SLOVENSKI STANDARD
SIST EN 62281:2013

01-junij-2013

Nadomešča:
SIST EN 62281:2004

Varnost primarnih in sekundarnih litijevih členov in baterij med transportom

Safety of primary and secondary lithium cells and batteries during transport

Sicherheit von Primär- und Sekundär-Lithiumbatterien beim Transport

Sécurité des piles et des accumulateurs au lithium pendant le transport

Ta slovenski standard je istoveten z: **EN 62281:2013**

ICS:

29.220.10 Primarni členi in baterije Primary cells and batteries

SIST EN 62281:2013 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62281

March 2013

ICS 29.220.10

Supersedes EN 62281:2004

English version

Safety of primary and secondary lithium cells and batteries during transport
(IEC 62281:2012)

Sécurité des piles et des accumulateurs au lithium pendant le transport
(CEI 62281:2012)

Sicherheit von Primär- und Sekundär-Lithiumbatterien beim Transport
(IEC 62281:2012)

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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.

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CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 62281:2013 E

Foreword

The text of document 35/1303/FDIS, future edition 2 of IEC 62281, prepared by IEC TC 35 "Primary cells and batteries" and SC 21A, "Secondary cells and batteries containing alkaline or other non-acid electrolytes", of IEC TC 21, "Secondary cells and batteries" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62281:2013.

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)	2013-10-09
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2016-01-09

This document supersedes EN 62281:2004.

EN 62281:2013 includes the following significant technical changes with respect to EN 62281:2004:

a) distinction between small and large cell or battery by gross mass rather than by lithium content or Watt-hour rating (“nominal” energy);

b) combination of the no mass loss (NM) and no leakage (NL) criteria into one criteria (NL);

c) extension of an acceptable mass loss of 0,2 % from 5 g to 75 g mass of a cell or battery;

d) reduction of large batteries to be tested under tests T-1 to T-5 and T-8 from 4 to 2 samples;

e) reduction of test samples required for small battery assemblies (5.2.2);

f) reduction of the vibration amplitude to 2 g for large batteries in T-3 vibration test method;

g) replacement of the impact test by the crush test for prismatic, pouch, button, and coin cells as well as cylindrical cells with no more than 20 mm in diameter.

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

Endorsement notice

The text of the International Standard IEC 62281:2012 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 60086-4	NOTE	Harmonized as EN 60086-4.
IEC 60068-2-6	NOTE	Harmonized as EN 60068-2-6.
IEC 60068-2-27	NOTE	Harmonized as EN 60068-2-27.

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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 61960	-	Secondary cells and batteries containing alkaline or other non-acid electrolytes - Secondary lithium cells and batteries for portable applications	EN 61960	-
IEC 62133	-	Secondary cells and batteries containing alkaline or other non-acid electrolytes - Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications	EN 62133	-
IEC 62660-1	-	Secondary lithium-ion cells for the propulsion of electric road vehicles - Part 1: Performance testing	EN 62660-1	-

IEC 62281

Edition 2.0 2012-12

INTERNATIONAL STANDARD

Safety of primary and secondary lithium cells and batteries during transport

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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SAFETY OF PRIMARY AND SECONDARY LITHIUM CELLS AND BATTERIES DURING TRANSPORT

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 62281 has been prepared jointly by IEC technical committee 35: Primary cells and batteries and by subcommittee 21A: Secondary cells and batteries containing alkaline or other non-acid electrolytes, of IEC technical committee 21: Secondary cells and batteries.

This second edition cancels and replaces the first edition, published in 2004, and constitutes a technical revision.

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

a) distinction between small and large cell or battery by gross mass rather than by lithium content or Watt-hour rating ("nominal" energy);
b) combination of the no mass loss (NM) and no leakage (NL) criteria into one criteria (NL);
c) extension of an acceptable mass loss of 0,2 % from 5 g to 75 g mass of a cell or battery;
d) reduction of large batteries to be tested under tests T-1 to T-5 and T-8 from 4 to 2 samples;

e) reduction of test samples required for small battery assemblies (5.2.2);

f) reduction of the vibration amplitude to 2 g for large batteries in T-3 vibration test method;

g) replacement of the impact test by the crush test for prismatic, pouch, button, and coin cells as well as cylindrical cells with no more than 20 mm in diameter.

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

FDIS	Report on voting
35/1303/FDIS	35/1307/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.

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.

A bilingual version of this standard may be issued at a later date.

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

Primary lithium cells and batteries were first introduced in military applications in the 1970s. At that time, little commercial interest and no industrial standards existed. Consequently, the United Nations (UN) Committee of Experts on the Transport of Dangerous Goods, although usually referring to industrial standards for testing and criteria, introduced a sub-section in the Manual of tests and criteria concerning safety tests relevant to transport of primary lithium cells and batteries. Meanwhile, commercial interest in primary and secondary (rechargeable) lithium cells and batteries has grown and several industrial standards exist. However, the existing IEC standards are manifold, not completely harmonized, and not necessarily relevant to transport. They are not suitable to be used as a source of reference in the UN Model Regulations. Therefore this group safety standard has been prepared to harmonize the tests and requirements relevant to transport.

This International Standard applies to primary and secondary (rechargeable) lithium cells and batteries containing lithium in any chemical form: lithium metal, lithium alloy or lithium-ion. Lithium-metal and lithium alloy primary electrochemical systems use metallic lithium and lithium alloy, respectively, as the negative electrode. Lithium-ion secondary electrochemical systems use intercalation compounds (intercalated lithium exists in an ionic or quasi-atomic form within the lattice of the electrode material) in the positive and in the negative electrodes.

This International Standard also applies to lithium polymer cells and batteries, which are considered either as primary lithium-metal cells and batteries or as secondary lithium-ion cells and batteries, depending on the nature of the material used in the negative electrode.

The history of transporting primary and secondary lithium cells and batteries is worth noting. Since the 1970s, over ten billion primary lithium cells and batteries have been transported, and since the early 1990s, over one billion secondary (rechargeable) lithium cells and batteries utilizing a lithium-ion system have been transported. As the number of primary and secondary lithium cells and batteries to be transported is increasing, it is appropriate to also include in this standard the safety testing of packaging used for the transportation of these products.

This International Standard specifically addresses the safety of primary and secondary lithium cells and batteries during transport and also the safety of the packaging used.

The UN Manual of Tests and Criteria [1][1] distinguishes between lithium metal and lithium alloy cells and batteries on the one hand, and lithium ion and lithium polymer cells and batteries on the other hand. While it defines that lithium metal and lithium alloy cells and batteries can be either primary (non-rechargeable) or rechargeable, it always considers lithium ion cells and batteries as rechargeable. However, test methods in the UN Manual of Tests and Criteria are the same for both secondary lithium metal and lithium alloy cells and batteries and lithium ion and lithium polymer cells and batteries. The concept is only needed to distinguish between small and large battery assemblies. Battery assemblies assembled from (primary or secondary) lithium metal and lithium alloy batteries are distinguished by the aggregate lithium content of all anodes (measured in grams), while battery assemblies assembled from lithium ion or lithium polymer batteries are distinguished by their “nominal” energy (measured in Watt-hours).

1 Numbers in square brackets refer to the Bibliography