



SLOVENSKI STANDARD
SIST EN 14325:2004

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JUfcj UbYcVY_YdfYX_Ya]_U]Ua]'E'DfYg_i gbY'a YfcXY]b'nU H]j Y'nUfUnj fy Ub^Y
a UHf]Ucj 'nU]nXYUj c'j Ufcj Ub] 'cVY_žý]j Ub^ŽgdUUb^Y]b'gYgHj `Ub^Yfa cbHjUk

Protective clothing against chemicals - Test methods and performance classification of chemical protective clothing materials, seams, joins and assemblages

Schutzkleidung gegen Chemikalien - Prüfverfahren und Leistungseinstufung für Materialien, Nähte, Verbindungen und Verbünde

Vêtements de protection contre les produits chimiques - Méthodes d'essai et classification de performance des matériaux, coutures, jonctions et assemblages des vêtements de protection chimique

Ta slovenski standard je istoveten z: EN 14325:2004

ICS:

13.340.10 Varovalna obleka Protective clothing

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ICS 13.340.10

English version

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matériaux, coutures, jonctions et assemblages des
vêtements de protection chimique

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Leistungseinstufung für Materialien, Nähte, Verbindungen
und Verbände

This European Standard was approved by CEN on 10 December 2003.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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Foreword

This document (EN 14325:2004) 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 European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2004, and conflicting national standards shall be withdrawn at the latest by August 2004.

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 EU Directive(s).

For relationship with EU Directive(s), see informative annex ZA, which is an integral part of this document.

Annex A is normative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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1 Scope

This European Standard specifies the performance classification and test methods for chemical protective clothing material and seams, joins and assemblages. This is a reference standard to which other chemical protective clothing performance standards may refer in whole or in part.

NOTE Whilst these performance levels are intended to relate to the usage to which the chemical protective clothing is to be put, it is essential that the user (specifier) and the chemical protective clothing manufacturer or supplier liaise to establish the correct performance level for the intended task. For this purpose a risk analysis could be useful.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 368, *Protective clothing — Protection against liquid chemicals — Test method: Resistance of materials to penetration by liquids.*

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

EN 530, *Abrasion resistance of protective clothing material — Test methods.*

EN 863, *Protective clothing — Mechanical Properties — Test Method: Puncture resistance.*

EN 13274-4, *Respiratory protective devices — Methods of test — Part 4: Flame tests.*

EN 20139, *Textiles — Standard atmospheres for conditioning and testing (ISO 139:1973).*

EN ISO 6529 *Protective clothing — Protection against chemicals — Determination of resistance of protective clothing materials to permeation by liquids and gases (ISO 6529:2001).*

EN ISO 7854, *Rubber- or plastics-coated fabrics — Determination of resistance to damage by flexing (ISO 7854:1995).*

EN ISO 9073-4, *Textiles — Test methods for nonwovens — Part 4: Determination of tear resistance (ISO 9073-4:1997).*

CEN ISO/TR 11610, *Protective clothing — Glossary of terms and definitions (ISO/TR 11610:2004).*

EN ISO 13934-1, *Textiles — Tensile properties of fabrics — Part 1: Determination of maximum force and elongation at maximum force using the strip method (ISO 13934-1:1999).*

EN ISO 13935-2, *Textiles — Seam tensile properties of fabrics and made-up textile articles — Part 2: Determination of maximum force to seam rupture using the grab method (ISO 13935-2:1999).*

EN ISO 13938-1, *Textiles — Bursting properties of fabrics — Part 1: Hydraulic method for determination of bursting strength and bursting distension (ISO 13938-1:1999).*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions in CEN ISO/TR 11610 apply.

4 Performance classification of materials

4.1 General

A number of performance classification levels are identified for the various properties to be found in this standard.

4.2 Pre-conditioning

All chemical protective clothing materials samples shall undergo 5 cycles of cleaning according to the manufacturer's instructions before testing if the manufacturer's instructions indicate that the garment can be cleaned.

