







报告编号(Report No.):S-23050505A0

UN38.3 TEST REPORT

NAME OF SAMPLE: Rechargeable Li-ion Polymer Battery

产品名称: 锂离子聚合物电池组/二次鋰電池組

CLIENT: SUNWODA Electronic Co.,Ltd.

委托单位: 欣旺达电子股份有限公司

CLASSIFICATION OF TEST: Commission test

检测类别:委托测试





Shenzhen Precise Testing Technology Co., Ltd

Report No.:S-23050505A0

Page 2 of 15

| Report No.:S-23050505A0 | Page 2 of 15 | | | | | |
|-----------------------------------|--|--|--|--|--|--|
| | Applicant information | | | | | |
| | 申请资料 | | | | | |
| Name of samples: 样品名称: | Rechargeable Li-ion Polymer Battery 锂离子聚合物电池组/二次鋰電池組 | | | | | |
| Type/ Model: 型号规格: | BM5U 3.88V 4880mAh 18.94Wh(Rated) 5000mAh 19.40Wh(Typical) | | | | | |
| Lithium content: 锂含量: | _ | | | | | |
| Trade mark: 商标: | _ | | | | | |
| Commission by: 委托单位: | SUNWODA Electronic Co.,Ltd. 欣旺达电子股份有限公司 | | | | | |
| Commissioner address: 委托单位地址: | Floor 1,A,B,D District of Floor 2 and Floor 3 to 9 of Comprehensive Building, No.2 Yihe Road, Shilong Community, Shiyan Street, Bao'an District, Shenzhen City, Guangdong Province, P.R. China中国广东省深圳市宝安区石岩街道石龙社区颐和路2号综合楼1楼、2楼A-B区、2楼D区-9楼 | | | | | |
| Manufacturer: 生产单位: | Zhejiang Sunwoda Electronic Co., Ltd. 浙江欣旺达电子有限公司 | | | | | |
| Manufacturer address: 生产单位地址: | Building 3 and building 4, No.111 Yanzhou Rd., Lanjiang St.,Lanxi County, Jinhua City, Zhejiang Province P.R. China.浙江省金华市兰溪市兰江街道雁洲路111号-3栋、4栋 | | | | | |
| Appearance: 样品外观颜色: | Black 黑色 | | | | | |
| Sample Type 样品类型 | Rechargeable Li Polymer Single Cell Battery 可充式锂聚合物单电芯电池 | | | | | |
| Sample status: 样品状态: | Good 完好 | | | | | |
| Quantity of sample: 样品数量: | 48pcs | | | | | |
| Sample identification: 样品标识序号: | c1# ~c48# | | | | | |
| Receiving date: 接样日期: | 2023-05-26 | | | | | |
| Testing date: 测试开始日期: | 2023-05-27 | | | | | |
| Completing date: 测试完成日期: | 2023-06-09 | | | | | |
| O!!//士:/人 | | | | | | |

Conclusion/结论:

The submitted samples comply with the requirements of UNITED NATIONS Section 38.3 of the seventh revised edition Amend.1 of the Recommendations on the Transport of Dangerous Goods, Manual of Test and Criteria(ST/SG/AC.10/11/Rev.7/Amend.1/Section 38.3)

样品符合联合国《关于危险货物运输的建议书试验和标准手册》第七修订成求。

Seal/报告专用章:rt

Date of issue: 2023-06-13

Prepared by: 为宏伟 报告编写: 为宏伟 Reviewed by: 报告审核:



Approved by: 报告批准:



第38.3 节的要



Shenzhen Precise Testing Technology Co., Ltd

Report No.:S-23050505A0

Page 3 of 15

| | Test Conclusion测试结论 | | | | | | |
|-----------|--------------------------------|---------------------|--------------------|--|--|--|--|
| No. 序号 | Name of test 测试项目名称 | Test result 测试结果 | Conclusion 本项结论 | | | | |
| 1 | Altitude simulation 高度模拟 | See Appendix 1 | Р | | | | |
| 2 | Thermal test 温度测试 | See Appendix 2 | Р | | | | |
| 3 | Vibration 振动 | See Appendix 3 | Р | | | | |
| 4 | Shock 冲击 | See Appendix 4 | Р | | | | |
| 5 | External Short-circuit 外部短路 | See Appendix 5 | Р | | | | |
| 6 | Crush 挤压 | See Appendix 6 | Р | | | | |
| | Impact 撞击 | See Appendix 6 | N/A | | | | |
| 7 | Overcharge 过度充电 | See Appendix 7 | Р | | | | |
| 8 | Forced discharge 强制放电 | See Appendix 8 | Р | | | | |



