ISO/TC 94/SC 14

Secretariat: SA

Date: 2024-04-15xx

Cleaning, inspection and repair of firefighters' firefighters' personal protective equipment (PPE)

Nettoyage, inspection et réparation des équipements de protection individuelle (PPE) des pompiers

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#### **Foreword**

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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 document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see <a href="www.iso.org/directives">www.iso.org/directives</a>).

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

This second edition cancels and replaces the first edition (ISO 23616:2022), which has been technically revised.

The main changes are as follows:

editorial changes throughout the document.

Any feedback or questions on this document should be directed to the user's national standards body. Accomplete listing of these bodies can be found at <a href="https://www.iso.org/members.html">www.iso.org/members.html</a>.

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### Introduction

The purpose of this document is to provide the requirements, guidance, and recommendations, and establish criteria regarding the cleaning, inspection, and repair of firefighters' personal protective equipment (PPE). and establish criteria for its cleaning, inspection and repair. This document has been developed in response to growing concerns about contaminated PPE and potential health hazards for firefighters. Fire and rescue services, and the manufacturers of PPE, want to provide instructions and guidance to effectively minimize and manage this risk.

Following the designation by the World Health Organisation of firefighting as an at risk occupation from cancer, this document should consider all technologies for decontaminating and cleaning firefighters PPE, including all new technologies, i.e LC02 processes.

It is the responsibility of the firefighter (initially and ongoing) to undertake regular inspections of their

PPE, and there shall also be a reliable system / mechanism, (including training), to ensure that this can be achieved effectively.

This document also provides instruction and guidance to fire and rescue services regarding more advance to cleaning, inspection and repair.

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**ISO/FDIS 23616** 

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## Cleaning, inspection and repair of <u>firefighters' firefighters'</u> personal protective equipment (PPE)

#### 1 Scope

This document provides requirements, guidance and recommendations for the cleaning, inspection, and repair of PPE for use by firefighters.

This document is intended to be used by those responsible for the cleaning, inspections, and repair df firefighters PPE, however, it will also provide vital guidance to those who are responsible for establishing such a program including fire and rescue services.

This document does not cover the following at this time:

a) a) chemical protective clothing;

b) PPE required for protection against chemical, biological, radiological and nuclear (CBRN) materials.

The selection and use of personal protective equipment (PPE) for firefighters are covered by ISO/TR 21808.

#### 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.

<std>ISO 13688:2013, Protective clothing—General requirements</std>

<std>ISO 13688:2013/Amd.1:2021, Protective clothing — General requirements/ — Amendment 1</std>

<std>ISO/TS 16975 ISO/TS 16975 I, Respiratory protective devices — Selection, use and maintenance – Part 1: Establishing and implementing a respiratory protective device programme

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<std>ISO/TR 19591, Personal protective equipment for firefighters—Standard terms and definitions</std>

<std>ISO/TR 19591, Personal protective equipment for firefighters — Standard terms and definitions

JSO/TR 21808, Best practices on the selection and use of personal protective equipment (PPE) designed to provide protection for firefighters /-/std>

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions given in <u>ISO/TR 19591, ISO/TR 21808</u> and the following apply.

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

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——IEC Electropedia: available at <a href="http://www.electropedia.org/">http://www.electropedia.org/</a>

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### advanced cleaning

cleaning by the product manufacturer, the manufacturers approved organization, a specialized competent organization, or mutually agreed competent organization when a PPE item has been, or is potentially exposed to a hazardous or dangerous contaminant

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Note 1-to entry:-CBRN contaminated PPE are to be disposed of not cleaned. PPE should be disposed of following locallaws and regulations.

Note 2-to entry:-\_Some known chemicals are commercially available for industrial use. PPE that have been exposed to known chemicals may not have to be disposed of. Specialist advice shall be sought on the contamination, however, the PPE shall be treated in the first instance as if the contamination is unknown.

Note 3-to entry:-The decision shall be made following a detailed risk assessment.

