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Recycling of traction battery used in electric vehicle - Test of residual capacity

车用动力电池回收利用 余能检测

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Foreword

This Standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This Standard was proposed by Ministry of Industry and Information Technology of the People's Republic of China.

This Standard shall be under the jurisdiction of National Technical Committee on Automobile of Standardization Administration of China (SAC/TC 114).

The drafting organizations of this Standard: Guangdong Bangpu Cycle Technology Co., Ltd., Ningde Times New Energy Technology Co., Ltd., China Automotive Technology Research Center, Barry Resources Recycling Harbin Science and Technology Co., Ltd., Grammy Company Limited, Hunan Bangpu Scrapped Car Recycling Ltd., Zhejiang Chaowei Chuangyuan Industrial Co., Ltd.

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Recycling of traction battery used in electric vehicle - Test of residual capacity

1 Scope

This Standard specifies the terms and definitions, symbols, test requirements, test procedures and test methods for test of residual capacity of recycling of traction battery used in electric vehicle.

This Standard applies to the test of residual capacity of recycling of lithium-ion traction battery and metal hydride nickel-powered battery cell, module used in electric vehicle.

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 19596, *Terminology of electric vehicles*

GB/T 31486-2015, *Technical requirements and test methods for traction battery of electric vehicle - Electrical performance*

3 Terms and definitions

For the purposes of this document, the terms and definitions defined in GB/T 19596 and the following ones apply.

3.1 residual capacity

the actual capacity remaining after the traction battery is removed from the electric vehicle

3.2 discharge capacity at I_5

the capacity of traction battery discharged (A·h) at 1 I_5 (A) of current to reach termination voltage at room temperature

NOTE: This value can be obtained from the integral of the coverage area of the

capacity or nominal energy and battery module nominal voltage, nominal capacity or nominal energy and other information can be obtained directly. The first charge and discharge currents shall be initially determined according to the information.

6.5.2.2 There is no a label in which cell number, nominal voltage, nominal capacity or nominal energy and battery module nominal voltage, nominal capacity or nominal energy and other information cannot be obtained directly. The battery module shall be disassembled. And the first charge and discharge currents shall be determined according to Table 1.

6.6 Determination of I_5

Use electrical performance tester to carry out the charge-discharge test in a mode of first charge-discharge constant current. Calculate I_5 according to equation (1).

$$I_5 = \frac{C_f}{5} \qquad \cdots\cdots(1)$$

where,

I_5 - 5h rate discharge current, in amperes (A);

C_f - battery capacity measured in first charge-discharge constant current, in amperes hour (A·h).

6.7 Material identification

Use electrical performance tester for charge and discharge test. Perform preliminary determination of battery material category.

7 Inspection methods

7.1 Battery cell

7.1.1 Charging

7.1.1.1 The charging procedures of lithium-ion battery cell shall be in accordance with 6.2.4 of GB/T 31486-2015, charging current using I_5 (A).

7.1.1.2 The charging procedures of nickel metal hydride battery cell shall be in accordance with 6.2.4 of GB/T 31486-2015, charging current using I_5 (A). The charging time for constant current is 5 h.

7.1.2 Discharging capacity at room temperature

The discharging capacity of battery cell at 25°C ± 2°C shall be in accordance