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Protective clothing for use in welding and allied processes (ISO 11611:2015)

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 12/15

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Podľa zákona č. 264/1999 Z. z. v znení neskorších predpisov sa môžu slovenské technické normy rozmnožovať a rozširovať iba so súhlasom Úradu pre normalizáciu, metrológiu a skúšobníctvo SR.

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

# EN ISO 11611

July 2015

ICS 13.340.10; 25.160.01

English Version

## Protective clothing for use in welding and allied processes (ISO 11611:2015)

Vêtements de protection utilisés pendant le soudage et les techniques connexes (ISO 11611:2015)

Schutzkleidung für das Schweißen und verwandte Verfahren (ISO 11611:2015)

This European Standard was approved by CEN on 19 June 2015.

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.

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

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## Contents

Page

European foreword .....	3
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 89/686/EEC .....	4

## European foreword

This document (EN ISO 11611:2015) has been prepared by Technical Committee ISO/TC 94 "Personal safety - Protective clothing and equipment" in collaboration with 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 January 2016, and conflicting national standards shall be withdrawn at the latest by January 2016.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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, see informative Annex ZA, which is an integral part of this document.

According to the CEN-CENELEC Internal Regulations, the national standards organizations 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

### Endorsement notice

The text of ISO 11611:2015 has been approved by CEN as EN ISO 11611:2015 without any modification.

## Annex ZA (informative)

### Relationship between this European Standard and the Essential Requirements of EU Directive 89/686/EEC

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide one means of conforming to Essential Requirements of the New Approach Directive 89/686/EEC on the approximation of the laws of the Member States relating to personal protective equipment.

Once this standard is cited in the Official Journal of the European Union under that Directive and has been implemented as a national standard in at least one Member State, compliance with the normative clauses of this International Standard given in Table ZA.1 confers, within the limits of the scope of this International Standard, a presumption of conformity with the corresponding Essential Requirements of that Directive and associated EFTA regulations.

**Table ZA 1**

<b>Clauses/ subclauses of this European Standard</b>	<b>Basic requirement (EU directive 89/686/EEC, Annex II)</b>	<b>Qualifying remarks/notes</b>
4.1, 4.2, 4.3, 4.5, 4.6, 4.7, 6.6, 6.10 and 6.11	1.2.1 Absence of risks and other inherent nuisance factors	
4.4	1.3.1 Adaptation of PPE to user morphology	
5.2, 8	1.4 Information supplied by the manufacturer	
5.3	2.4 PPE subject to ageing	
6.2, 6.3, 6.4 and 6.5	1.3.2 Lightness and design strength	
6.7,6.8,6.9	Protection against heat and/or fire 3.6.1 PPE constituent materials and other components	
6.8, 6.9	Protection against heat and/or fire 3.6.2 Complete PPE ready for use	
6.1, 6.8, 6.9	1.1.2.2 Classes of protection appropriate to different levels of risk	
7	2.12 PPE bearing identification marks relating to health and safety	

**Warning** Other requirements and other EU Directives may be applicable to the products falling within the scope of this International Standard

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## **Protective clothing for use in welding and allied processes**

*Vêtements de protection utilisés pendant le soudage et les techniques  
connexes*





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# Contents

Page

<b>Foreword</b>	<b>iv</b>
<b>Introduction</b>	<b>vi</b>
<b>1 Scope</b>	<b>1</b>
<b>2 Normative references</b>	<b>1</b>
<b>3 Terms and definitions</b>	<b>2</b>
<b>4 General and design requirements</b>	<b>4</b>
4.1 General	4
4.2 Protective clothing	5
4.3 Size designation and fit	5
4.4 Additional protective garments	5
4.5 Pockets and flap closures	5
4.6 Closures and seams	6
4.7 Hardware	6
<b>5 Sampling and pre-treatment</b>	<b>6</b>
5.1 Sampling	6
5.2 Pre-treatment of material	6
5.3 Ageing	6
5.4 Conditioning	7
<b>6 General performance requirements</b>	<b>7</b>
6.1 Classification	7
6.2 Tensile strength	7
6.3 Tear strength	7
6.4 Burst strength of knitted materials and seams	7
6.5 Seam strength	7
6.6 Dimensional change of textile materials	8
6.7 Limited flame spread	8
6.7.1 General	8
6.7.2 Testing in accordance with ISO 15025, Procedure A (code letter A1)	8
6.7.3 Testing in accordance with ISO 15025, Procedure B (code letter A2)	9
6.8 Impact of spatter (small splashes of molten metal)	10
6.9 Heat transfer (radiation)	10
6.10 Electrical resistance	10
6.11 Fat content of leather	10
6.12 Performance requirements	10
<b>7 Marking</b>	<b>11</b>
<b>8 Information supplied by the manufacturer</b>	<b>12</b>
8.1 General	12
8.2 Intended use	12
8.3 Improper use	12
8.4 Care and maintenance	13
<b>Annex A (normative) Guidance for the selection of the type of welders' clothing (Class 1/ Class 2)</b>	<b>14</b>
<b>Annex B (normative) Determination of property values for rating and classification</b>	<b>15</b>
<b>Annex C (normative) Uncertainty of Measurement</b>	<b>16</b>
<b>Bibliography</b>	<b>17</b>



## 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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 94, *Personal safety — Protective clothing and equipment*, Subcommittee SC 13, *Protective clothing*, and by Technical Committee CEN/TC 162, *Protective clothing including hand and arm protection and lifejackets* in collaboration.

