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Corrected version
2026-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Primary batteries –
Part 2: Physical and electrical specifications

Piles électriques –
Partie 2: Spécifications physiques et électriques



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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PRIMARY BATTERIES –

Part 2: Physical and electrical specifications

FOREWORD

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International Standard IEC 60086-2 has been prepared by IEC technical committee 35: Primary cells and batteries.

This fourteenth edition cancels and replaces the thirteenth edition published in 2015. This edition constitutes a technical revision.

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

a) clarification and distinct separation of the terms used for coin (lithium button) and button cells and batteries;
b) importation of the dimensional stability from 60086-1;
c) reordering category 1, 5 and 6 batteries by volume;
d) addition of cochlear implant tests and a new zinc air hearing aid battery type;
e) modification of PR70 hearing aid tests;
f) addition of a compliance checklist annex (Annex E);

g) modifications to the LR1/R1 tests;

h) addition of new specifications for 8LR932, CR1632, CR1225, CR2477, 6AS6P, 6AS6S, 6PS6P, 6PS6S, 6PS4P, 6PS4S, 5PR175/172, 6PR225/155, AS4, AS6, AS8, AS10, AS12, PS121/195S, PS121/195P, AS149/195, 6AS4S, AR40, 5AR40, 6AR40.

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

FDIS	Report on voting
35/1466/FDIS	35/1468/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.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

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 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 contents of the corrigenda 1 (2022-06) and 2 (2026-03) have been included in this copy.

INTRODUCTION

The technical content of this part of IEC 60086 provides physical dimensions, discharge test conditions and discharge performance requirements. IEC 60086-2 complements the general information and requirements of IEC 60086-1.

This part was prepared to benefit primary battery users, device designers and battery manufacturers by furnishing the specifics of form, fit and function for individual standardized primary cells and batteries. Over the years, this part has been changed to improve its contents and may again be revised in due course in the light of comments made by national committees and experts on the basis of practical experience and changing technology.

This current revision is the result of a reformatting initiative, as well as some content changes, aimed at making this part more user-friendly, less ambiguous, and, from a cross reference basis, fully harmonized with other parts of IEC 60086.

NOTE Safety information is available in IEC 60086-4, IEC 60086-5 and IEC 62281.

PRIMARY BATTERIES –

Part 2: Physical and electrical specifications

1 Scope

This part of IEC 60086 is applicable to primary batteries which are based on standardised electrochemical systems.

It specifies

– the physical dimensions,

– the discharge test conditions and discharge performance requirements.

2 Normative references

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

IEC 60086-1, *Primary batteries – Part 1: General*

ISO 1101, *Geometrical product specifications (GPS) – Geometrical tolerancing – Tolerances of form, orientation, location and run-out*

3 Terms, definitions, symbols and abbreviated terms

For the purposes of this document, the terms and definitions given in IEC 60086-1 and the following apply.

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

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1 Terms and definitions

3.1.1
application test
simulation of the actual use of a battery in a specific application

3.1.2
button cell or battery
small round cell or battery where the overall height is less than the diameter, containing aqueous electrolyte

Note 1 to entry: See coin (cell or battery), lithium button (cell or battery).

3.1.3
closed-circuit voltage
CCV
voltage across the terminals of a battery when it is on discharge

3.1.4
coin <cell or battery>
lithium button <cell or battery>
small round cell or battery where the overall height is less than the diameter, containing non-aqueous electrolyte**.**

Note 1 to entry: The nominal voltage of lithium batteries is typically greater than 2 V.

Note 2 to entry: See button cell or battery.

3.1.5
end-point voltage
EV
specified voltage of a battery at which the battery discharge is terminated

[SOURCE: IEC 60050-482:2004, 482-03-30]

3.1.6
minimum average duration
MAD
minimum average time on discharge which is met by a sample of batteries

Note 1 to entry: The discharge test is carried out according to the specified methods or standards and designed to show conformity with the standard applicable to the battery types.

3.1.7
nominal voltage (of a primary battery)
U_{n}
suitable approximate value of the voltage used to designate or identify a cell, a battery or an electrochemical system

[SOURCE: IEC 60050-482:2004, 482-03-31, modified – addition of "(of a primary battery)" and symbol U_{n}.]

3.1.8
open-circuit voltage
OCV
voltage across the terminals of a cell or battery when it is off discharge

3.1.9
primary (cell or battery)
cell or battery that is not designed to be electrically recharged

3.1.10
round (cell or battery)
cell or battery with circular cross section

3.1.11
service output (of a primary battery)
service life, or capacity, or energy output of a battery under specified conditions of discharge

3.1.12
service output test
test designed to measure the service output of a battery

Note 1 to entry: A service output test may be prescribed, for example, when

a) an application test is too complex to replicate;

b) the duration of an application test would make it impractical for routine testing purposes.

3.1.13
storage life
duration under specified conditions at the end of which a battery retains its ability to perform a specified service output

[SOURCE: IEC 60050-482:2004, 482-03-47, modified – "specified function" replaced by "specified service output".]

3.1.14
terminals (of a primary battery)
conductive parts of a battery that provide connection to an external circuit

3.2 Symbols and abbreviated terms

EV	end-point voltage
MAD	minimum average duration
OCV	open-circuit voltage (off-load voltage)
CCV	closed-circuit voltage (on-load voltage)
R	load resistance
U_{n}	nominal voltage of a primary battery

4 Battery dimensions, symbols

The symbols used to denote the various dimensions are as follows:

h_1 maximum overall height of the battery;

h_2 minimum distance between the flats of the positive and negative contacts;

h_3 minimum projection of the flat positive contact;

h_4 maximum recess of the negative flat contact surface;

h_5 minimum projection of the flat negative contact;

d_1 maximum and minimum diameters of the battery;

d_2 minimum diameter of the flat positive contact;

d_3 maximum diameter of the positive contact within the specified projection height;

d_4 minimum diameter of the flat negative contact;

d_5 maximum diameter of the negative contact within the specified projection height;

d_6 minimum outer diameter of the negative flat contact surface;

d_7 maximum inner diameter of the negative flat contact surface;

$\varnothing P$ concentricity of the positive contact.