



PRODUCT BROCHURE
Personal protective equipment
and consumables

berner

Hand protection **6**



Body protection **12**



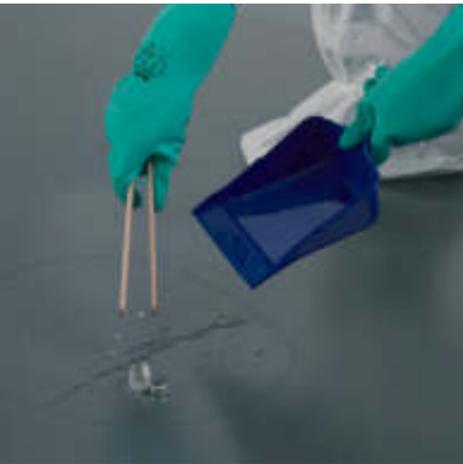
Respiratory protection **24**



Eye protection **36**



SpillKits **42**



Spikes **46**



Work surface protection **52**



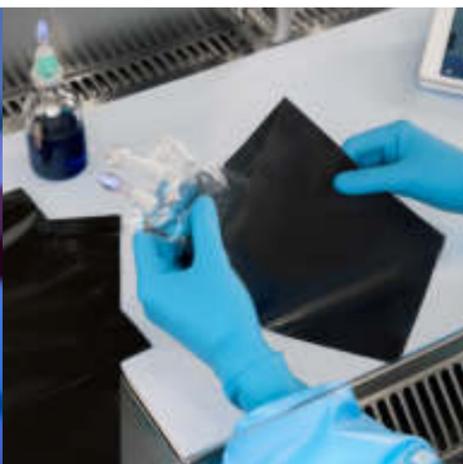
Cleaning **56**



Analytics **60**



Protective packaging **64**



Infection protection sets **66**



CONTENTS

PERSONAL PROTECTIVE EQUIPMENT AND
DISPOSABLES FOR PHARMACEUTICAL,
CHEMICAL AND BIOLOGICAL HAZARDS

HAND PROTECTION	6
BODY PROTECTION	12
RESPIRATORY PROTECTION	24
EYE PROTECTION	36
SPILLKITS	42
SPIKES	46
WORK SURFACE PROTECTION	52
CLEANING	56
ANALYTICS	60
PROTECTIVE PACKAGING	64
INFECTION PROTECTION SETS	66

PERFECT SYMBIOSIS OF QUALITY & EXPERIENCE

WE SET STANDARDS FOR SAFETY IN THE LABORATORY

"We research, develop, produce and sell the best products and services for personal and product protection", this is our claim. The developing, producing and compiling of personal protective equipment and consumables has been our core competence for more than four decades.

Research always forms the basis for our innovations. We develop future products at our location in Germany. In cooperation with research institutions such as universities and colleges. We test and optimise our products in our research and test laboratory. We are interested in questions such as the testing of protective clothing products in the „body-box“ in relation to particle emission, bacterial filtration efficiency of protective clothing materials, or seam-tightness and strength.

With the combination of our own strong brands such as Active Breath, cleo® saphir, cleo® med, Manu L, N and XP together with other high quality brands, we offer a comprehensive premium portfolio for your safety in the laboratory. For the manufacturing of top quality products, the finishing process in our ISO class 7 cleanroom is also another important component to produce a low-particle and sterile versions. Together with the training courses of our Lab Excellence Academy, current publications and through direct consultations, we will keep you up to date with the latest technology and are happy to pass on our expertise and experience to you.

Dipl.-Ing. Thomas Hinrichs
Managing Partner



HAND PROTECTION



You would like to know more?
Look online for further information:



HAND PROTECTION

High-quality hand protection is essential for safe and hygienic work, especially when handling chemicals and biological agents. We offer a carefully selected range of certified premium-quality products for many purposes. This includes protective gloves made of powder-free latex, polychloroprene or nitrile, as well as sterile and non-sterile versions. The range also includes modern poly-poly packaging concepts for clean-room areas, GMP-compliant manufacturing or clean single removal (SafeDon™). The gloves offer an optimised ergonomic shape for the highest possible dexterity, fit and comfort. Our products are designed with your safety in mind - proven by comprehensive normative tests and certification as personal protective equipment (PPE) of the highest category III according to the current regulation (EU) 2016/425.

PROTECTION FOR HANDLING CHEMICALS

Many work processes include dealing with chemicals, which are highly hazardous to health. This includes cytostatics and other CMR medicines with a potentially carcinogenic effect. On a molecular level, chemical substances may pass through the material (permeation). The protective function of our gloves is documented by extensive permeation tests (including cytostatics) according to the European standards (EN ISO 374-1, EN 374-3 and EN 16523-1), which are legally binding for occupational safety in the EU. These standards provide comparability of the protective function to other products in the European market. The comparison of permeation data from non-European standards or with products which only meet the requirements for medical gloves to EN 455 is only possible to a limited extent. For example, the American standard ASTM F739/ASTM 6978 only requires tests to last up to 4 hours in accordance to EN 16523-1 that prescribed a testing period of 8 hours.

PROTECTION AGAINST BIOLOGICAL AGENTS

If viruses, bacteria or fungi penetrate micro-holes (penetration) in the glove material, infection and contamination risks arise. Minimising these risks is essential for aseptic work in the medical environment to prevent infection or in direct handling of biological agents. Our products are tested to demonstrate protection against biological agents according to EN 374-2 and the current EN ISO 374-5 - including virus protection testing to ISO 16604.

PREMIUM QUALITY



Manu L protective gloves

Powder-free latex model for handling cytostatics and chemicals

The tried and tested Manu L protective glove is particularly robust- thanks to an extra-thick layer of material and a structured texture. Yet it still has the highest dexterity level 5 according to EN 420. The high-quality material offers the best protection against cytostatics, virostatics, a wide range of chemicals and biological agents. A comprehensive list of permeation properties is available upon request.

Product highlights

- Powder-free natural latex glove with rolled edge and extra long cuff
- Ideal for the GMP-compliant production of cytostatics
- Secure grip due to textured surface
- Sterile version in triple polyethylene packaging suitable for cleanrooms

Tested safety and certification

- Certified according to PPE Regulation (EU) 2016/425 (category III)
- Type B cytostatic and chemical protective glove (EN ISO 374, EN 16523-1)
- Allergenic- and low-protein: 17 µg/g
- AQL = 0.65 (water test)
- Additionally tested as medical glove (EN 455)

Size	S (6.5)	SM (7)	M (7.5)	ML (8)	L (8.5)	XL (9)
Ord.-No. (non-sterile - 50 pairs)	4010	4015	4020	4025	4030	4040
Ord.-No. (sterile - 200 pairs)	100272	100273	100274	100275	100276	100277

COMFORT FIT



Manu Prene XP protective gloves

Powder- and latex-free neoprene model

Due to the anatomical fit, the Manu Prene XP protective glove made of neoprene is in no way inferior to the latex one and therefore a valuable alternative for allergy sufferers. Thanks to the special surface treatment, the model offers excellent tactile sensitivity and a secure grip when handling CMR drugs including cytostatics and various chemicals, viruses and other biological agents. An extensive permeation list is available on request.

Product highlights

- Anatomically shaped neoprene glove
- Ideal for the GMP-compliant manufacturing of cytostatics
- Low allergenic- no detectable allergens
- Sterile version in triple polyethylene packaging suitable for cleanrooms

Tested safety and certification

- Certified according to PPE regulation (EU) 2016/425 (category III)
- Type A cytostatic and chemical protective glove (EN ISO 374, EN 16523-1)
- AQL = 0.65 (water test)
- Tested to EN 455 as a medical glove and to ASTM D3577

Size	XS (6)	S (6.5)	SM (7)	M (7.5)	ML (8)	L (8.5)	XL (9)
Ord.-No. (non-sterile - 25 pairs)	2010	2012	2014	2016	2018	2020	2022
Ord.-No. (sterile - 100 pairs)	100234	100235	100236	100237	100238	100239	100240

BEST PROTECTION



Manu N protective gloves

Powder- and latex-free nitrile model for handling cytostatics and chemicals

With long breakthrough times, the Manu N protective glove offers maximum protection against a wide range of cytostatics, virostatics, chemicals and biological agents. The powder and latex-free model is particularly allergy-friendly and suitable for double gloving. A comprehensive list of permeation properties is available on request.

Product highlights

- Powder- and latex-free nitrile glove
- Optimal for GMP-compliant production of cytostatics
- Excellently suited for double-gloving
- Sterile version in triple polyethylene packaging suitable for cleanrooms

Tested safety and certification

- Certified according to PPE Regulation (EU) 2016/425 (category III)
- Type B cytostatic and chemical protective glove (EN ISO 374, EN 16523-1)
- AQL = 1.5 (water test)
- Additionally tested according to ASTM F1671 (virus test)
- Tested as medical glove according to EN 455

Size	XS (6)	S (7)	M (8)	L (9)	XL (10)
Ord.-No. (non-sterile - 100 pairs)	3010	3015	3020	3025	3030
Ord.-No. (sterile - 100 pairs)	100248	100249	100250	100251	200252



Dermagrip-D protective gloves

Powder-free and non-sterile latex model

Perfect fit thanks to low wall thickness: The protective glove Dermagrip-D made of latex reliably protects against chemical hazards, various cytostatics, biological agents and viruses, without comprising tactile sensitivity or wearing comfort. The model is also suitable for medical use according to EN 455.

Product highlights

- Anatomically shaped, powder-free natural latex glove
- Particularly low wall thickness for a good sense of touch
- Low allergenic and protein content: 12 µg/g

Tested safety and certification

- Certified according to PPE Regulation (EU) 2016/425 (category III)
- Type B chemical protective glove (EN ISO 374, EN 16523-1)
- AQL = 1.5 (water test)
- Tested as medical glove according to EN 455
- Additionally tested to ASTM F1671 (virus protection)

Size	XS (6)	S (6.5)	SM (7)	M (7.5)	ML (8)	L (8.5)	XL (9)
Ord.-No. (non-sterile - 25 pairs)	100007	100008	100009	100010	100011	100012	100013



Dermagrip Ultra LT protective gloves

Powder- and latex-free nitrile model in the innovative SafeDon™-dispenser system

Safely through the day in the lab: With SafeDon™ from Berner, contamination when donning protective gloves like Dermagrip Ultra LT has been proven to be reduced by up to 96 % compared to conventional dispensers. The non-sterile model made of nitrile is allergy-friendly and also offers good permeation protection against various cytostatics and chemicals.

Product highlights

- Powder- and latex-free nitrile protective glove
- Smooth inside and short cuff
- Textured surface for highest dexterity (level 5)
- Low-allergenic - no detectable allergens

Tested safety and certification

- Certified according to PPE Regulation (EU) 2016/425 (category III)
- Type B chemical protective glove (EN ISO 374, EN 16523-1)
- AQL = 1.5 (water test)
- Tested as medical glove according to EN 455
- Additionally tested to ASTM D6319 as medical glove

Size	S (7)	M (8)	L (9)	XL (10)
Ord.-No. (non-sterile - 8 x 50 box)	5011	5016	5021	5026
Ord.-No. (non-sterile - 200 box)	100176	100177	100178	100179



SafeDon™- dispensing system

Patented dispenser system SafeDon™ for less contamination due to intelligent removal system

Safely through the lab day: With SafeDon™ from Berner, contamination has been proven to be reduced by up to 96% when donning Dermagrip Ultra LT protective gloves. The non-sterile model made of nitrile is allergy-friendly and also offers good permeation protection against various cytostatics and chemicals.

Size	uni
Ord.-No. (Wall holder - 1 piece)	5050
Ord.-No. (Wall holder - 3 pieces)	5051



Isolator glove changing system

For reliable protection during operation

When handling hazardous substances, it is strongly recommended to change protective gloves after 30 minutes at the latest. With the innovative glove changing system for isolators, this can be achieved quickly and safely with all standard gloves from Berner. The complete glove changing system can also be retrofitted to other commercially available isolators.

Product highlights

- Facilitates compliance with the German BGW change recommendations for protective gloves
- Multiple sealing system for safe use during operation
- Cost-efficient due to compatibility with Berner's standard gloves

Tested safety and certification

- Isolator oversleeve with comprehensive cytostatic testing
- Autoclavable glove rings (121°C/20min)

Shoulder ring	On request	Glove inner ring	803019
Locking ring large (300mm, red)	803015	Retaining ring (100mm, red)	803020
Isolator oversleeves (vinyl)	803016	Double seal for inner ring	803021
Outer retaining ring (120mm, blue)	803018		

Expertise

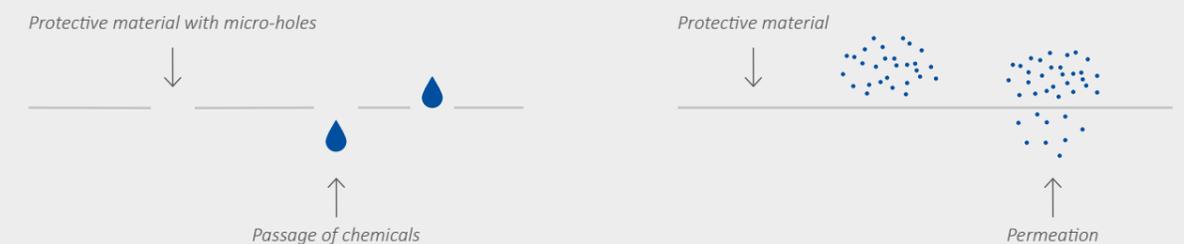
DIFFERENCE BETWEEN PENETRATION AND PERMEATION

Penetration is defined as the passage of material through micro-holes!

