

NEW EN ISO 374:2016

Glove standards & requirements

What are the changes? What does it mean for you?



As of 21 April 2018, Directive 89/686/EEC will be repealed by the new Regulation (EU) 2016/425 on personal protective equipment with transition period of one year.

The current suite of PPE Glove standards under **EN ISO 374 Protective gloves against dangerous chemicals and micro-organisms** have changed.

Published Standards

EN ISO 374 Protective gloves against dangerous chemicals and micro-organisms - consists of the following:

- **EN ISO 374-1:2016:** Terminology and performance **requirements** for chemical risks.
 - **EN 16523-1:2015:** Determination of material resistance to **permeation** by chemicals.
Permeation by liquid chemical under conditions of continuous contact.
 - **EN ISO 374-2:2014:** Determination of resistance to **penetration**.
 - **EN ISO 374-4:2013:** Determination of resistance to **degradation** by chemicals.
- **EN ISO 374-5:2016:** Terminology and performance **requirements** for micro-organisms risks.

NEW EN ISO 374-1: 2016 Terminology and performance requirements for chemical risks

- The EN ISO 374-1:2016 Standard has now been published; it specifies the requirements for protective gloves intended to protect the user against dangerous chemicals. The Standard stipulates the requirements for:
 - **Penetration (EN ISO 374-2:2014)**
 - **Permeation (EN ISO 16523-1:2015 replacing the EN ISO 374-3)**
 - **Degradation (EN ISO 374-4:2013).**
- According to the new standard, gloves are classed as: Type A, Type B or Type C depending on their performance level and number of chemicals they can protect against. The table below lists the performance level and number of chemicals required for each type:

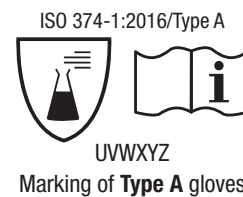
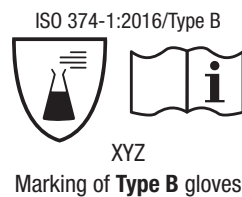
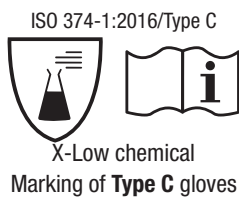
NEW Classification	Minimum Performance Level required	Minimum number of Chemicals from the 18 listed
Type A	2 (≥ 30 minutes breakthrough)	6
Type B	2 (≥ 30 minutes breakthrough)	3
Type C	1 (≥ 10 minutes breakthrough)	1

- The new standard lists 18 instead of 12 chemicals; the **6 additional chemicals are:**

Code Letter	Chemical	CAS Number	Class
A	Methanol	67-56-1	Primary alcohol
B	Acetone	67-64-1	Ketone
C	Acetonitrile	75-05-8	Nitrile compound
D	Dichloromethane	75-09-2	Chlorinated paraffin
E	Carbone disulfure	75-15-0	Disulfide containing organic compound
F	Toluene	108-88-3	Aromatic hydrocarbon
G	Diethylamine	109-89-7	Amine
H	Tetrahydrofurane	109-99-9	Heterocyclic and ether compound
I	Ethyl acetate	141-78-6	Ester
J	n-Heptane	142-82-5	Saturated hydrocarbon
K	Sodium hydroxide 40%	1310-73-2	Inorganic base
L	Sulfuric acid 96%	7664-93-9	Inorganic mineral acid, oxidizing
NEW M	Nitric acid 65%	7697-37-2	Inorganic mineral acid, oxidizing
N	Acetic acid 99%	64-19-7	Organic acid
O	Ammonium hydroxide 25%	1336-21-6	Organic base
P	Hydrogen peroxide 30%	7722-84-1	Peroxide
S	Hydrofluoric acid 40%	7664-39-3	Inorganic mineral acid, oxidizing
T	Formaldehyde 37%	50-00-0	Aldehyde

NEW The new standard requires chemical gloves to be tested for resistance to degradation. Testing shall be performed to EN ISO 374-4:2013 for each chemical claimed in the marking.

- Degradation Resistance (DR) shall be reported in the User Instruction. The mean degradation percentage results (% of change in puncture test before and after chemical exposure) shall be reported.
- **EN 16523-1:2015 'Determination of material resistance to permeation by chemicals. Permeation by liquid chemical under conditions of continuous contact'** is the new test method standard, which replaces the withdrawn EN ISO 374-3:2003.
- The test method for chemical permeation EN16523-1 is similar to the EN ISO 374-3 method, so products already certified will not need to be re-tested.
- For gloves longer than 400 mm, and if the cuff is claimed to protect against chemical risks, three additional test specimens shall be taken from the cuff area and tested for permeation, see ISO 374-1 clause 4.1. In instances where the palm and cuff achieve different performance levels, the lowest performance level shall be claimed in the marking against each chemical.
- The requirement for EN ISO 388 mechanical testing has been removed.
- There is a new marking requirement, see pictograms below:



NEW EN ISO 374-2:2014 Determination of resistance to penetration.

This standard replaces EN 374-2:2003. There are no major or technical changes.

This standard specifies a test method for the penetration resistance of gloves that protect against dangerous chemicals and/or micro-organisms (water leak and air leak test).

- Reference to EN 374-3 has changed to EN 16523-1 – this is the new test method for chemical permeation.
- Informative Annex A (AQL) for the purpose of production control only, e.g. by the manufacturer or auditing organisation.

NEW EN ISO 374-4:2013 Determination of resistance to degradation by chemicals.

- This standard has become a mandatory test for all gloves that offer chemical protection, as required by ISO 374-1:2016 clause 5.3.
- The EN 16523-1:2015 chemical permeation standard replaces the withdrawn EN 374-3:2003.
- The degradation resistance (DR) shall be determined according to EN ISO 374-4:2003 for each chemical claimed in the marking.
- For gloves longer than 400 mm, the degradation corresponding to the lowest permeation results shall be reported at the very least.

NEW EN ISO 374-5:2016 Terminology and performance requirements for micro-organisms risks.

This standard specifies performance requirements for gloves that protect the end user against micro-organisms.

Microbiological agents are: bacteria, virus or fungi.

- Penetration testing is required for all gloves claiming micro-organisms protection; the test method is described in EN ISO 374-2:2014, air-leak and water-leak. The test method has not changed.
- **Gloves offering protection against viruses shall additionally pass a penetration test according to ISO 16604:2004 Determination of resistance of protective clothing materials to penetration by blood-borne pathogens.**
- For gloves longer than 400 mm, and if the cuff is claimed to protect against micro-organisms risks, additional test specimens shall be taken from the cuff area and tested to ISO 16604.





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