

Xcellent®

Want Safe and Comfort... TRY Xcellent!

A Professional Glove Solution Provider



About Xcellent

Xcellent Safety is a German company specialising in the development and manufacture of high-quality protective gloves and sleeves.

We have a very professional and experienced research and development team, state-of-the-art production technologies and family owned companies in the gloves field - We stay at the forefront of production, have know-how and extensive expertise.

We also liaise closely with our sales partners and listen carefully to what end users need. The feedback flows directly into product development - for gloves that not only fulfil standards, but exceed expectations.

All these make Xcellent a professional glove manufacturer and a solution provider.

+ High Quality

Xcellent Safety GmbH manufactures a wide range of high quality gloves. We are constantly innovating and developing new technologies to improve our quality and make our gloves safer, more comfortable and more durable.

+ Customization & Flexibility

Thanks to our professional research and development team, we are able to customize most new products quickly for industrial projects by understanding the demand, selecting the right raw materials, doing proper formulation and controlling the quality during production.



Yarns Wrapping and Spinning Workshop



Dipping Production Line



Knitting Machines

+ Innovation and Continuous Quality Improvement

At Xcellent, we have been innovating and improving our quality in order to offer our end users the best products and to secure the business of our dealers in the work glove market.

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new



21-700S



21-700

Premium ultra-thin 21 gauge cut level A4 glove with XTech PU coating.

- 21 gauge knitting with PremiCut technology contributes to an ultra-thin, barehand dexterity, extreme comfortable and perfect fitting glove. Ideal for precision works and high dexterity demanding works.
- Tactile sensitivity and minimum hand fatigue.
- The reinforcement in the crotch greatly extends the glove life and offers extra protection.
- Touch screen functionality.

Liner: 21 gauge, PremiCut

Coating: XTech Polyurethane

Size Range: 6/XS - 11/2XL

Packaging: 12 pairs / pack, 144 pairs / carton

new



18-950

New innovative X-Diamond 18 gauge cut level A4 glove. Stronger, Thinner and More Comfortable. Cool feeling, touch screen function.

- Engineered with new X-Diamond technology yarn material, which is much stronger and durable than common cut protection glove yarns. No glass fiber or steel fiber needed to enhance the cut protection, which makes the glove thinner and more comfortable, no worries of skin allergy caused by glass fiber. A game changer to cut protection gloves.
- Ultra-thin, super dexterity, flexibility and comfort. Perfect fitting and cool feeling for all day comfort.
- Sandy nitrile coating offers great grip performance and oil resistance.
- The reinforcement in the crotch greatly extends the glove life and offers extra protection.
- Touch screen function.

Liner: X-Diamond yarns

Coating: Sandy nitrile

Size Range: 6/XS - 11/2XL

Packaging: 12 pairs / pack, 144 pairs / carton

new



18-951

New innovative X-Diamond 18 gauge cut level A4 glove. Stronger, Thinner and More Comfortable. Cool feeling, touch screen function.

- Engineered with new X-Diamond technology yarn material, which is much stronger and durable than common cut protection glove yarns. No glass fiber or steel fiber needed to enhance the cut protection, which makes the glove thinner and more comfortable, no worries of skin allergy caused by glass fiber. A game changer to cut protection gloves.
- Ultra-thin, super dexterity, flexibility and comfort. Perfect fitting and cool feeling for all day comfort.
- X-Tech PU coating offers good grip performance and sensitivity.
- The reinforcement in the crotch greatly extends the glove life and offers extra protection.
- Touch screen function.

Liner: X-Diamond yarns

Coating: XTech Polyurethane

Size Range: 6/XS - 11/2XL

Packaging: 12 pairs / pack, 144 pairs / carton



18-991

Eco-friendly, PremiCut technology, ultra thin 18 gauge cut level A6 gloves with sandy nitrile coating, Super dexterity and comfort.

- Engineered with PremiCut technology, 18 gauge cut protection level A6, ultra thin, super dexterity, flexibility and comfort.
- Eco-friendly, to protect our planet and workers. 1 pair equates about 1 bottle of 500ml reclaimed and recycled, taken out of landfill and 18 gram CO₂ reduced vs using virgin polyester material.
- Super dexterity, fitting and flexibility makes it ideal for both general works and precision works.
- Thanks to high quality nitrile coating, it offers great grip performance, oil resistance and durability.
- The reinforcement in the crotch greatly extends glove life to save your cost and provides extra protection in the weakest area.

