SLOVENSKI STANDARD
SIST EN 13832-2:2019

01-februar-2019

Nadomešča:
SIST EN 13832-2:2006

Obutev za varovanje pred kemikalijami - 2. del: Zahteve za omejen stik s kemikalijami

Footwear protecting against chemicals - Part 2: Requirements for limited contact with chemicals

Schuhe zum Schutz gegen Chemikalien - Teil 2: Anforderungen für begrenzten Kontakt mit Chemikalien

Chaussure protégeant contre les produits chimiques - Partie 2 : Exigences en cas de contact limité avec des produits chimiques

Ta slovenski standard je istoveten z: **EN 13832-2:2018**

ICS:

13.340.50	Varovanje nog in stopal	Leg and foot protection

SIST EN 13832-2:2019 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13832-2

November 2018

ICS 13.340.50

Supersedes EN 13832-2:2006

English Version

Footwear protecting against chemicals - Part 2: Requirements for limited contact with chemicals

Chaussure protégeant contre les produits chimiques - Partie 2 : Exigences pour les contacts limités avec les produits chimiques

Schuhe zum Schutz gegen Chemikalien - Teil 2: Anforderungen für begrenzten Kontakt mit Chemikalien

This European Standard was approved by CEN on 27 May 2018.

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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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

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

Contents

Page

European foreword ... 3
1 Scope ... 4
2 Normative references ... 4
3 Terms and definitions ... 4
4 Design ... 5
5 Classification ... 6
6 Requirements ... 6
6.1 Basic requirements ... 6
6.2 Requirements for footwear for limited contact with chemicals ... 10
6.3 Additional requirements for footwear for limited contact with chemicals ... 12
7 Marking ... 13
7.1 General ... 13
7.2 Marking of type U footwear ... 14
7.3 Marking of Type US footwear ... 15
8 Information for use supplied by the manufacturer ... 16
8.1 General ... 16
8.2 Instructions for use and related information ... 16
8.3 Electrical properties ... 18
8.4 Properties of protection against chemicals ... 18
8.5 Insocks ... 18
8.6 Perforation resistance ... 18
8.7 Slip resistance ... 19
Annex A (informative) Slip resistance ... 20
A.1 Introduction ... 20
A.2 Explanation of EN ISO 13287 and marking codes SRA, SRB or SRC ... 20
A.3 Additional testing ... 21
A.3.1 General ... 21
A.3.2 Additional surfaces ... 21
A.4 Factors influencing footwear performance ... 21
A.4.1 General ... 21
A.4.2 Durability of slip resistance ... 21
A.4.3 other factors ... 22
Annex ZA (informative) Relationship between this European Standard and the essential requirements of PPE Regulation 2016/425 aimed to be covered ... 23
Bibliography ... 25

European foreword

This document (EN 13832-2:2018) has been prepared by 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 2019, and conflicting national standards shall be withdrawn at the latest by May 2019.

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 13832-2:2006.

This document supports essential requirements of EU Regulation(s).

For relationship with EU Regulation 2016/425, see informative Annex ZA, which is an integral part of this document.

EN 13832, *Footwear protecting against chemicals*, is published in three parts:

— Part 1: *Terminology and test methods*

— Part 2: *Requirements for limited contact with chemicals*

— Part 3: *Requirements for prolonged contact with chemicals*

This standard is intended for use in conjunction with EN ISO 20345, EN ISO 20346 and EN ISO 20347.

Overview of major technical changes compared to the previous edition:

— Reference to regulation 2016/425 instead of Directive 89/686

— New splashing test

— Reference to the new permeation standard EN 16523-1

— Figure 6 for damages assessment

— New requirements with 2 types (U and US)

— Table 7, change in the marking

— Slip resistance annex

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

1 Scope

This European Standard specifies requirements for footwear to protect the user against limited contact in time with specific chemicals.

The following risks are covered: splashing and degradation by chemical.

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.

EN ISO 868:2003, *Plastics and ebonite - Determination of indentation hardness by means of a durometer (Shore hardness) (ISO 868:2003)*

ISO 7000:2014, *Graphical symbols for use on equipment — Registered symbols*

EN 13832-1:2018, *Footwear protecting against chemicals - Part 1: Terminology and test methods*

EN 13832-3:2018, *Footwear protecting against chemicals - Part 3: Requirements for prolonged contact with chemicals*

EN ISO 20344:2011, *Personal protective equipment - Test methods for footwear (ISO 20344:2011)*

EN ISO 20345:2011, *Personal protective equipment - Safety footwear (ISO 20345:2011)*

EN ISO 20346:2014, *Personal protective equipment - Protective footwear (ISO 20346:2014)*

EN ISO 20347:2012, *Personal protective equipment - Occupational footwear (ISO 20347:2012)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13832-1, EN ISO 20345 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
footwear for limited contact with chemicals Type U
footwear designed and manufactured to protect the wearer from splashing of chemicals on the upper. The upper contact can be intermittent, not exceeding one hour.

