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GB/T 43522-2023

**Guide to manufacture supervision of lithium ion battery for
electrical energy storage**

电力储能用锂离子电池监造导则

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Foreword

This document was issued on 28 December 2023 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 July 2024.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

1 Scope

GB/T 43522-2023 is the guide a purchaser follows when placing an inspector inside the factory building lithium-ion batteries for electrical energy storage - the overall requirements for the supervision, then the supervision of raw materials and components, of the production processes, of finished product quality inspection, and of marking, packaging, transport and storage. Normative annexes set out the key items and the witnessing methods stage by stage: positive and negative electrode materials, separators, electrolytes, conductive agents and adhesives; pulping, coating, rolling, pole piece drying, slicing,

lamination or winding, welding, liquid injection and formation; and the checks on finished cells, modules and clusters, made against online and offline test data and the test reports for appearance, size, charge and discharge performance and high temperature adaptability. Informative annexes give the supervision log, the notification raised when a quality problem is found, and the supervision report. Supervision runs during manufacture because the faults that matter in a storage battery - a contaminated coating, moisture left in a cell before the electrolyte goes in, a poor weld - are sealed inside the case and cannot be found by testing the delivered product. They surface later as an internal short in a container full of cells. Written for utilities and project owners, battery manufacturers, and the third parties appointed to witness.

This document specifies the overall requirements for the manufacture supervision of the lithium-ion batteries for electric energy storage (referred to as "lithium-ion batteries"), as well as the manufacture supervision requirements for raw materials and components, production processes, finished product quality inspection, marking, packaging, transportation and storage.

This document applies to the manufacture supervision of the lithium-ion batteries for power energy storage.

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 191, Packaging and storage marks

GB/T 4798.2, Classification of environmental conditions - Classification of groups of environmental parameters and their severities - Part 2. Transportation and handling

GB/T 13384, General specifications for packing of mechanical and electrical product

GB 21966, Safety of primary and secondary lithium cells and batteries during transport

GB/T 24533, Graphite negative electrode materials for lithium-ion battery

GB/T 30835, Lithium iron phosphate-carbon composite cathode materials for

lithium-ion battery

GB/T 30836, Lithium titanium oxide and its carbon composite anode materials for

lithium-ion battery

GB/T 33143, Aluminium and aluminium alloy foils for lithium-ion batteries

GB/T 36146, Rolled copper foil for lithium-ion battery

GB/T 36276, Lithium-ion battery for electrical energy storage

GB/T 36363, Polyolefin separator for lithium-ion battery

GB/T 38296, Internal connecting wires and cables of electrical equipment

DL/T 586, The technical guide of manufacture supervision for manufacturing equipment of electric power

DL/T 2528, Basic Terms of Electric Energy Storage

SJ/T 11723, Electrolyte solution used for lithium-ion battery

YS/T 821, Aluminum alloy cover board for battery

3 Terms and definitions

For the purposes of this document, the terms and definitions defined in DL/T 586 and DL/T 2528 apply.

4 Overall requirements

4.1 The scope of manufacture supervision of lithium-ion battery shall include raw materials and components, production process, finished product quality inspection, marking, packaging, transportation and storage.

4.2 Lithium-ion battery manufacture supervision can adopt working methods such as document witnessing (R), on-site witnessing (W), shutdown witnessing (H), and instrument inspection (I).

4.3 The responsibilities, division of labor and processes for lithium-ion battery manufacture supervision shall meet the requirements of DL/T 586.

4.4 Lithium-ion battery manufacture supervisors shall master the standards for lithium-ion battery production, manufacturing, inspection and testing, and be familiar with the manufacturing process, key quality control nodes and inspection and testing methods.

4.5 Before manufacture supervision, a manufacture supervision outline and implementation plan for lithium-ion batteries shall be prepared. The main contents shall include the documents and materials required for manufacture supervision, manufacture supervision scope, manufacture supervision items, etc.

4.6 During the manufacture supervision, the quality management system, environmental management system, occupational health and safety management system, relevant technical standards, product type test reports and other relevant documents of the manufacturing unit's lithium-ion battery production process shall be reviewed; the qualifications of production personnel shall be checked; and the manufacturing, inspection, testing and other equipment and manufacturing site environment shall be reviewed to meet production requirements.

4.7 During the manufacture supervision, the raw materials, components, production process, finished products and their production equipment, production environment (including on-site foreign matter control), process documents and process, and finished product quality inspection of lithium-ion batteries shall be inspected and witnessed. The raw materials, components, and finished products shall be sampled. For products that have been discontinued for more than half a year and are being re-produced or transferred to another factory, on-site witnessing shall be carried out according to the first batch and the first piece.

4.8 During the manufacture supervision process, records shall be kept of the documents to be checked, on-site witnesses (W), work stop witnesses (H), instrument inspections (I), etc., and a manufacture supervision log shall be filled in. The format is shown in Table A.1 in Annex A.

4.9 The manufacture supervision site shall track the handling of problems found, form a closed-loop monitoring system, and fill out a quality problem notification form. The format is shown in Table B.1 in Annex B.

4.10 After the manufacture supervision is completed, the manufacture supervision report, witness record, special report and other required manufacture supervision