

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Primary batteries –
Part 5: Safety of batteries with aqueous electrolyte**

**Piles électriques –
Partie 5: Sécurité des piles à électrolyte aqueux**



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CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references	7
3 Terms and definitions	7
4 Requirements for safety	9
4.1 Design.....	9
4.1.1 General	9
4.1.2 Venting.....	9
4.1.3 Insulation resistance.....	10
4.2 Quality plan	10
5 Sampling	10
5.1 General	10
5.2 Sampling for type approval	10
6 Testing and requirements	11
6.1 General	11
6.1.1 Safety notice	12
6.1.2 Ambient temperature.....	12
6.2 Intended use	12
6.2.1 Intended use tests and requirements	12
6.2.2 Intended use test procedures	12
6.3 Reasonably foreseeable misuse.....	15
6.3.1 Reasonably foreseeable misuse tests and requirements.....	15
6.3.2 Reasonably foreseeable misuse test procedures	15
7 Information for safety.....	17
7.1 Safety precautions during handling of batteries	17
7.2 Packaging	19
7.3 Handling of battery cartons.....	19
7.4 Display and storage.....	19
7.5 Transportation	20
7.6 Disposal	20
8 Instructions for use	20
9 Marking	21
9.1 General	21
9.2 Marking of small batteries	21
Annex A (informative) Additional information to 7.4.....	22
Annex B (informative) Battery compartment design guidelines	23
Annex C (informative) Safety pictograms	34
Bibliography.....	36
Figure 1 – Sampling for type approval tests and number of batteries required.....	10
Figure 2 – Temperature cycling procedure	15
Figure 3 – Circuit diagram for incorrect installation (four batteries in series)	16
Figure 4 – Circuit diagram for external short circuit	16

Figure 5 – Circuit diagram for overdischarge.....	17
Figure 6 – XYZ axes for free fall	17
Figure 7 – Ingestion gauge (Inner dimensions)	19
Figure B.1 – Example of series connection with one battery reversed	23
Figure B.2 – Positive contact recessed between ribs	25
Figure B.3 – Positive contact recessed within surrounding insulation	25
Figure B.4 – Negative contact U-shaped to ensure no positive (+) battery contact	26
Figure B.5 – Design with respect to battery orientation	27
Figure B.6 – Example of the design of a positive contact of an appliance.....	28
Figure B.7 – Example of a short circuit, a switch is piercing the battery insulating jacket	29
Figure B.8 – Typical example of insulation to prevent short circuit	29
Figure B.9 – Insertion against spring (to be avoided)	29
Figure B.10 – Examples showing distorted springs	30
Figure B.11 – One example of protected insertion.....	30
Figure B.12 – Example of negative contacts	31
Figure B.13 – Example of series connection of batteries with voltage tapping	33
Table 1 – Test matrix	11
Table 2 – Intended use tests and requirements.....	12
Table 3 – Shock pulse	13
Table 4 – Test sequence.....	13
Table 5 – Test sequence.....	14
Table 6 – Reasonably foreseeable misuse tests and requirements	15
Table 7 – Marking requirements.....	21
Table B.1 – Dimensions of battery terminals and recommended dimensions of the positive contact of an appliance in Figure B.6	27
Table B.2 – Minimum wire diameters.....	30
Table B.3 – Dimensions of the negative battery terminal.....	31
Table C.1 – Safety pictograms.....	34

INTERNATIONAL ELECTROTECHNICAL COMMISSION

PRIMARY BATTERIES –

Part 5: Safety of batteries with aqueous electrolyte

FOREWORD

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International Standard IEC 60086-5 has been prepared by IEC technical committee 35: Primary cells and batteries.

This third edition cancels and replaces the second edition (2005) and constitutes a technical revision.

The major technical changes with respect to the previous edition are the test requirements and the harmonization of the marking clause with the other standards of the IEC 60086 series. Moreover, the table of safety pictograms was added as Annex C.

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

CDV	Report on voting
35/1273/CDV	35/1276/RVC

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 web site 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.

INTRODUCTION

The concept of safety is closely related to safeguarding the integrity of people and property. This part of IEC 60086 specifies tests and requirements 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 intended use and reasonably foreseeable misuse.

2 Normative references

The following referenced documents are indispensable for the application 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 60086-1:2011, *Primary batteries – Part 1: General*

IEC 60086-2:2011, *Primary batteries – Part 2: Physical and electrical specifications*

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

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

IEC 60068-2-31, *Environmental testing – Part 2-31: Tests – Test Ec: Rough handling shocks, primarily for equipment-type specimens*

3 Terms and definitions

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

3.1

battery

one or more cells electrically connected by permanent means, fitted in a case, with terminals, markings and protective devices etc, as necessary for use

[IEC 60050-482: 2004, 482-01-04, modified]

3.2

button battery

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

3.3

cell

basic functional unit, consisting of an assembly of electrodes, electrolyte, container, terminals and usually separators that is a source of electric energy obtained by direct conversion of chemical energy

[IEC 60050-482: 2004, 482-01-01]