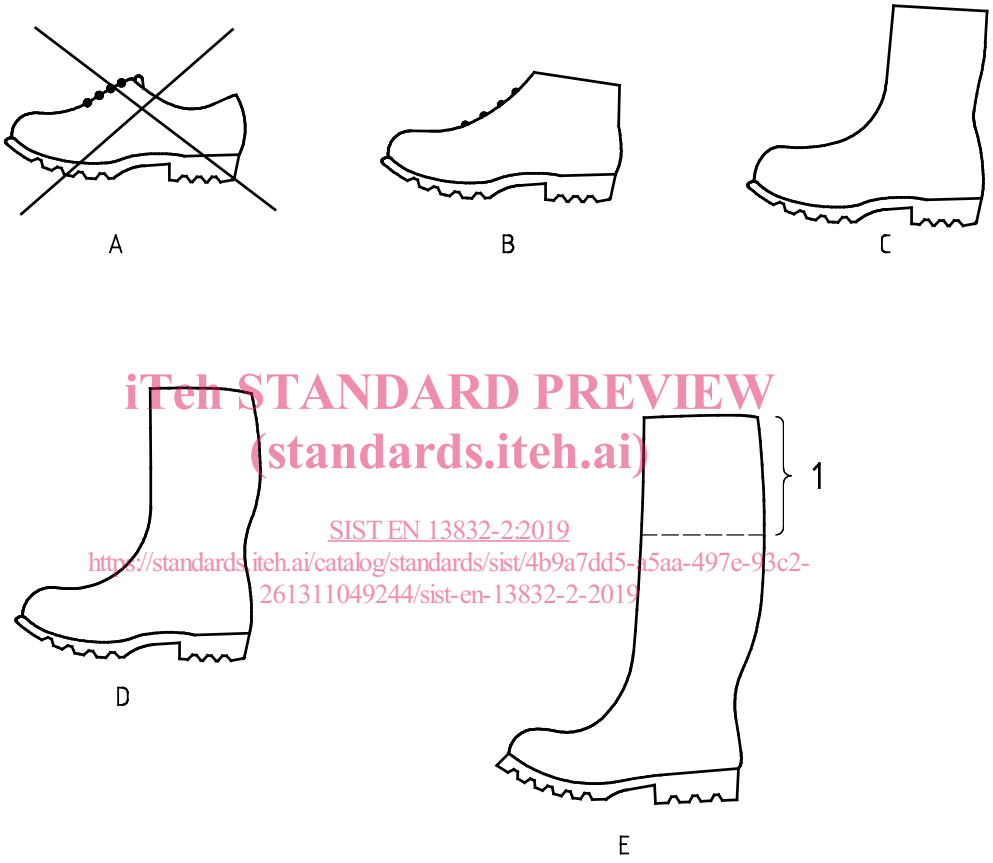
3.2
footwear for limited contact with chemicals Type US
footwear designed and manufactured to protect the wearer from splashing of chemicals on the upper and contact with the outsole. The upper and outsole contact can be continuous or intermittent , not exceeding one hour.

3.3
footwear for prolonged contact with chemicals
footwear designed and manufactured to protect the wearer from contact with chemicals. The contact can be continuous or intermittent. Prolonged means that it can be more than one hour in permanent contact.

Note 1 to entry: (see EN 13832-3:2018)

4 Design

For footwear for limited contact with chemicals, only designs B, C, D or E in Figure 1 shall be used.



Key
1 Variable extension that can be adapted to the wearer
A Low shoe
B Ankle boot
C Half-knee boot
D knee-height boot
E Thigh boot

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

Figure 1 — Designs of footwear

5 Classification

Footwear for limited contact with chemicals shall be classified in accordance with Table 1.

Table 1 — Classification of footwear

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

See clause 4 of EN ISO 20345:2011, EN ISO 20346:2014 and EN ISO 20347:2012

This standard does not apply to footwear with leather outsoles.

This standard applies for hybrid footwear (as defined in EN ISO 20345:2011, Annex A).

6 Requirements

6.1 Basic requirements

Footwear for limited contact with chemical shall conform to the requirements specified in Table 2.

Footwear for limited contact with chemical may or may not include a toe cap. The choice shall be made from one of the three columns (EN ISO 20345:2011, EN ISO 20346:2014 or EN ISO 20347:2012) in Table 2.

