



SLOVENSKI STANDARD
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**Varovalne rokavice za zaščito pred kemikalijami in mikroorganizmi - 4. del:
Ugotavljanje odpornosti proti razkroju zaradi kemikalij (ISO/DIS 374-4:2018)**

Protective gloves against chemicals and micro-organisms - Part 4: Determination of resistance to degradation by chemicals (ISO/DIS 374-4:2018)

Schutzhandschuhe gegen Chemikalien und Mikroorganismen - Teil 4: Bestimmung des Widerstandes gegen Degradation durch Chemikalien (ISO/DIS 374-4:2018)

Gants de protection contre les produits chimiques et les micro-organismes - Partie 4: Détermination de la résistance à la dégradation par des produits chimiques (ISO/DIS 374-4:2018)

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Protective gloves against chemicals and micro-organisms —

Part 4:

Determination of resistance to degradation by chemicals

*Gants de protection contre les produits chimiques et les micro-organismes —**Partie 4: Détermination de la résistance à la dégradation par des produits chimiques*

ICS: 13.340.40

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Foreword

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This document was prepared by Technical Committee ISO/TC 94, *Personal safety — Protective clothing and equipment*, Subcommittee SC 13, *Protective clothing* and CEN/TC 162 *Protective clothing including hand and arm protection and lifejackets*.

Protective gloves against chemicals and micro-organisms —

Part 4: Determination of resistance to degradation by chemicals

1 Scope

This document specifies the test method for the determination of the resistance of protective glove materials to degradation by dangerous chemicals with continuous contact.

NOTE [Annex A](#) gives information on interlaboratory test results on this method.

Other tests used to evaluate chemical resistance such as permeation resistance and penetration resistance may not provide sufficient information on the physical property changes affecting a glove during exposure to a chemical. It is necessary that the outside surface of the glove be exposed to the chemical.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 374-1, *Protective gloves against dangerous chemicals and micro-organisms — Part 1: Terminology and performance requirements for chemical risks*

ISO 23388, *Protective gloves against mechanical risks*

ISO 21420, *Protective gloves - General requirements and test methods*

3 Terms and definitions

For the purposes of this document, the terms and definition given in ISO 374-1 and ISO 21420 apply.

4 Test principles

The resistance of a protective glove material to degradation by a liquid chemical is determined by measuring the puncture resistance change of the glove material after a continuous contact with the external surface with the challenge test chemical. The test is applicable to gloves made of natural or synthetic polymer. Lined gloves may produce unusable measurement results.

5 Test methods, Puncture resistance test

5.1 Sampling

Select three gloves for testing. Condition the gloves at (23 ± 2) °C, (50 ± 5) % relative humidity for at least 24 hours.

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In the case of irregular and/or multiple construction, one sample shall be tested from each area. Using the appropriate circular die of 20 mm, cut 6 specimens of each glove for a total of 18 test specimens. For each glove, 3 specimens will be exposed to the challenge chemical and 3 specimens will be unexposed.

Select specimens so that they are homogeneous and representative of the glove's primary construction. Avoid embossed patterned areas or other areas of varying thickness or composition when cutting these specimens.

If a glove is constituted of several unbounded layers, only the layer giving the chemical protection shall be tested.

The sample shall be tested according to the method described in [5.3](#). An additional non-mandatory informative test method is given as an example in [Annex B](#).

For lined gloves, if it is not possible to separate the liner from the glove (and if the liner is too thick), the test may not be feasible, because it is not possible to seal the vial and the sample will slide during the test. For certain samples, if there is a thick liner, it may not be necessary to use the septa to have a correct vial sealing. In this case, the liner will ensure the leakproofness.

5.2 Apparatus

The following equipment shall be used:

- a) (20 ± 1) mm diameter cutting die;
- b) (12 ± 1) mm diameter cutting die (for cutting a hole to the centre of each septum);
- c) 20 ml crimp top vials (opening $(12,5 \pm 0,5)$ mm of diameter);
- d) 20 mm diameter septa (e.g. made from chlorobutyl rubber without polytetrafluoroethylene (PTFE) layer);
- e) 20 mm open centre aluminium crimp seals;
- f) hand crimper;
- g) hand decapper;
- h) samples holder with 18 holes of 20 mm diameter;
- i) 150 ml beaker;
- j) transfer pipette, 2 ml;
- k) dynamometer with a puncture stylus according to ISO 23388, 6.5 and a cell to measure compression forces with a precision of $\pm 1 \%$;
- l) sample vial support.

5.3 Procedure

5.3.1 Test conditions

The test shall be conducted at (23 ± 2) °C (preparation, chemical, time exposure to chemical, puncture test).

5.3.2 Pre-testing measurements

Place the challenge chemical into the 150 ml beaker. Using the transfer pipette, place about 2 ml of challenge chemical into one of the crimp top vials.