Railway applications – Rolling stock – Batteries for auxiliary power supply systems –
Part 4: Secondary sealed nickel-metal hydride batteries
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**TITLE:**

Railway applications – Rolling stock – Batteries for auxiliary power supply systems – Part 4: Secondary sealed nickel-metal hydride batteries

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**NOTE FROM TC/SC OFFICERS:**
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RAILWAY APPLICATIONS – ROLLING STOCK – BATTERIES FOR AUXILIARY POWER SUPPLY SYSTEMS –

Part 4: Secondary sealed nickel-metal hydride batteries

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International Standard IEC 62973-4 has been prepared by IEC technical committee 9: Electrical equipment and systems for railways.

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

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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.

This document is to be used in conjunction with IEC 62675, IEC 63115-1 and IEC 63115-2.
A list of all parts in the IEC 62973 series, published under the general title *Railway applications – Rolling stock – Batteries for auxiliary power supply systems*, 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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.
RAILWAY APPLICATIONS – ROLLING STOCK –
BATTERIES FOR AUXILIARY POWER SUPPLY SYSTEMS –

Part 4: Secondary sealed nickel-metal hydride batteries

1 Scope

This part of IEC 62973 applies to secondary sealed nickel-metal hydride battery technologies for auxiliary power supply systems used on rolling stock.

This document specifies the requirements of the characteristics and tests for the sealed nickel-metal hydride cells and supplements IEC 62973-1 which applies to any rolling stock types (e.g. light rail vehicles, tramways, streetcars, metros, commuter trains, regional trains, high speed trains, locomotives, etc.). Unless otherwise specified, the requirements of IEC 62973-1 apply.

This document also specifies the requirements of the interface between the batteries and the battery chargers.

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 60051 (all parts), Direct acting indicating analogue electrical measuring instruments and their accessories

IEC 60077-1, Railway applications – Electric equipment for rolling stock – Part 1: General service conditions and general rules

IEC 61960-3, Secondary cells and batteries containing alkaline or other non-acid electrolytes – Secondary lithium cells and batteries for portable applications – Part 3: Prismatic and cylindrical lithium secondary cells and batteries made from them

IEC 62485-2, Safety requirements for secondary batteries and battery installations – Part 2: Stationary batteries

IEC 62675, Secondary cells and batteries containing alkaline or other non-acid electrolytes – Sealed nickel-metal hydride prismatic rechargeable single cells

IEC 62902:2019, Secondary cells and batteries – Marking symbols for identification of their chemistry

IEC 62973-1:2018, Railway applications – Rolling stock – Batteries for auxiliary power supply systems – Part 1: General requirements

IEC 63115-1:2020, Secondary cells and batteries containing alkaline or other non-acid electrolytes – Sealed nickel-metal hydride cells and batteries for use in industrial applications – Part 1: Performance
Terms, definitions and abbreviated terms

3.1 Terms and definitions

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.

NOTE All typical battery related descriptions are defined in IEC 60050-482.

3.1.1 nickel-metal hydride battery
Ni-MH battery
secondary battery with an electrolyte of aqueous potassium hydroxide, a positive electrode containing nickel as nickel hydroxide and a negative electrode of hydrogen in the form of a metal hydride

Note 1 to entry: Nickel-metal hydride battery contains assembly of sealed cells.

[SOURCE: IEC 60050-482: 2004, 482-05-08, modified – Abbreviation and Note 1 to entry have been added.]

3.1.2 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

Note 1 to entry: In this document cell means secondary sealed nickel-metal hydride cell.

[SOURCE: IEC 60050-482: 2004, 482-01-01, modified – Note 1 to entry has been replaced.]

3.1.3 sealed cell

cell which remains closed and does not release either gas or liquid when operated within the limits specified by the manufacturer

Note 1 to entry: A sealed cell may be equipped with a safety device to prevent a dangerously high internal pressure and is designed to operate during its life in its original sealed state.


3.1.4 secondary cell

cell which is designed to be electrically recharged

Note 1 to entry: The recharge is accomplished by way of a reversible chemical reaction.

[SOURCE: IEC 60050-482: 2004, 482-01-03]