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Standards

Irish Standard  
I.S. EN IEC 60086-5:2021

# Primary batteries - Part 5: Safety of batteries with aqueous electrolyte

**I.S. EN IEC 60086-5:2021**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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I.S. EN IEC 60086-5:2021 is the adopted Irish version of the European Document EN IEC 60086-5:2021, Primary batteries - Part 5: Safety of batteries with aqueous electrolyte

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EUROPEAN STANDARD

**EN IEC 60086-5**

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2021

ICS 29.220.10

Supersedes EN 60086-5:2016 and all of its amendments  
and corrigenda (if any)

English Version

**Primary batteries - Part 5: Safety of batteries with aqueous  
electrolyte  
(IEC 60086-5:2021)**

Piles électriques - Partie 5: Sécurité des piles à électrolyte  
aqueux  
(IEC 60086-5:2021)

Primärbatterien - Teil 5: Sicherheit von Batterien mit  
wässrigem Elektrolyt  
(IEC 60086-5:2021)

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

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Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

## **EN IEC 60086-5:2021 (E)**

### **European foreword**

The text of document 35/1471/FDIS, future edition 5 of IEC 60086-5, prepared by IEC/TC 35 “Primary cells and batteries” was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60086-5:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2022-08-04 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2024-11-04 document have to be withdrawn

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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60068-2-27 NOTE Harmonized as EN 60068-2-27

IEC 60068-2-6 NOTE Harmonized as EN 60068-2-6

IEC 60068-2-31 NOTE Harmonized as EN 60068-2-31

ISO 7010:2019 NOTE Harmonized as EN ISO 7010:2020 (not modified)

IEC 60086-3 NOTE Harmonized as EN IEC 60086-3

IEC 60086-4 NOTE Harmonized as EN IEC 60086-4

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: [www.cenelec.eu](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60086-1	2015	Primary batteries - Part 1: General	EN 60086-1	2015
IEC 60086-2	2015	Primary batteries - Part 2: Physical and electrical specifications	EN 60086-2	2016

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**IEC 60086-5**

Edition 5.0 2021-09

# **INTERNATIONAL STANDARD**

# **NORME INTERNATIONALE**



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

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





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**IEC 60086-5**

Edition 5.0 2021-09

# **INTERNATIONAL STANDARD**

# **NORME INTERNATIONALE**



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

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

INTERNATIONAL  
ELECTROTECHNICAL  
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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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### PRIMARY BATTERIES –

#### Part 5: Safety of batteries with aqueous electrolyte

#### FOREWORD

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

This fifth edition cancels and replaces the fourth edition published in 2016. This edition constitutes a technical revision.

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

- a) revised information for safety dealing with keeping batteries out of the reach of children;
- b) removal of the method to determine the insulation resistance;
- c) changes to the test matrix;
- d) revision of the over-discharge test;
- e) revised definition and note for "button cell" or "button battery" in 3.2;
- f) revised method for evaluation of an explosion, moved from 3.6 to 6.2.1.

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

FDIS	Report on voting
35/1471/FDIS	35/1472/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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

A list of all parts in the IEC 60086 series, published 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](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

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- replaced by a revised edition, or
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It is the recommendation of the committee that the content of this document be adopted for implementation nationally not earlier than 2 years from the date of publication. The transitional period applies specifically to Table 7.

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## 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 document 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 document, 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 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 60086-1:2015, *Primary batteries – Part 1: General*

IEC 60086-2:2015, *Primary batteries – Part 2: Physical and electrical specifications*

#### 3 Terms and definitions

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

##### **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

[SOURCE: IEC 60050-482:2004, 482-01-04 [1], modified – The definition has been revised.]

##### 3.2

##### **button cell**

##### **button 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) in IEC 60086-1 and IEC 60086-2.

[SOURCE: IEC 60050-482:2004, 482-02-40, modified – The second term "coin cell" has been deleted, the definition has been revised and the note has been replaced with a new note.]

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