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Personal protective equipment for firefighters — Standard terms and definitions

Équipement de protection personnelle pour pompiers — Termes et définitions normalisés

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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 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).

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For an explanation on 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 WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

This document was prepared by Technical Committee ISO/TC 94, *Personal safety — Protective clothing and equipment*, Subcommittee SC 14, *Fire-fighters' personal equipment*.

Introduction

The definitions compiled in this document apply to the standards and draft standards prepared by ISO/TC 94/SC 14.

For this reason, the terms and definitions laid down in this technical report only cover personal protective equipment which is used by firefighters.

Since the document was developed under Clause 5.2 of the Vienna Agreement, it also takes account of terms and definitions of the relevant ISO-TC for protective clothing, ISO/TC 94/SC 13 and ISO/TR 11610. In addition, terms applied by the American National Fire Protection Association standards body and other standards bodies including EN and AS/NZS Standards are included in so far as ISO/TC 94/SC 14 use them in its standardising activities.

This document is intended to serve as a reference document for ISO/TC 94/SC 14 to ascertain what definitions already exist and may be used for setting up new standards and to provide guidance in the elaboration of new definitions. The document should be taken into account when terms need to be defined in ISO/TC 94/SC 14. Except in exceptional circumstances, terms included in Clause 3 of this document should not be re-defined with a different meaning in a standard prepared by ISO/TC 94/SC 14. If the particular use of a term requires a further definition to limit its meaning within the definition in this document, this document should be referred to and the term number given. The division of a concept defined in this document into sub-concepts in a terms and definitions clause of another standard should be in accordance with ISO 704:1994 and ISO 860. The layout should be in accordance with ISO 10241-1.

Whenever new terms are defined, the principles laid down in ISO 10241-1, ISO 860 ad ISO 704 should be taken into account as far as possible.

It is strongly recommended that terms in this document are used within the limits of their definitions when they are used in manufacturers' information leaflets and in advertising and promotion of products covered by standards prepared by ISO/TC 94/SC 14.

This document aims to facilitate the use of terms that have already been defined and to serve as a basis for further definitions when new standards are being developed for firefighters' personal protective equipment.

Personal protective equipment for firefighters — Standard terms and definitions

1 Scope

This document contains a list of terms which are frequently used in the standardization of personal protective equipment worn by firefighters and definitions of these terms. The definitions are intended to support an unambiguous use of the terms listed.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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/

NOTE The following terms and definitions have been taken from ISO/TR 11610 and the existing standards and draft standards in ISO/TC 94/SC 14. For each definition, the source standard(s) is given below the term. For some terms, the definition given in the document refers to its use in the specific field of firefighters personal protective equipment.

3.1
abrasion cycle
completion of all the translational abrasion movements tracing a Lissajous figure comprising 16 rubs, i.e. 16 revolutions of the two outer drives and 15 revolutions of the inner drive of the Martindale abrasion tester

[SOURCE: ISO 12947–1:1998, 3.2]

3.2
abrasion rub
one revolution of the outer drives of the Martindale abrasion tester

[SOURCE: ISO 12947-11:1998, 3.1]

3.3
attached components
components such as but not limited to gloves and boots that can be either temporarily or permanently joined or fastened, either by design or by a procedure described by the manufacturer in the user instructions, to the chemical protective suit to create a chemical protective ensemble

3.4
accessory
additional parts that are approved by the manufacturer and can be attached to an item of PPE but are not necessary to fulfil the requirements of the standard

EXAMPLE Cable clips, lamp brackets, etc.

[SOURCE: ISO 11999-1:2015, 3.1, modified — “is” changed to “are”.]

3.5
afterflame
persistence of flaming of material under specified test conditions, after the ignition source has been removed

[SOURCE: ISO/TR 11610:2004, 3.5]

3.6
afterflame time
duration of flaming after removal of ignition source; length of time for which a material continues to flame, under the specified test conditions, after the ignition source has been removed

Note 1 to entry: Afterflame time is measured to the nearest second and afterflame times of less than 1,0 s should be recorded as zero.

[SOURCE: ISO/TR 11610:2004, 3.6, modified — Note to entry added.]

3.7
afterglow
persistence of glowing combustion of a material under specified test conditions, after cessation of afterflaming or, if no afterflaming occurs, after removal of the ignition source

Note 1 to entry: Afterglow is a continuation of combustion with the evolution of heat and light but without flame. Some materials absorb heat during the flame application and continue to emit this absorbed heat after removal of the igniting flame. This glowing without combustion should not be recorded as afterglow.

[SOURCE: ISO 15025:2016, 3.2]

3.8
afterglow time
duration of flaming after removal of ignition source

Note 1 to entry: It is also defined as the length of time for which a material continues to flame under the specified test conditions, after the ignition source has been removed.

