



SLOVENSKI STANDARD SIST EN ISO 20346:2004

01-oktober-2004

BUXca Yý U

SIST EN 346:1996/A1:1998

Osebna varovalna oprema - Varovalna obutev (ISO 20346:2004)

Personal protective equipment - Protective footwear (ISO 20346:2004)

Persönliche Schutzausrüstung - Schutzschuhe (ISO 20346:2004)

Equipement de protection individuelle - Chaussures de protection (ISO 20346:2004)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: EN ISO 20346:2004

<https://standards.iteh.ai/catalog/standards/sist/0993f303-5ad9-475b-9807-86d0c09f0ba9/sist-en-iso-20346-2004>

ICS:

13.340.50 Varovanje nog in stopal Leg and foot protection

SIST EN ISO 20346:2004

en

iTeh STANDARD PREVIEW **(standards.iteh.ai)**

SIST EN ISO 20346:2004

<https://standards.iteh.ai/catalog/standards/sist/0993f303-5ad9-475b-9807-86d0c09f0ba9/sist-en-iso-20346-2004>

English version

Personal protective equipment - Protective footwear
(ISO 20346:2004)

Équipement de protection individuelle - Chaussures de
protection (ISO 20346:2004)

Persönliche Schutzausrüstung - Schutzschuhe (ISO
20346:2004)

This European Standard was approved by CEN on 2 January 2004.

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.

CEN members are the national standards bodies of 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.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
<https://standards.iteh.ai/catalog/standards/sist/0993f303-5ad9-475b-9807-86d0c09f0ba9/sist-en-iso-20346-2004>



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

page

Foreword.....	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Classification.....	10
5 Basic requirements for protective footwear	11
5.1 General.....	11
5.2 Design	14
5.2.1 General.....	14
5.2.2 Height of upper	14
5.2.3 Seat region	14
5.3 Whole footwear	14
5.3.1 Sole performance.....	14
5.3.2 Toe protection	14
5.3.3 Leakproofness	16
5.3.4 Specific ergonomic features.....	16
5.4 Upper.....	16
5.4.1 General.....	16
5.4.2 Thickness	16
5.4.3 Tear strength	17
5.4.4 Tensile properties	17
5.4.5 Flexing resistance	17
5.4.6 Water vapour permeability and coefficient	17
5.4.7 pH value	17
5.4.8 Hydrolysis.....	18
5.4.9 Chromium VI content	18
5.5 Lining	18
5.5.1 Tear strength	18
5.5.2 Abrasion resistance	18
5.5.3 Water vapour permeability and coefficient	18
5.5.4 pH value	18
5.5.5 Chromium VI content	18
5.6 Tongue	19
5.6.1 Tear strength	19
5.6.2 pH value	19
5.6.3 Chromium VI content	19
5.7 Insole and insock.....	19
5.7.1 Thickness	19
5.7.2 pH value	19
5.7.3 Water absorption and desorption	19
5.7.4 Abrasion resistance	19
5.7.5 Chromium VI content	20
5.8 Outsole.....	20
5.8.1 Thickness of non-cleated outsoles.....	20
5.8.2 Tear strength	20
5.8.3 Abrasion resistance	20
5.8.4 Flexing resistance.....	20
5.8.5 Hydrolysis.....	20
5.8.6 Interlayer bond strength	20

5.8.7	Resistance to fuel oil.....	21
6	Additional requirements for protective footwear.....	21
6.1	General	21
6.2	Whole footwear.....	22
6.2.1	Penetration resistance	22
6.2.2	Electrical properties	24
6.2.3	Resistance to inimical environments	24
6.2.4	Energy absorption of seat region	24
6.2.5	Water resistance.....	24
6.2.6	Metatarsal protection	25
6.2.7	Ankle protection	25
6.3	Upper	25
6.3.1	Water penetration and water absorption	25
6.3.2	Construction	25
6.3.3	Cut resistance.....	25
6.4	Outsole	26
6.4.1	Cleated area	26
6.4.2	Thickness of cleated outsoles	27
6.4.3	Cleat height	27
6.4.4	Resistance to hot contact.....	27
7	Marking.....	27
8	Information to be supplied	29
8.1	General	29
8.2	Electrical properties	29
8.2.1	Conductive footwear.....	29
8.2.2	Antistatic footwear	30
8.2.3	Electrically insulating footwear	31
8.3	Insocks	31
Annex ZA	(informative) Clauses of this European Standard addressing essential requirements or other provisions of EU Directives.....	32
Annex ZB	(normative) Corresponding International and European Standards for which equivalents are not given in the text	34
Bibliography	35

