

Primary batteries —

Part 5: Safety of batteries with aqueous electrolyte

The European Standard EN 60086-5:2000 has the status of a British Standard

ICS 29.220.10

National foreword

This British Standard is the official English language version of EN 60086-5:2000. It is identical with IEC 60086-5:2000

The UK participation in its preparation was entrusted to Technical Committee CPL/35, Primary Cells, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
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Attention is drawn to the fact that CEN and CENELEC Standards normally include an annex which lists normative references to international publications with their corresponding European publications. The British Standards which implement these international or European publications may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

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Primary batteries
Part 5: Safety of batteries with aqueous electrolyte
(IEC 60086-5:2000)

Piles électriques
Partie 5: Sécurité des piles
à électrolyte aqueux
(CEI 60086-5:2000)

Primärbatterien
Teil 5: Sicherheit von Batterien
mit wasserhaltigem Elektrolyt
(IEC 60086-5:2000)

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of document 35/1127/FDIS, future edition 1 of IEC 60086-5, prepared by IEC TC 35, Primary cells and batteries, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60086-5 on 2000-09-01.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2001-06-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2003-09-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annex ZA is normative and annexes A and B are informative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60086-5:2000 was approved by CENELEC as a European Standard without any modification.

In the official version, for annex Bibliography, the following note has to be added for the standard indicated:

IEC 60086-3:1995 NOTE: Harmonized as EN 60086-3:1996 (not modified).

CONTENTS

	Page
INTRODUCTION	4
Clause	
1 Scope	5
2 Normative references.....	5
3 Definitions	5
4 Requirements for safety.....	7
4.1 Design	7
4.2 Quality plan	7
5 Sampling	7
6 Testing and requirements	8
6.1 Intended use.....	8
6.2 Reasonably foreseeable misuse	12
7 Information for safety.....	15
7.1 Safety precautions during handling of batteries.....	15
7.2 Safety precautions during packaging, handling, transportation, display, storage, and disposal.....	17
8 Instructions for use	18
9 Marking	19
9.1 General	19
9.2 Small batteries.....	19
Annex A (informative) Additional information to subclause 7.2.3.....	20
Annex B (informative) Battery compartment guidelines.....	21
Annex ZA (informative) Normative references to international publications with their corresponding European publications	27
Bibliography.....	25
Figure 1 – Sampling for type approval tests and number of batteries required.....	8
Figure 2 – Temperature cycling procedure	11
Figure 3 – Incorrect installation (four batteries in series)	12
Figure 4 – External short circuit.....	13
Figure 5 – Overdischarge	13
Figure 6 – XYZ axis of round battery	14
Figure 7 – Ingestion gauge.....	17
Figure B.1 – Positive contact recessed between ribs	21
Figure B.2 – Positive contact is recessed	22
Figure B.3 – Negative contact which is shaped to avoid the positive terminal.....	22
Figure B.4 – Preferred battery arrangements inside a device	24

	Page
Table 1 – Intended use tests and requirements	8
Table 2 – Shock pulse	9
Table 3 – Test sequence	9
Table 4 – Test sequence	10
Table 5 – Reasonably foreseeable misuse tests and requirements	12
Table 6 – Testing and requirements	15

INTRODUCTION

The concept of safety is closely related to safeguarding the integrity of people and property. This part of IEC 60086 specifies requirements and tests for primary batteries with aqueous electrolyte and has been prepared in accordance with ISO/IEC guidelines, taking into account all relevant national and international standards which apply. Also included in this standard is guidance for appliance designers with respect to battery compartments and information regarding packaging, handling, warehousing and transportation.

Safety is a balance between freedom from risks of harm and other demands to be met by the product. There can be no absolute safety. Even at the highest level of safety, the product can only be relatively safe. In this respect, decision-making is based on risk evaluation and safety judgement.

As safety will pose different problems, it is impossible to provide a set of precise provisions and recommendations that will apply in every case. However, this standard, when followed on a judicious "use when applicable" basis, will provide reasonably consistent standards for safety.

PRIMARY BATTERIES –

Part 5: Safety of batteries with aqueous electrolyte

1 Scope

This part of IEC 60086 specifies tests and requirements for primary batteries with aqueous electrolyte to ensure their safe operation under normal use and reasonably foreseeable misuse.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 60086. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 60086 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

IEC 60086-1:1996, *Primary batteries – Part 1: General*

IEC 60086-2:1997, *Primary batteries – Part 2: Specification sheets*

IEC 60086-4:2000, *Primary batteries – Part 4: Safety of lithium batteries*

IEC 60050(481):1996, *International Electrotechnical Vocabulary (IEV) – Chapter 481: Primary cells and batteries*

IEC 60068-2-6:1995, *Environmental testing – Part 2: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-27:1987, *Environmental testing – Part 2: Tests – Test Ea and guidance: Shock*

IEC 60068-2-32:1975, *Environmental testing – Part 2: Tests – Test Ed: Free fall (Procedure 1)*

3 Definitions

For the purpose of this part of IEC 60086, the definitions given in IEC 60050(481) (some of which are repeated below for convenience) and the following definitions apply.

3.1

battery (primary)

one or more primary cells, including case, terminals and marking

3.2

button battery

small round battery, where the overall height is less than the diameter; batteries complying with figures 2, 3 and 4 of IEC 60086-1

3.3

cell (primary)

a source of electrical energy obtained by the direct conversion of chemical energy that is not designed to be charged by any other electrical source

3.4

cylindrical battery

primary battery with cylindrical geometry where the overall height is equal to or greater than the diameter; batteries complying with figures 1A and 1B of IEC 60086-1

3.5

explosion

an instantaneous release wherein solid matter from any part of the battery is propelled to a distance greater than 25 cm away from the battery

3.6

harm

physical injury and/or damage to health or property

3.7

hazard

a potential source of harm

3.8

intended use

the use of a product, process or service under conditions or for purposes in accordance with specifications and instructions provided by the supplier – including information for publicity purposes

3.9

leakage

unplanned escape of electrolyte, gas or other material from a battery

3.10

nominal voltage

a suitable approximate value of voltage used to identify the voltage of a primary battery

3.11

prismatic battery

primary battery with non-round geometry; batteries not complying with IEC 60086-1, 4.3

3.12

reasonably foreseeable misuse

the use of a product, process or service under conditions or for purposes not intended by the supplier, but which can happen

3.13

risk

the probable rate of occurrence of a hazard causing harm and the degree of severity of the harm

3.14

safety

freedom from unacceptable risk of harm