3.1

advanced inspection

inspection to ensure PPE is fit for purpose before return to use looking at all aspects of the PPE (e.g. inside, outside, defects, wear and tear, need for repairs or disposal)

organization that is experienced and certified to inspect, clean, maintain or repair PPE for firefighters

undesirable solid, liquid, gaseous or particulate hazardous substance such as

a) a) products of combustion (e.g. soot),

b) b) body fluids,

sensitizing substances)

c) e)-infectious micro-organisms, and chemicals (e.g. asbestos or respirable fibres, flammable, corrosive, carcinogenic, mutagenic, toxic or

contaminated PPE

any PPE that has been exposed to a contaminant (3.4)(3.4)

3.6 repair

rectification of defects identified in PPE so that the required level of protection is re-established

3.7

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routine cleaning

periodic cleaning conducted by the user as per manufacturers or suppliers' instructions

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#### 3.8

#### routine inspection

superficial inspections by user of their PPE upon issue, or after return from cleaning or repair, and after each use

#### 4 General information

#### 4.1 General

Any PPE provided to a firefighter shall be maintained in efficient working order and good repair. During cleaning, inspection and repair, alternative PPE shall be provided to ensure continually operational availability of the firefighter.

Every firefighter shall ensure that any PPE provided to them is clean, in optimum working order and in goo $\psi$  repair before being used.

When an item of PPE needs to be cleaned or repaired, the fire and rescue service shall ensure that suitable replacement PPE is made available.

The fire and rescue service shall ensure that its firefighters, service providers or members of the public are not unnecessarily exposed to soiled or potentially contaminated PPE.

An effective cleaning, inspection and repair system includes the following:

a) a) inspection — checking for faults, damage, wear and tear, dirt, etc.;

b) b)—cleaning — including disinfection and decontamination if appropriate;

c)\_e)\_repair;

d) d) replacement;

e)\_e)\_recording.

 $\underline{\mathbf{f}}$  testing — to ensure PPE is operating as intended;  $\underline{\mathbf{ards/iso/a057145f-7cd4-4676-be5f}}$ 

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#### 4.1.1 Innocuousness

Any cleaning, repair or maintenance carried out on firefighting PPE shall not impact the innocuousness of that

See JS0\_13688;2013, 4.2 and JS0\_13688;2013/Amd.1:2021—Clause\_\_4.2, and JSO\_21420;2020 +A1ant ISO\_21420;2020/Amd.1:2022, Clause 4.2.

#### 4.2 Management system

**All Routine** PPE inspection and cleaning shall be carried out according to the manufacturers or supplier's instructions and shall be conducted by a competent firefighter or competent person or competent organization, such as a PPE manufacturer, a competent laundry or other competent organization.

All Advanced PPE inspection, cleaning and repair shall be carried out by a competent organization. Training shall be provided by the PPE manufacturers or suppliers of the same PPE item to the Competent Person or organisation undertaking the advanced cleaning, inspection, and repair.

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The competent organization responsible for cleaning, inspection and repair, shall develop and implement a program for the care and maintenance of PPE used by the members of the fire and rescue service in the performance of their assigned functions.

The program shall provide sufficient PPE to maintain service continuity during cleaning inspection and repair.

This program shall have the goals of providing instruction and guidance to the suitable cleaning, inspection and repair of PPE for its intended use, through:

a) a) Maintaining such PPE in a safe, usable condition to provide the intended protection to the firefighter.

b) b) Removing from use any PPE that could cause or contribute to firefighter injury or health issues.

c) e)—Reconditioning, repairing, or retiring such PPE as necessary.

The competent organization shall develop and provide specific criteria for removal of PPE considered to be not fit for purpose or beyond economic repair.

When handling PPE prior to cleaning, those handling the PPE shall observe appropriate health and safety precautions to protect them from any contaminants. Cross contamination shall be avoided at every stage of the process, especially during routine inspection and cleaning.

All firefighter PPE that are found or suspected to be soiled or contaminated shall be cleaned or decontaminated before any additional inspection and/or repair is initiated.

All repairs shall be carried out in accordance with manufacturer's instructions by <a href="COMPENENT\_competent">COMPENENT\_competent</a> organizations. All PPE that is found or suspected to be soiled or contaminated shall be cleaned or decontaminated before any additional inspection is initiated.

As a minimum, advanced cleaning (see  $\frac{6.4.3)6.4.3}{1}$  and advance inspection (see  $\frac{5.2)5.2}{1}$  shall be carried out as required and at least once per year.

## 5 Inspection

#### 5.1 Routine inspection

Individual firefighters shall conduct routine inspections of their PPE upon issue and after each use, cleaning and/or repair. These checks shall be carried out by the firefighters before and after each use to identify any defects before being exposed to hazardous situations.

There shall be clear criteria and instructions provided to the firefighters for when and how to send PPE for cleaning and inspection. The instructions shall include details of how to prevent cross contamination and how those transporting or receiving these items can be protected.

The inspection criteria shall be selected based on the potential consequence and may include:

If the abnormality is

a) a) minor: take no action,

b) b) moderate: send for repair, and

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