Note 2 to entry: Afterflame time is measured and reported to the nearest second.

[SOURCE: ISO 15025:2016, 3.3, modified — original text is “duration of afterglow”.]

3.9
ageing
change of one or more initial properties of the materials during the passage of time

[SOURCE: ISO/TR 11610:2004, 3.9]

3.10
antistatic footwear
footwear whose resistance, when measured, lies above 100 kΩ and is less than or equal to 1 000 MΩ

Note 1 to entry: The resistance is measured according to ISO 20344:2011 5.10.

[SOURCE: ISO 20345:2011, 3.15, modified — text added “whose resistance, when measured, lies”]

3.11
anti-wicking barrier
material used to prevent the transfer of liquid from outside the garment to inside the garment, usually in addition to or replacing part of the moisture barrier at the edge(s)

[SOURCE: EN 469:2005, 3.1]

3.12
approach fire fighting
limited, specialized fire fighting operations conducted at a distance from incidents involving very high levels of radiant, convective and contact heat, such as bulk flammable gas and bulk flammable liquid fires

[SOURCE: ISO/TR 11610:2004, 3.11]

3.13
arch
bottom curved portion of the foot, extending from the heel to the ball

3.14
assemblage
permanent fastening between two or more different garments, or between the protective clothing and accessories obtained for example by sewing, welding, vulcanising, gluing

[SOURCE: ISO/TR 11610:2004, 3.17]

3.15
attached components
components such as but not limited to gloves and boots that can be either temporarily or permanently joined or fastened, either by design or by a procedure described by the manufacturer in the user instructions, to the chemical protective suit to create a chemical protective ensemble

3.16
basic plane of the head or headform
plane at the level of the opening of the external auditory meatus and the lower edge of the eye sockets

[SOURCE: ISO 11999-1:2015, 3.2]

3.17
basic shape
outer shape which the helmet would have if it had neither comb nor brim nor any of the fairings or radii associated with these

[SOURCE: ISO 11999-1:2015, 3.4]

3.18
behind-the-head earmuff
earmuff designed to be worn with the headband passing behind the head

[SOURCE: ISO 16073:2011, 3.2]

3.19
behind-the-head headband ear-plugs
ear-plugs designed to be worn with the headband passing behind the head

[SOURCE: ISO 16073:2011, 3.1]

3.20
biological agents
biological materials that are capable of causing an acute disease or long term damage to the human body

3.21
biological terrorism agents
liquid or particulate agents that consist of a biologically derived toxin or pathogen used to inflict lethal or incapacitating casualties, generally on a civilian population as a result of a terrorist attack

3.22
body fluid-borne pathogen
infectious micro-organisms, including bacteria or viruses, carried in human, animal, or clinical body fluids, organs, or tissues

3.23
body fluids
natural fluids or secretions that are produced by the body including, but not limited to, blood, semen, mucus, faeces, urine, vaginal secretions, breast milk, amniotic fluid, cerebrospinal fluid, synovial fluid, and pericardial fluid

3.24
bootee
sock like extension of the chemical protective suit

Note 1 to entry: The bootee may or may not be made of the same material used in the construction of the chemical protective suit.

3.25
breakthrough time
<protection against chemicals> elapsed time between the initial application of a test chemical to the appropriate surface of a material and its subsequent presence on the other side of the material, measured as described in the relevant standard

[SOURCE: ISO/TR 11610:2004, 3.26]

3.26
brim
ridge protruding outwards from the basic shape of the helmet shell forming the lower edge of the shell and including its associated fairings and radii

[SOURCE: ISO 11999-1:2015, 3.5]

3.27
brim line
horizontal plane with a reference point at the intersection of the front opening of the helmet and the mid-sagittal plane

3.28
burn injury
burn damage which occurs at various levels of depth with human tissues

Note 1 to entry: Burn injury in human tissue occurs when the tissue is heated and kept at an elevated temperature for a critical period of time. The amount of burn injury, first, second, or third-degree depends upon the level of the elevated temperature and the duration of time.

[SOURCE: ISO/TR 11610:2004, 3.34]

3.29
bust girth
maximum horizontal girth measured during normal breathing with the subject standing upright and the tape-measure passed over the scapulae under the armpits and across the breasts: normal underclothing to be worn

[SOURCE: ISO/TR 11610:2004, 3.35]

3.30
care
processes and procedures for cleaning, decontamination, and storage of protective clothing and equipment

3.31
cellular outsole
cellular outsole having a density of 0,9 g/ml or less with a cell structure visible under 10x magnification

[SOURCE: ISO 11999-1:2015, 3.6]

3.32
central vertical axis
line relative to the headform that lies in the plane of symmetry, that is normal to the basic plane at a point equidistant from the front and the back of the headform at the level of the reference plane

[SOURCE: ISO 11999-1:2015, 3.7]

3.33
challenge chemical
test chemical
chemical used to contact a protective clothing material sample to determine chemical/protective clothing material interactions or compatibility

[SOURCE: ISO/TR 11610:2004, 3.39]

3.34
char
formation of a carbonaceous brittle residue when material is exposed to thermal energy

[SOURCE: ISO 15025:2000, 2.5, modified — added carbonaceous.]

