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

GB/T 36280-2023

Replacing GB/T 36280-2018

Lead carbon battery for electrical energy storage

电力储能用铅炭电池

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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 replaces GB/T 36280-2018 "Lead-carbon batteries for electric energy storage": Compared with GB/T 36280-2018, except for structural adjustments In addition to editorial changes, the main technical changes are as follows:

- Changed the scope of application of the document (see Chapter 1, Chapter 1 of the:2018 edition);
- Deleted the duplicate content in terms and definitions with DL/T 2528 (see 3:1, 3:1 of the:2018 version);
- Changed the content of the symbol (see 3:2,:2018 version of 3:2);
- Changed "Specification" to "Encoding" and changed the encoding rules (see Chapter 4, Chapter 4 of the:2018 edition);
- Added "power characteristics" (see 5:3:2), "rate charge and discharge performance" (see 5:3:3), "high altitude initial charge and discharge performance" (see 5:4:3), "short circuit performance" (see 5:6:1:3), "salt spray performance" (see 5:6:2:1), "alternating heat and humidity performance" (see 5:6:2:2), "high sea "Insulation performance" (see 5:6:2:3), "High altitude voltage resistance performance" (see 5:6:2:4);
- Changed "initial charge and discharge energy" to "initial charge and discharge

performance" and changed the technical requirements (see 5:3:1, 2018 version 5:1:1:4);

- Changed "energy retention capability" to "energy retention and energy recovery capability", changed the technical requirements, and deleted "energy retention capability"

"Strength" technical requirements (see 5:3:4, 5:1:1:7 of the 2018 version);

- Changed "high temperature charge and discharge performance" to "high temperature adaptability" and changed the technical requirements (see 5:4:1, 5:1:1:6 of the 2018 version);

- Changed "low temperature charge and discharge performance" to "low temperature adaptability" and changed the technical requirements (see 5:4:2, 5:1:1:5 of the 2018 version);

- Changed "resistance to mechanical damage" to "drop performance" and changed the corresponding technical requirements (see 5:6:1:6, 2018 version 5:2:1:5);

- Change "gas evolution amount" to "gas evolution rate" (see 5:6:1:7, 5:2:1:7 of the 2018 version), and change the technical requirements;

- Changed "Consistency" (see 5:3:5, 5:1:2:5 of the 2018 version), "Cycle Performance" (see 5:5, 5:3 of the 2018 version) and "Overcharge" "Performance" (see 5:6:1:1, 5:2:1:1 of the 2018 edition), "over-discharge performance" (see 5:6:1:2, 5:2:1:2 of the 2018 edition) technology Require;

- Deleted the "high power discharge" technical requirements (see 5:2:1:8 of the 2018 version);

- Deleted "ground short circuit resistance" (see 5:2:1:4 of the 2018 version);

- Deleted the "battery management system monitoring and alarm protection function" (see 5:2:3:3 of the 2018 version);

- Change "Appendix A (Normative Appendix) Test Method" to "6 Test Method" (see Chapter 6, Appendix A of the 2018 version);

- Change "test device" to "test equipment" and change the test equipment requirements (see 6:1:2, Appendix A:1:2 of the 2018 version);

- Changed the "Initial charge and discharge performance test" (see 6:4:1, A:2:3 of the 2018 version), "Energy retention and recovery ability test" (see 6:4:4, A:2:6 of the 2018 edition), "High temperature adaptability test" (see 6:5:1, A:2:5 of the 2018 edition), "Low temperature adaptability test" "Test" (see 6:5:2, A:2:4 of the 2018 edition), "Cycle performance test" (see 6:6, A:2:17 of the 2018 edition), "Overcharge" "Over-discharge performance test" (see 6:7:1:1, A:2:7 of the 2018 edition), "Over-discharge performance test" (see 6:7:1:2, A:2:8 of the 2018 edition), "Insulation performance test" (see 6:7:1:4, A:3:4 of the 2018 edition), "Withstand voltage performance test" (see 6:7:1:5, A:3:4 of the 2018 edition) A:3:5), "Gas evolution rate test" (see 6:7:1:7, A:2:13 of the 2018 edition) test method, "Explosion-proof

capability test" (See 6:7:1:8, A:2:16 of the:2018 edition), "Thermal runaway susceptibility test" (see 6:7:3:1, A:2:12 of the:2018 edition);

