



SLOVENSKI STANDARD

oSIST prEN 374-1:2009

01-oktober-2009

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Protective gloves against chemicals and micro-organisms - Part 1: Terminology and performance requirements

Schutzhandschuhe gegen Chemikalien und Mikroorganismen - Teil 1: Terminologie und Leistungsanforderungen

Gants de protection contre les produits chimiques et les micro-organismes - Partie 1: Terminologie et exigences de performance

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EUROPEAN STANDARD
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Will supersede EN 374-1:2003

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Protective gloves against chemicals and micro-organisms - Part 1: Terminology and performance requirements

Gants de protection contre les produits chimiques et les
micro-organismes - Partie 1: Terminologie et exigences de
performance

Schutzhandschuhe gegen Chemikalien und
Mikroorganismen - Teil 1: Terminologie und
Leistungsanforderungen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 162.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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Contents

Page

Foreword.....	3
1 Scope	4
2 Normative references	4
3 Terms and definitions	4
4 Methods of testing	5
5 Performance requirement	6
5.1 Gloves against chemicals	6
5.1.1 Penetration	6
5.1.2 Permeation	6
5.1.3 Mechanical characteristics	6
5.2 Protective glove against chemical of interest	7
5.2.1 Penetration	7
5.2.2 Permeation	7
5.2.3 Mechanical characteristics	7
5.3 Protective gloves against micro organisms	7
5.3.1 Penetration	7
5.3.2 Resistance against penetration by virus	7
5.3.3 Mechanical characteristics	8
6 Marking	8
7 Information supplied by the manufacturer	9
7.1 Chemical resistant gloves	9
7.2 Virus resistant gloves	9
Annex A (informative) List of test chemicals	10
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EC Directive 89/686/EC	11

Foreword

This document (prEN 374-1:2009) has been prepared by Technical Committee CEN/TC 162 “Protective clothing including hand and arm protection and lifejackets”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 374-1:2003.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EC Directive 89/686/EEC.

For relationship with EC Directive, see informative Annex ZA, which is an integral part of this document.

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prEN 374-1:2009 (E)**1 Scope**

This standard specifies the requirements for gloves to protect the user against chemicals and/or micro-organisms and defines terms to be used.

This standard shall be used in conjunction with EN 420.

2 Normative references

The following referenced documents are indispensable for the application 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.

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

EN 374-3, *Protective gloves against chemicals and micro-organisms — Part 3: Determination of resistance to permeation by chemicals.*

prEN 374-4¹⁾ *Protective gloves against chemicals and micro-organisms — Part 4: Determination of resistance to degradation by chemicals.*

EN 388, *Protective gloves against mechanical risks.*

EN 420, *General requirements for gloves.* (standards.iteh.ai)

ISO 2859-1:1999, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection.* <https://standards.iteh.ai/catalog/standards/sist/6c8bbcd0-9824-4fc8-811d-2334f5f1783/osist-pr-en-374-1-2009>

ISO 16604:2004, *Clothing for protection against contact with blood and body fluids — Determination of resistance of protective clothing materials to penetration by blood-borne pathogens/test method using bacteriophage phi-x174.*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

- 3.1**
protective glove material
any material or combination of materials used in a glove for the purpose of isolating the hands or hands and arms from direct contact with a chemical and/or micro-organism
- 3.2**
protective gloves against chemicals
gloves fulfilling the requirements of clause 5.1
- 3.3**
protective gloves against chemical of interest
gloves fulfilling the requirements of clause 5.2

1) under development

3.4

protective gloves against micro-organisms

at this time it is believed that gloves which resist penetration, when tested according to clause 5.3, form an effective barrier to bacteria, virus and fungi

3.5

degradation

deleterious change in one or more properties of a protective glove material due to contact with a chemical. These changes include flaking, swelling, disintegration, embitterment, discolouration, dimensions, appearance, hardening, softening, etc

3.6

Penetration

movement of a chemical and/or micro-organism through porous materials, seams, pinholes, or other imperfections in a protective glove material on a non-molecular level

3.7

permeation

process by which a chemical moves through a protective glove material on a molecular level. 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.

3.8

test chemical

chemical or mixture of chemicals that is used to determine the breakthrough time in the laboratory test conditions. The chemical will be one which causes adverse effects on the skin or to the human body by contact with the skin

3.9

breakthrough time

elapsed time between the initial application of a test chemical to the outside surface of a protective glove material and its subsequent presence on the other side of the material, measured as described in EN 374-3

4 Methods of testing

Detailed test methods will be found in the following parts of this standard:

- Penetration: EN 374-2
- Permeation: EN 374-3
- Degradation : prEN 374-4 (under development)

5 Performance requirement

5.1 Gloves against chemicals

5.1.1 Penetration

Gloves shall not leak when tested according to the test methods in the corresponding clauses of EN 374-2 and both tests shall be passed according to the criteria in the relevant clauses of EN 374-2. If one test proves unsuitable, the reasons shall be reported.

