

MATISEC



CATALOGUE



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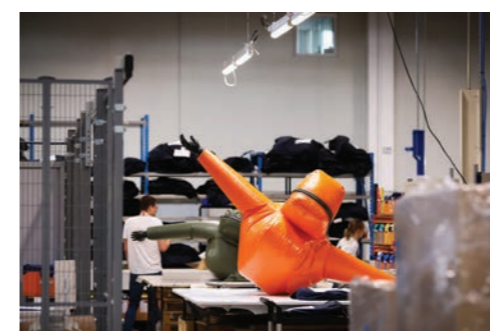
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THE GROUP

ABOUT US

The group formed by Ocenco, Matisec, Interspiro and CTS includes **world leaders** in industrial safety, respiratory protection and advanced safety technologies. This **strategic alliance** combines the expertise of four pioneering companies, each specialising in **highly technological** solutions to meet protection needs in critical environments.

Together, these companies form a unified group that stands out for its **ability to innovate**, offer high-quality protection solutions, and **meet the complex and varied needs** of today's industries. Our commitment to safety, reliability and efficiency ensures that our customers are offered the right solutions to handle the most demanding challenges.

The **Ocenco Group** is a key player in the **safety and protection** field, offering products and services designed to protect the most precious thing of all: **human life** and the **safety** of workers, worldwide.

For more information, please visit : www.matisec.fr/en



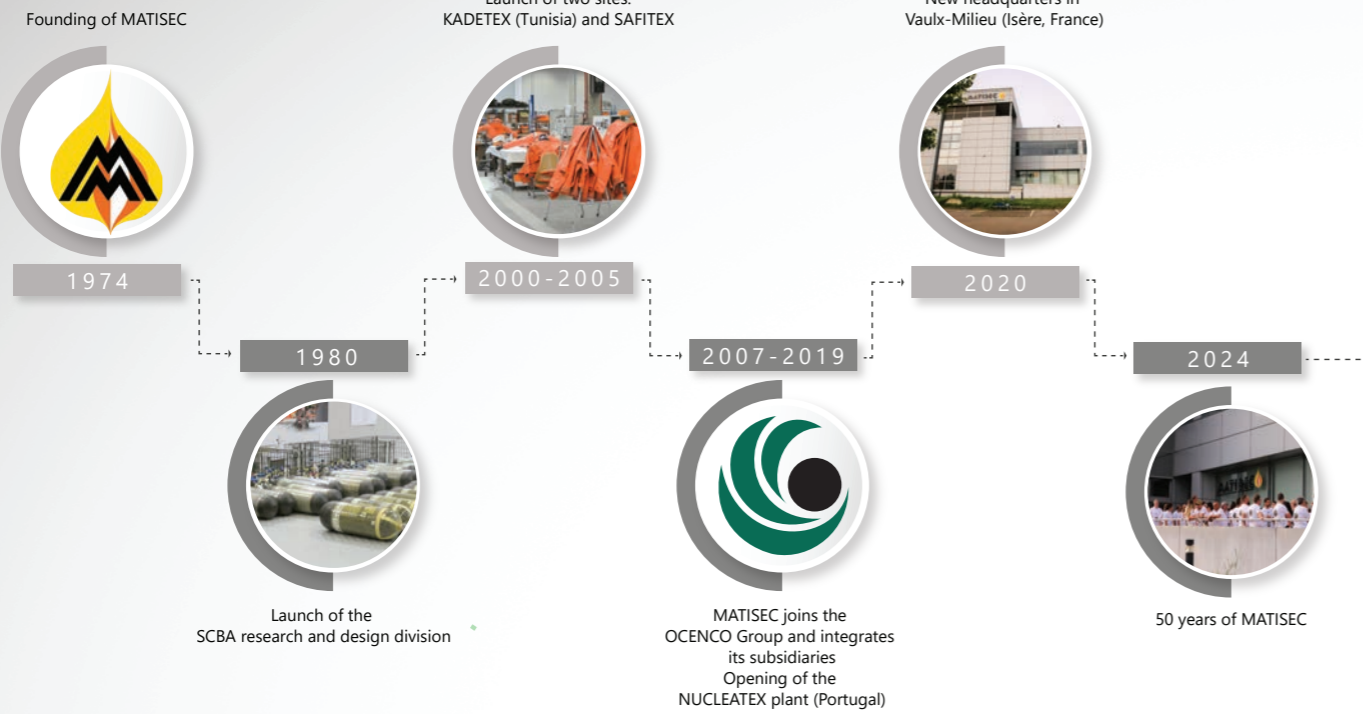
MATISEC offers **in-house Customer Service** specialising in the **inspection and repair** of suits, breathing apparatus and related accessories. There is also a centre approved by the DREAL* encompassing cylinders for hydraulic testing, supervised by APAVE, a specialised service for statutory cylinder inspections and compressor maintenance. MATISEC offers a **training** service for our customers. Training courses can be provided on our premises, or at your site, either in person or remotely. An **tracking equipment solution** using barcodes and RFID chips is also available.

Our **external Customer Service** offers regulatory **inspection and maintenance** services on our customers' sites. Our qualified technicians have MATISEC **accreditation** for all operations conducted on our products.

**DREAL: Regional directorate for the environment, planning and housing

- MATISEC sites ●
- MATISEC Customer Service Branches ●
- MATISEC distributors ●
- OCENCO site ●
- INTERSPIRO site ●
- INTERSPIRO branches ●
- CTS site ●

MATISEC



ABOUT US

For the past 50 years, MATISEC has been the European leader in safety equipment for operations conducted in hazardous environments. MATISEC designs, manufactures and markets Personal Protective Equipment (PPE) intended to protect against fatal and irreversible risks. Its offer includes a wide range of solutions, not only guaranteeing safety, but also the efficiency and smooth running of operations carried out in extreme conditions.

By placing customer attentiveness at the core of its approach, MATISEC supports industrial operators in the nuclear, chemical and military sectors, as well as firefighters, by specially designing its equipment to meet the most challenging demands. MATISEC has 210 employees spread across three production sites in France, Tunisia and Portugal, in addition to four maintenance agencies operating in France. Among them, 80 employees work at the head office in Vaulx-Milieu, in the Isère department. Building on this strong foundation, the company is expanding its international presence, with the support of its sole shareholder, the American group OCENCO, a world leader in the field of emergency evacuation equipment.

For more information, please visit : www.matisec.fr/en



OUR ACTIVITIES



+50
Years of expertise in PPE

+210
Employees across 3 countries

+45
Countries served

+1000
Active customers

THEY TRUST US

CHEMICALS/ PETROCHEMICALS / FOOD INDUSTRY 	FIRE / RESCUE
MILITARY / DEFENCE / CBRN 	NUCLEAR / ASBESTOS
PHARMACEUTICALS / LABORATORY / WATER AND WASTE MANAGEMENT 	AERONAUTICS

OUR CSR APPROACH

We're proud to be contributing towards **sustainable development** fuelled by our commitment towards responsible purchasing. In 2022, MATISEC signed the **Responsible Purchasing and Supplier Relations Charter**. It is based on 10 essential pillars for conveying the C.S.R values that the company upholds:

Charte RELATIONS FOURNISSEURS ET ACHATS RESPONSABLES

- Ensuring responsible financial relations with suppliers
- Maintaining respectful relations with all suppliers, that lend themselves to building collaborative relations
- Identifying and managing situations of reciprocal dependency with suppliers
- Involving signatory organisations in their particular field
- Appraising the full set of costs and impact on product lifecycle
- Incorporating issues concerning environmental and societal responsibility
- Ensuring the territorial responsibility of one's organisation
- Professionalism and ethics on the part of the purchasing department
- A "purchasing" function entrusted with globally managing supplier relations
- A mediating "supplier relations" function entrusted with streamlining internal and external company reports

We buy locally, mainly in Europe, to contribute to the circular economy. We support our suppliers in their C.S.R approach, to guarantee long-term partnerships and production in France, supported by our local subsidiaries.



This concerns the implementation of measures to ensure well-being and quality of life in the workplace. Continuous prevention is what makes it possible to preserve and protect our employees every day, but it is also important to commit ourselves and communicate our ethos and company values.

We encourage in-depth dialogue to gain a better understanding of the expectations and challenges faced by our customers, suppliers, employees and all our partners.



2023: a pivotal year for MATISEC's C.S.R approach!

For the first time, MATISEC did presentation to reveal its **C.S.R approach** and for the first time, it won the bronze medal! In a rating system specific to EcoVadis, companies compete on CSR criteria divided into four themes: Environment, Social & Human Rights, Ethics and Responsible Purchasing.

A symbol of its actions and commitment as part of its CSR initiative, an area that is now essential. This award also reflects the efforts MATISEC is committed to redoubling in order to improve its practices.

MPRO™ BRAND

A CLEAR SIGNATURE, A CONTROLLED STANDARD

This new brand, dedicated to **MATISEC's range of chemical and thermal protection products**, has been designed as a clear and immediately recognisable mark.

MPRO™ supports the development of the MATISEC offering and its expansion in France and internationally. In a context where work environments are becoming increasingly demanding, MATISEC has chosen a **unifying brand**, designed as a **concrete guarantee of the company's values** in the design and manufacture of its equipment.

Beyond its name, MPRO™ embodies a concrete commitment: each value is applied at every stage of product development, guaranteeing solutions designed for the conditions of actual use and the constraints present in the field.

Why the MPRO™ brand?

MPRO™ is part of the natural evolution of the MATISEC offering by providing a **clear and structured framework**. The brand makes it possible to identify the various product families, to understand their main use, to determine the requirement level and scope of application, while reaffirming the fundamental company ethos: **MATISEC is a manufacturer** with expertise in technical and industrial decisions, from design through to business.

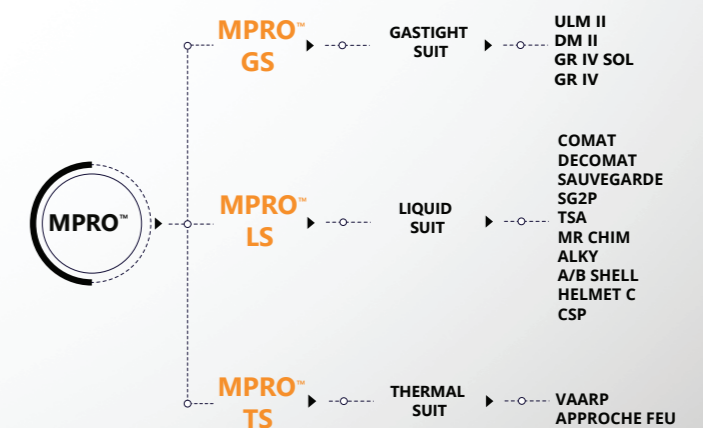
This structure responds to a simple and concrete objective: **to make the offer clearer, more consistent and more user-friendly**. It unites the products around a common base, while preserving the specific business and operational characteristics of each range.

A new step for MATISEC

With MPRO™, MATISEC affirms its vision: to offer protective equipment **designed, manufactured and tested according to a high level of requirement**, to serve those working in the most sensitive environments. Deployed gradually, **the MPRO™ brand is establishing itself as a lasting structuring mark and a guarantee of trust**, today and in the future.

- M** for **Matisec**, the foundation of industrial expertise
- P** for **Protection**, the core of the company's mission
- R** for **Robust**, the requirement for strength and reliability in critical conditions
- O** for **Optimal**, the continual quest for performance, comfort and safety

For this range, three categories have been defined :



MPRO™ RANGE

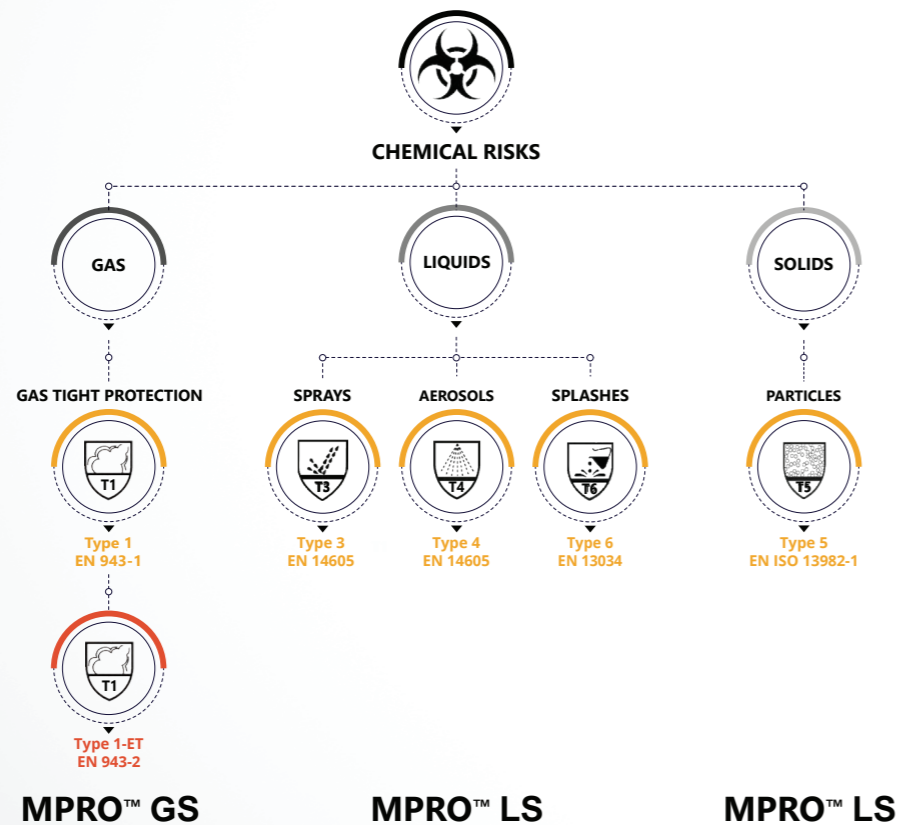
TWO RESEARCH AREAS

FIELDS OF WORK



SELECT YOUR CHEMICAL PROTECTION ACCORDING TO THE RISKS

Chemical risks are divided into three categories: gases, liquids and solids. To address them, five types of chemical protective clothing are defined according to the level of risk and current standards and according to your risk. MATISEC helps you identify the protection best suited to your needs.



EN 943-1 TYPE 1

Protective clothing against solid, liquid and gaseous hazardous chemicals, including liquid aerosols and solid particles.

Part 1: Performance requirements for gas-tight chemical protective suits (Type 1).

EN 943-2 TYPE 1 - ET

Protective clothing against solid, liquid and gaseous hazardous chemicals, including liquid aerosols and solid particles.

Part 2: Performance requirements for gas-tight chemical protective suits (Type 1) designed for emergency teams (ET).

EN 14605 TYPE 3

Protective clothing against liquid chemicals (sprays).

EN 14605 TYPE 4

Protective clothing against liquid chemicals (mists).

EN 13034 TYPE 6

Protective clothing against liquid chemicals (splashes).

EN ISO 13982-1 TYPE 5

Protective clothing against solid particles (dust, asbestos).



MPRO™ GS

GAS-TIGHT SUIT PROTECTION

12 GUIDE

14 ULM II TYPE 1a-ET-B

15 DM II TYPE 1a-ET-B

16 GR IV SOL TYPE 1a-ET-B

17 GR IV TYPE 1b-ET-B

18 CONFIGURATIONS, OPTIONS AND ACCESSORIES

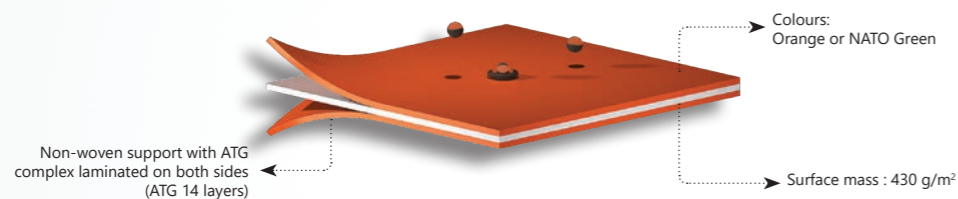
OUR CHEMICAL PROTECTIVE CLOTHING RANGES

MATISEC designs and develops protective fabrics to provide a complete solution. This in-house expertise ensures the creation of increasingly robust equipment, delivering optimal protection in hostile environments.

ML31  

The ML31 composite consists of two ATG barrier films laminated to a nonwoven substrate. The combination of these three materials provides a high level of protection against industrial chemicals and chemical warfare agents, as well as excellent mechanical resistance. This is due to its polyamide layers and its ATG composite.

