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# NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

# GB/T 45915-2025

## Technical requirements for transport safety and intermodal transport of traction lithium batteries

动力锂电池运输安全及多式联运技术要求

**(English Translation)**

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## 1 Scope

This document specifies the classification and gradation for transport, basic requirements, as well as requirements for transport packaging, consignment, loading and unloading, temporary storage, multimodal transport, and emergency response of traction lithium batteries.

This document applies to the transport of traction lithium batteries. It is also used as a reference for the transport of energy storage lithium batteries and their products (excluding containerized energy storage systems).

This document does not apply to the transport of damaged or defective traction lithium batteries.



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## 2 Normative references

The following referenced documents are indispensable for the application 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.

GB/T 4857.1, Packaging - Basic tests for transport packages - Part 1. Identification of parts when testing · GB/T 4857.2, Packaging - Basic tests for transport packages - Part 2. Temperature and humidity conditioning · GB/T 4857.4, Packaging - Basic tests for transport packages - Part 4. Compression and stacking tests using a compression tester · GB/T 4857.11, Packaging - Basic tests for transport packages - Part 11. Horizontal impact test methods · GB/T 4857.23-2021, Packaging - Basic tests for transport packages - Part 23. Vertical random vibration test method · GB/T 5464, Non-combustibility test method for building materials · GB 6944, Classification and code of dangerous goods · GB 12268, List of dangerous goods · GB 38031-2020, Electric vehicles traction battery safety requirements · GB 40163, Safety technical specification for packing dangerous goods in containers transported by sea · GB 50140, Code for design of extinguisher distribution in buildings · GB 50974, Code of design on fire protection water supply and hydrant systems · GB 55037, General specification for building fire protection · JT/T 617.3-2018/XG1-2024, Regulations concerning road transportation of dangerous goods - Part 3. Index of dangerous goods name and transportation requirement, includes Amendment 1 · UN, Recommendations on the Transport of Dangerous Goods - Model Regulations · UN, Manual of Tests and Criteria

## 3 Terms and definitions

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

**3.1**
cell, battery cell. A single, enclosed electrochemical device, consisting of a positive electrode and a negative electrode with a potential difference, that may include protective devices.

**3.2**
battery. A combination of two or more cells connected by a circuit, which is equipped with the necessary devices for use. The battery includes the necessary components for its use, such as an enclosure, electrodes, markings or protective devices. Battery pack, battery module and integrated battery are considered battery; cell and battery are collectively referred to as battery.

**3.3**
lithium battery. [Source: GB 19432-2009, 3.1, modified]



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**3.8**
cargo transport unit, cargo transport component. A loading unit used for transporting shipment cargo. This includes road freight vehicle and semi-trailer, railway freight wagon, freight container, portable tank, multiple-element gas container (MEGC), and fiber-reinforced plastic tank-shell portable tank.

## 4 Classification and gradation

**4.1.1**
Traction lithium batteries shall be assigned a United Nations number (UN number), an official shipping name, and a class in accordance with GB 6944, GB 12268, and the United Nations Recommendations on the Transport of Dangerous Goods - Model Regulations (hereinafter referred to as the Model Regulations). The classification and UN number of traction lithium batteries shall conform to the requirements of Table 1.

## 5 Basic requirements

**5.1**
Traction lithium batteries shall meet the following requirements: the battery type shall meet the requirements of all tests in UN 38.3 (except for Grade C); all batteries shall be equipped with a safety ventilation device or shall be designed to prevent rupture under normal transport conditions; all batteries shall be provided with effective measures to prevent external short circuits; and all batteries containing parallel structures shall be equipped with the devices necessary to prevent danger caused by reverse current, such as diodes or fuses.

**5.1**
e) The manufacture of batteries shall be conducted under an established quality management programme. The programme shall be properly documented and traceable, and shall include a description of the organizational structure and personnel responsibilities related to design and product quality; procedures and operational instructions for inspections and tests, quality control and quality assurance; documented procedures for process control, including activities to prevent and monitor internal short circuits during battery manufacturing; quality records such as inspection reports, test data, calibration data and certificates, retained for reference; management review procedures; document control and revision procedures; control measures for batteries that do not conform to the test types in UN 38.3; training programmes and qualification review procedures for relevant personnel; and management procedures to ensure that the final product is not damaged.

**5.1**
f) A battery containing both non-rechargeable lithium metal cells and rechargeable lithium-ion cells, which is not designed for external charging, shall meet the following



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conditions: charging of the rechargeable lithium-ion cells can only be performed by the non-rechargeable lithium metal cells; the design prevents overcharging of the rechargeable lithium-ion cells; the battery meets the relevant test requirements as a primary lithium battery; and the batteries used as battery components have been verified to comply with the applicable test requirements of UN 38.3 for that type of battery.

**5.2**

**The nominal energy (unit**

Wh or kWh) of the traction lithium ion battery shall be marked on the enclosure.

**5.3**

For Grade A and Grade B traction lithium batteries, a test summary as specified in UN 38.3 - format and content shown in Appendix A - shall be provided.

**5.4**

Grade A and Grade B traction lithium batteries shall pass the type test.

**5.5**

Traction lithium batteries shall be subjected to high-temperature storage test in accordance with Appendix B, where the test results shall show no leakage, no rupture, no fire or explosion.

**5.6**

Grade A traction lithium ion batteries shall have a SOC of no more than 30% as determined in Appendix C.

**5.7**

Grade A traction lithium batteries shall pass the thermal runaway test required in Appendix D.

**5.8**

Traction lithium batteries, before consignment, shall be assigned the UN number, official shipping name, and class according to Table 1. If transported according to transport grade, their transport grade shall also be determined according to Table 2.

**5.9**

Standardized cargo transport units such as containers shall be used for the transportation of traction lithium batteries.

## 6 Transport packaging

**6.1.1**

Traction lithium batteries of different transport grades shall be packaged in accordance with



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