Liner: 18 gauge, PremiCut, recycled polyester

Coating: Sandy nitrile

Size Range: 6/XS - 11/2XL

Packaging: 12 pairs / pack,
144 pairs / carton



18-992

Eco-friendly, PremiCut technology, ultra thin 18 gauge cut level A6 gloves with PU coating, Super dexterity and comfort.

- Engineered with PremiCut technology, 18 gauge cut protection level A6, ultra thin, super dexterity, flexibility and comfort.
- Eco-friendly, to protect our planet and workers. 1 pair equates about 1 bottle of 500ml reclaimed and recycled, taken out of landfill and 18 gram CO₂ reduced vs using virgin polyester material.
- Super dexterity, fitting and flexibility makes it ideal for both general works and precision works.
- The reinforcement in the crotch greatly extends glove life to save your cost and provides extra protection in the weakest area.
- Touch screen functionality.

Liner: 18 gauge, PremiCut, recycled polyester

Coating: XTech Polyurethane

Size Range: 6/XS - 11/2XL

Packaging: 12 pairs / pack,
144 pairs / carton



18-994

PremiCut technology, ultra thin 18 gauge cut level A6 gloves with PU coating, Super dexterity and comfort.

- Engineered with PremiCut technology, 18 gauge cut protection level A6, ultra thin, super dexterity, flexibility and comfort.
- Special Xcellent XTech PU formulation contributes to great grip performance and extra softness and comfort.
- Super dexterity, fitting and flexibility makes it ideal for both general works and precision works.
- The reinforcement in the crotch greatly extends glove life to save your cost and provides extra protection in the weakest area.
- Touch screen functionality.

Liner: 18 gauge, PremiCut

Coating: XTech Polyurethane

Size Range: 6/XS - 11/2XL

Packaging: 12 pairs / pack,
144 pairs / carton

18-971

Premium quality 18 gauge cut protection level A4 glove, PremiCut technology, sandy nitrile coating. Very comfortable, smooth and cool feeling.

- Engineered with PremiCut technology, it is ultra thin, very smooth and comfortable, super dexterity, tactile sensitivity and flexibility.
- Thanks to high quality nitrile coating, it offers great grip performance, oil resistance and durability.
- The reinforcement in the crotch greatly extends glove life to save your cost and provides extra protection in the weakest area.
- Cool feeling and breathability for all day comfort.
- Touch screen functionality.



Liner: 18 gauge, PremiCut

Coating: Sandy nitrile

Size Range: 6/XS - 11/2XL

Packaging: 12 pairs / pack, 144 pairs / carton

18-972

Premium quality 18 gauge cut protection level A5 glove, PremiCut technology, XTech PU coating. Barehand dexterity, tactile sensitivity and very comfortable.

- Engineered with PremiCut technology, it is ultra thin, very smooth and comfortable, barehand dexterity and flexibility. Tactile sensitivity and minimum hand fatigue.
- Special Xcellent XTech PU formulation contributes to great grip and extra softness and comfort.
- The reinforcement in the crotch greatly extends glove life to save your cost and provides extra protection in the weakest area.
- Cool feeling and breathability for all day comfort.
- Touch screen functionality.



Liner: 18 gauge, PremiCut

Coating: XTech Polyurethane

Size Range: 6/XS - 11/2XL

Packaging: 12 pairs / pack, 144 pairs / carton



18-985

Premium quality 18 gauge cut protection level A4 glove, PremiCut technology, micro-foam nitrile coating and dots. Very comfortable, super grip and additional durability.

- Engineered with PremiCut technology, it is ultra thin, very smooth and comfortable, super dexterity, tactile sensitivity and flexibility.
- Thanks to high quality nitrile coating and nitrile dots, it offers super grip performance and additional durability and heat protection.
- The reinforcement in the crotch greatly extends glove life to save your cost and provides extra protection in the weakest area.
- Cool feeling and breathability for all day comfort.
- Touch screen functionality.



Liner: 18 gauge, PremiCut

Coating: Micro-foam nitrile, nitrile dots

Size Range: 6/XS - 11/2XL

Packaging: 12 pairs / pack, 144 pairs / carton

18-997

Premium quality 18 gauge cut level A6 glove, perfect dexterity and fitting. Ideal for both general and precision works.

