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**Recycling of traction batteries used in electric vehicles -
Dismantling specification**

车用动力电池回收利用 拆解规范

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Foreword

This Standard was drafted as per the rules specified in GB/T 1.1-2009. This Standard was proposed by Ministry of Industry and Information Technology. This Standard shall be under the jurisdiction of National Technical Committee for Standardization of Automobile (SAC/TC 114). Drafting organizations of this Standard. Guangdong Brunp Recycling Technology Co., Ltd., Contemporary Amperex Technology Co., Ltd., China Automotive Technology & Research Center, Harbin Bartui Resources Recycling Technology Co., Ltd., GEM Co., Ltd., Hunan Brunp End-Of-Life Vehicles Recycling Co., Ltd., and Zhejiang Chaowei Chuangyuan Industrial Co., Ltd. Chief drafting staffs of this Standard. Yu Haijun, Zhao Zhongsong, Zhang Tongzhu, Xie Yinghao, Li Changdong, Ming Yubin, Li Zhizhuan, Zhan Yuanyuan, and Wei Yuzi. Recycling of Traction Battery Used in Electric Vehicle - Dismantling Specification

1 Scope

China's national specification for dismantling used electric vehicle traction batteries. It

specifies the terms and definitions, the general requirements, the operating procedures and the storage and management requirements for the dismantling of waste vehicle battery packs, cases and modules, and it applies to used lithium-ion and nickel metal hydride traction battery packs and modules; it does not apply to dismantling individual cells. A traction battery leaving a vehicle is not scrap in the ordinary sense. It is a large, heavy assembly holding several hundred volts, containing lithium and heavy metals, capable of igniting if it is punctured or short-circuited, and worth a good deal of money for the cobalt, nickel and lithium inside it. Dismantling it is therefore three problems at once: an electrical safety problem, because the pack remains live and cannot be switched off; a chemical hazard problem, because a damaged cell vents flammable and toxic gas and a lithium fire is self-sustaining; and a materials recovery problem, because the value is in separating the streams cleanly. This standard was written as China's electric vehicle fleet reached the age at which its first batteries came out, and it was the first of a series covering the recycling chain. It requires the work to be done to a procedure, by trained people, with defined equipment, and it covers the storage of packs before and after dismantling - which matters because a warehouse of used lithium batteries is a fire risk that grows with time. Issued on 12 May 2017 and in force since 1 December 2017.

This Standard specifies the terms and definitions, general requirements, operating procedures, storage and management requirements for vehicle used waste battery packs (cases), and module dismantling work. This Standard is applicable to the vehicle used waste lithium-ion traction battery, metal hydride nickel traction battery pack (case), and module dismantling; it is not applicable to the vehicle used waste traction battery single-cell dismantling.

2 Normative References

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this document.

GB 5085.7 Identification Standards for Hazardous Wastes - General Specifications

GB 18597 Standard for Pollution Control on Hazardous Waste Storage

GB 18599 Standard for Pollution on the Storage and Disposal Site for General Industrial Solid Wastes

GB/T 19596 Terminology of Electric Vehicles

HJ 2025 Technical Specifications for Collection, Storage, Transportation of Hazardous Waste

3 Terms and Definitions

The following terms and definitions and those ones stipulated in GB/T 19596 are applicable to this document.

3.1 Dismantling The operation dismantling the waste traction battery pack (case) and module.

4.1 General requirements

4.1.1 When designing the traction battery, the manufacturer shall consider the dismantlability, recyclability and other green design factors.

4.2 Equipment requirements

4.2.1 Shall equip with insulation gloves, protective gloves against the mechanical harm, safety helmet, insulation shoes (boots), protective mask, anti-electronic shock insulated rescue hook, and the like protective equipment.

4.3 Site requirements

4.3.1 The dismantling and storing sites shall have security facilities, such as fire facilities, alarm facilities, emergency facilities, etc.

4.3.2 The ground of dismantling and storing sites shall be hardened and anti-leakage; have the environmental protection facilities, for instance, the wastewater treatment system.

4.3.3 The dismantling and storing sites shall keep dry and ventilated, good light, and far away from the residential areas.

4.4 Dismantling security

4.4.3.1 Independent operation during the dismantling period shall be strictly forbidden, the dismantling work shall be carried out as per the prepared dismantling procedures and operation instructions.

4.4.3.4 After the dismantling, take insulation treatment against the waste traction battery module and single-cell.

5.1 Operation flow chart

5.1.1 The operating procedures of waste traction battery dismantling shall strictly follow three principles of safety, environmental protection and resource recycling.

5.2 Pre-treatment

5.2.1 Collect the waste traction battery's model, manufacturer, voltage, nominal capacity,

size, mass, and the like information.

5.2.2 For the liquid cooling traction battery, the special pumping system shall be adopted to discharge the coolant fully, and use special container to collect the coolant.

5.3.1 Traction battery pack (case) dismantling

5.3.1.3 After removal the shell, firstly dismantle brackets, partitions, and the like auxiliary fixing parts.

5.3.1.4 Use the insulation tools to remove the high-voltage wiring harness, circuit board, battery management system, high-voltage safety box and the like functional components.

5.3.2 Traction battery module dismantling

5.3.2.1 Special module-dismantling device shall be adopted to dismantle the module safely and environmentally.

5.3.2.2 Adopt the special lifting tools and lifting devices to lift the traction battery module to the dismantling tooling platform or module dismantling equipment inlet.

5.3.2.4 After removal of the shell, adopt the insulation tools to dismantle the conductor, connections strap and the like connection components, so that separate the single-cell of battery.

6 Storage and Management

6.1 Identify and classify the collected waste liquid and waste solid substance according to the provisions of GB 5085.7; which shall conform to the following provisions.

6.2 The single-cell of battery shall be stored uniformly; manually dismantling, discarding, landfilling or burning against the single-cell are prohibited.