3.35
chemical flash fire
ignition of a flammable vapour or gas that produces an outward expanding flame front, as those vapours or gases burn

Note 1 to entry: This burning and expanding flame front (fire ball) will release both thermal and kinetic energy to the environment.

3.36
chemical protection layer
layer or layers included in the composite that provide penetration resistance against chemicals and to provide gas-tight integrity for the purpose of providing protection from chemical hazards

3.37
chemical protective clothing
combined assembly of garments worn to provide protection to the skin against exposure to or contact with chemicals

[SOURCE: ISO/TR 11610:2004, 3.40]

3.38
chemical protective clothing material
any material or combination of materials used in an item of protective clothing for the purpose of isolating parts of the body from direct contact with a chemical

[SOURCE: ISO/TR 11610:2004, 3.41]

3.39
chemical protective suit
clothing worn to protect against chemicals that covers the whole, or greater part of the body

Note 1 to entry: A chemical protective suit may comprise of garments combined together to provide protection to the body. A suit may also have various types of additional protection such as hood or helmet, boots and gloves joined with it.

[SOURCE: ISO/TR 11610:2004, 3.42, modified — The two last sentences have been moved into a Note to entry.]

3.40
chemical protective suit ensemble
combination of a chemical protective suit with the wearer's respiratory protective equipment, gloves, footwear, communications system, and cooling device, or some combination of those

[SOURCE: ISO/TR 11610:2004, 3.43]

3.41
chemical terrorism agents
liquid, solid, gaseous and vapour chemicals capable of inflicting lethal or incapacitating casualties, generally on a civilian population as a result of a terrorist attack

3.42
chest girth
maximum horizontal girth measured during normal breathing with the subject standing upright and the tape-measure passed over the scapulae under the armpits and across the chest

[SOURCE: ISO/TR 11610:2004, 3.44]

3.43
chinstrap
adjustment device, being part of the retention system, fitting under the chin to secure the helmet to the head

[SOURCE: AS/NZS 2512.1:2009, 3.6]

3.44
class
designation of a protective item in this standard based upon its level of flame and thermal protection, for example Class 1 and Class 2

Note 1 to entry: All items of the same “class” will have the same level of performance in flame and thermal protection and can be used together to make a protective ensemble.

3.45
cleaning
act of removing soils and contaminants from protective clothing and equipment by a mechanical, chemical, thermal, or combined processes

3.46
cleaning cycle
washing and a drying cycle or a dry cleaning cycle

[SOURCE: ISO 11999-1:2015, 3.10]

3.47
cleat
protruding part(s) of the outer surface of the sole

[SOURCE: ISO 20345:2011, 3.8]

3.48
closure
device, for example, zipper, “touch and close” fastener, etc., to close openings for the donning of protective clothing

[SOURCE: ISO/TR 11610:2004, 3.47]

3.49
closure system
method of fastening openings in the garment including combinations of more than one method of achieving a secure closure, e.g. a slide fastener covered by an over flap fastened down with a touch and close fastener

Note 1 to entry: This term does not cover seams.

[SOURCE: ISO/TR 11610:2004, 3.48]

3.50
clothing assembly
garments designed to always be worn together

Note 1 to entry: If several garments are used to achieve the performance levels, they are clearly labelled to this effect.

[SOURCE: ISO 16073:2011, 3.7]

3.51
clothing ensemble
group of garments worn together on the body at the same time

[SOURCE: ISO/TR 11610:2004, 3.49]

3.52
cold environment
specific conditions characterized by the combination of defined low temperatures, humidity, wind and thermal radiation

[SOURCE: ISO/TR 11610:2004, 3.51]

3.53
collar
portion of the upper torso garment that encircles the neck

3.54
collar length
measurement along top of collar from point-to-point

3.55
collar lining
part of collar fabric composite that is next to the skin when the collar is closed in the raised position

[SOURCE: ISO 11999-1:2015, 3.12]

3.56
collar width
measurement at centre back from top edge of unfolded collar to the bottom collar seam

3.57
combined-performance material
<high-visibility warning clothing> material intended to exhibit both background fluorescent and retroreflective properties

[SOURCE: ISO/TR 11610:2004, 3.53]

3.58
comfort system
material in a helmet which serves to improve comfort for the wearer

[SOURCE: ISO 11999-1:2015, 3.14]