Shenzhen Precise Testing Technology Co., Ltd

Report No.:S-23050505A0

Page 4 of 15

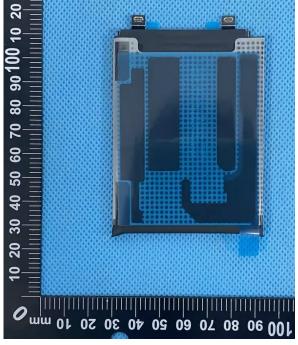
Photos of samples and markings

样品及标识照片

Battery(BM5U 3.88V 4880mAh 18.94Wh(Rated) 5000mAh 19.40Wh(Typical))









Shenzhen Precise Testing Technology Co., Ltd

Report No.:S-23050505A0

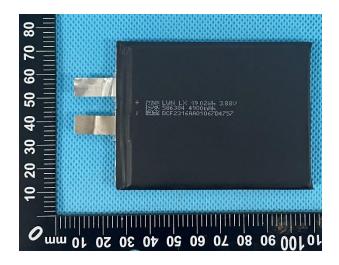
Page 5 of 15

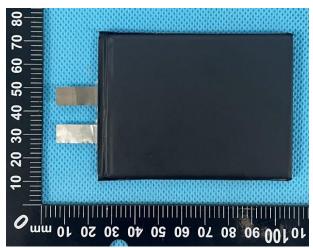
Photos of samples and markings

样品及标识照片

CELL(586384 3.88V 4900mAh 19.02Wh)









rupture, no fire.

深圳普瑞赛思检测技术有限公司

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Appendix 1

Report No.:S-23050505A0

Page 6 of 15

| | 附表 1 | | | | | | | | | |
|--------------------|---------------------|------------------------|---------------------|------------------------|---------------------|------------------|-------------|--|--|--|
| Test Items 测试项目 | Altitude simulation | | | | | | | | | |
| (大) は(-大) 口 | 高度模拟 | 高度模拟 | | | | | | | | |
| 1.1 | Test proced测试步骤 | dure | | | | | | | | |
| | Test cells a | nd batteries | shall be stored | at a pressure | of 11.6kPa or les | s for at least s | ix hours at | | | |
| | | nperature (20 | , | - ^b | <i>kk</i> | 1 | | | | |
| | 试验电池芯 | 和电池在环境 | 温度(20±5℃)下 | ,储存在小于 | 等于11.6kPa的压力 | 力下全少六小时 | 0 | | | |
| | | | | | | | | | | |
| 1.2 | Sample sta | itus | | | | | | | | |
| | 样品状态 | | | | | | | | | |
| | states. | • | | | 10#, after 25 cycle | | y charged | | | |
| | C1# ~ C5#, | 在第一个循环 | 完全允电; C6# | # ~ C1U#, 在第 | 25个循环完全充电 | <u>.</u> | | | | |
| 1.3 | 测试结果 | | | | | | | | | |
| Sample No. | Before To | est测试前 After Test测试后 | | Mass loss 质量损失 | Residual OCV | Test result | | | | |
| 样品编号 | Mass 样品质量 (g) | Voltage 开路电压 (V) | Mass 样品质量 (g) | Voltage 开路电压 (V) | (%) | 剩余电压 (≥90%) | 测试结果 | | | |
| c1# | 74.580 | 4.443 | 74.580 | 4.443 | 0.000 | 100.00 | 0 | | | |
| c2# | 74.667 | 4.442 | 74.667 | 4.442 | 0.000 | 100.00 | 0 | | | |
| c3# | 74.503 | 4.444 | 74.503 | 4.443 | 0.000 | 99.98 | 0 | | | |
| c4# | 74.666 | 4.443 | 74.666 | 4.443 | 0.000 | 100.00 | 0 | | | |
| c5# | 74.488 | 4.443 | 74.488 | 4.443 | 0.000 | 100.00 | 0 | | | |
| c6# | 74.401 | 4.445 | 74.401 | 4.445 | 0.000 | 100.00 | 0 | | | |
| c7# | 74.526 | 4.446 | 74.526 | 4.446 | 0.000 | 100.00 | 0 | | | |
| c8# | 74.516 | 4.442 | 74.515 | 4.442 | 0.001 | 100.00 | 0 | | | |
| c9# | 74.591 | 4.443 | 74.591 | 4.443 | 0.000 | 100.00 | 0 | | | |
| c10# | 74.337 | 4.442 | 74.337 | 4.442 | 0.000 | 100.00 | 0 | | | |

