairs/bag, 100 pairs/carton

Order no.: 2507-492



Solo 997 protective glove

Excellent disposable protection glove

- Excellent dexterity thanks to flexibility and reduced material thickness
- Can be worn alone or as an outer glove
- Recommended for oily environments in industry
- Previous name: Solo Blue 997

Applications:

- Assembly of small oily parts
- Work with composites (resins)
- Manufacturing of medicines
- Pharmaceutical preparation
- Research, analysis, handling of precision parts

Properties:

Material: Nitrile

Length: 24 cm

Thickness: 0.1 mm

Colour: Blue

Inner finish: Chlorinated

Outer finish: Smooth with pebbled fingertips

Sizes: 6, 7, 8, 9

Packaging: 100 gloves/box; 1000 gloves/carton

Order no.: 2507-997





Accessories

**ANGEL SENSOR SYSTEMS
ORDERING DATA OVERVIEW**

ANGEL LIGHT (LED sensor light system – complete for VS 5, VSF 5, VS 20, VSF 20 and VSF 21)	Order no.: 0181-022
ANGEL SIGNAL (LED WARNING SIGNAL with F-AU 1 SYSTEM for VS 20, VSF 20)	Order no.: 0181-033
ANGEL CONTROL/SIGNAL: TESIMAX sensor housing in CPS (pressure/temperature) with Bluetooth for VS 5, VSF 5, VS 20, VSF 20 and VSF 21	Order no.: 0181-050
ANGEL CONTROL/SIGNAL: TESIMAX holder cuff	Order no.: 0181-051
ANGEL CONTROL/SIGNAL: TESIMAX control and visualisation system holder of your choice	Order no.: 0181-053
ANGEL CONTROL/SIGNAL: TESIMAX app (for connecting sensor unit with control and visualisation system holder)	Order no.: 0181-052
ANGEL CONTROL/SIGNAL: TESIMAX COMPLETE STARTER KIT for VS 5, VSF 5, VS 20, VSF 20 and VSF 21 protection suits	Order no.: 0181-055
ANGEL EYE (CPS complete/starter camera system: Versions A, B)	Order no.: 0181-042
ANGEL EYE (CPS camera set without transmitter/receiver)	Order no.: 0181-044
ANGEL EYE OPTION: Transmitter/receiver unit incl. rechargeable batteries and inside holder	Order no.: 0181-045
ANGEL EYE OPTION: Tablet for image playback (please enquire)	Order no.: 0181-046
ANGEL HEART watch (Bluetooth heart frequency monitor)	Order no.: 0181-040
ANGEL HEART tablet (Bluetooth heart frequency monitor)	Order no.: 0181-046
ANGEL HEART app heart frequency monitor to watch/smartphone via Bluetooth)	Order no.: 0181-048
ANGEL SENSOR CENTRAL BATTERY	Order no.: 0181-031
- The battery pack can be used for all versions.	
- Required cables and plugs are (exclusively) integrated into the protective suit ex works.	

ANGEL EYE® SYSTEM (VS 5, VSF 5, VS 20, VSF 20 and VSF 21 series)

With this optional system, you can record and transmit operations in real time during CPS deployment or in training. You can get the required equipment (camera, smartphone etc.) directly from us. And we can also set it up for an additional fee on request.

OBSERVE:
The camera only works in combination with the TESIMAX transmitter/receiver included in the complete/system/starter package (including required batteries).

The camera system integrates with the TESIMAX protective suit. Depending on the protective suit, a special version of the camera system is recommended. Two versions, A and B are available.
-Specify when ordering.

Order no.: 0181-042 A/B

A: Lipstick cam in conjunction with helmet adaptation and carrying harness (type 3 braces) for transmitter/battery unit (VS 5, VSF 5, VS 20 VSF 20 and VSF 21), including manufacturer's hazardous zone approval.

A. = STANDARD SYSTEM - RECOMMENDED

B: Mini cam attached inside the visor of the VS 20 (VSF 20), without harness, but permanently integrated in the suit, incl. transmitter, battery and cabling



ANGEL LIGHT® SYSTEM (VS 5, VSF 5, VS 20, VSF 20 and VSF 21 series)

The ANGEL LIGHT® SENSOR SYSTEM allows safe working even at night or in dark rooms, tunnels, underground, etc. and ensures that you have your hands free for your task. It is the world's only sensor-controlled LED suit system and is patented by TESIMAX.

- ANGEL LIGHT LED lighting system Order no.: 0181-022
Full set
- ANGEL LIGHT LED battery pack (not charged) Order no.: 0181-031
- ANGEL LIGHT Battery charger Order no.: 0181-032

As of 2021, ANGEL LIGHT, CONTROL and SIGNAL have a central rechargeable battery)





SAFETY & TECHNOLOGY

ANGEL CONTROL SENSOR SYSTEM (T.AC) for VS 5, VSF 5, VS 20, VSF 20 and VSF 21 series

System components 1-4:

No. 1: Protective suit SENSOR HOUSING UNIT (BT) – internal

No. 2: ANGEL CONTROL– Mobile holder for electronic control and visualisation system (T.AC) app

No. 3) TESIMAX ANGEL CONTROL – Electronic control and visualisation system

No. 4: TESIMAX ANGEL CONTROL app

In general, the system is optimized for TESIMAX VS 20 and VSF 20 suits but can also be used in a light version for VS 5, VSF 5 and VSF 21 (please enquire).

No. 1: ANGEL CONTROL – CPS SENSOR HOUSING UNIT (BT)

The newly developed ANGEL CONTROL SENSOR SYSTEM is an internal, splash-proof CPS sensor system in a housing with BT connectivity to the T.AC app. It supports the wearer's perception in action through various sensors inside and on the outside of the suit.

- The sensor measures the pressure and temperature inside the suit
 - with thermal sensors (internal temperature)
 - with pressure sensors (envelope leaktightness and exhalation valve function test)
 - For further sensors please enquire (the system is modular and expandable)
- The data is automatically transmitted to the T.AC app of the electronic control and visualisation system via Bluetooth
- Suits are numbered
- Countdown to deployment: If the sensor readings fall outside the tolerance levels, an LED warns the suit wearer.

- The system can be easily integrated in VS 20/VSF 20 suits and is easy to remove.

- **The system has the following properties:** chemicals resistant, gas-, liquid-, particle- and aerosol-tight, washable, decontaminable, suitable for use in hazardous areas.

T.AC SENSOR HOUSING UNIT (BT): Order no.: 0181-050

No. 2: T.AC mobile holder

The removable (chemicals resistant and decontaminable) protective suit holder is optimised for the tested, modular electronic T.AC control and visualisation system. The mobile holder is a basic requirement for the ANGEL CONTROL system in conjunction with the T.AC sensor unit and the T.AC app.

T.AC 20 MOBILE HOLDER: Order no.: 0181-051

No. 3: T.AC smartphone (Android version 5.0 or higher (iOS is not supported))

There are 3 different T.AC control and visualisation systems, each selected, tested and optimized for mobile holder (No. 1):

- Rugged, waterproof system; append suffix "tough" to order number
- Rugged, waterproof system with advanced features such as thermal imaging camera, ambient air sensor, etc.; append suffix "tough & sense" to order number
- Rugged, waterproof system for hazardous areas; append suffix "ex" to order number

T.AC SMARTPHONE: Order no.: 0181-053 + suffix (see above)

No. 4: T.AC app

- Software platform for camera and sensor data wireless transmission (BT/WLAN).
- This app starts the setup for the camera and sensor unit.

T. AC App: Order no.: 0181-051

• ANGEL SENSOR SYSTEMS BATTERY PACK

The central, internal battery pack supplies all TESIMAX SENSOR systems:

- ANGEL LIGHT, ANGEL SIGNAL (only in combination with F-AU 1-3), ANGEL HEART
- Order no.: 0181-031



SAFETY & TECHNOLOGY

ANGEL HEART® SENSOR SYSTEM

The safety and success of your team depend on its physical and mental preparation. If the team trains too hard, it risks fatigue in action; if it does not train enough, it may lack the ability to correctly assess the situation in an emergency, which presents an added risk. The key to the best possible performance is to monitor the physical and mental strain in both training and action by measuring the heart frequency:

- Measuring physical strain and stress responses during fitness training and in action; simulations in real time.
- Reduces stress and improves reaction, performance and recovery times.
- Helps emergency service teams to stay in control in danger situations, whether firefighting, police, the military or other emergency services engaged in protecting the public.
- Easy to handle – plug & play for direct monitoring of training intensity and recovery times.
- Recording and analysis of real-time training data
- Performance boost through optimized training regime and intensity; prevention of incorrect or excessive training.

ORDERING DATA, ANGEL HEART:

ANGEL HEART HF monitoring sensor (for model please enquire)
Order no.: 0181-040

ANGEL HEART HF app
Order no.: 0181-048

ANGEL HEART HF tablet (for model please enquire)
Order no.: 0181-046



TESIMAX TIP:

Get your up-to-the-minute, functional protective suit training package for easy heart rate monitoring and suitable functional underwear (e.g. MAX operation hygiene overall) from us.

PROTECTIVE GLOVES

MECH BLUE 351

Specific advantages

- Excellent comfort and good protection against cold through seamless cotton inner knit
- High resistance to oils, greases and hydrocarbons
- Suitable for food contact, except fatty foods
- Good grip due to textured surface

Application:

- POLYRAN protective suits
- As mechanical protective overglove MECH 351 for SYKAN/SILVERFLASH protective suits
- Pharmaceutical industry: maintenance and cleaning work, maintenance work in wet environments
- Mechanical industry: maintenance work in humid environment (water, oils, greases, hydrocarbons)

Approvals: according to Regulation (EU) 2016/425 and complies with standards EN 388:2016 (4.1.2.1.X); EN 374-1, Type A (K.L.M.N.P.T); EN 374-5, EN ISO 374-5:2016 and EN ISO 374-1:2016

Material:	PVC
Colour:	Blue
Interior finish:	Textile lining
Exterior finish:	Grained
Length:	30 cm
Material thickness:	1.35 cm
Size:	10 (standard for protective suits – for other sizes see the glove size chart or enquire)

Order no.: 2507-351



MECH BLACK

Specific advantages

- Longer service life due to the high material thickness (puncture and abrasion resistance)
- Protection of forearm through long cuff

Application:

- As mechanical protective overglove for all TESIMAX protective suits
- As additional thermal protective overglove, also available in silver colour.
- Approved according to Regulation (EU) 2016/425 and complies with standards EN 388 - 2342 C

* Mechanical hazards (performance levels)

- a: Abrasion resistance (0-4)
- b: Cut resistance (0-5)
- c: Tear resistance (0-4)
- d: Puncture resistance (0-4)
- e: Cut resistance TDM (A-F)
- (P): Protection against impact

Material: para-aramid with silicone coating (black or silver)
 Colour: black or silver
 Length: approx. 42 cm
 Size 12 (one size)

Order no.: 2501-224 MECH BLACK (black colour)



PROTECTIVE GLOVES

WIPAN B+ – CBRN protective glove

Specific advantages

- Excellent comfort and tactile feel in combination with additional 5-finger cotton knitted glove (inside, optional)
- Protection against intensive exposure to corrosive solvents, acids, caustic solutions and gasses, combined with sufficient protection against physical strain (according to EN 943).
- Combat gases (CBRN) tested

Application:

- SYKAN protective suits
- Firefighters for unlimited use according to EN 943
- Pharmaceutical industry and labs: maintenance and cleaning work, maintenance work in wet environments
- Mechanical industry: maintenance work in humid environment (water, oils, greases, hydrocarbons)

Approvals: according to Regulation (EU) 2016/425 and complies with standards EN 420:2003+A1:2009, EN 388:2016, EN ISO 374-1:2016+A1:2018, EN 374-2:2014, EN 374-4:2013 and EN ISO 374-5:2016

Material:	HPF elastomer incl. HPPF
Colour:	Elastomer outer glove black
Interior finish:	With integrated, chemical protection barrier glove (HPPF)
Exterior finish:	Smooth
Length:	30 cm
Material thickness:	IIR 1.5 or 0.5/0.3 cm
Size:	10 (standard for protective suits; other sizes: see glove size chart or enquire)

Order no.: 2509-005

(also available as CBRN protective glove:
 WIPAN B, without integrated HPPF barrier glove
 Order no.: 2507-630)



WIPAN C – NBC protective glove

Specific advantages

- Excellent comfort and tactile feel
- Good mechanical and cold resistance due to integrated liner
- Protection against intensive exposure to corrosive solvents, acids, caustic solutions and gasses, combined with sufficient protection against physical strain (according to EN 943).

Application:

- SYKAN/SILVERFLASH protective suits
- Firefighters for unlimited use according to EN 943
- Pharmaceutical industry and labs: maintenance and cleaning work, maintenance work in wet environments
- Mechanical industry: maintenance work in humid environment (water, oils, greases, hydrocarbons)

Approvals: according to Regulation (EU) 2016/425 and complies with standards EN 420:2003+A1:2009, EN 388:2016, EN ISO 374-1:2016+A1:2018, EN 374-2:2014, EN 374-4:2013 and EN ISO 374-5:2016

Material:	HPF elastomer
Colour:	Outer glove black
Interior finish:	With integrated liner
Exterior finish:	Smooth
Length:	30 cm
Material thickness:	Elastomer and liner approx. 1.5 mm
Size:	10 (standard for protective suits; other sizes: see glove size chart or enquire)

Order no.: 2509-001



PROTECTIVE GLOVES

WIPAN CK – THERMO NBC protective glove

Specific advantages

- Excellent comfort and tactile feel
- Good mechanical and heat and cold resistance due to integrated liner made of 100% para-aramid
- Protection against intensive exposure to corrosive solvents, acids, caustic solutions and gasses, combined with sufficient protection against physical strain (according to EN 943).