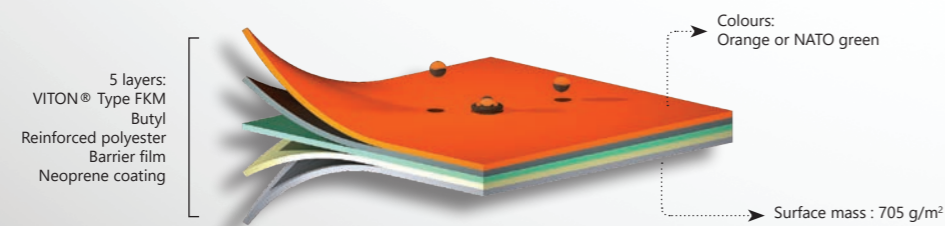
Additional tests carried out on the material : EN 1149-3 / FINABEL O.7.C



MTE18  

The MTE18 material is a complex specially developed to protect against gaseous and liquid hazards, while offering enhanced mechanical strength. This fabric is used in the design of high-level gastight suits. The MTE18 also benefits from additional flammability resistance tests.

Additional tests carried out on the material : EN 14116 (index 3) / EN 1149-1 / FINABEL O.7.C



GS MODELS



ULM II











DM II



GR IV SOL



GR IV

STANDARD TYPE	1a-ET-B ¹	1a-ET-B ¹	1a-ET-B ¹	1b-ET-B ¹
ROBUSTNESS	Normal	Reinforced	Reinforced	Reinforced
SIZES	S → XXL	S → L	S → XL	S → XL
PACKAGING	Hermetic bag + Carry bag	Carry bag	Carry bag	Carry bag
COLOURS	 	 	 	 
USE	Limited	Reusable	Reusable	Reusable
WASHING	Hand-wash	Hand-wash	Hand-wash	Hand-wash
GUARANTEE	1 year	1 year	1 year	1 year
PRODUCT LIFESPAN*	10 years**	15 years***	15 years***	15 years***
COMPOSITION	ML31	MTE18	MTE18	MTE18
EN ISO 13688	●	●	●	●
EN 943-1 Type 1	●	●	●	●
EN 943-2 Type 1-ET	●	●	●	●
EN 14126	●	●	●	●
EN 1073-2	●	●	●	●
EN ISO 14116****		●	●	●
EN 1149-5****	●	●	●	●
FINABEL O.7.C	●	●	●	●

¹Biological
^{*}Depending on storage
^{**}10 years (5+5) subject to full requalification at MATISEC facilities after 5 years
^{***}15 years (10+5) subject to full requalification at MATISEC facilities after 10 years
^{****}Fabrics



The best "normal robustness" chemical protective suit,

for first-responders working in toxic, hazardous and polluted environments, ensuring safety, reliability and efficiency



The reinforced, reliable and durable chemical protective suit

for first-responders working in hazardous chemical environments



SEMI-RIGID SCREEN

For a full view of the working environment without distortion

1.5 m ZIP

Easy to put on and take off, can be used with or without a flap, without affecting the chemical performance of the suit

INSPECTION PASS-THROUGH FOR LEAK TESTING

Reliable and easy to use

EASY MAINTENANCE

Suitable for use up to contamination, complete requalification of the suit after 5 years

MATISEC ML31 complex



CHEMICAL PROTECTIVE FILM

Protects against chemical splashes and mechanical damage, easy to replace

MULTI-PURPOSE BACK POCKET

Designed to hold a SCBA with a cylinder up to 9 L or a twin-cylinder set up to 2 x 7.2 L

SCREW-ON RING SYSTEM

Detachable for quick and easy glove replacement

INTEGRATED NITRILE BOOTS

Chemical, mechanical and anti-static performance. The suit is also available with booties

Assembled with strong seams, sealed by thermoplastic bonding

+ information



Standards



CHEMICAL PROTECTIVE FILM

Protects against chemical splashes and mechanical damage, easy to replace

MULTI-PURPOSE BACK POCKET

Designed to hold a SCBA with a cylinder up to 9 L or a twin-cylinder set up to 2 x 7.2 L

REMOVABLE NITRILE BOOTS

First contact area prone to attack and damage, easily replaced without tools. Chemical, mechanical, and antistatic performance. Also available with integrated boots

Unique vulcanisation sealing and repair process, ensuring the performance of the materials and assembly

+ information



PANORAMIC FIELD OF VISION

For complete frontal and lateral awareness of the work environment

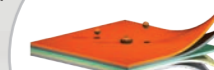
REPAIRABLE AND REUSABLE

The suit can be repaired and reused after contamination

ERGONOMIC RING SYSTEM

Fully sealed assembly, allowing quick and easy glove changes directly on the wearer

MATISEC MTE18 complex



Finabel O.7.C EN 1149-5 fabric EN 14116 fabric EN 1073-2 EN 14126 EN 943-1 EN 943-2



Standards



The reinforced protective suit, durable and ultra-comfortable,

for first-responders working in hazardous chemical environments



The reinforced protective suit, durable and ultra-comfortable,

for first-responders working in hazardous chemical environments. Self-contained breathing apparatus worn outside the suit



BUILT-IN ERGONOMIC MASK

Ergonomically-designed, built-in mask providing respiratory protection for the wearer as well as a perfect fit and optimum comfort for long-duration operations

MULTI-PURPOSE BACK POCKET

Designed to hold a SCBA with a cylinder up to 9 L or a twin-cylinder set up to 2 x 7.2 L

SCBA WORN ON THE OUTSIDE OF THE SUIT

Regularly used in restricted and narrow environments

BUILT-IN ERGONOMIC MASK

Ergonomically-designed, built-in mask providing respiratory protection for the wearer as well as a perfect fit and optimum comfort for long-duration operations

CHEMICAL PROTECTIVE FILM

Protects against chemical splashes and mechanical damage, easy to replace

REPAIRABLE AND REUSABLE

The suit can be repaired and reused after contamination

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The suit can be repaired and reused after contamination

CHEMICAL PROTECTIVE FILM

Protects against chemical splashes and mechanical damage, easy to replace

ERGONOMIC RING SYSTEM

Fully sealed assembly, allowing quick and easy glove changes directly on the wearer

REMOVABLE NITRILE BOOTS

First contact zone likely to be attacked and damaged, easy to change without tools. Chemical, mechanical and anti-static performance. Also available with integrated boots

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First contact zone likely to be attacked and damaged, easy to change without tools. Chemical, mechanical and anti-static performance. Also available with integrated boots

ERGONOMIC RING SYSTEM
Fully sealed assembly, allowing quick and easy glove changes directly on the wearer



Unique vulcanisation sealing and repair process, ensuring the performance of the materials and assembly



Unique vulcanisation sealing and repair process, ensuring the performance of the materials and assembly

Standards



+ information



+ information



Standards

SLEEVE AND LEG END CONFIGURATIONS



Mark	Description	ULM II	DM II	GR IV SOL	GR IV
1	Screw-on rings	✓			
2	Ergonomic rings		✓	✓	✓
3	Cotton undergloves - default	✓			
4	Silk gloves - default		✓	✓	✓
5	MAPA 344 FKM gloves	✓	✓	✓	✓
6	MATCHIM + FKM MAPA 344 gloves	✓	✓	✓	✓
7	MATCHIM + ULTRANITRIL MAPA 410 gloves	✓	✓	✓	✓
8	MATCHIM + BUTOJECT 898 gloves	✓	✓	✓	✓
9	Integrated boots	✓	✓	✓	✓
10	Removable boots		✓	✓	✓
11	Socks with flap	✓			

OTHER CONFIGURATIONS



Mark	Description	ULM II	DM II	GR IV SOL	GR IV
1a	Sealed pass-through with ventilation tap		✓	✓	
1b	Sealed pass-through without ventilation tap		✓	✓	
1c	Sealed pass-through without ventilation	✓			
2	Internal ventilation		✓	✓	✓
3	Zip flap	✓	✓	✓	✓
4	Zipper only	✓			

OPTIONS



Mark	Description	Ref	ULM II	DM II	GR IV SOL	GR IV
1	Hydrophilic/hydrophobic undersuit	500914	✓	✓	✓	✓
2	Cotton undergloves	140062	✓	✓	✓	✓
3	Silk undergloves	140061	✓	✓	✓	✓
4	Nitrile boots	360104	✓	✓	✓	✓
5	KEVLAR® thermal over-gloves	190016	✓	✓	✓	✓
6	Cryo overgloves	1009742	✓	✓	✓	✓
7	Single tightening belt	416162	✓	✓	✓	✓
8	Double tightening belt	416162-01	✓	✓	✓	✓
9	Braces	360330-01	✓	✓	✓	✓
10	Inside pocket with Velcro® fastening	1009798	✓	✓	✓	✓
11	Attachment of the external dosimeter on the chest	1009865	✓	✓	✓	✓
12	Identification marking	-	✓	✓	✓	✓
13	D-ring	1002425	✓	✓	✓	✓
14	Radio pass-through	1009745	✓	✓	✓	✓
15	Camera mounting system	1010102	✓	✓	✓	✓
16	Knee reinforcement	340404		✓	✓	✓

ACCESSORIES



Mark	Description	Ref	ULM II	DM II	GR IV SOL	GR IV
1	Zip grease	300047	✓	✓	✓	✓
2	Anti-fog and anti-static kit	380025	✓	✓	✓	✓
3	Chemical protective film	1009382	✓	✓	✓	✓
4	Lens protection case	1009561	✓	✓	✓	✓
5	Carry bag	361211	✓	✓	✓	✓
6	Protective suit cover	360033	✓	✓	✓	✓
7	Cryo apron	1000517	✓	✓	✓	✓
8	TRACEMAT: tracking and tracing solution for MATISEC equipment	-	✓	✓	✓	✓
9	Protective suit leak test case	1000078	✓	✓	✓	✓
10	MATITEST EVO test bench	1007367	✓	✓	✓	✓

MPRO™ RANGE

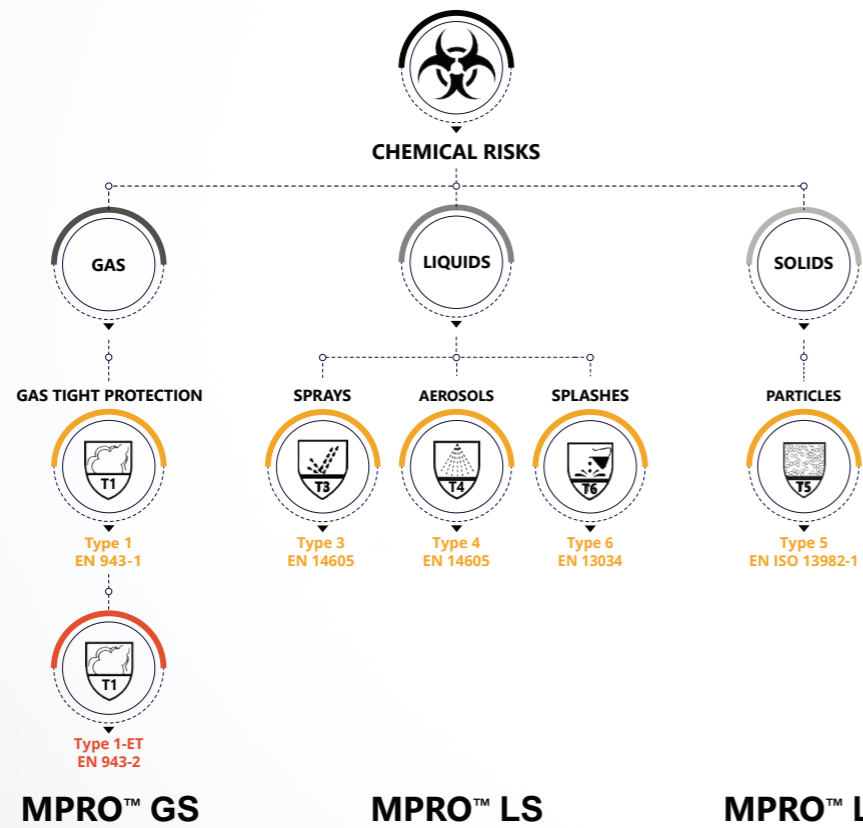
TWO RESEARCH AREAS

FIELDS OF WORK



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Part 1: Performance requirements for gas-tight chemical protective suits (Type 1).

EN 943-2 TYPE 1 - ET

Protective clothing against solid, liquid and gaseous hazardous chemicals, including liquid aerosols and solid particles.

Part 2: Performance requirements for gas-tight chemical protective suits (Type 1) designed for emergency teams (ET).

EN 14605 TYPE 3

Protective clothing against liquid chemicals (sprays).

EN 14605 TYPE 4

Protective clothing against liquid chemicals (mists).

EN 13034 TYPE 6

Protective clothing against liquid chemicals (splashes).

EN ISO 13982-1 TYPE 5

Protective clothing against solid particles (dust, asbestos).



MPRO™ LS

LIQUID SUIT PROTECTION

24	GUIDE	
28	COMAT	TYPE 3/4/5/6-B
29	DECOMAT	TYPE 3/4/6-B
30	SAUVEGARDE	TYPE 3/4-B
31	SG2P	TYPE 3/4
32	TSA	-
33	MR CHIM	TYPE 3/4/5/6-B
34	ALKY	TYPE 3
35	A/B SHELL	-
36	HELMET C	-
37	CSP	TYPE 6
38	CONFIGURATIONS, OPTIONS AND ACCESSORIES	

OUR CHEMICAL PROTECTIVE CLOTHING RANGES

MATISEC designs and develops protective fabrics to provide a complete solution. This in-house expertise ensures the creation of increasingly robust equipment, delivering optimal protection in hostile environments.



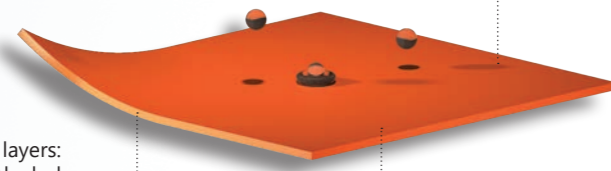
ATG is a complex of ultra-thin barrier films offering protection against industrial chemicals and toxic warfare agents. It stands out for its particular mechanical strength delivered by its polyamide layers and high permeation protection barrier thanks to its EVOH layers.

Tests carried out on the material : FINABEL O.7.C (Chemical warfare agents)



Colours : Orange, NATO green, White or Transparent

14 layers: Polyamide/Polyethylene/Ethylene Alcohol Vinyl



Surface mass : 111 g/m²

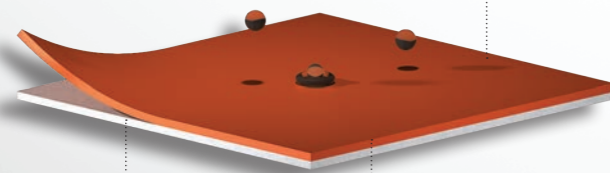


The MC3 composite consists of an ATG barrier film combined with an ultra-thin, flexible nonwoven. It has high mechanical strength thanks to its built-in, non-woven material, which makes it particularly tear-resistant. Its barrier film layer offers a high level of protection against industrial chemicals and toxic warfare agents.

Additional tests carried out on the material : FINABEL O.7.C / EN 1149-3



Colours: Orange, NATO green or White



ATG and non-woven film

Surface mass : 111 g/m²



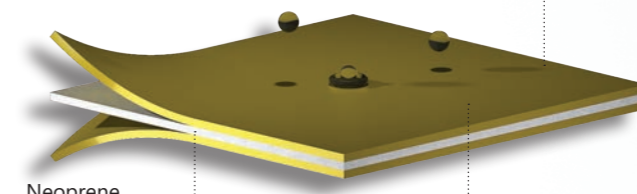
The Neoprene complex consists of two layers of neoprene bonded to a 120 g/m² polyamide backing, providing flexibility and mechanical strength.

The two layers of neoprene are resistant and tested against permeation by liquid chemicals.

Additional tests carried out on the material : hydrofluoric acid permeation (HF 99%), EN 14116 (index 3)



Colour: Yellow



Neoprene Polyamide Neoprene

Surface mass : 390 g/m²

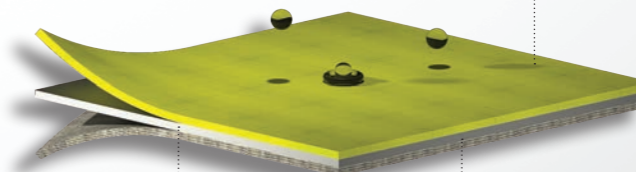


The APC complex is a fabric specially developed to protect against liquid hazards, but primarily to provide electrostatic resistance by means of its aramid fabric with conductive threads. It also has good mechanical strength.