注: L- 泄漏; V- 排气; D- 解体; R- 破裂; F- 起火; O- 无泄漏、无排气、无解体、无破裂、无起火。

Note: L-Leakage, V-Venting, D -Disassembly, R -Rupture, F-Fire, O-No leakage, no venting, no disassembly, no



Shenzhen Precise Testing Technology Co., Ltd

Report No.:S-23050505A0

Page 7 of 15

| Report No | o.:S-23050505A | .0 | | | Pa | nge 7 of 15 | | | |
|--------------------|---|------------------------|---------------------|------------------------|-------------|-----------------------|----------------|--|--|
| | Appendix 2 | | | | | | | | |
| | | | | 附表 2 | | | | | |
| Test Items 测试项目 | Thermal test 温度测试 | Thermal test 温度测试 | | | | | | | |
| 1.1 | Test proced 测试步骤 | dure | | | | | | | |
| | Test cells and batteries are to be stored for at least six hours at a test temperature equal to 72±2℃, followed by storage for at least six hours at a test temperature equal to -40±2℃, The maximum time interval between test temperature extremes in 30 minutes, This procedure is to be repeated until 10 total cycles are complete, after which all test cells and batteries are to be stored for 24 hours at ambient temperature (20±5℃). 将电芯和电池在温度为72±2℃的条件下贮存不少于6个小时,然后,在温度-40±2℃条件下贮存不少于6个小时,两个温度间的间隔最长为30min,重复操作上述步骤直到10次,然后,将其在环境温度为20±5℃的条件下放置24个小时。 | | | | | | | | |
| 1.2 | Sample star 样品状态 | tus | | | | | | | |
| | c1# ~ c5#, at first cycle in fully charged states; c6# ~ c10#, after 25 cycles ending in fully charged states. c1# ~ c5#, 在第一个循环完全充电; c6# ~ c10#, 在第25个循环完全充电。 | | | | | | | | |
| 1.3 | Result 测试结果 | | | | | | | | |
| O a sa ala Nia | Before Te | est测试前 | After Te | st测试后 | Mass loss | Residual | Test | | |
| Sample No. 样品编号 | Mass 样品质量 (g) | Voltage 开路电压 (V) | Mass 样品质量 (g) | Voltage 开路电压 (V) | 质量损失 (%) | OCV 剩余电压 (≥90%) | result 测试结果 | | |
| c1# | 74.580 | 4.443 | 74.563 | 4.364 | 0.023 | 98.22 | 0 | | |
| c2# | 74.667 | 4.442 | 74.651 | 4.365 | 0.021 | 98.27 | 0 | | |
| c3# | 74.503 | 4.443 | 74.486 | 4.364 | 0.023 | 98.22 | 0 | | |
| c4# | 74.666 | 4.443 | 74.648 | 4.362 | 0.024 | 98.18 | 0 | | |
| c5# | 74.488 | 4.443 | 74.473 | 4.362 | 0.020 | 98.18 | 0 | | |
| c6# | 74.401 | 4.445 | 74.384 | 4.364 | 0.023 | 98.18 | 0 | | |
| c7# | 74.526 | 4.446 | 74.509 | 4.362 | 0.023 | 98.11 | 0 | | |
| c8# | 74.515 | 4.442 | 74.497 | 4.365 | 0.024 | 98.27 | 0 | | |
| c9# | 74.591 | 4.443 | 74.576 | 4.365 | 0.020 | 98.24 | 0 | | |
| c10# | 74.337 | 4.442 | 74.323 | 4.364 | 0.019 | 98.24 | 0 | | |

Note: **L**-Leakage, **V**-Venting, **D** -Disassembly, **R** -Rupture, **F**-Fire, **O**-No leakage, no venting, no disassembly, no rupture, no fire.

