



SLOVENSKI STANDARD

SIST EN 1082-2:2000

01-september-2000

Varovalna obleka - Rokavice in ščitniki rok za varovanje pred urezninami in vbodom ročnega noža - 2. del: Rokavice in ščitniki rok, ki niso spleteni iz žice

Protective clothing - Gloves and arm guards protecting against cuts and stabs by hand knives - Part 2: Gloves and arm guards made of material other than chain mail

Schutzkleidung - Handschuhe und Armschützer zum Schutz gegen Schnitt- und Stichverletzungen durch Handmesser - Teil 2: Handschuhe und Armschützer aus Werkstoffen ohne Metallringgeflecht

Vêtements de protection - Gants et protege-bras contre les coupures et les coups de couteaux a main - Partie 2: Gants et protege-bras en matériaux autres que la cotte de mailles

Ta slovenski standard je istoveten z: EN 1082-2:2000

ICS:

13.340.40 Varovanje dlani in rok Hand and arm protection

SIST EN 1082-2:2000 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 1082-2:2000

<https://standards.iteh.ai/catalog/standards/sist/b476b60a-50dc-47a7-b68d-5424e0d43647/sist-en-1082-2-2000>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1082-2

March 2000

ICS 13.340.10; 13.340.40

English version

Protective clothing - Gloves and arm guards protecting against cuts and stabs by hand knives - Part 2: Gloves and arm guards made of material other than chain mail

Vêtements de protection - Gants et protège-bras contre les coupures et les coups de couteaux à main - Partie 2: Gants et protège-bras en matériaux autres que la cotte de mailles

Schutzkleidung - Handschuhe und Armschützer zum Schutz gegen Schnitt- und Stichverletzungen durch Handmesser - Teil 2: Handschuhe und Armschützer aus Werkstoffen ohne Metallringgeflecht

This European Standard was approved by CEN on 17 February 2000.

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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 1082-2:2000

<https://standards.iteh.ai/catalog/standards/sist/4a76660a-50dc-47a7-b68d-5424e0d43647/sist-en-1082-2-2000>

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Contents

	Page
Foreword	2
Introduction	3
1 Scope	3
2 Normative references	3
3 Terms and definitions	3
4 Requirements	3
4.1 Dimensions of the protective surface areas of gloves and arm guards and protective sleeves . . .	3
4.2 Construction	4
4.3 Properties of materials	5
4.4 Ergonomic requirements	5
5 Test apparatus	5
5.1 General	5
5.2 Test apparatus to assess the attachment of arm guards and protective sleeves to gloves	5
5.3 Impact cut test apparatus	5
5.4 Cut resistance test apparatus	5
6 Test methods	5
6.1 General	5
6.2 Pre-treatment	5
6.3 Conditioning	5
6.4 Examination of coverage	6
6.5 Strength of attachment of arm guards and protective sleeves to gloves and the resistance to displacement of protective sleeves from within cuffs and on arms	6
6.6 Impact cut testing	6
6.7 Cut resistance testing	6
6.8 Measurement of arm guard and protective sleeve length	6
6.9 Testing the dimensions of interstices	7
7 Marking	7
8 Information supplied by the manufacturer	7
9 Pictogram	7
Annex A (normative) Ergonomic testing	8
Annex B (normative) Test results - Uncertainty of measurement	14
Annex ZA (informative) Clauses of this European Standard addressing essential requirements or other provisions of EU Directives	15

Foreword**iTeh STANDARD PREVIEW**

This European Standard 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 September 2000, and conflicting national standards shall be withdrawn at the latest by September 2000.

This European Standard 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 standard.

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, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

Chain mail gloves and chain mail or rigid plastic or metal arm guards are used in work particularly in the meat industry where a sharp pointed knife is drawn towards the user's hand holding the meat. In work where the knife is generally used to cut away from the hand, or the knives are not finely pointed, it may be appropriate for ergonomic reasons to use gloves and arm guards that are more comfortable though providing less protection than that provided by products fulfilling the requirements of EN 1082-1. This European Standard gives the requirements for such less protective products. The products provide significant protection against slashing cuts but only limited stab protection. It is important that a risk assessment exercise is carried out before these products are accepted as suitable for use in a particular job.

Attention is drawn to legislation and other standards concerning public health in the food industry and hygiene in the meat processing industries, that might apply to the use of the of the gloves or arm guards, and these could have implications for the acceptability of particular construction, construction materials and the cleaning methods for protective gloves and arm guards and associated straps and fasteners.