Table 2 — Basic requirements for footwear for limited contact with chemicals

Requirements			Reference				Classification	
			EN ISO 20345: 2011	EN ISO 20346: 2014	EN ISO 20347: 2012	EN 13832–2:2018	I	II
General	Whole footwear	Design and classifications				4 and 5	X	X
		Height of upper	5.2.2	5.2.2	5.2.2		X	X
		Specific ergonomic features	5.3.4	5.3.4	5.3.3		X	X
		Leakproofness	5.3.3	5.3.3	5.3.2			X
		Water resistance				6.2.3	X	
	Seat region	Designs B, C and D (Figure 1)	5.2.3	5.2.3	5.2.3		X	X
		Design E (Figure 1)	5.2.3	5.2.3	5.2.3			X
Whole footwear	Outsole performance	Construction	5.3.1.1	5.3.1.1	5.3.1.1		X	
		Upper/outsole bond strength	5.3.1.2	5.3.1.2	5.3.1.2		X	
		Slip resistance	5.3.5	5.3.5	5.3.4		X	X
	Toe Protection	General	5.3.2.1	5.3.2.1			X	X
		Toe cap length	5.3.2.2	5.3.2.2			X	X
		Impact resistance	5.3.2.3	5.3.2.3			X	X
		Compression resistance	5.3.2.4	5.3.2.4			X	X
		Behaviour of toecap	5.3.2.5	5.3.2.5			X	X
	Resistance of footwear for limited contact with chemicals					6.2.1	X	X
	Innocuousness					6.2.4		

Table 2 — Basic requirements for footwear for limited contact with chemical (cont.)

Requirements		Reference				Classification	
		EN ISO 20345 :2011	EN ISO 20346 :2014	EN ISO 20347 :2012	EN 13832–2:2018	I	II
Upper	General	5.4.1	5.4.1	5.4.1		X	X
	Thickness	5.4.2	5.4.2	5.4.2			X
	Tear strength	5.4.3	5.4.3	5.4.3		X	
	Tensile properties	5.4.4	5.4.4	5.4.4		X	X
	Flexing resistance	5.4.5	5.4.5	5.4.5			X
	pH value	5.4.7	5.4.7	5.4.7		X	
	Chromium VI	5.4.9	5.4.9	5.4.9		X	
	Water penetration and water absorption	6.3	6.3	6.3		X	
	hydrolysis	5.4.8	5.4.8	5.4.8			X
	Upper construction	6.3.2	6.3.2	6.3.2		X	
Vamp lining	Tear strength	5.5.1	5.5.1	5.5.1		O	
	Abrasion resistance	5.5.2	5.5.2	5.5.2		O	
	pH value	5.5.4	5.5.4	5.5.4		O	
	Chromium VI	5.5.5	5.5.5	5.5.5		O	
Quarter lining	Tear strength	5.5.1	5.5.1	5.5.1		O	
	Abrasion resistance	5.5.2	5.5.2	5.5.2		O	
	pH value	5.5.4	5.5.4	5.5.4		O	
	Chromium VI	5.5.5	5.5.5	5.5.5		O	
Tongue	Tear strength	5.6.1	5.6.1	5.6.1		O	
	pH value	5.6.2	5.6.2	5.6.2		O	
	Chromium VI	5.6.3	5.6.3	5.6.3		O	
Insole/insocks	See Table 3						
Outsole	Thickness	5.8.1	5.8.1	5.8.1		X	X
	Tear strength	5.8.2	5.8.2	5.8.2		X	
	Abrasion resistance				6.2.2	X	X
	Flexing resistance	5.8.4	5.8.4	5.8.4		X	X
	hydrolysis	5.8.5	5.8.5	5.8.5		X	X
	Interlayer bond strength	5.8.6	5.8.6	5.8.6		O	O

Requirements	Reference				Classification	
	EN ISO 20345 :2011	EN ISO 20346 :2014	EN ISO 20347 :2012	EN 13832–2:2018	I	II
The applicability of a requirement to a particular classification is indicated in the table by the following. X indicates that the requirement shall be met. In some cases the requirement relates only to particular materials within the classification, e.g. pH value of leather components. This does not mean that other materials are precluded from use. O indicates that if the component part exists, the requirement shall be met. Note1 The absence of X or O indicates that no requirement is met. Note2 For class II footwear, it is usual to have no insole present. However, if a removable insock is used, table 3 is applicable, only chromium VI and pH requirements are fulfilled for leather materials. Note3 Stockings covering the last before the moulding process are not considered as a lining.						

Table 3 — Basic requirements for insoles and/or insocks

Options			Component to be assessed	Requirements to fulfil in EN ISO 20345:2011, EN ISO 20346:2014 and EN ISO 20347:2012					
				Thickness 5.7.1	pH ❋ 5.7.2	Water absorption desorption 5.7.3	Abrasion 5.7.4.1	Chromium VI ❋ 5.7.5	Abrasion 5.7.4.2
1	No insole or if present not fulfilling the requirements	Non-removable insock	Insock	X	X	X		X	X
2	Insole present	No insock	Insole	X	X	X	X	X	
		Seat sock present							
3		Full insock, non-removable	Insock and insole together	X		X			
			Insock		X			X	X
4		Full insock, removable and water-permeable♦	Insole	X	X	X	X	X	
			Insock		X			X	X
5		Full insock, removable, not water-permeable	Insole	X	X	X	X	X	
			Insock		X	X		X	X

NOTE For removable insocks see 8.5.

X indicates that the requirement shall be met.

♦ indicates a water permeable insock which, when tested in accordance with EN ISO 20344:2011, 7.2, lets water through in 60 s or less.

❋ Indicates those requirements that are only for leather.