Application:

- SYKAN/SILVERFLASH protective suits
- Firefighters for unlimited use according to EN 943
- Pharmaceutical industry and labs: maintenance and cleaning work, maintenance work in wet environments
- Mechanical industry: maintenance work in humid environment (water, oils, greases, hydrocarbons)

Approvals: according to Regulation (EU) 2016/425 and complies with standards EN 420:2003+A1:2009, EN 388:2016, EN ISO 374-1:2016+A1:2018, EN 374-2:2014, EN 374-4:2013 and EN ISO 374-5:2016

Material: HPF elastomer

Colour: Outer glove black

Interior finish: With integrated 100% PARA-ARAMID liner

Exterior finish: Smooth

Length: 30 cm

Material thickness: Elastomer and liner approx. 1.5 mm

Size: 10 (standard for protective suits; other sizes: see glove size chart or enquire)

Order no.: 2509-002



PROTECTIVE GLOVES

WIPAN CK+ – THERMO-CHEM CBRN protective glove

Specific advantages

- Excellent comfort and tactile feel
- Good mechanical and heat and cold resistance due to integrated liner made of 100% para-aramid
- Protection against intensive exposure to corrosive solvents, acids, caustic solutions and gasses, combined with sufficient protection against physical strain (according to EN 943).
- Unique HPF elastomer construction with integrated 100% PARA-ARAMID liner and chemical protection barrier (HPPF)
- Combat gases (CBRN) tested

Application:

- SYKAN/SILVERFLASH protective suits
- Firefighters for unlimited use according to EN 943
- Pharmaceutical industry and labs: maintenance and cleaning work, maintenance work in wet environments
- Mechanical industry: maintenance work in humid environment (water, oils, greases, hydrocarbons)

Approvals: according to Regulation (EU) 2016/425 and complies with standards EN 420:2003+A1:2009, EN 388:2016, EN ISO 374-1:2016+A1:2018, EN 374-2:2014, EN 374-4:2013 and EN ISO 374-5:2016

Material: HPF elastomer incl. HPPF

Colour: Outer glove black

Interior finish: With integrated 100% PARA-ARAMID liner and chemical protection barrier (HPPF)

Exterior finish: Smooth

Length: 30 cm

Material thickness: Elastomer and liner approx. 1.5 mm

Size: 10 (standard for protective suits; other sizes: see glove size chart or enquire)

Order no.: 2509-003



PROTECTIVE BOOTS

HPF CHEM ULTRA GREEN NFPA (DUNLOP® HAZGUARD® ULTRA)

The world's leading hazardous substances protection boot

- Proven chemical resistance according to the applicable global standards (NFPA 1991:2016 and EN 13832)
- Specially developed PVC material for excellent chemicals protection
- Ultragrip® Sipe non-slip outsole
- Steel toe cap & steel midsole
- Meets NFPA 1991 requirements for vapour protection equipment for hazardous substance emergencies
- Protects against liquefied gas and provides limited protection against chemical deflagration
- Protects against electric shock according to ASTM F2413-11 and CSA Z195-14

NFPA 1991:2016
ASTM F2413-11 EH
CSA Z195-14 Ω

Colour: Green
Sizes: 39 to 49

Order no.: 0176-004



HPF CHEM ULTRA EN (DUNLOP® HAZGUARD® full safety ESD)

Certified chemical resistance and worker protection

- Certified chemical resistance according to EN 13832-3:2006 J, K, O, P, Q, R
- Additionally certified against sulphuric acid (50 % conc.)
- Certified according to European standard (EN ISO 20345:2011 S5 SRA AN)
- PVC blend with nitrile rubber and polymers for professional chemical protection
- Self-cleaning and SRA++ slip-certified outsole
- Steel toe cap & steel midsole
- Certified protection against electrostatic discharge (ESD) (EN 61340-4-3, Class 2)

EN ISO 20345:2011 S5 SRA AN
EN 13832-3:2006
J, K, O, P, Q, R
and L (50% conc.)
ESD: EN 61340-4-3, cl 2

Colour: Green
Sizes: 39 to 49

Order no.: 0176-006



PROTECTIVE BOOTS

HPF protective boots: ULTRA CHEM BLACK SA BF (FPA APPROVED, CBRN TESTED)

The HPF CHEM is our high performance F-NBR elastomer boot for chemical protective suits and is the standard on all of our protective suits (CHEMBA, SYKAN and SILVERFLASH) with replacement system.

- Certified according to EN 15090 TYPE 3 HI3; EN ISO 20345 S5 HRO SRC; EN 13832-3 J, P, Q; EN 13287
- Type 3 boots: Emergencies with hazardous substances, also for fire rescue, firefighting, goods air traffic, buildings, ships and other goods affected by fire.
- Highly chemical resistant
- Contact heat resistance (HRO): 1 minute at 300 °C
- Flame-retardance: 10 seconds to DIN EN ISO 15025
- Resistant against thermal flux
- Protective toe cap: Protects from impacts up to 200 joule and pressure of up to 15,000 N
- Penetration-resistant sole
- Energy-absorbent heel (20 joules)
- A: Antistatic
- Non-slip sole according to Addendum AI EN ISO 20345:2007

Colour: Black
Sizes: 39 to 49

Order no.: 0176-001

Even safer: HPF CHEM+ (please enquire)



HPF CHEM POLYRAN EN BLACK DUNLOP® ACIFORT® HEAVY DUTY

Basic resistance and protection against chemicals

- Suitable for use with protective suits (EN 943-1)
- Excellent proven toe protection
- Certified according to European standard (EN ISO 20345:2011 S5 SRA AN)
- PVC blend with nitrile rubber and polymers for basic chemical protection
- Highly abrasion resistant outsole for added durability
- Steel toe cap & steel midsole

(Tip: Also available as ESD variant – please enquire)

Colour: Yellow
Sizes: 39 to 49

Order no.: 0176-005



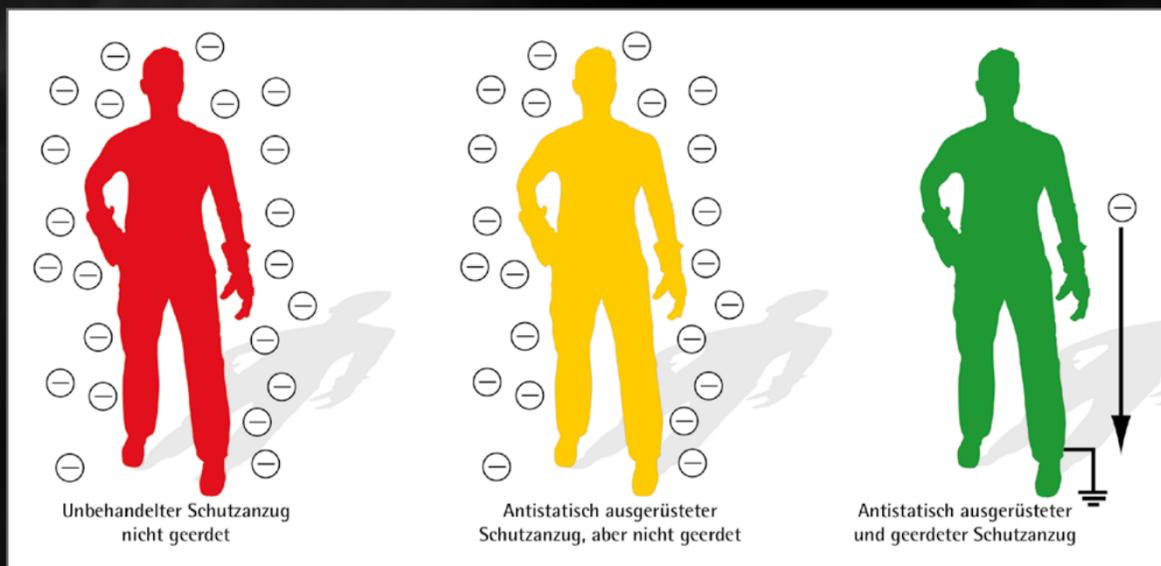
ANTISTATIC EQUIPMENT

Using static inhibitor with protective suits

The static inhibitor has been tested and certified in combination with our protective suits.

Equipped with the static inhibitor, our CHEMBA, POLYRAN, SYKAN and SILVERFLASH suits are classified as having full dissipative properties. The SILVERFLASH is dissipative without static inhibitor. All suit materials therefore meet the applicable requirements for ESD protection and hazardous areas. The protective suits are permanently equipped with static inhibitor ex works, with a storage life of up to 5 years, ideally in TESIMAX vacuum SMART STOCK packaging. Because the static inhibitor does not fully remove the risk of electrical charge, we recommend the observation of a few important safety rules:

- Protective suits must be correctly and continually earthed through conductive safety shoes, footlets, floors and/or earthing straps. If the wearer of a protective suit treated with static inhibitor is not connected to an earthed surface, the wearer and/or the protective suit will remain charged.
- When taking off the suit, make sure that the earthing is not interrupted.
- Because the antistatic film is moisture-absorbing, the static inhibitor may not be effective for longer periods in very dry conditions, for example at an air humidity of less than 25%. Testing to EN 1149/1 is carried out at a relative humidity of 25%.



TESIMAX static inhibitor for plastics

Static inhibitor for eliminating electrostatic charge. The liquid forms a thin, almost invisible and imperceptible film that reduces surface resistance and whose conductivity is sufficient to reliably prevent electrostatic charging of synthetic or textile surfaces. It reliably reduces the surface resistance.

TESIMAX static inhibitor can be conveniently applied in a thin layer with a spray bottle and spread over the surface with a lint-free cloth.

ORDERING DATA for the TESIMAX static inhibitor

TESIMAX static inhibitor for plastics, quantity unit: canister (25 l)
TESIMAX static inhibitor for plastics, quantity unit: canister (1 l)

Order no.: 0283-001
Order – no.: 0283-001 1L



		POLYRAN L (SUPER-LIGHT)	Duoform Tessaform CHEMBA	SYKAN 1-2-4	SILVERFLASH
Zone 0	An area in which an explosive atmosphere consisting of a mixture of air with flammable substances in the form of gas, vapour or mist is present continuously or for long periods.	✓	✓	✓	✓
Zone 1	An area in which an explosive atmosphere consisting of a mixture of air with flammable substances in the form of gas, vapour or mist is likely to occur under normal operating conditions.	✓	✓	✓	✓
Zone 2	An area in which an explosive atmosphere consisting of a mixture of air with flammable substances in the form of gas, vapour or mist could occur under abnormal conditions and is not likely to occur under normal operating conditions.	✓	✓	✓	✓
Zone 20	An area in which an ignitable concentration of dust is present in the air continuously, for long periods or frequently.	✓	✓	✓	✓
Zone 21	An area in which an ignitable concentration of dust in the air is likely to occur occasionally under normal operating conditions.	✓	✓	✓	✓
Zone 22	An area in which an ignitable concentration of dust in the air may occur for brief periods and is not likely to occur under normal operating conditions.	✓	✓	✓	✓

T-FIX securing systems & ergonomics upgrades

Additional inside pockets:

Two-way radio device pocket or second inner pocket for smartphone optionally available: (additional inner pocket for two-way radios and transmitter/smartphone/smart devices (right side of chest))

Order no.: 0180-010

- Radio device pocket inside (left chest)
- Radio device pocket inside (right chest)



T-FIX belay systems for protection suits

• T-FIX: Integrated hip belt with buckle for strain relief for forced ventilation system (can also be connected with T-FIX C4 eyelets, inside)

• T-FIX C1: Vertical (fall) protection with gas-tight feedthrough/connecting carabiner (without harness), $x > 1000$ N
Order no.: 4000-012

• T-FIX C2: Safety harness for CPS, without carabiner
Order no.: 4000-010

• T-FIX C3: Connecting sling & carabiner (T-FIX C1+ C2)
Order no.: 4000-011

• T-FIX C4: Horizontal material holder (eyelets) and recovery/rescue system (outside, 2 eyelets with $x > 1000$ N), with strain relief (inside), simple strap guide
Order no.: 4000-013

• T-FIX: safety climbing helmet according to EN 12492/397
Order no.: Please enquire



CPS: material rescue & recovery system (T-FIX C4), consisting of:

- Horizontal material holders (eyelets), integrated at the hips, usable as recovery/rescue system (outside, 2 eyelets), with strain relief belt inside suit.
- The eyelets are securely integrated in the protective suit fabric and are gas-tight with a tested resistance according to EN 943: $x > 1000$ N pull-out force resistance.

Note:

- Not applicable if a F-AU forced ventilation system with comparable strain-relief belt is also used
- Strain-relief belt and type II braces can be combined (recommended)

Order no.: 4000-013

Additional material loops (external)

- Single fabric hoop made of suit material (fully decontaminable)
Horizontal version on left chest (split, approx. 15 cm long). No recovery system loop; not part of the M-BGR system.

Order no.: 0180-011



BRACES SYSTEMS

• Type 1 braces (simple Y-shaped loops, adjustable with velcro)
Order no.: 0180-000

• Braces model 2 (carrying strap, pluggable into CPS if prepared, simplified donning and doffing during decontamination, with harness guide for T-FIX/T-FIX C4)
Order no. 0180-001

• Type 3 braces (with ANGEL EYE/video camera and holder for transmitter with battery)
Order no. 0180-030

• Braces feedthrough with loop inside at shoulders
Order No. 0180-017



Braces type 1



Braces type 2

- **Visor** (tinted), available with:
optional tear-off visor VS 5/VSF 5 series CPS
optional tear-off visor VS 20/VSF 20 series CPS

Tear-off visor – crystal clear for VS 5/VSF 5 Order no.: 0181-038
Tear-off visor – crystal clear for VS 20/VSF 20 Order no.: 0181-039

- **Back pad** for SCBA protection
- **Knee pads** for CPS (reinforced and made of suit material)

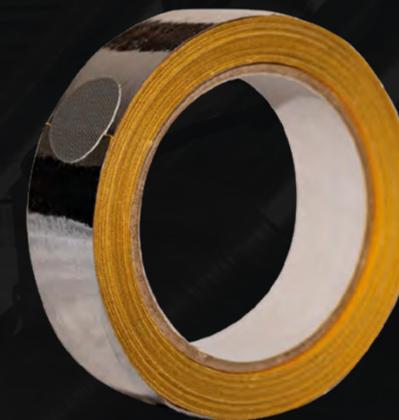


Barrier tape

Discover our new product development – the highly adhesive and secure **SILVERFLASH TAPE** chemical barrier tape.

- Protection against inorganic acids, alkalis and solvents
- Permeation data available for a wide range of chemicals
- Tested against 15 reference chemicals according to DIN EN 943 for ET CBRN protective suits
- Highly flexible and elastic
- Protects against radiant heat due to aluminisation
- Can be used in combination with type 3, 4, 5 and 6 protective clothing for an optimum seal of the clothing, especially at the joints of the PPE, e.g. gloves and sleeves.
- Colour: Silver aluminised
- Quantity: available individually packaged

Order no.: 0800-078*



- **Pressure gauge holders**, inside on visor, in 2 versions (small hoop and large hoop)



Pressure gauge holders
Large hoop



Pressure gauge holders
Small hoop

Topguard CBRN protective tape

- Topguard CBRN Protective Tape is an adhesive tape specifically designed for CBRN protection (against chemical, biological, radiological and nuclear hazards) at transitions and closures between suits and accessories, such as gloves, face mask and boots.
- It offers excellent resistance to industrial chemicals and chemicals and chemical warfare agents (CWA).
- Quantity: available individually packaged

Order no.: 0800-078*



Helmets/hard hats



Helmets/hard hats



An industrial climbing helmet in a class of its own! The INCEPTOR GRX has an ergonomic EPS thorax. A neck strap with continuous width adjustment and magnetic closure ensure outstanding wearing comfort. The gear rack, multiple helmet clips and Euroslots allow accessories to be attached. Available with or without ventilation holes and reflective stickers.

As the INCEPTOR GRX meets all performance requirements of EN 397:2012 and all requirements of the PPE Regulation, it can be CE marked and used without restriction for industrial applications.

