

**Personal protective equipment - Test methods for  
footwear (ISO 20344:2021 +  
ISO 20344:2021/Amd 1:2024)**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

|                                                                                                                                                                                                                       |                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| See Eesti standard EVS-EN ISO 20344:2021+A1:2024 sisaldab Euroopa standardi EN ISO 20344:2021 ja selle muudatuse A1:2024 ingliskeelset teksti.                                                                        | This Estonian standard EVS-EN ISO 20344:2021+A1:2024 consists of the English text of the European standard EN ISO 20344:2021 and its amendment A1:2024.                                                                                     |
| Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.<br><br>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 24.11.2021, muudatus A1 31.01.2024. | This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.<br><br>Date of Availability of the European standard is 24.11.2021, for A1 31.01.2024. |
| Muudatusega A1 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega $\boxed{A1}$ $\boxed{A1}$ .<br><br>Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.                 | The start and finish of text introduced or altered by amendment A1 is indicated in the text by tags $\boxed{A1}$ $\boxed{A1}$ .<br><br>The standard is available from the Estonian Centre for Standardisation and Accreditation.            |

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English Version

Personal protective equipment - Test methods for  
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Schuhe (ISO 20344:2021 + ISO 20344:2021/Amd  
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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 20344:2021) has been prepared by Technical Committee ISO/TC 94 "Personal safety -- Personal protective equipment" in collaboration with Technical Committee CEN/TC 161 "Foot and leg protectors" the secretariat of which is held by BSI.

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 May 2022, and conflicting national standards shall be withdrawn at the latest by May 2022.

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The text of ISO 20344:2021 has been approved by CEN as EN ISO 20344:2021 without any modification.

## **A1** Amendment A1 European foreword

This document (EN ISO 20344:2021/A1:2024) has been prepared by Technical Committee ISO/TC 94 "Personal safety -- Personal protective equipment" in collaboration with Technical Committee CEN/TC 161 "Foot and leg protectors" the secretariat of which is held by BSI.

This Amendment to the European Standard EN ISO 20344:2021 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 2024, and conflicting national standards shall be withdrawn at the latest by July 2024.

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## Foreword

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This document was prepared by Technical Committee ISO/TC 94 *Personal safety – Personal protective equipment*, Subcommittee SC 3, *Footwear*.

This second edition cancels and replaces the first edition (ISO 20344:2011), which has been technically revised.

The main changes compared to the previous edition are as follows:

- for each test same organisation (1 principle 2 test equipment's 3 sampling and conditioning 4 test method 5 test report);
- systematic inclusion of a clause test report in all the test methods;
- changes in Table 1, minimum number of samples and test pieces;
- several tests are not described anymore in this standard but in the corresponding standard, reference is made to specific standards (ISO 22649, ISO 11640, ISO 17707, etc...);
- all reference standards are dated in Clause 2;
- new standards are taken into account (ISO 17075-1 and ISO 17075-2, ISO 22568-1 to ISO 22568-4);
- conditioning changed from 48 h to 24 h in 4.2;
- slip resistance, New test condition in 5.14;
- non-metallic perforation resistant insert, reference to the new ISO 22568-4 in 5.10;

- new drawing for impact test in 5.4;
- new detection of water resistance in 5.18.4;
- new detection of water resistance in 5.19.4;
- clarification in the position and the dimension of the ankle protection in 5.21.2;
- new tests for scuff caps, in 5.24;
- new tests for seam strength in 5.25;
- determination of the area for non-water vapour permeable material in 6.2.3;
- new measurement of cleats height in the waist area in 8.2.4;
- new Annex A with new drawings of footwear degradations;
- new Annex B added with new system of sizing;

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](http://www.iso.org/members.html).

## **A1** Amendment A1 foreword

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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](http://www.iso.org/directives)).

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This document was prepared by Technical Committee ISO/TC 94, *Personal Safety – Personal protective equipment*, Subcommittee SC 3, *Foot protection*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 161, *Foot and leg protectors*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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# Personal protective equipment — Test methods for footwear

## 1 Scope

This document specifies methods for testing footwear designed as personal protective equipment.

## 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.

ISO 34-1:2015, *Rubber, vulcanized or thermoplastic — Determination of tear strength — Part 1: Trouser, angle and crescent test pieces*

ISO 1817:2015, *Rubber, vulcanized or thermoplastic — Determination of the effect of liquids*

ISO 3290-1:2014, *Rolling bearings — Balls — Part 1: Steel balls*

ISO 3376:2020, *Leather — Physical and mechanical tests — Determination of tensile strength and percentage elongation*

ISO 3377-2:2016, *Leather — Physical and mechanical tests — Determination of tear load — Part 2: Double edge tear*

ISO 4045:2018, *Leather — Chemical tests — Determination of pH and difference figure*

ISO 4643:1992, *Moulded plastics footwear — Lined or unlined poly(vinyl chloride) boots for general industrial use — Specification*

ISO 4649:2017, *Rubber, vulcanized or thermoplastic — Determination of abrasion resistance using a rotating cylindrical drum device*

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

ISO 5403-1:2011, *Leather — Determination of water resistance of flexible leather — Part 1: Repeated linear compression (penetrometer)*

ISO 5423:1992, *Moulded plastics footwear — Lined or unlined polyurethane boots for general industrial use — Specification*

ISO 6487:2015, *Road vehicles — Measurement techniques in impact tests - instrumentation*

ISO 7500-1:2018, *Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system*

ISO 11640:2018, *Leather — Tests for colour fastness — Colour fastness to cycles of to-and-fro rubbing*

ISO 12947-1:1998 + Cor. 1:2002, *Textiles — Determination of the abrasion resistance of fabrics by the Martindale method — Part 1 Martindale abrasion testing apparatus*

ISO 13287:2019, *Personal protective equipment — Footwear — Test method for slip resistance*

ISO 14268:2012, *Leather — Physical and mechanical tests — Determination of water vapour permeability*

ISO 17697:2016, *Footwear — Test methods for uppers, lining and insoles — Seam strength*

ISO 17707:2005, *Footwear — Test methods for outsoles — Flex resistance*

ISO 17075-1:2017, *Leather — Chemical determination of chromium(VI) content in leather — Part 1: Colorimetric method*

ISO 17075-2:2017, *Leather — Chemical determination of chromium(VI) content in leather — Part 2: Chromatographic method*

ISO 20345:2021, *Personal protective equipment — Safety footwear*

ISO 20346:2021, *Personal protective equipment — Protective footwear*

ISO 20347:2021, *Personal protective equipment — Occupational footwear*

ISO 22568-1:2019, *Foot and leg protectors — Requirements and test methods for footwear components — Part 1: Metallic toecaps*

ISO 22568-2:2019, *Foot and leg protectors — Requirements and test methods for footwear component — Part 2: Non-metallic toecaps*

ISO 22568-3:2019, *Foot and leg protectors — Requirements and test methods for footwear components — Part 3: Metallic perforation resistant inserts*

ISO 22568-4:2021, *Foot and leg protectors — Requirements and test methods for footwear components — Part 4: Non-metallic perforation resistant inserts*

ISO 22649:2016, *Footwear — Test methods for insoles and insoles — Water absorption and desorption*

ISO 23529:2016, *Rubber — General procedures for preparing and conditioning test pieces for physical test methods*

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

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 20345, ISO 20346 and ISO 20347 apply.

ISO and IEC maintain terminological 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/>