Foreword

This document (EN ISO 20346:2004) has been prepared by Technical Committee CEN/TC 161 “Foot and leg protectors”, the secretariat of which is held by BSI, in collaboration with Technical Committee ISO/TC 94 “Personal safety - Protective clothing and equipment”.

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 February 2005, and conflicting national standards shall be withdrawn at the latest by August 2005.

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.

In conjunction with EN ISO 20344:2004, this standard supersedes EN 346:1992 and EN 346-2:1996.

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.

ITEH STANDARD PREVIEW
(standards.iteh.ai)
SIST EN ISO 20346:2004
<https://standards.iteh.ai/catalog/standards/sist/0993f303-5ad9-475b-9807-86d0c09f0ba9/sist-en-iso-20346-2004>

1 Scope

This European Standard specifies basic and additional (optional) requirements for protective footwear.

2 Normative references

The following referenced documents are indispensable for the application 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.

EN 12568:1998, *Foot and leg protectors – Requirements and test methods for toecaps and metal penetration resistant inserts*

EN ISO 20344: 2004, *Personal protective equipment - Test methods for footwear (ISO 20344:2004)*

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

NOTE The component parts of footwear are illustrated in figures 1 and 2.

3.1 protective footwear

footwear, incorporating protective features to protect the wearer from injuries which could arise through accidents, fitted with toecaps, designed to give protection against impact when tested at an energy level of at least 100 J and against compression when tested at a compression load of at least 10 kN

3.2 leather

3.2.1 full grain leather

hide or skin tanned to be imputrescible having conserved the totality of its grain

3.2.2 corrected grain leather

hide or skin tanned to be imputrescible which has been subjected to mechanical buffing to modify its grain structure

3.2.3 leather split

flesh or middle part of a hide or skin tanned to be imputrescible obtained by splitting a thick leather

3.3 rubber

vulcanized elastomers

3.4 polymeric materials

for example polyurethane or polyvinylchloride

3.5

insole

non-removable component used to form the base of the shoe to which the upper is usually attached during lasting

3.6

insock

removable or permanent footwear component used to cover part or all of the insole

3.7

lining

material covering the inner surface of the upper

NOTE 1 The wearer's foot is in direct contact with the lining.

NOTE 2 Where an upper is split at the forepart to house the toecap, or if an external piece of material is stitched to the upper to form a pocket to house the toecap, the material under the toecap acts as a lining.

3.7.1

vamp lining

material covering the inner surface of the forepart of the upper

3.7.2

quarter lining

material covering the inner surface of the quarters of the upper

3.8

cleat(s)

protruding part(s) of the outer surface of the sole

3.9

rigid outsole

sole which, when the complete footwear is tested in accordance with EN ISO 20344: 2004, 8.4.1, cannot be bent through an angle of 45° under a load of 30 N

3.10

cellular outsole

outsole having a density of 0,9 g/ml or less with a cell structure visible under 10x magnification

3.11

penetration-resistant insert

footwear component placed in the sole complex in order to provide protection against penetration

3.12

safety toecap

footwear component built into the footwear designed to protect the toes of the wearer from impacts up to an energy level of at least 100 J and compression at a load of at least 10 kN

3.13

seat region

back part of the footwear (upper and sole)

3.14

conductive footwear

footwear whose resistance, when measured according to EN ISO 20344: 2004, 5.10, lies in the range of 0 to 100 kΩ

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 20346:2004

<https://standards.iteh.ai/catalog/standards/sist/0993f303-5ad9-475b-9807-86d92dffa23c/iso-20346-2004>

3.15

antistatic footwear

footwear whose resistance, when measured according to EN ISO 20344: 2004, 5.10, lies above 100 k Ω and is less than or equal to 1 000 M Ω

3.16

electrically insulating footwear

footwear which protects the wearer against electrical shocks by preventing the passage of dangerous current through the body via the feet