- Engineered with PremiCut technology, it is ultra thin, very smooth and comfortable, perfect dexterity and fitting. Tactile sensitivity.
- Food contact approved. Ultra thin and perfect fitting makes it ideal for using with a disposable nitrile/latex glove as well.
- Minimum hand fatigue and more productivity in working.
- 10-finger touch screen function.
- Cool feeling and breathable for all day comfort.



Liner: 18 gauge, PremiCut

Coating: No coating

Size Range: 6/XS - 11/2XL

Packaging: 12 pairs / pack, 144 pairs / carton

12-900

18 gauge cut level A3, sandy nitrile coating, perfect dexterity, fitting and flexibility.

- Premium quality cut protection level A3 glove with high abrasion resistance.
- Much lighter than a traditional cut level C nitrile glove, less hand fatigue.
- Perfect dexterity, fitting and flexibility makes it ideal for precision works.
- Sandy finish provides good grip in oily and dry working condition.
- Reinforcement greatly extends glove life to save your cost and provides extra protection in the weakest area.
- Soft and very comfortable.



Liner: 18 gauge, UHMWPE, glass fiber, polyester

Coating: Palm, sandy nitrile

Size Range: 7/S - 12/3XL

Packaging: 12 pairs / pack, 144 pairs / carton

18-931

18 gauge cut level A2, micro-foam nitrile coating, perfect dexterity, fitting and flexibility.

- The advanced 18 gauge lining technology contributes it as one of the thinnest & finest cut level B nitrile gloves.
- Over 35% lighter than a traditional 13 gauge cut level B nitrile glove, less hand fatigue.
- Perfect dexterity, fitting and flexibility makes it also ideal for precision works.
- Reinforcement greatly extends glove life to save your cost and provides extra protection in the weakest area.
- Touch screen function.
- Soft and very comfortable.



Liner: 18 gauge, UHMWPE, glass fiber, nylon

Coating: Micro-foam nitrile

Size Range: 6/XS - 11/2XL

Packaging: 12 pairs / pack, 144 pairs / carton

12-350

PremiCut technology, 13 gauge cut level A4 glove with XTech PU coating. About 20% lighter, extra softness and additional comfort.



12-351



Liner: 13 gauge, PremiCut

Coating: Palm, XTech Polyurethane

Size Range: 7/S - 11/2XL

Packaging: 12 pairs / pack, 144 pairs / carton

12-381

13 gauge cut level A6 glove with PU coating, reinforced in the crotch, touch screen function.



Liner: 13 gauge, UHMWPE, steel fiber, glass fiber, others

Coating: Palm, Polyurethane

Size Range: 6/XS - 11/2XL

Packaging: 12 pairs / pack, 144 pairs / carton

12-387

Premium 13 gauge cut level A6 glove with sandy nitrile coating, reinforced in the crotch, touch screen function. High visibility colour.



Liner: 13 gauge, UHMWPE, steel fiber, glass fiber, others

Coating: Palm, sandy nitrile

Size Range: 7/S - 11/2XL

Packaging: 12 pairs / pack, 144 pairs / carton

CUT PROTECTION

12-368

13 gauge cut level A4 glove with 3/4 flat nitrile + palm sandy nitrile coating, reinforced in the crotch. Flexible. Water & oil repellent.

- Water and oil repellent, cut protection level A4.
- Reinforcement greatly extends glove life to save your cost and provides extra protection in the weakest area.
- Sandy finish provides super grip in oily and dry working condition.
- Flexible, comfortable and good fitting.
- Contact heat protection up to 100 °C according to EN407.



Liner: 13 gauge, UHMWPE, glass fiber, others

Size Range: 7/S - 11/2XL

Coating: Palm, sandy nitrile; 3/4, flat nitrile

Packaging: 6 pairs / pack, 72 pairs / carton

12-369

13 gauge cut level A4 glove with full flat nitrile + palm sandy nitrile coating. Water & oil repellent.

- Water and oil repellent, cut protection level A4.
- Sandy finish provides super grip in oily and dry working condition.
- Great flexibility, comfort and good fit.
- Contact heat protection up to 100 °C according to EN407.



