

**SLOVENSKI STANDARD**  
**oSIST prEN 62902:2018**  
**01-marec-2018**

---

**Sekundarne baterije: Simboli za označevanje za identifikacijo kemične sestave**

Secondary batteries: Marking symbols for identification of their chemistry

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

**Ta slovenski standard je istoveten z: prEN 62902:2018**

<https://standards.iteh.ai/catalog/standards/sist/dd79fb4d-7bcb-43b1-a90a-6bc49eb4a3c1/sist-en-iec-62902-2019>

---

**ICS:**

01.080.20	Grafični simboli za posebno opremo	Graphical symbols for use on specific equipment
29.220.01	Galvanski členi in baterije na splošno	Galvanic cells and batteries in general

**oSIST prEN 62902:2018**

**en,fr,de**





21/952/CDV

## COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER:

**IEC 62902 ED1**

DATE OF CIRCULATION:

**2018-01-12**

CLOSING DATE FOR VOTING:

**2018-04-06**

SUPERSEDES DOCUMENTS:

**21/918/CDV,21/951/RVC**

<b>IEC TC 21 : SECONDARY CELLS AND BATTERIES</b>	
SECRETARIAT: France	SECRETARY: Mr Yves Boudou
OF INTEREST TO THE FOLLOWING COMMITTEES: SC 21A, TC 35	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: <input type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input checked="" type="checkbox"/> SAFETY	
<input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING  <b>Attention IEC-CENELEC parallel voting</b> 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.  The CENELEC members are invited to vote through the CENELEC online voting system.	<input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING

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.

TITLE:

**Secondary batteries: Marking symbols for identification of their chemistry**

NOTE FROM TC/SC OFFICERS:

## CONTENTS

1			
2			
3	FOREWORD .....		4
4	1 Scope .....		5
5	2 Normative references .....		5
6	3 Terms and definitions .....		6
7	4 Application of markings .....		7
8	4.1 General .....		7
9	4.2 Marking of electrochemical battery systems .....		8
10	4.3 Application of the markings on the battery .....		8
11	5 Markings .....		8
12	5.1 Markings without recycling symbol .....		8
13	5.1.1 General .....		8
14	5.1.2 Lead acid batteries .....		9
15	5.1.3 Nickel cadmium batteries .....		9
16	5.1.4 Nickel metal hydride batteries .....		9
17	5.1.5 Lithium ion batteries .....		9
18	5.1.6 Secondary lithium metal batteries .....		9
19	5.2 Optional markings with recycling symbol .....		9
20	5.2.1 General .....		9
21	5.2.2 Lead acid batteries .....		10
22	5.2.3 Nickel cadmium batteries .....		10
23	5.2.4 Nickel metal hydride batteries .....		10
24	5.2.5 Lithium ion batteries .....		10
25	5.2.6 Lithium metal batteries .....		11
26	5.3 Colors for background .....		11
27	5.4 Design of markings and symbols .....		11
28	5.4.1 General .....		11
29	5.4.2 Dimensions for symbols .....		11
30	5.4.3 Dimensions for markings without recycling symbol .....		12
31	5.4.4 Dimensions for markings with recycling symbol .....		12
32	5.4.5 Design of the recycling symbol in accordance with ISO 7000-1135 .....		13
33	5.4.6 Design of the letters (characters) .....		14
34	6 Durability of markings with respect to chemical agents .....		14
35	6.1 General .....		14
36	6.2 Test procedure .....		14
37	6.2.1 Test with water and recommended cleaning agents .....		15
38	6.2.2 Test with electrolyte .....		15
39	6.2.3 Test with neutralizing solutions .....		15
40	6.3 Criteria .....		15
41	Annex A (informative) Colors for background .....		16
42	A.1 General .....		16
43	A.2 Color definition for background .....		16
44	Bibliography .....		17

