

GET TO GRIPS WITH HAND PROTECTION


Health & Safety for your hands

Hands at work are extremely vulnerable to a wide range of hazards which include cuts, blows, chemical attack and temperature extremes. With industry's increasingly complex and sensitive manufacturing and handling processes, there is a growing insistence on the use of "job fitted" gloves that meet each user's specific requirements.

The importance of glove maintenance

Contaminated and damaged gloves may fail to protect the hands from the very hazard they were designed for. Effective protection is maintained by regular replacement of the gloves. Check the condition of the gloves, inside and out before use.

Your guide to safety standards and choosing the right hand protection

 Implies that the gloves comply with the basic requirements laid down by the EC Regulation: Personal Protective Equipment.

 Indicates that products are compliant and have been certified by Notified and Approved bodies to the relevant UKCA standards.

Simple Design (Category I)

For areas of 'minimal risk' where the effects of not wearing a glove are easily reversible or superficial. Such products are self-certified.

Intermediate Design (Category II)

For areas of specific risk i.e. mechanical risks. Such products will have been EU type and UKCA type tested against European test methods and certified by a notified body.

Complex Design (Category III)

For areas/applications that can seriously or irreversibly harm the health. Such products, in addition to the EU type and UKCA type test, will also have to be either produced under an approved quality system OR be type tested on an annual basis.



Safety standards symbols and what they each represent

What to look out for

Each glove has its own individual rating for each standard it qualifies for. Against each product will be a prominent 'standards box' (as per the example shown on the left) clearly displaying the particular safety standards that the glove complies with. This will help you quickly see what you need to know about the glove, helping you shop more efficiently.

YOUR GUIDE TO GLOVE TYPES



Cut Resistant

Protects hands from sharp tools or objects



Puncture Resistant

Protection against getting pierced or pricked



Chemical Resistant

Protection from harmful chemicals/substances



General Purpose

Protects hands when performing general tasks



Electrical Protection

Protects the wearer from electric shocks



Heat/Flame/Arc Protection

Protection when handling hot objects



Cold Protection

Protects hands when handling cold objects



Disposable

Protects against cross-contamination



Mechanics

Protects hands in general assembly environment



Anti-Impact

Protects hands from impact damage



Anti-Vibration

Protection from vibration



Water Resistant

Protects against wet conditions



Touch-Screen

Enables you to use a touch-screen device



Biodegradable

Faster break down or biodegradability in landfills over a much shorter time period

A guide to BS EN ISO 21420

Manufacturers of PPE need to ensure that the materials from which their products are made do not adversely affect the health or safety of users. The publication of the new glove standard, **EN ISO 21420** which replaces EN 420 builds on this and responds to the growing trend in standardization to address the topic of "innocuousness".

It will also take into consideration the requirements of the EU PPE Regulation as ISO 21420 will help address the Essential Health and Safety aspects of Annex II, where PPE must be made so that it's free of inherent risks and nuisance factors and must not be made from materials that can adversely affect the health and safety of users.

BS EN ISO 21420 – a summary

The new ISO 21420 will bring a new limit level of DMFa (dimethylformamide) in polyurethane-coated (PU) gloves; it will also provide further alignment with the REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) legislation on hazardous substances or substances of very high concern.

Protective gloves are frequently manufactured with the use of dozens of chemicals and it is the manufacturer's responsibility to ensure the products they place on the market are safe. This could prove challenging not only to the manufacturer but also to the body testing and approving the particular PPE, in trying to determine whether it satisfies the provisions of the PPE Regulation.

For this reason, the new standard pays close attention to alignment with REACH, by adding requirements for nickel release, undetectable carcinogenic amines in azodyes and the aforementioned DMFa content.

Key changes manufacturers need to be aware of include:

- Introduction of a new pictogram for electrostatic properties EN 16350
- Removal of the protein content test in natural rubber gloves
- Introduction of date of manufacture markings
- Removal of minimal glove length requirements, unless required by a specific standard i.e. welding gloves
- Other subtle changes concerning information for users, additional information on donning/doffing, product integrity checks before use

Other key requirements covered by EN ISO 21420 include:

- Gloves shall be designed and manufactured to provide protection when used in accordance with manufacturer's instructions, without harm to the end user.
- Protective gloves shall not adversely affect health and hygiene of the end user (innocuousness).
- Chromium VI content in leather no more than 3mg/kg (Test method EN 17075).
- Any metallic materials that could come into contact with the skin shall not release nickel in more than 0.5µg/cm² per week (Test method EN 1811).
- Azo colorants which release carcinogenic amines shall not be detectable (Test method ISO 17234-1 leather or ISO 14362-1 textile).
- pH value shall be between 3.5-9.5 (Test method ISO 4045 leather or ISO 3071 textile).
- DMFa (dimethylformamide) shall not exceed 0.1% weight/weight (Test method prEN 16778).
- The levels of performance should be based on the lowest results obtained before and after cleaning cycles (consideration of care instructions for testing).
- For gloves worn in ATEX environments, the electrostatic properties shall be tested (Test method EN 16350).

Important changes covering glove marking*

Each protective glove shall be marked with:

- Manufacturer's name and postal address
- Glove designation
- Size designation
- Date of manufacturing (month and year)
- Relevant pictograms and corresponding level(s) of protection
- The CE and UKCA marking

*If marking on the glove is not possible, due to the characteristics of the product then the marking shall be affixed to the first packaging enclosure.

See overleaf for safety symbols guide.