It has been assumed in the drafting of this European Standard that the execution of its provisions is entrusted to appropriately qualified and experienced people, for whose guidance it has been prepared. The apparatus described should only be used by competent persons and requires safeguards to prevent, as far as is reasonably practicable, injury to the operator and other persons.

1 Scope

This European Standard specifies requirements for the design, cut resistance, penetration resistance, and ergonomic characteristics of cut resistant gloves, arm guards and protective sleeves made of materials other than chain mail and rigid metal and plastics, and providing less cut and stab protection than the products specified in Part 1 of this Standard and are intended to be used only in work where the knife is not finely pointed or it is used only to cut away from the hand and arm.

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 thereafter. 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 1082-1 : 1996	Protective clothing – Gloves and arm guards protecting against cuts and stabs by hand knives – Part 1: Chain mail gloves and arm guards
prEN 1082-3 : 1997	Protective clothing – Gloves and arm guards protecting against cuts and stabs by hand knives – Part 3: Impact cut test for fabric, leather and other materials
EN ISO 13997	Protective clothing – Mechanical properties - Determination of resistance to cutting by sharp objects (ISO 12997:1999)
ISO 3175:1998	Textiles – Dry cleaning and finishing
ISO 6330	Textiles – Domestic washing and drying procedures for textile testing
ISO 3758	Textiles - Care labelling code using symbols

3 Terms and Definitions

For the purposes of this European Standard, the terms and definitions given in EN 1082-1 and the following term and definition applies.

3.1

protective sleeve

a flexible garment covering the arm from the wrist to above the elbow. It may be self supporting because of its elasticity or held in place by straps or other systems. Protective sleeves are normally worn inside the cuff of a glove and lightly grip the wrist.

4 Requirements

4.1 Dimensions of the protective surface areas of gloves and arm guards and protective sleeves

4.1.1 General

The requirements for fabric, leather, plastic or composite gloves and arm guards shall be the same as those for chain mail gloves and chain mail or rigid arm guards given in EN 1082-1, except as listed below. Sizes and coverage are assessed according to 6.8 and annex A of this standard.

4.1.2 Gloves

The coverage provided by gloves shall be continuous and without a slit on the ulnar side of the palm.

4.1.3 Short cuff gloves

Short cuff gloves shall be designed to provide continuous protection from the finger tips to a distance at least 75 mm proximal to the wrist. The cuff shall retain this coverage when tested according to annex A.

4.1.4 Long cuff gloves

Long cuff gloves shall be designed to provide continuous protection from the finger tips to a distance less than 75 mm distant to the upper arm surface when the elbow is flexed at 90°, see annex B of EN 1082-1:1996. The cuff shall retain this coverage when tested according to annex A.

4.1.5 Glove sizes

Gloves shall be marked with their size based on the hand size they are designed to fit, according to table B.1 in annex B of EN 1082-1:1996. Sizing shall be verified to annex A.

4.1.6 Flexible protective sleeves

Flexible protective sleeves shall provide continuous coverage from the wrist as defined in 3.1.2 of EN 1082-1:1996, to above the elbow.

4.1.7 Arm guard, or protective sleeve and glove assemblies

4.1.7.1 General

The coverage provided by arm guards, protective sleeves, and arm guard, or protective sleeve and glove assemblies shall be continuous. The coverage and absence of gaps shall be assessed in accordance with 6.4 and annex A.

4.1.7.2 Coverage with rigid arm guards

As given in 4.1.5.1 of EN 1082-1:1996.

4.1.7.3 Coverage by fabric, leather or other flexible arm guards or protective sleeves, and by long arm guards

Flexible arm guards and protective sleeves shall be provided with a means of holding them in place such that the minimum required coverage is maintained when tested according to annex A. They shall not move more than 40 mm upwards from the wrist when subjected to pulls of 25 N as described in 6.5.

4.1.7.4 Overlap between cuffs and protective sleeves

The overlap of the protection provided by the cuff of a glove and a compatible protective sleeve or arm guard shall be at least 50 mm if there is not a continuous circumferential connection between them. The protective sleeve shall be inside the cuff of the glove. Examination shall be made according to annex A. The protective sleeve shall resist pulls of 25 N as described in 6.5 and shall not be pulled out of the cuff of the glove.