This award-winning industrial climbing helmet impresses with its striking contours and superior wearing comfort. Its comfortable fit and ease of use make for a versatile helmet system: accessories such as headlamps, visors, hearing protection and neck guards can be easily attached, and the padding inside can be interchanged. The neck strap allows a continuous width adjustment for head circumferences from 54 to 63 cm.

- Approved safety helmet for wearing inside VS 5, VS 20, VSF 5/20 and VSF 21 series (please enquire)
- Tested safety helmet for wearing outside GS 3 and ESK series CPS (please enquire)
 - Alternative integrated, internal head protection for the GS 3 series (please enquire)
- Continuous size adjustment
- Magnetic closure prevents pinching of skin
- EPS thorax and PC/ABS shell for excellent absorption of high impact energies and high wearing comfort
- Interchangeable padding

Order no.: Please enquire



Fresh air during operations

The TESIMAX F-AU series for CPS ...

- provides breathing air that is much cleaner than environmental air
- enhances your wellbeing with efficient respiratory protection systems
- boosts your performance through effective breathing apparatus
- protects your health at all times to allow you to breathe easy

and therefore ...

- guarantees compliance with the strictest European standards
- provides the perfect respiratory protection for use with our PPE
- is ideal for environments in which a sufficient oxygen content in the air cannot be guaranteed

The products ...

- offer maximum mobility
- are used by many fire services and in industry
- have a proven track record



CPS forced ventilation system F-AU

F-AU 1-10 safety standards (EN 943)

Air supply source:

- Must deliver > 300 l/min at 5.5 bars
- Recommended: Constant 800 l/min at 9 bars to operate up to four TESIMAX suits with F-AU 1-8 (may differ according to choice of F-AU).

Air pressure:

- Max. pressure inside CPS: $x < 400$ Pa (4 mbars)
- CPS exhalation valves open at: $x < 200$ Pa (2 mbars)

Air supply:

- Recommended: To EN 270:1994/to CPS manufacturer's guidelines

Air quality:

- Recommended: To EN 12021 ("breathing air")

Air supply:

- Pull-out strength of unit > 1000 N
- Pull-out strength of unit and hose > 250 N

No impairment through internal cooling

Warning and measuring device must be fitted

- Measurement of minimum air volume flow rate according to manufacturer's instructions
- Audible/visual (e.g. ANGEL SIGNAL)

Coupling on suit (interface) must be able to rotate and be self-locking

- F-AU 1/3 with flat-face technology; F-AU 2/4 with simple lock, F-AU 1-4: 360°

- Harness for stabilizing suit on body

Tested breathing air hoses

- Kink-resistant hose unions (steel spiral)

Cleaning and disinfection

- Connections must be easily and safely disconnectable

Compressed air – TESIMAX tip:

1. There are systems that are independent of ambient air (e.g. filters of the VSF 21 series, powered filters and head sections) and compressed air systems that are independent of ambient air (e.g. closed-circuit air lines, SCBA and cylinders in combination with our mobile cylinder carts and compressors and CPS to EN 943 Parts 1 and 2 (ET), 1a, b and c.

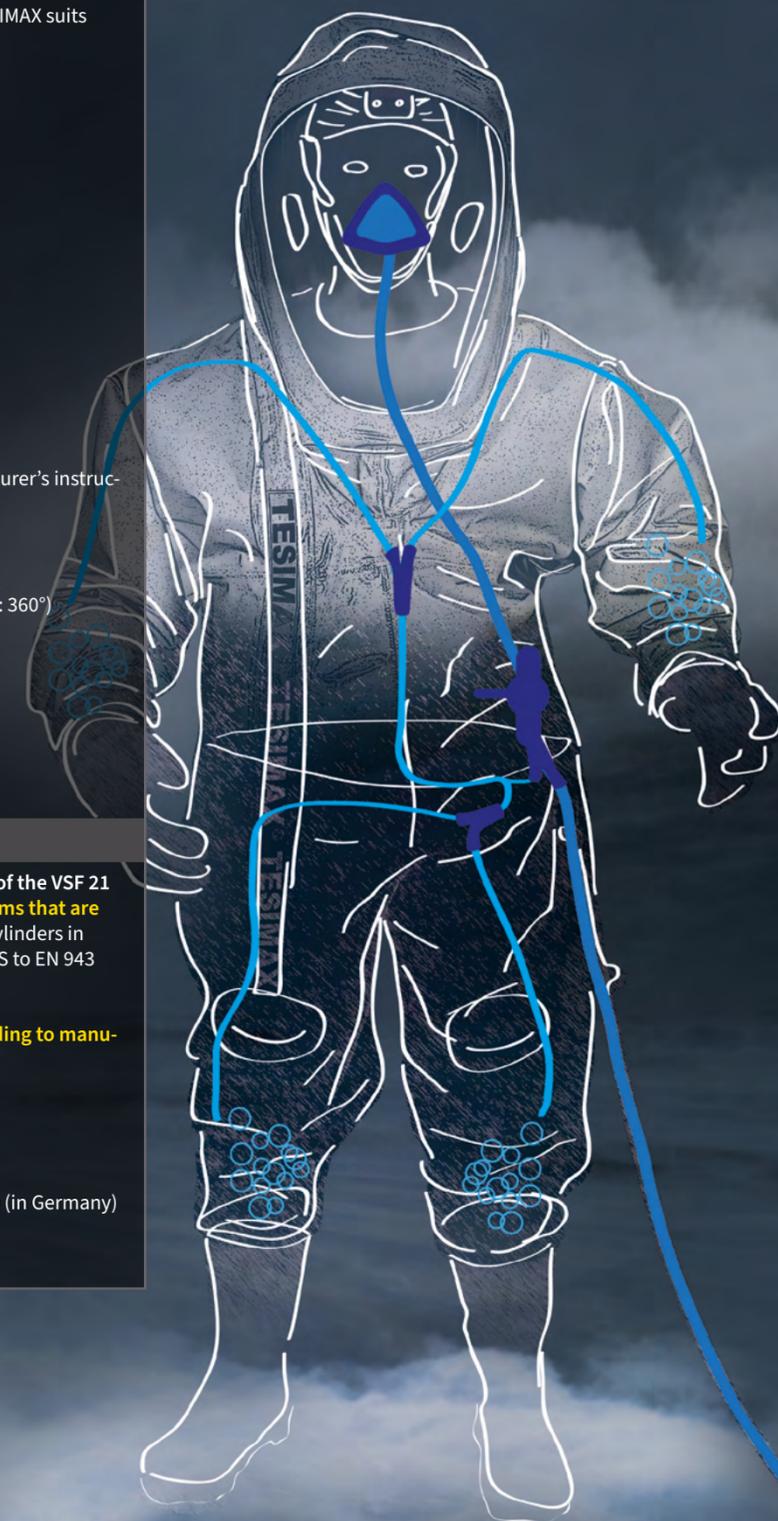
2. Always observe the required air pressure (intake and outlet) according to manufacturers' guidelines (verified safety)

F-AU 1/2/4: Recommended guaranteed pressure $x > 6$ bar

F-AU 3: Recommended guaranteed pressure $2 < x < 3$ bar

3. How long are operations likely to take?

See also the applicable technical regulations, such as BGR GUV-R 190 (in Germany) and manufacturer's guidelines



Ordering data and spare-ordering list

Designation	Order number
UPGRADE FOR EXTERNAL AIR SUPPLY, BREATHING AIR & VENTILATION (VS 5, type 1a) - F-AU 1: External air supply with visual warning indicator, outside (flat-face) Alternative: Also available with Euro sealing nipple (not flat-face)	Order no.: 0250-021 A Order no.: 0250-021 B
UPGRADE FOR EXTERNAL AIR SUPPLY, BREATHING AIR & VENTILATION (VS 20, type 1a) - F-AU 1: Complete system: External air supply F-AU 1 with ANGEL SIGNAL® (flat-face) Alternative: Also available with Euro sealing nipple (not flat-face)	Order no.: 0250-020 A Order no.: 0250-020 B
UPGRADE FOR EXTERNAL AIR SUPPLY, BREATHING AIR (VS 5, VS 20, type 1a) - F-AU 2: DFT (TESIMAX feedthrough) with forced ventilation option, without internal ventilation (with flat-face) - F-AU 2 alternative: DFT (TESIMAX feedthrough) with forced ventilation option, without internal ventilation (no flat-face) - F-AU 2 alternative: Complete system – DFT with internal/forced ventilation LIGHT (with flat-face) - F-AU 2 alternative: Complete system – DFT with internal ventilation, also available with Euro sealing nipple (not flat-face)	Order no.: 0250-012 A Order no.: 0250-012 B Order no.: 0250-012 C Order no.: 0250-012 D
UPGRADE FOR EXTERNAL AIR SUPPLY, BREATHING AIR & VENTILATION (VSF 20: Type 1c) - F-AU 3: Complete system – external air supply with ANGEL SIGNAL® - F-AU 3: Complete system – external air supply with visual warning indicator, external Order no.: 0250-017	Order no.: 0250-013
UPGRADE FOR PURE VENTILATION (VS 5, VS 20: Type 1a, GS 3/GS 3M: Type 1b) - F-AU 4 A: Complete system – forced air supply for ventilation with control valve, stepless (external Euro sealing nipple long CLOSE UP) No flat-face technology, no flat-face adapter necessary - F-AU 4 B with additional short, external Euro coupling (external breathing air source), - F-AU 4 -A: Complete system – forced air supply for ventilation with setting 0/2/30/100 l/min. The supply should be ensured via an external breathing air source (external sealing nipple, long CLOSE UP Euro nipple) No flat-face technology, no flat-face adapter necessary - F-AU 4 D: with additional CLOSE UP Euro nipple inside (second connection SCBA/only VS 5/VS 20 series), No flat-face technology, no flat-face adapter necessary - F-AU 4 E: Positive pressure airline apparatus type A with pressure gauge, flat-face nipple (outside) and 30 cm hose with flat-face nipple inside - F-AU 4 F: Positive pressure airline apparatus type A with pressure gauge, Euro sealing nipple (outside) and 30 cm hose with Euro nipple inside - F-AU 4 G – Internal ventilation 0-5-30-100 l/min with control valve, 1x Euro sealing nipple (outside): and 1x integrated breathing air hose (approx. 85 cm), Euro coupling (inside): f. VS 5, VS 20	Order no.: 0250-022 A Order no.: 0250-022 B Order no.: 0250-018 C Order no.: 0250-018 D Order no. 0250-019 E Order no. 0250-019 F Order no.: 0250-018 G
ACCESSORIES for the F-AU series - F-AU 1: Accessory – ANGEL SIGNAL® (set of batteries) - F-AU 1: Accessory – ANGEL SIGNAL® (forced air status indication LED) - F-AU 1-4: Accessory – flat-face to Euro coupling adapter - F-AU 1 MA: Accessory – Quick decon coupling - F-AU 1/3: Accessory – Strain-relief belt, inside - F-AU 1/3: Accessory – Ventilation hoses for internal ventilation with end silencer (complete installation kit)	Order no.: 0181-035 Order no.: 0181-033 Order no.: 0250-023 Order no.: 0250-016 Order no.: 0250-014 Order no.: 0250-029
Splash guard covers for the F-AU series (optional): - F-AU Outer protective cover, made fully of suit fabric - F-AU sealing nipple for F-AU outside, black plastic - F-AU sealing nipple for F-AU outside, stainless steel	Order no.: 0250-033 Order no.: 0250-100 Order no.: 0250-100
Adapters - Adapter – various connections - Double plug-in nipple (Euro safety nipple) - One nipple is colour-coded (nipple with check valve) - T-connector air distribution with 2 Euro sealing nipples and 1 Euro coupling	Order no.: 0250-027 order no.: 0250-025
UPGRADE FOR COMPRESSED AIR - F-AU 5: Compressed air control system with cooling (clip-on adapter for F-AU 1-4 – VORTEX) - F-AU 6: Compressed air control system with heating (clip-on adapter for F-AU 1-4 – VORTEX) - F-AU 10: TESIMAX Automatic changeover, e.g. for internal ventilation/forced ventilation (changeover) for VS 5 CHEMBA/cylinder cart - F-AU 11: As alternative to F-AU 10: Positive pressure airline apparatus from various manufacturers with warning device	Order no.: 0250-038 Order no.: 0250-039 Order no. 0250-040 Order no.: 0250-041

CPS forced ventilation system F-AU

Forced air supply with automatic changeover model F-AU 1 external/SCBA

Note:
Only for wearers of TESIMAX totally encapsulated suits, for example to EN 943-1: Type 1a and EN 943-2: Type 1a-ET

Description:
The forced air supply apparatus with automatic changeover valve is typically used wherever the wearer has a long way to and from the incident location.

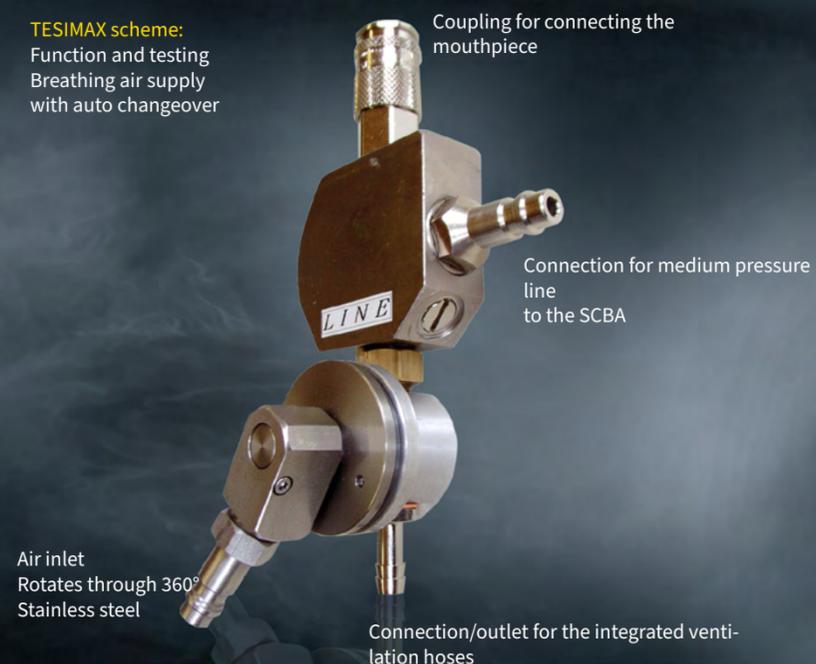
The use of a forced air supply (at a pressure of 6 to 8 bars) ensures that the SCBA cylinder air remains at its maximum volume until the firefighter reaches the incident location. When the external air supply hose is disconnected, the changeover valve automatically switches over to cylinder air from the wearer's SCBA. This leaves the firefighter fully mobile and unhindered by the external air hose.

On completion of the operation, the external hose is reconnected for the return journey. Should the SCBA's cylinder air be fully depleted, the external supply provides enough time for a preliminary decontamination before the protective suit is unzipped. During forced air operation, the suit is flushed with about 60 to 80 litres of air per minute. Heat and moisture escape through four pressure relief valves to ensure a comfortable climate within the suit.



