



BSI Standards Publication

**Protective clothing for firefighters — Laboratory test methods and performance requirements for wildland firefighting clothing**

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## National foreword

This British Standard is the UK implementation of EN ISO 15384:2020+A1:2021. It is identical to ISO 15384:2018, incorporating amendment 1:2021. It supersedes BS EN ISO 15384:2020, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to ISO text carry the number of the ISO amendment. For example, text altered by ISO amendment 1 is indicated by A1 A1.

The UK participation in its preparation was entrusted to Technical Committee PH/14, Firefighters' personal protective equipment.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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English Version

## Protective clothing for firefighters - Laboratory test methods and performance requirements for wildland firefighting clothing (ISO 15384:2018)

Habillement de protection pour sapeurs-pompiers  
- Méthodes d'essai en laboratoire et exigences de performance pour vêtements portés pendant la lutte contre les feux d'espaces naturels (ISO 15384:2018)

Schutzkleidung für die Feuerwehr -  
Laborprüfverfahren und Leistungsanforderungen für Schutzkleidung für die Brandbekämpfung im freien Gelände (ISO 15384:2018)

This European Standard was approved by CEN on 15 April 2020.

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**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

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## European foreword

This document (EN ISO 15384:2020) has been prepared by Technical Committee ISO/TC 94 "Personal safety -- Personal protective 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of an identical text or by endorsement, at the latest by October 2020, and conflicting national standards shall be withdrawn at the latest by October 2020.

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

This document supersedes EN 15614:2007.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

### Endorsement notice

The text of ISO 15384:2018 has been approved by CEN as EN ISO 15384:2020 without any modification.

## European foreword to amendment A1

This document (EN ISO 15384:2020/A1:2021) has been prepared by Technical Committee ISO/TC 94 "Personal safety -- Personal protective 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 Amendment to the European Standard EN ISO 15384:2020 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2022, and conflicting national standards shall be withdrawn at the latest by April 2022.

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### Endorsement notice

The text of ISO 15384:2018/Amd 1:2021 has been approved by CEN as EN ISO 15384:2020/A1:2021 without any modification.

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## 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 voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 94, *Personal safety — Protective clothing and equipment*, Subcommittee SC 14, *Fire-fighters' personal equipment*.

This second edition cancels and replaces the first edition of ISO 15384:2003 which has been technically revised.

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## Introduction

The purpose of this document is to provide minimum performance requirements for protective clothing designed for use for extended periods during wildland firefighting activities. The minimum performance requirements and methods of test for personal protective equipment (PPE) covering the head, hands, feet, eyes and ears for wildland firefighting are covered in ISO 16073.

Wildland firefighting involves work primarily in summer temperatures, for many hours in which the firefighter can develop high levels of metabolic heat. Loose-fitting clothing is as important as the fire resistance of materials in preventing serious burn injury. Clothing that is tight-fitting poses a danger to the wildland firefighter from radiant heat and heat stress, while, at the same time, diminishing the firefighter's ability to perform. Consequently, the protective clothing needs to be light, flexible and commensurate with the risks to which the firefighter can be exposed in order to be effective without introducing heat stress to the wearer.

Accordingly, a risk assessment (ISO/TR 21808) needs to be undertaken to determine if the clothing covered by this document is suitable for its intended use and the expected exposure. This document does not cover clothing for use in higher risk situations, where clothing complying with ISO 11999-3 or EN 469 (structural firefighting) or even ISO 15538 or EN 1486 (firefighting with reflective outer surface), is more suitable, nor does this document cover clothing to protect against chemical, biological, electrical or radiation hazards. This document does not cover risk related to rescue operations that are covered in ISO 18639 or EN 16689.

The risk assessment needs to include what additional personal protective equipment is necessary for the head, hand and feet. In some situations, respiratory protection may also be required.

Firefighters need to be trained in the use, care and maintenance of the protective clothing covered by this document, including an understanding of its limitation.



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# Protective clothing for firefighters — Laboratory test methods and performance requirements for wildland firefighting clothing

## 1 Scope

This document specifies methods of test and minimum performance requirements for personal protective clothing, designed to protect the wearer's body, except for the head, hands, and feet, that is worn during wildland firefighting and associated activities. This clothing is not intended to provide protection during fire entrapment. This document covers the general design of the garment, the minimum level of performance for the materials employed and the methods of test to determine these levels.

This document is not applicable to clothing for use in situations encountered in structural firefighting (EN 469 or ISO 11999-3), rescue (ISO 18639) or where a high level of infrared radiation is expected (ISO 15538 or EN 1486), nor does this document cover clothing to protect against chemical, biological, electrical or radiation hazards. This document does not provide protection against high mechanical risks such as for protection when using chain saws.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 139, *Textiles — Standard atmospheres for conditioning and testing*

ISO 3146, *Plastics — Determination of melting behaviour (melting temperature or melting range) of semi-crystalline polymers by capillary tube and polarizing-microscope methods*

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

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

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 11092, *Textiles — Physiological effects — Measurement of thermal and water-vapour resistance under steady-state conditions (sweating guarded-hotplate test)*

ISO 12947-2, *Textiles — Determination of the abrasion resistance of fabrics by the Martindale method — Part 2: Determination of specimen breakdown*

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)*