CE Foodsafe European Legislation with respect to Food Contact Materials (Directive EC1935/2004) requires that food contact materials shall not transfer their ingredients to food and must not modify the organoleptic properties (ie. colour, smell, texture and taste) of the food. Products intended for food contact shall be labelled as such.

What the symbols represent



EN 388 – This standard applies to all kinds of protective gloves giving protection from mechanical risks, in respect of physical problems caused by abrasion, blade cut, tearing, puncture or impact. This standard also covers risk of electrostatic discharge.



EN ISO374-5:2016 – Gloves have been tested for penetration (leakage) using test method in EN 374-2:2014 but do not need to be tested against chemical permeation. If the word VIRUS appears under the symbol, this signifies protection against bacteria, fungi and viruses. If the word VIRUS is not present, then only protection against bacteria and fungi is claimed. Such gloves may not protect against all viruses.



JKLOPT EN ISO374-1:2016/Type A – The permeation performance shall be at least level 2 (minimum 30 mins breakthrough time) against a minimum of 6 test chemicals.



JKL EN ISO374-1:2016/Type B – The permeation performance shall be at least level 2 (minimum 30 mins breakthrough time) against a minimum of 3 test chemicals.



EN ISO374-1:2016/Type C – The permeation performance shall be at least level 1 (minimum 10 mins breakthrough time) against a minimum of 1 test chemicals.



EN 511 – This standard applies to gloves which protect the hands against convective and contact cold.



EN 407 – This standard specifies thermal performance for protective gloves against heat and/or fire. See further detailed explanation.*



EN 659 – This standard defines performance requirements for gloves designed to protect fire fighters against heat and flames.



EN 421 – This standard lays down test methods and performance criteria for gloves offering protection against ionising radiation and radioactive contamination.



EN 455 – Medical gloves for single use.
1: Requirements and testing for freedom from holes.
2: Requirements and testing for physical properties.
3: Requirements and testing for biological evaluation.
4: Requirements and testing for shelf life determination.



EN 1186 Food Contact Approved – European legislation with respect to Food Contact Materials (Directive EC1935/2004) requires that food contact materials shall not transfer their ingredients to food and must not modify the organoleptic properties (ie. colour, smell, texture and taste) of the food. Products intended for food contact shall be labelled as such.



EN 1082 – Cuts and stabs by hand knives



EN 381 – Chainsaw Protection



EN 16350 – EN 16350 - This European Standard specified a test method for the electrostatic property of gloves. The test improves on EN 1161 as it requires a lower vertical resistance of less than 10 ohms. Gloves tested to EN 16350 can be used in areas where there may be an increased risk of explosion, such as a refinery.



EN 10819 – This European Standard specifies a method for the laboratory measurement, the data analysis and reporting of the vibration transmissibility of gloves in terms of vibration transmission from a handle to the palm of the hand in the frequency range from 31.5Hz. The standard is extended to define a screening test for the vibration transmission through gloves.

What the numbers represent



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Mechanical Hazards: EN 388

- (a) Abrasion resistance
- (b) Circular blade-cut resistance
- (c) Tear resistance
- (d) Puncture resistance
- (e) Straight blade cut (TDM) resistance
- A-F (f) Impact resistance P if passes

Performance Level

- 0-4
- 0-5
- 0-4
- 0-4

An "X" can be shown in place of any of the first 5 digits underneath the pictogram, where the test was either not carried out, not required or not suitable. The same method applies to these two standards below also.



*Thermal Hazards: EN 407

The 2004 version of the standard contained two mechanical test requirements based on tests carried out under EN 388 'Protective gloves against mechanical risks', for abrasion and tear resistance. The revised 2020 version contains a single mechanical test requirement for tear resistance which is applicable to all types of gloves. The resistance to tear is defined as 'the force necessary to propagate a tear in a rectangular specimen slit half way along its length'. The test method is contained within EN 407:2020, although this procedure is equivalent to that contained within EN 388:2016+A1:2018. The standard states that glove material(s) must be tested and adhere to at least 10N, which is equivalent to the 'Level 1' requirement of EN 388.

In addition to this, the 2020 version of the standard contains sizing requirements for the minimum length of gloves that are claimed to protect against small and large splashes of molten metal.

During some tasks, gloves may become soiled and therefore require cleaning. If gloves are intended to be cleaned, the manufacturer will need to supply cleaning instructions to the wearer, while demonstrating that the cleaning has no significant detrimental effect on the glove's protective properties. All tests within this standard are performed on unused gloves or hand protective equipment. However, for products that are intended to be cleaned, tests must also be carried out on the products after the required cleaning cycles, following the procedures instructed by the manufacturer. For example, if the manufacturer intends the gloves to be laundered up to five times in a washing machine at 30°C and then line dried, they will need testing evidence to support this. Likewise, if they intend the gloves to be tumble dried, testing evidence will be required to support this claim.

Thermal Performances:

EN 407 specifies six thermal properties, each with four associated performance levels. These allow manufacturers to create a range of gloves offering differing properties for various requirements. The four performance levels range from 'Level 1', which is the lowest level of protection to 'Level 4' (the highest level).

To claim performance levels of 3 or 4 for any of the thermal properties, the limited flame spread test must also be performed and must obtain a minimum rating of Level 3. If this requirement is not met, the maximum level that can be reported for any of the thermal properties will be Level 2.

Limited Flame Spread Test:

The limited flame spread test is used to assess the ability to protect the wearer's hand if it comes into close proximity with a naked flame. To give good results in this test, the gloves do not need to be inflammable, but they must inhibit combustion and burn slowly enough for the wearer to recognise this and safely remove the gloves.