



SLOVENSKI STANDARD
oSIST prEN IEC 63118:2022

01-november-2022

Litij-ionske sekundarne baterije 12 V za zagon, osvetlitev, vžig in pomožne sisteme v avtomobilih - 1. del: Splošne zahteve in preskusne metode

12V Lithium-ion Secondary Battery for Automotive Starting, Lighting, Ignition (SLI) Applications and Auxiliary purposes Part 1 - General requirements and methods of test

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Accumulateur ion-lithium 12 V pour les applications de démarrage, d'éclairage, d'allumage (SLI) et les utilisations auxiliaires des véhicules automobiles – Partie 1 – Exigences et méthodes d'essai générales

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ICS:

29.220.30	Alkalni sekundarni člani in baterije	Alkaline secondary cells and batteries
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SECRETARIAT: France	SECRETARY: Mr Yves Boudou
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: <input checked="" 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 type="checkbox"/> SAFETY	
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TITLE:

12V Lithium-ion Secondary Battery for Automotive Starting, Lighting, Ignition (SLI) Applications and Auxiliary purposes

Part 1 - General requirements and methods of test

PROPOSED STABILITY DATE: 2027

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

12V Lithium-ion Secondary Battery for Automotive Starting, Lighting, Ignition (SLI) Applications and Auxiliary purposes
Part 1 - General requirements and methods of test

FOREWORD

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International Standard IEC 63118 Ed.1 has been prepared by IEC technical committee 21: Secondary cells and batteries.

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

FDIS	Report on voting

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.

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

- 106 • reconfirmed,
- 107 • withdrawn,
- 108 • replaced by a revised edition, or
- 109 • amended.

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12V Lithium-ion Secondary Battery for Automotive Starting, Lighting, Ignition (SLI) Applications and Auxiliary purposes

Part 1: General requirements and methods of test

1 Scope

This International Standard specifies general tests and requirements for the performance of lithium secondary batteries with a nominal voltage of 12 V permanently installed in road vehicles not for propulsion. Replacement of secondary batteries permanently installed in road vehicles not for propulsion are covered by this standard.

The following are typical applications that utilize the batteries under the scope of this standard.

A power source for the starting of internal combustion engines, lighting, stop & start function, on-board auxiliary equipment and energy absorption for regeneration from braking.

The batteries primarily used for propulsion of electric vehicles (EV) including battery electric vehicles (BEV), hybrid electric vehicles (HEV), and plug-in hybrid electric vehicles (PHEV) are not covered by this standard.

This standard includes:

- electrical characteristics tests methods and requirements
- life duration tests method

This standard does not include:

- dimensions
- system communication protocol
- safety

Note: The safety aspects of the batteries are covered by IEC 63057

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, *International Electrotechnical Vocabulary (IEV) – Part 482: Primary and Secondary cells and batteries*

IEC 63057:2020, *International Electrotechnical Commission: Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for secondary lithium batteries for use in road vehicles not for the propulsion*

IEC 62902, *Secondary cells and batteries - Marking symbols for identification of their chemistry*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-482 and ISO/IEC Guide 51, as well as the following apply.

