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Protective clothing - Mechanical properties - Determination of resistance to cutting by sharp objects (ISO 13997:2024)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 01/25

Rozpracovaná prekladom.

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EN ISO 13997

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ICS 13.340.10 Supersedes EN ISO 13997:2023

English Version

Protective clothing - Mechanical properties - Determination of resistance to cutting by sharp objects (ISO 13997:2024)

Habillement de protection - Propriétés mécaniques - Détermination de la résistance à la coupure par des objets tranchants (ISO 13997:2024)

Schutzkleidung - Mechanische Eigenschaften - Bestimmung des Widerstandes gegen Schnitte mit scharfen Gegenständen (ISO 13997:2024)

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Ref. No. EN ISO 13997:2024 E

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European foreword

This document (EN ISO 13997:2024) has been prepared by Technical Committee ISO/TC 94 "Personal safety -- Personal protective equipment" in collaboration with 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of an identical text or by endorsement, at the latest by April 2025, and conflicting national standards shall be withdrawn at the latest by April 2025.

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Endorsement notice

The text of ISO 13997:2024 has been approved by CEN as EN ISO 13997:2024 without any modification.

International Standard

ISO 13997

Protective clothing — Mechanical properties — Determination of resistance to cutting by sharp objects

Habillement de protection — Propriétés mécaniques — Détermination de la résistance à la coupure par des objets tranchants

Third 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 document 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).

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For an explanation of the voluntary nature of standards, 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 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 third edition cancels and replaces the second edition (ISO 13997:2023), of which it constitutes a minor revision.

The main changes are as follows:

— Figure 7 a) was replaced;

— Footnote 2 was moved to the Figure 7 title;

— the Excel file that can be downloaded using the link in the note to Table B.2 was replaced (there was a correction because in few specific cases Excel did not work as planned).

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.

Introduction

Although textiles, composites, leather, rubbers and reinforced materials may resist cutting by sharp edges in different ways, a test method for evaluating the resistance to cut of materials in protective clothing should be applicable to all materials. The test described in this document provides a method that allows calculations of the downwards (normal) force required to cause a blade drawn across the sample for a fixed distance to cut through the specimen.

The performance of protective clothing materials may be classified using the numerical values obtained from this test.

International Standard **ISO 13997:2024(en)**

Protective clothing — Mechanical properties — Determination of resistance to cutting by sharp objects

1 Scope

This document specifies a tomodynamometer cut test method and related calculations, for use on materials and assemblies designed for protective clothing, including gloves. The test determines resistance to cutting by sharp edges, such as knives, sheet metal parts, swarf, glass, bladed tools and castings.

When this document is cited as a test method in a material or product requirement standard, that standard contains the necessary information to permit the application of this document to the particular product.

This test does not provide data on the resistance to penetration by pointed objects such as needles and thorns, or the point of sharp-edged blades. The test described in this document is not considered suitable for testing materials made from chain mail and metal plates. The text of this document does not include provisions for the safeguard of the operator.

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 34-1, *Rubber, vulcanized or thermoplastic — Determination of tear strength — Part 1: Trouser, angle and crescent test pieces*

ISO 37, *Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties*

ISO 48-4, *Rubber, vulcanized or thermoplastic — Determination of hardness — Part 4: Indentation hardness by durometer method (Shore hardness)*

ISO 2781, *Rubber, vulcanized or thermoplastic — Determination of density*

ISO 11610, *Protective clothing — Vocabulary*

ISO 23388:2018, *Protective gloves against mechanical risks*

ISO 23529, *Rubber — General procedures for preparing and conditioning test pieces for physical test methods*