3.17

fuel oil

aliphatic hydrocarbon constituent of petroleum

3.18

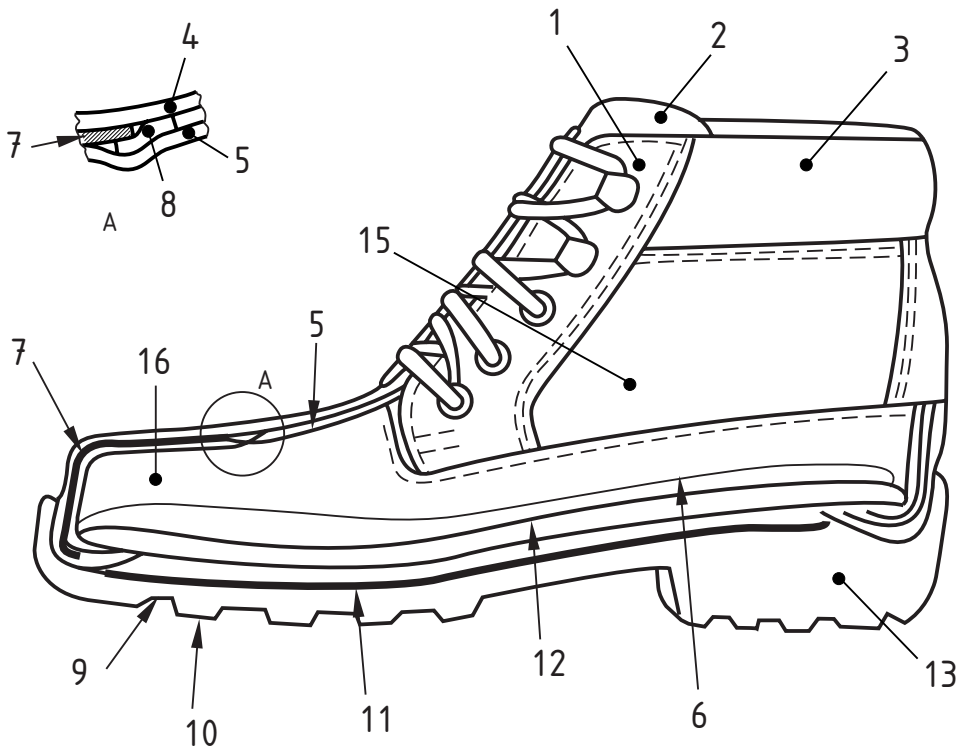
specific job related footwear

safety, protective or occupational footwear relating to a specific profession, e.g. footwear for firefighters, footwear with resistance to chain saw cutting, etc.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 20346:2004](https://standards.iteh.ai/catalog/standards/sist/0993f303-5ad9-475b-9807-86d0c09f0ba9/sist-en-iso-20346-2004)

<https://standards.iteh.ai/catalog/standards/sist/0993f303-5ad9-475b-9807-86d0c09f0ba9/sist-en-iso-20346-2004>



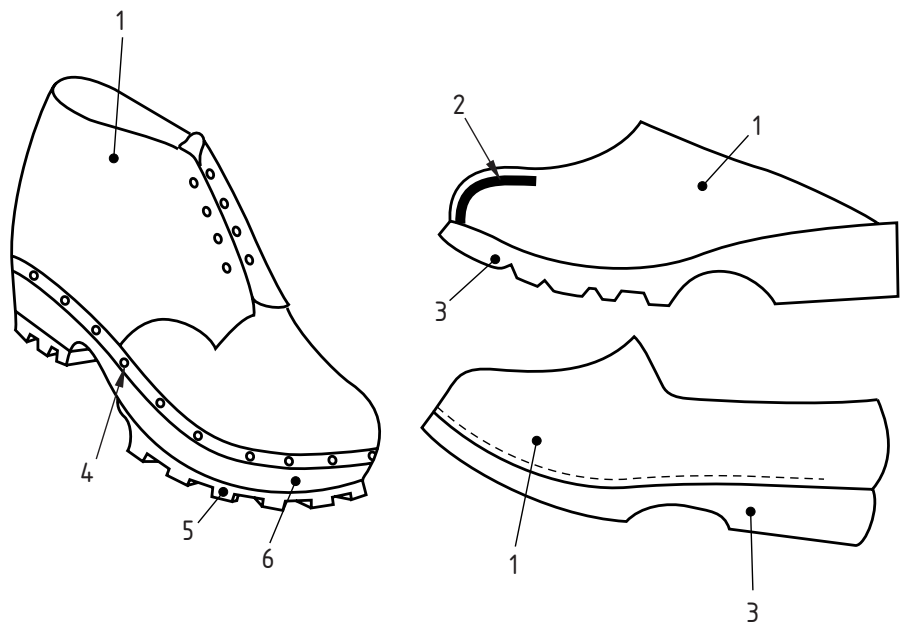
iTeh STANDARD PREVIEW
(standards.itech.ai)