Example illustration

TESIMAX scheme:
Function and testing
Breathing air supply with auto changeover



CA-1

Ultralight hood with superior breathing protection

This short light hood is an optimal solution for respiratory protection and face protection in dusty and light chemical environments where no further mechanical protection is required. In combination with PAPR or airline systems CleanAIR® it reaches the highest level of respiratory protection. It provides a perfect fit for various head types due to adjustable headgear and comfortable elastic rubber band. The distance of the visor can be set individually, as well as the perimeter of the headgear. The light nylon fabric and spacy cut makes it pleasant to wear even for long time work. The wide panoramic visor with antifog coating ensures undisturbed view and provides basic mechanical protection of the eyes.

TECHNICAL DATA

Weight: 180 g
Material: Hood – nylon
Visor – cellulose propionate
Protection factor (NPF): 500
Hose connection: QuickLOCK™
Certification: EN 12941 TH3 to EN 14594 3A, EN 166 1 S F

FEATURES AND BENEFITS

- Superior breathing protection
- Wide visor with antifog coating
- Individual headgear settings – adjustable perimeter and distance from the visor
- Pleasant to wear due to the spacy cut and light weight durable material
- Basic mechanical protection of the eyes
- Practical reflective tab on the top

APPLICATIONS

This hood is suitable for use in dusty and lightly chemically contaminated environments in the pharmaceutical and chemical industry.

Short hood CA-1, orange Order no.: 0270-511 CA-1 orange
Short hood CA-1, blue Order no.: 0270-511 CA-1 blue



CA-2

Ultralight long hood with superior breathing protection

This long light hood ensures respiratory protection and protection of the head, neck and shoulders in dusty environments where no further mechanical protection is required. In combination with PAPR or airline systems CleanAIR® it reaches the highest level of respiratory protection. It provides a perfect fit for various head types due to adjustable headgear and comfortable elastic rubber band. The distance of the visor can be set individually, as well as the perimeter of the headgear. The light nylon fabric and spacy cut makes it pleasant to wear even for long time work. The wide panoramic visor with antifog coating ensures undisturbed view and provides basic mechanical protection of the eyes.

TECHNICAL DATA

Weight: 240 g
Material: Hood – nylon
Visor – cellulose propionate
Protection factor (NPF): 500
Hose connection: QuickLOCK™
Certification: EN 12941 TH3 to EN 14594 3A, EN 166 1 S F

FEATURES AND BENEFITS

- Superior breathing protection
- Wide visor with antifog coating
- Individual headgear settings – adjustable perimeter and distance from the visor
- Pleasant to wear due to the spacy cut and light weight durable material
- Basic mechanical protection of the eyes
- Practical reflective tab on the top
- Head, neck and shoulder protection

APPLICATIONS

This hood can be used in dusty or light chemical environments. It is suitable for spraying and painting work as well as for use in laboratories and the pharmaceutical industry.

Long hood CA-2, orange Order no.: 0270-511 CA-2 orange
Long hood CA-2, blue Order no.: 0270-511 CA-2 blue



CA-10

Superior breathing protection with high chemical resistance

This chemicals resistant hood ensures respiratory protection and protection of the head, neck and shoulders in the most demanding chemical environments. In combination with PAPR or airline systems CleanAIR® it reaches the highest level of respiratory protection.

The hood has increased durability and can be decontaminated because of the light laminated fabric with taped seams. It is still very light and comfortable thanks to the inner antiseptic fabric which absorbs sweat and provides an additional seal. It provides a perfect fit for various head types due to adjustable headgear and comfortable elastic rubber band. The distance of the visor can be set individually, as well as the perimeter of the headgear. The distance of the panoramic antifog visor and the headgear perimeter can be individually set.

TECHNICAL DATA

Weight: 220 g
Material: Hood – nylon
Visor – cellulose propionate
Protection factor (NPF): 500
Hose connection: QuickLOCK™
Certification: EN 12941 TH3 to EN 14594 3A, EN 166 1 S F

FEATURES AND BENEFITS

- Superior breathing protection
- Durable and decontaminable
- Antiseptic inner fabric that absorbs sweat and provides extra sealing
- Wide visor with antifog coating
- Individual headgear settings – adjustable perimeter and distance from the visor
- Pleasant to wear due to the spacy cut and light weight durable material
- Basic mechanical protection of the eyes
- Practical reflective tab on the top

APPLICATIONS

The hood can be used in all environments demanding high durability and chemicals resistance. It is suitable for spraying and painting operations as well as for use in laboratories and pharmaceutical or chemical industries.

Long hood CA-10, chemicals resistant
Order no.: 0270-511 CA 10



UniMask

Light universal face shield providing the highest comfort and safety

The highest level of breathing protection with enhanced inner airflow regulation and a visor with excellent optical and mechanical features make this universal light face shield a true leader of its class. UniMask is light (just 380 g) and offers excellent user comfort. The inner airflow regulation allows the user to set direction and intensity of the air to be delivered to the face or directly into the breathing zone. Two variants – with soft textile and with a neoprene face seal – are available. The visor provides clear and undisturbed view of the highest quality (class 1 according to EN 166), high mechanical resistance and antifog coating. UniMask is easy to use and all spare parts are quickly and easily removable which enables fast and simple maintenance.

TECHNICAL DATA

Weight: 380 g
Material: Frame – polyamide
Face seal – neoprene or 3D polyamide knit
Visor – polycarbonate
Protection factor (NPF): 500
Hose connection: QuickLOCK™
Certification: EN 12941 TH3 to EN 14594 3B, EN 166 1 FT B K N

FEATURES AND BENEFITS

- The highest class of breathing protection TH3
- Enhanced inner airflow regulation
- Light weight – only 380 g
- Excellent optical quality – EN 166 class 1
- High mechanical resistance of the visor
- Antifog coating
- Safety helmet compatible
- Neoprene or textile face seal option
- Easy to use and adjust
- Fast and simple maintenance

APPLICATIONS

The UniMask is suitable for spraying and painting in environments with low chemicals resistance requirements, such as the chemical and pharmaceutical industries and laboratories.

Face shield UniMask, grey	Order no.: 0270-510 grey
Face shield UniMask, blue	Order no.: 0270-510 blue
Face shield UniMask, orange	Order no.: 0270-510 orange
Face shield UniMask, red	Order no.: 0270-510 red
Face shield UniMask, neoprene	Order no.: 0270-510 neoprene



INNER AIRFLOW REGULATION

QUICKLY EXCHANGEABLE FACE SEAL WITH EASY MAINTENANCE

The face seal ensures secure and comfortable fit for the wearer. Thanks to a fast click-in system the face seal can be easily and quickly removed and re-attached. The face seals are machine washable and can be dried in a tumble drier.

QUICK AND EASY VISOR REPLACEMENT

Should the visor have to be replaced or separately cleaned, it can be easily removed and refitted to the hood using two simple locking knobs.

TORIC VISOR WITH AN EXCELLENT OPTICAL QUALITY

UniMask is the only universal faceshield of its class on the market with a toric visor, which offers the best class of optical quality (EN 166 class 1). The visor with antifog, anti-scratch coating guarantees an excellent field of vision and increased durability. It provides protection against high-speed particles with medium energy.

SAFETY HELMET COMPATIBLE

UniMask can be used with a wide range of industrial safety helmets to provide handy combined head, face and respiratory protection.



Storage

Bag, Universal (firefighter clothing)

- Storage bag with one main compartment (with boot compartment) and one front compartment
- Convenient transport: ideal for turnout gear
- Separated main, boot and side compartments for hygiene
- Flexible: elastic cord on the lid
- Everything in its place: front pocket as organiser compartment

Specifications

- Dimensions (L x W x B): 420 x 460 x 300 mm
- Outer material: 600D polyester 2xPU coated, black
- Weight: approx. 1,000 g
- Colour: black/yellow

Order no.: 0191-012 (black/yellow)



Solid zips (yellow) with "TESIMAX" logo puller

Transparent Label pocket

CPS bag Basic (medium)

- Storage bag with a main compartment and a flat side pocket
- Convenient transport: ideal for all reusable CPSs
- Large main compartment for complete protective clothing
- Rugged: skids on underside
- Everything in its place: side pocket as organiser compartment

Specifications

- Internal dimensions of main compartment (L x W x H): 700 x 480 x 380 mm
- External dimensions (L x W x H): 720 x 500 x 400 mm
- Outer material: 600D polyester 2xPU coated, black
- Weight: approx. 2,000 g
- Colour: black/yellow

Order no.: 0191-013 (black/yellow)



25 mm fabric tape, yellow ~ HKS 3 & 25 mm reflective stripes

CPS trolley bag (XL)

- Storage bag with a main compartment and a flat side pocket
- Convenient transport: ideal for all reusable CPSs & accessories
- No heavy lifting: trolley casters for easy transport
- Everything fits: large main compartment for complete protective clothing
- Everything in its place: separate organiser compartment for small items

Specifications

- Internal dimensions of main compartment (L x W x H): 700 x 480 x 380 mm
- External dimensions (L x W x H): 900 x 500 x 400 mm
- Outer material: 600D polyester 2xPU coated, black
- Weight: approx. 2,900 g
- Colour: black/yellow

Order no.: 0191-014 (black/yellow)



Padding on the outer surface for stability

FOR OTHER TRANSPORT CONTAINERS PLEASE ENQUIRE:

- Aluminium/plastic boxes
- Splash- or waterproof
- Lightweight or rugged versions

Markings

CHEST marking (black/thermal/reflective) Order no.: 0372-003

BACK marking (black/thermal/reflective) Order no.: 0372-002

SLEEVE marking (black/thermal/reflective) Order no.: 0372-001

VISOR marking (black/thermal/reflective) Order no.: 0372-001

- The markings (numbers and letters) are applied at the factory using a thermal printing process. The exact labelling must therefore be available before the start of production.
- The markings are available in 2 sizes (please enquire).
- Standard colour: Black
- Optionally, a silver reflective material can be used.
- The markings are washable (see protective suit user manual) and therefore reusable.

Storage

EQUIBAG multifunctional bag

- Separated main, boot and side compartments for hygiene
- Flexible: elastic cord on the lid
- Everything in its place: front pocket with organiser compartment
- Dimensions (L x W x B): 41 x 42 x 30 cm
- Weight: approx. 1,100 g
- Volume: approx. 50 litres
- Fabric: 100% polyester
- Colour: black/yellow or red/black; please specify when ordering

Order no.: 0191-015



RAGBAG PRO – clothing bag

- Large main compartment for complete protective clothing
- Rugged: skids on underside, elastic cord on lid
- Comfortable: fully padded backpack carrying system
- Dimensions (L x W x B): 70 x 43 x 38 cm
- Weight: approx. 2,600 g
- Volume: approx. 90 litres
- Fabric: 100% polyester
- Colour: black/yellow or red/black; please specify when ordering

Order no.: 0191-016



TROLLEYBAG – clothing bag

- No heavy lifting: trolley casters for easy transport
- Everything fits: large main compartment for complete protective clothing
- Everything in its place: separate organiser compartment for small items
- Dimensions (L x W x B): 79 x 37 x 35 cm
- Weight: approx. 2950 g
- Volume: approx. 80 litres
- Fabric: 100% polyester
- Colour: black/yellow or red/black; please specify when ordering

Order no.: 0191-017



FUNCTIONAL CLOTHING

- Tested and recommended for TESIMAX chemical protective suits
- Also as corporate and sports wear



FUNCTIONAL CLOTHING for protective suits

Phase-change overall

The phase-change thermal undersuit (with Outlast® technology) has been developed specially as insulating underclothing for the TESIMAX chemical protection suits.

Not too hot, not too cold: just right

Temperature-regulating Outlast® materials provide proactive climate management for increased comfort.

The sleeves are seamed and the trouser legs have elasticated foot straps. With its front zip, the suit is easy to put on and take off. Banded collar in neck area and shoulder, elbow and knee protection.

Tested in outer space – now here on earth

Outlast® is the only phase-change material (PCM) that has been awarded the Certified Space Technology™ seal. This technology was originally developed for NASA and is continually tested for safety and efficiency in a wide range of applications in renowned brands.

Colour: Black

Size: M, L and XL available
(specify size when ordering)

Order no.: 0650-229



MAX HYGIENE FUNCTIONAL OVERALL

The MAX overall is an undergarment that provides chemical protection and has natural antibacterial properties. (OEKO-Tex Standard 100, elastic, anti-allergen)

Features:

- Integrated zip
- Thumb loop
- Sizes: S to XXXL
- Colour: black

Please refer to the washing and care information on the product label.

Order no.: 0650-231



THERMO-FLEECE overall

The TESIMAX thermo undersuit has been developed mainly as insulating underwear for the SILVERFLASH® protective suit with para-aramid.

Made from a flame retardant fleece fabric with a high LOI (limited oxygen index) this overall is highly flame-retardant and features additional fabric reinforcement in the knee, elbow and shoulder areas.

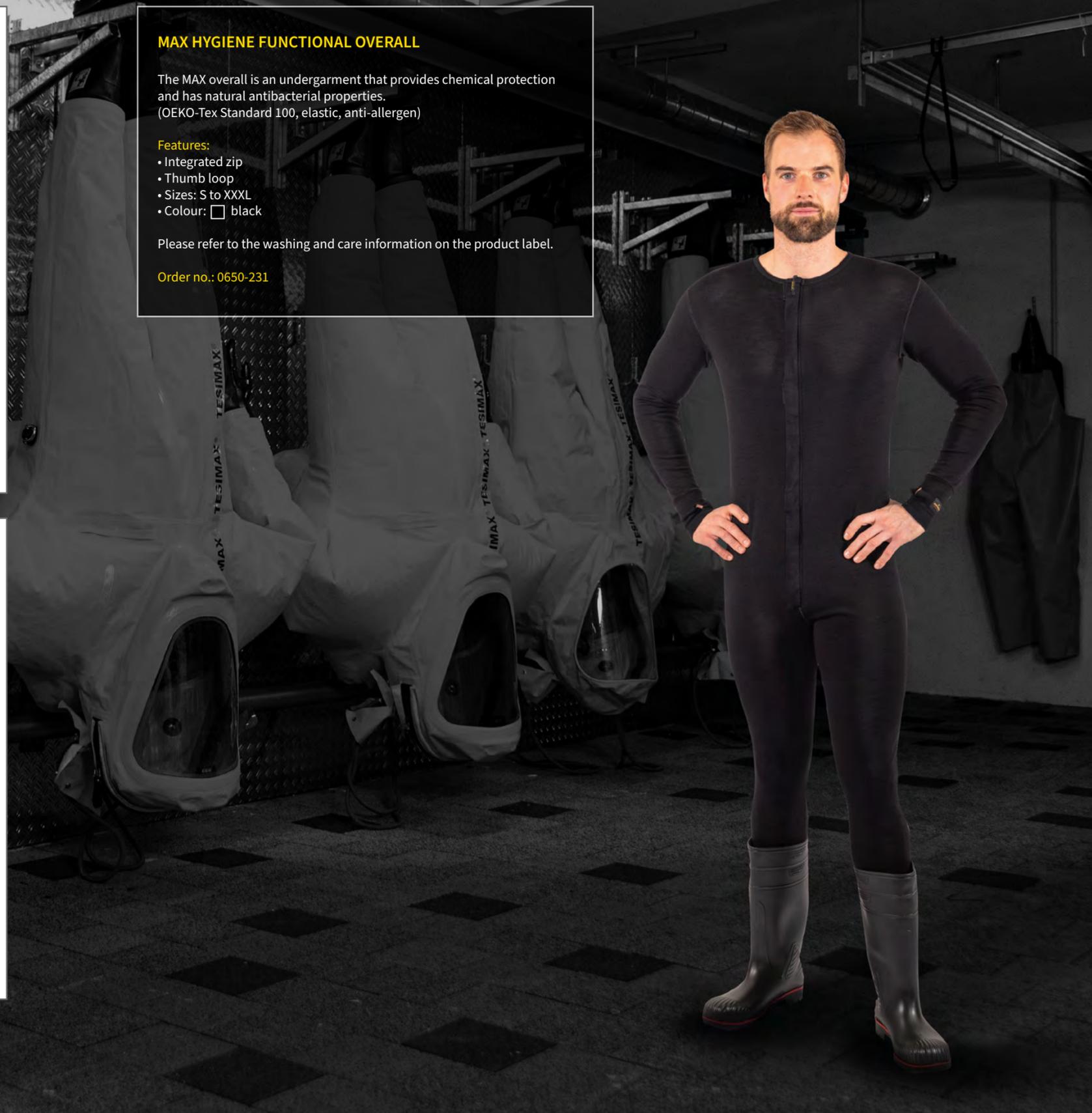
The fleece material ensures wearing comfort and provides maximum thermal insulation. The sleeves are seamed and the trouser legs have elasticated foot straps. With its front zip, the suit is easy to put on and take off.

