INTERNATIONAL STANDARD

ISO 17249

First edition
2004-09-15

Safety footwear with resistance to chain saw cutting

Chaussures de sécurité résistantes aux coupures de scie à chaîne

Reference number
ISO 17249:2004(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published by ISO in 2005

Published in Switzerland

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.

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 17249:2004 was prepared by the European Committee for Standardization (CEN) CEN/TC 161, *Foot and leg protectors*, in collaboration with Technical Committee ISO/TC 94, *Personal safety — Protective clothing and equipment,* Subcommittee SC 3, *Foot protection*, 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...".

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

For the purposes of this International Standard, the CEN annex regarding fulfilment of European Council Directives has been removed.

Contents

page

Foreword

This document (EN ISO 17249:2004) 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 March 2005, and conflicting national standards shall be withdrawn at the latest by March 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).

Annexes A and ZB are 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, 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.

1 Scope

This European Standard specifies requirements for safety footwear with resistance to chain saw cutting.

2 Normative references

This European Standard incorporates by dated or undated reference, 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 381-3, *Protective clothing for users of hand-held chain-saws — Part 3: Test methods for footwear*

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

EN ISO 20345:2004, *Personal protective equipment - Safety footwear (ISO 20345:2004)*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN ISO 20345:2004 and the following term and definition apply.

feather line
the line of a shoe where the upper meets the bottom, the part of the bottom involved being the welt, rand, or sole, depending on the method of shoe construction

4 Classification

Safety footwear with resistance to chain saw cutting shall be classified in accordance with Table 1 of EN ISO 20345:2004.

5 Requirements

5.1 General

Four classes of safety footwear with varying resistance to chain saw cutting are specified according to the different chain saw speeds.

The uncertainty of measurement for each test method described in this standard shall be assessed in accordance with annex A.

Safety footwear with resistance to chain saw cutting shall conform to the requirements given in Table 1, Table 2, Table 3 and Table 4.

Table 1 — Requirements

	Requirement	Reference		Classification		Symbol
		EN ISO 20345:2004	This standard	I	II	
Design	Height of upper	5.2.1		X	X	
	Seat region:	5.2.2		X	X	
	Design		5.2	X	X	
	Construction		5.3	X	X	
Whole footwear	Sole performance:	5.3.1				
	Construction	5.3.1.1		X		
	Upper/outsole bond strength	5.3.1.2		X		
	Toe protection:	5.3.2				
	General	5.3.2.1		X	X	
	Internal length of toecaps	5.3.2.2		X	X	
	Impact resistance	5.3.2.3		X	X	
	Compression resistance	5.3.2.4		X	X	
	Behaviour of toecaps	5.3.2.5		X	X	
	Leak proofness	5.3.3			X	
	Specific ergonomic features	5.3.4		X	X	
	Penetration resistance	6.2.1		O	O	P
	Electrical properties:	6.2.2				
	Antistatic footwear	6.2.2.2		*	*	A
	Electrically insulating footwear	6.2.2.3		*	*	I
	Resistance to inimical environments:	6.2.3				
	Heat insulation of sole complex	6.2.3.1		*	*	HI
	Cold insulation of sole complex	6.2.3.2		*	*	CI
	Energy absorption of seat region	6.2.4		*	*	E
	Water resistance	6.2.5		*		WR
	Metatarsal protection	6.2.6		*	*	M
	Ankle Protection	6.2.7		*	*	AN
	Resistance to chain saw cutting		5.4	X	X	
Upper	General	5.4.1		X	X	
	Thickness	5.4.2			X	
	Tear strength	5.4.3		X		
	Tensile properties	5.4.4		X	X	
	Flexing resistance	5.4.5			X	
	Water vapour permeability and coefficient	5.4.6		X		
	pH value	5.4.7		X		
	Hydrolysis	5.4.8			X	
	Chromium VI content	5.4.9		X		
	Water penetration and water absorption	6.3.1		*		
	Upper construction	6.3.2		X		
	Cut resistance	6.3.3		*	*	CR

Table 1 *(continued)* **— Requirements**

	Requirement	Reference		Classification		Symbol
		EN ISO 20345:2004	This standard	I	II	
Vamp lining	Tear strength	5.5.1		X		
	Abrasion resistance	5.5.2		X		
	Water vapour permeability and coefficient	5.5.3		X		
	pH value	5.5.4		X		
	Chromium VI content	5.5.5		X		
Quarter lining	Tear strength	5.5.1		O		
	Abrasion resistance	5.5.2		O		
	Water vapour permeability and coefficient	5.5.3		O		
	pH value	5.5.4		O		
	Chromium VI content	5.5.5		O		
Tongue	Tear strength	5.6.1		O		
	pH value	5.6.2		O		
	Chromium VI content	5.6.3		O		
Outsole	Thickness	5.8.1		X	X	
	Tear strength	5.8.2		X		
	Abrasion resistance	5.8.3		X	X	
	Flexing resistance	5.8.4		X	X	
	Hydrolysis	5.8.5		X	X	
	Interlayer bond strength	5.8.6		O	O	
	Resistance to fuel oil	5.8.7		X	X	
	Cleated area	6.4.1		X	X	
	Thickness of cleated outsoles	6.4.2		X	X	
	Cleat height	6.4.3		X	X	
	Resistance to hot contact	6.4.4		*	*	HRO

NOTE The applicability of a requirement to a particular classification is indicated in this Table by the following:

X 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 if the component part exists, the requirement shall be met.

The absence of X or O indicates that there is no requirement.

* Means that if the property is claimed, the requirement given in the appropriate clause shall be met.

Table 2 — Basic requirements for insoles and/or insocks

Options			Component to be assessed	Requirements of EN ISO 20345: 2004 to fulfil					
				Thickness 5.7.1	pH [a] 5.7.2	Water absorption desorption 5.7.3	Abrasion 5.7.4.1	Chromium VI [a] 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 [b]	Insole	X	X	X	X	X	
			Insock		X			X	X
5		Full insock, removable, not water permeable [b]	Insole	X	X	X	X	X	
			Insock		X	X		X	X

X the requirement shall be met.

NOTE : For removable insocks see 7.4.

[a] those requirements are only for leather

[b] a water permeable insock is one that, when tested in accordance with EN ISO 20344: 2004, 7.2, lets water through in 60 s or less

5.2 Design

Safety footwear with resistance to chain saw cutting shall only be of design C, D or E as described in Figure 3 of EN ISO 20345:2004.

The minimum height "*l*" of the protective area (see Figure 1) shall be in accordance with Table 3.

Table 3 - Minimum height of the protective area

Footwear size		Minimum height, *l* (mm)	
French	**English**	**Design C**	**Designs D, E**
36 and below	Up to 3 ½	172	195
37 and 38	4 to 5	175	195
39 and 40	5 ½ to 6 ½	182	195
41 and 42	7 to 8	188	195
43 and 44	8 ½ to 10	195	195
45 and above	10 ½ and above	195	195

5.3 Construction

Safety footwear with resistance to chain saw cutting shall have a continuous protective area, as shown in Figure 1, comprising the vamp, tongue and toe area of the footwear. It includes:

a) the safety toecap;

b) the area immediately behind the toecap back edge bounded by two vertical lines at least 70 mm on either side of the footwear centre line, measured between point A and point B as shown in Figure 1, and a line parallel to the feather line at a maximum distance of 10 mm above the feather line and with a minimum height as given in Table 3.