45		
46	Figure 1 – Example of marking for lead acid batteries .....	9
47	Figure 2 – Example of marking for nickel cadmium batteries .....	9
48	Figure 3 – Example of marking for nickel metal hydride batteries .....	9
49	Figure 4 – Example of marking for lithium ion batteries .....	9
50	Figure 5 – Example of marking for secondary lithium metal batteries.....	9
51	Figure 6 – Example of marking with recycling symbol for lead acid batteries .....	10
52	Figure 7 – Example of marking with recycling symbol for nickel cadmium batteries .....	10
53	Figure 8 – Example of marking with recycling symbol for nickel metal hydride batteries .....	10
54	Figure 9 – Example of marking with recycling symbol for lithium ion batteries .....	10
55	Figure 10 – Example of marking with recycling symbol for secondary lithium metal batteries	11
56	Figure 11 – Size of marking without recycling symbol.....	12
57	Figure 12 – Size of marking with recycling symbol.....	13
58	Figure 13 – Design of recycling symbol .....	13
59	Figure 14 – Design of letters .....	14
60		
61	Table 1 – List of dimensions for symbols .....	11
62	Table 2 – Test matrix for durability test of markings .....	14
63	Table A.1 – Color references.....	16

(standards.iteh.ai)

SIST EN IEC 62902:2019

<https://standards.iteh.ai/catalog/standards/sist/dd79fb4d-7bcb-43b1-a90a-6bc49eb4a3c1/sist-en-iec-62902-2019>

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MARKING SYMBOLS FOR SECONDARY BATTERIES FOR THE IDENTIFICATION  
OF THEIR CHEMISTRY****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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62902 has been prepared by IEC technical committee 21: Secondary cells and batteries.

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

FDIS	Report on voting
21/XX/FDIS	21/XX/RVD

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

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

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

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

The National Committees are requested to note that for this document the stability date is 2020

THIS TEXT IS INCLUDED FOR THE INFORMATION OF THE NATIONAL COMMITTEES AND WILL BE DELETED AT THE PUBLICATION STAGE.

## MARKING SYMBOLS FOR SECONDARY BATTERIES FOR THE IDENTIFICATION OF THEIR CHEMISTRY

### 1 Scope

This document specifies methods for the clear identification of secondary cells, batteries, battery modules and monoblocs according to their chemistry (electrochemical storage technology).

The markings described in this standard are applicable for secondary cells, batteries, battery modules and monoblocs with a volume of more than 900 cm<sup>3</sup>.

The marking of the chemistry is useful for the installation, operation and decommissioning phases of battery life.

Many recycling processes are chemistry specific, thus undesired events may occur when a battery which is not of the appropriate chemistry enters a given recycling process. Therefore, in order to ensure a safe handling during sorting and recycling processes, it is necessary to mark the battery so as to identify its chemistry.

This standard defines the conditions of utilization of the markings indicating the chemistry of these secondary batteries.

The details of markings and their application are defined in this standard.

NOTE: Nothing in this standard should preclude marking of batteries with recycling and chemistry symbols required by state, federal, national or regional laws or regulations or with a seal under license by a national recycling program.

### 2 Normative references

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.

IEC 60050-482, *Vocabulary primary and secondary cells and batteries*

IEC 60896-21 and -22, *Stationary lead-acid batteries: valve regulated types*

150 IEC 62620:2014, *Secondary cells and batteries containing alkaline or other non-acid electrolytes –*  
 151 *secondary lithium cells and batteries for use in industrial applications*

152 ISO 7000-1135, *Graphical symbols for use on equipment: recycling symbol*

### 153 **3 Terms and definitions**

154 For the purposes of this document, the following terms and definitions apply:

#### 155 **3.1**

##### 156 **battery**

157 one or more cells fitted with devices necessary for use, for example case, terminals, marking and  
 158 protective devices

159 [SOURCE: IEC 60050, 482-01-04]

#### 160 **3.2**

##### 161 **battery module**

162 group of cells connected together either in a series and/or parallel configuration with or without  
 163 protective devices (e.g. fuse or PTC: Positive Temperature Coefficient) and monitoring circuitry

164 [SOURCE: IEC 62620]

#### 165 **3.3**

##### 166 **cell**

167 basic function unit, consisting of an assembly of electrodes, electrolyte, container, terminals and  
 168 usually separators that is a source of electric energy obtained by direct conversion of chemical energy

169 [SOURCE: IEC 60050, 482-01-01]

#### 170 **3.4**

##### 171 **lead acid battery**

172 secondary battery with aqueous electrolyte based on dilute sulfuric acid, a positive electrode of lead  
 173 dioxide and a negative electrode of lead

174 [SOURCE: IEC 60050, 482-05-01]

#### 175 **3.5**

##### 176 **secondary lithium battery**

177 lithium battery which is designed to be electrically recharged.