5.1.2 Permeation

Each combination protective glove/test chemical is classified, in terms of breakthrough time, according to each individual chemical for which the glove resists permeation. The chemicals are tested in accordance with EN 374-3.

NOTE 1: The performance levels given below are based on breakthrough times determined during constant contact with the test chemical under standard laboratory conditions as described in EN 374-3. The actual duration of protection provided in the workplace may vary considerably from these performance levels.

NOTE 2: Results from the permeation test may indicate a relative long breakthrough time while results from degradation tests may indicate severe physical changes early and vice versa permeations test may indicate short breakthrough time without any visible changes.

Table 1 — Permeation performance levels

Measured breakthrough time (min)	Permeation performance level
> 10	1
> 30	2
> 60	3
> 120	4
> 240	5
> 480	6

A glove shall have at least a permeation performance level 2 when tested against three chemicals taken from the list of test chemicals in Annex A.

5.1.3 Mechanical characteristics

For each glove style recommended for use against chemicals and/or micro-organisms the obtained performance level shall be reported in the instructions supplied by the manufacturer for the following mechanical tests:

- Abrasion resistance,
- Blade cut resistance,
- Tearing resistance,
- Puncture resistance,

according to the test methods described in EN 388.

5.2 Protective glove against chemical of interest

5.2.1 Penetration

Gloves shall not leak when tested according to the test methods in the corresponding clauses of EN 374-2 and both tests shall be passed according to the criteria in the relevant clauses of EN 374-2. If one test proves unsuitable, the reasons shall be reported.

5.2.2 Permeation

At least one chemical of interest as defined by clause 3.8. shall be tested according to EN 374-3 with a minimum performance level 2 (see table 1)

Each combination protective glove/test chemical is classified, in terms of breakthrough time, according to each individual chemical for which the glove resists permeation.

NOTE 1: The performance levels given below are based on breakthrough times determined during constant contact with the test chemical under standard laboratory conditions as described in EN 374-3. The actual duration of protection provided in the workplace may vary considerably from these performance levels.

NOTE 2: Results from the permeation test may indicate a relative long breakthrough time while results from degradation tests may indicate severe physical changes early and vice versa permeations test may indicate short breakthrough time without any visible changes.

5.2.3 Mechanical characteristics

For each glove style recommended for use against chemicals and/or micro-organisms the obtained performance level shall be reported in the information supplied by the manufacturer for the following mechanical tests:

- Abrasion resistance,
- Blade cut resistance,
- Tearing resistance,
- Puncture resistance,

according to the test methods described in EN 388.

5.3 Protective gloves against micro organisms

5.3.1 Penetration

Gloves shall not leak when tested according to the test methods in the corresponding clauses of EN 374-2 and both tests shall be passed according to the criteria in the relevant clauses of EN 374-2. If one test proves unsuitable, the reasons shall be reported.

A glove shall be considered as micro-organism resistant when it conforms to at least level 2 of the penetration test of Annex A of EN 374-2. For virus see 5.3.2.

5.3.2 Resistance against penetration by virus

If protection against viral penetration is claimed then the glove shall be in accordance with ISO 16604 and clause 5.3.1.

prEN 374-1:2009 (E)

5.3.3 Mechanical characteristics

For each glove style recommended for use against chemicals and/or micro-organisms the obtained performance level shall be reported in the instructions supplied by the manufacturer for the following mechanical tests:

- Abrasion resistance,
- Blade cut resistance,
- Tearing resistance,
- Puncture resistance,

according to the test methods described in EN 388.

6 Marking

Marking of the protective glove shall be in accordance with the marking requirement for gloves of EN 420. Besides, the appropriate pictogram (Figure 1 or 2) shall be used. Both pictograms shall not be used together on the same glove. The pictograms shall be accompanied by the number of this standard.

- For gloves complying with the requirements stated in 5.1, the pictogram in Figure 1 shall be used. It shall also be accompanied by at least three of the code letters (see annex A) of the chemicals which achieved performance level 2 (example in Figure 1).



Figure 1 — Example of marking indicating chemical resistant gloves passing the requirements of 5.1.

- For gloves complying with the requirements stated in 5.2, the pictogram in Figure 2 shall be used.



Figure 2 — Example of marking indicating resistance to a chemical of interest passing the requirements of 5.2