Liner: 13 gauge, UHMWPE, glass fiber, others

Size Range: 7/S - 11/2XL

Coating: Palm, sandy nitrile; Full, flat nitrile

Packaging: 12 pairs / pack, 72 pairs / carton

X-007

Superior 4 in 1 design glove, flame resistant, arc flash, cut and heat protection. Great flexibility, dexterity and comfort.

- Flame resistant, arc flash protection, cut level A4 and heat protection.
- Arc Rating (APTV) = 10,3 cal/cm2 as per ASTM F2675/ F2675M:2019. Class 2.
- Flame resistant level 4, contact heat, convective heat and radiant heat protection.
- Special coating formulation provides extra durability and great grip performance.
- Great flexibility and dexterity, minimizing hand fatigue.



Liner: 13 gauge, para-aramid, others

Size Range: 7/S - 11/2XL

Coating: Palm, synthetic coating

Packaging: 6 pairs / pack, 72 pairs / carton

X-017

Impact, cut and contact heat protection glove, 13 gauge cut level A6, more durable double nitrile coating.



- Thicker and great TPR design provides great impact protection, high quality TPR pads are softer, more flexible and comfortable.
- Double nitrile coating offers great durability and puncture resistance, water and oil repellent. Sandy finish provides great grip performance.
- Reinforced in the thumb crotch to greatly extend the glove life and increase the abrasion resistance in the weakest area.
- The velcro design makes it easy to wear on and off and keeps the glove in position when wearing.



Liner: 13 gauge, UHMWPE, steel fiber, glass fiber, others **Size Range:** 7/S - 11/2XL

Coating: Palm, sandy nitrile; Palm, flat nitrile

Packaging: 6 pairs / pack, 72 pairs / carton

new



3000 EF

Eco friendly, 15 gauge R-PET poliamide spandex glove with nitrile coating, flexible, soft and comfortable. Touch screen functionality.

- Eco-friendly, to protect our planet and workers. 1 pair equates about 2 bottle of 500ml reclaimed and recycled, taken out of landfill and about 36 gram CO₂ reduced vs using virgin polyester material.
- Super abrasion resistance with great flexibility, softness and comfort.
- Very good fitting and great dexterity.
- Sandy finish offers good grip in wet, oily and dry working conditions.
- 360° breathability to keep your hands cool.
- Contact heat protection up to 100 degree C.
- Touch screen functionality.



Liner: 15 gauge recycling polyamide, spandex

Size Range: 6/XS - 11/2XL

Coating: Palm, sandy nitrile

Packaging: 12 pairs / pack, 144 pairs / carton



3006

High quality 15 gauge glove with micro-foam nitrile coating, extra dots. Great grip and additional durability. Touch screen function.

- High quality nitrile dots contribute to excellent abrasion resistance, great grip and additional durability.
- Touch screen function enables you to use touch screen devices during work.
- Super flexible, soft and comfortable.
- High visibility orange colour offers extra safe in dark condition or some outdoor works.
- Contact heat protection up to 100 degree C.



Liner: 15 gauge, polyester, spandex, others

Size Range: 7/S - 11/2XL

Coating: Palm, micro-foam nitrile, nitrile dots

Packaging: 12 pairs / pack, 144 pairs / carton



3009

15 gauge polyester glove with full flat nitrile + palm sandy nitrile coating. Water & oil repellent, flexible and comfortable.

- Waterproof and oil proof.
- Contact heat protection up to 100 degree C.
- Sandy finish offers good grip in wet, oily and dry working conditions.



Liner: 15 gauge, polyester

Size Range: 7/S - 11/2XL

Coating: Palm, sandy nitrile; Full flat nitrile

Packaging: 12 pairs / pack, 144 pairs / carton

12-251

High quality contact heat protection glove, up to 250 degree C, very good fitting, soft and comfortable.

- Premium quality heat resistant glove which can withstand up to 250 °C according to EN407.
- Thanks to the advanced knitting technology, it has a very good fitting and comfort even on a double layer glove.
- Soft and comfortable. Very flexible.
- High breathability to reduce hand perspiration.



Liner: 7 gauge, Kevlar, Nomex, cotton, others

Coating: No coating

Size Range: 7/S - 11/2XL

Packaging: 6 pairs / pack, 72 pairs / carton

12-372

13 gauge cut level A4 glove with sandy nitrile coating, premium quality leather in the palm and fingers. Great heat and oil resistance, extra durability. Very soft and comfortable.