4.1.7.5 Arm guard and protective sleeve sizes

Arm guards and protective sleeves shall be marked with their minimum length, and where appropriate with the range of stature of persons they are designed to fit and the sizes of compatible gloves (see clause 7 and clause 8). Products are examined according to 6.8 and annex A.

4.2 Construction

4.2.1 Dimensions of interstices

The maximum dimensions of interstices in rigid parts of the products, or between hard components, or through the structure of a knit, in gloves, arm guards and protective sleeves shall be such that the 4 mm wide gauge number 2 described in 5.5 of EN 1082-1:1996, is unable to pass through them when applied as described in 6.10.

4.2.2 Attachment of arm guards and protective sleeves

Arm guards or protective sleeves that are attached to gloves shall withstand a pull of 150 N directed up the arm if worn outside the cuff of the glove, or 25 N if worn inside the glove, when tested, as described in 5.2 and 6.5. No gap in coverage shall occur during the test. Gaps are assessed according to 6.4.

4.2.3 Knife penetration and cut resistance

4.2.3.1 General

Penetration resistance of gloves, arm guards, protective sleeves, and assemblies shall be provided over the whole protective surface, including any junction between a glove and its cuff or attached arm guard or protective sleeve.

4.2.3.2 Fabric, leather, plastic or composite gloves, arm guards and protective sleeves

When tested according to 6.6 and the method in prEN 1082-3:1997 with an impact energy of 0,65 J, the mean penetration shall not exceed 8 mm and no single penetration shall exceed 14 mm.

4.2.3.3 Rigid plastic or metal arm guards and their attachments to gloves

Rigid plastic or metal arm guards shall meet the requirements given in EN 1082-1 when tested by the appropriate methods.

4.2.3.4 Cut resistance

All gloves, arm guards and protective sleeves shall require a cutting force of more than 20 N when the cut resistance is measured according to 6.7 in all of the prescribed orientations.

4.3 Properties of materials

4.3.1 General

The protective gloves, arm guards and protective sleeves shall not be constructed of materials that are known to cause short or long term injury. The names and concentrations of all substances contained in the product, which are generally known to cause allergies or to be carcinogenic (see clause 8) shall be listed in the information supplied by the manufacturer. Gloves and arm guards shall not have injurious rough or sharp surfaces or edges or sharp protruding wire ends.

The materials from which they are made shall not lose their protective properties during the normal service life of gloves, arm guards or protective sleeves when cleaned and sterilised according to the manufacturer's instructions. Products shall be examined according to annex A.

4.3.2 Cleaning temperature stability

As given in 4.5.2 and 6.6 of EN 1082-1:1996.

iTeh STANDARD PREVIEW

(standards.iteh.ai)

SIST EN 1082-2:2000

<https://standards.iteh.ai/catalog/standards/sist/b476b60a-50dc-47a7-b68d-5424e0d43647/sist-en-1082-2-2000>

4.4 Ergonomic requirements

When tested and examined according to annex A the glove, and arm guard or protective sleeve shall be found satisfactory for the use intended as indicated in the manufacturer's instructions in the Information supplied by the manufacturer.

5 Test apparatus

5.1 General

Test apparatus shall be as specified in 5.1 to 5.7 of EN 1082-1:1996 if appropriate for the materials used in the construction of the gloves, arm guards or protective sleeves.

5.2 Test apparatus to assess the attachment of arm guards and protective sleeves to gloves

A hand held electronic force gauge, spring balance or similar device shall be used. Small clamps or clips shall be provided to attach the gauge to the test item. A flexible connection shall be made between the clamp and the gauge. The gauge shall have a range of 0 N to 200 N or two gauges of 0 N to 30 N and 100 N to 200 N shall be provided. The gauges shall be accurate to ± 3 N at 25 N and to ± 10 N at 150 N.

5.3 Impact cut test apparatus

The apparatus specified in prEN 1082-3:1997 shall be used.

5.4 Cut resistance test apparatus

An apparatus meeting the requirements specified in EN ISO 13997 shall be used.

6 Test methods

6.1 General

For each of the required sequences of measurements performed in accordance with this standard a corresponding estimate of the uncertainty of the final result shall be determined. This uncertainty (U_m) shall be given in the test report in the form $U_m = \pm X$. It shall be used in determining whether a "Pass" performance has been achieved. For example if the final result plus U_m is above the pass level when the requirement is that a certain value shall not be exceeded, the sample shall be considered to have failed.

