
**Wildland firefighting personal
protective equipment —
Requirements and test methods —**

**Part 1:
General**

*Équipement de protection individuelle pour la lutte contre les feux
d'espaces naturels — Exigences et méthodes d'essai —*

Partie 1: Généralités

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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).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 94, *Personal safety — Personal protective equipment*, Subcommittee SC 14, *Firefighters' personal equipment*.

This first edition of ISO 16073-1, together with ISO 16073-2 to ISO 16073-8, cancels and replaces (ISO 16073:2011). The main changes are as follows:

- the content has been reviewed and separated into several parts;
- the respiratory protection has been deleted from the document.

A list of all parts in the ISO 16073 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Wildland firefighting involves work carried out mostly in summer temperatures and for many hours, during which the firefighter can develop high levels of metabolic heat. As a consequence, the personal protective equipment (PPE) is required to be light, flexible and commensurate with the risks to which the firefighter can be exposed in order to be effective without introducing excessive heat stress to the wearer.

It is important to train firefighters in the selection, use, care and maintenance of the PPE covered by this document, including an understanding of its limitations.

It is intended that a risk assessment be undertaken to determine if the PPE covered by this document is suitable for its intended use and the expected exposure, see [Annex A](#).

This document provides minimum performance requirements for wildland firefighters' personal protective equipment (PPE) designed for use for extended periods during wildland firefighting.

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Wildland firefighting personal protective equipment — Requirements and test methods —

Part 1: General

1 Scope

This document specifies the minimum performance requirements and methods of test for personal protective equipment (PPE) covering the torso, neck, arms, hands, legs, feet, head, eyes and hearing that is used for wildland firefighting.

This document covers the general design of the PPE, the minimum levels of performance for the materials employed and the methods of test used. The PPE is not intended to provide protection during fire entrapment.

This document does not cover PPE for structural firefighting (see ISO 11999 series), for use against chemical, biological, radiological and nuclear hazards, or for use where a reflective outer surface is required (see ISO 15538).

Activities in support of wildland firefighting, such as the cutting of trees and the use of a chainsaw can require additional protection to that provided in this document. Users are directed to those relevant standards for the requirements associated with such protection.

To assist with selection of the right PPE, a risk assessment (see [Annex A](#)) can be conducted to determine the type of PPE, and performance levels, for different categories of protection are required.

This document describes performance requirements for PPE and includes requirements for marking and manufacturer's instructions.

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/TS 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 13688, *Protective clothing — General requirements*

ISO/TR 19591, *Personal protective equipment for firefighters — Standard terms and definitions*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/TR 19591 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 Design and performance requirements for PPE items and ensembles

4.1 Innocuousness

PPE shall not adversely affect the health or hygiene of the user. The materials shall not, in the foreseeable conditions of normal use, release substances generally known to be toxic, carcinogenic, mutagenic, allergenic, toxic to reproduction or otherwise harmful.

NOTE For more detail either see specific parts of ISO 16073 or see more detail in either ISO 13688 or ISO 21420 used respectively for garment and gloves.

4.2 PPE Ensembles

An ensemble of PPE items is classified as meeting the requirements of this document if every item in the ensemble meets the appropriate requirements of the relevant parts of ISO 16073 series and provide as an ensemble protection to the whole body of the firefighter for wildland firefighting operations.

For example, the items or items of PPE of a PPE ensemble, which are intended to provide protection for the firefighter's upper and lower torso, head, neck, arms, hands, legs and feet, shall conform to the requirements of ISO 16073-3 to ISO 16073-9.

Nevertheless, an item of PPE, which is conforming to the requirements of one of ISO 16073-3 to ISO 16073-9, can individually be designated and marked as design and performance requirements for that item of PPE conforming to the relevant part of the ISO 16073 series.

4.3 Combination of items of PPE

A combination of two or more items of PPE, of which each item individually meets the requirements of the relevant part of ISO 16073 series, shall also meet the relevant fitting/interface compatibility requirements detailed in ISO/TS 11999-2.