Tested to EN ISO 11612:2008.

Colour: Navy blue

Size: M, L and XL available
(specify size when ordering)

Order no.: 0650-228



FUNCTIONAL CLOTHING

TESIMAX FUNCTIONAL UNDERWEAR

- Premium stretch T-shirts and polo shirts, soft-shell and functional underwear with "FEUERWEHR" ("FIRE") label, sustainably available

- Flame-retardant, antistatic, antibacterial functional underwear (Devold®)
- Sportswear for firefighters
- Cooling vest, easy to use
- Operations and hygiene overalls for wearing under CPS

You can find these articles at www.tesimax.de/shop



Cooling vest

Cooling vest description

THE IMPORTANCE OF REGENERATION

The issue of regeneration is of great importance in firefighting operations. Under the sometimes extreme working conditions, such as when using CPS, it is important to regenerate quickly and completely. This is all the more important as the recommended regeneration times are often not possible to due staff shortages.

A PCS cooling suit offers a simple, fast and effective means of regeneration that can be used any time, anywhere without complex logistics.

INSPIRED BY NATURE

The product reacts similarly to the human body, which regulates its temperature through the cooling effect of sweat evaporating on the skin. The high-tech fleece can be quickly charged with water which it stores and releases through evaporation to keep you cool.

You also remain dry and save energy, as the products "sweat" for you. This enhances wellbeing and leaves you with more energy for your task. It also protects your health under hot working conditions, optimizes your energy household and allows you to be more efficient.

EASY HANDLING

- Charging with approx. 0.7 to 1 litre of cold water (from tap, washbasin or shower) takes just 5 to 10 seconds.
- Squeeze gently and roll in a towel
- Cooling can begin
- The cooling effect lasts up to 20 hours

Order no.: 0650-230
Ask us about further products.



PERSONAL COOLING SYSTEM

- Better performance through less heat
- Fewer health risks
- Optimal regeneration during breaks and after work



Flame retardant underwear

DEVOLD® SAFE FLAME RETARDANT WOOL – LENZING BLEND

Flame retardant wool blend underwear – versatile wool underwear that offers protection from heat and flame. Safe is made of LENZING FR® and merino wool and is reinforced with polyamide. Safe is the lightest flame retardant underwear from the Devold® Protection collection.

Because it is knitted in a ribbed structure, the underwear is highly elastic and follows your body movements. Safe contains a high percentage of merino wool to keep your body dry and comfortable even during strenuous work. The Balaclava 817 model is EN 13911 certified.

NOTE:

- Please enquire for the complete range.
- Shirts, long sleeves and flame-retardant hoods
- ALL WITH INTEGRATED PARTICLE PROTECTION! Without membrane!

- Further X-WEAR and Devold products available from TESIMAX.
- The antistatic Devold Shield line is particularly suitable for TESIMAX chemical protective suits due to its special fabric properties.



DEVOLD® BASE LAYER

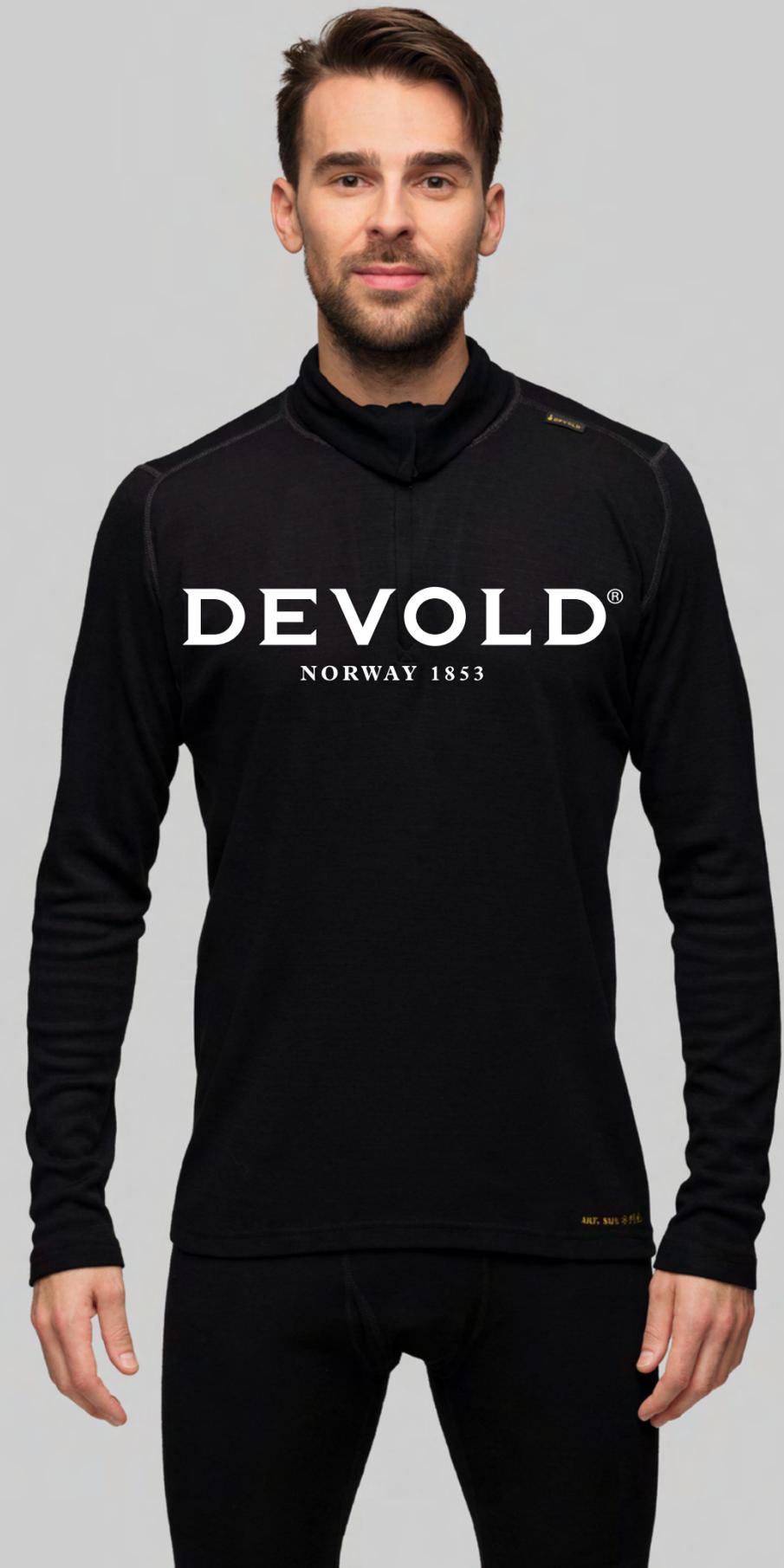
The **base layer** should be flame retardant to limit burns. It should also absorb and transport moisture to provide better comfort. Moisture wicking is also important to prevent scalding from radiant heat, arcing or other situations where this may occur. To provide better comfort, the underwear should dry on your body.

DEVOLD® MIDLAYER

The **midlayer** should be flame retardant, have good insulating properties and good moisture transport properties. The insulating properties are important to reduce the risk of heat penetration in firefighting operations. The midlayer should also have a looser fit than the base layer to allow more air circulation and therefore better moisture wicking.

TESIMAX OUTERWEAR

This layer should be flame retardant and provide total protection in combination with the other layers. The outer layer should also be weather and wind resistant and have sufficient ventilation and water-repellent properties to keep moisture out.



CERTIFIED					
PRODUCT STANDARDS	EN ISO 13688 2013	Flame retardant EN ISO 14116: 2008	Flame retardant EN ISO 14116: 2015	Flame retardant EN ISO 11612: 2008	Flame retardant EN ISO 11612: 2015
SAFE	x				A1 + A2 B1 C1
SAFE mod. 144,146, 210, 216	x		x		
SAFE mod. 817	x				
SAFE bra	x		Index 3		A1 + A2 B1 C1
TOTAL	x				A1 + A2 B1 C1
TOTAL mod. 145, 210	x		Index 3		
TOTAL mod. 817					A1 + A2 B1 C1
SPIRIT	x				A1 + A2 B1 C1
SPIRIT mod. 144, 146, 216, 219	x		Index 3		
SPIRIT mod. 817					A1 + A2 B1 C1
SPIRIT mod. 821					A1 B1 C1
PIQUE	x		Index 3		
POWER					A1 + A2 B1 C1
SPACER	x				A1 + A2 B2 C2
METAL	x				A1 + A2 B1 C1
SHIELD					A1 B1 C2
THERMAL COLLAR					
THERMAL	x				A1 + A2 B2 C2
THERMAL W/ANTISTAT	x				A1 B1 C1

CERTIFIED						
Arc EN 61482-1-2: 2007	Arc EN 61482-1-2: 2009	Antistatic EN 1149: 2008	Antistatic EN 1149: 2018	EN 13911: 2004	EN 13911: 2017	OEKO-TEX®:
Class 1			x			x
	Class 1		x		x	
			x			
			x			
	Class 1					
	Class 1					
	Class 1					x
	Class 1					x
	Class 1					x
	Class 1					x
	Class 1	x				x
	Class 1					
	Class 1					
	Class 1	x				
	Class 1	x				
	Class 1	x				

EN APPROVALS



CE MARKING

These garments comply with the requirements of Regulation (EU) 2016/425.

EN ISO 13688:2013 (prev. EN 340:2004)

Protective clothing - General requirements.



EN ISO 14116:2015 Protection against flame.

Index 1 of limited flame propagation:
Index 1 (flame spread, flaming debris and after-glow properties)
Index 2 (as Index 1 plus hole formation properties)
Index 3 (as index 2 plus after-flame properties)



EN ISO 11612:2008/2015 A, B, C, D (E & F)

Clothing to protect against heat and flame.

A = Limited flame propagation.

A1: Surface ignition. A2: Edge ignition.

B = Material fulfils protection requirement against contact with flame.

Level B1: 4–10 s, B2: 10–20 s

C = Material fulfils protection requirement against radiant heat.

Level C1: 7–20 s, C2: 20–50 s, C3: 50–95 s, C4: >95 seconds.

D = Material fulfils required resistance to liquid aluminium.

Level D1: 100–200 grams, D2: 200–350 grams, D3: >350 grams.



EN 1149-5:2008/2018

Protective clothing - Electrostatic properties - Part 5: Material performance and design requirements

EN APPROVALS



IEC 61482-2:2009

Live working - Protective clothing against the thermal hazards of an electric arc. Part 1-2: Test methods - Method 2: Determination of arc protection class of material and clothing using a constrained and directed arc (box test). Test method: EN 61482-1-1:2009. This method tests the Arc Thermal Performance Value (ATPV) – the energy applied to a material or multi-layered material assemblage that results in a 50 percent probability of sufficient heat transfer through the test specimen to cause a second-degree skin burn based on the Stoll curve without causing the fabric to break open.

Energy breakopen threshold – EBT50

- Incident energy on a fabric or material that results in a 50 percent probability of a heat transfer through the specimen that causes it to break open.

Test method: EN 61482-1-2:2007 “box test”

Class 1 (4 kA)

Class 2 (7 kA)

Arc duration: 500 ms

Frequency: 50 Hz



EN 13911:2004/2017

Protective clothing for firefighters - fire hoods. Against heat and flames as well as thermal effects of an electric arc.

CE MARKING



Devold protective equipment is manufactured and tested in accordance with standards based on European Directive 89/686/EEC and is approved in accordance with CE marking regulations.

The CE marking refers to a safety level of the product. European Directive 89/686/EEC is legally binding and applies to personal protective equipment (PPE) in the European member states. This Directive stipulates as a basic requirement for design and manufacture that PPE must be used to ensure safe working conditions.

Devold protective clothing is designed to prevent accidents and injuries on exposure to cold, heat, flame, the thermal hazard of electric arcs and electrostatic hazards. These garments comply with the requirements of Directive 89/686/EEC for reference standards. Refer to the CE label inside the garment to confirm which of the applicable standards the garment is certified to.

The CE label also lists washing instructions, fabric content, size and model number. We draw your attention to the mandatory user information that must accompany all certified garments. You can also find this information in the product descriptions in this catalogue and at www.devold.com.

