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REDLINE VERSION

colour inside

Lead-acid starter batteries –
Part 1: General requirements and methods of test

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COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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LEAD-ACID STARTER BATTERIES –

Part 1: General requirements and methods of test

FOREWORD

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This Redline version provides you with a quick and easy way to compare all the changes between this standard and its previous edition. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

International Standard IEC 60095-1 has been prepared by IEC technical committee 21: Secondary cells and batteries.

This eighth edition cancels and replaces the seventh edition published in 2006. This edition constitutes a technical revision.

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

a) charge acceptance test;
b) cranking performance test;
c) charge retention test; and
d) endurance test added.

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

FDIS	Report on voting
21/974/FDIS	21/987/RVD

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

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

A list of all parts in the IEC 60095 series, published under the general title *Lead-acid starter 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 "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

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LEAD-ACID STARTER BATTERIES –

Part 1: General requirements and methods of test

1 Scope

This part of IEC 60095 is applicable to lead-acid batteries with a nominal voltage of 12 V, used primarily as a power source for the starting of internal combustion engines, lighting, and for auxiliary equipment of internal combustion engine vehicles. These batteries are commonly called "starter batteries".

This document is applicable to batteries for the following purposes:

- batteries for passenger cars;
- batteries for commercial and industrial vehicles.

This document is not applicable to batteries for other purposes, such as the starting of railcar internal combustion engines or for motorcycles and other power sport vehicles.

This document defines many general properties of lead-acid batteries. Single sections can be referenced in other parts of the IEC 60095 series even if the application is excluded in the scope of this document.

This document specifies the:

- general requirements;
- essential functional characteristics, relevant test methods and results required,

for several classes of starter batteries:

- according to the general type of application;
- according to the type of product.

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 60050-482, *International Electrotechnical Vocabulary – Chapter 482: Primary and secondary cells and batteries*

IEC 60095-2, *Lead-acid starter batteries – Part 2: Dimensions of batteries and dimensions and marking of terminals*

IEC 60095-4, *Lead-acid starter batteries – Part 4: Dimensions of batteries for heavy ~~trucks~~ vehicles*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-482 and the following 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
flooded battery
lead-acid battery having a cover provided with one or more openings through which gaseous products may escape

3.2
enhanced flooded battery
EFB battery
flooded lead-acid battery with additional special design features to significantly improve the cycling capability compared to standard flooded batteries

3.3
valve regulated lead-acid battery
VRLA battery
lead-acid battery which is closed under normal conditions but which has an arrangement that allows the escape of gas if the internal pressure exceeds a predetermined value

Note 1 to entry: The VRLA battery cannot receive addition to the electrolyte and after activation of dry-charged VRLA.

Note 2 to entry: In VRLA batteries the electrolyte is immobilized.

3.4
absorbent glass mat battery
AGM battery
VRLA battery in which the electrolyte is immobilized by absorption in a glass mat

3.5
gel battery
VRLA battery in which the electrolyte is immobilized by fixing as a gel

4 ~~Classification and~~ Designation of starter batteries – Electrolyte density and open circuit voltage

~~**4.1 Battery classification according to application**~~

~~Three classes of batteries are defined according to their application, as follows:~~

~~– Class A: batteries for starter applications with usual cycling capability and normal mechanical resistance;~~

~~– Class B: batteries for starter applications which have an important higher requirement in cycling ability and /or mechanical resistance;~~

~~– Class C: batteries for starter applications and high temperature duty.~~

4.1 ~~Battery~~ Designation according to type

Batteries are designated according to their type, as follows:

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INTERNATIONAL STANDARD

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Lead-acid starter batteries –
Part 1: General requirements and methods of test

IEC 60095-1:2018-11 (en)

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