These can be caused during manufacture, incorrect packaging, or storage.

Permeation is the passage of substances at a molecular level through undamaged material!

Depending on the protective barrier or chemical, this process can take from a few seconds, to many hours/days.



BODY PROTECTION



You would like to know more?
Look online for further information:



BODY PROTECTION

For body protection during demanding laboratory work, you can choose from a wide range of protective coveralls, protective gowns and other partial protective clothing. As personal protective equipment (PPE), these products are tested according to the PPE Regulation 2016/425, which is currently required and regularized by law in Europe. The products are specially designed for GMP-compliant manufacturing as well as work that requires increased protection against biological agents. Protective clothing must be selected according to the individual risk assessment. We would be happy to advise you to find the perfect solution for your application.

PROTECTION IN HANDLING CHEMICALS

Handling chemicals often requires PPE of the highest category III, to protect the wearer against serious irreversible damage to health or fatal hazards. This usually requires liquid-tight or spray-tight protective clothing according to EN 14605, corresponding to type 3 or 4. This protection is also documented by comprehensive permeation tests with various chemicals. On the other hand, type 5/6 protective clothing according to EN ISO 13982-1 and EN 13034 has only limited spray-tight properties. This is mainly used as clean-room clothing to prevent the release of particles and germs into the environment. Our type 5/6 products offer good protection against liquid chemicals, also proven with permeation data for cytostatics. These products are in competition with reusable garments, which generally do not protect against liquid chemicals.

PROTECTION AGAINST BIOLOGICAL AGENTS

As protective clothing against infectious agents, many of our products are extensively tested to EN 14126 and associated test procedures. This is indicated by the marking of B in the product label. Overalls are therefore also marked as type 3-B or partial protective clothing as type PB 4-B. However, infectious agents are very different in their type, size and infectivity. Virus particles are generally smaller in size than bacteria or fungi are often particularly contagious and cause serious illnesses. A high performance class for top quality protective clothing – especially for the virus protection test according to ISO 16604 - is crucial.

WEAR COMFORT



Active Breath 2 coverall

Breathable model type 5/6

Personal protection and comfort in a unique combination: The Active Breath 2 coverall has a liquid-impermeable coating in the hazardous area (front, hood, shoulder area and calf area), while the back is made of breathable material. Additional protection is provided by the high neckline, zip with overlapping flap elasticated sleeve and leg ends, as well as finger loops and a hood.

Product highlights

- Combination of protection and wearing comfort
- Tested against various cytostatics and chemicals
- Sterile process: EO-sterilised

Tested safety and certification

- Certified according to PPE Regulation (EU) 2016/425 (category III)
- Chemical protective overall type 5/6
- Antistatic equipment (EN 1149-5)
- Suitable for cleanrooms ISO class 5 and GMP class A/B

Size	S	M	L	XL	XXL	XXXL
Ord.-No. (non-sterile - 8 pieces)	100183	100184	100185	100186	100187	100188
Ord.-No. (sterile - 6 pieces)	100189	100190	100191	100192	100193	100194



Tyvek® 600 Plus coverall

Model with taped seams type 4-B/5-B/6-B

Double protection: The DuPont™ Tyvek® 600 Plus chemical protective coverall offers extra safety thanks to additionally taped seams. This makes the model suitable for handling numerous chemicals, oils and biological agents and provides excellent protection against particles of hazardous and radioactive substances (larger than 1 µm) and radioactive particles. The special shape of the hood and the included elastic ensure/guarantee a tight fit, even when a respirator is used.

Product highlights

- Sewn and taped seams with high barrier properties
- Tunnelled elastic (wrist, ankle and face)
- Self-adhesive chin cover

Tested safety and certification

- Certified according to PPE Regulation (EU) 2016/425 (category III)
- Chemical protective coverall type 4-B/5-B/6-B
- Antistatic equipment (EN 1149-5) on both sides
- Protection against radioactive contamination (EN 1073-2)
- Protection against infectious agents (EN 14126)

Size	S	M	L	XL	XXL	XXXL
Ord.-No. (non-sterile - 25 pieces)	100109	125685	125686	125687	125688	100098
Ord.-No. (sterile - 6 pieces)	100110	125680	125681	125682	125683	100097



Tyvek® 200 Easysafe coverall

Light and soft model type 5/6

The Tyvek® 200 Easysafe protective coverall is ideally suited for auxiliary and cleaning work. The lightweight model made of optimised polyethylene fleece is permeable to air and water vapour and has an antistatic finish. With elasticated waist, sleeve and leg ends, a two-piece hood and a simplified cut, Tyvek® 200 Easysafe offers ideal protection for inspection work and when handling non-hazardous chemicals or products susceptible to contamination.

Product highlights

- Breathable, soft material for high wearing comfort
- Protection against particles and light spray
- Nylon zip with cover

Tested safety and certification

- Certified according to PPE Regulation (EU) 2016/425 (category III)
- Chemical protective clothing type 5/6
- Protective clothing against radioactive contamination (EN 1073-2)
- Antistatic equipment (EN 1149-5) on the inside and outside

Size	M	L	XL	XXL
Ord.-No. (non-sterile - 100 pieces)	125700	125702	125704	125706
Ord.-No. (sterile - 6 pieces)	100131	100132	100133	100134

GMP OPTIMISED



Tyvek® IsoClean® coverall

Sterile model for cleanroom applications type 5-B/6-B

Thanks to the validated double-barrier packaging system, the sterile and low-particle Tyvek® IsoClean® protective coverall is ideally suited for use under cleanroom conditions. Reliable protection is provided by the bound neckline, the zip with overlapping adhesive flap and the inner seams covered and bound with fabric. For maximum comfort, the model also features elasticated thumb loops and sleeve and leg ends.

Product highlights

- Sterility assurance level (SAL) 10⁻⁶ (ISO 11137)
- Validated double barrier packaging system
- Packaged in ISO Class 4 certified cleanroom
- Covered, bound inner seams for seam protection and particle reduction

Tested safety and certification

- Certified according to PPE Regulation (EU) 2016/425 (category III)
- Chemical protective coverall type 5-B/6-B
- Protection against radioactive contamination (EN 1073-2)
- Protection against infectious agents (EN 14126)

Size	S	M	L	XL	XXL
Ord.-No. (sterile - 25 pieces)	100118	100114	100115	100116	100117



Tyvek® 500 Labo coverall

Model with type 5/6 slip-resistant overshoes

Slip-proof in the laboratory and cleanroom: The Tyvek® 500 Labo protective coverall from DuPont™ is equipped with booties including an anti-slip sole. Thanks to particularly low-linting material and antistatic properties, this light-weight model offers optimum protection when handling various chemicals. The three-piece hood, elasticated hood, waist, sleeve and leg ends and the breathable design ensure a comfortable fit.

Product highlights

- Attached booties with non-slip soles
- Three-piece hood for improved fit
- Inner seams

Tested safety and certification

- Certified according to PPE Regulation (EU) 2016/425 (category III)
- Chemical protective clothing type 5/6
- Protective clothing against radioactive contamination (EN 1073-2)
- Antistatic finish (EN 1149-5) on both sides

Size	S	M	L	XL	XXL
Ord.-No. (non-sterile - 25 pieces)	100220	100221	100222	100223	100224
Ord.-No. (sterile - 6 pieces)	100215	100216	100217	100218	100219



Tychem® 2000 C coverall

Liquid-tight model type 3-B/4-B/5-B/6-B

The Tychem® 2000 C protective coverall from DuPont™ is versatile: the combination of Tyvek® and polymer coating guarantees an excellent barrier function for handling chemicals, oils, biological agents and infectious agents. In addition, there is reliable protection against radioactive and hazardous particles. Special safety is provided by the self-adhesive chin cover and double zip cover.

Product highlights

- Liquid-tight due to polymer coating
- Stitched protective seams covered with barrier tape
- Double self-adhesive zip cover for extra protection

Tested safety and certification

- Certified according to PPE regulation (EU) 2016/425 (category III)
- Chemical protective clothing type 3-B/4-B/5-B/6-B
- Protective clothing against radioactive contamination (EN 1073-2)
- Protection against infectious agents (EN 14126)
- Antistatic finish (EN 1149-5) on the inside

Size	M	L	XL	XXL
Ord.-No. (non-sterile - 5 pieces)	125650	125652	125654	125656

PROVEN PROTECTION



cleo® saphir protective gown | elasticated

Model with ultrasonically welded sleeve seams, type PB [4]-B

For safe working with chemicals, cytostatics and biological agents, the proven blue cleo® saphir protective gown with elasticated waist features a fully coated front with an extra long cut and a high neckline. The excellent protective function in the sleeve area is ensured by improved, triple ultrasonically welded seams. A combination of liquid-impermeable and breathable materials guarantees first-class wearing comfort.

Product highlights

- High-quality partial body protection with elastic band
- Impermeable front area and breathable back area
- Ultrasonically welded sleeve seams for reliable protection
- Optimal for working with CMR drugs and biohazards

Tested safety and certification

- Certified according to PPE regulation (EU) 2016/425 (category III)
- Chemical protective gown type PB [4]-B
- Protection against all tested chemicals and cytostatics: at least eight hours
- Tested with the critical test substance carmustine
- Greatest resistance to biological agents

Size	M	L
Ord.-No. (non-sterile - 15 pieces)	6500	6550
Ord.-No. (sterile - 10 pieces)	6600	6650

PROVEN PROTECTION



cleo® saphir gown | knitted cuffs

Model with ultrasonically welded sleeve seams, type PB [4]-B

For safe working with chemicals, cytostatics and biological agents, the proven blue cleo® saphir protective gown with knitted cuffs has a fully coated front with an extra long cut and a raised neckline. The excellent protective function in the sleeve area ensure improved, triple ultrasonically welded seams. A combination of liquid-impermeable and breathable materials guarantees first-class wearing comfort.

Product highlights

- High-quality partial body protection with knitted cuffs
- Impermeable front area and breathable back area
- Ultrasonically welded sleeve seams for reliable protection
- Optimal for working with CMR drugs and biohazards

Tested safety and certification

- Certified according to PPE regulation (EU) 2016/425 (category III)
- Chemical protective gown type PB [4]-B
- Protection against all tested chemicals and cytostatics: at least eight hours
- Tested with the critical test substance carmustine
- Greatest resistance to biological agents

Size	S	M	L	XL
Ord.-No. (non-sterile - 15 pieces)	6700	6800	6900	
Ord.-No. (non-sterile - 10 pieces)				100072
Ord.-No. (sterile - 10 pieces)	6701	6801	6901	100073

PROVEN PROTECTION



cleo® saphir oversleeves with knitted cuffs

Partial body protection type PB [4]-B

When working with chemicals, the arms are often particularly at risk. The blue cleo® saphir oversleeves with knitted cuffs offer additional protection without having to sacrifice comfort. This model is available in two different sizes, has a liquid-impermeable coating and is additionally equipped with triple ultrasonically welded seams. This guarantees excellent protection for at least eight hours.

Product highlights

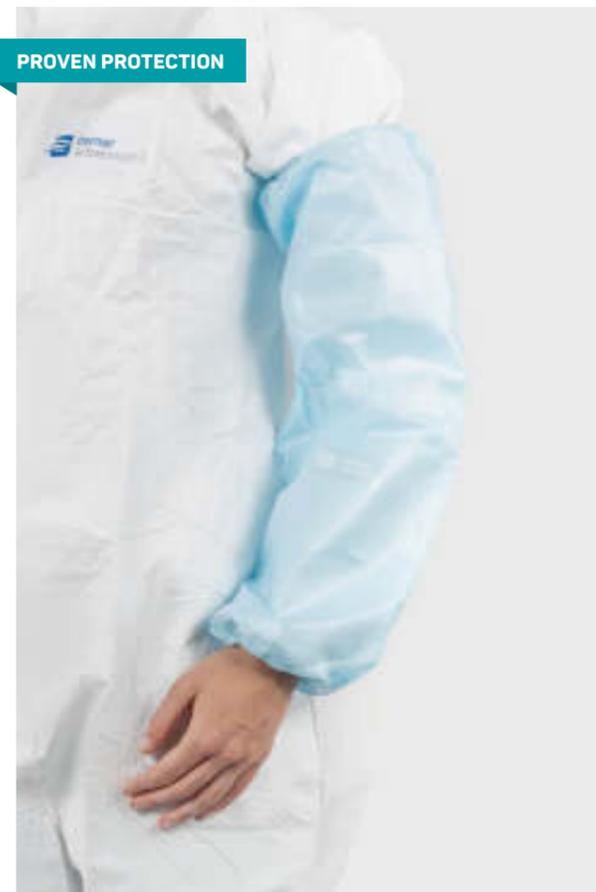
- High-quality partial body protection with knitted cuffs in two sizes
- Liquid impermeable coating
- Triple ultrasonically welded seams for maximum protection
- Optimal for working with CMR drugs or biological hazardous substances

Tested safety and certification

- Certified according to PPE Regulation (EU) 2016/425 (category III)
- Chemical protective sleeves type PB [4]-B
- Protection against all tested chemicals and cytostatic agents: min. eight hours
- Tested with the critical test substance carmustine
- Highest resistance to biological agents

Size	S/M	L/XL
Ord.-No. (non-sterile - 50 pairs)	6010	6000
Ord.-No. (sterile - 40 pairs)	6011	6001

PROVEN PROTECTION



cleo® saphir oversleeves with elastic band

Partial body protection type PB [4]-B

When working with chemicals, the arms are often particularly at risk. The elasticated light blue cleo® saphir protective arm sleeves band offer additional protection without having to sacrifice comfort. This model has a liquid-impermeable coating and is also equipped with triple ultrasonically welded seams. This ensures excellent protection for at least eight hours.