- Added "power characteristic test" (see 6:4:2), "rate charge and discharge performance test" (see 6:4:3), "high altitude initial charge and discharge performance" "Performance test" (see 6:5:3), "Short circuit performance test" (see 6:7:1:3), "Salt spray performance test" (see 6:7:2:1), "Alternating heat and humidity test" "High-altitude insulation performance test" (see 6:7:2:2), "High-altitude insulation performance test" (see 6:7:2:3), "High-altitude voltage withstand performance test" (see 6:7:2:4);
- Deleted "ground short circuit resistance test" (see A:2:10 of the:2018 version);
- Deleted the test method of "high power discharge test" (see A:2:14 of the:2018 version);
- Deleted "Battery management system monitoring function inspection" (see A:4:6 of the:2018 version) and "Overvoltage charging alarm protection function test" (See A:4:7 of the:2018 edition), "Overcurrent charging alarm protection function test" (See A:4:8 of the:2018 edition), "Undervoltage discharge alarm "Alarm protection function test" (see A:4:9 of the:2018 edition), "Overcurrent discharge alarm protection function test" (see the:2018 edition of A:4:10), "Over-temperature alarm protection function test" (see:2018 version of A:4:11), "Short-circuit protection function test" (see:2018 version of A:4:11) A:4:12 of the:2018 version), "Communication function check" (see A:4:13 of the:2018 version);
- Changed the rules for "factory inspection" (see 7:2, 6:2 of the:2018 edition);
- Change "type test" to "type inspection" and change the rules (see 7:3, 6:3 of the:2018 version);
- Added rules for "sampling inspection" (see 7:4);
- Changed "marking" (see 8:1, 7:1 of the:2018 edition), "packaging" (see 8:2, 7:2 of the:2018 edition), and "transportation" (see 8:3,:2018 edition 7:3 of the:2018 edition) and "storage" (see 8:4, 7:4 of the:2018 edition) requirements:

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This document was drafted by: Zhejiang Nandu Power Supply Co., Ltd., China Electric Power Research Institute Co., Ltd., Zhejiang Huayun Cleaning Energy Co., Ltd., China Southern Power Grid Electric Power Technology Co., Ltd., State Grid Hunan Electric Power Co., Ltd: Electric Power Research Institute, Tianneng Battery Group Co., Ltd., State Grid Zhejiang Electric Power Co., Ltd: Electric Power Research Institute, Zhejiang Chaowei

Yuanli Energy Co., Ltd., Shuangdeng Group Co., Ltd., Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Shandong Sacred Sun Power Supply Co., Ltd:

The main drafters of this document: Tan Jianguo, Yang Baofeng, Zhou Yufeng, Xiang Wenmin, Xu Junjie, Xu Song, Zhong Guobin, Zhang Xuesong, Yan Jingwang, Yuan Guanrui, Xu Dongming, Tang Mingyue, Guan Yibiao, Zhang Hengshan, Hu Juan, Huidong, Hu Chen, Yin Zheng, Shen Shaoping, Mao Shuyan, Shang Xiaoli, Guo Cuijing, Dong Dong, Chen Lingyu, Zhao Bo, Wan Tao, Wang Chao, Xu Kaiqi, Wang Jinsheng, Yang Shiyin, Huang Jian, Zheng Qiong:

The previous versions of this document and the documents it replaces are as follows:

- First published in:2018 as GB/T 36280-2018;
- This is the first revision:

Lead-carbon batteries for power storage

1 Scope

This document specifies the appearance, size and quality, electrical performance, environmental adaptability, cycle performance of lead-carbon batteries for power energy storage (referred to as "lead-carbon batteries"):

Performance, safety performance and other requirements, describe the corresponding test methods, stipulate coding, normal working environment, inspection rules, marking, packaging, transportation and storage etc:

This document applies to the design, manufacturing, testing, inspection, operation, maintenance and overhaul of lead-carbon batteries for power energy storage:

2 Normative reference documents

GB/T 191

GB/T 2408-2021

GB/T 2828

GB/T 5398

GB/T 16471

3 Terms, definitions and symbols

3:1 Terms and definitions The terms and definitions defined in DL/T 2528 and below apply to this document: 3:1:1 initializedcharginginitializedcharging Under specified conditions, the battery is discharged to the discharge cut-off condition and then charged to the charge