Additional tests carried out on material : EN 1149-5



Colour: Yellow



Aramid fabric with polyamide conductive threads PFTE/PU membrane Acrylic/Cotton

Surface mass : 360 g/m²

LS MODELS



COMAT

DECOMAT

SAUVEGARDE

SG2P

TSA

MR CHIM

ALKY

A/B SHELL

HELMET C

CSP

STANDARD TYPE	3/4/5/6-B ¹	3/4/6-B ¹	3/4-B ¹	3/4	-	3/4/5/6-B ¹	3	-	-	6
SIZES	S → XXL	S → XXL	One size	One size	One size	S → XL	S → XXL	53 → 61 cm	M → L	XS → 3XL
PACKAGING	Hermetic bag	Hermetic bag	Compact pouch	Compact pouch	Compact pouch	Hermetic bag	Pouch	Pouch	Carry bag	Pouch
COLOURS										
USE	Single use	Single use	Single use	Single use	Single use	Single use	Reusable	Reusable	Reusable	Reusable
WASHING	-	-	-	-	-	-	Machine	Hand-wash	Hand-wash	Machine
GUARANTEE	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year
PRODUCT LIFESPAN*	15 years	15 years	15 years	20 years	15 years	5 years	10 years	5 years	10 years	15 years
COMPOSITION	MC3	MC3	ATG	ATG	ATG	MC3	NEOPRENE	NEOPRENE	NEOPRENE	APC
EN ISO 13688	●	●	●	●		●	●	●	●	●
EN ISO 14605 Type 3	●	●	●	●		●	●			
EN ISO 14605 Type 4	●	●	●	●		●				
EN ISO 13982-1 Type 5	●					●				
EN ISO 13034 Type 6	●	●				●				●
EN 14126	●	●	●			●				
EN 14116							●**			
EN 1073-1						●				
EN 1073-2	●									
EN 1149-5	●	●	●**			●**				●
FINABEL O.7.C	●	●	●	●	●	●***				
EN 812								●		
EN 14594									●	

¹Biological
^{*}Depending on packaging
^{**}Fabric
^{***}Fabric and assemblies



The multi-purpose single-use suit,

tested against warfare agents, suitable for all sensitive operations



Single-use decontamination clothing,

tested against warfare agents for any critical operations conducted against certain chemical liquids



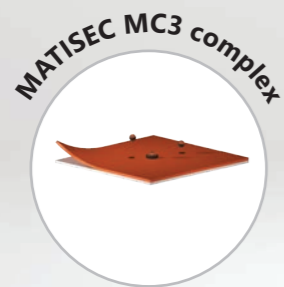
TYPE 3 MULTI-PURPOSE SUIT FOR LIQUID CHEMICAL HAZARDS

Type 3, 4, 5 and 6 COMAT is a complete suit resistant to a wide range of chemicals, including toxic warfare agents

USABLE WITH A FILTER MASK OR SELF-CONTAINED BREATHING APPARATUS

DIFFERENT CONFIGURATIONS TO SUIT YOUR NEEDS

Zip, hand and foot ends to suit your needs and purposes



SEALED NEOPRENE FACE SEAL OR WIDE ELASTIC

Complete suit-to-mask sealing with chemical resistance

HIGH STRENGTH AND SAFETY

Uniform chemical and mechanical strength across the full suit

FOR USE IN ATEX ZONES

Can be used in Zones 1, 2, 20, 21, 22 with prior approval from the engineer responsible for safety

Assembled with strong seams, sealed by thermoplastic bonding

+ information



Standards



WEARER ADJUSTMENT SYSTEMS

For improved sealing and wearer comfort

EMERGENCY BACK TEAR STRIP

Easy undressing to prevent any risk of contamination

DIFFERENT CONFIGURATIONS TO SUIT YOUR NEEDS

Zip, hand and foot ends to suit your needs and purposes

+ information



SEALED NEOPRENE FACE SEAL OR WIDE ELASTIC

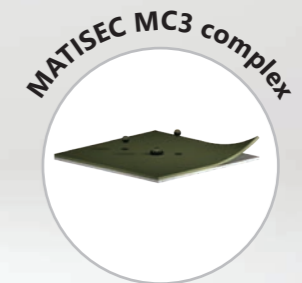
Complete seal from garment to mask with chemical resistance

HIGH STRENGTH AND SAFETY

Uniform chemical and mechanical strength across the full suit

FOR USE IN ATEX ZONES

Usable in zones 1, 2, 20, 21, 22 with prior approval from the responsible safety engineer



Standards





The compact, lightweight, single-use suit, ideal for emergency evacuations

on sites contaminated by liquid chemical splashes, infectious agents or toxic warfare agents



Lightweight and ergonomic, single-use,

ideal for emergency evacuation, resistant to toxic warfare agents



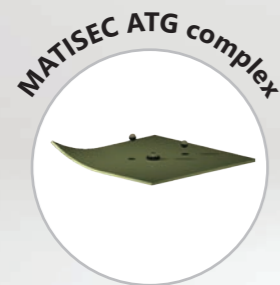
ELASTICATED FACE SEAL

It provides complete sealing of the suit to the mask

HIGH STRENGTH AND SAFETY

Uniform chemical and mechanical strength across the full suit

Seam assembly by watertight welding



FULL-BODY PROTECTION AGAINST CHEMICAL WARFARE AGENTS

Universal adjustment at wrists, waist, and ankles to fit the wearer's body shape

SIMPLE, LIGHTWEIGHT AND EASY TO USE

No maintenance required, can be donned in under one minute

OPTIMISED PACKAGING FOR IMMEDIATE RESPONSE

Compact size of 24 × 14 × 5 cm with a weight under 1 kg



+ information



ELASTIC FACE SEAL

For complete sealing of the suit to the mask

SIMPLE, LIGHTWEIGHT AND EASY TO USE

No maintenance required, can be donned in under one minute

OPTIMISED PACKAGING FOR IMMEDIATE RESPONSE

Compact format with two bags measuring 14 × 14 × 5 cm, with a total weight under 1 kg

ANTI-SLIP OVERBOOTS

Ankle support and anti-slip solution, tested on various types of surfaces "walk 5 km on muddy and icy terrain"

+ information



FULL-BODY PROTECTION AGAINST CHEMICAL WARFARE AGENTS

Universal adjustment with waist and ankle system to fit the wearer's body shape

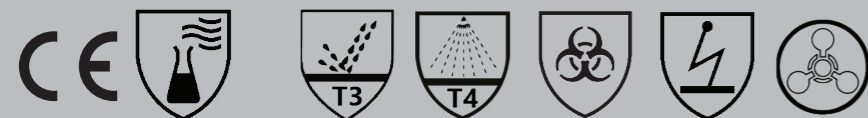
TRANSPARENT PRODUCT

Allows personnel to recognise each other while maintaining the camouflage properties of military uniforms

Seam assembly by watertight welding



Standards



Standards





The compact, lightweight, anti-toxin survival suit, ideal for emergency evacuations,

on sites contaminated by war toxins, in particular mustard gas



UNIQUE PRODUCT FOR MASS PROTECTION AGAINST WARFARE AGENTS

Full, cloak-type outfit with cuffed gloves and CBRN protective overboots

HIGH CHEMICAL RESISTANCE
Watertight fabrics and resistors guarantee effective protection against the spread of toxic products



OPTIMISED PACKAGING FOR IMMEDIATE RESPONSE

Compact format, weighing less than 1 kg, takes less than a minute to dress



MATISEC ATG complex



Seam assembly by watertight welding

Standards Finabel O.7.C



+ information



The strongest ventilated, single use suit,

developed for military and paramilitary waste management, including for use in industry



SEMI-RIGID PANORAMIC SCREEN
Does not impair optical vision in the working environment

TEAR STRIP
Emergency opening, easy undressing minimises the risk of external contamination during removal

DIFFERENT CONFIGURATIONS DEPENDING ON REQUIREMENTS
Hand and foot configurations according to risk and customer usage preferences

Seam assembly by watertight welding



VENTILATION BUILT INTO THE SUIT
Noise reduction and improved comfort, supply management via an adjustable tap

MAGNETIC VALVES
Management of suit overpressure and wearer comfort, better use at low pressure

MATISEC MC3 complex



+ information



Standards



MPRO™ LS ALKY



The multi-purpose, washable and durable workwear,

suitable for alkylation activities in the petrochemical industry, providing increased protection against acids and bases



DURABLE, WASHABLE AND REUSABLE

The suit can be repaired and reused after decontamination

ACID TESTS AVAILABLE
99% HYDROFLUORIC



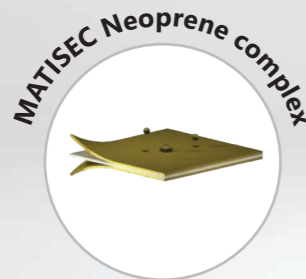
VERSATILE AND ROBUST

Available as a jacket-and-trousers version or a coverall, with several configurations for the collar, gloves, and other options

GLOVE SYSTEM WITH SOFT RINGS

Effective barrier against liquid chemical splashes, allowing gloves to be changed quickly and safely without compromising the suit's sealing properties

Unique vulcanisation sealing and repair process, ensuring the performance of the materials and its assembly



+ information



Standards EN 14605



MPRO™ LS A/B SHELL

Impact-resistant headpiece protects the wearer against certain chemical splashes,

compatible with ALKY workwear



IMPACT-RESISTANT PROTECTIVE SHELL

Effective protection against impacts to the head, preventing lacerations and other superficial injuries caused by collisions with hard, immobile objects

NEOPRENE HEAD COVER

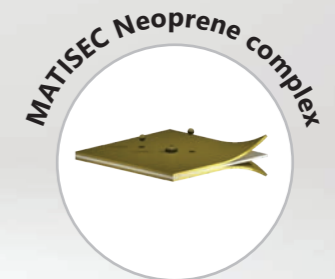
Chemical and mechanical strength, material similar to our ALKY outfits



CUSTOM FIT

Wide visor for optimum field of vision

WIDE, FIXED, ANTI-FOG VISOR
Wide visor for optimum field of vision



+ information



Standards

EN 812



Self-contained, air-supplied breathing protection helmet with adjustable faceplate,
compatible with ALKY multi-purpose workwear



The combination of safety, reusability and durability,

with high electrostatic resistance thanks to its integrated conductive wire

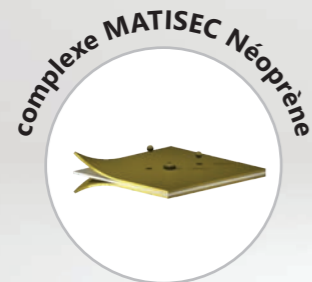


NEOPRENE BIB
Chemical and mechanical strength, material similar to our ALKY outfits.
The flap is adjustable and easy to replace



CUSTOM FIT
Thanks to its adjustment system, the helmet headpiece and chest strap can be adjusted to the wearer's body shape for maximum comfort and safety

CLEANABLE AND DURABLE
Designed for reuse, the C helmet is easy to clean by hand, both inside and out, offering exceptional durability

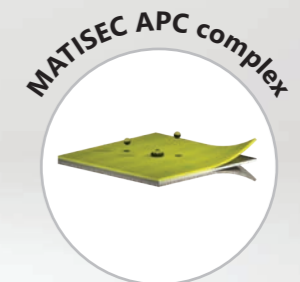


ATEX ANTISTATIC PROPERTIES
Usable in zones 1, 2, 20, 21 and 22 with prior approval from the responsible safety engineer

REUSABLE AND EASY TO MAINTAIN
Machine-washable, the CSP suit can be reused for continuous performance



VERSATILITY AND CUSTOM FIT
The suit can be adapted to different uses and to the size of the wearer (collar, hood, etc.)



Standards

In the process of being approved

+ information



+ information



EN 13034 EN 1149-5 **Standards**

LEG AND SLEEVE END CONFIGURATIONS



Mark	Description	COMAT	DECOMAT	SAUVEGARDE	SG2P	TSA	MR CHIM	ALKY	CSP
1	Without hand end		✓						✓
2	Without hand end with thumb loop	✓	✓						
3	Integrated rings	✓					✓		
4	Screw-on rings	✓	✓				✓	✓	
5	Flexible rings							✓	
6	MATCHIM bonded gloves	✓		✓	✓	✓	✓		
7	Without foot end	✓	✓					✓	✓
8	Without foot end, elasticated	✓	✓					✓	
9	Bonded booties	✓	✓				✓		
10	Double leg opening with elasticated arch strap	✓	✓					✓	
11	Overboots*	✓		✓		✓	✓		
12	Overboots with anti-slip elastic straps passing under the foot				✓				

*different models depending on the product

OTHER CONFIGURATIONS



Mark	Description	COMAT	DECOMAT	SAUVEGARDE	SG2P	TSA	MR CHIM	ALKY	CSP
1	Back zip fastening	✓					✓		
2	Zip opening between the two shoulders passing through the head	✓							
3	Double flap with hook-and-loop fastener	✓							
4	Single flap with double-sided tape	✓							
5	Neoprene face seal	✓	✓						
6	Elasticated face seal	✓	✓	✓	✓				

OPTIONS



Mark	Description	Ref	COMAT	DECOMAT	SAUVEGARDE	SG2P	TSA	MR CHIM	ALKY	CSP
1	Nitrile boots	360104	✓	✓					✓	✓
2	CBRN overboots	1006733	✓	✓		✓				
3	CBRN overboots with anti-slip finish	-	✓	✓		✓				
4	Cotton undergloves	140062	✓	✓				✓	✓	✓
5	Silk undergloves	140061	✓	✓				✓	✓	✓
6	Butyl gloves OG05	1009631	✓	✓		✓				
7	Butoject 898 gloves	1009175	✓	✓		✓				
8	Ultraneo 382 neoprene gloves	1008908						✓	✓	✓
9	Ultraneo 341 neoprene gloves	360099						✓	✓	
10	Radio pass-through	1009817							✓	
11	Internal bib	1009815							✓	
12	Hydrophobic / hydrophilic undersuit	500914	✓	✓				✓	✓	✓
13	Customer logo 15 × 6.5 cm (back, front, or on helmet)	1008289							✓	

ACCESSORIES



Mark	Description	Ref	COMAT	DECOMAT	SAUVEGARDE	SG2P	TSA	MR CHIM	ALKY	COQUE A/B	CASQUE C	CSP
1	TRACEMAT - tracking and tracing solution for MATISEC equipment								✓			
2	Carry bag	361211						✓	✓	✓	✓	✓
3	TOTAL III filter mask	418873	✓	✓	✓	✓	✓		✓			✓

MPRO™ RANGE

TWO RESEARCH AREAS

FIELDS OF WORK



Military / Defence /
CBRN

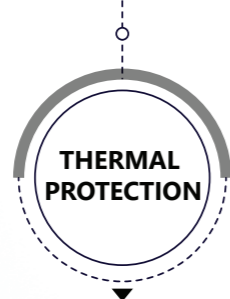


Fire & Rescue

SELECT YOUR CHEMICAL PROTECTION ACCORDING TO THE RISKS



MPRO™ TS



VAARP
APPROCHE FEU



MPRO™ TS

THERMAL SUIT PROTECTION

44 GUIDE

46 VAARP

47 APPROCHE FEU

OUR CHEMICAL PROTECTIVE CLOTHING RANGES

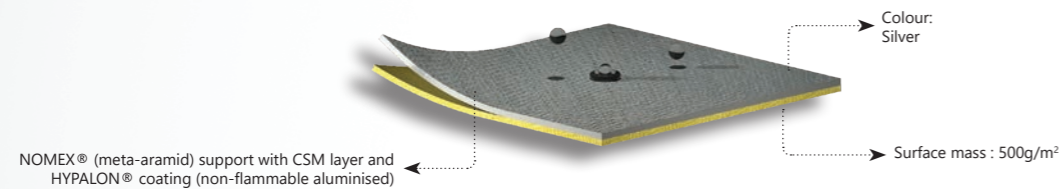
MATISEC designs and develops protective fabrics to provide a complete solution. This in-house expertise ensures the creation of increasingly robust equipment, delivering optimal protection in hostile environments.

HYMEX

The HYMEX complex combines a meta-aramid textile coated with a non-flammable, sealed, aluminised CSM rubber layer. The combination of these two layers makes the fabric highly resistant to flames and heat, while remaining flexible with good mechanical strength.

Suitable for firefighting clothing with a certain resistance to chemical splashes.