- 152 **3.1**
153 **battery**
154 unit comprising one or more cells, modules and battery management system
- 155 **3.2**
156 **battery management system (BMS)**
157 set of protection functions associated with a battery to prevent overcharge, overcurrent, over
158 temperature, under temperature and if applicable overdischarge
- 159 Note 1 to entry: The function of the BMS can be assigned to the battery or to vehicle that uses the battery. See figure
160 1 of IEC 63057:2020.
- 161 Note 2 to entry: The BMS can be divided, and it can be found partially in the battery and partially on the equipment
162 that uses the battery. See figure 1 of IEC 63057:2020.
- 163 Note 3 to entry: The BMS is sometimes also referred to as a BMU (battery management unit).
- 164 Note 4 to entry: Clause 6 Electrical tests could be verified without BMS by setting the upper and lower limit range
165 set by manufacturer.
- 166 **3.3**
167 **cell**
168 secondary cell where electrical energy is derived from the insertion or extraction reactions of
169 lithium ions or oxidation/reduction reaction of lithium between the negative electrode and the
170 positive electrode
- 171 Note 1 to entry: The cell typically has an electrolyte that consists of a lithium salt and organic solvent compound in
172 liquid, gel or solid form and has a metal or a laminate film casing. It is not ready for use in an application because it
173 is not yet fitted with its final housing, terminal arrangement and electronic control device.
- 174 **3.4**
175 **final voltage**
176 specified closed circuit voltage at which the discharge of a battery is terminated
- 177 Note 1 to entry: The final voltage should be declared by the battery manufacturer.
- 178 **3.5**
179 **module**
180 group of cells connected together in a series and/or parallel configuration with or without
181 protective devices (e.g. fuse or positive temperature coefficient device) and monitoring circuitry
- 182 **3.6**
183 **nominal charge current**
184 charge current used to designate or identify charge performance of a battery
- 185 Note 1 to entry: The nominal charge current: I_{ca} is declared by the battery manufacturer.
- 186 **3.7**
187 **nominal cranking current**
188 discharge current used to designate or identify cranking performance of a battery
- 189 Note 1 to entry: The nominal cranking current: I_{cc} is declared by the battery manufacturer.
- 190 Note 2 to entry: The nominal cranking current shall not exceed the operating region specified by the battery
191 manufacturer.
- 192 **3.8**
193 **nominal voltage**
194 suitable approximate value of the voltage used to designate or identify a battery
- 195 Note 1 to entry: The scope of this standard is a battery with a nominal voltage of 12 V.
- 196 **3.9**
197 **rated capacity**
198 capacity value of a battery determined under specified conditions and declared by the battery
199 manufacturer
- 200 Note 1 to entry: The rated capacity is the quantity of electricity C_n Ah (ampere-hours) declared by the battery
201 manufacturer which a battery can deliver during an n h period when charging, storing and discharging under the
202 conditions specified in IEC 63118 Clause 6.3.

203 4 Parameter measurement tolerances

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

- 206 a) $\pm 0,5$ % for voltage;
- 207 b) ± 1 % for current;
- 208 c) ± 5 °C for temperature;
- 209 d) $\pm 0,1$ % for time.

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

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

213 5 Marking and designation

214 Each battery that is installed or maintained shall carry clear and durable markings giving the
215 following information. Details are defined by national regulations:

- 216 • “secondary (rechargeable) Li” or “Li-ion”;
- 217 • polarity;
- 218 • name or identification of battery manufacturer or battery supplier;
- 219 • rated capacity in 1 h;
- 220 • nominal voltage :12 V;
- 221 • nominal cranking current;
- 222 • appropriate caution statement.
- 223 • IEC 62902 to Clause 2 Normative references;

224 The model name and manufacturing traceability shall be marked on the battery surface. The
225 other items listed above can be marked on the smallest package or supplied with the battery.

226 The following information shall be marked on or supplied with the battery in document form
227 such as specification sheet, instruction manual, or similar documents:

- 228 • disposal instructions;
- 229 • final voltage;
- 230 • nominal charge current;
- 231 • recommended charge instructions;
- 232 • operating temperature;
- 233 • storage temperature.

234 6 Electrical tests

235 6.1 General

236 Electrical tests are applied to batteries.

237 Charge and discharge currents for the tests shall be based on the value of the rated capacity
238 (C_n Ah). These currents are expressed as a multiple of I_t A, where: I_t A = C_n Ah/1 h, where I_t
239 is the reference test current, in amperes (A).

240 6.2 Charging procedure for test purposes

241 The battery shall be stored in an ambient temperature of 25 °C for more than 4 h.

242 Prior to charging, the battery shall be discharged at 25 °C at a constant current of 1,0 I_t A, down
243 to the final voltage specified by the battery manufacturer

244 Unless otherwise stated in this standard, batteries shall be charged, in an ambient temperature
245 of 25 °C, using the method declared by the battery manufacturer.