178 NOTE 1 to entry: The recharge is accomplished by way of a reversible chemical reaction

179 [SOURCE: IEC 60050, 482-01-03]

#### 180 **3.6**

##### 181 **lithium ion battery**

182 secondary battery with an organic solvent electrolyte and positive and negative electrodes which  
 183 utilize an intercalation compound in which lithium is stored

184 NOTE 1 to entry: A lithium ion battery does not contain lithium metal.

185 [SOURCE: IEC 60050, 482-05-07]

#### 186 **3.7**

##### 187 **lithium metal battery**

188 battery which incorporates one or more secondary lithium cells with an organic solvent electrolyte or a  
 189 solid electrolyte, a positive electrode and a negative electrode composed of lithium metal.



**3.8****monobloc battery**

battery, with multiple separate but electrically connected cell compartments each of which is designed to house an assembly of electrodes, electrolyte, terminals or intercell connections and possible separators

[SOURCE: IEC 60050, 482-02-17]

**3.9****nickel cadmium battery**

secondary battery with an alkaline electrolyte, a positive electrode containing nickel oxide and a negative electrode of cadmium

[SOURCE: IEC 60050, 482-05-02]

**3.10****nickel metal hydride battery**

secondary battery with an electrolyte of aqueous potassium hydroxide, a positive electrode containing nickel as nickel hydroxide and a negative electrode of hydrogen in the form of a metal hydride

[SOURCE: IEC 60050 :482-05-08]

**3.11****secondary cell**

cell which is designated to be electrically recharged

[SOURCE: IEC 60050, 482-01-03]

**3.12****markings**

markings are lines, shapes, pattern, letters or symbols on the surface, which help to identify features of the marked product or material.

**3.13****symbol**

a written character or mark used to represent information

EXAMPLE: The recycling symbol represents the information that the battery is to be recycled

**3.14****label**

sheet with an adhesive layer containing information for application on products

**3.15****valve regulated lead acid battery (VRLA)**

secondary battery in which cells are closed but have a valve which allows the escape of gas if the internal pressure exceeds a predetermined value

NOTE 1 to entry: The cell or battery cannot normally receive additions to the electrolyte.

[SOURCE: IEC 60050, 482-5-15]

**4 Application of markings****4.1 General**

Markings defined in clause 5 are applicable to all products according to their size and configuration as defined in the scope.

When applicable, each end product shall be marked in accordance with this section, before placing onto market.

233 In case of dismantling the batteries into monoblocs and modules for the purpose of reuse of the  
 234 monoblocs and modules additional marking of these monoblocs or batteries has to be carried out in  
 235 accordance with this standard.

236 Single cells should not to be marked in case that they are fitted in batteries or modules.

## 237 **4.2 Marking of electrochemical battery systems**

238 This marking is only applicable to secondary cells and batteries of the following chemistries:

- 239 a) Lead acid (Pb)
- 240 b) Nickel cadmium (Ni-Cd)
- 241 c) Nickel metal-hydride (Ni-MH)
- 242 d) Lithium ion (Li-ion)
- 243 e) Secondary lithium metal (Li-metal)

244 Batteries or modules applying more than one of these chemistries shall be marked for all applied  
 245 chemistries.

246 This marking is not applicable for batteries of other chemistries and technologies such as:

- 247 f) Flow-batteries
- 248 g) Sodium-sulfur high temperature batteries
- 249 h) Na-NiCl high temperature batteries
- 250 i) All other chemistries which are not listed here.

## 251 **4.3 Application of the markings on the battery**

252 The markings can be fixed on the battery either by:

- 253 a) printing, or
- 254 b) labelling, or
- 255 c) other methods.

256 The markings shall be applied on the battery or modules before placing onto the market.

257 The markings shall be visible, legible and indelible over the supposed life of the batteries.

258 The markings with the design described in clause 5 may be integrated into existing printings or labels.

259 The marking shall be placed on the displayed side, which is the side on which information of the  
 260 battery are placed, to achieve a good recognizability.

261 In case that due to design reasons or customer requirements the marking cannot be placed on the  
 262 displayed side, the size of the marking shall have the size defined in 5.4.

## 263 **5 Markings**

### 264 **5.1 Markings without recycling symbol**

#### 265 **5.1.1 General**

266 These markings shall be used in case that the recycling symbol is applied in other markings or if a  
 267 recycling symbol does not need to be declared or cannot be declared.