Additional tests carried out on the material : EN 469

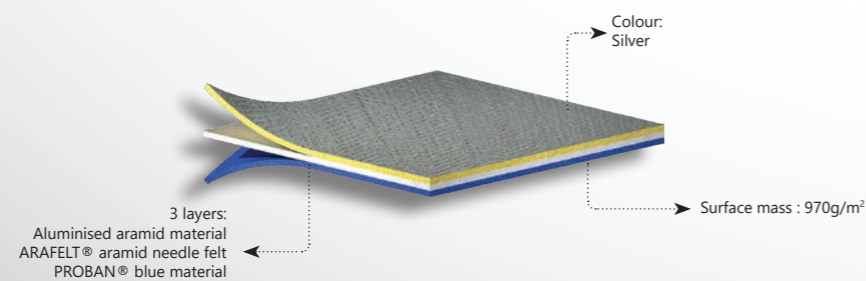


ALUMINISED COMPLEX

The aluminised insulation complex combines an aluminised aramid barrier film with a strong non-woven material and a flame-retardant material. Thanks to the integrated non-woven material, it offers excellent mechanical strength, particularly against tearing and pulling.

Its barrier film layer provides optimum protection against light and ensures good energy management. The flame-retardant material has, by definition, the property of making the material non-flammable.

Additional tests carried out on the material : EN 1486



TS MODELS



VAARP



APPROCHE FEU

SIZES	S → XXL	S → L
PACKAGING	Hermetic bag	Carry bag
COLOURS		
USE	Reusable	Reusable
WASHING	Machine	Hand-wash
GUARANTEE	1 year	1 year
PRODUCT LIFESPAN*	Depending on use	Depending on use
COMPOSITION	HYMEX	ALUMINISED COMPLEX
EN ISO 13688	●	●
EN 1486		●
EN 469**	●	

*Depending on packaging

**With the exception of paragraph 6.3.1: evaporative resistance



Sealed, durable and reusable outfit,

for investigations involving the potential presence of a steam jet and for firefighting involving a chemical risk



Robust, durable protective clothing,

for firefighting



COMFORT AND LIGHTNESS

Comfortable, lightweight garment with a breathable sealed membrane that prevents water and vapour absorption

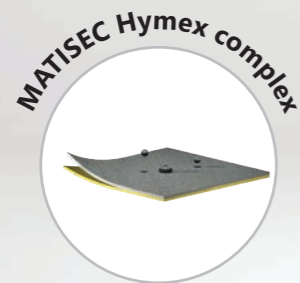
Certified after 20 domestic washes at 60 °C

TRIPLE PROTECTION

Against heat, steam and chemicals with thermal resistance up to 180°C

FABRIC PERFORMANCE

Multilayer complex with tests carried out on convective heat, radiant heat, limited flame propagation and heat at 260°C



OUTFIT ADJUSTMENT

Adjustable waist and shoulder straps

COMPREHENSIVE SOLUTION

The VAARP outfit consists of the VAARP jacket and trousers, accompanied by various essential accessories such as boots and gloves, guaranteeing complete operational protection for conducting works safely



+ information



GOLD-PLATED FACIAL LENS

Dual-piece gold-plated face shield technology for thermal and mechanical strength

5-PIECE OUTFIT

This outfit consists of five inseparable elements: jacket, trousers, bib, gloves and boots. The jacket and trousers can be adapted to the wearer's body shape by means of an attachment system

REINFORCED GLOVES AND BOOTS

The extremities of the outfit (gloves and boots) are reinforced with fire-resistant textile reinforcements



COMPREHENSIVE HEAT INSULATION

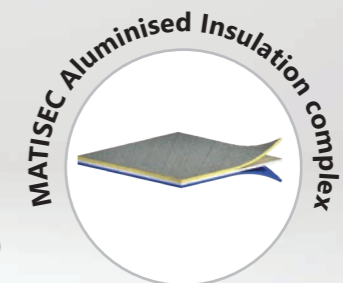
Tested resistance to flame, radiant heat and contact heat

ROBUST AND DURABLE

Robust design with metal hooks and fasteners for use in the most demanding conditions

MULTI-PURPOSE BACK POCKET

Designed to hold a SCBA with a cylinder up to 9 L or a twin-cylinder set up to 2 x 7.2 L



+ information



Firefighter boots optional



47

Standards



EN 469 with the exception of paragraph 6.3.1: evaporative resistance



46

EN 1486

Standards



STANDARDS

Air Supply

Insulating Protection

Air network Equipment

Ventilated Protection

MPRO™ TS

MPRO™ LS

MPRO™ GS

MATISEC

VENTILATED PROTECTION

TWO RESEARCH AREAS

FIELDS OF WORK



Nuclear



Asbestos



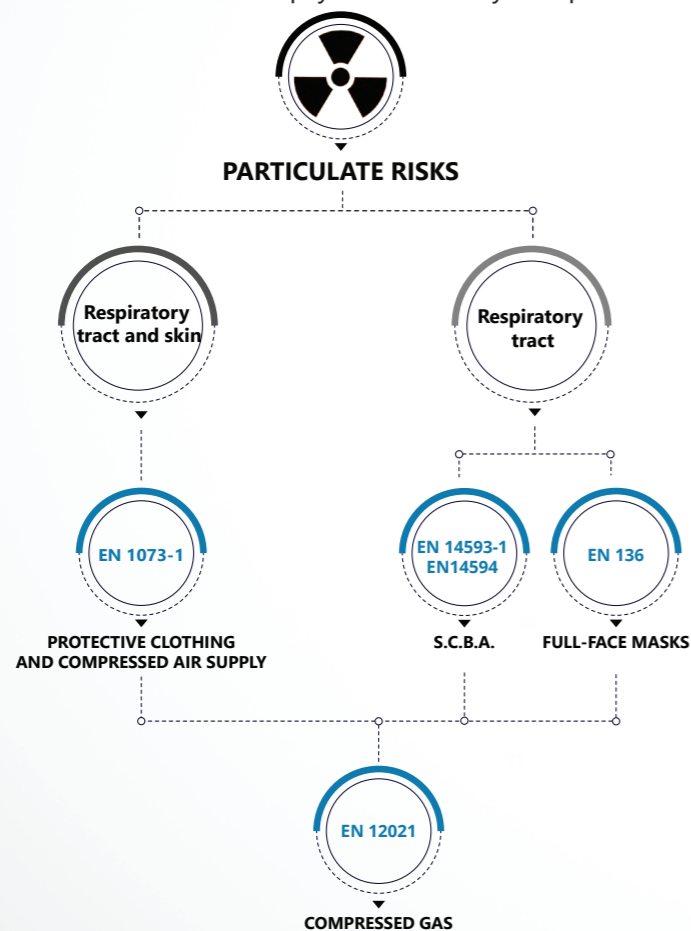
Water and waste management



Pharmaceuticals & laboratory

SELECT THE MOST SUITABLE CHEMICAL PROTECTION IN LINE WITH THE RISKS

The risks in terms of ventilation are divided into two categories: Respiratory protection + Skin and Respiratory protection alone. To address this, four types of ventilated protection are defined according to the risk involved and the standards in force. It is essential to choose the right equipment for each type of risk. MATISEC can help you to identify the protection best suited to your needs.



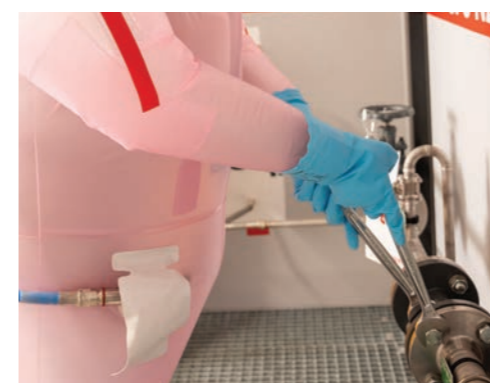
EN 1073-1
Part 1: requirements and test methods for compressed air-supplied ventilated protective garments protecting the body and respiratory system against solid particles suspended in the air, including radioactive contamination.

EN 14593-1
Insulating compressed air-supplied respiratory protective devices with on-demand valve and full mask.

EN 14594
Self-contained breathing apparatus with continuous compressed air supply.

EN 136
Respiratory protection devices: full face masks.

EN 12021
Respiratory protective devices: compressed gases for breathing protective devices.



VENTILATED PROTECTION

50 GUIDE

54 MRV5 Ventilated tight suit

55 PK17 Ventilated tight suit

56 MATIVENT Ventilated hood

58 CONFIGURATIONS, OPTIONS AND ACCESSORIES

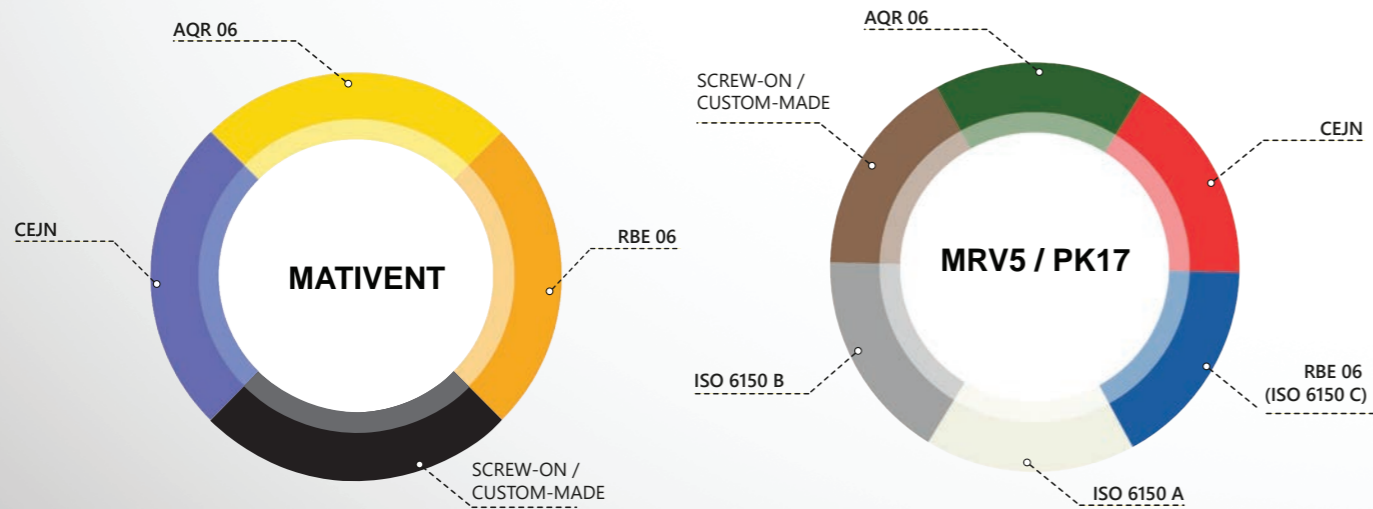
VALVE COMPATIBILITY

To guarantee an optimal and secure connection to your breathing air network, we offer a wide range of male connectors, available in standard or custom versions. These connectors have been designed to meet a variety of technical requirements and adapt precisely to your specific needs, depending on your installation configuration and the type of respiratory equipment used.

To simplify identification and avoid any coupling errors, each connector is associated with a specific colour code, directly visible on our valves (see below). This intuitive signage allows for quick and reliable recognition, while facilitating the commissioning of your equipment, whether it is a ventilated hood or a ventilated suit.

It is important to note that connector compatibility may vary depending on the respiratory protection system manufacturer. To help you choose the right connector for your equipment, we provide a clear and structured summary table on the following page. This shows the correspondences between the different types of connectors and the main manufacturers, allowing you to make an informed choice adapted to your work environment.

COUPLING	MATIVENT VENTILATED HOOD	MRV5 / PK17 VENTILATED TIGHT SUIT
CEJN		
AQR 06		
RBE 06		
ISO 6150 A	/	
ISO 6150 B	/	
SCREW-ON / CUSTOM-MADE		



COMPATIBILITY OF COUPLINGS / ENDS

CONNEXION / COUPLING	COMPATIBILITY AS STATED BY THE MANUFACTURER												
	STÄUBLI	CEJN	FOSTER	PARKER	KEE	HANSEN	STÄUBLI	CEJN	FOSTER	PARKER	KEE	HANSEN	
RBE 06													
RBE 06 OD													
RBE 06 OD QR													
AQR 06													
10-341 / 10-342													
10-344													
10-345													
SHD													
3 SERIES													
TL													
RECTUS 18													
RECTUS 95KS													
RECTUS 96KS													
073 SERIES													
074 SERIES													
3000 SERIES													

COMPATIBILITY VERIFIED ✓ COMPATIBILITY AS STATED BY THE MANUFACTURER

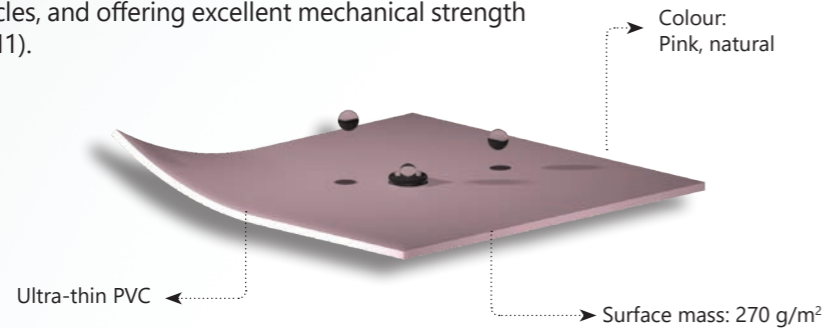
OUR FILMS FOR VENTILATED PROTECTIVE CLOTHING

MATISEC has mastered its protective films in order to offer a complete solution. This in-house expertise guarantees the development of increasingly robust equipment, providing optimum protection in hostile environments.

PVC FILM

PVC film, pink or natural, 200 µm thick.

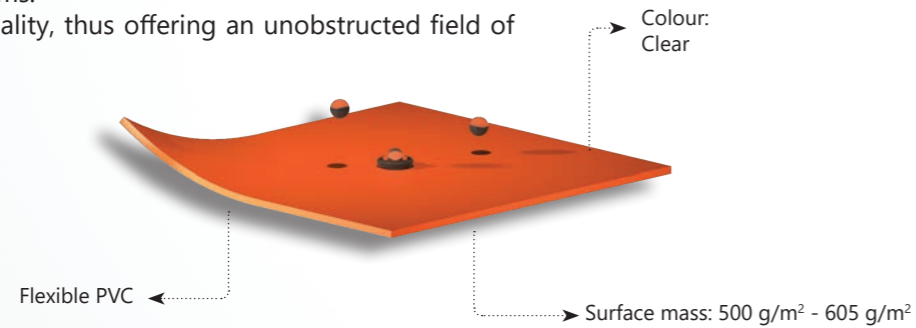
Translucent PVC film is an ultra-thin 100% PVC product offering sealing against suspended particles, and offering excellent mechanical strength and flame resistance (M1).



CLEAR PVC FILM

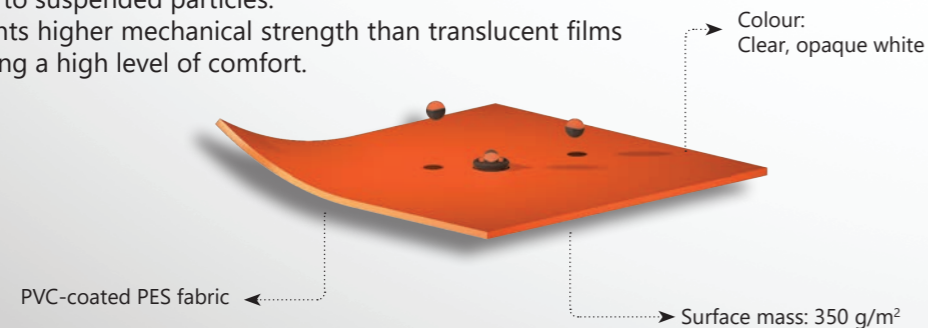
Clear PVC film: maximum optimal quality, 300 or 500 µm

Clear PVC film is a 100% flexible PVC product, with the same characteristics as translucent films. It has optimal optical quality, thus offering an unobstructed field of vision.



PVC PMI

The PVC PMI complex is a polyester fabric coated with PVC on both sides. As with the translucent film, it maintains an exceptional level of impermeability to suspended particles. PMI PVC presents higher mechanical strength than translucent films while maintaining a high level of comfort.



VENTILATED PROTECTION MODELS



MRV5 PK17 MATIVENT

SIZES	1 → 7	2 → 7	One size
PACKAGING	10 items	10 items	20 items
COLOURS			
USE	Single-use	Single-use	Single-use
GUARANTEE	1 year	1 year	1 year
PRODUCT LIFESPAN*	3 years	3 years	3 years
COMPOSITION	PVC or PMI	PVC or PMI	PVC

**Depending on packaging*

EN ISO 13688	●	●	●
EN 1073-1	●	●	●
EN 14594 CLASS 4A			●



Offers an uncompromising level of protection and wearing comfort,

used in most maintenance activities in contaminated areas



The PK17 suit has the same benefits as the MRV5 suit with reinforced protection of the respiratory tract,

by means of a mask compliant with the requirements of EN 136 and a filter cartridge



LOW FLOW INDICATOR (LFI)

Signalling of an accidental drop in air supply

SEAMED GLOVES

Seamed gloves offer complete sealing and protection according to standards EN 374, EN 388 and EN 421

VALVE

Rapid, reliable connection to the air supply network with comfortable air flow adjustment



TEAR STRIPS

Easier doffing and offers rapid access to the airways

READING OF THE DOSIMETER

Large window for easy reading

AVAILABLE IN TWO CLOSURE VERSIONS

Double: zipper + waterproof seal
Single closure: with ergonomic slider (maintains good garment compression in a single movement)

INTERNAL VENTILATION DUCT

Good thermoregulation of the body

SINGLE CLOSURE

The single zip closure at the back of the garment makes it easy to don and ensures that excess pressure is maintained

VALVE

Rapid, reliable connection to the air supply network with comfortable air flow adjustment



TEAR STRIPS

Easier doffing and offers rapid access to the airways

MAGNETIC VALVE

Noise reduction, improved comfort and optimised inflation maintenance

INTERNAL VENTILATION DUCT

Good thermoregulation of the body

Available variations

- MATILED
- MRV5 REINFORCED PMI
- MRV5 CLOSE-FITTING
- MRV5 LP

Available variations

PK17 PMI

Standards EN 1073-1



+ information



+ information



Standards EN 1073-1



MATIVENT



Its lightness is an incomparable advantage,

offering optimal comfort while guaranteeing effective respiratory protection thanks to its compressed air supply and excellent airtightness



PRESSURE RELIEF VALVE
Optimal comfort

LOW FLOW INDICATOR (LFI)
Signalling of an accidental drop in air flow

TEAR STRIP
Quick access to the airways

INFLATABLE NECK SEAL
Guaranteed sealing and comfort with true adaptation to body shape

BELT AND VALVE
Rapid, reliable connection to the air supply network with comfortable air flow adjustment

Available variations

MATIVENT LED



Standards

EN 14594
Class 4A

EN 1073-1



+ information



VALVE CONFIGURATIONS



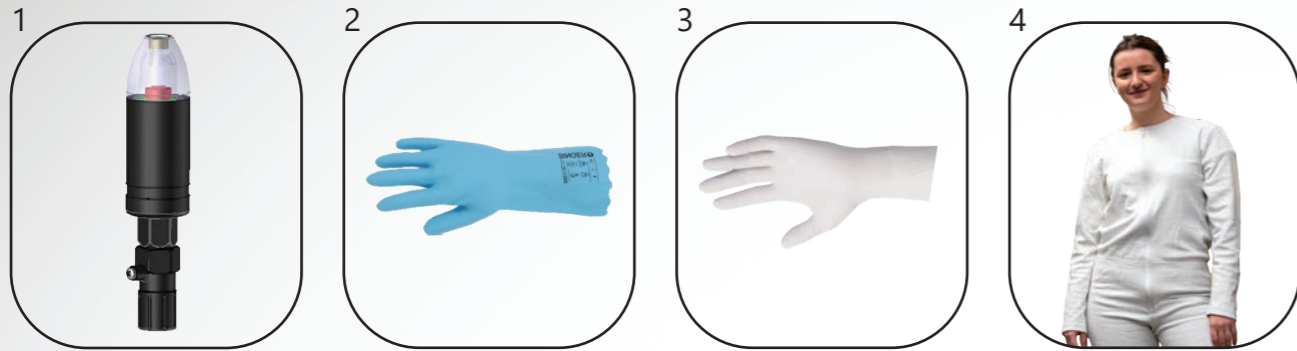
Mark	Description	MRV5	PK17	MATIVENT
1	Coupling CEJN06 - red	✓	✓	
2	Coupling AQR06 - green	✓	✓	
3	Coupling RBE06 - blue	✓	✓	
4	Coupling ISO A - white	✓	✓	
5	Coupling ISO B - grey	✓	✓	
6	Coupling Universal - brown	✓	✓	
7	Coupling CEJN06 - purple			✓
8	Coupling AQR06 - yellow			✓
9	Coupling RBE06 - orange			✓
10	Coupling Universal - black			✓

OTHER CONFIGURATIONS



Mark	Description	MRV5	PK17	MATIVENT
1	Low flow indicator (LFI)	✓		✓
2	Belt extender			✓
3	Dosimetric window	✓		✓
4	Harness loop	✓		
5	Suit reinforcements	✓		
6	LED	✓		✓
7	P40 Attached in the suit		✓	
8	Disconnectable P40		✓	
9	Waterproof single closure	✓		
10	Dual closure: zipped and waterproof	✓		
11	Mechanical valve	✓		✓
12	Magnetic valve	✓	✓	

OPTIONS



ACCESSORIES



Mark	Description	Ref	MATIVENT	MRV5	PK17
1	Low flow indicator (LFI)	-		✓	
2	ATOM B gloves (EN 421)	-	✓	✓	✓
3	G3 gloves (EN 421)	-	✓	✓	✓
4	Hydrophilic/hydrophobic suit liner	500914		✓	✓

Mark	Description	Ref	MATIVENT	MRV5	PK17
1	TOTAL III filtering mask*	418649 418873			✓
3	Dual thread cartridge P3 and ABEK P3	492047/CE			✓
4	Protective helmet without visor	1002896			✓
5	Paper suit (PP coverall)	500933/5 500933/6	✓		✓

*Different cartridges available depending on your needs

VENTILATED PROTECTION

TWO RESEARCH AREAS

FIELDS OF WORK



Nuclear



Asbestos



Water and waste management



Pharmaceuticals & laboratory

SELECT YOUR CHEMICAL PROTECTION ACCORDING TO YOUR **NEEDS**

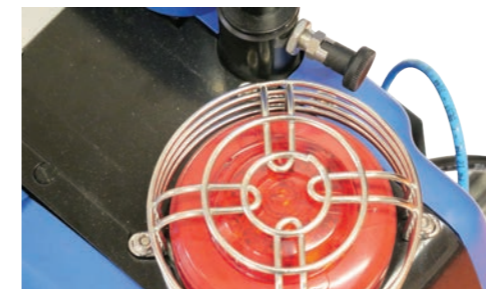


VENTILATED PROTECTION



- UQUAR
- AIR HEATER
- UFS
- BFS
- SPMB

- MOTORISED REEL CABINET
- MOBILE SKID
- MP HOSES



AIR NETWORK AND EQUIPMENT

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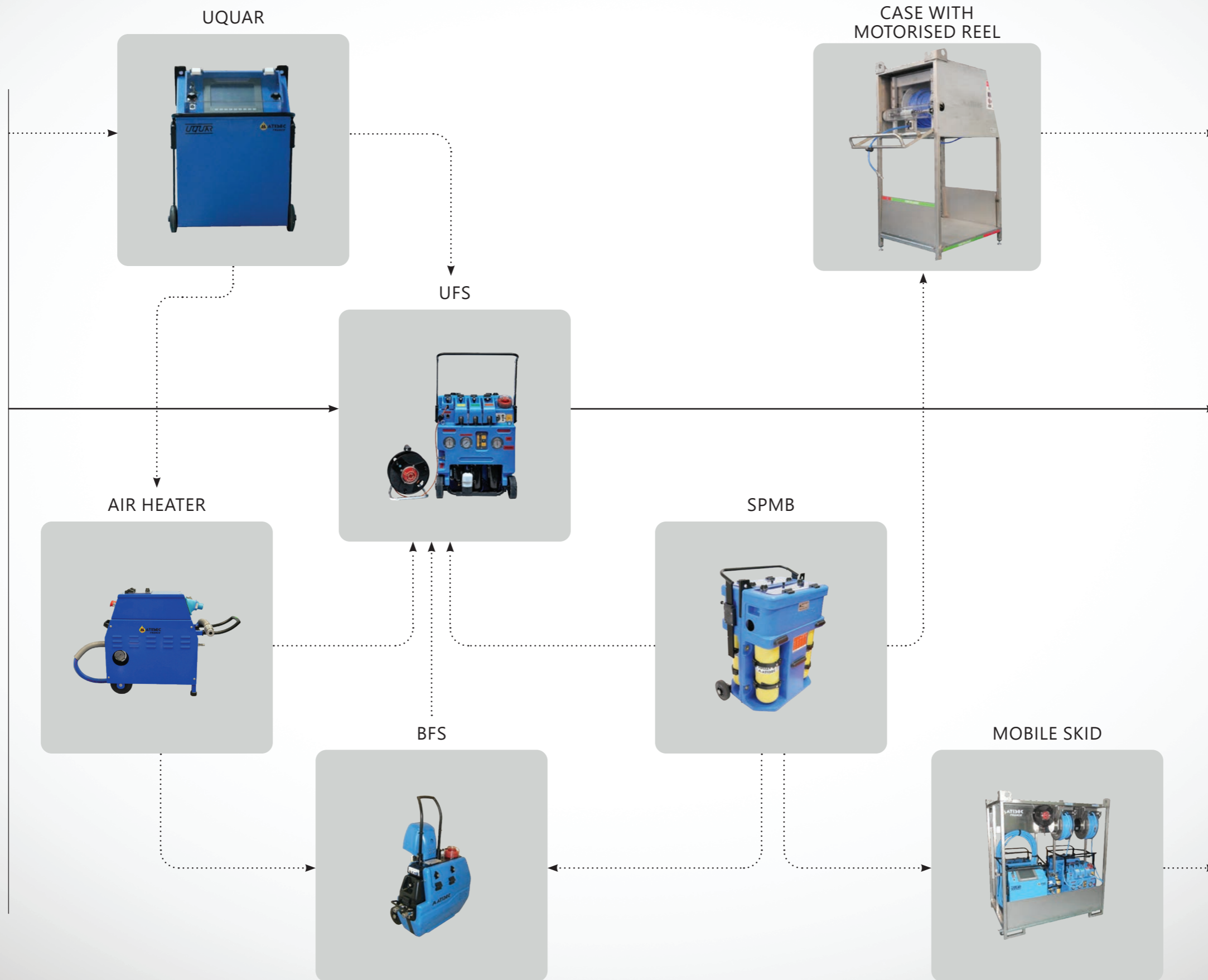
76 CONFIGURATIONS AND OPTIONS

All of MATISEC's expertise, from the

air network to your ventilated protection

BREATHING AIR SERVICE
(compliant with EN 12021)

PROTECTIVE EQUIPMENT



CYLINDER COMPATIBILITY

To ensure you have a reliable supply of breathing air that meets your respiratory protection needs, we offer a wide range of cylinders compatible with different modes of use: air network, Ventilated Tight Suit (VTS) and Ventilated Hood (VH).

Available in various capacities and configurations, our cylinders are designed to adapt to the specific requirements of each application: duration of use, required autonomy, user mobility or space constraints. Whether for a short intervention or prolonged use, you can choose the cylinder offering the best compromise between autonomy and ergonomics.

Our cylinders are tested and certified to work safely with the leading respiratory protection systems on the market. However, it is essential to check compatibility with your existing equipment, particularly with regard to mounts, fixings and air adjustment systems.

To assist you in this process, a summary table is available below. It presents the correspondences between the different cylinder capacities and the different air networks, in order to help you make an informed choice optimally suited to your work environment.



UFS

BFS

SPMB

Cylinders	Capacities	UFS	BFS	SPMB
STEEL*	6 L / 300 B	●	●	●
ALUMINUM LINER*	6.8 L / 300 B	●	●	●
TP LINER	6 L / 300 B		●	
TP LINER	6.8 L / 300 B		●	

*Without warhead protection



Allows for continuous measurement and monitoring of breathing air quality,

in accordance with the requirements of Standard EN 12021 (O2, CO, CO2, relative humidity, VOCs)



Ensures a comfortable breathing air temperature for PPE wearers,

during operations conducted in cold conditions



AUTOMATED CONTROLLER
PLC with 10.4" colour touchscreen

AIR NETWORK ANALYSED
Continuous monitoring of your breathing air network by integrating all the parameters required by the relevant standard

REMOTE ALARM
Sound and visual alarm in the event of an alert threshold reached on one of the sensors
Cutting off of air network and switch over to emergency cylinder

AIR NETWORK MONITORING
Saving values to computer or printer



EXTERNAL CHARGER
230 V alternating external charger / 12V DC by XLR 3 base

RECORDING
ETHERNET outlet for recording of values and fault history

BATTERIES
Two 12V - 12 Ah sealed lead-acid gel batteries for electrical autonomy and backup in case of mains power failure

+ information



Unity quality Respirable air

TEMPERATURE REGULATION
Adjustment of breathing air temperature at any time

SMALL FOOTPRINT
With a length of less than 1 m and a width of less than 25 cm, the air heater can be positioned and stored easily

TEMPERATURE AT THE OUTLET AIR HEATER
From 0°C to 70°C depending on the flow rate and incoming air

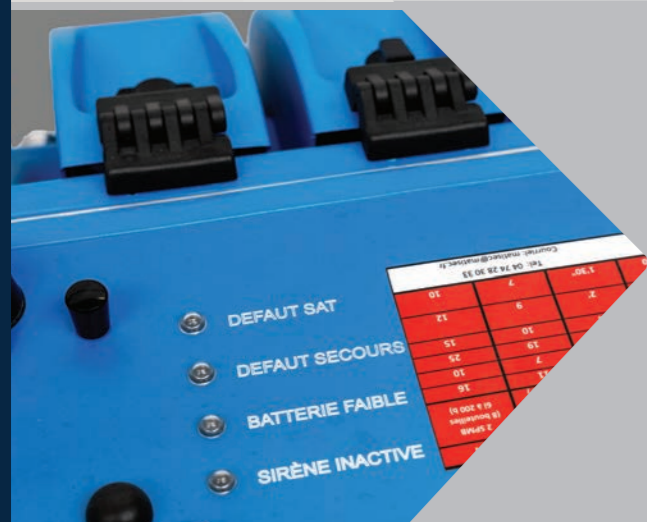
USE
Can be used by wearers of supplied-air masks, ventilated suits or hoods



+ information



Can be used on UFS and BFS



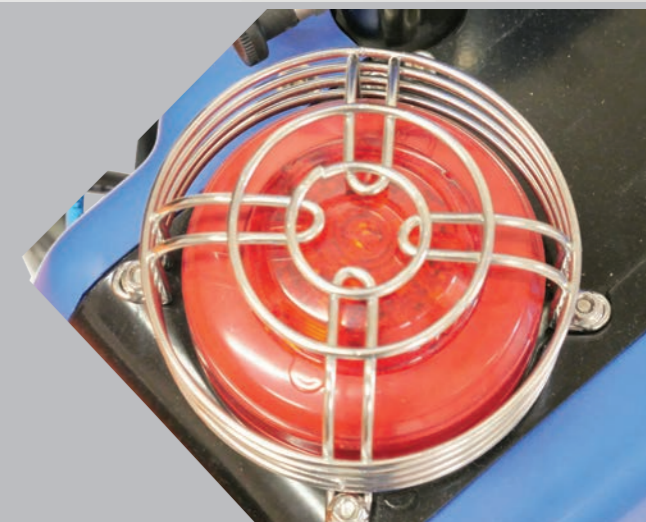
Ensures the safe use of ventilated garments,

alerts wearers in the event of an accidental drop in the air supply network, and allows for their evacuation



Ensures a safe supply of breathing air for two wearers,

alerts wearers in the event of an accidental drop in the air supply network, and allows for their evacuation



FILTRATION SYSTEM
Complements the network filtration with activated carbon, micron and sub-micron filters



SOUND ALARM
In the event of air network failure, an audible and visual alarm is triggered to warn users

Compatible with PK17, MRV5, MATIVENT simultaneously.
Maximum: 2 ventilated tight suits + 1 ventilated hood

+ information



Filtration and Secured Unit

FILTRATION SYSTEM
Complements the network filtration with activated carbon, micron and sub-micron filters



ALARM IN CASE OF AN AIR NETWORK DROP
Audible and visual alarm to warn the wearer(s) of a drop in air supply

Compatible with PK17, MRV5, and MATIVENT simultaneously. Maximum: 1 ventilated tight suits + 1 ventilated hood

+ information



Secured Filtration Terminal



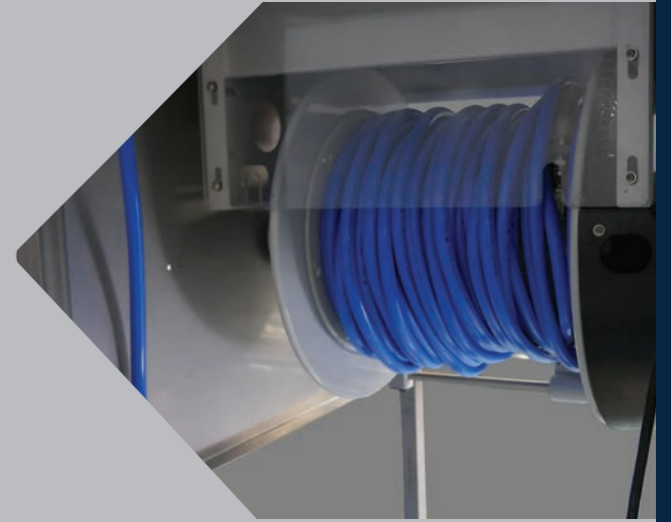
Provides a high-pressure backup air source,

to maintain users' breathing in emergency situations



Facilitates the management of the breathing hose (up to 40 m),

thanks to a motorised winding/unwinding system, designed for interventions at the bottom of nuclear power plant pools



ONE SINGLE COUPLING

The four cylinders are coupled to a single valve for ease of use

HP EMERGENCY CYLINDER

With a coupling for four emergency high-pressure cylinders and access to the valve via a top hatch

CONFIGURATION

Can be used in conjunction with an UFS (2 multi-cylinder portable source) and an BFS (1 multi-cylinder portable source)



+ information



Multi-Cylinder Portable Source

HANDLING

It can be lifted using the rings located on the top of the case. It can be handled by pallet jack, regardless of orientation

WIRED REMOTE CONTROL

Allows control of the reel; a backup crank allows manual operation



WINDING SYSTEM

Allows control of the reel; a backup crank allows manual operation

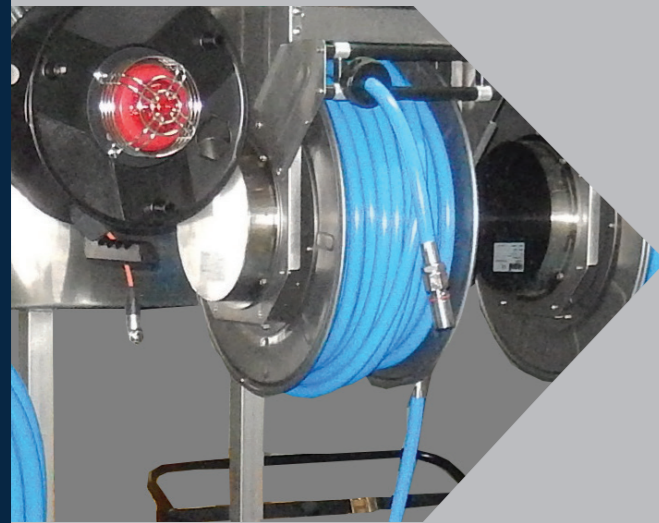
Compatible with UFS and SPMB models (Two access ramps facilitate their installation)

+ information



Certified case

MOBILE SKID



Optimises the distribution of breathing air for operations in confined or technical environments,
via a mobile and complete solution designed for special installations



SEQUENCING

Equipment capable of accommodating a UQUAR, an UFS and a hose extension



REMOTE ALARM

Connectable audible and visual alarm

STORAGE OF HOSES

Storage shelf for storing 7 breathing air hoses

TWO AUTOMATIC WINDING REELS

Non-motorised, equipped with a 50 m hose

+ information



Customisable design on demand

MP HOSES

These supply breathing air via suitable hoses,

optimised to reduce pressure losses, compliant with Standards EN 14593/14594



RESISTANCE ACCORDING TO STANDARD EN 14593/ EN 14594

Provides resistance to twisting, crushing, cold and tensile strength (> 1,000 N)
Also provides resistance to pressure (> 30 bar for 15 min)

TEMPERATURE

-20°C to +70°C (continuous) and +130°C (at peak)



SERVICE PRESSURE
15 bar at 23°C

NBPL (NON-BURST PRESSURE LIMIT)
60 bar at 23°C

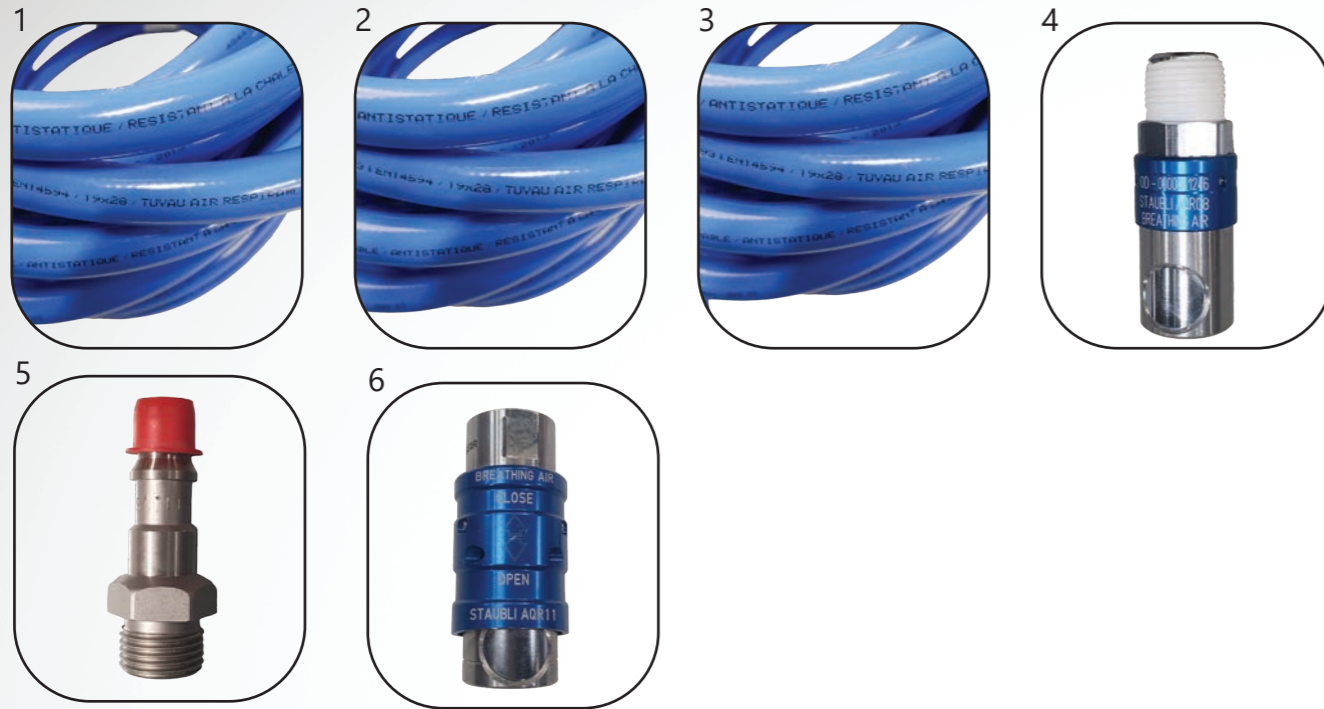
Compatible with all of our models

+ information



Medium Pressure Hoses

CONFIGURATIONS



OPTIONS



Mark	Description	UQUAR	AIR HEATER	UFS	BFS	SPMB	MOBILE SKID	MOTORISED REEL	MP HOSES
1	Inner diameter 10 mm*			✓	✓				✓
2	Inner diameter 13 mm*			✓	✓		✓	✓	✓
3	Inner diameter 19 mm*	✓	✓	✓	✓		✓		✓
4	AQR08 connector			✓	✓				
5	AR11 connector	✓	✓	✓	✓				
6	AQR11 connector	✓	✓	✓	✓				

* Available lengths: 5, 10, 15, 20, 25, 30, 40 and 50 m

Mark	Description	Ref	UQUAR	AIR HEATER	UFS	BFS	SPMB	MOBILE SKID	MOTORISED REEL	MP HOSES
1	Temperature probe	1006488	✓							
2	Flow meter	1004391	✓							
3	Remote alarm	421250	✓		✓	✓				

RESPIRATORY PROTECTION

TWO RESEARCH AREAS

FIELDS OF WORK



Chemical & Petrochemical



Military / Defence / CBRN



Fire & Rescue



Food industry



Pharmaceuticals & Laboratory



Water & waste management



Nuclear



Asbestos

SELECT YOUR RESPIRATORY PROTECTION ACCORDING TO YOUR NEEDS



RESPIRATORY PROTECTION



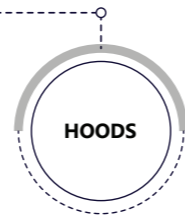
INSULATING PROTECTION

GPAL-INCURVE
GPAL-QS
TRIPLAIR-NG
GLD 90
GPAL-LÉGER
COMPOSITE CYLINDERS
STEEL CYLINDERS
GEVAC
EBA 6.5
M20.2
M40



AIR SUPPLY

BREATHING AIR SOURCES
MAT AIR CCF
EPDM HOSES



HOODS

SAUVIMAT
MATIVENT CI



INSULATING PROTECTION

80 GPAL-INCURVE

81 GPAL-QS

82 TRIPLAIR-NG

83 GLD 90

84 GPAL-LEGER

85 TOTAL III MASK

86 COMPOSITE CYLINDERS

87 STEEL CYLINDERS

88 GEVAC

89 EBA 6.5

90 M20.2

91 M40

92 OPTIONS AND ACCESSORIES

GPAL-INCURVE



The best high-pressure SCBA with demand valve,

combining performance, safety and ergonomics to meet the requirements of rescue professionals and industry



EASY TO CLEAN

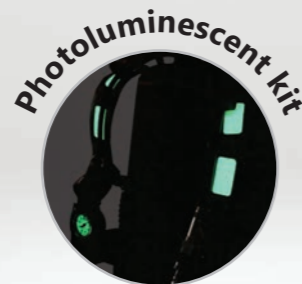
Quickly remove air line TOOL-FREE, combined with a comfortable elastomeric harness

ADJUSTABLE BODY SIZE

Four positions that can be adjusted quickly and easily

CYLINDER ATTACHMENT

Quick-adjusting strap that adapts to different cylinders diameters or twin pack, equipped with a secure locking buckle



+ information



Characteristics

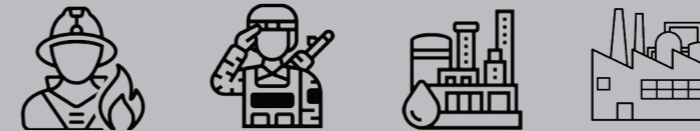
Cylinder type : 6 L to 9 L cylinder (option of installing a twin-cylinder pack)
 (2 x 6 L to 2 x 7.2 L)
Weight : 3.7 kg (backplate with air line and breathing valve, without cylinder)
Breathing autonomy : > 45 min (depending on the type of cylinder and the wearer's consumption)
Standard : EN 137

GPAL-QS



The device combines comfort and performance,

designed to meet the most demanding conditions thanks to reliable technology and optimal ergonomics



ROBUST FRAME

Composite frame that offers mechanical strength and resistance to extreme temperatures while remaining very lightweight. This harness is made up of padded textile shoulder straps

ADJUSTABLE BODY SIZE

Four positions that can be adjusted quickly and easily

CYLINDER ATTACHMENT

Quick-adjusting strap that adapts to different cylinders diameters or twin pack, equipped with a secure locking buckle



+ information



Characteristics

Cylinder type : 6 L to 9 L cylinder (option to install a twin-cylinder block)
 2 x 6 L and 2 x 7.2 L)
Weight : 4 kg (backplate with air line and breathing valve, without cylinder)
Breathing autonomy : > 45 min (depending on the type of cylinder and the wearer's consumption)
Standard : EN 137

TRIPLAIR-NG



The most compact open-circuit SCBA,

over 3,600 units are in the ships of the French fleet



PROTECTIVE CASING

The fire-resistant polymer protective casing ensures mechanical and thermal protection of the cylinders, cylinder pack, and high-pressure regulator

CYLINDER PACK

The manifold allows the three cylinders to be safely connected with a single valve
The cylinder pack was developed exclusively for the TRIPLAIR-NG



BREATHING VALVE MOUNT

Flexible mount allowing for tool-free, on-demand positioning



HARNESS

Incurve model with four height settings



+ information



Characteristics

Air reserve : 9.6 L (comprising a three-cylinder pack with a unit capacity of 3.2 L)
Weight : < 17.5 kg (complete 300 bar unit)
Breathing autonomy : 60 min (for an average consumption of 40 NI/min)
Dimensions : (L x D x H): 400 mm x 170 mm x 620 mm
Standard : EN 137

GLD 90

The apparatus meets the specific needs of LDEGs,

for Long Duration Exploration Groups (Firefighter specialty)



CARRYING AND PROTECTIVE CASE

It fully protects components, high-pressure regulators, and cylinders from damage (mechanical, thermal, and chemical)

CYLINDER PACK

The manifold allows the twin cylinders to be safely connected with a single valve

COMFORT HARNESS

The padded shoulder straps improve comfort and guarantee protection of the hoses. The belt is easily height adjustable to four positions

COMPACT

The weight of the unit with its twin 6 L cylinders is offset by its compact size and close-to-the-body fit.



+ information



Characteristics

Air reserve : 12 L (comprising a two-cylinder pack with a unit capacity of 6 L)
Weight : 20 kg (with mask and full cylinders)
Breathing autonomy : 90 min
Dimensions : (L x D x H): 350 mm x 230 mm x 590 mm
Standard : Expert-based certification according to Standard EN 137

GPAL-LEGER



The most compact and lightweight of our SCBAs,

designed for travel, reconnaissance or verification operations



HARNES

The padded shoulder straps improve comfort and guarantee protection of the hoses. The belt is fitted with a textile insert

CYLINDER ATTACHMENT

The GPAL-LEGER features a robust and simple quick-release attachment with locking mechanism and strap length adjustment



BREATHING VALVE MOUNT

Flexible mount allowing for tool-free, on-demand positioning

Characteristics

Cylinder type : 3 L to 3.2 L cylinder
Weight : 3 kg (backplate with air line and breathing valve, without cylinder)
Breathing autonomy : 21.5 min (depending on the cylinder type and the wearer's consumption)
Standard : EN 137

+ information



TOTAL III MASK

Compatible with all of our breathing apparatus and breathing valves,

and usable with our suits and breathing apparatus



WIDE FIELD OF VIEW WITHOUT DISTORTION

Its visual quality is exceptional thanks to optical correction which has allowed it to achieve a Class 1 rating according to standard EN 166

DUAL EXHALATION VALVE

The TOTAL III mask features a dual valve system to reduce exhalation effort

FACE SEAL

The double-lip face seal provides comfort and flexibility in your movements



Available in a filtering version

Characteristics

Mask harness : available in textile or elastomer versions
Backup strap : Length of 840 mm
Weight : 600 g
Communication : Compatible with Team Talk
Standard : EN 136 (Class 3)

+ information



Composite cylinders



Available in Aluminium or TP liner,

depending on your needs in terms of lightness, durability and performance in the field



CAPACITY

For aluminum cylinders, the capacities are 2 L, 3 L, 6 L, 6.8 L and 9 L
For TP cylinders, the capacities are 2 L, 3.2 L, 6 L, 6.8 L, 7.2 L and 9 L

SAFETY

Each cylinder is fitted with a photoluminescent label that makes it easy to spot even in the darkest places. They are also equipped with a flow limiter in case of accidental opening to prevent any incidents.

COUPLING

Aluminium according to EN 144-1 M18 x 1.5 or M25 x 2 depending on the cylinder type

COMPATIBLE VALVES

7 valves available (depending on cylinder type) compliant to Standard EN 144-2



Aluminum liner



TP liner

+ information



Characteristics

Product lifespan : 15 years for aluminium and **Unlimited** for the TP liner
Service pressure : 300 bar at 15°C
Equipment : All cylinders can be fitted with a QR code, a barcode label or an RFID tag containing the cylinder's serial number

Steel cylinders



Steel cylinders,

guaranteeing maximum robustness, unlimited lifespan, and uncompromising safety at all of your worksites and in extreme situations



CAPACITY

The metal cylinders are available in 6 L, 9 L, 20 L and 50 L sizes. For our SCBA, only the 6 L cylinder is compatible

SAFETY

Each cylinder is fitted with a photoluminescent label that makes it easy to spot even in the darkest places. They are also equipped with a flow limiter in case of overpressure to prevent any incidents.

COMPATIBLE VALVES

7 valves available (depending on cylinder type) compliant to Standard EN 144-2



COUPLING

Thread according to EN 144-1 M18 x 1.5 or M25 x 2 or E25 depending on the cylinder type

+ information



Characteristics

Product lifespan : Unlimited
Service pressure : 300 bar at 15°C
Equipment : All cylinders can be fitted with a QR code, a barcode label or an RFID tag containing the cylinder's serial number

GEVAC



Designed to provide rapid and reliable protection during evacuation in toxic environments,

for a duration exceeding 10 minutes



FREEDOM OF MOVEMENT

An ergonomic carrying backrest with adjustable straps and waist belt

COMPACT EFFICIENCY

The GEVAC combines the advantages of the GPAL-LIGHT and the SAUVIMAT hood, and includes an inflatable bag.

QUICK ACCESS

A storage bag with a pneumatic safety opening attached to the belt



PATENTED LOCKING SYSTEM

A pneumatic locking system on the bag prevents the use of the closed cylinder hood. This patented system requires no special knowledge to implement



Characteristics

- Cylinder type and weight :** 3 L in metallic or composite
- Service pressure :** 300 bar at 15°C
- Weight :** 3.5 kg (without cylinder)
- Equipment :** A high/medium pressure regulator and a whistle to warn of the end of air supply, a permanent pressure indicator and a SAUVIMAT hood
- Standard :** EN 1146

+ information



EBA 6.5

Highly reliable breathing apparatus,

used in mines, tunnels and sewers worldwide



QUICK TO SET UP

Set up and have fully operational in less than 15 seconds

EASY TO USE

System activated/deactivated on valve opening/closing

LONG LASTING

Over 90 minutes of breathing capacity in on-demand mode



+ information



- Weight :** 3.6 kg
- Breathing autonomy :** 90 min
- Dimensions :** 216 mm x 300 mm x 114 mm
- Standards :** EC, MSHA/NIOSH, Republic of South Africa, Australia, China, EN 13794, Merchant Marine

Characteristics

M20.2



The world's smallest evacuation apparatus,

instantly provides breathing air isolated from the surrounding atmosphere



QUICK INSTALLATION

In less than 10 seconds, the wearer is equipped and the device starts automatically

MINIMAL SIZE

Weighing less than 1 kg and measuring less than 20 cm, the M20.2 self-rescuer takes up very little space

CONFINED SPACES

The M20.2 self-rescue apparatus was designed primarily for use in confined environments such as mines, tunnels, sewer systems, and civilian and military vessels.

Available in a training version



Characteristics

- Breathing autonomy :** Up to 32 minutes (depending on the wearer's consumption)
- Product lifespan :** 15 years
- Storage :** on the belt or on the wall
- Standards :** Merchant Marine, EC/EN13794, NIOSH

+ information



M40

The advantages of the M40 are identical to those of the M20.2,

with twice the breathing capacity



QUICK INSTALLATION

In less than 10 seconds, the wearer is equipped and the device starts automatically

MINIMAL SIZE

Weighing less than 2 kg and measuring less than 20 cm, the M40 self-rescuer takes up very little space

CONFINED SPACES

The M40 self-rescue apparatus was designed primarily for use in confined environments such as mines, tunnels, sewer systems, and civilian and military vessels

Available in a training version



Characteristics

- Breathing autonomy :** Up to 60 minutes
- Product lifespan :** 15 years
- Storage :** on the belt or on the wall
- Standards :** EN 13794, AS/N1716

+ information



OPTIONS



ACCESSORIES



Mark.	Description	Ref	GPAL-INCURVE	GPAL-QS	TRIPLAIR-NG	GLD 90	GPAL-LEGER	Composite cylinder	Steel cylinder
1	Valve protection handle kit	1005373	✓	✓					
2	Full metal belt buckle	1006786	✓	✓	✓*	✓			
3	INCURVE upper strap kit + flexible protectors	1009393	✓		✓*	✓			
4	Flexible protection kit**	1005897	✓	✓	✓*				
5	Chest strap with F1 buckle attachment	1006817	✓	✓	✓*	✓			
6	Chest strap	1006426	✓	✓	✓*				
7	D-Ring on belt loop	419671	✓	✓	✓*	✓			
8	Yellow reflective extraction handle	1006638	✓	✓	✓*	✓			
9	CLICK/FR breathing valve mount	1009398	✓	✓	✓*	✓			
10	Quick coupling on regulator	1004599	✓	✓	✓				
11	Work support belt	1007902	✓	✓	✓*	✓			
12	Second wearer MP line CEJN Y coupling**	1002835	✓	✓	✓	✓			
13	CEJN Airline Hose**	1004598	✓	✓					
14	CLICK breathing valve**	1001434	✓	✓	✓	✓	✓		
15	FR breathing valve**	1006725	✓	✓	✓	✓			
16	Spiroguide	1004610	✓	✓		✓			
17	PAC (personal Alarm Control)	1009051	✓	✓	✓*	✓			
18	RFID tag	1002122/T						✓	✓
19	HYMEX cylinder cover	370528						✓	✓

Mark	Description	Ref	GPAL-INCURVE	GPAL-QS	TRIPLAIR-NG	GLD 90	GPAL-LEGER	MASQUE TOTAL III	Composite cylinder	Steel cylinder
1	SCBA carry case	1008318/M	✓	✓	✓	✓				
2	Cylinder block carry case TRIPLAIR-NG	1008319/M							✓	
3	Carry case for 6.9 L or 9 L cylinders	1008649-01							✓	
4	TRACEMAT	-	✓	✓	✓	✓	✓		✓	✓
5	MATITEST EVO test bench	1007367	✓	✓	✓	✓	✓	✓		

*Depending on the selected configuration
 **Several options available

RESPIRATORY PROTECTION

TWO RESEARCH AREAS

FIELDS OF WORK



Chemical & Petrochemical



Military / Defence / CBRN



Fire & Rescue



Food industry



Pharmaceuticals & Laboratory



Water & waste management



Nuclear



Asbestos

SELECT YOUR RESPIRATORY PROTECTION ACCORDING TO YOUR **NEEDS**



RESPIRATORY PROTECTION



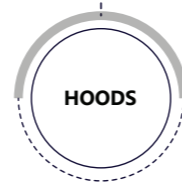
INSULATING PROTECTION

GPAL-INCURVE
GPAL-QS
TRIPLAIR-NG
GLD 90
GPAL-LÉGER
COMPOSITE CYLINDERS
STEEL CYLINDERS
GEVAC
EBA 6.5
M20.2
M40



AIR SUPPLY

BREATHING AIR SOURCES
MAT AIR CCF
EPDM HOSES



HOODS

SAUVIMAT
MATIVENT CI



AIR SUPPLY

96 HP/MP BREATHING AIR SOURCES

97 MAT AIR CCF

98 EPDM HOSE

HP/MP breathing air sources



Modular, lightweight and compact design,

allows intervention teams to have air in all terrains



Designed for forest fire vehicles,

it allows the crew of a vehicle engaged in a forest fire to have a breathing apparatus in the cab



MAT AIR CCF



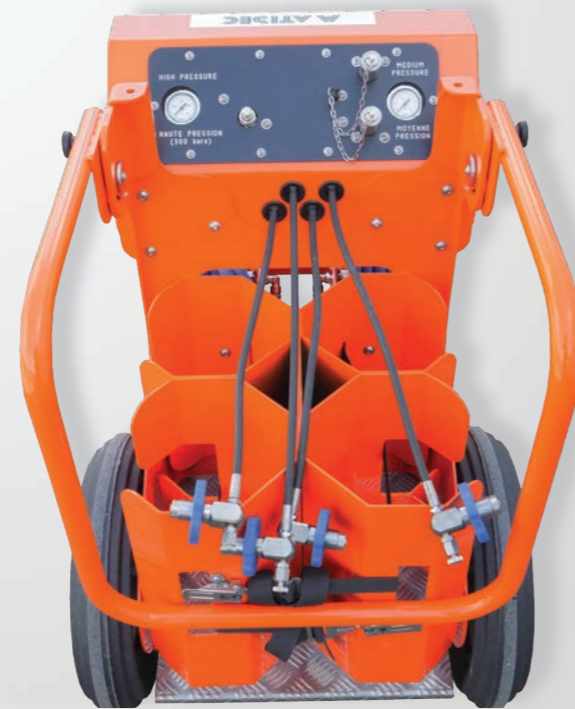
TROLLEY EQUIPMENT
Equipped with a reel containing 30 m of flexible hose with quick coupling.
Two additional quick coupling are available on the front panel

CYLINDER CONFIGURATIONS
Possible configurations:
• 1 to 4 cylinders of 6 L to 9 L
• 1 to 2 cylinders of 15 L to 20 L

Available variations

TROLLEY FOR 1 TO 2 CYLINDERS, 6 L TO 9 L

TROLLEY FOR 1 CYLINDER OF 6 L TO 9 L



CUSTOM CONFIGURATION
According to the cab layout

ADAPTABILITY
The various configurations and options available for this safety equipment enable it to comply with the most stringent customer requirements

COMPOSITION
The MAT AIR CCF consists of one or more cylinder(s), a distribution manifold, a regulator system, and a negative pressure breathing valve

NUMBER OF WEARERS
The MAT AIR CCF was developed to accommodate 3 to 7 wearers:
• 6 L cylinder (3 to 5 users)
• 6.8 L cylinder (3 to 6 users)
• 9 L cylinder (3 to 7 users)

ORIGIN
Developed for Forest Fire Tanker Trucks

Characteristics

Dimensions : L 600 mm x D 660 mm x H 855 mm
Clearance height for storage : 1 m
MP outlet pressure : 8.5 bar (other pressures can be adjusted by the manufacturer from 6 bar to 8.5 bar)
Weight : < 50 kg (approximate, without accessories or cylinders)

+ information



+ information



Cylinder type : 300 bar cylinders from 6 L to 9 L. Each cylinder can be doubled
Half-mask type : with headpiece, with harness, or with F1 strap

Characteristics

EPDM HOSES



They supply breathing air via suitable hoses,

optimised to reduce pressure losses, conforming to Standards EN 14593/14594



RESISTANCE ACCORDING TO STANDARD EN 14593/EN 14594

Provides resistance to twisting, crushing, cold and traction
Also provides resistance to pressure (> 30 bar for 15 min)



PLNE (NON-BURST PRESSURE LIMIT)
80 bar

Characteristics

- Temperature** : -40°C to +120°C (continuous)
- Service pressure** : 20 bar (1 MPa)
- Weight** : 260 g/m
- Standards** : Hoses conforming to Standards EN 14593/14594 and EN 28031 for antistatic properties
- Lengths** : from 5 m to 50 m
- Diameters** : inner ± 9.5 mm, outer ± 19 mm

+ information



RESPIRATORY PROTECTION

TWO RESEARCH AREAS

FIELDS OF WORK



Chemical & Petrochemical



Military / Defence / CBRN



Fire & Rescue



Food industry



Pharmaceuticals & Laboratory



Water & waste management



Nuclear



Asbestos

SELECT YOUR RESPIRATORY PROTECTION ACCORDING TO YOUR **NEEDS**



RESPIRATORY PROTECTION



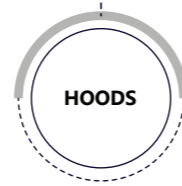
INSULATING PROTECTION

GPAL-INCURVE
GPAL-QS
TRIPLAIR-NG
GLD 90
GPAL-LÉGER
COMPOSITE CYLINDERS
STEEL CYLINDERS
GEVAC
EBA 6.5
M20.2
M40



AIR SUPPLY

BREATHING AIR SOURCES
MAT AIR CCF
EPDM HOSES



HOODS

SAUVIMAT
MATIVENT CI



HOODS

102 SAUVIMAT

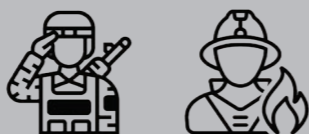
103 MATIVENT CI

SAUVIMAT



Rescue hood,

designed for rescuing an individual in a smoky or contaminated environment



Quick connection

The hood is connected to the second wearer's SCBA port

Respiratory comfort

Respiratory protection is provided by a continuous airflow inside the hood, with exhalation valve

Small storage size

Hood placed under plastic protection, in a satchel designed to be worn on the rescuer's belt

Belt storage



Characteristics

Use : at a pressure of 6 to 8 bar with flow limited by a calibrated nozzle
Usage : single-use
Weight : 750 g
Product lifespan : 5 years

+ information



MATIVENT CI



Lightweight ventilated hood,

designed to protect the respiratory tract of individuals working in contaminated atmospheres,



RESPIRATORY PROTECTION

Reliable respiratory protection for operations in contaminated atmospheres

COMFORT

The hood allows the wearer complete freedom of movement, and the belt, equipped with snap buttons, ensures a secure hood fit

LOW AIRFLOW INDICATOR (LFI)

Signalling of an accidental drop in air flow



It must be supplied with compressed breathing air of a quality compliant with Standard EN 12021

Characteristics

Flow rates : 150 to 300 NI/min at 6 bar supply pressure
Usage : up to 5 uses
Air intake silencer : < 80 dBA at maximum flow rate
Protection factor : IL = Class 4A (protection factor > 2,000)
Standards : CE and EN 14594

+ information





STANDARDS

106 CHEMICAL
PROTECTIVE CLOTHING

112 VENTILATED
PROTECTIVE CLOTHING

CHEMICAL PROTECTIVE CLOTHING STANDARDS

The European Committee for Standardisation (CEN) has defined six categories of protection, known as types, to facilitate the choice of protective clothing to guard against chemicals.

To be certified and carry the CE mark, protective clothing must pass a number of design and ergonomic tests when worn, meet or exceed the minimum levels required for mechanical and chemical properties, and be correctly identified and labelled. It must not restrict the wearer or cause safety or hygiene issues.

Protective clothing must be manufactured with consistent, standardised quality. The manufacturer must set up a quality system, such as ISO 9001, and is subject to compulsory regular checks for category III PPE, by a notified body, during audits or by annual sampling.



EN 943-1:2015+A1:2019 - PROTECTIVE CLOTHING AGAINST SOLID, LIQUID AND GASEOUS HAZARDOUS CHEMICALS, INCLUDING LIQUID AEROSOLS AND SOLID PARTICLES.

PART 1: PERFORMANCE REQUIREMENTS FOR GAS-TIGHT CHEMICAL PROTECTION SUITS (TYPE 1).

This defines the minimum requirements, test methods, marking and information supplied by the manufacturer for ventilated and non-ventilated gas-tight protective suits. This standard covers full-body protective suits designed to be worn for protection against solid, liquid and gaseous chemicals, including liquid aerosols and solid particles.

Type 1 is divided into sub-categories depending on the position of the breathing apparatus with which it is associated and/or a continuous external air supply :

- **Type 1:** gas-tight chemical protection suit
- **Type 1a:** gas-tight chemical protective suit with a breathable air supply independent of the ambient atmosphere, such as a self-contained, open-circuit, compressed-air breathing apparatus, worn inside the chemical protective suit.
- **Type 1b:** gas-tight chemical protective suit with an independent breathing air supply, such as a self-contained, open-circuit, compressed-air breathing apparatus, worn outside the chemical protective suit.
- **Type 1c:** gas-tight chemical protective suit with a breathable air system providing positive pressure, such as a breathable, compressed-air network.

Minimum requirements :

The work simulation tests are carried out over a period of 30 minutes and involve a complete course over which the wearer moves in different positions. The overall sealing capacity of the garment is checked before and after the work simulation tests using the standardised test.

The tables below summarise the minimum mechanical strength and chemical permeation resistance requirements:

TABLE 1: MINIMUM PERFORMANCE REQUIREMENTS FOR TYPE 1 CHEMICAL PROTECTIVE CLOTHING

PERFORMANCE REQUIREMENTS	TEST METHOD BENCHMARKING	MINIMUM PERFORMANCE REQUIREMENTS ACCORDING TO EN 14325:2018
ABRASION RESISTANCE	EN ISO 12947-2	3
RESISTANCE TO SPLITTING THROUGH BENDING	EN ISO 7854 METHOD B	1
RESISTANCE TO FLEXURAL CRACKING AT -30°C (OPTIONAL)	EN ISO 7854 METHOD B	2
TRAPEZOIDAL TEAR RESISTANCE	EN ISO 9073-4	3
TENSILE STRENGTH	EN ISO 13934-1	3
PERFORATION RESISTANCE	EN 863	2
RESISTANCE TO PERMEATION BY CHEMICALS (LIQUIDS AND GASES)	ISO 6529	3*
COMBUSTION RESISTANCE	EN 13274-4	THE MATERIAL MUST NOT FORM DROPLETS AND MUST NOT CONTINUE TO BURN FOR MORE THAN 5 SECONDS AFTER BEING REMOVED FROM THE FLAME. MUST BE SELF-EXTINGUISHING.

