SLOVENSKI STANDARD
SIST EN 60086-4:2015

01-julij-2015

Nadomešča:
SIST EN 60086-4:2008

Primarne baterije - 4. del: Varnostni standard za litijeve baterije (IEC 60086-4:2014)

Primary batteries - Part 4: Safety of lithium batteries (IEC 60086-4:2014)

Primärbatterien - Teil 4: Sicherheit von Lithium-Batterien (IEC 60086-4:2014)

Piles électriques - Partie 4: Sécurité des piles au lithium (IEC 60086-4:2014)

Ta slovenski standard je istoveten z: EN 60086-4:2015

ICS:

29.220.10 Primarni členi in baterije Primary cells and batteries

SIST EN 60086-4:2015 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60086-4

January 2015

ICS 29.220.10

Supersedes EN 60086-4:2007

English Version

Primary batteries - Part 4: Safety of lithium batteries (IEC 60086-4:2014)

Piles électriques - Partie 4: Sécurité des piles au lithium (IEC 60086-4:2014)

Primärbatterien - Teil 4: Sicherheit von Lithium-Batterien (IEC 60086-4:2014)

This European Standard was approved by CENELEC on 2014-10-08. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

The text of document 35/1324/FDIS, future edition 4 of IEC 60086-4, prepared by IEC TC 35 "Primary cells and batteries" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60086-4:2015.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2015-07-09
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2017-10-08

This document supersedes EN 60086-4:2007.

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Endorsement notice

The text of the International Standard IEC 60086-4:2014 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60027-1:1992	NOTE	Harmonized as EN 60027-1:1992.
IEC 60068-2-6:1995	NOTE	Harmonized as EN 60068-2-6:1995.
IEC 60068-2-27:1987	NOTE	Harmonized as EN 60068-2-27:1987.
IEC 60068-2-31:2008	NOTE	Harmonized as EN 60068-2-31:2008.
IEC 60086-5:2011	NOTE	Harmonized as EN 60086-5:2011.
IEC 60617 (Series)	NOTE	Harmonized as EN 60617 (Series).
IEC 62133	NOTE	Harmonized as EN 62133.
IEC 61960	NOTE	Harmonized as EN 61960.
IEC 62281	NOTE	Harmonized as EN 62281.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60086-1	2011	Primary batteries -- Part 1: General	EN 60086-1	2011
IEC 60086-2	-	Primary batteries -- Part 2: Physical and electrical specifications	EN 60086-2	-

IEC 60086-4

Edition 4.0 2014-09

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Primary batteries –
Part 4: Safety of lithium batteries

Piles électriques –
Partie 4: Sécurité des piles au lithium

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

PRICE CODE
CODE PRIX W

ICS 29.220.10

ISBN 978-2-8322-1829-7

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

PRIMARY BATTERIES –

Part 4: Safety of lithium batteries

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

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International Standard IEC 60086-4 has been prepared by technical committee 35: Primary cells and batteries.

This fourth edition cancels and replaces the third edition published in 2007. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) Harmonisation with the second edition of IEC 62281 [12][1];

b) Alternative protective circuits in 7.1.1;

[1] Numbers in square brackets refer to the Bibliography.

c) More information regarding risks of swallowing lithium batteries in (former) 7.2.m) and promotion of this item to 7.2a);

d) A new Annex D with pictograms for some of the safety precautions in 7.2.

The text of this standard is based on the following documents:

FDIS	Report on voting
35/1324/FDIS	35/1332/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

NOTE The following print types are used:

– requirements: in roman type;

– instructions/warnings for consumers: *in italic type.*

A list of all parts in the IEC 60086 series, under the general title *Primary batteries*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

The concept of safety is closely related to safeguarding the integrity of people and property. This standard specifies tests and requirements for lithium batteries and has been prepared in accordance with ISO/IEC guidelines, taking into account all relevant national and international standards which apply.

Lithium batteries are different from conventional primary batteries using aqueous electrolyte in that they contain flammable materials.

Consequently, it is important to carefully consider safety during design, production, distribution, use, and disposal of lithium batteries. Based on such special characteristics, lithium batteries for consumer applications were initially small in size and had low power output. There were also lithium batteries with high power output which were used for special industrial and military applications and were characterized as being “technician replaceable”. The first edition of this standard was drafted to accommodate this situation.

However, from around the end of the 1980s, lithium batteries with high power output started to be widely used in the consumer replacement market, mainly as a power source in camera applications. Since the demand for such lithium batteries with high power output significantly increased, various manufacturers started to produce these types of lithium batteries. As a consequence of this situation, the safety aspects for lithium batteries with high power output were included in the second edition of this standard.

Primary lithium batteries both for consumer and industrial applications are well-established safe and reliable products in the market, which is at least partly due to the existence of safety standards such as this standard and, for transport, IEC 62281. The fourth edition of this standard therefore reflects only minor changes which became necessary in order to keep it harmonized with IEC 62281 and to continuously improve the user information about safety related matters.

Guidelines addressing safety issues during the design of lithium batteries are provided in Annex A. Annex B provides guidelines addressing safety issues during the design of equipment where lithium batteries are installed. Both Annex A and B reflect experience with lithium batteries used in camera applications and are based on [20].

Safety is freedom from unacceptable risk. There can be no absolute safety: some risk will remain. Therefore a product, process or service can only be relatively safe. Safety is achieved by reducing risk to a tolerable level determined by the search for an optimal balance between the ideal of absolute safety and the demands to be met by a product, process or service, and factors such as benefit to the user, suitability for purpose, cost effectiveness, and conventions of the society concerned.

As safety will pose different problems, it is impossible to provide a set of precise provisions and recommendations that will apply in every case. However, this standard, when followed on a judicious “use when applicable” basis, will provide reasonably consistent standards for safety.