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

*Vêtements 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*

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 15384 was prepared by Technical Committee ISO/TC 94, *Personal safety — Protective clothing and equipment*, Subcommittee SC 13, *Protective clothing*.

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## Introduction

The purpose of this International Standard is to provide minimum performance requirements for protective clothing designed for use for extended periods during wildland fire fighting and associated activities.

Wildland fire fighting involves work primarily in summer temperatures, for many hours in which the firefighter may develop high levels of metabolic heat. Consequently, the protective clothing should be light, flexible and commensurate with the risks to which the firefighter may be exposed in order to be effective without introducing heat stress to the wearer.

Accordingly, a risk assessment should be undertaken to determine if the clothing covered by this International Standard is suitable for its intended use and the expected exposure. This International Standard does not cover clothing for use in risk situations where clothing complying with ISO 11613 or ISO 15538 is more suitable, nor does this International Standard cover clothing to protect against chemical, biological, electrical or radiation hazards.

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

Firefighters should be trained in the use, care and maintenance of the protective clothing covered by this International Standard, including an understanding of its limitation.

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

A list of International Standards related to ISO 15384 is given in the Bibliography.

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

## 1 Scope

This International Standard specifies methods of test and minimum performance requirements for protective clothing to be worn in wildland firefighting and associated activities. This clothing is not intended to provide protection during fire entrapment. This International Standard applies to 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 International Standard is not applicable to clothing for use in risk situations where clothing complying with ISO 11613 or ISO 15538 is more suitable, nor does this International Standard cover clothing to protect against chemical, biological, electrical or radiation hazards.

This International Standard is not applicable to protection of the head (it may cover the neck), eyes, hand, feet and respiratory system. These aspects may be dealt with in other International Standards.

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## 2 Normative references (standards.iteh.ai)

The following referenced documents are indispensable for the application 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 3175-1, *Textiles — Dry cleaning and finishing — Part 1: Method for assessing the cleanability of textiles and garments*

ISO 3758, *Textiles — Care labelling code using symbols*

ISO 4674-1:—<sup>1)</sup>, *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 6330:2000, *Textiles — Domestic washing and drying procedures for textile testing*

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)*

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1) To be published. (Revision of ISO 4674:1977)

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

ISO 13934-2, *Textiles — Tensile properties of fabrics — Part 2: Determination of maximum force using the grab method*

ISO 15025:2000, *Protective clothing — Protection against heat and flame — Method of test for limited flame spread*

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

EN 471:1994, *High-visibility warning clothing*

CIE 54.2-2001, *Retroreflection: definition and measurement*

### 3 Terms and definitions

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

#### 3.1 cleaning cycle

wash and a drying cycle or dry-cleaning cycle

#### 3.2 closure system

method of fastening the openings in the garment including combinations of more than one method of achieving a secure closure, for example a slide fastener covered by an overlap fastened down with a touch and close fastener

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NOTE This term does not cover seams. [standards.iteh.ai/catalog/standards/sist/fa3e0d0b-d6dc-44b2-84a8-84f148e5105b/iso-15384-2003](https://standards.iteh.ai/catalog/standards/sist/fa3e0d0b-d6dc-44b2-84a8-84f148e5105b/iso-15384-2003)

#### 3.3 component assembly

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

#### 3.4 coverall

##### protective coverall

one piece garment that completely covers the wearer's torso, arms and legs

#### 3.5 firefighter's protective clothing

specific garments providing protection for the firefighter's upper and lower torso, neck, arms and legs, but excluding the head, eyes, hands and feet

#### 3.6 garment

##### protective garment

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

EXAMPLE Coat or shirt, trouser, or coverall

#### 3.7 hardware

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

EXAMPLE Fasteners, rank marking, buttons, etc.



**3.8****innermost lining**

lining on the innermost face of a component assembly

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

**3.9****interlining**

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

**3.10****main seam**

seam which is necessary for the integrity of the garment

**3.11****material combination**

material produced from a series of separate layers, intimately combined prior to the garment manufacturing stage

EXAMPLE Quilted material.

**3.12****outer material**

outermost material of which the protective clothing is made

**3.13****seam**

any method of permanent fastening between two or more pieces of material

**3.14****suit****protective suit**

an upper and lower garment worn together that completely covers the wearer's torso, arms and legs

**3.15****wildland fire fighting**

suppression action involving a fire in vegetative fuels such as forest, crops, plantations, grass or farmland

**4 Clothing design****4.1 General**

Protective clothing for firefighters shall consist of one of the following:

- a coverall;
- a suit provided with an interface area; or
- a number of inner and/or outer garments designed to be worn together.

**4.2 Collar**

Any collar shall be able to remain in the vertical position when it is set upright. All protective clothing which encircles the neck shall have a closure system at the level of the line of the collar.