
**PPE for firefighters — Test methods
and requirements for PPE used
by firefighters who are at risk of
exposure to high levels of heat and/or
flame while fighting fires occurring in
structures —**

**Part 4:
Gloves**

*Équipement de protection personnelle pour pompiers — Méthodes
d'essai et exigences pour les équipements de protection personnelle
utilisés par les pompiers qui sont à risque d'une exposition à des
niveaux élevés de chaleur et/ou de flamme quand la lutte contre les
incendies survient dans les structures —*

Partie 4: Gants

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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).

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).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 94, *Personal protection — Protective clothing and equipment*, Subcommittee SC 14, *Fire-fighters' personal equipment*.

ISO 11999 consists of the following parts, under the general title *PPE for firefighters — Test methods and requirements for PPE used by firefighters who are at risk of exposure to high levels of heat and to flame while fighting fires occurring in structures*:

- *Part 1: General*
- *Part 2: Compatibility*
- *Part 3: Clothing*
- *Part 4: Gloves*

The following parts are under preparation:

- *Part 5: Helmets*
- *Part 6: Footwear*
- *Part 7: Face and eye protection*
- *Part 8: Hearing*
- *Part 9: Firehoods*
- *Part 10: Respiratory protection*

NOTE The number of this draft has been changed from ISO/DIS 11613-4 to ISO 11999-4. The Committee agreed a new number for this project was appropriate given the scope of the publication of the ISO 11999 series was to cover ensemble standards. It was further agreed that ISO 11613:1999 would remain current

PPE for firefighters — Test methods and requirements for PPE used by firefighters who are at risk of exposure to high levels of heat and/or flame while fighting fires occurring in structures —

Part 4: Gloves

1 Scope

This part of ISO 11999 specifies minimum design and performance requirements for gloves as part of personal protective equipment (PPE) to be used by firefighters, primarily, but not solely, to protect against exposure to flame and high thermal loads.

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.

ISO 3146:2000, *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: Procedures for tetrachloroethylene*

ISO 6330, *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 9151, *Protective clothing against heat and flame — Determination of heat transmission on exposure to flame*

ISO 11999-1:2013, *PPE for firefighters — Test methods and requirements for PPE used by firefighters who are at risk of exposure to high levels of heat and/or flame while fighting fires occurring in structures — Part 1: General*

ISO 11999-2, *PPE for firefighters — Test methods and requirements for PPE used by firefighters who are at risk of exposure to high levels of heat and/or flame while fighting fires occurring in structures — Part 2: Compatibility*

ISO 12127-1, *Clothing for protection against heat and flame — Determination of contact heat transmission through protective clothing or constituent materials — Part 1: Contact heat produced by heating cylinder*

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

ISO 13994:2005, *Clothing for protection against liquid chemicals — Determination of the resistance of protective clothing materials to penetration by liquids under pressure*

ISO 13996, *Protective clothing — Mechanical properties — Determination of resistance to puncture*

ISO 11999-4:2015(E)

ISO 13997, *Protective clothing — Mechanical properties — Determination of resistance to cutting by sharp objects*

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

ISO 16604:2004, *Clothing for protection against contact with blood and body fluids — Determination of resistance of protective clothing materials to penetration by blood-borne pathogens — Test method using Phi-X 174 bacteriophage*

ISO 17075, *Leather — Chemical tests — Determination of chromium(VI) content*

ISO 17492, *Clothing for protection against heat and flame — Determination of heat transmission on exposure to both flame and radiant heat*

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

EN 420:2003 A1:2009, *Protective gloves — General requirements and test methods*

EN 13087-1:2000, *Protective helmets — Test methods — Conditions and conditioning*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 11999-1 apply.

4 Glove design requirements

Gloves shall consist of a component assembly meeting the design and performance requirements of this part of ISO 11999. The component assembly shall be permitted to be configured as a continuous or joined single layer or as continuous or joined multiple layers. The component assembly shall be permitted to be different for the palm, back, and fingers.

4.1 Glove body length

The glove shall extend circumferentially beyond the wrist crease for not less than 25 mm. The location of the wrist crease shall be determined as shown in [Figure 1](#).