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**Protective clothing for firefighters —  
Laboratory test methods and performance  
requirements for protective clothing with a  
reflective outer surface**

*Vêtements de protection pour sapeurs-pompiers — Méthodes d'essai en  
laboratoire et exigences de performance relatives aux vêtements de  
protection ayant une surface extérieure réfléchissante*



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Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.ch](mailto:copyright@iso.ch)  
Web [www.iso.ch](http://www.iso.ch)

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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 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 15538 was prepared by Technical Committee ISO/TC 94, *Personal safety — Protective clothing and equipment*, Subcommittee SC 13, *Protective clothing*.

Annex A forms an integral part of this International Standard. Annexes B and C are for information only.

## Introduction

The purpose of this International Standard is to provide minimum performance requirements for protective clothing designed for use in certain techniques of firefighting.

The protective clothing should be loose-fitting and as light as possible commensurate with the risks to which the user might be exposed.

A risk assessment should be made to determine whether the clothing covered by this International Standard is suitable for the intended use for the expected exposure. The risk assessment should include consideration of any respiratory protection that 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 limitations and of the necessity to remove personal protective equipment (PPE) as soon as possible after an incident.

Subject to risk assessment, the clothing covered by this International Standard may be suitable for use in activities other than those considered by this International Standard. Nothing in this International Standard is intended to restrict any jurisdiction, purchaser or manufacturer from exceeding these minimum requirements.

A list of International Standards related to this International Standard is given in the Bibliography.

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# Protective clothing for firefighters — Laboratory test methods and performance requirements for protective clothing with a reflective outer surface

## 1 Scope

This International Standard specifies test methods and minimum performance requirements for protective clothing that relies upon the ability of the outer material to reflect intense radiant heat.

The clothing covered by this International Standard is intended to provide protection against flame lick and intense radiant heat and it should be worn for short periods only.

Subject to a risk assessment, this type of clothing may also be used for certain industrial and other applications.

Subject to a risk assessment, other types of protective clothing, for example clothing complying with the requirements of ISO 11613, may be used for the types of firefighting and industrial applications envisaged by this International Standard in conjunction with appropriate protection for the head, face, hands and feet as well as suitable respiratory protection.

This International Standard does not consider requirements for the protection of the head (including the face), hands and feet other than those specified in 4.2 and 4.3. Any other requirements specific to the protection of head (including the face), hands and feet required by the user should be determined by a risk assessment and specified.

## 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 811, *Textile fabrics — Determination of resistance to water penetration — Hydrostatic pressure test*

ISO 1421, *Rubber- or plastics-coated fabrics — Determination of tensile strength and elongation at break*

ISO 3175-1, *Textiles — Dry cleaning and finishing — Part 1: Method for assessing the cleanability of textiles and garments*

ISO 4674:1977, *Fabrics coated with rubber or plastics — Determination of tear resistance*

ISO 4920, *Textiles — Determination of resistance to surface wetting (spray test) of fabrics*

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:—<sup>1)</sup>, *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 8782-1, *Safety, protective and occupational footwear for professional use — Part 1: Requirements and test methods*

ISO 8782-5, *Safety, protective and occupational footwear for professional use — Part 5: Additional requirements and test methods*

ISO 9151, *Protective clothing against heat and flame — Determination of heat transmission on exposure to flame*

ISO 12127, *Clothing for protection against heat and flame — Determination of contact heat transmission through protective clothing or constituent materials*

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

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

ISO 15383, *Protective gloves for firefighters — Laboratory test methods and performance requirements*

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

### 3 Terms and definitions

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

#### 3.1

##### **garment**

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

#### 3.2

##### **clothing ensemble**

combination of two or more garments that collectively provide protection of the body

#### 3.3

##### **clothing assembly**

series of outer and under garments to be worn together

#### 3.4

##### **component assembly**

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

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1) To be published. (Revision of ISO 6942:1993)