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Wildland firefighting personal protective equipment — Requirements and test methods —

Part 4: Gloves

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

Partie 4: Gants

Reference number
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Contents

Page

Foreword ... **iv**
Introduction ... **v**
1 Scope ... **1**
2 Normative references ... **1**
3 Terms and definitions ... **2**
4 Gloves ... **2**
4.1 Design requirements ... 2
4.1.1 Component assembly ... 2
4.1.2 Wristlet or cuff ... 2
4.1.3 Glove sizing ... 2
5 Sampling, pretreatments and preconditioning ... **3**
5.1 Sampling ... 3
5.1.1 Inspection ... 3
5.1.2 Testing ... 3
5.2 Pretreatments ... 3
5.2.1 Pretreatment by laundering or dry cleaning ... 3
5.2.2 Flexing ... 4
5.3 Preconditioning ... 4
5.3.1 Dry conditioning ... 4
5.3.2 Wet conditioning ... 4
6 Performance requirements ... **4**
6.1 General requirements ... 4
6.2 Thermal requirements ... 4
6.2.1 Flame resistance ... 4
6.2.2 Heat transfer — Flame exposure ... 6
6.2.3 Heat transfer — Radiant exposure ... 6
6.2.4 Heat transfer — Conductive exposure ... 6
6.2.5 Materials' thermal stability ... 7
6.2.6 Materials' thermal shrinkage ... 7
6.3 Mechanical requirements ... 7
6.3.1 Abrasion resistance ... 7
6.3.2 Cut resistance ... 7
6.3.3 Tear resistance ... 8
6.3.4 Puncture resistance ... 8
6.4 Ergonomic requirements ... 8
6.4.1 Dexterity ... 8
6.4.2 Grip ... 8
6.4.3 Donning test ... 8
7 Marking and labelling ... **9**
7.1 General ... 9
7.2 Label durability and legibility ... 9
7.3 Compliance marking requirements ... 10
8 Manufacturer's information ... **10**
8.1 General ... 10
Annex A (informative) **Guidelines for personal protective equipment design** ... **12**
Annex B (normative) **Grip test — Gloves** ... **13**
Annex C (normative) **Ease of donning and doffing test** ... **15**
Bibliography ... **17**

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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/TC94, *Personal safety — Personal protective equipment*, Subcommittee SC 14, *Firefighters' personal equipment.*

This first edition of ISO 16073-4, together with ISO 16073-1 to ISO 16073-7 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.

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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. Therefore, 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.

This document provides minimum performance requirements for wildland firefighters' PPE designed for use for extended periods during wildland firefighting.

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Wildland firefighting personal protective equipment — Requirements and test methods —

Part 4: Gloves

1 Scope

This document specifies the minimum performance requirements and methods of test for personal protective equipment (PPE), gloves, that cover the hands whilst 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. This PPE is not intended to provide protection during fire entrapment. A risk assessment (see ISO/TR 21808) can be undertaken to determine if the gloves covered by this document are suitable for their intended use and the expected exposure.

This document does not cover PPE for structural firefighting (see ISO 11999-4), 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 can refer to the 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 139, *Textiles — Standard atmospheres for conditioning and testing*

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 — Professional care, drycleaning and wetcleaning of fabrics and garments — Part 1: Assessment of performance after cleaning and finishing*

ISO 6330:2019, *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 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 12947-4, *Textiles — Determination of the abrasion resistance of fabrics by the Martindale method — Part 4: Assessment of appearance change*

ISO 14116:2015, *Protective clothing — Protection against flame — Limited flame spread materials, material assemblies and clothing*

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ISO 15025, *Protective clothing — Protection against 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*

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

ISO 21420:2019, *Protective gloves — General requirements and test methods*

ISO 23388:2018, *Protective gloves against mechanical risks*

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

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 Gloves

4.1 Design requirements

4.1.1 Component assembly

Gloves shall consist of a component assembly meeting the performance requirements of this document. This component assembly shall be permitted to be configured as a continuous or joined single layer or as continuous or joined multiple layers. Recommendation for general considerations of gloves design are given in Annex A.

4.1.2 Wristlet or cuff

Where gloves are provided with a cuff or a wristlet or both, the sample glove body and the cuff and/or wristlet shall extend circumferentially at least 50 mm beyond the wrist crease, taking into consideration the requirement specified in ISO 21420:2019, 4.1.

Where gloves are not provided with a cuff or a wristlet, the sample glove body shall extend circumferentially at least 50 mm beyond the wrist crease, which is a 25 mm addition to the requirement ISO 21420:2019, 4.1.

The cuff or wristlet shall provide a protective interface with clothing used for wildland firefighting.

NOTE For more information, see ISO/TS 11999-2.

4.1.3 Glove sizing

4.1.3.1 Minimum sizing

Gloves shall be provided in a minimum of eight unique and distinct sizes. The manufacturer shall indicate the range in hand circumference and hand length for wearers of each glove size, as determined in ISO 21420:2019, Annex A.

NOTE The intent of this requirement is to allow manufacturers to report information to the user, which assists in their selection of the appropriate size. Standard sizes are not defined by this document.

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