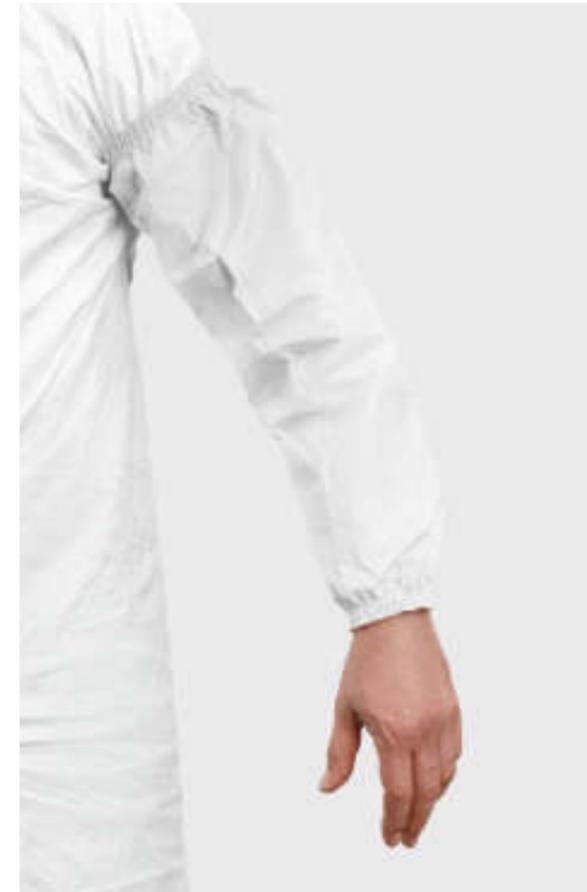
Product highlights

- High-quality partial body protection with elastic band
- Liquid impermeable coating
- Triple ultrasonically welded seams for maximum protection
- Optimal for working with CMR drugs or biological hazardous substances

Tested safety and certification

- Certified according to PPE Regulation (EU) 2016/425 (category III)
- Chemical protective sleeves type PB [4]-B
- Protection against all tested chemicals and cytostatic agents: min. eight hours
- Tested with the critical test substance carmustine
- Highest resistance to biological agents

Size	uni
Ord.-No. (non-sterile - 50 pairs)	6200
Ord.-No. (sterile - 30 pairs)	6300



Tyvek® IsoClean® protective oversleeves

Partial body protection type PB [6]-B for cleanroom use

Additional protection when working under cleanroom conditions is provided by the Tyvek® IsoClean® protective elasticated oversleeves. A perfect addition to the Tyvek® IsoClean® protective overall, they form a material barrier against particles, microorganisms and non-hazardous splashes of liquids. The product is specially processed, gamma sterilised and packaged under cleanroom conditions and is suitable for cleanrooms up to ISO class 4/5 and GMP class A/B.

Product highlights

- Sterility assurance level (SAL) 10-6 (ISO 11137)
- IsoClean® double packaging concept
- Covered, bordered inner seams for seam protection and particle reduction
- One size fits all, length 45 cm

Tested safety and certification

- Certified according to PPE Regulation (EU) 2016/425 (category III)
- Partial body protection type PB [6]-B
- Protective clothing against infectious agents (EN 14126:2004)
- Suitable for use in cleanrooms to ISO class 4/5 and GMP class A/B

Size	uni
Ord.-No. (sterile - 50 pairs)	100122



Tychem® 2000 C protective sleeves

Partial body protection type PB [3]-B

Thanks to the hot taped seams, the Tychem® 2000 C oversleeves offer particularly reliable protection against many chemicals and biological hazardous substances according to EN 14126 as well as a variety of inorganic chemicals, other hazardous particles, radioactive particles and infectious agents. Wide elasticated bands at wrist and upper arm and the antistatic coating ensure a comfortable fit.

Product highlights

- Particularly safe thanks to taped seams
- Low particle material

Tested safety and certification

- Certified according to PPE Regulation (EU) 2016/425 (category III)
- Chemical protective sleeves type PB [3]-B
- Protective clothing against infectious agents (EN 14126)
- Antistatic finish (EN 1149-1) on the inside

Size	uni
Ord.-No. (non-sterile - 25 pairs)	6455



cleo® saphir overshoes

Partial body protection type PB [4]-B with anti-slip sole

One for all: The proven blue cleo® saphir protective overshoes are characterised by their universal fit. The anti-slip sole, elasticated ankles and liquid-tight coating, guarantee both comfort in wearing, and also comprehensive protection when working with various cytostatics, virostatics and biological agents. The latex-free model is low in lint and particles and available in a sterile and non-sterile version.

Product highlights

- Partial body protection with elastic at the ankles and non-slip sole
- Universal fit for easy donning and doffing

Tested safety and certification

- Certified according to PPE regulation (EU) 2016/425 (category III)
- Chemical protective overshoes type PB [4]-B
- Protection against all tested chemicals and cytostatics: at least eight hours
- Tested with the critical test substance carmustine
- Highest resistance to biological agents

Size	uni
Ord.-No. (non-sterile - 40 pairs)	125501
Ord.-No. (sterile - 30 pairs)	125502



Tyvek® IsoClean® protective overboots

Type PB [6]-B with non-slip sole suitable for cleanrooms

The Tyvek® IsoClean® overboots provide a particularly good fit with ankle straps and covered elastic at the calves and leg ends. The sole guarantees slip resistance even on slippery laboratory floors. The model is processed and gamma sterilised under cleanroom conditions, aseptically folded and suitable for cleanrooms up to ISO class 5 and GMP class A/B.

Product highlights

- IsoClean® double packaging concept
- Non-slip sole, covered elastics and ankle straps
- Height 18" (45.7cm)

Tested safety and certification

- Certified according to PPE regulation (EU) 2016/425 (category III)
- Protective overboot type PB [6]-B
- Protective clothing against infectious agents (EN 14126)
- Suitable for use in ISO class 5 and GMP class A/B cleanrooms

Size	S	M	L	XL
Ord.-No. (sterile - 50 pairs)	100123	100124	100125	100126
Ord.-No. (non-sterile - 50 pairs)		125564	125565	



CoverChem®200 protective overboots

Liquid-tight model type PB [3]-B with non-slip sole

The CoverChem®200 protective overboots with liquid-impermeable coating offer reliable protection against chemicals and biological agents. The anti-slip sole ensures surefootedness and is the perfect addition to type 3-B protective overalls. Thanks to its universal fit and practical features such as elastic band and fixing strap, this model can be used quickly and easily.

Product highlights

- Partial body protection with elastic band and non-slip sole
- Universal fit for easy donning and doffing

Tested safety and certification

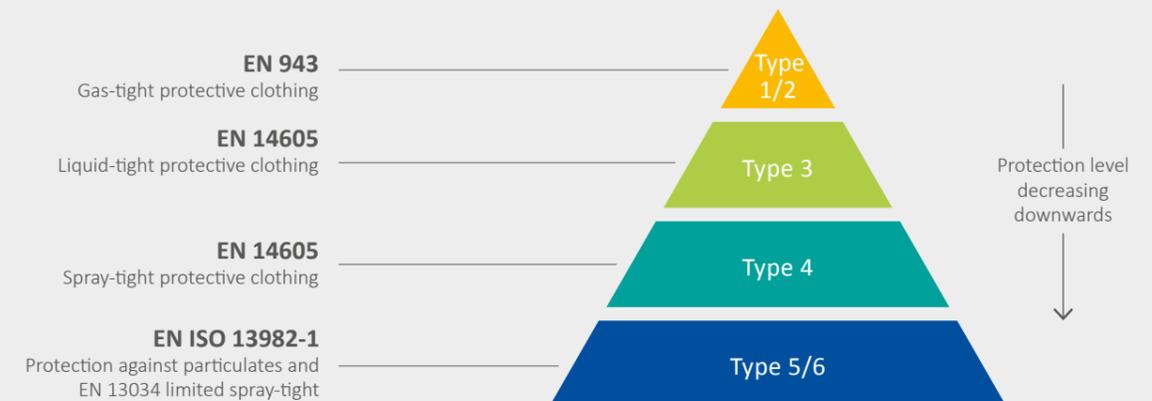
- Certified according to PPE Regulation (EU) 2016/425 (category III)
- Chemical protective overboots, type PB [3]-B (EN 14605)
- Protection against micro-organisms (EN 14126)
- Antistatic finish of upper material (EN 1149-5)

Size	uni
Ord.-No. (non-sterile - 15 pairs)	100044

Expertise

PROTECTIVE CLOTHING PYRAMID

The protection pyramid provides an overview of the different protection levels. Within these protection levels, different materials and seam finishes offer, in combination with the other PPE components, protective advantages.





Tyvek® IsoClean® hood

Suitable protection for cleanrooms type PB [6]-B

The Tyvek® IsoClean® hood as an addition to the Tyvek® IsoClean® protective overalls ensures a clear head when working in the cleanroom. With bound inner seams, a bound hood opening and a large face opening, it offers a high level of comfort even when using respiratory masks and glasses. This model is specially cleaned, sterilised and packaged under cleanroom conditions and suitable for cleanrooms up to ISO Class 4/5 and GMP Class A/B.

Product highlights

- Sterility assurance level (SAL) 10⁻⁶ (ISO 11137)
- IsoClean® double packaging concept

Tested safety and certification

- Certified according to PPE regulation (EU) 2016/425 (category III)
- Protective hood type PB [6]-B
- Protective clothing against infectious agents (EN 14126)
- Suitable for cleanrooms up to ISO class 4/5 and GMP class A/B

Size	uni
Ord.-No. (sterile - 100 pieces)	125750



Tyvek® 500 apron

Calf length partial protection type PB [6]-B

The Tyvek® 500 apron offers optimal partial protection of the body when a protective overall is not required or additional security is desired when using reusable clothing concepts. The calf-length apron is fastened with ties at the neck and back and is permeable to air and water vapor while at the same time protecting against water-based liquids and aerosols. The sterile product is suitable for cleanrooms up to ISO class 5.

Product highlights

- Safe partial protection for the front area
- Fixation by straps in the neck and back
- One size with a length of 108 cm

Tested safety and certification

- Certified according to PPE regulation (EU) 2016/425 (category III)
- Chemical partial body protection type PB [6]-B
- Protective clothing against infectious agents (EN 14126)
- Antistatic finish (EN 1149-1) on both sides

Size	uni
Ord.-No. (sterile - 40 pieces)	100070

Expertise

TEST METHOD: PARTICLE RELEASE FROM STERILE PROTECTIVE CLOTHING IN CLEANROOMS

When handling toxic substances and CMR drugs, including under cleanroom conditions, protective clothing must be worn in accordance with the European PPE Regulation 2016/425.

The commonly used cleanroom clothing does not offer sufficient protection. Their use is a legal gray area for the operator. Certified protective clothing is often considered unsuitable for clean areas as it is said to emit too many particles. For this reason, Berner International has a special test chamber in which the particle release from protective clothing under real conditions of use can be measured. The test chamber, also known as the body box, is based on a test procedure from the American "Institute of Environmental Science & Technology". In contrast to other methods for particle measurement of clothing (e.g. Helmke drum test), in this test scenario the emission of particles while being worn by a person is measured.

In a mini-cleanroom, the test subject must carry out movements defined by the IEST. These include "straightening arms," "walking with hand movements up to the shoulders and raised knees," and squats. The exhaust air flow is sampled with particle counters so that the exact number of particles emitted per m³ of air can be measured in different sizes. In this way, the average particle emission per type of protective clothing (e.g. Active Breath II protective overall, sterile, Tyvek Classic+ sterile, ...) can be determined through a specified number of repetitions per test.

If the method is further adapted to real movements in the laboratory, the particle emissions can also be specified even more realistically.

The test procedure in our body box allows us to specify the emission of particles by a person wearing protective clothing in the cleanroom and thus to make appropriate cleanroom recommendations. This ensures both optimal personal protection and the necessary product protection in the cleanroom.



Fig. 1: Body Box with test subject

INFO

RESPIRATORY PROTECTION



You would like to know more?
Look online for further information:



MEDICAL FACE MASKS ACCORDING TO EN 14683

In the context of the COVID-19 pandemic, we have expanded our portfolio to include tested medical face masks. The masks of the cleo® med series are available as registered class I medical device designed for effective protection against infection. These are equivalent to the type IIR - they are subject to comprehensive testing for bacterial filter performance of at least 98%, good breathability, microbial purity and, in particular, effective splash resistance. This makes our products particularly suitable for respiratory protection for use in pandemic situations or in the operating room. You can obtain our medical face masks in different packaging options, for quick use or in a particularly hygienic form.

FILTERING HALF MASKS FOR PROTECTION AGAINST PARTICLES

This respiratory protection (FFP respirators) is category III personal protective equipment according to PPE Regulation 2016/425, which is legally binding in Europe. For type testing and certification, half masks are comprehensively tested according to EN 149. The primary objective is the wearer's own protection, especially against particulate hazardous substances. In addition to the maximum permeability of the filter medium (reciprocal to the filter performance) for different test aerosols, the inward leakage of the filter medium is also tested. The inward leakage rate is also extensively tested for tightness. Our product range includes various half masks - with and without exhalation valve as well as in different designs for different facial shapes. These are mainly FFP3 masks with the highest filtering performance of at least 99%. Specific masks are additionally tested with nanoparticles.