4.3 Conditioning

All specimens shall be conditioned by storage at (20 ± 2) °C and (65 ± 5) % relative humidity in accordance with EN 20139 for at least 24 h. If applicable, the tests shall be started within 5 min of removing the specimen from the conditioning atmosphere, unless otherwise indicated in the test method standard.

NOTE Conditioning may be omitted if it can be shown that test results are not affected by the foreseeable changes of temperature and relative humidity.

4.4 Abrasion resistance

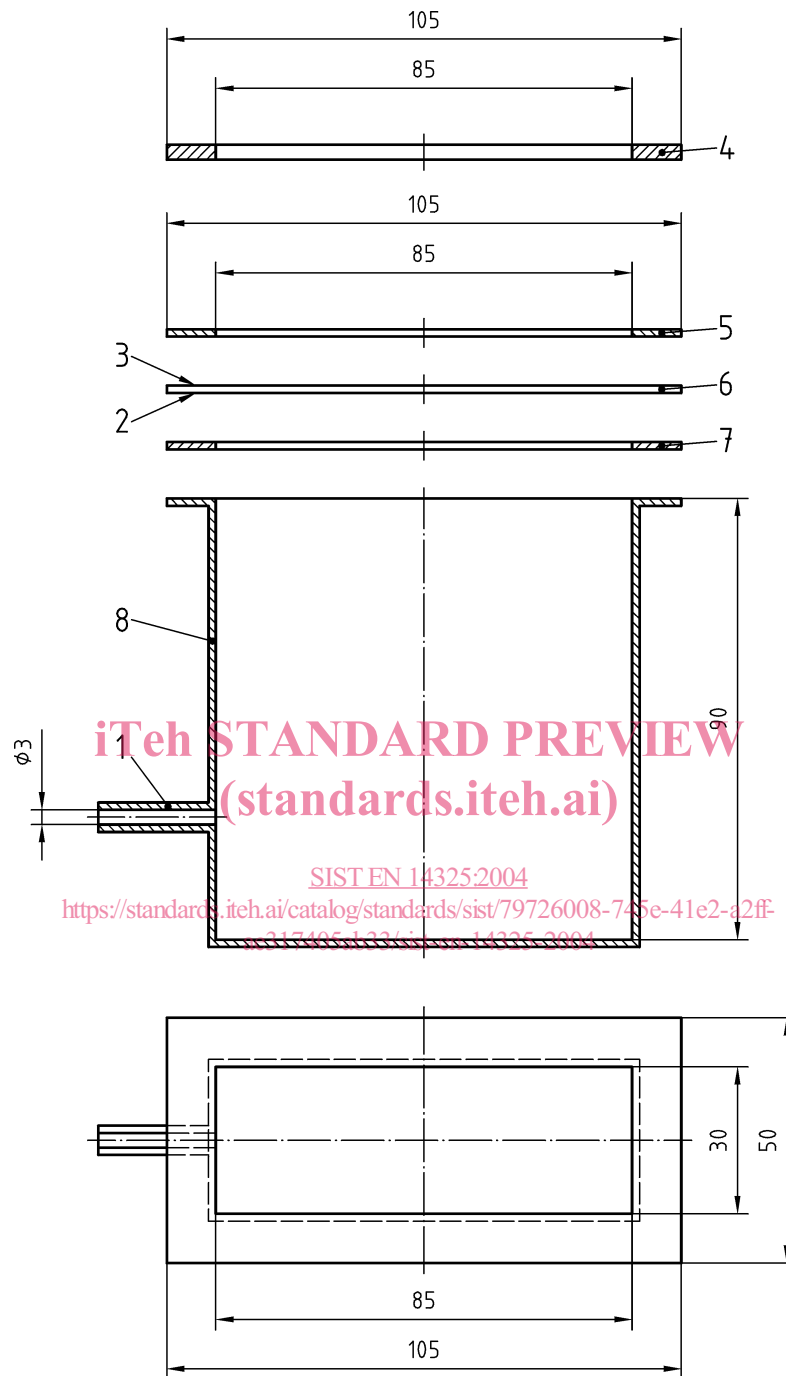
4.4.1 Abrasion test method

When tested in accordance with EN 530 (Martindale Abrasion Test) Method 2, using abrasive paper or abrasive cloth 00 (according to annex A) and a downward pressure of 9 kPa the chemical protective clothing material shall be classified according to the levels of performance given in Table 1. Four specimens shall be tested and the performance classified according to the lowest single result.

4.4.2 Determination of end point and level of performance

To determine the level of performance, the leak tightness of the test specimen shall be determined after abrasion by means of a pressure pot apparatus. The tested area of the specimen is clamped in the apparatus and the pressure in the test pot reduced by 1 kPa (10 mbar). The difference in the change of pressure between an abraded and a non-abraded specimen shall not exceed 100 Pa (1 mbar) in 1 min. Wherever possible the pressure pot method shall be used. If it cannot be applied, a visual examination may be used. If this is the case, the test report shall be marked accordingly.

NOTE An example of a pressure pot apparatus is given in Figure 1. This example is typical for damage assessment after flex cracking. For damage assessment after abrasion a similar apparatus should be used, but of appropriate shape and dimensions to hold the test specimen. To verify if the use of the pressure pot method is relevant, an unabraded test specimen should be tested.



Key

- 1 Connection for the generation of negative pressure and measurement of pressure change
- 2 Lower surface
- 3 Upper surface
- 4 Clamping Ring (e.g. stainless steel)
- 5 Gasket
- 6 Specimen
- 7 Gasket
- 8 Test Pot (e.g. stainless steel)

Figure 1 — Example of apparatus to test specimen damage after materials testing (rectangular test pot)

Table 1 — Classification of abrasion resistance

Class	Number of Cycles