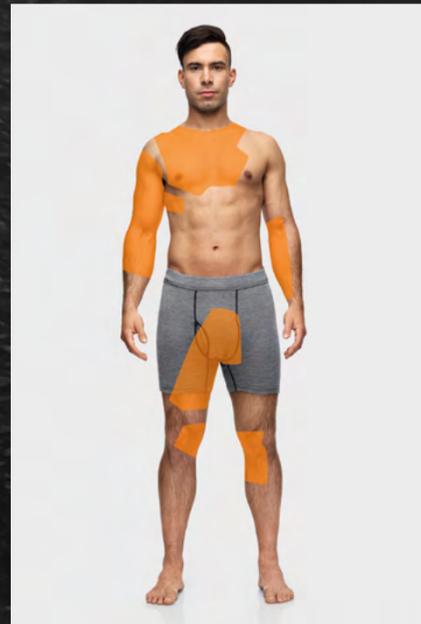
DEVOLD®
NORWAY 1853

THE PYROMAN TEST

WITH NORMAL COTTON UNDERWEAR

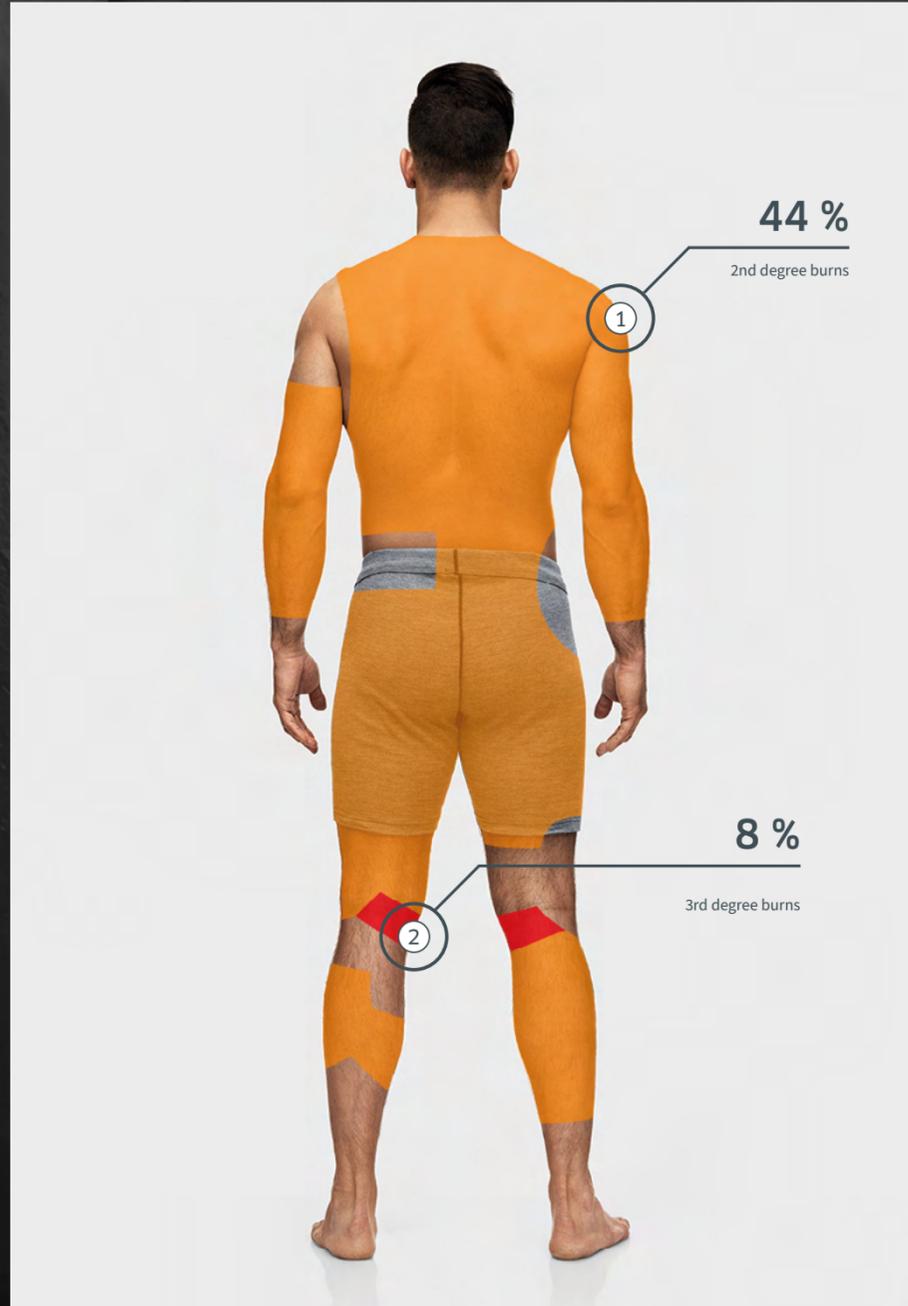


COTTON UNDERWEAR



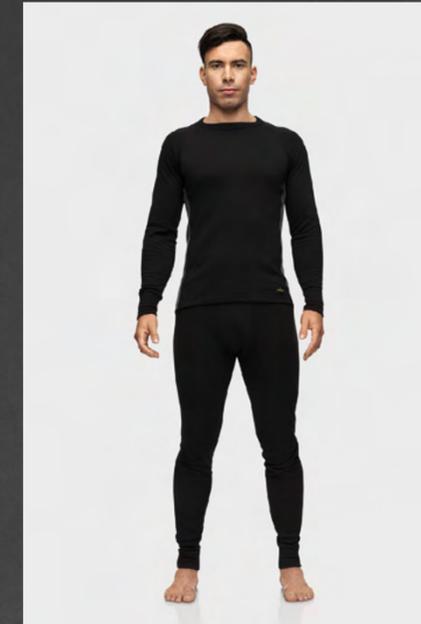
52 %

TOTAL BURNS

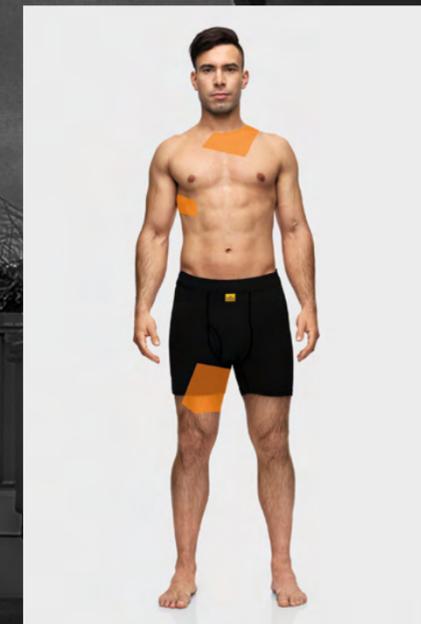


THE PYROMAN TEST

WITH Devold® FLAME RETARDANT WOOL UNDERWEAR

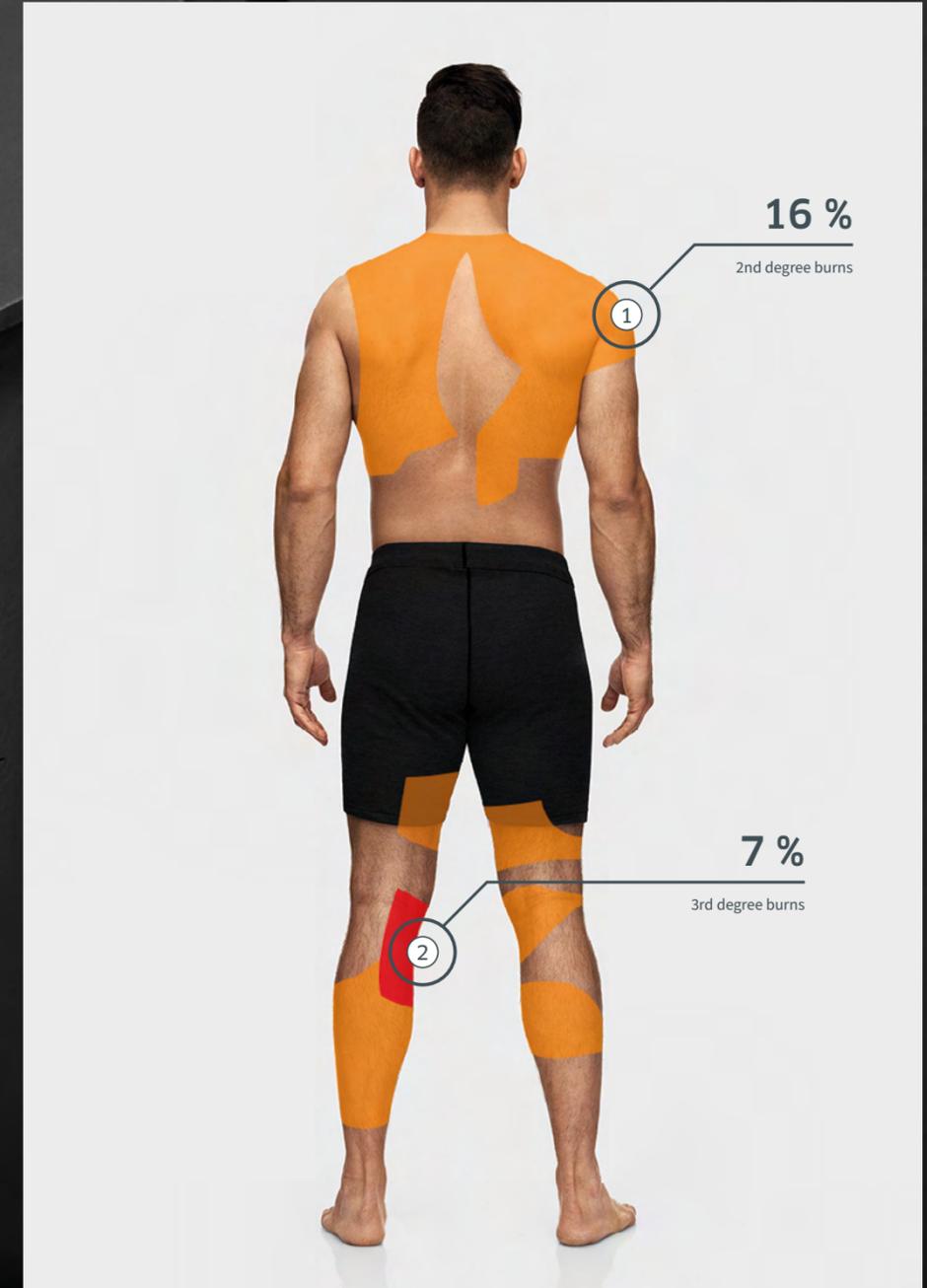


FLAME RETARDANT UNDERWEAR



23 %

TOTAL BURNS



This test is conducted by an independent laboratory at North Carolina State University and tests the degree of burn injury in a flashover. The result of this test indicates the overall level of injury (2nd or 3rd degree burn). We performed the Pyroman test with both flame retardant underwear and normal cotton underwear under a flame retardant suit.

MEASURAND RESULT

THE TEST IS PERFORMED WITH THE SAME OUTERWEAR

- 1 2nd degree burns 44% ●
- 2 3rd degree burns 8% ●
- 3 Total burns 53%

In addition to the above burns, scalds can occur due to moisture. The body's own sweat often causes burns. If the sweat remains on the skin, it can overheat and begin to boil. It is therefore vital to use underwear with good moisture wicking properties. Garments containing synthetic fibres melt and cause severe skin injuries.

MEASURAND RESULT

THE TEST IS PERFORMED WITH THE SAME OUTERWEAR

- 1 2nd degree burns 16% ●
- 2 3rd degree burns 7% ●
- 3 Total burns 23%

DEVOLD® SHIELD

FLAME-RETARDANT WOOL – LENZING BLEND

DEVOLD® SHIELD

FLAME RETARDANT WOOL/
LENZING BLEND



IEC 61482-2
ARC



EN ISO 11612
FLAME RETARDANT



EN 1149-5
ELECTROSTATIC

STRUCTURE
TERRY



WEIGHT
280 g/m²



SHIELD sweater

Colour: Black
Sizes: S-4XL
Order no.: 4000-400



SHIELD zip neck

Colour: Black
Sizes: S-4XL
Order no.: 4000-400



SHIELD sweater

Colour: Black
Sizes: S-4XL
Order no.: 4000-145



SHIELD trousers

Colour: Black
Sizes: S-3XL
Order no.: 4000-146

MATERIAL

49% Lenzing FR®, 39% wool (merino) 10% polyamide, 2% Nega-stat® terry
280 g/m² ±10%

Limited flame propagation: ISO 15025-A1
Convective heat: ISO 9151
Radiant heat: ISO 6942

Devold® Shield flame retardant wool blend clothing – an underwear and mid-layer collection suitable for the working with electricity, gas, heat and flame. Shield is knitted from Lenzing FR® and merino wool and reinforced with polyamide. It also features Nega-Stat®, which is a special fabric that provides garments with ideal antistatic protection. Shield also protects against arcing and electric flashovers. The garments are made of terry knit, which provides a layer of air between body and garment that insulates against cold and heat.

DEVOLD® SAFE

FLAME-RETARDANT WOOL – LENZING BLEND



SAFE zip neck

Colour: Black
Sizes: S-5XL
Order no.: 4000-141



SAFE T-shirt

Colour: Black
Sizes: S-5XL
Order no.: 4000-132



SAFE T-shirt

Colour: Black
Sizes: S-3XL
Order no.: 4000-136



SAFE long johns

Colour: Black
Sizes: S-5XL
Order no.: 4000-133



SAFE boxer shorts

Colour: Black
Sizes: S-3XL
Order no.: 4000-133



SAFE cap

Colour: Black
Sizes: 0/S
Order no.: 4000-300

DEVOLD® BASIC

The ideal underwear (not flame retardant) for use with our protective suits.



BASIC Shirt

Colour: Lava
Sizes: S-3XL
Order no.: 4000-124



BASIC Shirt

Colour: Anthracite
Sizes: S-3XL
Order no.: 4000-124



BASIC Shirt

Colour: Black
Sizes: S-3XL
Order no.: 4000-124



BASIC zip neck

Colour: Black
Sizes: S-3XL
Order no.: 4000-122



BASIC zip neck

Colour: Blue
Sizes: S-3XL
Order no.: 4000-122



BASIC MAN long johns

Colour: Black
Sizes: S-3XL
Order no.: 4000-123

Ask us about further products.



Service



CPS SERVICE POOL

As manufacturer of chemical protective suits for firefighters, we must, according to PPE Regulation (EU) 2016/425, explain to the user the criteria for reusing a reusable protective suit.

We will be happy to advise and support you:

- Legal basis for chemical protective suits in Europe
- CPS selection according to hazard potential
- CPS selection according only to chemical properties
- CPS selection according only to mechanical properties
- PROCEDURE: CPS deployment and preliminary decontamination
- PROCEDURE: CPS reconditioning according to risk class
- PROCEDURE: CPS decontamination after contamination with war gasses

In addition, TESIMAX offers its CHEM SUPPORT to all customers.

Technical advice is available during normal office hours: Monday to Friday from 9 a.m. to 5 p.m.

E-mail messages are dealt with as quickly as possible. Our CHEM SUPPORT provides our customers with the following services:

- Feedback about European and international PPE standards (protective suits)
- Information about the permeation rates of TESIMAX protective suits
- Chemicals testing (including war gasses) on TESIMAX protective suits by an independent Institute
- Analyses and (written) survey report regarding the 100% reusability of the CPS
- Consultation regarding the disposal of contaminated protective suits (see also SERVICE POOL procedure regulations)
- Help with procedure and logistics in handling (contaminated) protective suits after deployment:

Take advantage of our expertise!

