SLOVENSKI STANDARD
SIST EN 3-11:2026

01-december-2026

Prenosni gasilniki - 11. del: Dodatne zahteve k standardu EN 3-7 za preskusne metode in označevanje gasilnih aparatov, primernih za uporabo pri požarih litij-ionskih baterij

Portable fire extinguishers - Part 11: Additional requirements to EN 3-7 for the test method and marking of extinguishers suitable to be used on small rechargeable lithium-ion battery fires

Tragbare Feuerlöscher - Teil 11: Zusätzliche Anforderungen an EN 3-7 für die Prüfverfahren und Kennzeichnung von Feuerlöschern, die für den Einsatz bei Bränden kleiner wiederaufladbarer Lithium-Ionen-Batterien geeignet sind

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Ta slovenski standard je istoveten z: **EN 3-11:2026**

ICS:

13.220.10	Gašenje požara	Fire-fighting

SIST EN 3-11:2026 **en,fr,de**

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 3-11

October 2026

ICS 13.220.10

English Version

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Ref. No. EN 3-11:2026 E

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European foreword

This document (EN 3-11:2026) has been prepared by Technical Committee CEN/TC 70 “Manual means of firefighting equipment”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2027, and conflicting national standards shall be withdrawn at the latest by March 2027.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document describes a standardized and reproducible fire extinguishing test that demonstrates the suitability of a fire extinguisher model according to EN 3-7 to extinguish a fire of a lithium-ion battery in accordance with this document. It also specifies the appropriate labelling.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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Introduction

Rechargeable batteries based on lithium-ion chemistry have high energy density, low mass, and a long service life. These characteristics make this type of battery very popular in portable and mobile applications such as laptops, mobile phones, power tools, bicycles.

This technology has currently a considerable disadvantage: the contents of the battery cells (including vapors) can ignite due to overloading, short circuit, heating, or mechanical damage. An uncontrollable chemical reaction ('thermal runaway') then occurs in the battery cell and large amounts of heat are released in a short period of time. This usually causes intense flames, explosions and hazardous fumes, leads to a sharp rise of pressure and temperature in the cell.

Modern lithium-ion batteries have generally built-in protective circuits that prevent ignition by overloading. But these systems cannot prevent ignition of the cell as a result of heating or mechanical damage. After the first cell in a lithium-ion battery is ignited, the heat will cause a thermal runaway in adjacent cells (known as 'fire propagation') as well and the fire will spread through the battery pack. This releases a great deal of energy for a prolonged time which may ignite other combustible materials in the vicinity.

Test-protocol

As of yet, there are no known extinguishing agents that can stop a thermal runaway in a lithium-ion battery cell. There are, however, extinguishing agents that can effectively limit the fire propagation in the battery pack.

The fire development in burning lithium-ion batteries cannot be compared with the development of other fires of solid materials, liquids or gases. Therefore, existing test protocols of EN 3-7 cannot be used for the evaluation of the suitability of extinguishing agents for this specific risk.

The test protocol described in this document can be used to demonstrate that a particular extinguishing agent used in combination with a particular type or model of portable fire extinguisher can stop a fire in a lithium-ion battery pack. The test protocol is designed with the capacity of batteries of 600Wh.

WARNING — During an extinguishing action, the user of a portable fire extinguisher is exposed to health risks as a result of the released heat and combustion products. This is the case with any fire, but certainly when lithium-ion batteries are involved. This type of fire releases toxic and highly irritating combustion products over a significant period of time. The user is advised to follow specific instruction for this type of fire and use suitable personal protection equipment, for example a breathing mask. Where applicable, it is advised to pay close attention to these risks and measures in the workplace safety procedures.

During and after a lithium-ion battery fire, it is important to thoroughly ventilate the area to remove harmful combustion products.

After each extinguishing action it is advised:

— to cool damaged and burnt batteries under water for a prolonged time (48 h) to prevent re-ignition;

— to store damaged batteries outside at a safe distance from other objects until they can be safely removed;

— to consider proper treatment of the used cooling water.

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1 Scope

This document specifies performance requirements for portable fire extinguishers in addition to the requirements of EN 3-7, to demonstrate their suitability for extinguishing fires in rechargeable batteries based on lithium-ion chemistry with a maximum capacity of 600 Wh, as used for example:

— portable electronic equipment (smartphones, laptops);

— power tools and domestic appliances;

— portable medical equipment;

— toys and radio-controlled objects;

— drones;

— bicycles.

This document contains general requirements and procedures for extinguishing tests. The size of the extinguishing tests is comparable to the battery capacities in the above mentioned applications where the battery is accessible. This document doesn't apply to larger fire risks, such as vehicle batteries, fork lift trucks, and battery sets of stationary energy storage systems.

2 Normative references

Sample Document

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.

EN 3-7:2004+A1:2007, *Portable fire extinguishers — Part7: Characteristics, performance requirements and test methods*

3 Terms and definitions

For the purposes of this document, in addition of the definitions of EN 3-7, the following terms and definitions apply.

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

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

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

3.1
cell
battery cell
individual item source of electrical energy obtained by the conversion of chemical energy

3.2
battery
set of interconnected battery cells in a common enclosure

3.3
pouch cell
battery cell with a flat shape, of which the internal components are stacked and packed in a plastic foil

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