INTERNATIONAL STANDARD

ISO 16073-2

First edition
2019-11

Wildland firefighting personal protective equipment — Requirements and test methods —

Part 2: Compatibility

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

Partie 2: Compatibilité

Reference number
ISO 16073-2:2019(E)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword ..... **iv**
Introduction ..... **v**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 Compatibility **1**
4.1 General 1
4.2 Minimum requirements of compatibility 2
4.3 Fit and function tests demonstrating compatibility 2
4.4 Test subjects 2
4.5 Test conditions 2
4.6 Test reports 2
Bibliography **3**

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 — Protective equipment*, Subcommittee SC 14, *Firefighters personal equipment.*

This first edition of ISO 16073-2, together with ISO 16073-1 and ISO 16073-3 to ISO 16073-8, cancels and replaces (ISO 16073:2011). The main changes are as follows:

The main changes compared to the previous edition 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.

This document specifies design and performance requirements for the compatibility of ISO 16073-3, ISO 16073-4, ISO 16073-5, ISO 16073-6, ISO 16073-7, ISO 16073-8 and ISO 16073-9 when items covered by these documents are worn together. All the items should meet the general requirements for marking and manufacturer's instructions (ISO 16073-1), as well as specific marking and manufacturers instruction of the respective parts of ISO 16073.

Firefighters should be trained 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.

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

Wildland firefighting personal protective equipment — Requirements and test methods —

Part 2: Compatibility

1 Scope

This document specifies the minimum performance requirements and test methods for assessing compatibility of wildland firefighters' personal protective equipment (PPE).

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 compatibility testing to that provided in this document. Users are directed to those relevant standards for the requirements associated with such protection.

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 16073-1, *Wildland firefighting personal protective equipment — Requirements and test methods— Part 1: General*

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 in ISO/TR 19591 apply.

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

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

4 Compatibility

4.1 General

Compatibility becomes an issue when different items of PPE that make up an ensemble or combination are worn at the same time. This is because different types of PPE may interfere with another type of PPE leading to a reduction in the level of protection provided and/or restrictions in the way it can be worn.

For items of PPE to be marked as compatible according to ISO 16073-1 they shall have been tested against and met the relevant performance requirements specified in ISO/TS 11999-2. Practical performance testing in accordance with this standard is required to ensure compatibility.

4.2 Minimum requirements of compatibility

Compatible items of PPE shall meet the relevant requirements of ISO/TS 11999-2, thereby showing that they fit together and function together.

Compatible items of PPE shall not cause impairments to the wearer whilst being worn.

Compatible items of PPE shall not cause restrictions or reduce the protection level when used in an ensemble or in combination.

4.3 Fit and function tests demonstrating compatibility

Test subjects should perform a series of practical tests (practical performance tests) specified in ISO/TS 11999-2:2015, 4.3.2, 4.3.3, 4.3.4 and 4.3.5 that demonstrate the compatibility of items of PPE in ensembles and combinations measured against a set of performance criteria.

4.4 Test subjects

A minimum of three test subjects should be chosen with at least one being male and one being female. Each subject shall have relevant knowledge and be appropriately trained to undertake the fit and function tests required to demonstrate compatibility.

For statistical testing a minimum of six test subjects are required. To test for gender aspects a minimum of 12 test subjects, (6 male, 6 female), should be used.

The items of PPE shall be the appropriate size for the test subject and correctly fitted.

It is important that the test subjects are wearing all relevant items of PPE when testing for compatibility of fit and interface. These may not be directly adjacent to a specific item being considered in the test; however other items of PPE may have an influence on the fit and interfacing of the items being tested.

EXAMPLE The compatibility between a firehood and respiratory protection can vary when a helmet is worn.

4.5 Test conditions

Each test should be carried out in a range of conditions which reflect the environment in which the PPE is to be used. At least one test shall be carried out in dry weather (without precipitation), at an ambient temperature.

4.6 Test reports

Test reports shall be provided for each test subject detailing the PPE ensemble or combination being tested and noting any points of incompatibility.