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**Sekundarni člani in baterije, ki vsebujejo alkalne ali druge neokislinske elektrolite -  
Sekundarni litijevi člani in baterije za prenosne naprave - 4. del: Gumbni litijevi  
sekundarni člani in baterije, izdelane iz njih**

Secondary cells and batteries containing alkaline or other non-acid electrolytes -  
Secondary lithium cells and batteries for portable applications - Part 4: Coin secondary  
lithium cells, and batteries made from them

Sekundärzellen und -batterien mit alkalischen oder anderen nicht-säurehaltigen  
Elektrolyten - Sekundäre Lithiumzellen und -batterien für tragbare Anwendungen - Teil 4:  
Sekundäre Lithium-Knopfzellen und daraus hergestellte Batterien

Accumulateurs alcalins et autres accumulateurs à électrolyte non acide - Accumulateurs  
au lithium pour applications portables - Partie 4: Éléments et batteries d'accumulateurs  
boutons au lithium

**Ta slovenski standard je istoveten z: prEN IEC 61960-4:2023**

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**ICS:**

|           |   |   |
|-----------|---|---|
| 29.220.30 | Alkalni sekundarni člani in<br>baterije | Alkaline secondary cells and<br>batteries |
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| <b>oSIST prEN IEC 61960-4:2023</b> | <b>en</b> |
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21A/829/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER:

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DATE OF CIRCULATION:

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CLOSING DATE FOR VOTING:

2023-06-09

SUPERSEDES DOCUMENTS:

21A/801/CD, 21A/814A/CC

|   |  |
|---|--|
| IEC SC 21A : SECONDARY CELLS AND BATTERIES CONTAINING ALKALINE OR OTHER NON-ACID ELECTROLYTES   |  |
| SECRETARIAT:<br>France  | SECRETARY:<br>Mr Pierre Bourg  |
| OF INTEREST TO THE FOLLOWING COMMITTEES:<br>TC 35   | PROPOSED HORIZONTAL STANDARD:<br><input checked="" type="checkbox"/><br>Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary. |
| FUNCTIONS CONCERNED:<br><input type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input type="checkbox"/> SAFETY  |  |
| <input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING   | <input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING   |
| <p><b>Attention IEC-CENELEC parallel voting</b></p> <p>The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.</p> <p>The CENELEC members are invited to vote through the CENELEC online voting system.</p> |  |

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of

- any relevant patent rights of which they are aware and to provide supporting documentation,
- any relevant "in some countries" clauses to be included should this proposal proceed. Recipients are reminded that the enquiry stage is the final stage for submitting "in some countries" clauses. See AC/22/2007.

TITLE:

**Secondary cells and batteries containing alkaline or other non-acid electrolytes - Secondary lithium cells and batteries for portable applications - Part 4: Coin secondary lithium cells, and batteries made from them**

PROPOSED STABILITY DATE: 2026

## NOTE FROM TC/SC OFFICERS:

Revision of IEC 61960-4 was accepted per 21A/780/RQ on 2022 05 20 and the CD was discussed at the WG3 meeting on October 27th, 2022 in San Francisco (USA). The revised CC was issued after the meeting and released on January 20th 2023. The project leader Mr Takahisa Raisen included all the changes decided in the revision of the standard Ed2.

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**SECONDARY CELLS AND BATTERIES CONTAINING ALKALINE OR  
OTHER NON-ACID ELECTROLYTES – SECONDARY LITHIUM CELLS  
AND BATTERIES FOR PORTABLE APPLICATIONS –****Part 4: Coin secondary lithium cells, and batteries made from them****FOREWORD**

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International Standard IEC 61960-4 has been prepared by subcommittee 21A: Secondary cells and batteries containing alkaline or other non-acid electrolytes, of IEC technical committee 21: Secondary cells and batteries.

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This second edition cancels and replaces the first edition published in 2020. This edition constitutes a technical revision.

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

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a) added an annex to standardize requirements for secondary lithium watch batteries;

b) added new chemistries;

c) added a table to standardize dimensions and size codes for secondary lithium watch batteries;

d) modified marking requirements;

110 The text of this International Standard is based on the following documents:

| FDIS | Report on voting |
|------|------------------|
|      |                  |

111  
112 Full information on the voting for the approval of this International Standard can be found in the  
113 report on voting indicated in the above table.

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

115 A list of all parts in the IEC 61960 series, published under the general title *Secondary cells and*  
116 *batteries containing alkaline or other non-acid electrolytes – Secondary lithium cells and*  
117 *batteries for portable applications*, can be found on the IEC website.

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

- 121 • reconfirmed,
- 122 • withdrawn,
- 123 • replaced by a revised edition, or
- 124 • amended.

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127 **SECONDARY CELLS AND BATTERIES CONTAINING ALKALINE OR**  
128 **OTHER NON-ACID ELECTROLYTES – SECONDARY LITHIUM CELLS**  
129 **AND BATTERIES FOR PORTABLE APPLICATIONS –**

130  
131 **Part 4: Coin secondary lithium cells, and batteries made from them**  
132

133  
134  
135 **1 Scope**

136 This part of IEC 61960 specifies performance tests, designations, markings, dimensions and  
137 other requirements for coin secondary lithium cells and batteries for portable applications,  
138 watches, and backup power supply such as memory backup applications. In particular, watch-  
139 specific requirements are specified in Annex A.

140 The objective of this document is to provide the purchasers and users of coin secondary lithium  
141 cells and batteries with a set of criteria with which they can assess the performance of coin  
142 secondary lithium cells and batteries offered by various manufacturers.