BEST PROTECTION



cleo® med protect medical face mask

Latex- and fibreglass-free type IIR partial body protection for mouth and nose

With its three-layer structure made of polypropylene and filter fleece, the cleo® med protect medical face mask offers excellent splash protection against infectious droplets and germs such as bacteria or viruses. The fit is optimised by the adaptable nose clip, so that a tight fit is guaranteed at all times. The particularly soft and elastic ear loops ensure that they are comfortable to wear over a long period of time.

Product highlights

- Three-layer, breathable design with an effective germ filter
- Low-particle production in the ISO class 8 cleanroom
- Shelf life: 3 years

Tested safety and certification

- Certified to 93/42/EEC directive for class 1 medical devices
- Medical face mask type IIR (EN 14683)
- Tested bacterial filter performance of over 99%



DISPENSER BOX

Size	uni
Ord.-No. (non-sterile - 50 pieces)	121350



German Quality



cleo® med quality medical face mask

Latex- and fibreglass-free type IIR partial body protection in premium quality "Made in Germany"

The cleo® med quality medical face mask is a class 1 medical product that is completely manufactured in Germany and is quality-tested. The high-quality three-layer design guarantees an effectiveness of over 99% in the filtration of infectious droplets and aerosols. The particularly soft and elastic ear loops and the adaptable nose clip ensure a comfortable fit with a secure fit even over a longer period of time.

Product highlights

- Premium quality "Made in Germany"
- Three-layer, breathable design with an effective germ filter
- Highly effective splash protection against infectious droplets
- Shelf life: 2 years

Tested safety and certification

- Certified to 93/42/EEC directive for class 1 medical devices
- Medical face mask type IIR (EN 14683)
- Tested bacterial filter performance of over 99%



DISPENSER BOX

Size	uni
Ord.-No. (non-sterile - 50 pieces)	121380

SINGLE PACKAGING



DISPENSER BOX

cleo® med clean medical face mask

Hygienically single-wrapped partial body protection type IIR in practical dispenser box

The medical face mask cleo® med clean offers maximum protection from the very first moment: The practical design of the dispenser box makes it easier to hygienically remove the individually shrink-wrapped masks. The contamination. The risk for the individual user is thus greatly reduced. The three-layer design of the mask and the practical ear loops as well as an adjustable nose bridge ensure protection and comfort when worn for a long time.

Product highlights

- Hygienic individual packaging in a practical dispenser box
- Co-branding possible from 10 packs with an individual logo
- Three-layer, breathable design with an effective germ filter
- Shelf life: 3 years

Tested safety and certification

- Certified to 93/42/EEC Directive for Class 1 Medical Devices
- Medical face mask type IIR (EN 14683)
- Tested bacterial filter performance of over 99%

Size	uni
Ord.-No. (non-sterile - 20 pieces)	121360
Ord.-No. (non-sterile - 20 pieces) co-branding	121360LOGO

OPTIMAL HYGIENE



DISPENSER BOX

cleo® med clean plus medical face mask

Hygienic, individually packed type IIR partial body protection with hand sanitiser wipes

Cleo® med clean plus offers extended protection against infection through the combination of a three-layer medical face mask and two alcohol-based hand disinfectant wipes. The individual packaging makes hygienic removal from the dispenser box easy and contributes to effective personal protection against infection risks - also against the coronavirus SARS-CoV-2. Elastic ear loops and an adaptable nose clip guarantee the usual high wearing comfort.

Product highlights

- Hygienically individually wrapped set
- A medical face mask and two hand sanitiser wipes
- Best splash protection against infectious droplets
- Three-layer, breathable design with an effective germ filter
- Co-branding possible from 10 packs with an individual logo

Tested safety and certification

- Certified to 93/42/EEC directive for Class 1 medical devices
- Medical face mask type IIR (EN 14683)
- Tested bacterial filter performance of over 99%

Size	uni
Ord.-No. (non-sterile - 15 pieces)	121370
Ord.-No. (non-sterile - 15 pieces) co-branding	121370LOGO

Expertise

WHAT ARE THE DIFFERENCES BETWEEN MEDICAL FACE MASKS AND FILTERING HALF MASKS?

Medical face masks and filtering half masks are the most commonly worn for professional use. The different types of masks differ greatly in their design and protective effect.

	Filtering half mask	Medical face mask	
Protective effect	<ul style="list-style-type: none"> Reduces shedding of germs of the wearer's respiration and saliva (Infection protection, patient protection) 	<ul style="list-style-type: none"> Protects users from inhaling airborne particles, droplets and aerosols and thus also from viruses and bacteria (occupational safety) 	
Protective goal	<ul style="list-style-type: none"> Primary foreign protection Conditional self-protection Protection against liquid penetration (type IIR) 	Without valve <ul style="list-style-type: none"> Primarily self-protection Foreign protection 	With valve <ul style="list-style-type: none"> Primarily self-protection No foreign protection
Tight fit	<ul style="list-style-type: none"> Limited 	Without valve <ul style="list-style-type: none"> Good to very good 	with valve <ul style="list-style-type: none"> Good to very good
Application area	<ul style="list-style-type: none"> In healthcare facilities For patients In areas with an increased risk of infection Single use 	<ul style="list-style-type: none"> Work areas when handling hazardous substances (e.g. cytostatics and other chemicals, when sanding, cleaning or dealing with mold) In healthcare facilities In the laboratory and areas with a high risk of infection Certain mask types reusable (NR vs. R) 	
Test	<ul style="list-style-type: none"> Testing according to DIN EN 14683 for medical face masks CE certificate and CE mark on packaging 	<ul style="list-style-type: none"> Testing according to EN 149 for filtering half masks CE certificate and CE mark with four-digit number on packaging and product 	

Due to their main area of application in healthcare, medical face masks are temporarily subject to the directive for medical devices 93/42/EWG and the new medical devices regulation 2017/745 and must meet the requirements for class 1 medical devices as well as comply with the specifications in the European standard EN 14683. According to the bacterial filter efficiency of the masks, they are classified into 3 different performance classes type I, type II and type IIR.

Medical face masks are primarily used to protect others, since wearing the mask means that infectious droplets released in the breath or when speaking are minimised and thus e.g. protects the patient during an operation. These masks are therefore often referred to as surgical masks. Since the protective effect depends significantly on the fit of the mask, it only offers a certain degree of self-protection. These masks are single-use products.

To be placed on the market medical face masks must meet the standard requirements of EN 14683. Manufacturers independently carry out the conformity assessment and issue the declaration of conformity after successfully checking the legal requirements. These tested masks are labelled with a CE mark on the packaging.

Particle-filtering half masks, also known as FFP respirators, are usually much more complex in structure than medical face masks. They are tested in accordance with regulation (EU) 2016/425 for personal protective equipment (PPE) and they must meet the requirements of the European standard EN 149 as part of occupational safety. Depending on their filter performance and total leakage, the FFP masks are divided into the protection levels FFP1, FFP2, and FFP3. The FFP1 mask is used to protect the wearer from minor risks and is part of category I PPE.

In their area of application, the FFP2 and FFP3 respiratory masks protect against serious health risks and are classed into the highest protection PPE category III.

The FFP masks fit tightly and reliably protect the wearer from harmful dust, droplets and dangerous aerosols in the workplace. They are often used in laboratories when working with chemicals and biological agents. Respiratory masks without an exhalation valve also protect the wearer's environment from possible transmission of germs through the breathing air or when speaking.

FFP masks, whose usage is limited to one work shift, are marked by the manufacturer as "non reusable" ("NR"), while reusable ones are marked with an "R" and can be cleaned. Masks that have a high dust absorption capacity or particularly high filter capacity are also given a "D" for passing dolomite dust test.

Due to the complex conditions of use of these masks in occupational safety with a high hazard risk, type examination and regular product monitoring are carried out by a notified body. The EU declaration of conformity of the manufacturer are based on this certification. This must be made available to the user. Therefore, the CE mark and the four digit code of the notified body are always found directly on the FFP mask as well as the packaging.

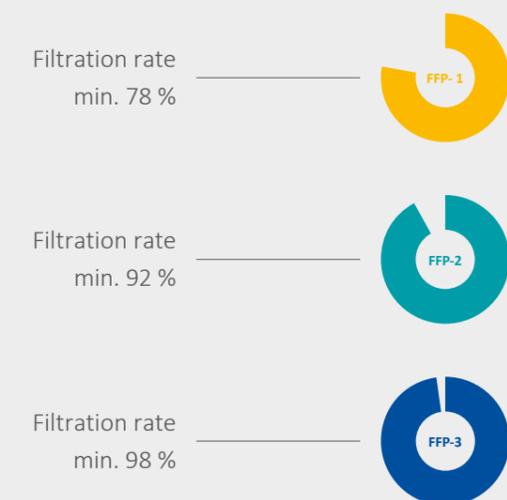
Expertise

WHAT ARE THE DIFFERENCES BETWEEN MEDICAL FACE MASKS AND FILTERING HALF MASKS?

In three different FFP classes, respiratory masks protect against aqueous and oily aerosols, fine dust and smoke – i.e. against airborne particles. These particle-filtering half masks are standardised according to EN 149 and are divided into protection levels FFP1, FFP2 and FFP3. A full face mask with a suitable filter is required for full protection against gases and vapours.

FFP respiratory protection masks are mandatory at workplaces if the occupational exposure limit is likely to be exceeded. The FFP protection level depends, among other things, on the total inward leakage and the permeability of the filter medium (particle size distribution 0.02 µm to 2 µm, Ø 0.6 µm). The total leakage is checked in different motions and depends on the fit of the respiratory mask and filter passage.

From an occupational safety perspective, FFP respirators are part of personal protective equipment and are mandatory for working with hazardous substances. Depending on the situation and application, a risk assessment must be carried out by the employer, to determine the required protection class.



FFP1

FFP1 respirators may only be used in work environments which are free from toxic and fibrogenic aerosols or dusts. The 4-fold occupational exposure limit must not be exceeded when using an FFP1 respirator mask. For a filter performance of at least 80%, FFP1 respirators may have a maximum average total leakage of 22% according to EN 149. They are mainly used in the construction industry or in the food industry.

FFP2

In working environments in which harmful and mutagenic substances are in the air should be at least FFP2 respiratory protection masks are used. FFP2 respiratory protection masks have a filter performance of at least 94% and an average total leakage of a maximum of 8%. The occupational exposure limit may be 10 times higher than the standard value customary in the industry. FFP2 protective masks protect against toxic dusts, mist and smoke as well as airborne biological hazardous substances (viruses, bacteria, fungi) depending on hazard and risk assessment.

FFP3

With a filter performance of at least 99%, the FFP3 respirator mask has an average total leakage of a maximum of 2%. They are used in laboratories and in industry and protect against harmful, carcinogenic and radioactive particles in the work environment with a higher risk potential, and up to a 30-fold occupational exposure limit. They also protect against airborne biological agents (viruses, bacteria, fungi).

FILTRATION OF NANOPARTICLES

Filtering half masks serve as respiratory protection against harmful dusts. However, the requirements for the retention capacity of so-called FFP masks described in the European EN 149 standard only relate to microparticles with an average size of 0.4 - 10 µm. Nanoparticles that are even smaller and therefore particularly respirable are not taken into account in the test procedure (see Fig. 1).

Protection class	FFP1	FFP2	FFP3
Different particles, non-toxic dusts, smoke particles	×	×	×
Carcinogenic substances	×	×	×
Viruses, bacteria, fungal spores		×*	×
Radioactive substances			×

*According to hazard and risk assessment

Nanoparticles are increasingly used in many production processes such as the industrial manufacture of cosmetics, in coating processes or in food production. This increases the risk of occupational exposure. Due to their small size, unbound nanoparticles can easily enter the body. Via the respiratory tract, they can penetrate into the alveoli, from where they can be transported to other organs and cause damage. (see graphic 2). Preventive protective measures are therefore also required against this dust fraction. As part of a "nano" research project in collaboration with the University of Milan a special test method was developed in order to check the level of protection of BLS masks against nanoparticles. The retention capacity for nanoparticles of different substances - from carbon to metal oxides was examined.

It was shown that the special filter material of BLS masks is able to retain more than 97% of nanoparticles. BLS masks therefore offer respiratory protection that goes well beyond the requirements of EN 149.

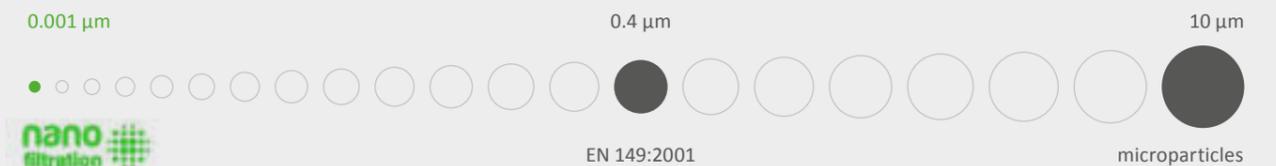


Fig. 1: Filtration of nanoparticles



FFP2 uvex folding mask

Particle filtering model with exhalation valve

Thanks to the shape-optimised design, the FFP2 uvex folding mask is very comfortable to wear: A flexible nose clip, a well-fitting sealing lip in the nose area and the continuous seamless headband ensure a permanently secure tight fit. The foldable model has an integrated exhalation valve and, with a filter performance of more than 94%, offers a high level of protection against particles, aerosols and pollutants.

Product highlights

- Comfortable fit thanks to adjustable nose clip, sealing lip and soft edges
- Exhalation valve reduces heat and moisture under the mask
- Individually packed and compatible with uvex safety glasses

Tested safety and certification

- Certified according to PPE regulation (EU) 2016/425 (category III)
- Certified FFP2 half mask according to EN 149
- Filter performance of at least 94% even with high levels of dust
- Passed dolomite dust test
- Non-reusable single-use product

Size	uni
Ord.-No. (non-sterile - 15 pieces)	121274



FFP3 uvex moulded mask

Particle filtering model with exhalation valve

For maximum comfort, the FFP3 uvex moulded mask has an individually adjustable nose clip, soft material edges and an integrated exhalation valve. At the same time, it offers reliable protection against particles, aerosols, airborne infectious agents and biological agents. In addition, the four-point head attachment and an all-round sealing lip provide security. The model is available in two sizes and so offers the best possible fit for every user.

Product highlights

- Comfortable design with flexible nose clip and exhalation valve
- Circumferential sealing lip for a reliable tight fit
- Ergonomic fit available in two sizes

Tested safety and certification

- Certified according to PPE regulation (EU) 2016/425 (category III)
- Certified FFP3 half mask according to EN 149
- Passed dolomite dust test
- Non-reusable single-use product

Size	S	uni
Ord.-No. (non-sterile - 1 piece)	121276	121275



FFP3 Moldex moulded mask

Particle filtering model with climate valve®

The FFP3 Moldex moulded mask offers particularly comfortable protection against aerosols and when handling CMR drugs such as cytostatics and antivirals. The integrated Ventex® valve ensures that the exhalation resistance is reduced by up to 50% while at the same time providing a high level of protection. An optimal tight fit is achieved with an anatomically shaped, disinfected sealing lip.

Product highlights

- Ergonomically shaped model with comfortable sealing lip
- Integrated Ventex® valve reduces exhalation resistance
- PVC and DEHP free
- Wearing time: max. eight hours; four hours when working with CMR medicines

Tested safety and certification

- Certified according to PPE regulation (EU) 2016/425 (category III)
- Particle filtering FFP3 half mask (EN 149)
- Filter performance of at least 99% even with high dust levels
- Passed dolomite dust test

Size	uni
Ord.-No. (non-sterile - 1 piece)	121262



BLS 860 FFP3 folding mask

Individually wrapped model to protect against nanoparticles

Even with particle sizes down to 0.001 µm, the BLS 860 FFP3 folding mask guarantees optimum protection. The integrated exhalation valve ensures a high level of comfort and is complemented by an excellent fit. This hygienic, individually packaged model is particularly suitable for the safe handling of CMR drugs, aerosols, biological agents and viruses.

Product highlights

- Special filter technology protects against nanoparticles up to 0.001 µm
- Large surface area for excellent fit
- Hygienic individual packaging
- Wearing time: max. eight hours; four hours when working with CMR medicines

Tested safety and certification

- Certified according to PPE regulation (EU) 2016/425 (category III)
- Particle filtering FFP3 half mask (EN 149)
- Filter performance of 99.9% even when exposed to nanoparticles
- Passed dolomite dust test

Size	uni
Ord.-No. (non-sterile - 10 pieces)	100180



BLS Zero 31 FFP3 moulded mask

Model with exhalation valve and nano-filtration

With an additional layer in the form of a micro-mesh, the BLS Zero 31 FFP3 round-shaped mask protects particularly efficiently against nanoparticles down to 0.001 µm and is suitable for handling a wide variety of particles, aerosols, CMR drugs, biological agents and viruses. The integrated exhalation valve ensures high wearing comfort with low breathing resistance. A good tight fit is achieved thanks to the combination of foam material and technical fabric.

Product highlights

- Versatile in use, also for protection against nanoparticles down to 0.001 µm
- Particularly low exhalation resistance, comparable to FFP1 masks
- Maximum wearing time: eight hours per work shift with three breaks, 4 hours for cytostatics

Tested safety and certification

- Certified according to PPE regulation (EU) 2016/425 (category III)
- Particle-filtering FFP3 molded mask (EN 149)
- Filter performance of 99.9% even when exposed to nanoparticles
- Passed dolomite dust test
- Shelf life under recommended storage conditions: 10 years

Size	uni
Ord.-No. (non-sterile - 10 pieces)	100181



FFP3 uvex moulded mask

Particle filtering model with exhalation valve

The FFP3 uvex moulded mask offers a combination of safety and comfort. It provides reliable protection against airborne dust, particles and biological agents in the pharmaceutical and manufacturing industries. Thanks to the surrounding sealing lip and soft material edges, this model fits snugly and can be individually adjusted using the four-point headband attachment.

Product highlights

- Comfort thanks to flexible headband attachment
- Circumferential sealing lip for a reliable fit
- Minimal breathing resistance through the exhalation valve
- Wearing time: max. eight hours; four hours when working with CMR medicines

Tested safety and certification

- Certified according to PPE regulation (EU) 2016/425 (category III)
- Particle filtering FFP3 half mask (EN 149)
- Filter performance of at least 99% (passed dolomite dust test)

Size	uni
Ord.-No. (non-sterile - 1 piece)	121287



FFP3 Dräger folding mask X-plore

Comfortable model without valve and with special high performance filter medium

With the FFP-3 Dräger X-plore respirator you don't have to forego a good wearing comfort- thanks to the particularly soft material, shape-optimised design, adjustable and padded nose clip and the practical VarioFLEX™ head harness. The use of a specialized high-performance filter medium provides effective protection against fine dust, aerosols, and particles across a wide range of applications. Additionally, the filter medium ensures low breathing resistance even without a valve.

Product highlights

- Comfortable close fit through optimised design and flexible fixation
- CoolSAFE+™ filter material for low breathing resistance
- Soft inner fleece with moisture-repellent properties
- Wearing time: max. eight hours; four hours when working with CMR medicines.

Tested safety and certification

- Certified according to PPE regulation (EU) 2016/425 (category III)
- Particle filtering FFP3 half mask (EN 149)
- Filter performance of at least 99% (passed dolomite dust test)

Size	uni
Ord.-No. (non-sterile - 1 piece)	121289



FFP3 uvex folding mask

Particle filtering model with exhalation valve

Good fit thanks to the four-point headband attachment: the FFP3 uvex folding mask fits snugly with the help of an all-round sealing lip and thus protects against various particles, biological agents and airborne pathogens. The exhalation valve ensures low breathing resistance, which also counteracts heat and moisture build-up under the mask.

Product highlights

- Circumferential seal and adjustable headband for a reliable fit
- Soft material edges for excellent wearing comfort
- Breathable thanks to the integrated exhalation valve

Tested safety and certification

- Certified according to PPE regulation (EU) 2016/425 (category III)
- Certified FFP3 half mask according to EN 149
- Best breathability even in heavy dust
- Passed dolomite dust test
- Non-reusable single-use product

Size	uni
Ord.-No. (non-sterile - 1 piece)	121296

EYE PROTECTION

THE IMPORTANT ROLE OF EYE PROTECTION IN THE LABORATORY

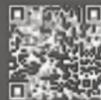
Eye protection is of great importance in laboratory activities and when handling hazardous substances. Many chemicals such as caustic soda lead even in small quantities to serious eye damage. Specific pathogens - especially viruses - can also infect humans via the mucous membranes of the eyes. There is also a risk of eye damage due to mechanical effects (e.g. glass splinters) or optical radiation (e.g. UV light). Wearing suitable eye protection is therefore essential at workplaces associated with such a risk – including in laboratory areas. Based on a risk assessment by the employer, eye protection suitable for the intended use must be provided. Employees are obliged to wear them at all times.

CERTIFIED SAFETY GOGGLES ACCORDING TO EN 166

Nowadays, modern safety goggles that are very comfortable to wear offer suitable eye protection for laboratory areas. It is important that the goggles are certified as personal protective equipment according to the PPE regulation 2016/425 and that the requirements for personal eye protection according to EN 166 are met.

In our portfolio you will find comfortable, high-quality safety glasses and goggles (full-vision safety goggles) in a wide variety of designs - many are also suitable for people who wear glasses. Many models can be autoclaved several times and some are available as sterile versions. The goggles are therefore also suitable as eye protection in cleanroom areas and for GMP-compliant production.

You would like to know more?
Look online for further information:





super fit CR cleanroom safety goggles

Lightweight, autoclavable model with anti-fog coating

Well protected and everything in view: This is made possible by the super fit CR cleanroom safety goggles with their panoramic field of vision and the ultra-thin and anti-fog wrap-around lens. The optimal fit of the highly flexible frame and the particularly light material ensure that it is comfortable to wear. The model is suitable for working under cleanroom conditions, can be autoclaved several times and also be ideally combined with other personal protective equipment.

Product highlights

- Extra large field of view and best optical clarity
- Extremely thin wrap-around lens with anti-fog coating
- Autoclavable a maximum of ten times at 121°C

Tested safety and certification

- Certified personal eye protection (EN 166)
- Certified UV protection filter (EN 170) for reliable UV 400 protection

Size	uni
Ord.-No. (non-sterile - 1 piece)	121706



super f OTG CR cleanroom safety goggles

Autoclavable model with anti-fog coating for spectacle wearers

Whether worn over glasses or for visitors: The super f OTG CR cleanroom safety goggles are versatile and allow unrestricted side perception with excellent splash protection. It fits easily over all standard prescription glasses and ensures a clear view with an anti-fog coating and the special 11° lens inclination. This model is also suitable for cleanrooms and autoclavable.

Product highlights

- Can be combined with standard prescription glasses
- Autoclavable a maximum of ten times at 121°C
- Chemical resistant, anti-fog and extremely scratch resistant

Tested safety and certification

- Suitable up to ISO class 5 and GMP class A/B
- Certified personal eye protection (EN 166)
- Certified UV protection filter (EN 170) for reliable UV 400 protection

Size	uni
Ord.-No. (non-sterile - 1 piece)	121711



ultrasonic CR cleanroom safety goggles

Autoclavable model for cleanroom and laboratory

The ultrasonic CR cleanroom safety goggles sit particularly comfortably thanks to the continuously adjustable silicone headband. The combination of chemical resistance, anti-fog coating and scratch-resistant uvex supravision clean equipment makes this model the ideal full-vision goggle, also for wearers of prescription glasses. In addition, they offer a wide panoramic field and indirect ventilation.

Product highlights

- Can be combined with standard prescription glasses
- Autoclavable a maximum of ten times at 121°C
- Chemical resistant and anti-fog
- Extremely scratch-resistant thanks to uvex supravision clean finish

Tested safety and certification

- Certified personal eye protection (EN 166)
- Certified UV protection filter (EN 170) for reliable UV 400 protection
- High mechanical strength B: 120 m/s

Size	uni
Ord.-No. (non-sterile - 1 piece)	121716



Full vision safety goggles uvex 9405

Anti-fog model suitable for people who wear glasses

With a cellulose acetate lens and an all-round ventilation system, the uvex 9405 goggles are the ideal companion for everyday laboratory work. They offer optimal protection against mechanical risks, liquids and coarse dust- thanks to the large-volume design also for wearers of all common prescription glasses. For concentrated work, light reflections are suppressed by a matt finish in the upper part and the adjustable headband ensures a secure fit.

Product highlights

- Can be combined with standard prescription glasses
- Fog-free thanks to anti-fog coating
- Goggles with all-round ventilation system
- Sterile and non-sterile available

Tested safety and certification

- Certified personal eye protection (EN 166)
- Certified UV protection filter (EN 170) for reliable UV 380 protection
- Mechanical strength F: 45 m/s

Size	uni
Ord.-No. (sterile - 1 piece)	121406
Ord.-No. (non-sterile - 1 piece)	121405



ultravision full vision safety goggles

Gas-tight model for extra protection against chemicals and pathogens

The ultravision goggles from uvex offer extensive protection. This high-quality, extremely scratch-resistant model is gas-tight and highly durable against mechanical risks as well as easy to disinfect, non-fogging and impact, chemical and heat resistant. For working with chemical substances and in particularly dangerous situations, it corresponds to the recommendations of the Robert-Koch-Institute (RKI) for infection protection sets (type 1), even against the most dangerous biological substances such as Ebola viruses.

Product highlights

- Gas-tight to protect against volatile chemicals, fine particles and aerosols
- Suitable for dealing with pathogens and other hazardous situations
- Can be combined with prescription glasses
- Anti-fog on both sides, best view and high wearing comfort

Tested safety and certification

- Certified personal eye protection (EN 166)
- Certified UV protection filter (EN 170)
- Highly shock resistant up to 120 m/s, chemical and heat resistant
- In line with the Robert-Koch-Institute recommendations for protection against infection

Size	uni
Ord.-No. (non-sterile - 1 pieces)	121726



Fahrenheit SA safety goggles

Gas-tight model for handling chemicals and biological hazards

Handling gaseous chemicals was given special consideration in the development of the gas-tight Fahrenheit SA goggles. They therefore offer a high level of protection against dust, liquids and pathogens. Acetate lenses ensure very good heat and chemical resistance and an anti-fog coating on the inside and anti-scratch coating on the outside increase durability and comfort. The model can also be easily combined with standard prescription glasses.

Product highlights

- Protection from volatile chemicals
- Protection against airborne pathogens
- 180° distortion-free vision, can be combined with prescription glasses
- Anti-fog and anti-scratch coating for durability and comfort
- Tested safety and certification

Tested safety and certification

- Certified personal eye protection (EN 166)
- Certified UV protection filter (EN 170)
- Highly shock resistant up to 120 m/s, chemical and heat resistant
- Corresponds to the recommendations of the Robert-Koch-Institute for infection protection

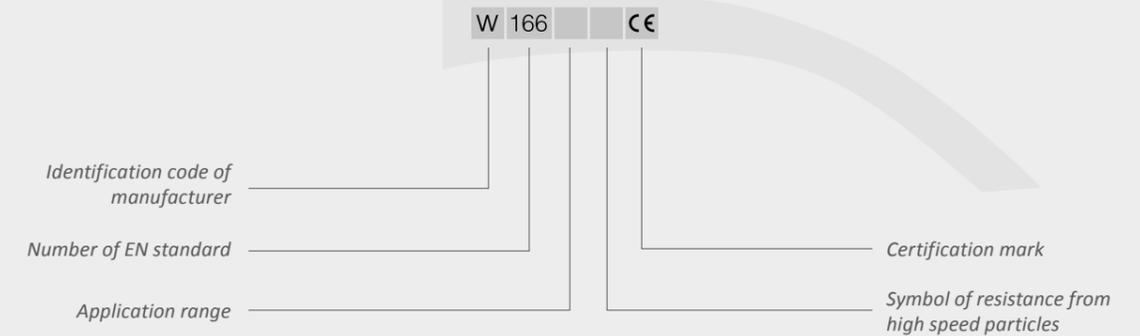
Size	uni
Ord.-No. (non-sterile - 1 piece)	121730

INFO

Expertise

SAFETY GOGGLE MARKINGS

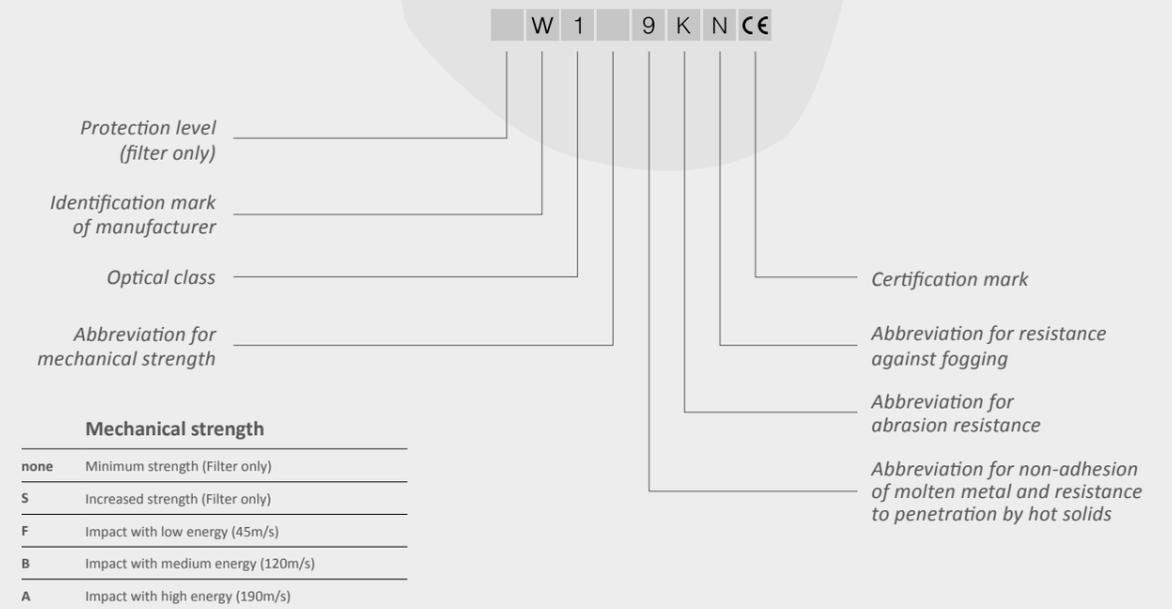
Frame markings



Designation	Description of application range
none	General use Non-specific mechanical risks, hazards by UV and/or visible IR radiation
3	Liquids Liquids (drops and spray)
4	Coarse dust Dust with grain size > 5µm
5	Gas and particulate matter Gases, vapours, smoke and dust, grain size < 5µm
8	Arc flash Electric arcs of a short circuit in electrical appliances
9	"Molten metal and hot solids" Metal spatter and penetration of hot solids

Mechanical strength	Description
none	Minimum strength (Filter only)
S	Increased strength (Filter only)
F	Impact with low energy (45m/s)
B	Impact with medium energy (120m/s)
A	Impact with high energy (190m/s)

Lens markings



Mechanical strength	Description
none	Minimum strength (Filter only)
S	Increased strength (Filter only)
F	Impact with low energy (45m/s)
B	Impact with medium energy (120m/s)
A	Impact with high energy (190m/s)

SPILLKITS

OPTIMAL PREPARATION FOR EMERGENCIES IN YOUR WORKPLACE

Accidents which lead to leakage and release of chemicals cannot be 100% avoided, even with the greatest care and the best training. When dealing with cytostatics or other substances with CMR properties, this is a serious emergency that you can prepare for. The quick containment and clean-up of the spill is particularly important in order to avoid health risks or the spread of dangerous contamination. Our product portfolio offers emergency sets or SpillKits for cleaning up such "spills". In various versions, these contain the appropriate personal protective equipment for one or two people and all the utensils needed to safely collect the released substances, as well as to clean the accident site properly.

The sets are designed in particular for cytostatics and CMR drugs and follow the recommendations of the European and German oncological associations ESOP and DGOP. Another kit is designed for the carcinogenic formaldehyde.

A special service from Berner: With our SpillKit training courses, we offer your employees the best possible preparation for dealing with critical spills and emergency situations in our LEAC seminars and training courses.

Formaldehyde binding agent

Quick and safe absorption of the spilled substance

Suitable for small or large amounts of spilled formaldehyde, this granular binder allows for safe removal and disposal. The practical shaker makes handling easier. Due to the particularly high binding capacity, just one gram of granulate renders up to 245 grams of a formaldehyde solution (4%) harmless.

Product highlights

- Particularly high binding capacity
- Practical shaker for easy use
- Rapid risk reduction

Size and material

- Shaker containing 312 g
- Granules for the absorption of formaldehyde



You would like to know more?
Look online for further information:





SpillKit XP emergency set

Safe elimination of cytostatics

Keeping a cool head in an emergency- with the SpillKit XP you can do this safely and reliably. This set includes all the necessary tools for one person to quickly clean up various types of CMR drug contamination, for example with cytostatics, antivirals or anabolic steroids. Certified protective clothing and utensils provide the necessary protection.

Product highlights

- Certified chemical protective overall and overboots
- Goggles, FFP3 respiratory mask and two pairs of protective gloves
- Extensive tools, documentation and accident report form
- Suitable for liquid and powder contamination including broken glass
- Available in three sizes, also latex-free

Tested safety and certification

- Contains protective equipment according to PPE regulation (EU) 2016/425 (category III)
- Meets the specifications of the German safety regulations M620 of the BGW & also QuapoS

Size	M	L	XXL
Ord.-No. (1 set)	4104	4112	4115
Ord.-No. (latex-free - 1 set)	4124	4133	4135



SpillKit XP Duo emergency set

Safe removal of cytostatics by two people

Teamwork is required in the event of accidents involving the spilling of cytostatics, as these should always be cleaned up by two people whenever possible. In addition to cleaning utensils and other tools, the Spillkit XP Duo therefore contains all the personal protective equipment for two people. This ensures that everyone involved is optimally protected.

Product highlights

- Two certified chemical protective overalls with overboots
- Two goggles and FFP3 respirators; four pairs of protective gloves
- Cleaning utensils and accessories
- Extensive documentation and accident report form
- Available in several sizes and different size combinations
- Suitable for liquid and powder contamination including broken glass

Tested safety and certification

- Contains protective equipment according to PPE regulation (EU) 2016/425 (category III)
- Meets the specifications of the German safety regulations M620 of the BGW & also QuapoS

Size	M/M	M/L	M/XXL	L/L	L/XXL	XXL/XXL
Ord.-No. (1 set)	100101	100102	100103	100104	100105	100106



SpillKit emergency set

Optimal protection in one size for hazardous situations with CMR drugs

One for all: The tried-and-tested SpillKit contains personal protective equipment for one person as well as other tools for removing various CMR drug contaminations, for example cytostatics, antivirals or anabolics, and a form for reporting an accident. The protective gown, which is suitable for all sizes, allows the set to be used regardless of clothes size.

Product highlights

- With cytostatic protective gown in standard size and protective overshoes
- Goggles, FFP3 respiratory mask and 2 pairs of protective gloves
- Contains all necessary tools
- Extensive documentation and accident report form
- For liquid and powder contamination including broken glass

Tested safety and certification

- Contains protective equipment according to PPE regulation (EU) 2016/425 (category III)
- Corresponds to the requirements of TRGS 525

Size	uni
Ord.-No. (1 Set)	4004



SpillKit Formaldehyde

Emergency and cleaning set for Formaldehyde

Special precautions must be taken when cleaning up spilled and potentially carcinogenic Formaldehyde. This set therefore includes personal protective equipment and the necessary accessories for one person. Depending on the location and size of the accident, it may be necessary to wear a gas-filtering full-face mask with the appropriate filter- this should already be available in the work place and is not included in the SpillKit.

Product highlights

- Chemical protective gown, overshoes, protective gloves and protective goggles
- Essential cleaning and auxiliary agents and special Formaldehyde binder
- Available in different sizes

Tested safety and certification

- Contains protective equipment according to PPE regulation (EU) 2016/425 (category III)

Size	M	L	XL
Ord.-No. (1 set)	100079	100080	100081

SPIKES

SAFE HANDLING OF CYTOSTATIC SOLUTIONS

The most critical point when preparing infusions for chemotherapy is the direct handling of highly concentrated cytostatics in the original container. For dispensing, the desired amounts of liquid are drawn out of the bottles and vials sealed with a septum. For various preparations, the cytostatic agent in the vial is previously dissolved by adding liquid. The safest way to carry out these procedures is with special withdrawal cannulas, so-called chemo spikes.

In our product range, we offer you high-quality designs that enable aseptic and aerosol-tight ventilation of the vial and complete removal of liquid. The chemo spikes are equipped with a valve function or lid for multiple withdrawals. Some models are equipped with an additional filter to retain particles. Other models are designed without filters and are therefore suitable for particularly sensitive substances with quasi-particulate properties. These include monoclonal antibodies, liposomal formulations, nanoparticles, albumin-bound drugs and suspensions.

The sterile-packaged withdrawal cannulas are class I medical devices according to the applicable regulations of EU Directive 93/42/EEC.

You would like to know more?
Look online for further information:





UltraSpike II withdrawal cannula

Non-drip model with special valve and clamp system

The lateral fixing clamps of the UltraSpike II withdrawal cannula ensure increased safety during multiple withdrawals and injections. The special valve on the Luer lock connection is drip-proof and easy to disinfect, reducing the risk of contamination. The Chemospike does not have a liquid filter and is well suited for viscous substances and monoclonal antibodies. The housing material is also resistant to cytostatics containing alcohol, such as Paclitaxel.

Product highlights

- Chemospike for the almost complete emptying of vials
- Also suitable for viscous substances
- Halkey-Roberts valve for increased protection against contamination
- Safe handling thanks to a special clamp system
- Optimum pressure equalisation

Size and material

- Housing and plastic spike made of highly resistant MABS
- 0.1 µm PTFE ventilation filter (hydrophobic bacterial filter)
- Without liquid filter (particulate filter)
- Latex, PVC and DEHP/PHT free

Size	uni
Ord.-No. (Sterile - 50 pieces)	126217



Spike II withdrawal cannula

Drip-proof model with clamp system and snap lid

Even the smallest amounts of substance are removed safely with the Spike II withdrawal cannula - thanks to the minimal filling volume of only 130 µL. The side clamps allow for optimal fixation of the spikes close to the septum of the injection bottle and the special cap provides a reliable seal. In addition, the model has a 0.1 µm PTFE aeration and deaeration filter and consists of the Paclitaxel-resistant plastic MABS.

Product highlights

- Chemospike for the almost complete emptying of vials
- Also suitable for viscous substances
- With protective cap for easy one-hand operation and protection against contamination
- Safe handling thanks to a special clamp system
- Optimum pressure equalization

Size and material

- Housing and plastic spike made of highly resistant MABS
- 0.1 µm PTFE ventilation filter (hydrophobic bacterial filter)
- Without liquid filter (particulate filter)
- Latex, PVC and PHT/DEHP free

Size	uni
Ord.-No. (Sterile - 50 pieces)	126216



MicroSpike withdrawal cannula

Model with extra long cannula and minimum dead volume

Even from particularly small bottles or vials as well as from storage bottles with a long neck, the smallest amounts of substance can be taken up with the MicroSpike withdrawal cannula. The extra-long stainless steel cannula and the luer lock connection ensures safe multiple removal. The spike also has a 0.1 µm bacteria-proof ventilation filter and a safety cap to protect against contamination.

Product highlights

- Particularly long stainless steel cannula for small medication bottles
- Micro housing with minimal filling volume (0.17 ml) made of highly resistant MABS
- Suitable for cytostatics containing alcohol, such as Paclitaxel
- Optimum pressure equalisation

Size and material

- 0.1 µm PTFE ventilation filter (hydrophobic bacterial filter)
- Without liquid filter (particulate filter)
- Safety cap as protection against contamination
- Latex, PVC and PHT/DEHP free

Size	uni
Ord.-No. (Sterile - 50 pieces)	126215



UltraSpike withdrawal cannula

Drip-proof model with plastic spike and 5 µm liquid filter

The UltraSpike withdrawal cannula is ideally suited for use with CMR drugs such as cytostatics, antivirals and anabolic steroids. The drip-proof special valve opens and closes automatically during connection and disconnection, thus ensuring increased protection against contamination. The spike made of MABS with plastic cannula and a ventilation filter is additionally equipped with a 5 µm liquid filter.

Product highlights

- Automatic opening and closing valve for contamination protection
- Protection against particle contamination by integrated liquid filter
- Suitable for multiple withdrawals

Size and material

- Plastic cannula and housing made of MABS
- Luer lock connector with Halkey-Roberts valve
- 0.1 µm PTFE aeration and deaeration filter (hydrophobic bacteria filter)
- 5 µm liquid filter (hydrophilic particle filter)
- Latex-, PVC- and PHT/DEHP-free

Size	uni
Ord.-No. (Sterile - 50 pieces)	126211

UltraSpike SK withdrawal cannula

Model with stainless steel cannula and 5 µm liquid filter

For use in combination with harder septa, the UltraSpike SK withdrawal cannula is an excellent choice due to the stainless steel cannula. The drip-proof special valve on the Luer lock closure opens and closes automatically during connection and disconnection and ensures increased protection against contamination. An integrated 5 µm liquid filter prevents additional particulate contamination.

Product highlights

- Automatic opening and closing valve for contamination protection
- Luer lock connection for drip safety

Size and material

- With MABS housing and stainless steel cannula
- 0.1 µm PTFE aeration and deaeration filter (hydrophobic bacteria filter)
- 5 µm liquid filter (hydrophilic particle filter)
- Latex, PVC- and PHT/DEHP-free

Size	uni
Ord.-No. (Sterile - 50 pieces)	126212

UltraSpike SKoF withdrawal cannula

Non-drip model with stainless steel cannula without liquid filter

The UltraSpike SKoF withdrawal cannula allows safe multiple withdrawal of viscous substances and monoclonal antibodies. Due to the stainless steel cannula, even harder septa can be pierced without any problems. This model is equipped with a special valve to provide increased protection against contamination and does not have a particle filter.

Product highlights

- Automatic opening and closing valve for contamination protection
- Particularly suitable for viscous substances such as monoclonal antibodies
- Small dead volume

Size and material

- With MABS housing and stainless steel cannula
- Luer lock connector with Halkey-Roberts valve
- 0.1 µm PTFE ventilation filter (hydrophobic bacterial filter)
- Without liquid filter (particulate filter)
- Latex, PVC and PHT/DEHP free

Size	uni
Ord.-No. (Sterile - 50 pieces)	126213

Expertise

EXPERT OPINION

Spikes without particle filter?

A discussion

"Mini-spikes are offered with or without an integrated hydrophilic particle filter (pore diameter = 5 µm) in the liquid channel. When choosing a spike, it must first be known whether the filter material adsorbs substances. This is especially important for low-dose cytostatics (e.g. paediatrics).

Furthermore, attention must be paid to material incompatibilities. For example, Etoposide is incompatible with Acrylonitrile butadiene styrene (= ABS) plastic. For this reason, in this case mini-spikes made of MABS (Methyl methacrylate acrylonitrile butadiene styrene) should be selected. The incompatibility is basically a problem of cytostatics in organic solvents (currently the Taxanes and Epothilones in addition to Etoposide). For example, Dactinomycin interacts with filters made of cellulose acetate, nitrate and Polytetrafluoroethylene (adsorption). It is a virtually impossible problem for spike manufacturers to test their spike material for 'every imaginable' incompatibility, since they can never know in advance which substances the end users will want to use.

In recent years, the opinion has taken hold that a spike with a filter in the liquid channel and an aerosol-tight ventilation filter is defined as a chemospike. This is not so. A chemospike must have a hydrophobic, aerosol-tight ventilation filter for protection. Usually with a pore diameter of 0.2 µm. Meanwhile there are also chemospikes with a filter pore diameter of 0.1 µm.

However, there are other problems with using spikes with filters in the liquid channel. Cytostatics with particulate properties (liposomal formulations, nanoparticles or active ingredients bound to albumin) and suspensions (Azacitidine) are unsuitable for filtration. A suspension remains in the ampoule. A drug-free solution is drawn up. Liposomal preparations can be destroyed by the unpredictable shear forces. The shear forces should be all the larger, the smaller the pore and overall filter diameter. But even monoclonal antibodies must not be raised with such spikes. The antibodies can also be physically changed, destroyed or - depending on the filter material -



Jürgen Barth

Pharmacist of StiL-study centre at
Justus-Liebig-University, D-Gießen

be absorbed. What is feared is a change in the proteins caused by the physical forces, which may then result in immunogenic properties.

This cannot be compared with the filters, which have to be placed between the infusion set and the patient for certain antibodies, even if these have partly a pore diameter <0.5 microns. These filters must have a low protein binding capacity. They serve to intercept (potentially immunogenic) protein agglomerates formed in the infusion solution, which may form after dilution in the infusion. For this reason, this filtration step must not be done elsewhere in the preparation, e.g. when drawing up.

Compared to spikes, their filter cross-section is larger and the flow rate is lower than when drawing up, i.e. they are associated with lower shearing forces. The type of filter is specified by the pharmaceutical manufacturer and has been checked in this regard during drug development!

However, not every antibody has these aggregation properties and does not necessarily have to be filtered.

For reasons of preparation safety, one should not operate mixed procurement (spikes with and without filters in the liquid channel). On the one hand, one certainly intends to keep resource diversity as low as possible. On the other hand, fatal mix-ups can be avoided.

Therefore, it does not seem sensible to have in stock non-chemospikes (ventilation filter pore diameter 0.45 µm or similar) for drawing up solvents and chemospikes for drawing up cytostatics. If you make a mistake in the hustle and bustle of everyday life with the spikes and draw up with one of the above sensitive products, this can have relevant consequences for the patient (e.g. drug-free solution in the case of Azacitidine).

The recommendation is therefore to work 'unmixed' in cytostatic manufacturing and only use chemo spikes in accordance to the above definition."

The entire opinion piece can be found online:



WORK SURFACE PROTECTION

IMPROVED LABORATORY SAFETY

Absorbent prep mats are required for laboratory safety when handling CMR drugs. They are one of the technical protective measures when unpacking, preparing and using CMR drugs that are required by the TRGS 525 (German technical rule for hazardous substances). To avoid contamination of work surfaces, such work - including unpacking - must always be carried out on a base that has a liquid impermeable bottom layer and which binds hazardous substances securely.

For this purpose, Berner offers special prep mats for cytostatics in different sizes as well as sterile and non-sterile versions to prevent contamination. Our ChemoSorb pads have a similar structure but also allow the absorption of large amounts of liquid.

You would like to know more?
Look online for further information:





Absorbent prep mats with blue mesh structure

Disposable product for handling cytostatics and biological agents

Versatile: Due to their three-layer design with a net structure, the absorbent prep mats are not only suitable for use in safety cabinets and on other surfaces, but also offer reliable protection when chemotherapeutic drugs are administered to patients and as a collecting medium in cytostatic transport containers. The highly absorbent and non-slip material is therefore ideal for working with CMR drugs, cytostatics and biological agents.

Product highlights

- For working with cytostatics and biological agents
- Reduces cleaning effort, increases laboratory safety
- Highly absorbent, non-slip and low in particles

Size and material

- Top layer for even distribution, extremely absorbent middle layer, liquid-impermeable bottom layer
- Required according to TRGS 525 when handling CMR drugs
- Available in two sizes and in a sterile and non-sterile version

Size	large (56 x 41 cm)	small (42 x 26cm)
Art.-Nr. (non-sterile - 50 pieces)	8100	
Art.-Nr. (sterile - 40 pieces)	8101	
Art.-Nr. (non-sterile - 50 pieces)		8000
Art.-Nr. (sterile - 50 pieces)		8001



Absorbent prep mats in white

Disposable product for handling cytostatics and biological agents

The absorbent, latex-free white prep mats are designed as a three-layer structure and help to avoid contamination in the laboratory and during chemotherapy. The optimal design of the mats offers a particularly high level of liquid absorption and good stability for utensils in the workspace. The product is suitable for use in safety cabinets when handling cytostatics and biological agents, as well as a collection media in transport containers.

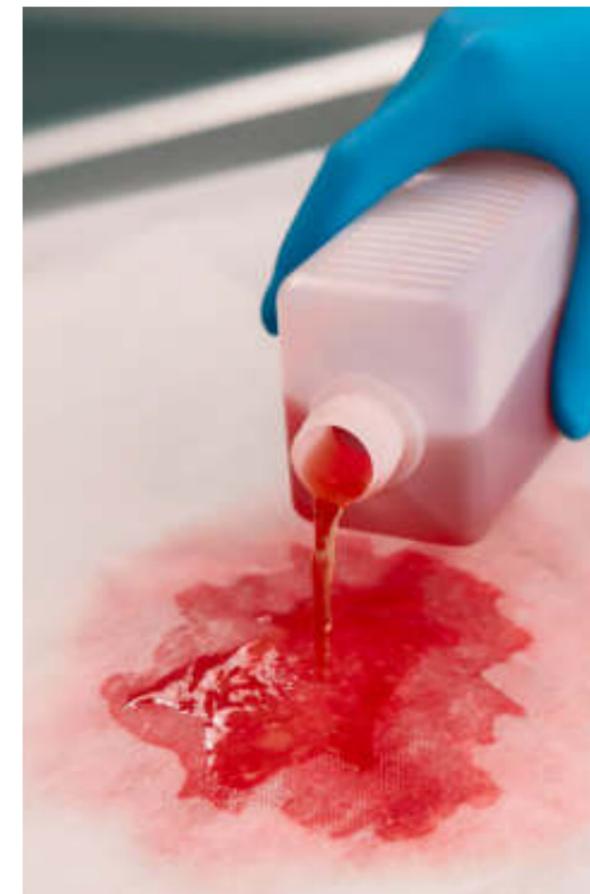
Product highlights

- Quick liquid intake and additional stability
- Latex-free and low-particle

Size and material

- Highly absorbent top layer
- Liquid-impermeable barrier layer
- Non-slip bottom layer
- Available in sterile and non-sterile versions
- In a practical dispenser box (non-sterile)

Size	(61 x 44 cm)
Ord.-No. (non-sterile - 50 pieces)	8700
Ord.-No. (sterile - 50 pieces)	8800



ChemoSorb-Pads

Special product for maximum liquid absorption

Even with larger spills, the ChemoSorb pads ensure quick and easy cleaning of the workspace. They are particularly absorbent: just one pad absorbs up to three litres of liquid. The resulting jelly-like mass can then be disposed of in a leak-proof way. In addition to use in spill accidents, the product is also suitable as leakage protection in transport boxes and during storage, as well as for use in hospitals, medical practices and industry.

Product highlights

- Suitable for CMR drugs, such as cytostatics
- Rapid absorption capability and easy handling
- Drip-free absorption of up to three liters of liquid per pad
- Optimal for emergency situations such as spill accidents

Size and material

- Pulp with super absorber
- Latex-free
- Size: approx. 380 x 540 mm

Size	(38 x 54 cm)
Ord.-No. (non-sterile - 10 pieces)	120016
Ord.-No. (non-sterile - 50 pieces)	120014

Expertise

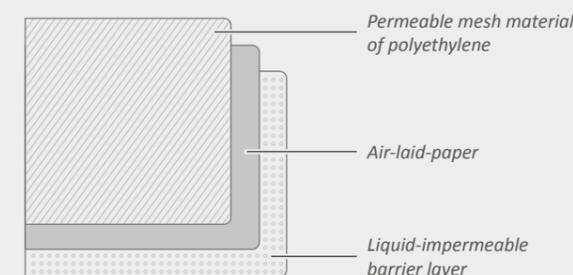
FUNCTIONAL PRINCIPAL OF ABSORBING PREP MATS

Our blue prep mats are used as an exemplar to describe the functional principle of liquid bonding. The top layer made of reticulated polyethylene (PE) is easily penetrated by spilled liquid. The middle layer of air-laid paper binds the liquid by strongly absorbing aqueous solutions. These prep mats can absorb up to 890 ml/m² of liquid, i.e. up to 100 ml or 200 ml for the two sizes. The non-slip lower layer made of PE film serves as an impermeable barrier. Potentially dangerous contaminations get in this way not on the work surface, spread of contamination is avoided. Our white prep mats have a comparable structure.

The highly absorbent air-laid paper used is made from cellulose and special binders. It is not processed with water like other types of paper, but in a dry compressed air process.

It is particularly low-lint, tear-resistant, extremely absorbent, very skin-friendly and soft.

ChemoSorb pads work on a similar principle. Here, the absorbent intermediate layer is made of a material in which liquids are bound quickly and leak-proof to form a voluminous gel. With this "super absorber" a pad with about the same surface area binds up to 3 litres of liquid.



INFO

CLEANING



LABORATORY SUPPLIES FOR EFFECTIVE CLEANING

When it comes to working in a safety cabinet, Berner offers the most important tools to support you in effective cleaning procedures. Careful cleaning methods and disinfection are essential, especially for critical activities involving handling of CMR drugs, biologically hazardous substances or even for aseptic work. Our cleaning equipment helps you to reach all areas within the working space of a safety cabinet. Mop covers and our proven Isysoft and Cleanroom® 100 cleaning cloths assist you. The sterile versions of the cloths are ideal for cleaning and disinfecting work utensils, even in cleanrooms.

Cleaning tool I

For use in hard-to-reach places in safety cabinets and isolators

Contaminated areas in the work area are safely cleaned with the cleaning tool I. Standard cleaning cloths, such as the Isysoft wipes, can be used for easy handling. They are fixed using a clip system - expensive special cloths are unnecessary. The silicone mat makes it easier to work on uneven surfaces and the sterilisable product can easily be used in ISO class 5 and GMP class B cleanrooms.

Product highlights

- Ideal for use with Berner Isysoft cleaning wipes
- Including rubber mat made of silicone for uneven surfaces
- Sterilisable
- Suitable for ISO class 5 and GMP class B cleanrooms and safety cabinets

Size and material

- Total length: approx. 460 mm (handle length: 430 mm)
- Cleaning area: approx. 170 x 90 mm
- Four polyethylene mounting clips



You would like to know more?
Look online for further information:



Size	uni
Ord.-No. (1 piece)	802645
Ord.-No. (spare clip, 1 piece)	802824



Cleaning tool II

Autoclavable device for safety cabinets and isolators

The high-quality cleaning tool II made of stainless steel enables particularly efficient and safe cleaning of hard-to-reach areas in safety cabinets and isolators, such as rear walls or side windows. A moveable double plastic joint facilitates handling and the product can be easily dismantled and autoclaved. Matching sterile or IPA pre-saturated disposable mop pads are sold separately.

Product highlights

- Particularly effective cleaning of hard-to-reach areas
- Suitable for clean rooms ISO class 5 and GMP class A/B
- Resistant to disinfectants and autoclavable at 121 °C
- Matching mop covers available separately

Size and material

- Total length: 650 mm (handle length: 580 mm)
- Cleaning area: approx. 190 x 50 mm
- Electropolished stainless steel with rotating plastic joint

Size	uni
Ord.-No. (1 pieces)	200662



Mop covers for cleaning tool II

Disposable accessories for effective cleaning of work areas

These sterile mop covers are the perfect addition to the cleaning tool II and allow efficient and safe internal cleaning of safety cabinets and isolators as well as other hard-to-reach areas. They are ideally suited for daily use, even under cleanroom conditions, and are available in a sterile version or in versions soaked in isopropanol.

Product highlights

- Optimum cleaning results with very low particle emissions
- Double sterile bag suitable for cleanrooms
- Easy to use

Size and material

- Multi-layer microfibre polyester
- Size: approx. 200 x 70 mm
- Bordered pockets

Size	uni
Ord.-No. (double sterile packaging - 2 pieces)	121742
Ord.-No. (IPA pre-soaked, double sterile packaged - 2 pieces)	100100



Isysoft / Isysoft II cleaning wipes

Single-use, absorbent, low-lint accessories for CMR drugs

With a particularly high cleaning performance, the Isysoft and Isysoft II (latex-free) cleaning wipes are optimised for daily use in cleanrooms up to ISO class 5 and GMP class A/B as well as laboratories. They showed the highest cleaning efficiency in a study by the Institute for Energy and Environmental Technology e.V. (IUTA) for surface cleaning with cytostatic residues. This product is also highly suited for absorbing spilled liquids.

Product highlights

- Best cleaning performance against CMR drugs (degree of cleaning > 99.95%)
- Very absorbent (approx. 65 ml per cloth)
- Tear-resistant and low-lint

Size and material

- Latex-free version Isysoft II
- Sterile and non-sterile available
- Can be used dry or wet
- Available in 2 sizes

Size	uni
Ord.-No. (Isysoft, 400 x 300 mm, non-sterile - 4 x 25 pieces)	121500
Ord.-No. (Isysoft, 400 x 300 mm, sterile - 50 x 2 pieces)	121501
Ord.-No. (Isysoft II, 380 x 300 mm, non-sterile - 4 x 25 pieces)	121507
Ord.-No. (Isysoft II, 380 x 300 mm, sterile - 50 x 2 pieces)	121508



Cleaning wipes Cleanroom® 100

Low-particle consumables for cleanrooms and GMP areas

The Cleanroom 100® cleaning cloths are used reliably in particularly sensitive production processes. They are suitable for cleanrooms up to ISO class 5 and GMP class A/B and, thanks to the double packaging, can be introduced easily. The product is solvent-resistant, extremely low-lint and tear-resistant.

Product highlights

- Low in particles and suitable for cleanrooms up to ISO class 5 and GMP class A/B
- Solvent-resistant, low-lint and tear-resistant material
- High absorbency (up to 32 ml per wipe)

Size and material

- Sterile (gamma-sterilised) and non-sterile
- Latex-free

Size	uni
Ord.-No. (300 x 300 mm, non-sterile - 150 pieces)	121740
Ord.-No. (220 x 220 mm, sterile - 6 x 25 pieces)	121741

ANALYTICS

MONITORING WITH SENSITIVE RESIDUE ANALYSIS

Handling cytostatics can lead to contamination in the work environment. Possible causes are accidents (spills), malfunctions in ventilation systems or the spread of contamination of residues adhering to the PPE or the laboratory equipment used. Due to the CMR properties of the substances, this poses a potential health risk to staff. In the MEWIP study, residues of various cytostatics were detected in 61% of samples.

PharmaMonitor is an analysis concept that can be used to determine surface contamination by cytostatics in the laboratory, production or application areas in a targeted manner.

In cooperation with the Institute for Energy and Environmental Technology e. V. (IUTA), Berner offers a wipe sample set for standardised sampling and the implementation of an analysis including documentation of the results.

Choose between sensitive individual analyses or the cost-effective multi-methods (according to MEWIP) for the parallel analysis of different substances.

You would like to know more?
Look online for further information:





PharmaMonitor wipe sampling set type 1

Standard set for the analysis of cytostatic residues

Play it safe: The universally usable "Pharma-Monitor Type 1" wipe sample set makes the safe and standardised sampling for the analysis of cytostatic drug residues on surfaces possible. Type 1 is suitable for the individual analysis of most cytostatics, for platinum analysis, and for the multi-methods 1 to 3.

Product highlights

- Widely applicable detection method for residue analysis on surfaces
- Validation of cleaning methods
- Improved employee protection
- Documentation of best working practices

Contents

- Liquid and container for sampling
- Utensils, cold packs and transport box
- Detailed instructions and forms for documentation

Size	uni
Ord.-No. (1 set)	4155



PharmaMonitor wipe sampling set type 2

Wipe sample set for the single analysis of docetaxel and Paclitaxel

The "Pharma-Monitor Type 2" wipe sample set was specially developed for the sensitive analysis of residues of the cytostatics docetaxel and Paclitaxel. It offers all the equipment for the safe and standardised sampling for this single analysis, but is unsuitable for multi-methods 1 to 3.

Product highlights

- Sensitive detection method for special cytostatics
- Targeted review of safe handling and laboratory safety
- Documentation of best working practices

Contents

- Liquid and container for sampling
- Utensils, cold packs and transport box
- Detailed instructions and forms for documentation

Size	uni
Ord.-No. (1 set)	4156

Expertise

LIST OF DETECTABLE SUBSTANCES:

5-Fluorouracil	Cisplatin	Total platinum
6-Mercaptopurine	Clomiphene	Ifosfamide
Acemetacin	Cyclophosphamide	Methotrexate
Azathioprine	Cytarabine	Mitomycin
Busulfan	Doxorubicin	Oxaliplatin
Capecitabine	Docetaxel	Paclitaxel
Carboplatin	Etoposide	Sulfamethoxazole
Carmustine	Flutamide	Tamoxifen
Chlorambucil	Gemcitabine	Thalidomide

TIP: MULTI-METHODS

Choose between sensitive individual analyses or the cost-effective multi-methods (according to MEWIP) for the parallel analysis of different substances.

	Multi-method 1	Multi-method 2	Multi-method 3	Platinum analytics
5-Fluorouracil	×	×	×	
Cyclophosphamide	×	×	×	
Ifosfamide	×	×	×	
Gemcitabine	×	×	×	
Etoposide	×	×	×	
Methotrexate	×	×	×	
Paclitaxel	×	×	×	
Docetaxel	×	×	×	
Total platinum		×	×	×
Cisplatin			×	×
Carboplatin			×	×
Oxaliplatin			×	×

PROTECTIVE PACKAGING



Tubular foil for Polystar® Table-top sealing device

For the safe packaging of medical drugs

To ensure that nothing goes wrong when transporting sensitive substances, this PE tubular film provides reliable and safe protection against glass breakage and leaking accidents when used with a Polystar® table-top sealer. The high-quality, tear-resistant material also prevents the ingress of dust, dirt and moisture and is particularly flexible and stretchy.

Product highlights

- Suitable for the table sealing machine Polystar®
- Safe transport of medicines
- High tear and wet strength, colorless and highly transparent

Size and material

- Thermoplastic film made of polyethylene (PE)- special recipe
- Plastic core reel
- Different film thicknesses, widths and lengths available
- Individually configurable

Size	uni	Size	uni
Ord.-No. (200 mm x 0.05 mm - 200 m)	48003	Ord.-No. (280 mm x 0.10 mm - 100 m)	48014
Ord.-No. (220 mm x 0.05 mm - 200 m)	48005	Ord.-No. (320 mm x 0.10 mm - 100 m)	48016
Ord.-No. (320 mm x 0.05 mm - 200 m)	48015	Ord.-No. (400 mm x 0.10 mm - 100 m)	48018
Ord.-No. (200 mm x 0.10 mm - 100 m)	48004	Ord.-No. (200 mm x 0.20 mm - 100 m)	48007
Ord.-No. (220 mm x 0.10 mm - 100 m)	48006		

UV-light protection bag

Safety in storage and transport of light-sensitive substances

The opaque brown UV light protection bag reliably protects cytostatics and other sensitive materials from UV radiation and thus ensures light protected storage and safe transport. Handling is made easier by the resealable snap closure, which also protects the contents from dust, moisture and dirt.

Product highlights

- Reliable protection against UV radiation during storage and transport
- Absorption of UV radiation in the range 280-400 nm (UVA/UVB)
- Resealable bag with snap closures

Size and material

- Polyethylene with a material thickness of 50 µm
- Two bag and pack sizes available

Size	uni
Ord.-No. (ca. 150 x 200 x 0.05 mm - 300 pieces)	120150
Ord.-No. (ca. 150 x 200 x 0.05 mm - 1000 pieces)	12150200
Ord.-No. (ca. 230 x 300 x 0.05 mm - 300 pieces)	120230
Ord.-No. (ca. 230 x 300 x 0.05 mm - 1000 pieces)	12230300

You would like to know more?
Look online for further information:



INFECTION PROTECTION SETS



You would like to know more?
Look online for further information:



PROTECTION FROM SPECIAL RISKS

Infectious diseases and animal diseases are spreading more easily in the modern world due to factors such as globalisation, increased mobility, and dense populations of people and animals living together. Avian influenza and other types of influenza, such as the current SARS-Coronavirus-2, are recent examples. Epidemics with limited but severe outbreaks of disease and pandemics pose major challenges for medical personnel and emergency services in terms of self-protection.

To protect the emergency services in biological hazard situations, we offer special sets that include personal protective equipment (PPE) and the necessary tools for the operation. The PPE corresponds to the German technical rules for biological agents (TRBA) and the classification into the required risk groups and protection levels according to the German biological agents ordinance. It also meets the requirements of the Robert-Koch-Institute (RKI), the German federal government's central institution for disease monitoring and prevention.

We can produce individual sets for special uses and applications according to your requirements upon request. We are happy to provide advice and guidance.



Pandemic-protection-set type 1A

Complete PPE for one person

The type 1A pandemic protection set offers reliable protection against infectious agents in accordance with the specifications of the Robert-Koch-Institute (RKI). This makes it suitable for emergency services who stay in biologically hazardous areas for a maximum of eight hours in the event of a pandemic or epidemic. Decontamination is possible with this set to a limited extent, however, gas filter protection is not included.

Product highlights

- Chemical protective coverall and overboots type 3-B / PB [3]-B (EN 14126)
- Gas-tight and anti-fog safety goggles (EN 166)
- Particle filtering FFP3 respiratory mask (EN 149)
- Two pairs of chemical protective gloves (EN ISO 374-5) and other accessories
- Customised sets available on request

Tested safety and certification

- Contains certified PPE according to PPE Regulation (EU) 2016/425 (category III)
- Suitable for epidemics and pandemics with highly pathogenic agents
- In line with the requirements of the RKI for type 1 infection protection clothing
- Accessories - detailed instructions, duct tape, waste bags, cable ties

Size	M	L	XXL
Ord.-No. (1 Set)	4178	4180	4182

Individual sets available on request



V4-23/03-EN rgb

Berner International GmbH
Werner-von-Siemens-Str. 19
25337 Elmshorn
Germany

Tel +49 4121 4356 - 0
Fax +49 4121 4356 - 20
Email info@berner-safety.de

www.berner-safety.de