SIST EN ISO 20346:2004
<https://standards.itech.ai/catalog/standards/sist/0993705-2a9-4735-9807-86d0c09f0ba9/sist-en-iso-20346-2004>



Key					
1	Facing	6	Insock	11	Penetration-resistant insert
2	Tongue	7	Toecap	12	Insole
3	Collar	8	Edge covering, e.g. foam strip	13	Heel
4	Upper	9	Outsole	14	Strobel stitching
5	Vamp lining	10	Cleat	15	Quarter
				16	Vamp

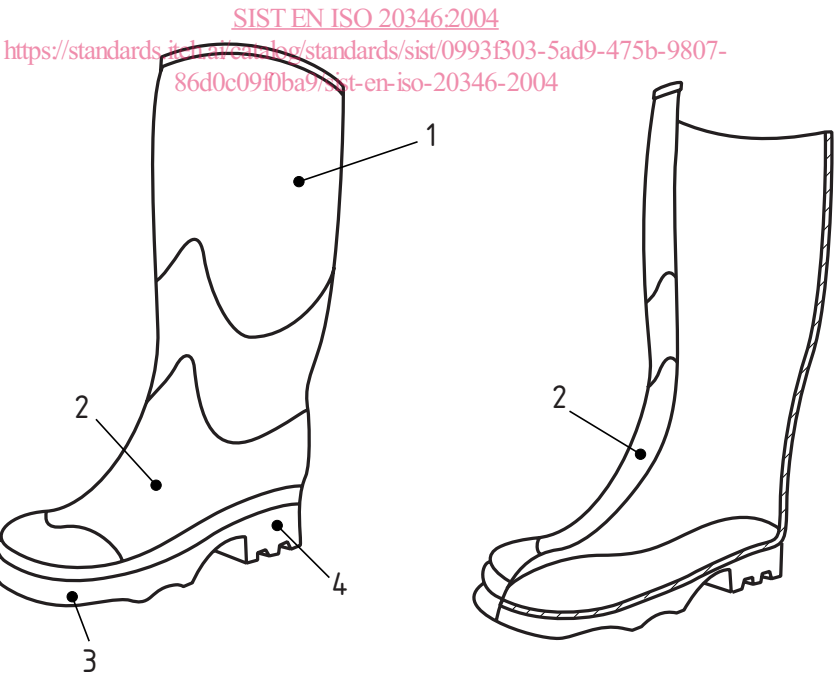
Figure 1a) Parts of footwear of Strobil construction



Key

1	Upper	3	Rigid sole	5	Outsole
2	Toecap	4	Reinforcing welt with nails	6	Wooden sole

Figure 1b) Parts of footwear of conventional construction



Key

1	Upper	3	Outsole
2	Vamp	4	Heel

Figure 2 — Parts of all-rubber (i.e. vulcanized) or all polymeric (i.e. entirely moulded) footwear

4 Classification

Footwear shall be classified in accordance with table 1.

Table 1 — Classification of footwear

Code designation	Classification
I	Footwear made from leather and other materials, excluding all-rubber or all-polymeric footwear
II	All-rubber (i.e. entirely vulcanized) or all-polymeric (i.e. entirely moulded) footwear



Key

1 Variable extension which can be adapted to the wearer

- A Low shoe
- B Ankle boot
- D Knee-height boot
- C Half-knee boot
- E Thigh boot

NOTE Design E can be a knee-height boot (design D) equipped with a thin impermeable material which extends the upper and which can be cut to adapt the boot to the wearer

Figure 3 — Designs of footwear