NOTE A combination is more than a single item of PPE but less than an ensemble, i.e. it is not an offering protection for the whole firefighter.

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5 Marking

5.1 General

Marking requirements shall be as specified in ISO 13688 and in this clause.

Any marking in the form of labels shall not adversely affect the performance of any item to which they are attached or present a hazard to the wearer.

Labels shall be tested for flammability according to the requirements for labels in ISO 16073-3 only where placed on the exterior of the garment. Labels (interior and exterior) and closure systems shall be tested to the relevant requirements according to the PPE item they are attached to.

Marking of PPE shall also be in accordance with the specific requirements of the item as detailed in the relevant parts of the ISO 16073 series.

5.2 Compliance marking requirements for an item of PPE

Each item of PPE, for which compliance with this document is claimed, shall have a label permanently and conspicuously attached in accordance with ISO 13688 and upon which the following information is printed in letters at least 2 mm high:

- a) Where practical, the pictogram given in [Figure 1](#).
- b) Identification of product standard — ISO 16073-Y:XXXX where Y is part and XXXX is year.

- c) The name, trademark, or other means of identifying or tracing back to the manufacturer.
- d) The manufacturer's model number and/or user's specified number.



**Figure 1 — Protective equipment for wildland firefighting
(ISO 7000-3636)**

5.3 Additional marking for compatibility

All items of PPE, which are intended to be worn together in order to form a specific combination of PPE items or a specific mixed ensemble, and which are intended to be certified together and put together on the market, are to be tested together according to the respective compatibility requirements of ISO 16073-2. An additional marking is to be added to the items' individual markings, stating each item that it is "Compatible with — Compatible with [using information in 5.2 c) and d)]".

6 Manufacturer's instructions to be supplied with each item of PPE

6.1 User's information

The manufacturer shall meet the requirements of ISO 13688 and the minimum requirements in 5.1 and 5.2. Manufacturers shall also add additional relevant information from each part of ISO 16073.

The manufacturer shall provide user information including, but not limited to, data in accordance with the relevant part(s) of 16073 series, any additional data required by this standard, the results of any optional tests undertaken, warnings, information, and instructions with each PPE.

Instructions shall be supplied in the official language(s) of the country of destination.

The manufacturer shall provide at least the following instructions and information with each PPE:

- a) Safety considerations.
- b) Information about the markings.
- c) Limitations of use.
- d) Preparation for use.
- e) Sizing and details if gender specific.

- f) Recommended storage practices.
- g) Inspection frequency and details.
- h) Donning and doffing procedures.
- i) Maintenance and cleaning.
- j) Retirement and disposal.
- k) Known shelf life limitations.
- l) Information about the use of integrated devices.

The manufacturer shall attach the manufacturer's instructions, or packaging containing this information, to the relevant item of PPE in such a manner that it is not possible to use the item of PPE without being aware of the availability of the information and that a deliberate action is necessary to remove it.

The manufacturer shall provide notice that the information is to be removed ONLY by the end user.

Instruction's shall give the following additional information:

- In the situation where a combination of PPE items or an ensemble, do not have the same rating, for example different levels of heat and flame protection, the manufacturer's instructions shall indicate additional effects and risks which may result.

6.2 Additional user information for compatibility

Combination of PPE items which are intended to be worn together and or assembled together, shall be tested together according to the respective compatibility requirements of ISO/TS 11999-2 and meet the requirements of the individual parts of the ISO 16073 series.

For the compatible items of PPE, the manufacture shall provide a declaration for each item of compatible PPE, additional information on the conformance to the requirements of ISO/TS 11999-2, and any additional checks or warnings, such as but not limited to:

- compatible with [using information in [5.2 c\)](#) and d)]
- testing and classification of performance for items of PPE, for combinations of items of PPE for ensembles
- additional compatibility testing, including detailed instructions, that shall be completed by the end user prior to wearing the PPE in hazard situations.