MALAYSIAN STANDARD

MS IEC 60086-1:2017

Primary batteries - Part 1: General (Fourth revision) (IEC 60086-1:2015, IDT)

ICS: 29.220.10

Descriptors: primary batteries, design, classification, performance, testing

DEPARTMENT OF STANDARDS MALAYSIA

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Committee representation

The Industry Standards Committee on Generation, Transmission and Distribution of Energy (ISC E) under whose authority this Malaysian Standard was adopted, comprises representatives from the following organisations:

Association of Consulting Engineers Malaysia
Department of Standards Malaysia
Federation of Malaysian Manufacturers
Jabatan Kerja Raya Malaysia
Malaysia Nuclear Power Corporation
Malaysian Association of Standards Users
Malaysian Cable Manufacturers Association
Malaysian Electrical Appliances and Distributors Association
Malaysian Green Technology Corporation
Persatuan Kontraktor Elektrikal dan Mekanikal Melayu Malaysia
Sabah Electricity Sdn Bhd
Sarawak Energy Berhad
SIRIM Berhad (Secretariat)
SIRIM QAS International Sdn Bhd
Suruhanjaya Komunikasi dan Multimedia Malaysia
Suruhanjaya Tenaga
Sustainable Energy Development Authority Malaysia
Tenaga Nasional Berhad
The Electrical and Electronics Association of Malaysia
The Institution of Engineers, Malaysia
Universiti Malaya

The Technical Committee on LVDC Supply, Storage and EV Charging which recommended the adoption of the IEC Standard as Malaysian Standard consists of representatives from the following organisations:

Jabatan Kerja Raya Malaysia
Malaysian Automotive Association
Malaysian Green Technology Corporation
Perusahaan Otomobil Nasional Sdn Bhd
SIRIM Berhad (Secretariat)
SIRIM QAS International Sdn Bhd
Suruhanjaya Tenaga
The Electrical and Electronics Association of Malaysia
TNB Research Sdn Bhd
Universiti Tenaga Nasional

National foreword

The adoption of the IEC Standard as a Malaysian Standard was recommended by the Technical Committee on LVDC Supply, Storage and EV Charging under the authority of the Industry Standards Committee on Generation, Transmission and Distribution of Energy.

This Malaysian Standard is identical with IEC 60086-1:2015, *Primary batteries - Part 1: General*, published by the International Electrotechnical Commission (IEC). However, for the purposes of this Malaysian Standard, the following apply:

a) in the source text, "this International Standard" should read "this Malaysian Standard";

b) the comma which is used as a decimal sign (if any), to read as a point;

c) the basis IEC 60086-1 is printed in English and French versions. However, only the English version is retained for this Malaysian Standard; and

d) reference to International Standards should be replaced by corresponding Malaysian Standards as follows:

Referenced International Standards	Corresponding Malaysian Standards
IEC 60086-2, *Primary batteries - Part 2: Physical and electrical specifications*	MS IEC 60086-2, *Primary batteries - Part 2: Physical and electrical specifications*
IEC 60086-4:2014, *Primary batteries - Part 4: Safety of lithium batteries*	MS IEC 60086-4:2017, *Primary batteries - Part 4: Safety of lithium batteries*
IEC 60086-5:2011, *Primary batteries - Part 5: Safety of batteries with aqueous electrolyte*	MS IEC 60086-5:2017, *Primary batteries - Part 5: Safety of batteries with aqueous electrolyte*

e) reference to International Standards in Bibliography should be replaced by corresponding Malaysian Standards as follows:

Referenced International Standards	Corresponding Malaysian Standards
ISO 2859 series, *Sampling procedures for inspection by attributes package*	MS ISO 2859 series, *Sampling procedures for inspection by attributes package*

This Malaysian Standard cancels and replaces MS IEC 60086-1:2010, *Primary batteries - Part 1: General (Third revision).*

Compliance with a Malaysian Standard does not of itself confer immunity from legal obligations.

NOTE. IDT on the front cover indicates an identical standard i.e. a standard where the technical content, structure, and wording (or is an identical translation) of a Malaysian Standard is exactly the same as in an International Standard or is identical in technical content and structure although it may contain the minimal editorial changes specified in clause 4.2 of ISO/IEC Guide 21-1.

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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PRIMARY BATTERIES –

Part 1: General

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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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.