6.2 Pre-treatment

All test specimens of products shall be washed and dried five times before examination or testing. This shall be according to the manufacturer's instructions in the Information supplied by the manufacturer, or in the absence of details according to procedure 2A in ISO 6330, and then by tumble drying at a temperature not exceeding 70°C (procedure E). Products marked as additionally suitable for dry cleaning shall be dry cleaned five times before the washing cycles, according to 9.1 "Process for normal materials" in ISO 3175:1995.

6.3 Conditioning

Test specimens shall be conditioned at $(20 \pm 2)^\circ\text{C}$ and a relative humidity of $(65 \pm 5)\%$, for at least 24 h before testing. Testing shall be carried out in the conditioning environment or within 5 min of withdrawing the specimens from the conditioning environment.

6.4 Examination of coverage

Test specimens shall be put on by an appropriate subject as indicated by the marking, and adjusted according to the manufacturer's instructions in the Information supplied by the manufacturer. The coverage provided for the hand, wrist and forearm shall be tested by inspection, measurement and the attempted insertion of a non-injurious blunt probe as described in 5.6 of EN 1082-1:1996.

In principle attempts shall be made to get the probe through any apparent opening. The probe shall be applied to every slit, opening, or overlap found. The probe shall be angled at 0° to 45° with respect to the underlying skin, and at any angle between directly up the arm and directly across the arm. Within this envelope of approach angles the

probe shall be moved around on any opening or potential opening, with a force of up to 4 N to ascertain whether it can pass through the test item. Every penetration shall be recorded as a gap in coverage. The findings of the examination and test shall be included in the test report.

6.5 Strength of attachment of arm guards and protective sleeves to gloves and the resistance to displacement of protective sleeves from within cuffs and on arms

The test specimen shall be put on by an appropriate subject as indicated by the marking, and adjusted according to the manufacturer's instructions in the Information supplied by the manufacturer. The clamp described in 5.2 shall be attached in turn to four points approximately evenly spaced around the circumference of the arm guard or protective sleeve (40 ± 5) mm above its attachment to the glove or (75 ± 10) mm above the subject's wrist for unattached products. The force gauge or similar device shall be attached to the clamp in each position and the test force applied progressively over a period of 5 s to 10 s. The force shall be directed as nearly as possible up the arm parallel to the skin. The movement of the arm guard or protective sleeve shall be observed and measured immediately the required force has been reached. The arm guard or protective sleeve shall be repositioned before each trial.

The results of the test shall be recorded in the test report.

6.6 Impact cut testing

6.6.1 General

Impact cut testing shall be carried out according to prEN 1082-3:1997.

6.6.2 Samples and test positions

Gloves shall be tested intact if possible. The glove shall be placed on the specimen support so that six impact cuts can be made on the back of the glove. Two cuts shall be along the long axis of the glove, two cuts shall be at 90° to these, and two shall be at 45° to them. Impact points shall be at least 15 mm apart and on undamaged material. If the fingers of the glove are of apparently weaker construction, samples shall be prepared to impact cut test finger material as described in prEN 1082-3:1997. Six impact cuts shall be made.

Arm guards and protective sleeves shall be tested on each type of construction of protective material present. If necessary they shall be cut transversely into short tubes to fit them on the apparatus. Six impact cuts shall be made.

The test report shall contain the individual test results and their arithmetic means, a note of any observations related to the protective quality of the product, and details of any hazardous edges, fragments, or sharp wire ends, that are produced by the knife impact.

6.7 Cut resistance testing

6.7.1 General

Cut resistance testing shall be carried out according to EN ISO 13997.

6.7.2 Samples

Samples shall be cut from the backs, palms, fingers and cuffs of gloves. Finger and palm samples shall be orientated to be cut across the finger and palm, back samples shall be cut at 45° to the long axis of the glove, and cuff samples shall be cut parallel to the long axis of the glove. The cutting force shall be determined for each orientation.

Samples shall be cut from arm guards and protective sleeves so that the cutting force is determined along and across the product and at 45° to these directions. Each type of construction of protective material shall be tested.

6.7.3 Tests

The cut test shall be performed as described in EN ISO 13997. Samples shall be pre-treated as whole products as specified in 6.2. The cutting force in each orientation specified above shall be determined and included in the test report.