

KAITSERÕIVAD. KAITSE VIHMA EEST

Protective clothing - Protection against rain (ISO 24232:2024)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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| <p>See Eesti standard EVS-EN ISO 24232:2025 sisaldab Euroopa standardi EN ISO 24232:2025 ingliskeelset teksti.</p> <p>Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 22.10.2025.</p> <p>Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.</p> | <p>This Estonian standard EVS-EN ISO 24232:2025 consists of the English text of the European standard EN ISO 24232:2025.</p> <p>This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.</p> <p>Date of Availability of the European standard is 22.10.2025.</p> <p>The standard is available from the Estonian Centre for Standardisation and Accreditation.</p> |
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EUROPEAN STANDARD

EN ISO 24232

NORME EUROPÉENNE

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Protective clothing - Protection against rain (ISO 24232:2024)

Habillement de protection - Protection contre la pluie
(ISO 24232:2024)

Schutzkleidung - Schutz gegen Regen (ISO
24232:2024)

This European Standard was approved by CEN on 17 October 2024.

This European Standard was corrected and reissued by the CEN-CENELEC Management Centre on 26 November 2025.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

This document (EN ISO 24232:2025) 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of an identical text or by endorsement, at the latest by April 2026, and conflicting national standards shall be withdrawn at the latest by April 2026.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 343:2019.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

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

Endorsement notice

The text of ISO 24232:2024 has been approved by CEN as EN ISO 24232:2025 without any modification.

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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).

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

In this document the measured properties of materials and seams of protective garments and their subsequent classification are intended to ensure an adequate protection level. Water proofness and water vapour resistance are the essential properties tested and marked on the label.

Water proofness is the most important property and it is measured on material of the outer garment layer. Tests are made on pretreated fabric samples and on parts with seams. A test method for an optional readymade garment test after cleaning is described (rain tower test).

Some waterproof materials are impermeable to water vapour transmission. However other materials on the market combine water proofness with water vapour permeability. This property expressed by low water vapour resistance enhances sweat evaporation and significantly contribute to body cooling. This is valuable, because it contributes to better comfort and less physiological strain and prolongs the wearing time in certain climatic conditions (see [Annex A](#)).

Protective clothing — Protection against rain

1 Scope

This document specifies requirements and test methods for the performance of materials and readymade garments for protection against the effects of precipitation (e.g. rain, snowflakes), fog and ground humidity. Garments for protection against other effects than precipitation (e.g. water splashes, waves) are excluded from this document.

The protective effects and requirements of footwear, gloves and separate headwear are excluded from the scope of this document.

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 811:2018, *Textiles — Determination of resistance to water penetration — Hydrostatic pressure test*

ISO 1421:2016, *Rubber- or plastics-coated fabrics — Determination of tensile strength and elongation at break*

ISO 1817:2024, *Rubber, vulcanized or thermoplastic — Determination of the effect of liquids*

ISO 4674-1:2016, *Rubber- or plastics-coated fabrics — Determination of tear resistance — Part 1: Constant rate of tear methods*

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

ISO 11092:2014, *Textiles — Physiological effects — Measurement of thermal and water-vapour resistance under steady-state conditions (sweating guarded-hotplate test)*

ISO 12947-1:1998, *Textiles — Determination of the abrasion resistance of fabrics by the Martindale method — Part 1: Martindale abrasion testing apparatus*

ISO 12947-2:2016, *Textiles — Determination of the abrasion resistance of fabrics by the Martindale method — Part 2: Determination of specimen breakdown*

ISO 13688:2013, *Protective clothing — General requirements*

ISO 13688:2013/Amd.1:2021, *Protective clothing — General requirements — Amendment 1*

ISO 13934-1:2013, *Textiles — Tensile properties of fabrics — Part 1: Determination of maximum force and elongation at maximum force using the strip method*

ISO 13935-2:2014, *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 13938-1:2019, *Textiles — Bursting properties of fabrics — Part 1: Hydraulic method for determination of bursting strength and bursting distension*

ISO 13938-2:2019, *Textiles — Bursting properties of fabrics — Part 2: Pneumatic method for determination of bursting strength and bursting distension*

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

ISO 24231:2024, *Protective clothing — Protection against rain — Test method for ready-made garments against high energy droplets from above*

EN 530:2010, *Abrasion resistance of protective clothing material — Test methods*

3 Terms and definitions

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

water vapour resistance

R_{et}
water-vapour pressure difference between the two faces of a material divided by the resultant evaporative heat flux per unit area in the direction of the gradient

Note 1 to entry: It is a quantity specific to textile materials or composites, which determines the “latent” evaporative heat flux across a given area in response to a steady applied water-vapour pressure gradient. The evaporative heat flux can consist of both diffusive and convective components.

Note 2 to entry: The water-vapour resistance is expressed in square metres pascal per watt.

[SOURCE: ISO 11092:2014, 2.2]

3.2

water penetration resistance

W_p
property of a material to support the hydrostatic pressure based on the opposition to the passage of water through the material

[SOURCE: ISO 11610:2023, 4.6.9]

3.3

outer shell material

outermost shell material of which the garment is made

Note 1 to entry: Based on the definition of outer material, ISO 11610:2023, 4.3.27.

3.4

waterproof liner

liner with a waterproof property

3.5

waterproof thermal liner

thermal liner with a waterproof property

3.6

lining

innermost lining

innermost layer of fabric or other material inserted in a garment which is intended to be nearest to the wearer's body

Note 1 to entry: Where the lining forms part of a quilted assembly, the quilted assembly shall be regarded as the innermost lining

Note 2 to entry: In this document, lining is without waterproof property.

[SOURCE: ISO 11610:2023, 4.3.7, modified — added Note 2 to entry]