



International
Standard

ISO 374-1

**Protective gloves against dangerous
chemicals and micro-organisms —**

Part 1:
**Terminology and performance
requirements for chemical risks**

*Gants de protection contre les produits chimiques dangereux et
les micro-organismes —*

*Partie 1: Terminologie et exigences de performance pour les
risques chimiques*

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**Second edition
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 94, *Personal safety -- Personal protective equipment*, Subcommittee SC 13 *Protective clothing*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 162, *Protective clothing including hand and arm protection and lifejackets*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 374-1:2016), which has been technically revised. It also incorporates the Amendment ISO 374-1:2016/Amd 1:2018.

The main changes are as follows:

- reference to new standard, ISO 21420:2020 + Amd 1:2022;
- new requirement for penetration;
- new [Figure 2](#), changes in [Figures 4, 5, 6](#);
- new expression of permeation results [5.4.1.2](#);
- new [Annex A](#) with reference to ISO 6529;

A list of all parts in the ISO 374 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Protective gloves against dangerous chemicals and micro-organisms —

Part 1: Terminology and performance requirements for chemical risks

1 Scope

This document specifies the requirements for protective gloves intended to protect the user against dangerous chemicals and defines terms to be used.

NOTE If other protection features are covered, e.g., mechanical risks, thermal risks, electrostatic dissipation etc., the appropriate specific performance standard is used in addition. Further information on protective gloves standards can be found in the ISO 21420.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 374-2:2019, *Protective gloves against dangerous chemicals and micro-organisms — Part 2: Determination of resistance to penetration*

ISO 374-4:2019, *Protective gloves against dangerous chemicals and micro-organisms — Part 4: Determination of resistance to degradation by chemicals*

ISO 6529:2013, *Protective clothing — Protection against chemicals — Determination of resistance of protective clothing materials to permeation by liquids and gases*

ISO 21420:2020, *Protective gloves — General requirements and test methods*

ISO 21420:2020/Amd 1:2022, *Protective gloves — General requirements and test methods — Amendment 1*

EN 16523-1:2015+Amd 1:2018, *Determination of material resistance to permeation by chemicals — Part 1: Permeation by liquid chemical under conditions of continuous contact*

3 Terms and definitions

For the purposes of this document, the terms and definitions in EN 16523-1:2015+Amd 1:2018 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <https://www.electropedia.org/>

3.1 dangerous chemicals

chemical substance potentially hazardous for the health (carcinogenic, mutagenic, reprotoxic, toxic, harmful, corrosive, irritant, sensitizing), as defined in any national regulation

3.2

degradation

deleterious change in one or more properties of a *protective glove material* (3.6) due to contact with a chemical

Note 1 to entry: Indications of degradation may include flaking, swelling, disintegration, embrittlement, colour change, dimensional change, appearance, hardening, softening, etc.

3.3

penetration

movement of a chemical through materials, seams, pinholes, or other imperfections in a *protective glove material* (3.6) on a non-molecular level

3.4

permeation

process by which a chemical moves through a *protective glove material* (3.6) on a molecular level

Note 1 to entry: Permeation involves the following:

- absorption of molecules of the chemical into the contacted (outside) surface of a material;
- diffusion of the absorbed molecules in the material;
- desorption of the molecules from the opposite (inside) surface of the material.

3.5

protective gloves against dangerous chemical

protective gloves which form a protective barrier to *dangerous chemicals* (3.1)

3.6

protective glove material

any material or combination of materials used in a protective glove for the purpose of isolating the hands or hands and arms from direct contact with a dangerous chemical

3.7

test chemical

chemical substance, or mixture of chemical substances, potentially hazardous to the health that is used under laboratory test conditions to determine the breakthrough time

4 Sampling

4.1 Sampling for permeation

Each protective glove material specimen to be tested shall conform to the requirement in EN 16523-1:2015+Amd 1:2018, Clause 7, so that the protective glove material can be sealed inside the test cell.

Three test specimens shall be taken from the palm area. If the glove is longer than or equal to 400 mm and if the cuff is claimed to protect against chemical risks, three additional test specimens shall be taken where the centre is approximately at 80 mm from the end of the cuff (see [Figure 1](#)).

Other parts of the glove can be tested on request. In the case of seams in the hand area, this area shall be tested. For multilayer protective gloves against chemicals, in the case of layers not bonded to the protective layer against chemical, the layers not claiming any effect on the chemical protection can be removed, i.e. thermal insulation layer.