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Fire fighting — Wheeled fire extinguishers — Performance and construction

Lutte contre l'incendie — Extincteurs sur roues — Performances et construction

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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 World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 21, *Equipment for fire protection and fire fighting*, Subcommittee SC 2, *Manually transportable fire extinguishers*.

This third edition cancels and replaces the second edition (ISO 11601:2008), which has been technically revised.

The main changes compared to the previous editions are as follows:

— new requirements for four clean agents have been added;

— marking requirements for water-based extinguishers found suitable for use on polar solvents has been added.

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Fire fighting — Wheeled fire extinguishers — Performance and construction

1 Scope

This document specifies the principal requirements intended to ensure the safety, reliability and performance of wheeled fire extinguishers.

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 37, *Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties*

ISO 5923, *Equipment for fire protection and fire fighting — Fire extinguishing media — Carbon dioxide*

ISO 7165:2017, *Fire fighting — Portable fire extinguishers — Performance and construction*

ISO 7202, *Fire protection — Fire extinguishing media — Powder*

ISO 7203-1, *Fire extinguishing media — Foam concentrates — Part 1: Specification for low-expansion foam concentrates for top application to water-immiscible liquids*

ISO 7203-2, *Fire extinguishing media — Foam concentrates — Part 2: Specification for medium- and high-expansion foam concentrates for top application to water-immiscible liquids*

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:

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

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

3.1
batch
group of the same products made on the same production line using the same lot of materials during one production shift

3.2
body
metal shell of an extinguisher designed to contain the extinguishing media including any skirt

3.3
bulk range
range of the extinguisher when 50 % of its media has been expelled

3.4
burst pressure
P_b
pressure at which the extinguisher cylinder ruptures

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3.5
charge of extinguisher
mass or volume of extinguishing medium contained in the extinguisher expressed in volume (litres) for water-based extinguishers and in mass (kilograms) for other extinguishers

3.6
classification of fires

Class A fires involving solid materials, usually of an organic nature, in which combustion normally takes place with the formation of glowing embers

Class B fires involving liquids or liquefiable solids

Class C fires involving gases

Class D fires involving metals

Class F fires involving cooking media (vegetable or animal oils and fats) in cooking appliances

Note 1 to entry: Class definitions are in accordance with ISO 3941.

3.7
clean agent
electrically non-conducting gaseous or vapourizing liquid fire extinguishant that does not leave residue upon evaporation

Note 1 to entry: For conductive properties and amount of residue, see Annexes A, B, C and D.

3.8
closure
component, other than a safety device or pressure indicator, subject to internal pressure and used to close off and seal the body

3.9
complete discharge
point in the discharge of an extinguisher when the internal pressure has equalized with the external pressure with the control valve being kept fully open

3.10
effective discharge time
time from the commencement of discharge of the extinguishing medium at the nozzle to the gas point of the discharge stream with the control valve fully open

3.11
extinguisher
appliance containing an extinguishing medium which may be discharged and directed onto a fire by the action of internal pressure

Note 1 to entry: Discharge may be achieved by

a) stored pressure (constant pressurization of the extinguishing media container), or

b) cartridge or cylinder operated device (pressurization at the time of use by the release of a pressurizing gas stored in a separate high-pressure cartridge or container).

3.12
extinguishing medium
substance contained in the extinguisher which causes extinguishment

3.13
fill density
mass in kilograms of extinguishing medium per litre of container volume as fitted for use, complete with valve and internal fittings

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3.14
gas point
point where the medium discharge changes from predominately medium to predominately expellant gas

3.15
lowest observable adverse effect level
LOAEL
lowest concentration at which an adverse physiological or toxicological effect has been observed

3.16
maximum service pressure
P_{ms}
equilibrium pressure developed in a normally charged and pressurized extinguisher which is conditioned at 60 °C for at least 18 h

3.17
propellant
non-flammable compressed gas used to expel the extinguishing medium

3.18
rechargeable extinguisher
extinguisher designed and intended to be recharged after use

3.19
service pressure
P_s
equilibrium pressure developed in a normally charged and pressurized extinguisher conditioned at 20 °C for at least 18 h

3.20
test pressure
P_t
<low-pressure wheeled extinguishers> the higher of 1,43 × P_{ms}, 2,5 × P_s or 2,0 MPa

3.21
wheeled fire extinguisher
appliance on wheels having a total mass more than 20 kg but not greater than 450 kg, which is designed to be operated and transported to the fire by one person

4 Types of wheeled fire extinguishers

4.1 Wheeled fire extinguishers are described by the type of extinguishing medium which they contain. At present, the types of wheeled fire extinguishers are

— water-based,

— powder,

— carbon dioxide, and

— clean agent.

NOTE In some countries, the manufacture and use of clean agents is regulated by the Montreal Protocol or by national regulations.

4.2 Water-based wheeled fire extinguishers may contain plain water or water with additives such as wetting agents, viscosity-increasing agents or flame-retardant, or foaming agents.

NOTE Currently there are no International Standards covering additives added to water to produce antifreeze, wetting or other special characteristics.

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