



BSI Standards Publication

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

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 It supersedes [BS EN ISO 15384:2020](#), which is withdrawn.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.

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

© The British Standards Institution 2022
Published by BSI Standards Limited 2022

ISBN 978 0 539 15996 7

ICS 13.340.10

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 April 2020.

Amendments/corrigenda issued since publication

Date	Text affected
31 January 2022	Implementation of ISO amendment 1:2021 with CEN endorsement A1:2021

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.

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.

CEN members are the national standards bodies of 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 United Kingdom.



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

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

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.

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.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

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

Contents

Page

Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Clothing design	4
4.1 General	4
4.2 Collar	4
4.3 Protective coverall or protective suit	4
4.4 Pockets	5
4.5 Hardware	5
4.6 Retroreflective and/or fluorescent materials	5
4.7 Sleeves	5
4.8 Trousers	5
5 Sampling and pre-treatment	6
5.1 General	6
5.2 Sampling	6
5.3 Pre-treatment by cleaning	6
5.4 Conditioning	6
5.5 Exposure surface	6
5.6 Ageing	6
6 Thermal requirements	7
6.1 Flamespread	7
6.1.1 General	7
6.1.2 Face ignition	7
6.1.3 Edge ignition	7
6.2 Heat transfer (radiation)	8
6.3 Heat resistance	8
6.3.1 Heat resistance of the sewing thread	8
6.3.2 Heat resistance of retroreflective/fluorescent materials	8
7 Mechanical requirements	8
7.1 Tensile strength	8
7.2 Tear strength	8
7.3 Main seam strength	8
7.4 Abrasion resistance $\triangle A_1$	9
8 Ergonomic and comfort requirements	9
8.1 Thermal resistance	9
8.2 Water vapour resistance	9
9 General	9
9.1 Dimensional change after washing and/or dry-cleaning	9
9.2 Retroreflective and/or fluorescent performance	9
9.3 Summary of performance requirements	10
9.4 Innocuousness $\triangle A_1$	11
10 Marking and labelling	11
10.1 General	11
10.2 Label durability and legibility	11
10.3 Compliance marking requirements	12
11 Information supplied by the manufacturer	12

Annex A (normative)  Uncertainty of measurement and determination of property values 	14
Bibliography	15

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).

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).

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.

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.

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.