



National Standards Authority of Ireland

IRISH STANDARD

**I.S. EN 13832-1:2006**

ICS 13.340.50

**FOOTWEAR PROTECTING AGAINST  
CHEMICALS - PART 1: TERMINOLOGY AND  
TEST METHODS**

National Standards  
Authority of Ireland  
Glasnevin, Dublin 9  
Ireland

Tel: +353 1 807 3800  
Fax: +353 1 807 3838  
<http://www.nsai.ie>

**Sales**  
<http://www.standards.ie>

*This Irish Standard was  
published under the  
authority of the National  
Standards Authority of  
Ireland and comes into  
effect on:*

*11 October 2006*

**NO COPYING WITHOUT NSAI  
PERMISSION EXCEPT AS  
PERMITTED BY COPYRIGHT  
LAW**

© NSAI 2006

**Price Code H**

Údarás um Chaighdeáin Náisiúnta na hÉireann



EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 13832-1**

August 2006

ICS 13.340.50

English Version

**Footwear protecting against chemicals - Part 1: Terminology and  
test methods**

Chaussures protégeant contre les produits chimiques -  
Partie 1: Terminologie et méthodes d'essai

Schuhe zum Schutz gegen Chemikalien - Teil 1:  
Terminologie und Prüfung

This European Standard was approved by CEN on 1 August 2006.

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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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

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

Contents	Page
<b>FOREWORD</b> .....	<b>3</b>
<b>1 SCOPE</b> .....	<b>4</b>
<b>2 NORMATIVE REFERENCES</b> .....	<b>4</b>
<b>3 TERMS AND DEFINITIONS</b> .....	<b>4</b>
<b>4 TEST METHODS</b> .....	<b>6</b>
4.1 SAMPLING AND CONDITIONING .....	6
4.2 DEGRADATION TEST .....	6
4.2.1 <i>Principle</i> .....	6
4.2.2 <i>Apparatus</i> .....	6
4.2.3 <i>Preparation of samples</i> .....	7
4.2.4 <i>Procedure</i> .....	8
4.2.5 <i>Assessment of the basic physical properties of the footwear after degradation</i> .....	9
4.2.6 <i>Test report</i> .....	10
4.3 PERMEATION TEST .....	10
4.3.1 <i>Principle</i> .....	10
4.3.2 <i>Collecting media</i> .....	11
4.3.3 <i>Apparatus</i> .....	11
4.3.4 <i>Test pieces</i> .....	14
4.3.5 <i>Calibration</i> .....	15
4.3.6 <i>Preparation of test pieces and apparatus</i> .....	15
4.3.7 <i>Assessment of breakthrough time</i> .....	15
4.3.8 <i>Procedure</i> .....	15
4.3.9 <i>Examination after the permeation test</i> .....	17
4.3.10 <i>Expression of results</i> .....	17
4.3.11 <i>Test report</i> .....	17
<b>ANNEX A (INFORMATIVE) PRECISION OF THE TEST METHOD</b> .....	<b>18</b>
<b>ANNEX ZA (INFORMATIVE) RELATIONSHIP BETWEEN THIS EUROPEAN STANDARD AND THE ESSENTIAL REQUIREMENTS OF EU DIRECTIVE 89/686/EEC PERSONAL PROTECTIVE EQUIPMENT</b> .....	<b>19</b>
<b>BIBLIOGRAPHY</b> .....	<b>20</b>

## Foreword

This document (EN 13832-1:2006) 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 February 2007, and conflicting national standards shall be withdrawn at the latest by February 2007.

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.

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

- Part 1: *Terminology and test methods*
- Part 2: *Requirements for footwear resistant to chemicals under laboratory conditions*
- Part 3: *Requirements for footwear highly resistant to chemicals under laboratory conditions*

It has been assumed in the drafting of this standard that the execution of its provisions is entrusted to appropriately qualified and experienced people for whose guidance it has been prepared and that appropriate precautions will be taken to avoid injury to health and contamination of the environment.

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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## EN 13832-1:2006 (E)

### 1 Scope

This European Standard specifies test methods for the determination of degradation, permeation and penetration resistance of footwear by chemicals and defines the terms to be used.

This standard allows a comparison to be made of the resistance of footwear against selected chemicals under laboratory conditions.

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

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

ISO 23529, *Rubber - General procedures for preparing and conditioning test pieces for physical test methods*

### 3 Terms and definitions

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

#### 3.1

##### **footwear material**

material or combination of materials used in footwear for the purpose of isolating the feet and legs from direct contact with chemicals

#### 3.2

##### **degradation**

deleterious change in one or more properties of a footwear material due to contact with a chemical

NOTE These changes may include, e.g. flaking, swelling, disintegration, embrittlement, discoloration, dimensions, appearance, hardening and softening.

#### 3.3

##### **penetration**

movement of a chemical through porous materials, seams, pinholes, or other imperfections in a footwear material at a non-molecular level

#### 3.4

##### **permeation**

process by which a chemical moves through a footwear material at a molecular level

NOTE Permeation involves the following:

- absorption of molecules of the chemical into the contacted (outside) surface of a material;
- diffusion of the absorbed molecules into the material;
- desorption of the molecules from the opposite (inside) surface of the material.

#### 3.5

##### **test chemical**

chemical or mixture of chemicals that is used to determine the breakthrough time under the laboratory test conditions. The chemical will be one that can cause adverse effects to the human body by contact with the skin.

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

- 
- Looking for additional Standards? Visit Intertek Inform Infostore
  - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-