*Minimum class 3 (> 60 min) on at least 1 chemical (liquid or gas)

TABLE 2: EQUIVALENCE OF COMMON CHEMICAL PERMEATION CLASSES EN 943-1 AND EN 943-2

PERMEATION CLASSES	TIME IN MINUTES
CLASS 6	> 480 MIN
CLASS 5	> 240 MIN
CLASS 4	> 120 MIN
CLASS 3	> 60 MIN
CLASS 2	> 30 MIN
CLASS 1	> 10 MIN

TABLE 3: MINIMUM PERFORMANCE REQUIREMENTS FOR GARMENTS, SEAMS, JOINTS AND ASSEMBLIES

GARMENT COMPONENTS (SEAMS, JOINTS, ASSEMBLIES)	PERFORMANCE REQUIREMENTS	TEST METHOD BENCHMARKING	MINIMUM PERFORMANCE CLASS
PROTECTIVE SUIT MATERIAL	RESISTANCE TO PERMEATION BY CHEMICALS (LIQUIDS AND GASES)	ISO 6529	3
	SEAM STRENGTH	EN ISO 13935-2	5
FASTENING SYSTEM (E.G. ZIP)	RESISTANCE TO PERMEATION BY CHEMICALS (LIQUIDS AND GASES)	ISO 6529	3
	CLOSURE STRENGTH	EN ISO 13935-2	3
ASSEMBLIES	RESISTANCE TO PERMEATION BY CHEMICALS (LIQUIDS AND GASES)	ISO 6529	3
VISOR ON SUIT (PERMANENT)	RESISTANCE TO PERMEATION BY CHEMICALS (LIQUIDS AND GASES)	ISO 6529	3
GLOVE OVER COVERALL (PERMANENT)	RESISTANCE TO PERMEATION BY CHEMICALS (LIQUIDS AND GASES)	ISO 6529	3
	MECHANICAL STRENGTH	EN ISO 13935-2	3
BOOTIE ON SUIT (PERMANENT)	RESISTANCE TO PERMEATION BY CHEMICALS (LIQUIDS AND GASES)	ISO 6529	3
BOOTS OVER SUIT (PERMANENT)	RESISTANCE TO PERMEATION BY CHEMICALS (LIQUIDS AND GASES)	ISO 6529	3
	MECHANICAL STRENGTH	EN ISO 13935-2	4

Certain mechanical requirements are validated by a leak resistance test on the test specimens. For exposure to extreme temperatures, some tests are carried out at a temperature of -30°C.

Flame test:

A flame test must be carried out during which the chemical protective clothing material must not form droplets and must be self-extinguishing, i.e. it must not be of a flammable nature and, during the test, it must not burn for more than 5 seconds after being removed from the flame.



EN 943-2:2019: PROTECTIVE CLOTHING AGAINST HAZARDOUS SOLID, LIQUID AND GASEOUS CHEMICALS, INCLUDING LIQUID AEROSOLS AND SOLID PARTICLES.

PART 2: PERFORMANCE REQUIREMENTS FOR GAS-TIGHT CHEMICAL SUITS (TYPE 1) INTENDED FOR EMERGENCY TEAMS (ET).

It defines the minimum requirements, test methods, marking and information supplied by the manufacturer for gas-tight chemical protection suits intended for use by emergency teams (ET). This standard applies to full-body coveralls designed to protect against chemical products, liquids and gases, liquid aerosols and solid particles.

This standard only applies to Type 1a and 1b garments

Depending on the mechanical strength classes obtained, the garment is characterised as being of normal strength or reinforced strength. From a "user" point of view, normal strength generally refers to limited-use protective clothing. Reinforced strength is intended for tasks where the suits are likely to be subjected to high mechanical stress and will be used repeatedly.

TABLE 4: MINIMUM PERFORMANCE REQUIREMENTS FOR CHEMICAL PROTECTIVE CLOTHING MATERIALS

PROPERTY	TEST METHOD BENCHMARKING	NORMAL STRENGTH	REINFORCED STRENGTH
ABRASION RESISTANCE	EN ISO 12947-2	CLASS 4	CLASS 6
RESISTANCE TO SPLITTING THROUGH BENDING	EN ISO 7854 METHOD B	CLASS 1	CLASS 4
RESISTANCE TO FLEXURAL CRACKING AT -30°C	EN ISO 7854 METHOD B	CLASS 2	CLASS 2
TRAPEZOIDAL TEAR RESISTANCE	EN ISO 9073-4	CLASS 3	CLASS 3
TENSILE STRENGTH	EN ISO 13934-1	CLASS 4	CLASS 6
PERFORATION RESISTANCE	EN 863	CLASS 2	CLASS 3
FLAME RESISTANCE	EN 13274-4 METHOD 3	CLASS 1	CLASS 3
SEAM STRENGTH	EN ISO 13935-2	CLASS 5	CLASS 5

Minimum requirements:

- **Manufacturing materials, assemblies and junctions (material, seams, fastenings, etc.) must be tested for resistance to permeation using the same set of 14 chemicals (compared with only 1 for EN 943-1) and must achieve at least a class 2 result (> 30 min). For the remaining chemical product, permeation resistance must be at least class 1 (> 10 min). These chemicals (12 liquids and 3 gases) are representative of the various families of chemical substances that the wearer may encounter (bases, acids, solvents, etc.).**
- Accessories (gloves, footwear, fasteners, visors, etc.) must be compatible and provide the same levels of resistance to chemical permeation as the main material. The joints between the material and the accessories are also tested.
- If a fixing point is provided for a lifeline, it must withstand a pull of at least 1,000 N. The attachment point for other items of equipment must withstand a pull of at least 250 N.
- The outside of the gas-tight chemical protective suit must be free of pockets or pocket-like features. Pockets and/or similar items are permitted inside the gas-tight chemical protection suit.

Wear tests:

- The work simulation tests are carried out over a period of between 15 and 45 minutes and are supplemented by low-temperature work simulation tests at (-15 ± 3)°C.
- The overall sealing capacity of the garment is checked before and after the work simulation tests using the standardised test.

TABLE 5: CHEMICALS FOR PERMEATION TESTING

STATUS	CHEMICAL PRODUCT	CASE	EC	GENERIC REPRESENTATION
LIQUID	DICHLOROMETHANE	75-09-2	200-838-9	CHLORINATED HYDROCARBON
LIQUID	METHANOL	67-56-10	200-659-6	PRIMARY ALCOHOL
LIQUID	N-HEXANE	110-54-3	203-777-6	SATURATED HYDROCARBON
LIQUID	TOLUENE	108-88-3	203-625-9	AROMATIC HYDROCARBON
LIQUID	DIETHYLAMINE	109-89-7	203-716-3	AMINE
LIQUID	SODIUM HYDROXIDE 40%	1310-73-2	215-185-5	INORGANIC BASE
LIQUID	SULPHURIC ACID 96%	7664-93-9	231-639-5	INORGANIC MINERAL ACID
GAS	AMMONIA	7664-41-7	231-635-3	BASE GAS
GAS	CHLORINE	7782-50-5	231-959-5	HALOGEN GAS
GAS	HYDROGEN CHLORIDE	7647-01-0	231-595-7	INORGANIC ACID GAS
LIQUID	ACETONE	67-64-1	200-662-2	KETONE
LIQUID	ACETONITRILE	75-05-8	200-835-2	NITRILE COMPOUND
LIQUID	ETHYL ACETATE	141-78-6	2005-500-4	ESTER
LIQUID	CARBON DISULFIDE	75-15-0	2005-500-4	ORGANIC COMPOUND CONTAINING SULPHUR
LIQUID	TETRAHYDROFURAN	109-99-9	2005-500-4	HETEROCYCLIC COMPOUND

Flame test:

A flame test must be carried out during which the chemical protective clothing material must not form droplets and must be self-extinguishing, i.e. it must not be flammable, and during the test, it must not burn for more than 5 seconds after being removed from the flame. The flame test distinguishes between three different classes of flammability resistance.

TABLE 6: FLAME RESISTANCE CLASSIFICATION

CLASS	EXPOSURE TO FLAME
3	THE SAMPLE REMAINS IN THE FLAME FOR 5 SECONDS
2	THE SAMPLE REMAINS IN THE FLAME FOR 1 SECOND
1	THE SAMPLE PASSES THROUGH THE FLAME WITHOUT STOPPING

MAIN CHANGES TO EN 943-2 FROM 2002 TO 2019

This standard has undergone several changes since it was first published. The latest updated version of the EN 943 standard dates to 2019 and introduces significant changes in terms of the performance and technical specifications for protective clothing.

These changes include:

- Clearer marking and labelling requirements for garments; in addition, the non-gas-tight type 2 has been removed.
- Tests for powered ventilation respirators that can be used with protective clothing.
- More detailed specifications for seams and garment design for better protection against chemical hazards.
- The requirements for testing the performance of garments under simulated conditions of use have been changed, with the sealing test now being carried out after a practical test and a trial of the product by the wearer.
- Flame and heat resistance test requirements for protective clothing.
- The term "normal" or "reinforced" resistance is used depending on the use and composition of the suit.



EN 14605:2005+A1:2009: PROTECTIVE GARMENT AGAINST LIQUID CHEMICAL PRODUCTS. PERFORMANCE REQUIREMENTS FOR GARMENTS WITH LIQUID-TIGHT (TYPE 3) OR SPRAY-TIGHT (TYPE 4) CONNECTIONS, COMPRISING ELEMENTS FOR THE PROTECTION OF PARTS OF THE BODY ONLY (TYPES PB [3] AND PB [4])

Standard 14605 defines two types of protective clothing:

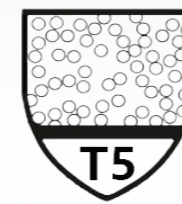
- **Type 3:** Liquid-tight protective clothing
- **Type 4:** Spray-tight protective clothing

This European standard also specifies the minimum requirements for Type 3 and 4 limited-use or reusable chemical protective clothing.

Type 3 garments offer protection against liquid chemicals in the form of pressurised liquid sprays (continuous stream).

Type 4 garments offer protection against liquid chemical sprays: non-pressurised liquid spray = fogs (resistant to penetration by liquid sprays).

Protective clothing of the PB [3] or PB [4] Type protects only part of the body against risk (partial protection, e.g. protective sleeves).



N 13982-1:2005: PROTECTIVE CLOTHING FOR USE AGAINST SOLID PARTICLES

PART 1: PERFORMANCE REQUIREMENTS FOR CHEMICAL PROTECTIVE CLOTHING PROVIDING BODY-WIDE PROTECTION AGAINST AIRBORNE SOLID PARTICLES (TYPE 5 CLOTHING)

European standard EN 13982-1 specifies the requirements for Type 5 chemical protective clothing offering full-body protection against solid particles.



N 13034:2005+A1:2009: PROTECTIVE GARMENT AGAINST LIQUID CHEMICAL PRODUCTS. PERFORMANCE REQUIREMENTS FOR CHEMICAL PROTECTIVE CLOTHING PROVIDING LIMITED PROTECTION AGAINST LIQUID CHEMICALS (TYPE 6 AND TYPE PB EQUIPMENT [6])

European standard EN 13034 specifies the requirements for Type 6 and PB [6] limited-use or reusable chemical protective clothing offering limited protection against non-hazardous liquid chemicals.

PPE complying with Standard EN 13034 is designed to protect workers exposed to light sprays, liquid or low-pressure aerosols or light chemical splashes.

Various items of clothing can meet the criteria of the standard: clothing protecting the trunk and limbs, such as a one-piece or two-piece suit, and items of clothing protecting only parts of the body, such as a jacket, apron, sleeves, etc.

VENTILATED PROTECTIVE CLOTHING STANDARDS

The European Committee for Standardisation, the CEN, has defined various standards that allow clothing to be classified according to its level of protection against suspended solid particles.

To be certified and bear the CE marking, the protective garment must successfully pass several design and ergonomics tests when worn, meeting or exceeding the minimum levels required for mechanical, thermal and breathing quality properties. Finally, it must be properly identified and labeled. It must not restrict the wearer or cause safety or hygiene issues.

Protective clothing must be manufactured with consistent, standardised quality. The manufacturer must set up a quality system, such as ISO 9001, and is subject to compulsory regular checks for category III PPE, by a notified body, during audits or by annual sampling.

EN 12021: RESPIRATORY PROTECTIVE DEVICES - COMPRESSED GASES FOR RESPIRATORY PROTECTIVE DEVICES.

This specifies requirements for the quality of compressed gas supplied for mixing or use in respiratory protective devices and hyper- and hypobaric operations. The use of compressed gas at normal atmospheric pressure as well as hyper- and hypobaric pressures are considered.

EN 136: RESPIRATORY PROTECTIVE DEVICES - FULL FACE MASKS - REQUIREMENTS, TESTING, MARKING.

It sets out the minimum requirements for full-face masks for respiratory protective devices. It includes laboratory tests and practical performance tests to ensure compliance with the requirements.

EN 14593-1: RESPIRATORY PROTECTIVE DEVICES - SELF-CONTAINED BREATHING APPARATUS WITH COMPRESSED AIR SUPPLY AND DEMAND VALVE

PART 1: FULL FACE MASK APPARATUS - REQUIREMENTS, TESTING AND MARKING

This specifies the minimum characteristics required of insulating compressed air-supplied respiratory protective devices with on-demand valve and full face mask used as Respiratory Protective Devices (RPD).



EN 14594: RESPIRATORY PROTECTIVE DEVICES - SELF-CONTAINED BREATHING APPARATUS WITH CONTINUOUS COMPRESSED AIR SUPPLY - REQUIREMENTS, TESTING AND MARKING.

It specifies the minimum required characteristics of self-contained, continuous supplied-air respirators (SCARs) used with full-face masks, half-masks, hoods, helmets, or suits, as well as devices used in abrasive blasting operations as respiratory protective equipment. It includes laboratory and practical performance tests to assess compliance with the requirements.

CLASS	MAX. OUTWARD FLOW - %	(NPF) MINIMUM NOMINAL PROTECTION FACTOR
1A & 1B	10.00	10
2A & 2B	2.00	50
3A & 3B	0.50	200
4A & 4B	0.05	2,000

THE DIFFERENT CLASSES:

- CLASS A: light equipment
- CLASS B: robust equipment



EN 1073-1 - PROTECTIVE CLOTHING AGAINST AIRBORNE SOLID PARTICLES, INCLUDING RADIOACTIVE CONTAMINATION.

PART 1: REQUIREMENTS AND TEST METHODS FOR COMPRESSED AIR-SUPPLIED VENTILATED PROTECTIVE GARMENTS PROTECTING THE BODY AND RESPIRATORY SYSTEM.

It specifies the requirements and test methods for protective garments, ventilated by an independent supply of air from a non-contaminated source, protecting the body and respiratory system of the wearer against solid particles suspended in air, including radioactive contamination. This type of protective clothing can be equipped with an emergency breathing apparatus.

PERFORMANCE REQUIREMENT	TEST METHOD BENCHMARKING	MINIMUM PERFORMANCE REQUIREMENT ACCORDING TO 14325:2018 FOR A CLASS 1 TO 4 PROTECTION FACTOR	MINIMUM PERFORMANCE REQUIREMENT ACCORDING TO 14325:2018 FOR A CLASS 5 PROTECTION FACTOR
ABRASION RESISTANCE	EN ISO 12947-2	1	2
RESISTANCE TO SPLITTING THROUGH BENDING	EN ISO 7854 METHOD B	1	1
PUNCTURE RESISTANCE	EN 863	2	2
TRAPEZOIDAL TEAR RESISTANCE	EN ISO 9073-4	1	2
COMBUSTION RESISTANCE	EN 13274-4	/	/

TEV - Additional tests:

- To hydrostatic pressure (200 cm of water)
- To fire, according to Criterion M1

CLASS	MAXIMUM VALUES FOR A PARTICULAR ACTIVITY: TILR OR TILB	MAXIMUM VALUES FOR A PARTICULAR ACTIVITY: MR OR MB	(NPF) MINIMUM NOMINAL PROTECTION FACTOR
5	0.004	0.002	50,000
4	0.01	0.005	20,000
3	0.02	0.01	10,000
2	0.04	0.02	5,000
1	0.10	0.05	2,000

Comparison of measurements:

- R-index (Respiration): Recording of the measurement at the mouth level (1)
- Index B (Body): Average of the other three body measurements (2, 3, 4)
- TILR / TILB: Inward leakage rate
- MR / MB: Average for all values
- NPF: Nominal protection factor



LEGEND

1. In the breathing zone
2. Between the elbow and the shoulder
3. At the back by the waist
4. At knee height, outer side





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