CE quality systems in Europe

To guarantee a constant quality, TESIMAX operates a comprehensive quality and management control system based on the European PPE Directive:

- **according to EN ISO 9001:2015** (ongoing materials testing, production and process monitoring)

- **Acc. to module C, PPE Reg. 2016/425** (for chemical protective suits/emergency teams)

- **according to modules B and D, PPE Directive 2014/90/EU for marine equipment (CE 0736, BG Verkehr for maritime safety equipment)**

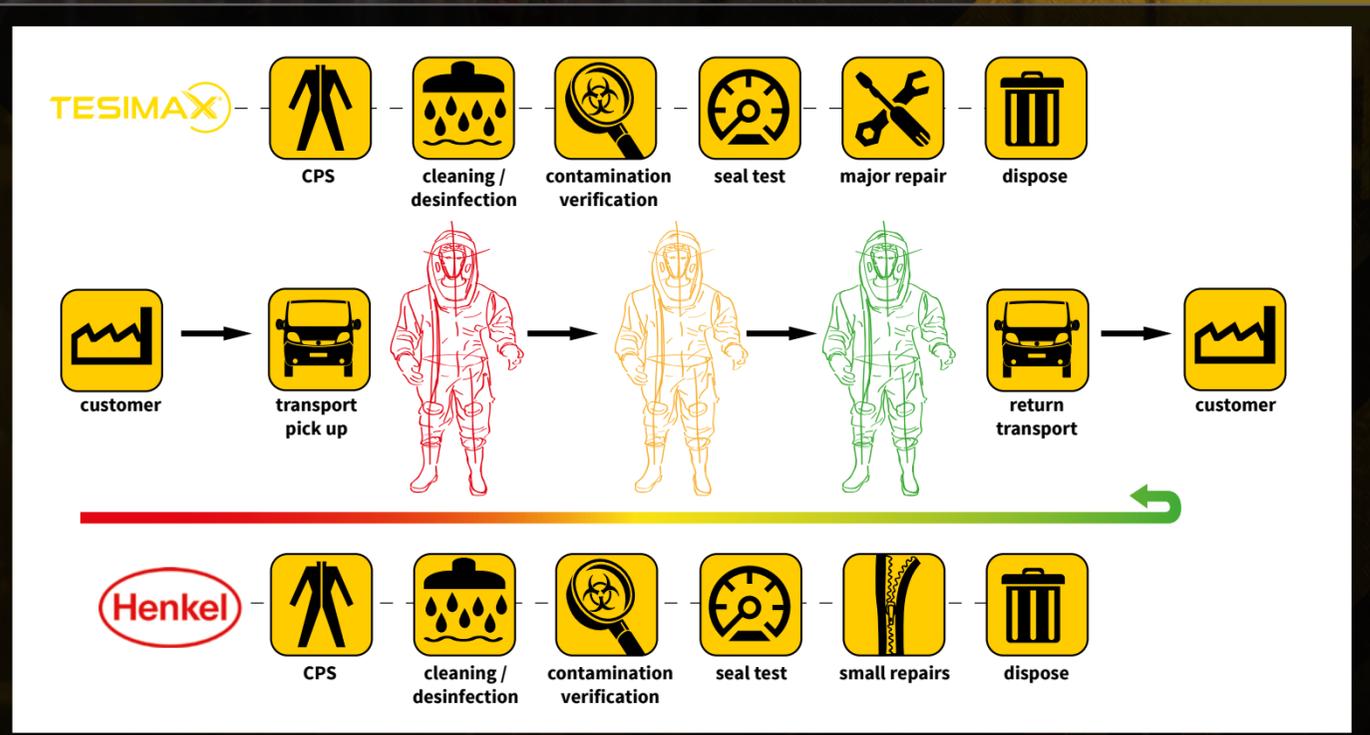
Quality management and monitoring according to European PPE Regulation (EU) 2016/425, to which TESIMAX PPE is tested and certified (CE).

“Our products reflect our exceptionally high quality standards.”

EN ISO 9001:2015

“To maximise quality, we work together with experts, such as the maritime employers’ liability insurance association in Hamburg.”

Production quality control (Module D) – 2014/90/EC for marine equipment



TESIMAX SERVICE PACKAGE GUIDELINES 2022

These guidelines replace the previous guidelines, which no longer apply. Our general terms and conditions (see www.tesimax.de), our usage and care instructions or the Chem Guide apply.

* Preconditions

- We can only accept protective suits that have received professional preliminary decontamination at your premises. We also need a brief description of the use to which each suit has been put and a chemicals safety data sheet (stating the CAS number) of each of the substances with which the protective suit was contaminated.
- Please enclose a brief description of the use to which each CPS (serial number/external ID number) has been put, what harmful substances it was exposed to and the duration of exposure.
- The zip of the CPS must be closed immediately for preliminary decontamination after taking off the suit.
- The suit's decontamination and preparation for transport must be carried out according to national legal regulations by the fire service or the responsible authority (in Germany according to national firefighter service regulation 500, emergency units in NBC deployment).

Delivery and collection service

You can either send your chemical protective suits to one of the two delivery points yourself or we organise collection for you anywhere in the world within our normal business hours.
=> The stated preconditions must be fulfilled.

Further procedure

When we receive your CPS, we inspect them and draw up a cost estimate according to the prices listed in the current (annual) Service Pool flyer. Once you have approved the estimate, repairs of your CPS begin.

Your benefits at TESIMAX:

+ LOAN SUITS

During servicing we provide you with free loan suits as long as stocks at TESIMAX or Henkel last. The loan CPS are fully functional and unconditionally suitable for use by fire services and/or in industry according to the current standard EN 943 Part 2 (ET).

The following regulations apply:

1. When we have completed repairs or maintenance of your chemical protective suits, you return the loan suits to TESIMAX or Henkel and receive your repaired suits. For used loan suits, the same regulations as for your own chemical protection suits (CPS) apply (see "Preconditions for acceptance").
2. Should loan suits have repairable damage after use, we will charge you the costs of repair of each affected suit.
3. Should loan suits incur irreparable damage or damage whose repair is not economically viable, we will charge you the cost of each damaged CPS according to the current list price. We also offer a disposal service (see "Disposal"). The same applies for CPS on which residual contamination is found that prevents its further use.

+ DISPOSAL

When purchasing new TESIMAX protective suits, we offer professional disposal with a proof of disposal notice.
- We take care of the disposal of all makes
- A professional preliminary decontamination must have been carried out beforehand. For prices, please enquire.

+ COLLECTION

We organise collection for you anywhere in the world on workdays during our normal office hours.
CONDITIONS (see also Preconditions*):
- Preliminary decontamination must have been completed (hazardous substances safety data sheet required in advance!)
- Regarding the further procedure, such as decision, delivery/collection (worldwide), contact your service partner (TESIMAX or Henkel).
- The contaminated chemical protective suits must have undergone preliminary decontamination and be packed in plastic bags, transport container and cardboard box (otherwise it is classified as a transport of dangerous goods) -> see packing instructions!
- Personal delivery (fire services) or on-site collection of contaminated chemical protective suits by the TESIMAX collection service.
- Contaminated breathing apparatus is also accepted (Henkel). We complete your order in the shortest time possible.

+ QUALITY

Take advantage of our TÜV-tested craftsmanship as well as washing, cleaning and disinfection agents to ensure that your products have a long and reliable service life.

+ MAX-ANALYTICS / PERFORMANCE

Take advantage of our 100% manufacturer's service/analytcs (residual contaminant verification) for reuse of your protective suits – fast and inexpensive.

+ EXPRESS DELIVERY

We process your standard order within 14 days after receipt of goods, taking into account public holidays and vacation times.

TESIMAX flat-rate prices 2020 per CPS



Order No.	Description	Price in euros excl. VAT
0800-002	CPS – incoming inspection before repair	Please enquire
0800-003	CPS tightness test with test report after repair or without repair or annual inspection with inspection report	Please enquire
0800-053	Cleaning, disinfection and drying (for training suits)	Please enquire
0800-055	Cleaning, disinfection and annual inspection with inspection report (without contamination, for active duty CPS)	Please enquire
0800-057	Cleaning, disinfection, drying of reusable CPS after deployment with exposure incl. residual contamination test and verification	Please enquire
0800-085	Extension of the vacuum packaging (SMART STOCK) incl. testing	Please enquire
0800-058	Correct disposal of contaminated CPS with verification	Please enquire
0800-056	Chemicals resistant CPS transport boxes with lid, black with coloured lid (blue, green, red, yellow, black), stackable, dimensions 600x400x400 mm, suitable for short-term storage	Please enquire
0800-054	Chemicals resistant CPS transport box with lid, pigeon blue, stackable, external dimensions 810x600x453 mm, suitable for transport of contaminated CPS in combination with our plastic bags; long-term storage	Please enquire
0800-059	Plastic bag for packaging contaminated CPS	Please enquire
0800-007	Glove replacement (excluding spare parts)	Please enquire
0800-009	Boot replacement (excluding spare parts)	Please enquire
0800-000	Laminated visor model 20 antifog, complete with seals, washers and nuts, incl. installation	Please enquire
0800-010	Laminated visor model 20 gold-plated, complete with seals, washers and nuts, incl. installation	Please enquire
0800-011	Replacement of TESIMAX pressure relief valves	Please enquire
0800-012	Replacement of TESIMAX valve discs	Please enquire
0800-052	Replacement of GS 3 valve discs	Please enquire
0181-039	Visor protector model VS 20/VSF 20 tear-off (not suitable for heat shielding applications)	Please enquire
0181-038	Visor protector model VS 5/VSF 5/VSF 5, tear-off	Please enquire

MAX-MOBIL CPS SERVICE

- CPS tightness, visual and functional test with inspection report (annual inspection)
- 10-year inspection with inspection report and letter of extension
- Replacement of gloves and boots
- Replacement of valve discs
- Replacement of visor for CPS model 20
- Extension of the vacuum packaging (SMART STOCK) incl. inspection report
- Possible small repairs (e.g. repair of the outer coating)

The costs for the services or repairs including spare parts will be charged to you according to the visit report.

Travel is charged at a flat rate as follows:

- € 150 net for a distance of up to 250 km*
- € 250 net for a distance of more than 250 km*

On-site maintenance and repairs!

Our qualified service technicians take care of your chemical protective suits.

The service life and performance of a suit depends to a large extent on its correct maintenance.

Our technicians know the details and help you on site so that your suits are quickly ready for use again. Our field technician will arrive at your premises with a fully equipped service van.



Maintenance & Services

It is our aim to always resolve any faults as quickly as possible. However, preventive maintenance is essential to stop these from occurring in the first place. Miele Professional products have a long service life, but just like your car, they need to be checked regularly. We can offer you a broad range of services for this.

Highest level of operational safety

Miele Customer Service offers regular maintenance checks for your appliances, in order to guarantee you maximum operational safety. This means that potential faults can be identified and dealt with in advance. In addition, it also means that the operational parameters of the machines can be optimised on an ongoing basis.

Excellent durability

In line with our philosophy of “Immer besser” we guarantee the highest quality and production standards with our brand “Made in Germany”. Miele Professional stands for the reliability of its products like no other manufacturer. Through regular tests that are carried out by our trained customer service technicians you can rest assured that your investment will maintain its value.

Individual delivery

Even at delivery Miele is there to support you with comprehensive service offerings. These are carefully carried out right from the start, taking into account the local conditions and any statutory provisions. It is only through the optimum configuration of the appliances to your individual needs and the local conditions that perfect results can be guaranteed



Courses & training

Equipment manager courses:

Order no. 0800-100

Equipment maintenance training at TESIMAX

- 2-day training course, price per person
- Hotel costs are invoiced separately

• This course covers theory and practice and includes:

- Practical maintenance of chemical protective suits (CPSs)
- Replacement of gloves, boots, valves and visors
- Seam sealing, cleaning, disinfection and drying of CPS.

- Inspection of protective suits according to EN 943 and according to manufacturer's methods; correct storage; operational readiness of suits; putting on a CPS and wearing practice.

- Start on the first day of the course approx. 9:30 AM, end on the second day of the course at the latest around 2 PM
- This course must be repeated every 3 years.

- On request we will be pleased to book hotel rooms for your participants.
- These costs must be paid directly on site or transferred by a confirmation of transfer.
- If you want to book through us, please let us know your preferred arrival and departure day.

The dates for the equipment manager courses can be found at www.tesimax.de

Equipment manager courses:

Order no. 0800-101

Equipment maintenance training at customer's site (only within Germany)

- One-day course, price per course for **up to 5 participants**

On-site practical training covers the following areas:

- Testing the protective suits (tightness and valve test) according to EN 943 and manufacturer's methods
- Functional test of the forced ventilation system (F-AU) and the ANGEL LIGHT (if fitted)

Practical maintenance of chemical protective suits:

- Replacement of gloves, boots, valves and visors (on the VS 20)
- Seam sealing, cleaning, disinfection and drying of CPS.
- Correct storage; operational readiness of the suits, putting on and wearing CPS.

- To book your course, please contact TESIMAX.
- TESIMAX Technical Service staff will be on site for support, if necessary together with the responsible field service representative by arrangement.

Online equipment maintenance training

Order no.: 0800-109

The online/video training covers the following areas:

- Brief theoretical introduction (standards etc.)
- Then, via video link:
 - Testing of protective suits according to EN 943 and manufacturer's methods; maintenance work on chemical protective suits (CPS), e.g. changing gloves, boots, valves and visors
- The course ends with an open question and answer session

For information about the procedure and requirements for the online course and about booking your course, contact TESIMAX.

Equipment manager courses:

Order no. 0800-103

Equipment maintenance training at customer's site (only within Germany)

One-day course, price per course from 6 to 10 participants

On-site practical training covers the following areas:

- Testing the protective suits (tightness and valve test) according to EN 943 and manufacturer's methods
- Functional test of the forced ventilation system (F-AU) and the ANGEL LIGHT (if fitted)
- **Practical maintenance of chemical protective suits:**
 - Replacement of gloves, boots, valves and visors (on the VS 20)
 - Seam sealing, cleaning, disinfection and drying of CPS.
 - Correct storage; operational readiness of the suits, putting on and wearing CPS.

NOTE:

- To book your course, please contact TESIMAX.
- TESIMAX Technical Service staff will be on site for support, if necessary together with the responsible field service representative by arrangement.

Equipment manager courses:

Order no. 0800-106

Equipment maintenance training at customer's site (only within Germany)

One-day course, price per person from 2 participants

On-site practical training covers the following areas:

- Testing the protective suits (tightness and valve test) according to EN 943 and manufacturer's methods
- Functional test of the forced ventilation system (F-AU) and the ANGEL LIGHT (if fitted)
- Visor replacement of the VS 20
- Maintenance tips (e.g. for changing the valve diaphragm (time interval))

To book your course, please contact our responsible field service representative, who will also hold the course.

CPS Service Pool: Inspection and repair kit

Test kit BLACK BOX

Gas and chemical protective suits must be regularly checked for leak-tightness. TESIMAX protective suits must be tested after every use and at least every 12 months (except SMART STOCK CPS, only after use or after 5 years' storage).

Visual inspections and functional tests must be carried out to check for structural damage and damage caused through the secondary effects of hazardous materials.