This second edition cancels and replaces the first edition (ISO 11611:2007) which has been technically revised with the following changes:

- include an introduction;
- include a definition for hole;
- modify the clause in design requirements regarding garment overlaps;
- modify the clause in design requirements regarding garment sizes;
- modify the clause on sampling requirements;
- modify clause for ageing due to washing (maximum number of cleaning procedures as indicated by the manufacturer);
- modify the pre-treatment clause to include the requirements for single use garments;
- include a new requirement for measuring the property value for rating and classification;
- modify the requirements for tear strength;
- specify the test area for burst strength testing;
- modify the requirement that hardware is tested only after pre-treatment;
- include a statement for flame spread testing in regard to interlining materials;
- remove the reference to melting from flame spread requirements;
- modify the afterflame requirement for flame spread;

- modify the afterglow requirement for flame spread;
- modify the test procedure for the flame testing of labels, badges, retro-reflective materials;
- modify requirement for the impact of spatter to state that materials cannot ignite;
- modify the innocuousness clause to include reference to ISO 13688;
- specify the limit for Chromium(VI) Content;
- modify the clause for information to be supplied by the manufacturer;
- include a new annex for measuring property value for rating and classification;
- include a new definition for uncertainty of measurement in [Annex C](#);
- specify that [Annex C](#) is normative.

## Introduction

The purpose of this International Standard is to provide minimum performance requirements for clothing for use in welding and allied processes.

For complete protection against exposure to heat and flame, it will be necessary to protect the head, face, hands, and/or feet with suitable personal protective equipment (PPE) and in some cases, appropriate respiratory protection might also be considered necessary.

Attention is drawn to ISO/TR 2801:2007,<sup>[2]</sup> which sets out guidelines for selection, use, care, and maintenance of protective clothing against heat and flame.

Nothing in this International Standard is intended to restrict any jurisdiction, purchaser, or manufacturer from exceeding these minimum requirements.

# Protective clothing for use in welding and allied processes

## 1 Scope

This International Standard specifies minimum basic safety requirements and test methods for protective clothing including hoods, aprons, sleeves, and gaiters that are designed to protect the wearer's body including head (hoods) and feet (gaiters) and that are to be worn during welding and allied processes with comparable risks. For the protection of the wearer's head and feet, this International Standard is only applicable to hoods and gaiters. This International Standard does not cover requirements for feet, hand, face, and/or eye protectors.

This type of protective clothing is intended to protect the wearer against spatter (small splashes of molten metal), short contact time with flame, radiant heat from an electric arc used for welding and allied processes, and minimizes the possibility of electrical shock by short-term, accidental contact with live electrical conductors at voltages up to approximately 100 V d. c. in normal conditions of welding. Sweat, soiling, or other contaminants can affect the level of protection provided against short-term accidental contact with live electric conductors at these voltages.

For adequate overall protection against the risks to which welders are likely to be exposed, personal protective equipment (PPE) covered by other International Standards should additionally be worn to protect the head, face, hands, and feet.

Guidance for the selection of the type of welders clothing for different welding activities is detailed in [Annex A](#).

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3376:2011, *Leather — Physical and mechanical tests — Determination of tensile strength and percentage extension*

ISO 3377-1, *Leather — Physical and mechanical tests — Determination of tear load — Part 1: Single edge tear*

ISO 4048, *Leather — Chemical tests — Determination of matter soluble in dichloromethane and free fatty acid content*

ISO 5077, *Textiles — Determination of dimensional change in washing and drying*

ISO 6942, *Protective clothing — Protection against heat and fire — Method of test: Evaluation of materials and material assemblies when exposed to a source of radiant heat*

ISO 9150, *Protective clothing — Determination of behaviour of materials on impact of small splashes of molten metal*

ISO 13688, *Protective clothing — General requirements*

ISO 13934-1, *Textiles — Tensile properties of fabrics — Part 1: Determination of maximum force and elongation at maximum force using the strip method*

ISO 13935-2, *Textiles — Seam tensile properties of fabrics and made-up textile articles — Part 2: Determination of maximum force to seam rupture using the grab method*

ISO 13937-2, *Textiles — Tear properties of fabrics — Part 2: Determination of tear force of trouser-shaped test specimens (Single tear method)*

ISO 13938-1, *Textiles — Bursting properties of fabrics — Part 1: Hydraulic method for determination of bursting strength and bursting distension*

ISO 13938-2, *Textiles — Bursting properties of fabrics — Part 2: Pneumatic method for determination of bursting strength and bursting distension*

ISO 15025, *Protective clothing — Protection against heat and flame — Method of test for limited flame spread*

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

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**