IEC 60086-1

Edition 12.0 2015-07

INTERNATIONAL STANDARD

Primary batteries –
Part 1: General

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FOREWORD

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

This twelfth edition cancels and replaces the eleventh edition (2011) and constitutes a technical revision.

The major technical changes with respect to the previous edition are:

– the order of the Annexes was changed to the order in which they appear in the document and a caption was added to indicate where the Annex information first appears in the document;
– the humidity conditions for non P-system batteries in Table 3 was modified;
– the standard discharge voltage for the Y and W chemistries was determined to be at 3,5 V and 2,8 V respectively;
– details on capacity measurement were moved from Annex E to Subclause 5.1.

– the coin/button cell and battery definition was clarified in order to better address issues with the swallowing of coin cells.

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

FDIS	Report on voting
35/1346/FDIS	35/1349/RVD

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

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

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 publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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- withdrawn,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

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

The technical content of this part of IEC 60086 provides fundamental requirements and information on primary cells and batteries. All batteries within the IEC 60086 series are considered dry cell 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.

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

PRIMARY BATTERIES –

Part 1: General

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.

As a primary battery classification tool, electrochemical systems are also standardized with respect to system letter, electrodes, electrolyte, nominal and maximum open circuit voltage.

NOTE The requirements justifying the inclusion or the ongoing retention of batteries in the IEC 60086 series are given in Annex A.

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 part specifies standard test methods for testing primary cells and batteries.

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 60086-2:−[1], *Primary batteries – Part 2: Physical and electrical specifications*

IEC 60086-3:2011, *Primary batteries – Part 3: Watch batteries*

IEC 60086-4:2014, *Primary batteries – Part 4: Safety of lithium batteries*

IEC 60086-5:2011, *Primary batteries – Part 5: Safety of batteries with aqueous electrolyte*

3 Terms and definitions

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

3.1
application test
simulation of the actual use of a battery in a specific application

3.2
battery
one or more cells electrically connected and fitted in a case, with terminals, markings and protective devices etc., as necessary for use

[1] To be published.