



IEC 60086-1

Edition 14.0 2026-06

INTERNATIONAL STANDARD

**Primary batteries -
Part 1: General**

CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references	8
3 Terms and definitions	8
4 Requirements	11
4.1 General.....	11
4.1.1 Design	11
4.1.2 Battery dimensions	12
4.1.3 Terminals	12
4.1.4 Classification (electrochemical system)	13
4.1.5 Designation	14
4.1.6 Marking	15
4.1.7 Interchangeability: battery voltage	16
4.1.8 Other requirements, conformity checklist	17
4.2 Performance	17
4.2.1 Discharge performance.....	17
4.2.2 Dimensional stability.....	17
4.2.3 Leakage	17
4.2.4 Open-circuit voltage limits	17
4.2.5 Service output	17
4.2.6 Safety.....	17
4.2.7 Validity of testing	17
5 Performance – Testing	18
5.1 Capacity testing versus application and service output testing.....	18
5.2 Discharge testing.....	18
5.2.1 General	18
5.2.2 Application tests	18
5.2.3 Service output tests	19
5.3 Conformance check to a specified minimum average duration	20
5.4 Guidance for considering proposed value of minimum average duration	20
5.5 OCV testing	20
5.6 Insulation resistance.....	20
5.7 Battery dimensions	20
5.8 Leakage and deformation.....	20
6 Performance – Test conditions	21
6.1 Storage and discharge conditions	21
6.2 Commencement of discharge tests after storage.....	21
6.3 Discharge test conditions	21
6.3.1 General	21
6.3.2 Compliance	21
6.4 Load resistance	22
6.5 Time periods.....	22
6.6 Test condition tolerances	22
6.7 Activation of 'P'-system batteries	23
6.8 Measuring equipment.....	23

6.8.1	Voltage measurement	23
6.8.2	Mechanical measurement	23
7	Sampling and quality assurance	23
8	Battery packaging	23
Annex A (normative) Criteria for the standardization of batteries		24
Annex B (informative) Recommendations for equipment design		25
B.1	Technical liaison	25
B.2	Battery compartment	25
B.2.1	General	25
B.2.2	Limiting access by children	26
B.3	Equipment voltage cut-off	26
Annex C (normative) Designation system (nomenclature)		27
C.1	General	27
C.2	Designation system in use up to October 1990	27
C.2.1	General	27
C.2.2	Cells	27
C.2.3	Electrochemical system	29
C.2.4	Batteries	29
C.2.5	Modifiers	30
C.2.6	Examples	30
C.3	Designation system in use since October 1990	30
C.3.1	General	30
C.3.2	Round batteries	30
C.3.3	Non-round batteries	34
C.3.4	Ambiguity	37
Annex D (informative) Standard discharge voltage U_S – Definition and method of determination		39
D.1	Definition	39
D.2	Determination	39
D.2.1	General considerations: the C/R -plot	39
D.2.2	Determination of the standard discharge resistor R_S	41
D.2.3	Determination of the standard discharge capacity C_S and standard discharge time t_S	41
D.3	Experimental conditions to be observed and test results	42
Annex E (informative) Preparation of standard methods of measuring performance (SMMP) of consumer goods		44
E.1	General	44
E.2	Performance characteristics	44
E.3	Criteria for the development of test methods	44
Annex F (informative) Guidance for proposing value of minimum average duration		45
F.1	General	45
F.2	Sampling	45
F.3	Calculation method	45
Annex G (normative) Code of practice for packaging, shipment, storage, use and disposal of primary batteries		46
G.1	General	46
G.2	Packaging	46

G.3	Transport and handling	46
G.4	Storage and stock rotation	46
G.5	Displays at sales points	47
G.6	Selection, use and disposal	47
G.6.1	Purchase	47
G.6.2	Installation	47
G.6.3	Use	48
G.6.4	Replacement	48
G.6.5	Disposal	48
Annex H (informative)	Common designation	49
Annex I (informative)	Measurement methods for the determination of the performance and durability of non-rechargeable portable batteries	51
I.1	Overview	51
I.2	Interoperability	51
I.3	IEC designations of portable batteries of general use	51
I.4	Performance and durability tests for non-rechargeable portable batteries of general use	52
I.4.1	Average duration of discharge	52
I.4.2	Delayed discharge performance	53
I.4.3	Resistance to leakage	54
I.5	Determination of average duration for the purpose of labelling	54
Annex J (informative)	Compliance checklist	55
Bibliography	56
Figure 1	– Pulse tests with multiple load	19
Figure C.1	– Designation system for round batteries: diameter $d_1 < 100$ mm; height $h_1 < 100$ mm	31
Figure C.2	– Diameter code for non-recommended diameters	32
Figure C.3	– Height code for denoting the hundredths of a millimetre of height	33
Figure C.4	– Designation system for round batteries: diameter $d_1 \geq 100$ mm; height $h_1 \geq 100$ mm	34
Figure C.5	– Designation system for non-round batteries, dimensions < 100 mm	35
Figure C.6	– Designation system for non-round batteries, dimensions ≥ 100 mm	36
Figure C.7	– Height code for discrimination per tenth of a millimetre	37
Figure D.1	– Normalized C/R -plot (schematic)	40
Figure D.2	– Standard discharge voltage (schematic)	42
Table 1	– Standardized electrochemical systems	14
Table 2	– Marking requirements	15
Table 3	– Conditions for storage before and during discharge testing	21
Table 4	– Resistive loads for tests	22
Table 5	– Time periods for tests	22
Table 6	– Test condition tolerances	22
Table A.1	– Items necessary to standardize	24
Table C.1	– Physical designation and dimensions of round cells and batteries	28