- Premium quality cut protection level A4 glove with great flexibility, dexterity, softness and comfort. Heat protection up to 250°C according to EN407.
- Premium soft and comfortable leather in the palm offers great heat protection, extra durability and puncture resistance.
- The nitrile coating contributes to great oil resistance and extra heat protection.
- Good fitting.



Liner: 13 gauge, UHMWPE mixed with others

Coating: Palm, sandy nitrile, leather

Size Range: 7/S - 11/2XL

Packaging: 6 pairs / pack, 72 pairs / carton

X-022

XSGrip clear silicon coated 13 gauge cut level A6 glove, enhanced heat protection, excellent dry grip, smear free on glasses and other reflective surfaces, strong adhesion resistance.

- Cut protection level A6.
- XSGrip clear silicon coating offers enhanced contact heat protection which is ideal to work with hot materials up to 100 degree C. Excellent grip performance on smooth materials, such as glasses, screens and parts, no finger marks and smudges left on the glasses and reflective surfaces.
- Strong adhesion resistance to prevent sealant and hot melt build up.
- High visibility color for easier recognition.
- Washable for longer service life to save cost.
- Ideal for glass handling, metal handling, hot melt and sealant works, automotive manufacturing and many others.



Liner: 13 gauge, UHMWPE, steel fiber, glass fiber, others

Coating: Clear silicon

Size Range: 7/S - 11/2XL

Packaging: Individual pack, 6 pairs / big pack, 72 pairs / carton

SLEEVES

new



30-745

New special design 13 gauge cut level A6 sleeve, velcro design, soft and comfortable. Better fit.

- 13 gauge cut protection level A6.
- Special design in the upper arm together with velcro makes it better fit the arm (no matter strong arm or slim arm), more comfortable and holds the sleeve in position when wearing. Two sizes' options.
- Extra band design can hold the sleeve in position in the bottom and also more comfortable.
- Advanced yarns wrapping and knitting technology provides super cut protection but also great wearing comfort and softness.
- Washable for a longer service life to save cost.

Liner: 13 gauge, UHMWPE, steel fiber, others

Size Range: M, L

Length: 18"

Packaging: 12 pairs / pack, 144 pairs / carton

new



30-920

Ultra thin 18 gauge cut level A6 sleeves, special design, with super fit, softness and comfort. High visibility colour.

- Engineered with PremiCut technology, 18 gauge cut protection level A6, ultra thin, very soft and comfortable.
- Special design in the upper arm together with velcro makes it super fit the arm (no matter strong arm or slim arm), very comfortable and also holds the sleeve in position when wearing. Two sizes' options.
- Premium fabric design in the palm can hold the sleeve in position in the bottom and also very comfortable when wearing together with a glove.
- High visibility yellow provides extra safety in challenging light conditions and easy to recognise.
- Washable for a longer service life to save cost.

Liner: 18 gauge, PremiCut

Size Range: M, L

Length: 18" and 22"

Packaging: 12 pairs / pack, 144 pairs / carton

51-500

Cold & heat resistance, high quality 10 gauge brushed acrylic glove with sandy latex coating. Very soft and comfortable.

- Great cold and heat resistance.
- Super softness, flexibility, comfort and fitting.
- Sandy latex coating contributes a better grip performance.
- High visibility orange color is also good for outdoor works or dark situation.



Liner: 10 gauge, brushed acrylic

Coating: Palm, sandy latex

Size Range: 7/S - 11/2XL

Packaging: 12 pairs / pack, 120 pairs / carton

51-818 PRO

Cold & heat resistance, cut level 5/C, high quality 10 gauge brushed acrylic glove with sandy nitrile coating. More durable.

- Great cold and heat resistance.
- Cut protection level 5 (EN388:2016).
- 10 gauge brushed acrylic cut resistant liner guarantees excellent cold resistance and provides extra comfort & softness compared with the standard 7 gauge one in the market.
- The nitrile coating makes it more durable (2+ times abrasion resistance) and also better for oily work.
- Super softness, flexibility and comfort.



Liner: 10 gauge, brushed acrylic, UHMWPE, others

Coating: Palm, sandy nitrile

Size Range: 7/S - 11/2XL

Packaging: 12 pairs / pack, 120 pairs / carton

51-802

Excellent cold resistance, waterproof & windproof, super soft and very flexible. Food contact approved.