The pressure relief valves must be tested in their installed state. In addition the valve discs must be visually inspected and must be replaced every two years.

All leaktightness tests on protective suits and pressure relief valves can be carried out with the BLACK BOX suit and valve leaktightness tester.

Product details, BLACK BOX

- Fully automatic test device for computer-assisted testing of chemical protective suits
- Including vacuum testing of exhalation valves
- Ethernet interface for connection to a PC
- Supplied without PC (we can advise you on the selection of a suitable system)
- Compact dimensions
- Mobile, impact-resistant box

Order no.: 0255-001

Product details, BLACK BOX SOFTWARE

- Intuitive inspection software for all chemical protective suits to EN 943
- Suitable for Windows operating system from XP

Order no.: 0250-002

BLACK BOX LIGHT tester (mechanical)

Portable tester for normal and vacuum pressure testing TESIMAX protective suits with two pressure gauges -25 to 0 mbar and 0 to 25 mbar, pump, compressed air gun and corresponding test adapters for valves G3 and T500.

Order no.: 0255-004

Test kit T 500 (for CPS series VS 5, VS 20, VSF 20 and VSF 21)

For other test sets for valves S3 and G3 please enquire or see the respective user manual.

- Filling hose with male coupling and adaptor for pressure relief valve, outside
- Test hose with Adapters for pressure relief valve, outside (gauge pressure)
- Test hose with Adapters for pressure relief valve, inside (vacuum pressure)
- Sealing plug, outside (3 pce.)
- The hoses have an outer diameter of 6 mm and an inner diameter of 4 mm

Order no.: 0373-027

Test set with GS 3 adapter plate (for GS 3 and GS 3M series CPS)

- GS 3 test adapter plate (triangle) incl. quick-connect coupling
- Filling hose, 2 m, with quick-connect nipple
- Test hose, 2 m, with quick-connect nipple
- 2 x sealing plug for G3 valve
- The hoses have an outer diameter of 6 mm and an inner diameter of 4 mm

Order no.: 0373-014

Note: For further repair and maintenance articles, see the respective user manual or enquire.

TESIMAX CPS repair kits

All kits consisting of:

- 3 x fabric, size A4
- 3 x fabric, Ø 7 cm
- 1 brush, narrow
- 1 brush, wide
- 1 tin seam sealer, liquid
- 1 tin strengthener
- ½ tin strengthener

Following correct repair (according to TESIMAX equipment maintenance training) a CPS has the same properties as the undamaged suit again.

Repair kit POLYRAN-L Order no.: 0374-005

Repair kit SYKAN 5 Order no.: 0375-016

Repair kit SYKAN 2 Order no.: 0375-020

Repair kit SYKAN 4 Order no.: 0375-021

Repair kit SILVERFLASH Order no.: 0375-004

NOTE:

For further repair and maintenance articles, see the respective user manual or enquire.

NBC environmental protection and quick sealing

Chemicals collecting funnel

0386-152 Chem. collecting funnel POLYRAN-S with coupling

0386-215 Chem. collecting funnel SYKAN 4 with coupling

0387-000 Drainage hose for chem. funnel, 20 m

Salvage containers

0387-152 Chem. salvage bag with cord folding system + rescue loops (SILVERFLASH)

0387-152 RV Version with zip - Chem. salvage bag with zip (130 cm) + rescue loops (POLYRAN-S)

0387-250 Chem. salvage bag with cord folding system + rescue loops (SYKAN 5)

0387-250 RV Version with zip - Chem. salvage bag with zip (130 cm) + rescue loops (SYKAN 5)

0387-222 Chem. salvage bag with cord folding system + rescue loops (SILVERFLASH)

0387-222 RV Version with zip - Chem. salvage bag with zip (130 cm) + rescue loops (SILVERFLASH)

Quick-seal magnetic foil

The Quick-seal magnetic foil is placed onto the metal lid of the inlet, to which it adheres magnetically to form a seal.

Advantages: Quick to use, simple storage and transport, no further tools needed.

Ordering data: Drain quick seal

ARTICLE	ORDER NUMBER
Seal, 51 x 51 cm	0248-000
Seal, 60 x 60 cm	0248-002
Seal, 100 x 100 cm	0248-001



CPS Service Pool: CLEANER ROBI

TESIMAX CLEANER ROBI – The mobile stainless steel protective suit cleaner & dryer

- Four rotatable mounts for up to four suit drying racks
- Water and air pumps and the controller are contained in a single assembly.
- All couplings are chemicals-resistant (acids, caustic solutions, etc.)
- Movable with four steerable castors
- The trough is fitted loosely in the frame and easy to remove.
- The body and suit rack are made of stainless steel.

The special feature of this design:

It is pulled out like a drawer and pushed back into the machine for transportation and for collecting the liquid. The basin can be removed from the machine by unscrewing the intake tube. The floor of the basin contains a built-in pump sump, so that only a low volume of water or detergent is required (approx. 10 litres). The pump sump is fitted with a sealable drain. Basin and sump are designed for the total water or detergent volume (approx. 40–50 l).

Description:

This care system is the all-in-one solution for cleaning and washing totally encapsulated suits – a washing, disinfection and drying station in a single, mobile device. Detachable lances, which direct disinfection solution, clean water and hot air into the suits' inner ensure easy handling. The disinfection solution prepared in the stainless steel collection tubs circulates through the machine for optimised utilisation. A direct connection to the mains water supply allows simple rinsing after disinfection, and with the built-in, maintenance-free hot air blower, suits can be dried in less than five hours (depending on the ambient temperature).

Technical data

- Outer dimensions: H x W x D 260 (without arms 70) x 75 x 120 cm
 - Weight (empty): 125 kg
 - Supply voltage: 400 V AC, 50 Hz L1, L2, L3, N, PE
 - Supply cable cross-section: 1.5 mm²
 - Fuse rating: CEE 16 A
 - Connection cable: 2000 W
 - Pump rating: 1350 W, 230 V, 50 Hz P1, 3 kW, 2800 RPM 5 m³/h,
 - Fan rating: 550 W
 - Protection class: 1/IP44 (degree of protection)
 - Ambient temperature: 0 to 38 °C, optimum function at 15 to 20 °C
 - Capacity: Cleaning and drying of 2 garments + drying of max. 2 further protective suits on 2 additional drying arms (optional)
 - Drying time approx. 1 to 4 hours
- Service life (estimated): 10 years

CLEANER ROBI model 1: Order no.: 0260-002

Note: This unit is equipped with three main taps and associated hoses: one for fresh water supply and two for cleaning and disinfection of the protective suits. In addition, fresh water can be fed through three additional valves for cleaning the system and rinsing the protective suit. With this basic version, up to two CPS can be cleaned and disinfected and up to four CPS dried at the same time.

Required accessories

- | | |
|--|---------------------|
| Additional lance for VS models, CPS series: | Order no.: 0260-003 |
| Additional lance for GS 3 CPS series: | Order no.: 0260-004 |
| Adapter for VSF 21 series
(GS lance required) | Order no.: 0260-009 |

Ordering data for preliminary decontamination of CPS (A range of safety boots is available; please enquire)

Safurex® decontamination agent
DECONTAMINATION AGENT FOR CORROSIVE AND FLUORIDE CHEMICALS.

LeVert HF decontamination agent
DECONTAMINATION AGENT FOR HYDROFLUORIC ACID AND ITS DERIVATIVES.

LeVert decontamination agent
DECONTAMINATION AGENT FOR CORROSIVE CHEMICALS

PRODUCTS FOR CPS PRELIMINARY CLEANING (different pack sizes available; please enquire)

TESIMAX PROTECTIVE SUIT WASH SPONGE

This sponge is made from high-quality materials and is a practical aid for washing protection suits. It can withstand grease, oil and petrol.
Tip: Do not use brushes for suit maintenance.

B.-Power grease remover (against grease & burned-on residue)

The solution against all types of greasy dirt. Its ultra-powerful formula works immediately and removes even lubricating and engine oil, soot and burnt-on residue effortlessly without scrubbing. Safe for use with foodstuffs. Therefore also safe on skin contact with freshly cleaned surfaces.

Lanadol AVANT (x-treme)

Extra strong grease remover for extremely dirty, less sensitive protective suits. Ideal remover for grease, oil and pigment at 10 – 40 °C.



CPS Service Pool: Ultra cleaner

TESIMAX (CPS) CLEANING AGENT

With ULTR cleaner BASIC, TESIMAX provides a product for removing grease, dirt and odour. This cleaning agent can be used for 90% of all cleaning work, including in the food industry, in hotels, commercial kitchens and canteens. It can also be used for cleaning and deodorising waste containers and toilets, in fire brigades for **chemical protective suits** and breathing masks, in the automotive industry, and even as a household cleaner and for motorcycles, cars and boats.

Advantages

- Biodegradable
- An almost neutral, pleasant scent
- Non-toxic
- Cost-effective – being a concentrate, it can be diluted depending on use
- Not subject to any transport restrictions
- Not classified as a hazardous composition according to the German Chemicals Act
- Not flammable or explosive
- The product's decomposition products are not harmful; the product does not cause acid burns
- Does not contain fluorocarbons or adsorbable organic halogenides (AOX)
- Can be used for 90 % of all cleaning work

Usage recommendation

Use this product e.g. for cleaning the insides and outsides of all our chemical protective suits. Thorough preliminary cleaning of the protective suit with TESIMAX ULTRA cleaner should always be carried out.

Ordering data

- | | |
|------------------------------|---------------------|
| 1-litre canister | Order no.: 0282-001 |
| 20-litre canister | Order no.: 0282-004 |
| Empty bottle with spray head | Order no.: 0282-007 |

DERVAL RENT DETERGENT FOR TESIMAX CPS

- High pigment removal and dirt-suspension capacity
- Good oil, grease and stain removal
- Achieves full washing power already at 40 °C
- Especially gentle cleaning action through low alkalinity
- For further information please enquire.

Ordering data

- | | |
|-------------------|---------------------|
| 25-litre canister | Order no.: 0282-009 |
|-------------------|---------------------|

Antifoaming agent

Can be used in combination with all detergents; also recommended for use with CLEANER ROBI.

Ordering data: 24 l package Order no.: 0284-000 24l

LANADOL ABAC DISINFECTANT FOR TESIMAX CPS

- Disinfectant for overclothing, protective clothing and respiratory masks
- Rinsing zone disinfectant for car washes
- Lanadol ABAC has a broad-band microbicidal action against gram-positive and gram-negative bacteria, yeast and fungi
- Lanadol ABAC retains its disinfectant properties in the presence of blood and proteins
- LANADOL ABAC is effective at a pH range from 4 to 8
- LANADOL ABAC unfolds its effectiveness at temperatures as low as 30 °C
- For further information please enquire.

Ordering data

- | | |
|-------------------|---------------------|
| 25-litre canister | Order no.: 0282-010 |
|-------------------|---------------------|



Washing and cleaning agent EW80

To ensure the safety of equipment wearers, basic cleaning, comprehensive and proper protection and high-quality care of all equipment and instruments are indispensable. This helps prevent the transmission of pathogens and material wear.

Breathing apparatus and other technical equipment are often ideal breeding grounds for pathogens due to their complexity, the fact that they frequently change wearer and because they are often exposed to humid and possibly warm environments.

The EW80 product range contains the perfect solutions to meet the obligation of comprehensive equipment care, disinfection and maintenance. The products are available separately, but offer maximum protection when used in combination.

Ordering data (A range of packaging sizes is available; please enquire)

- TESIMAX EW 80 DES (disinfectant for CPS)
- TESIMAX EW 80 CLEAN (cleaner for CPS)
- TESIMAX EW 80 MAT (all-in-one cleaner and disinfectant for CPS)

CPS Service Pool: Drying station

TESIMAX DRYER

The drying system for TESIMAX protective suits ensures effective uniform drying of the whole suit.

During drying, the protective suits are hung over the hangers complete with their boots, so that any water remaining in the suit can drip down into the head section.

The hand sections can be placed loosely in the suit before being connected to the air frame/manifold.

The TESIMAX protective suit drying system comprises the following components:

- Mobile frame (incl. robust castors)
- High-performance fan for effective drying of the suits (integrated in the frame)
- Holding frame for two suits with plug-in arm sections for connection to the air frame

Technical data

TESIMAX mobile drying system for two chemical protective suits

Dimensions:

- a) 132 x 60 x 260 cm with frame (pluggable) for 2 protective suits
- b) 132 x 60 x 80 cm without frame

Order number: 0260-010



Real-time training

CHEMICAL PROTECTION SUITS (CPS)

- Operations simulation with experienced trainers
- Topics:
 - Putting on the protective suit including functional underwear
 - Example sounding operations
 - Rescue operations (rescue of persons)
 - Sealing leaks
 - Moving about in restricted space
 - Moving about in dark rooms
 - Taking off the protective suit and decontamination tips
 - ... and much more

- For all CPS types to EN 943 for firefighters (with SCBA worn inside or outside the suit, with forced ventilation and powered filter unit).
- Including theoretical training by TESIMAX
- Course duration: 1 day
- Courses held twice a year – book early to secure your place!

FIREFIGHTER TURNOUT GEAR

- Fire training – realistic training in fire containers
- The mobile wood-burning fire container provides a realistic training environment for firefighting in buildings, including simulation of flameover and gas explosions.
- Flashover, flameover, backdraft

DATES & LOCATIONS

- For dates, please enquire or visit www.tesimax.de
- Available at three locations in Germany
- Fire training at Leipzig Airport
- Fire training at Altensteig-Calw
- Fire and CBRN training at Werl
- Please register early

NOTE:

The programme varies from site to site.

Further details at <https://tesimax.de/en/x-fighter/real-time-training>





Legal notice:

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Safety information regarding technical specifications

This information is based on laboratory tests.
It is intended as a general overview of our materials against chemicals and gasses. In practical situations there are many variable factors, such as temperature, ventilation, exposure time, stability of gasses or liquids, mechanical loads and wettability, which may result in a deviation from the laboratory values.

TESIMAX-Altinger GmbH does not guarantee any results or accept liability of any kind in connection with this information. This publication does not represent a licence and does not aim to infringe on any patents, reg. utility models or trademarks.

* The chemical and physical resistance ratings have been determined according to the 15 reference chemicals to EN 943 and based on our current knowledge. Please contact us for details.

** The thermal resistance ratings (heat and cold) are based on EN 943, EN 469 and on our current knowledge.
We recommend a combination with suitable underclothing. Contact us for further information.

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Concept, design, graphics and image processing
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Brand directory

Registered TESIMAX® brands:
SYKAN, SILVERFLASH, ANGEL LIGHT, ANGEL SIGNAL, ANGEL HEART, SILIPAN, GLAPAN, CHEMBA, POLYRAN

Suppliers' trademark directory and design/image credits:

Protective suit accessories and components:
Clean Air®, SKYLOTEC®, Devold®, Dunlop®, Polar®, MAPA®

Washing and cleaning products:
- EW80 Systeme GmbH
- Derval RENT, Lanadol ABAC (Kreussler & Co. GmbH Chemie)

