
**Footwear — Test methods for whole
shoe — Washability in a domestic
washing machine**

*Chaussures — Méthodes d'essai s'appliquant à la chaussure entière —
Lavabilité au lavage domestique*

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ISO 19954:2003

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 19954 was prepared by the European Committee for Standardization (CEN) in collaboration with Technical Committee ISO/TC 216, *Footwear*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Throughout the text of this document, read "...this European Standard..." to mean "...this International Standard...".

For the purposes of this International Standard, the CEN annex giving a list of EN documents corresponding to the ISO documents mentioned as normative references has been removed.

Annex ZZ provides a list of corresponding International and European Standards for which equivalents are not given in the text.

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Foreword

This document (EN ISO 19954:2003) has been prepared by Technical Committee CEN/TC 309 "Footwear", the secretariat of which is held by AENOR, in collaboration with Technical Committee ISO/TC 216 "Footwear".

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of an identical text or by endorsement, at the latest by April 2004 and conflicting national standards shall be withdrawn at the latest by April 2004.

Annex ZZ 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This European Standard specifies a test method for the evaluation of the behaviour of footwear when subjected to domestic washing. The evaluation is based upon the modification of some characteristics measured before and after washing.

This European Standard specifies a method of domestic washing adapted to all types of footwear.

2 Normative references

This European Standard incorporates by dated or undated references, 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 12222, *Footwear - Standard atmospheres for conditioning and testing of footwear and components for footwear.*

EN ISO 6330, *Textiles - Domestic washing and drying procedures for textile testing (ISO 6330:2000).*

EN ISO 17708, *Footwear - Test methods for whole shoe - Upper sole adhesion (ISO 17708:2003).*

ISO 105-A02, *Textiles - Tests for colour fastness - Part A02: Grey scale for assessing change in colour.*

ISO 105-A03, *Textiles - Tests for colour fastness - Part A03: Grey scale for assessing staining.*

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3 Apparatus and material to be used

3.1 Washing machine

A washing machine complying with 3.1.1 to 3.1.4. Other equipment can be used provided that it gives identical results to the machine described in this subclause.

3.1.1 General

The washing machine used should correspond to machine type A1 as described in EN ISO 6330.

3.1.2 Washing conditions

The washing cycle should comply with the following:

- volume of water of 18 l \pm 1 l;
- temperature within the range of 30 °C to 35 °C;
- a washing time of 30 min \pm 2 min;
- rotation speed of the drum of 5,4 rad/s \pm 0,5 rad/s (alternative movement)¹⁾;
- 4 g/l of detergent specified in 3.5.

3.1.3 Rinsing conditions

The rinsing cycle should comply with the following:

- volume of water of 15 l \pm 1 l;
- rinsing time of 4 min \pm 1 min.

3.1.4 Wringing/Emptying conditions

3.1.4.1 Initial wringing

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This cycle should comply with the following: (standards.iteh.ai)

- 120 s \pm 30 s at a rotation speed of 5,7 rad/s \pm 0,5 rad/s.

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3.1.4.2 Final wringing

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This cycle should comply with the following:

- 6 min \pm 1 min at a rotation speed of 49,5 rad/s \pm 2,6 rad/s.

3.2 Textile component

It shall be a white, 100% monofibre cotton textile of 125 g/m² \pm 5 g/m² cut into rectangles of (50 \pm 2) cm x (50 \pm 2) cm.

The textile component shall be composed of 10 such rectangles.

The textile component is used in order to simulate normal washing conditions and to minimise abrasion damage of the footwear against the drum.

3.3 Standard grey scale

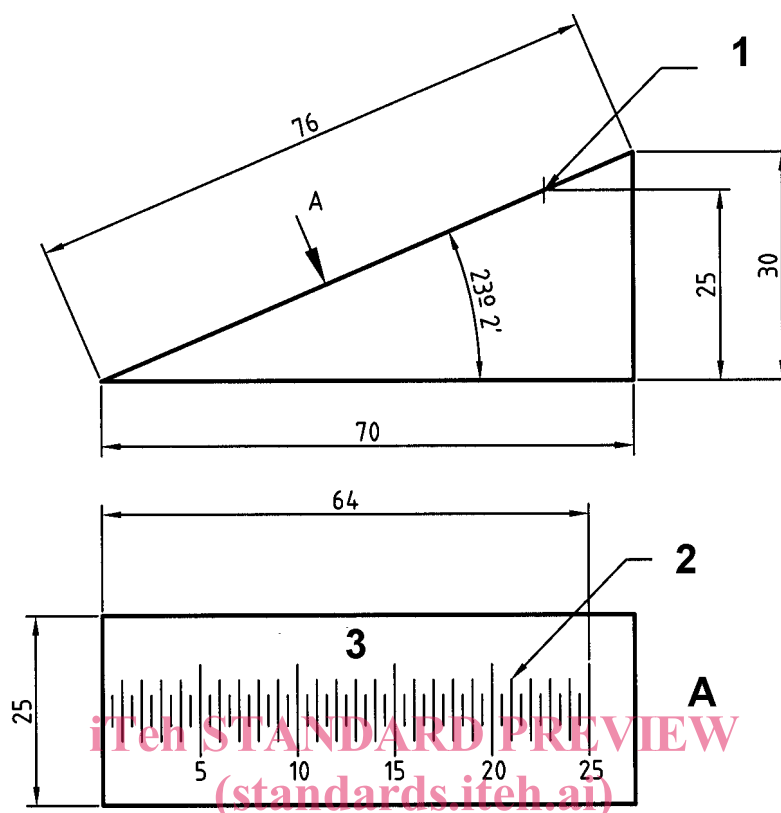
The grey scales for the evaluation of colour change and colour transfer (see clause 5) shall comply with ISO 105-A02 and ISO 105-A03, respectively.

3.4 Toe spring gauge

The toe spring gauge shall be as shown in Figure 1.

¹⁾ 1 rad \equiv 0,16 revolution.

Dimensions in millimetres

**Key**

- 1: Scale reads 25mm
- 2: Engrave as shown
- 3: Toe spring in mm
- A: View on A

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Figure 1 — Toe spring gauge**3.5 Detergent**

The reference detergent ECE (see EN ISO 6330) shall be used.

NOTE Information on the availability of suitable detergent can be obtained from CEN/TC 309 Secretariat.

3.6 Water

Tap water can be used, under the following conditions:

- temperature of $20\text{ °C} \pm 4\text{ °C}$;
- pH of (7 ± 1) .

4 Sampling and conditioning

4.1 The sample shall be, at least, two pairs of shoes.

Each complete item of footwear shall be considered as a test piece and at least two test pieces shall be tested.