



2010003186Z



(2010)国认监认字(444)号



TESTING
CNAS L1786

National Battery Inspection & Testing Center

Battery Testing Laboratory, Institute of Electrochemical Power Sources of Light Industry
Battery Quality Supervision and Inspection Centre of Light Industry of China

TEST REPORT

Report ID (2012) LR03W08

Sample: Alkaline Zn/MnO₂ Battery

Trademark: MOTOMA

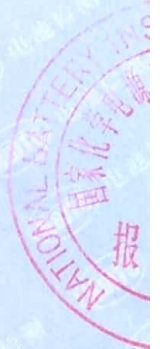
Designation: LR03

Manufacturer: Shenzhen Motoma Power Co., Ltd.

Client: Shenzhen Motoma Power Co., Ltd.

Test classification: Sample Provided Test

Date of issue: May 17, 2012



SPECIFICATION:

1. The test report is invalid without test seal.
2. The test report shall not be reproduced without the written approval of the testing laboratory. The reproduction of the test report is invalid without being sealed by the testing laboratory.
3. The test report will be invalid if altered.
4. The test classification consists of sampling test and sample provided test. The test results for sample provided by clients are only applicable for those provided. The results of sampling test representative the quality of the batch of products drawn at random, they have nothing to do with other batch of products.
5. If clients have doubt concerning the quality of test results, please submit written material for a retest to the testing laboratory within 15 days after receiving the report, otherwise the report would have been considered as approval of clients.
6. The report is invalid without the authorized signature.
7. Nation Battery Inspection & Testing Center has been assessed by Certification and Accreditation Administration of People's Republic of China and proved to meet the demand of metrology accreditation. The certificate number is 2010003186Z. The center is also authorized to carry out products quality test. The certificate number is (2010)国认监认字(444)号.
8. Battery Quality Supervision and Inspection Centre of Light Industry of China has been authorized by China National Light Industry Council to carry out products quality test. The certificate number is 国轻检认字第 2010022 号.
9. The centre has been assessed by China National Accreditation Service for Conformity Assessment with the name "Battery Testing Laboratory, Institute of Electrochemical Power Sources of Light Industry" and proved to be in compliance with ISO/IEC 17025: 2005 *General Requirements for the Competence of Testing and Calibration Laboratories* (CNAS-CL01 *Accreditation Criteria for the Competence of Testing and Calibration Laboratories*). The accreditation certificate number is TESTING CNAS L1786. The test reports issued by the testing laboratory are recognized among the members of APLAC and ILAC.

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Test Report

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Sample	Alkaline Zn/MnO ₂ Battery	Trademark	MOTOMA
Manufacturer	Shenzhen Motoma Power Co., Ltd.	Designation	LR03
Client	Shenzhen Motoma Power Co., Ltd.	Date of expiration	April 2015
Client address	12/F Shenmao Blog., Xinwen Rd., Futian, Shenzhen, China (Postcode: 518034)		
Explanation	The above information is provided by the client		
Date of receipt	March 30, 2012	Test period	From March 31, 2012 to May 14, 2012
Description of sample	Normal	Test classification	Sample provided test
Test environment	Temp 45°C ± 2°C RH 55% ± 20%		
Test instrument	Auto-testing system for dry batteries		
Test basis	1. Refer to IEC 60086-1:2011 <i>Primary batteries - Part 1: General</i> and IEC 60086-2:2011 <i>Primary batteries - Part 2: Physical and electrical specifications</i> 2. Client's requirement		
Test items	Dimensions(diameter, overall height), open-circuit voltage, discharge performance, leakage and deformation		
Conclusion	The batteries are tested at the high environmental temperature of 45°C ± 2°C, according to the client's requirement, the test results of the test items are in accordance with the specifications in IEC 60086-1: 2011 and IEC 60086-2: 2011. Date of issue: May 17, 2012		
Remark	The test results are only applicable for the sample provided by clients.		

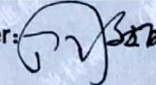
Authorized signer:



Verified by:



Chief tester:



Director

Technical Manager

Vice Director

Quality Manager

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Test results

Test item	Specification	unit	Numbers tested	Test result			Verdict Pass/Fail		
1	Dimensions						P		
	Diameter	9.8~10.5	mm	54	10.09~10.29 All qualified		P		
	Overall height	43.5~44.5	mm	54	44.07~44.39 All qualified		P		
2	Open-circuit voltage						P		
		1.50~1.68	V	54	1.600~1.620 All qualified		P		
3	Discharge performance						P		
	5.1Ω, 4min/h, 8h/d discharge, end-point voltage 0.9V	Duration ≥ 130	min	9	267.4 270.7 267.9	263.0 263.8 267.5	263.1 263.8 264.0	Average 265.7	P
	24Ω, 15s/min, 8h/d discharge, end-point voltage 1.0V	Duration ≥ 14.5	h	9	21.3 21.2 21.1	21.2 21.1 21.1	21.2 21.4 21.3	Average 21.2	P
	5.1Ω, 1h/d discharge, end-point voltage 0.8V	Duration ≥ 2	h	9	4.28 4.28 4.30	4.28 4.28 4.33	4.30 3.78 4.37	Average 4.24	P
	75Ω, 4h/d discharge, end-point voltage 0.9V	Duration ≥ 44	h	9	77.9 77.9 78.0	77.7 77.9 77.8	77.9 77.7 77.8	Average 77.8	P
	600mA, 10s/min, 1h/d discharge, end-point voltage 0.9V	Duration ≥ 170	pulse	9	433 379 434	391 412 411	377 381 406	Average 403	P
	100mA, 1h/d discharge, end-point voltage 0.9V	Duration ≥ 7	h	9	10.8 10.7 10.6	10.6 10.6 10.5	10.6 10.8 10.8	Average 10.7	P

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Test results (continued)

Test item	Specification	unit	Numbers tested	Test result	Verdict Pass/Fail
4 Leakage and deformation					P
5.1Ω, 4min/h, 8h/d discharge, end-point voltage 0.6V	No leakage No deformation	/	9	None leakage None deformation	P
24Ω, 15s/min, 8h/d discharge, end-point voltage 0.6V		/	9	None leakage None deformation	P
5.1Ω, 1h/d discharge, end-point voltage 0.6V		/	9	None leakage None deformation	P
75Ω, 4h/d discharge, end-point voltage 0.6V		/	9	None leakage None deformation	P
600mA, 10s/min, 1h/d discharge, end-point voltage 0.6V		/	9	None leakage None deformation	P
100mA, 1h/d discharge, end-point voltage 0.6V		/	9	None leakage None deformation	P

—End of Report—