Table C.2 – Physical designation and nominal overall dimensions of flat cells	29
Table C.3 – Physical designation and dimensions of square cells and batteries	29
Table C.4 – Examples of battery designations	30
Table C.5 – Diameter code for recommended diameter.....	32
Table C.6 – Physical designation and dimensions of round cell and batteries based on Clause C.3	37
Table C.7 – Physical designation and dimensions of non-round batteries based on Clause C.3	38
Table D.1 – Standard discharge voltage by system.....	42
Table H.1 – Index	49
Table I.1 – IEC and common formats of portable batteries of general use	51
Table I.2 – Discharge testing of non-rechargeable portable batteries of general use	52

INTERNATIONAL ELECTROTECHNICAL COMMISSION

Primary batteries - Part 1: General

FOREWORD

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IEC 60086-1 has been prepared by IEC technical committee 35: Primary cells and batteries. It is an International Standard.

This fourteenth edition cancels and replaces the thirteenth edition published in 2021. This edition constitutes a technical revision.

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

- a) In Clause 3, terms were reordered according to their functions: basic terms, electrochemical systems, battery shapes, electrical characteristics, specifications, failure modes;
- b) New letter "T" was added in Table 1, *Standardized electrochemical systems of 4.1.4 classification*;
- c) Maximum open circuit voltage of letter "F" was changed from 1,83 V to 1,90 V;
- d) Drawing of pulse tests with multiple load was moved from IEC 60086-2 to 5.2.2.2, *Application tests with multiple loads*;

- e) Annex F, *Guidance for proposing value of minimum average duration* was modified;
- f) Annex D of IEC 60086-2:2021, *Common designation*, has been transferred to Annex H of this document;
- g) Table H.1, *Common designation index*, was modified to provide reference to IEC 60086-2-1 and IEC 60086-2-2 for each battery;
- h) Annex I identifies the batteries of general use and the applicable tests to compare their performance, in support of Regulation (EU) 2023/1542 (Batteries Regulation).

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

Draft	Report on voting
35/1590/FDIS	35/1600/RVD

Full information on the voting for its approval 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/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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

INTRODUCTION

The technical content of this part of IEC 60086 provides fundamental requirements and information on primary cells and batteries. In this sense, IEC 60086-1 is the main component of the IEC 60086 series and forms the basis for the subsequent parts. For example, this part includes elementary information on definitions, nomenclature, dimensions and marking. While specific requirements are included, the content of this part tends to explain methodology (how) and justification (why).

Over the years, this part has been changed to improve its content and remains under continual scrutiny to ensure that the publication is kept up to date with the advances in both battery and battery-powered device technologies.

Safety requirements and recommendations are available in IEC 60086-4, IEC 60086-5 and IEC 62281. Specifications are available in IEC 60086-2-1, IEC 60086-2-2 and IEC 60086-3. Environmental aspects are dealt with in IEC 60086-6.

1 Scope

This part of IEC 60086 is intended to standardize primary batteries with respect to dimensions, nomenclature, terminal configurations, markings, test methods, typical performance, safety and environmental aspects.

This document on one side specifies requirements for primary cells and batteries. On the other side, this document also specifies procedures of how requirements for these batteries are to be standardised.

As a classification tool for primary batteries, this document specifies system letters, electrodes, electrolytes, and nominal as well as maximum open circuit voltage of electrochemical systems.

The object of this part of IEC 60086 is to benefit primary battery users, device designers and battery manufacturers by ensuring that batteries from different manufacturers are interchangeable according to standard form, fit and function. Furthermore, to ensure compliance with the above, this document specifies standard test methods for testing primary cells and batteries.

This document also contains requirements in Annex A of this document justifying the inclusion or the ongoing retention of batteries in the IEC 60086 series.

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 60086-2-1:2026, *Primary batteries - Part 2-1: Physical and electrical specifications of batteries with aqueous electrolyte*

IEC 60086-2-2:2026, *Primary batteries - Part 2-2: Physical and electrical specifications of lithium batteries*

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

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

IEC 60086-5, *Primary batteries - Part 5: Safety of batteries with aqueous electrolyte*

Bibliography

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

IEC 60086-6, *Primary batteries - Part 6: Guidance on environmental aspects*

IEC 62281, *Safety of primary and secondary lithium cells and batteries during transport*

ISO/IEC Guide 36:1982, *Preparation of standard methods of measuring performance (SMMP) of consumer goods* (withdrawn 1998)

ISO 2859, *Sampling procedures for inspection by attributes*

ISO 22514-2:2017, *Statistical methods in process management - Capability and performance - Part 2: Process capability and performance of time-dependent process models*

ISO/IEC Directives Part 1, *Procedures for the technical work - Procedures specific to IEC*
