



Protective gloves

Medical examination gloves

The box may be labelled with category I and with  or  .

These gloves only serve to protect the patient. They have not been tested by independent sources for impermeability to chemicals or microorganisms.



However, the manufacturer gives a guarantee that only a certain percentage of the gloves have holes. If it says AQL 1.5, it means that the manufacturers have found 1.5% or fewer of the gloves have holes.

A glove of this type often gives a false sense of security in the laboratory. It does not protect against chemicals or microorganisms.

Gloves for personal protection

From 2016, a new standard applies to protective gloves against chemicals and microorganisms (EN ISO 374: 2016).

The glove box (alternatively gloves packed one by one) to be used for personal protection is marked with the code 374 and category III.

The packaging is also marked with  or  . They are tested for their ability to protect against chemicals and microorganisms.

For chemical handling, the gloves are marked with EN ISO 374-1:2016 and classified A-C based on the number of chemicals they have been tested against and their breakthrough-time.

EN ISO 374-1:2016/Type A



JKLMNO

Breakthrough-time
≥ 30 min for 6 test chemicals

EN ISO 374-1:2016/Type B



JKL

Breakthrough-time
≥ 30 min for 3 test chemicals

EN ISO 374-1:2016/Type C



Breakthrough-time
≥ 10 min for 1 test chemical

List of test chemicals specified in EN ISO 374-1:2016

| 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 | Carbon disulphide | 75-15-0 | Organic compound containing sulphur |
| F | Toluene | 108-88-3 | Aromatic hydrocarbon |
| G | Diethylamine | 109-89-7 | Amine |
| H | Tetrahydrofuran | 109-99-9 | Heterocyclic and ether compound |
| I | Ethyl acetate | 141-78-6 | Ester |
| J | n-heptane | 142-82-5 | Saturated hydrocarbon |
| K | 40 per cent Sodium hydroxide | 1310-73-2 | Inorganic base |
| L | 96 per cent Sulphuric acid | 7664-93-9 | Inorganic mineral acid |
| M | 65 per cent nitric acid | 7697-37-2 | Inorganic mineral acid |
| N | 99 per cent acetic acid | 64-19-7 | Organic acid |
| O | 25 per cent ammonium hydroxide | 1336-21-6 | Organic base |
| P | 30 per cent hydrogen peroxide | 7722-84-1 | Peroxide |
| S | 40 per cent hydrofluoric acid | 7664-39-3 | Inorganic mineral acid |
| T | 37 per cent formaldehyde | 50-00-0 | Aldehyde |

EN ISO 374:2016 has replaced EN 374:2003, but gloves marked according to the old standard can still be found on the market until 1 april 2023.

Marking according to the **old standard**:



Pictogram for protective gloves with at least 30 minutes breakthrough-time for three or more types of chemicals. The types of chemicals are symbolized with letters written under the pictogram.



Pictogram for water-proof gloves and gloves with at least 30 minutes breakthrough-time for one or two types of chemicals.

What type of gloves to be used depends on the properties of the chemicals used and how they are handled. Under section 8 ("Exposure controls/personal protection") of the safety data sheet (SDS) the supplier of the chemical must state which glove is recommended for the intended use.

In addition, the supplier of the gloves usually provides the information on the penetration time of specific chemicals for their gloves on their home page.

For handling of microorganisms, the gloves are marked with EN ISO 374-5:2016 or EN ISO 374-5:2016 Virus.



Both types can be used for work with bacteria, fungi and parasites.

For work with viruses and human blood, gloves marked with EN ISO 374-5: 2016 Virus should be used.

This is because EN ISO 374-5: 2016 are only tested for air or water leakage, while EN ISO 374-5: 2016 Viruses are also tested for penetration of viruses according to ISO 16604: 2004 (method B).

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If several chemical products and/or microorganisms are used in the same method, it may be necessary to indicate in the risk assessment which glove should be used in any part of the method, and if double gloves are required in some moments.

Proper glove technique is important, there should be no risk of spreading/contamination via ex.:

- door handle
- cranes
- benches
- keyboard
- office

Gloves may need to be considered as hazardous waste and it should be clearly stated in the risk assessment how they should be discarded.

Note that wearing gloves in public areas is not allowed.