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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 46713.2-2025

**Railway applications - Rolling stock - Batteries for auxiliary
power supply systems - Part 2: Nickel cadmium (NiCd) batteries**

轨道交通 机车车辆 辅助供电系统蓄电池 第2部分：镉镍蓄电池

(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is Part 2 of GB/T 46713 "Batteries for Auxiliary Power Supply Systems of Rail Transit Locomotives and Rolling Stock".

The following sections have been released.

---Part 1: General Requirements;

---Part 2: Nickel-Cadmium Batteries;

---Part 3: Lead-acid batteries;

---Part 4: Nickel-Metal Hydrate Batteries;

---Part 5: Lithium-ion Batteries.

This document is modified to adopt IEC 62973-2:2020 "Batteries for auxiliary power supply systems of rail transport locomotives and rolling stock - Part 2: Nickel-cadmium".

Storage battery.

This document has undergone the following structural adjustments compared to IEC 62973-2:2020.

---Sections 3.1.1~3.1.4, 3.1.6~3.1.9, and 3.1.11~3.1.14 in IEC 62973-2:2020 have been deleted. Subsequent section numbers will be updated accordingly.

Adjustment;

---Section 4.9.4 has been removed from IEC 62973-2:2020, and section 4.4.6 has been added;

---Added 9.2.3, subsequent item numbers will be adjusted accordingly;

---Appendices A and B have been removed from IEC 62973-2:2020.

The technical differences between this document and IEC 62973-2:2020, and the reasons therefor, are as follows.

---The scope has been modified (see Chapter 1) to suit my country's technological conditions;

---GB/T 46713.1-2025 has been added as a reference document in the chapter on terms and definitions (see Chapter 3) to adapt to the needs of my country.

Technical conditions;

---IEC 60077-1 (see 4.3, 9.2.4, 9.3.3) has been replaced by the normatively referenced GB/T 21413.1.A gap exists between the two documents.

The degree of conformity needs to be modified to adapt to my country's technical conditions;

---IEC 61373:2010 has been replaced with the normatively referenced GB/T 21563-2018 (see 5.5, 9.2.6), and the two documents are separated by...

The degree of consistency is modified to adapt to my country's technological conditions;

---The environmental conditions have been changed (see 4.3), and the normative reference GB/T 32347.1-2015 has been added to conform to national conditions and maintain consistency with international standards.

Consistent with GB/T 46713.1;

---Some requirements related to gas-reinforced prismatic nickel-cadmium batteries have been removed (see 4.4.5, Table 3, 9.1). These requirements do not apply to domestic rail transit.

application;

--- An open-circuit voltage requirement has been added (see 4.4.6) to correspond with the test method;

---The charging voltage and temperature values for when the temperature sensor malfunctions have been changed (see 4.5.3) to better suit national conditions and improve the safety of the battery system.

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---The phrase "thermostat or shut-off switch" (see 4.9.4 in IEC 62973-2:2020) has been removed to conform to national conditions;

---Visual inspection has been added to the type testing process (see 9.2.3) to better suit national conditions;

---The electrical performance test (see 9.3.4) has been modified to suit my country's technical requirements;

---Added requirements for individual batteries/complete batteries (see Appendix A), and added normative references to GB/T 191.

GB/T 2828.1, to conform to national conditions;

---The load curve verification test has been removed (see Appendix B of IEC 62973-2:2020). The relevant content is already included in GB/T 46713.1.

This document directly references the above.

The following editorial changes have been made to this document.

---Notes have been removed from Table 1 of IEC 62973-2:2020;

---The typical emergency load curve example in Annex A (Informative) of IEC 62973-2:2020 has been deleted;

---The typical test statement for the range of battery models in Annex C (informative) of IEC 62973-2:2020 has been deleted.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the National Railway Administration.

This document is under the jurisdiction of the National Technical Committee on Standardization of Rail Transit Electrical Equipment and Systems (SAC/TC278).

Introduction

With the rapid development of my country's rail transit industry, battery products for auxiliary power supply systems are constantly being innovated, and the technology is becoming increasingly mature.

To adapt to market demands, maintain the international standards for battery technology in

my country's rail transit auxiliary power supply system, and improve the auxiliary power supply system for rail transit.

The standard system for electric vehicle batteries is based on the international standard IEC 62973 and, based on domestic application practices, GB/T 46713 "Rail Transit" is formulated.

The "Locomotive and Rolling Stock Auxiliary Power Supply System Battery" is proposed to consist of five parts.

---Part 1: General Requirements. The aim is to standardize the electrical interfaces of battery systems by considering various types of batteries.

Based on specific load curves, the required capacity for various types of battery systems is calculated.

---Part 2: Nickel-Cadmium Batteries. The purpose is to specify the general requirements for nickel-cadmium batteries in auxiliary power supply systems of rail transit locomotives and rolling stock.

Requirements, mechanical requirements, electrical interfaces, markings, transportation, storage, and testing, while also specifying the use of individual/integrated nickel-cadmium batteries in rail transit.

Requirements for use on locomotives and rolling stock.

---Part 3: Lead-acid Batteries. The purpose is to specify the general requirements for lead-acid batteries in auxiliary power supply systems of rail transit locomotives and rolling stock.

Requirements, mechanical requirements, electrical interfaces, markings, transportation, storage and testing.

---Part 4: Nickel-Metal Hydrate Batteries. The purpose is to specify the general requirements for nickel-metal hydride batteries in auxiliary power supply systems of rail transit locomotives and rolling stock.

Requirements, mechanical requirements, electrical interfaces, markings, transportation, storage and testing.

---Part 5: Lithium-ion Batteries. The purpose is to specify the general requirements for lithium-ion batteries in auxiliary power supply systems of rail transit locomotives and rolling stock.

Requirements, mechanical requirements, electrical interfaces, markings, storage, transportation, and testing.

Auxiliary power supply system for rail transit locomotives and rolling stock Storage Batteries
Part 2: Nickel-Cadmium Batteries