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Institut luxembourgeois de la normalisation
de l'accréditation, de la sécurité et qualité
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ILNAS-EN 420:2003

Protective gloves - General requirements and test methods

Gants de protection - Exigences générales et méthodes d'essai

Schutzhandschuhe - Allgemeine Anforderungen und Prüfverfahren



09/2003

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Protective gloves - General requirements and test methods

Gants de protection - Exigences générales et méthodes d'essai

Schutzhandschuhe - Allgemeine Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 24 July 2003.

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Foreword

This document EN 420:2003 has been prepared by Technical Committee CEN/TC 162 “Protective clothing including hand and arm protection and lifejackets”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by March 2004, and conflicting national standards shall be withdrawn at the latest by March 2004.

This document supersedes EN 420:1994.

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.

Annexes A and D are informative and annexes B and C are normative.

This document includes a Bibliography.

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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Introduction

This European Standard is a reference standard to be called up as appropriate by the specific European Standards relevant or applicable to protective gloves.

This standard should not be used alone, but only in combination with the appropriate specific standard.

1 Scope

This standard defines the general requirements and relevant test procedures for glove design and construction, resistance of glove materials to water penetration, innocuousness, comfort and efficiency, marking and information supplied by the manufacturer applicable to all protective gloves.

NOTE It can also be applicable to arm protectors and gloves permanently incorporated in containment enclosures.

This European Standard does not address the protective properties of gloves and therefore should not be used alone but only in combination with the appropriate specific European Standard(s).

A non exhaustive list of these standards is given in the Bibliography.

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 344-1:1992, *Safety, protective and occupational footwear for professional use — Part 1: Requirements and test methods.*

EN 374-1:2003, *Protective gloves against chemicals and micro-organisms — Part 1:Terminology and performance requirements.*

EN 407, *Protective gloves against thermal risks (heat and/or fire).*

EN 455-3, *Medical gloves for single use — Part 3 : Requirements and testing for biological evaluation.*

EN 1149-1, *Protective clothing — Electrostatic properties — Part 1: Surface resistivity (Test methods and requirements).*

EN 1149-2, *Protective clothing - Electrostatic properties — Part 2: Test method for measurement of the electrical resistance through a material (vertical resistance).*

prEN 1149-3, *Protective clothing — Electrostatic properties — Part 3: Test methods for measurement of charge decay.*

EN 1413, *Textiles —Determination of pH of aqueous extract.*

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EN 20811, *Textiles — Determination of resistance to water penetration — Hydrostatic pressure test.*

EN 23758, *Textiles - Care labelling code using symbols (ISO 3758:1991).*

EN ISO 2419, *Leather - Physical and mechanical tests - Sample preparation and conditioning (ISO 2419:2002).*

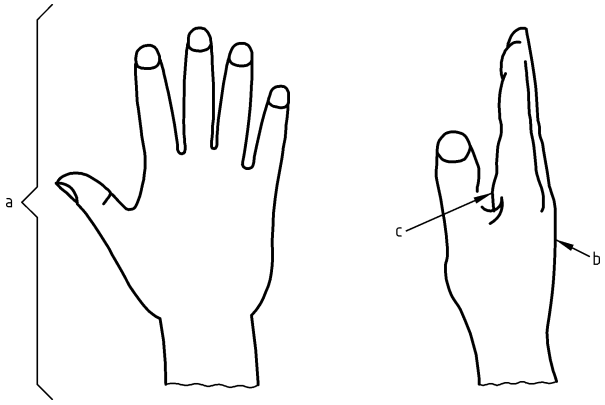
EN ISO 3696, *Water for analytical laboratory use — Specification and test methods (ISO 3696:1987).*

EN ISO 4045:, *Leather — Determination of pH (ISO 4045:1977).*

EN ISO 4048, *Leather — Determination of matter soluble in dichloromethane (ISO 4048:1977).*

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply (see Figure 1).



Key

a Hand

b Back

c Palm

Figure 1 — Definitions of hand, palm and back

3.1
hand
part of the body from the tip of the middle finger to the wrist

3.2
glove
personal protective equipment (PPE) which protects the hand or part of the hand against hazards. It can additionally cover part of the forearm and arm

3.3
glove palm
part of the glove which covers the palm of the hand, i.e. from the wrist to the base of the fingers

3.4
glove back
part of the glove which covers the back of the hand (i.e. from the wrist to the base of the fingers)

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3.5
dexterity
manipulative ability to perform a task

3.6
hazard
situation which can be the cause of any harm or damage to the health of the human body. A non exhaustive list of specific standards dealing with hazards is given in the Bibliography

3.7
level of performance
number that designates a particular category or range of performance by which the results of testing can be graded

The level of performance is determined by the result of the corresponding test as described in the specific standards referred to in the Bibliography. A high level number corresponds to a high level of performance.

Levels of performance are based upon the results of laboratory tests, which do not necessarily reflect actual conditions in the workplace.

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4 General requirements

4.1 Glove design and construction — General

The protective glove shall be designed and manufactured so that in the foreseeable conditions of use for which it is intended, the user can perform the hazard related activity normally whilst enjoying appropriate protection at the highest possible level.

If required, the glove shall be designed to minimize the time needed for putting on and taking off.

When the glove construction includes seams, the material and strength of the seams shall be such that the overall performance of the glove is not significantly decreased. Where relevant, test methods and requirements are specified in the specific standards listed in the Bibliography.

4.2 Resistance of glove materials to water penetration

For glove materials where resistance to water penetration is required (according to the intended use of the glove), the appropriate test methods shall be used :

— For leather gloves: 5.12 of EN 344-1:1992. The results shall be reported according to Table 1;

— Alternative test method which is more appropriate to textile materials: EN 20811. The results shall be reported as a pressure in Pascal as required in EN 20811.

NOTE 1 There is no known correlation between results obtained through these different test methods.

NOTE 2 These tests are not suitable to classify these gloves as waterproof.