- Excellent cold resistance, waterproof and windproof.
- Great softness, flexibility and comfort.
- Sandy finish offers good grip in wet, oily and dry working conditions.
- Good fitting.
- Food contact approved.



Liner: 15gg+7gg, brushed acrylic, others

Coating: Palm, sandy latex; Full, flat latex

Size Range: 7/S - 11/2XL

Packaging: 12 pairs / pack, 120 pairs / carton

Labels of Protective Gloves



EN 388:2016 + A1:2018

Protective gloves against mechanical hazards



EN 407:2020

Protective gloves against thermal risks (heat and/or fire).



EN407:2020

Protective gloves against thermal risks (heat and/or fire).
No flame protection.



EN511:2006

Protective gloves against cold



EN16350:2014

Protective gloves against electrostatic properties.



EN ISO 374-1:2016 + A1:2018

Protective gloves against hazardous chemicals and micro-organisms
-Part 1: Terminology and performance requirements against chemical hazards.



EN ISO 374-5:2016

Protective gloves against hazardous chemicals and micro-organisms - Part 5
Part 5: Terminology and performance requirements for micro-organism hazards



ANSI Standards
Cut protection - from level A1 to A9.



Suitable for food contact and handling



Touch screen compatible



Gloves made from recycled R-PET bottles



ESD



Breathable in liner and coating



Cold hazards



Impact hazards



Chemicals hazards

21
Gauge

18
Gauge

15
Gauge

13
Gauge

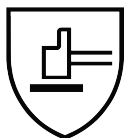
10
Gauge

8
Gauge

7
Gauge

The gauge reflects the thickness of the glove, the bigger gauge the thinner. For example, 18 gauge glove is thinner than 15 gauge one.

EN388



X X X X X X

The gloves are labelled with a pictogram and the performance levels. The performance levels are defined by four numbers and two letters.

These markings refer to the following parameters:

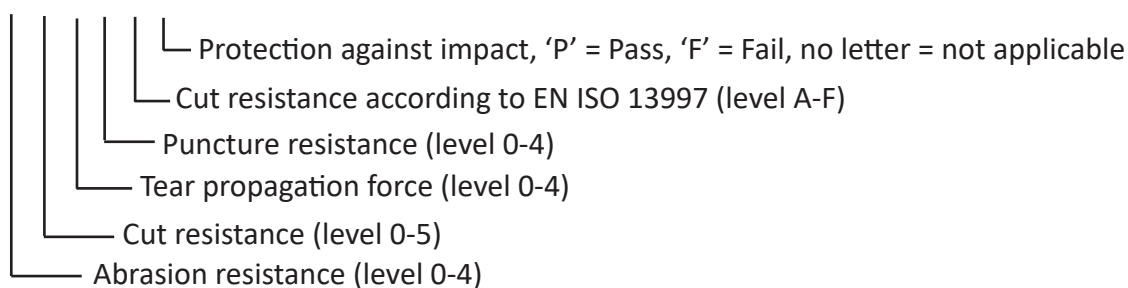
- * Abrasion resistance (0-4)
- * Cut resistance (0-5)
- * Tear propagation force (0-4)
- * Puncture resistance (0-4)
- * Cut resistance according to EN ISO 13997 (A-F)
- * When testing for protection against impact, the letter 'P' is also specified.

The following example illustrates the labelling using graphic symbols and power levels:

EN388



4 X 4 3 F P



EN407



X X X X X X

EN407



X X X X X X

Performance levels

The pictogram is followed by six numbers that represent the results of the test for defined loads in performance levels. They stand for:

- * limited flame resistant (0-4)
- * contact heat (0-4)
- * convective heat (0-4)
- * radiant heat (0-4)
- * small splashes of molten metal (0-4)
- * large quantities of molten metal (0-4)

The higher the numerical value, the better the test result.

If a performance level (at least 1) is achieved for limited flame training, the following pictogram is provided:

EN407



If no performance level for limited flame training is specified (non-flame-resistant protective gloves), the following pictogram must be used instead:

EN407



This means that only one of the two pictograms may appear on a product at any one time.
Below you will find two examples of the labelling of protective gloves against thermal hazards

EN407



4 1 4 3 2 1

Large quantities of molten metal (0-4)

Small splashes of molten metal (0-4)

Radiant heat (0-4)

Convective heat (0-4)

Contact heat (0-4)

Limited flame resistant (0-4)

EN407



X 1 4 3 2 1

EN511



X X X

The pictogram is followed by three numbers that represent the results of the test for defined loads in performance levels. They stand for:

- * convective cold (0-4)
- * contact cold (0-4)
- * water proof (0-1)

Below you will find an example of labelling with an explanation of the performance levels:

EN511



1 2 1

'1' = waterproof ('0' = not waterproof)

contact cold level 2

convective cold level 1

EN ISO 374-1



EN ISO 374-5



Chemical hazards exist when working with solid, liquid and gaseous chemicals. Chemicals can irritate and destroy the skin or be absorbed through intact skin (skin-resorptive effect) and thus damage the entire body, have a sensitising effect and trigger allergies.

A glove that offers good protection against a specific chemical substance may offer poor protection against a mixture of chemical substances.

- As a general rule, chemical protective gloves are intended for single use only. They should not be reused.
- A glove that has already been used is chemically contaminated and there is a risk that the skin will come into contact with harmful substances during handling.
- Higher temperatures shorten the penetration time of the chemical substance.

- Thicker materials generally provide longer protection against penetration.
- Once a chemical substance has been absorbed, the penetration (permeation) of the protective glove continues.
- The substance penetrates the glove on a molecular level, which is invisible to the naked eye.
- Even the best gloves lose their protective properties if they are mechanically damaged or the chemical substance has penetrated the material.
- Strongly corrosive chemicals can destroy the glove material through decomposition even before the specified penetration time

Labelling

The protective gloves are labelled with pictograms, the performance levels and the chemical resistance.

Chemical resistance: Protective gloves are tested by the manufacturer with various test chemicals.

Code Letter	Test Chemicals	Class
A	Methanol Primary	Alcohol
B	Acetone	Ketone
C	Acetonitrile	Nitrile
D	Dichloromethane	Chlorinated hydrocarbon
E	Carbon disulphide	Sulphurous organic compound
F	Toluene	Aromatic hydrocarbon
G	Diethylamine	Amine
H	Tetrahydrofuran	Heterocyclic and ether compounds
I	Ethyl acetate	Ester
J	n-heptane	Aliphatic hydrocarbon
K	Sodium hydroxide 40%	Inorganic base
L	Sulphuric acid 96%	Inorganic acid
M	Nitric acid 65%	Inorganic acid
N	Acetic acid 99%	Organic acid
O	Ammonia water 25%	Organic base
P	Hydrogen peroxide 30%	peroxide
S	Hydrofluoric acid 40%	Inorganic acid
T	Formaldehyde 37%	Aldehyde

According to EN 374, the permeation time (breakthrough time) is the time required for a specific chemical to penetrate the glove material. There are six performance levels with different permeation times:

- * Performance level 1: > 10 min
- * Performance level 2: > 30 min
- * Performance level 3: > 60 min
- * Performance level 4: > 120 min
- * Performance level 5: > 240 min
- * Performance level 6: > 480 min

The selection of the performance level depends on the actual wearing time.

On first contact with the chemical, the permeation time begins to run and thus limits the wearing time.

It is important to note that no chemical protective glove provides 100% permanent protection, as the chemicals penetrate the glove material and thus eliminate the protection.

Example: If a protective glove of performance level 4 (> 120 minutes) is wetted with a solvent, it can be used for a maximum of two hours from the start of wetting. Permeation occurs within this time even if the protective glove is removed and set aside.

Increased temperature and stretching while working can reduce the wearing time by more than 50 %.

The performance level is not labelled on the protective glove because different materials have different permeation times.

Chemical protective gloves are categorised into three types (type A, B and C):

Type A: resistant to permeation with at least six test chemicals for at least 30 minutes each (= at least performance level 2)

EN ISO 374-1/Type A



Type B: resistant to permeation with at least three test chemicals for at least 30 minutes each (= at least performance level 2)

EN ISO 374-1/Type B



Type C: resistant to permeation with at least one test chemical for at least 10 minutes each (= at least performance level 1)

EN ISO 374-1/Type C



Labelling

Each protective glove is tested for physical impermeability (air and water) in accordance with EN 374. They are labelled with two pictograms.

1. protective gloves that protect against bacteria and fungi

EN374-5:2016



2. protective gloves that provide additional protection against viruses:

EN374-5:2016



VIRUS

NOTES

[illegible]

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