6	> 2 000
5	> 1 500
4	> 1 000
3	> 500
2	> 100
1	> 10

4.5 Flex cracking resistance

When tested in accordance with EN ISO 7854, method B, until damage is detected using the method given below, the chemical protective clothing material shall be classified according to the levels of performance given in Table 2. Six specimens (three in longitudinal and three in transversal direction) shall be tested and the performance classified according to the lowest single result.

To determine the level of performance, the leak tightness of the test specimens shall be determined after flex cracking. The tested area of the specimen shall be clamped in the apparatus shown in Figure 1 and the pressure in the test pot reduced by 1 kPa (10 mbar). The difference in the change of pressure between a new specimen and a specimen after flexing shall not exceed 100 Pa (1 mbar) in 1 min. The performance of the material shall be classified according to the lowest level of performance of any single specimen.

Wherever possible the pressure pot shall be used to determine the performance of the specimens. If the pressure pot method cannot be applied, a visual examination may be used. If this is the case then the test report should be marked accordingly.

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Table 2 — Classification of flex cracking resistance

Class	Number of cycles
6	> 100 000
5	> 40 000
4	> 15 000
3	> 5 000
2	> 2 500
1	> 1 000

4.6 Flex cracking resistance at –30 °C

When tested in accordance with EN ISO 7854, method B at –30 °C until damage is detected using the method given below, the chemical protective clothing material shall be classified according to the levels of performance given in Table 3. Six specimens (three in longitudinal and three in transversal direction) shall be tested and the performance classified according to the lowest single result.

To determine the level of performance, the leak tightness of the test specimens shall be determined after flex cracking. The tested area of the specimen shall be clamped in the apparatus shown in Figure 1 and the pressure in the test pot reduced by 1 kPa (10 mbar). The difference in the change of pressure between a new specimen and a specimen after flexing shall not exceed 100 Pa (1 mbar) in 1 min. The performance of the material shall be classified according to the lowest level of performance of any single specimen.