143 This document defines a minimum required level of performance and a standardized  
144 methodology by which testing is performed and the results of this testing reported to the user.  
145 Hence, users will be able to establish the viability of commercially available cells and batteries  
146 via the declared specification and thus be able to select the cell or battery best suited for their  
147 intended application.

148 This document covers coin secondary lithium cells and batteries with a range of chemistries.  
149 Each electrochemical couple has a characteristic voltage range over which, during discharge,  
150 it releases its electrical capacity, a characteristic nominal voltage and a characteristic end-of-  
151 discharge voltage. Users of coin secondary lithium cells and batteries are requested to consult  
152 the manufacturer for advice.

153 This document also provides guidelines for designers of equipment using lithium batteries (see  
154 Annex B).

155  
156 **2 Normative references**

157 The following documents are referred to in the text in such a way that some or all of their content  
158 constitutes requirements of this document. For dated references, only the edition cited applies.  
159 For undated references, the latest edition of the referenced document (including any  
160 amendments) applies.

161 IEC 60050-482:2004, *International Electrotechnical Vocabulary (IEV) – Part 482: Primary and*  
162 *secondary cells and batteries*

163 IEC 62133-2:2017, *Secondary cells and batteries containing alkaline or other non-acid*  
164 *electrolytes – Safety requirements for portable sealed secondary cells, and for batteries made*  
165 *from them, for use in portable applications – Part 2: Lithium systems*

166 IEC 60086-3:2021, *Primary batteries – Part 3: Watch batteries*

167 IEC 60086-4:2019, *Primary batteries – Part 4: Safety of lithium batteries*

### 168 3 Terms and definitions

169 For the purposes of this document, the terms and definitions given in IEC 60050-482 and the  
170 following apply.

171 ISO and IEC maintain terminological databases for use in standardization at the following  
172 addresses:

- 173 • IEC Electropedia: available at <http://www.electropedia.org/>
- 174 • ISO Online browsing platform: available at <http://www.iso.org/obp>

#### 175 3.1

##### 176 coin cell

##### 177 coin battery

##### 178 lithium button cell

##### 179 lithium button battery

180 small round cell or battery where the overall height is less than the diameter, containing  
181 non-aqueous electrolyte

182 [SOURCE: IEC 60086-4:2019, 3.3]

#### 183 3.2

##### 184 secondary lithium cell

185 secondary cell whose electrical energy is derived from oxidation and the reduction of lithium

186 Note 1 to entry: This cell is not ready for use in an application because it is not yet fitted with its final housing,  
187 terminal arrangement and electronic control device.

#### 188 3.3

##### 189 secondary lithium battery

190 unit which incorporates one or more secondary lithium cells and which is ready for use

191 Note 1 to entry: This unit incorporates adequate housing and a terminal arrangement and may have electronic  
192 control devices.

#### 193 3.4

##### 194 nominal voltage

195 suitable approximate value of voltage used to designate or identify a cell, or a battery

196 Note 1 to entry: The nominal voltages of coin secondary lithium cells are shown in Table 1.

197 [SOURCE: IEC 60050-482:2004, 482-03-31, modified – "electrochemical system" has been  
198 omitted from the definition and the note has been added.]

#### 199 3.5

##### 200 rated capacity

201 quantity of electricity mAh (milliampere-hours) that a single cell or battery can deliver, when  
202 charged, stored and discharged under specified conditions and declared by the manufacturer

#### 203 3.6

##### 204 end-of-charge voltage

205 voltage attained at the end of a charging step, at a specified constant current or a specified  
206 constant resistance

207 Note 1 to entry: The end-of-charge voltage may be used to initiate the termination of the charge process.

208 [SOURCE: IEC 60050-482:2004, 482-05-55, modified – "or a specified constant resistance" has  
209 been added to the definition.]

210 **3.7**  
211 **end-of-discharge voltage**  
212 specified closed circuit voltage at which a discharge of a cell or battery is terminated

213 [SOURCE: IEC 60050-482:2004, 482-03-30, modified – The synonyms "final voltage", "cut-off  
214 voltage", and "end-point voltage" have been omitted and the words "closed circuit" and "cell"  
215 have been added to the definition.]

216 **3.8**  
217 **charge recovery**  
218 **capacity recovery**  
219 capacity that a cell or battery can deliver with subsequent recharge, after storage at a specific  
220 temperature, for a specific time, as a percentage of the rated capacity

## 221 **4 Parameter measurement tolerances**

222 The overall accuracy of controlled or measured values, relative to the specified or actual values,  
223 shall be within the following tolerances:

- 224 a)  $\pm 1$  % for voltage;  
225 b)  $\pm 1$  % for current;  
226 c)  $\pm 1$  % for capacity;  
227 d)  $\pm 2$  °C for temperature;  
228 e)  $\pm 0,1$  % for time;  
229 f)  $\pm 0,1$  mm for dimensions.

230 These tolerances comprise the combined accuracy of the measuring instruments, the  
231 measurement techniques used, and all other sources of error in the test procedure.

232 The details of the instrumentation used shall be provided in any report of results.

## 233 **5 Cell designation and marking**

### 234 **5.1 Cell designation**

235 Cells shall be designated with the following form:

236  $A_1A_2DDHH$

237 where

238  $A_1$  designates the positive electrode system in which:

- 239 C or U is lithium cobalt oxide;  
240 FP is lithium iron phosphate;  
241 M is lithium manganese oxide;  
242 N is lithium nickel oxide;  
243 NB is niobium oxide;  
244 V is vanadium oxide;  
245 T is lithium titanium oxide.

246  $A_2$  designates the negative electrode system in which: