



# SLOVENSKI STANDARD

## SIST EN 469:2014

01-september-2014

Nadomešča:

SIST EN 469:2006

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**Varovalna obleka za gasilce - Zahtevane lastnosti za varovalno obleko pri gašenju požara**

Protective clothing for firefighters - Performance requirements for protective clothing for firefighting

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Schutzkleidung für die Feuerwehr - Leistungsanforderungen für Schutzkleidung für die Brandbekämpfung

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Vêtements de protection pour sapeurs pompiers - Exigences de performance pour les vêtements de protection pour la lutte contre l'incendie

**Ta slovenski standard je istoveten z: EN 469:2014**

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**ICS:**

13.220.10	Gašenje požara	Fire-fighting
13.340.10	Varovalna obleka	Protective clothing

**SIST EN 469:2014**

**en,fr,de**

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EUROPEAN STANDARD

EN 469

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2014

ICS 13.340.10

Supersedes EN 469:2005

English Version

## Protective clothing for firefighters - Performance requirements for protective clothing for firefighting

Vêtements de protection pour sapeurs pompiers -  
Exigences de performance pour les vêtements de  
protection pour la lutte contre l'incendie

Schutzkleidung für die Feuerwehr - Leistungsanforderungen  
für Schutzkleidung für die Brandbekämpfung

This European Standard was approved by CEN on 7 May 2014.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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## EN 469:2014 (E)

## Foreword

This document (EN 469:2014) 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 January 2015, and conflicting national standards shall be withdrawn at the latest by January 2015.

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 supersedes EN 469:2005.

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).

For relationship with EU Directive 89/686/EEC, see informative Annex ZA which is an integral part of this document.

It is one of several standards for clothing that have been developed to protect persons against heat and/or flames. Some examples of other European and International Standards are:

- EN 1486:2007, *Protective clothing for fire-fighters — Test methods and requirements for reflective clothing for specialized fire-fighting*;
- EN 13911:2004, *Protective clothing for firefighters — Requirements and test methods for fire hoods for firefighters*;
- EN 15614:2007, *Protective clothing for firefighters — Laboratory test methods and performance requirements for wildland clothing*;
- EN ISO 11611:2007, *Protective clothing for use in welding and allied processes*;
- EN ISO 11612:2008, *Protective clothing — Clothing to protect against heat and flame*;
- EN ISO 14116:2008, *Protective clothing- protection against heat and flame - Limited flame spread materials, material assemblies and clothing*;
- EN ISO 14460:1999, *Protective clothing for automobile racing drivers — Protection against heat and flame — Performance requirements and test methods*;
- ISO 15384:2003, *Protective clothing for firefighters — Laboratory test methods and performance requirements for wildland firefighting clothing*;
- ISO 11613:1999, *Protective clothing for firefighters — Laboratory test methods and performance requirements*;
- ISO 15538:2001, *Protective clothing for firefighters — Laboratory test methods and performance requirements for protective clothing with a reflective outer surface*;
- IEC 61482-2:2009, *Protective clothing against the thermal hazards of an electric arc — Part 2: Requirements*

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.

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**EN 469:2014 (E)**

## **Introduction**

The purpose of this European Standard is to provide minimum performance requirements for protective clothing for fire fighters.

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

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## 1 Scope

This European Standard specifies minimum levels of performance requirements for protective clothing against heat and fire designed to be worn during firefighting operations, except protective clothing that is worn during fighting wildland fires (EN 15614) or specialized firefighting (EN 1486).

Within this European Standard, two performance levels are given for performance requirements 6.3, 6.4, 6.12 and 6.13:

- thermal protection level two (marked with X2) is the higher level;
- thermal level one (marked with X1) is the lower level.

This European Standard covers the general clothing design, the minimum performance levels of the materials used, the methods of test to be used to determine these performance levels, and marking and information supplied by the manufacturer.

Neither does this European Standard cover the protection against other hazards, such as chemical, electrical, biological, radiological or high-visibility hazards, nor does it cover the protection for the head, hands or feet. These aspects may be covered in other European Standards. However, the event of small accidental splashes of chemicals or flammable liquids is covered by this standard.

## 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.

EN 20811:1992, *Textiles - Determination of resistance to water penetration - Hydrostatic pressure test*

<https://standards.iteh.ai/catalog/standards/sist/02d0dfcd-6d0c-4a8b-b2a4-108c4b510010/en-20811-1992>

EN 31092:1993, *Textiles - Determination of physiological properties - Measurement of thermal and water-vapour resistance under steady-state conditions (sweating guarded - hotplate test) (ISO 11092:1993)*

EN ISO 1421:1998, *Rubber- or plastics-coated fabrics - Determination of tensile strength and elongation at break (ISO 1421:1998)*

EN ISO 4674-1:2003, *Rubber- or plastics-coated fabrics - Determination of tear resistance - Part 1: Constant rate of tear methods (ISO 4674-1:2003)*

EN ISO 4920:2012, *Textile fabrics - Determination of resistance to surface wetting (spray test) (ISO 4920:2012)*

EN ISO 5077:2008, *Textiles - Determination of dimensional change in washing and drying (ISO 5077:2007)*

EN ISO 6530:2005, *Protective clothing - Protection against liquid chemicals - Test method for resistance of materials to penetration by liquids (ISO 6530:2005)*

EN ISO 6942:2002, *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 6942:2002)*

EN ISO 13688:2013, *Protective clothing - General requirements (ISO 13688:2013)*

EN ISO 13934-1:2013, *Textiles - Tensile properties of fabrics - Part 1: Determination of maximum force and elongation at maximum force using the strip method (ISO 13934-1:2013)*

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EN ISO 13935-2:2014, *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 13935-2:2014)*

EN ISO 13937-2:2000, *Textiles - Tear properties of fabrics - Part 2: Determination of tear force of trouser-shaped test specimens (Single tear method) (ISO 13937-2:2000)*

prEN ISO 14116:2013, *Protective clothing — Protection against heat and flame — Limited flame spread materials, material assemblies and clothing (ISO/DIS 14116:2013)*

EN ISO 15025:2002, *Protective clothing - Protection against heat and flame - Method of test for limited flame spread (ISO 15025:2000)*

EN ISO 20471:2013, *High visibility clothing - Test methods and requirements (ISO 20471:2013, Corrected version 2013-06-01)*

prEN ISO 9151:2013, *Protective clothing against heat and flame — Determination of heat transmission on exposure to flame (ISO/DIS 9151:2013)*

ISO 13506:2008, *Protective clothing against heat and flame — Test method for complete garments — Prediction of burn injury using an instrumented manikin*

ISO 17493:2000, *Clothing and equipment for protection against heat — Test method for convective heat resistance using a hot air circulating oven*

**3 Terms and definitions**

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

**3.1 anti-wicking barrier**  
material used to prevent the transfer of liquid from outside the garment to inside the garment, usually in addition to or replacing part of the moisture barrier at the edge(s)

**3.2 clothing assembly**  
series of garments arranged in the order as worn. It may contain multilayer materials, material combinations or a series of separate garments in single or multiple layers

**3.3 cleaning**  
process by which an item of personal protective equipment (PPE) is made again serviceable and/or hygienically wearable by removing any dirt or contamination

Note 1 to entry: See 3.24.

**3.4 cleaning cycle**  
washing plus drying or dry cleaning treatment followed, if required, by ironing or finishing

Note 1 to entry: See 3.24.

**3.5 closure system**  
method of fastening openings in the garment including combinations of more than one method of achieving a secure closure

Note 1 to entry: This term does not cover seams.

**3.6****component assembly**

combination of all materials of a multi-layer garment presented exactly as the finished garment construction

**3.7****conditioning**

keeping samples under standard conditions of temperature and relative humidity for a minimum period of time

**3.8****drain mesh material**

permeable material to allow drainage of water

**3.9****Firefighter's protective clothing**

specific garment(s) providing protection for the firefighter's torso, neck, arms, and legs, but excluding the head, hands and feet

**3.10****garment**

single item of clothing which may consist of single or multiple layers

**3.11****hardware**

non-fabric items used in protective clothing including those made of metal or plastic

## EXAMPLE

Fasteners, rank markings, buttons, zippers, embroideries, braces.

**3.12****HTI<sub>12</sub>**

a number to one decimal place calculated from the mean time (measured in second, to one decimal place) to achieve a temperature rise of  $(12 \pm 0,1)$  °C in the calorimeter when testing according to prEN ISO 9151 with an incident heat flux  $80 \text{ kW/m}^2$

**3.13****HTI<sub>24</sub>**

a number to one decimal place calculated from the mean time (measured in second, to one decimal place) to achieve a temperature rise of  $(24 \pm 0,2)$  °C in the calorimeter when testing according to prEN ISO 9151 with an incident heat flux of  $80 \text{ kW/m}^2$

**3.14****interface area**

areas where openings interrupt the continuity of material(s) or garments

**3.15****innermost lining**

lining on the innermost face of a component assembly which is intended to be nearest to the wearers skin

Note 1 to entry:

Where the innermost lining forms part of a material combination, the material combination is regarded as the innermost lining.

**3.16****interlining**

layer between the outermost layer and the innermost lining in a multilayer garment

**3.17****material**

substances, excluding hardware and labels, of which an item of clothing is made