注: L- 泄漏; V- 排气; D- 解体; R- 破裂; F- 起火; O- 无泄漏、无排气、无解体、无破裂、无起火。



Shenzhen Precise Testing Technology Co., Ltd

Report No.:S-23050505A0

Page 8 of 15

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|--------------------|---|---------------|-------------------|-----------------|------|--|--|
| | | Appendix 3 | | | | | |
| | | 附表 3 | | | | | |
| Test Items 测试项目 | Vibration 振动 | | | | | | |
| 1.1 | Test procedure 测试步骤 | | | | | | |
| | Cells and batteries are firmly secured to the platform of the vibration machine without distorting the cells in such a manner as to faithfully transmit the vibration, The vibration shall be a sinusoidal wave form with a logarithmic sweep between 7 Hz and 200 Hz and back to 7 Hz traversed in 15 minutes, This cycle shall be repeated 12 times for a total of 3 hours for each of three mutually perpendicular mounting position of the cell. 将电芯和电池军固地安装在振动台的台面上,然后开始振动。振动以正弦波形式,以7Hz增加至200Hz,然后再减少回到7Hz为一个循环,一个循环持续15分钟的对数扫频。每个电芯和电池从三个互相垂直的方向上循环12次,3个小时。 | | | | | | |
| 1.2 | Sample status 样品状态 | | | | | | |
| | c1# ~ c5#, at first cycle in fully charged states; c6# ~ c10#, after 25 cycles ending in fully charged states. c1# ~ c5#, 在第一个循环完全充电; c6# ~ c10#, 在第25个循环完全充电。 | | | | | | |
| 1.3 | Result 测试结果 | | | | | | |
| Sample No. | Before Test测试前 | After Test测试后 | Mass loss 质景损失 | Residual OCV | Test | | |

| Sample No. | Before Test测试前 | | After Test测试后 | | Mass loss 质量损失 | Residual OCV | Test result |
|------------|--|----------------|---------------|-------|-------------------|-----------------|----------------|
| 样品编号 | Mass Voltage H品质量 H品质量 (%) (%) (V) (g) (V) | 剩余电压 (≥90%) | 测试结果 | | | | |
| c1# | 74.563 | 4.364 | 74.563 | 4.364 | 0.000 | 100.00 | 0 |
| c2# | 74.651 | 4.365 | 74.651 | 4.365 | 0.000 | 100.00 | 0 |
| c3# | 74.486 | 4.364 | 74.486 | 4.364 | 0.000 | 100.00 | 0 |
| c4# | 74.648 | 4.362 | 74.648 | 4.361 | 0.000 | 99.98 | 0 |
| c5# | 74.473 | 4.362 | 74.473 | 4.362 | 0.000 | 100.00 | 0 |
| c6# | 74.384 | 4.364 | 74.384 | 4.364 | 0.000 | 100.00 | 0 |
| c7# | 74.509 | 4.362 | 74.509 | 4.361 | 0.000 | 99.98 | 0 |
| c8# | 74.497 | 4.365 | 74.497 | 4.365 | 0.000 | 100.00 | 0 |
| c9# | 74.576 | 4.365 | 74.575 | 4.365 | 0.001 | 100.00 | 0 |
| c10# | 74.323 | 4.364 | 74.322 | 4.364 | 0.001 | 100.00 | 0 |

Note: L-Leakage, V-Venting, D-Disassembly, R-Rupture, F-Fire, O-No leakage, no venting, no disassembly, no rupture, no fire.

注: L- 泄漏; V- 排气; D- 解体; R- 破裂; F- 起火; O- 无泄漏、无排气、无解体、无破裂、无起火。



Shenzhen Precise Testing Technology Co., Ltd

Report No.:S-23050505A0

Page 9 of 15

| Report No.:S-23050505A0 Page 9 of 15 | | | | | | | | |
|--------------------------------------|-----------------------|-------------------|------------------|----------------|--|----------------|---------------|--|
| | Appendix 4 | | | | | | | |
| | | | 阿 | 表 4 | | | | |
| Test Items 测试项目 | Shock 冲击 | Shock | | | | | | |
| | Test proced | IIIA | | | | | | |
| 1.1 | 测试步骤 | | | | | | | |
| | | | | Ū | machine, and each | | • | |
| | | • | | • | pulse duration of 6 celeration of 50gn a | | • | |
| | | • | | • | alf-sine shock of pea | • | | |
| | | | | • | e duration of 6 millise | | • | |
| | | | | | of 50gn (or Accelerat | | | |
| | smaller)and | oulse duration | of 11 milliseco | onds. Each ce | ell or battery shall be | e subjected to | three | |
| | | | | | ks in the negative di for a total of 18 sho | | ee mutually | |
| | | | | | 面。对每个电芯以峰 | _ | | |
| | | | | | 50gn和脉冲持续时间 | | | |
| | | | | | 半正弦的加速度撞击 | | | |
| | | | ~ | | 和脉冲持续时间 11 毫 | | | |
| | □ 电池或电池组 出。总共经受 | | 型 且的电池女 | 袋力 位的正方 | 万向经受三次冲击, 持 | 医有 | 经 文二伙件 | |
| 1.2 | Sample stat | | | | | | | |
| | 样品状态 | | | | | | | |
| | c1# ~ c5#, at states. | first cycle in fu | ully charged st | tates; c6# ~ c | :10#, after 25 cycles | ending in ful | ly charged | |
| | | E第一个循环完 | 全充电; c6# | ~ c10#,在第 | 525 个循环完全充电。 | | | |
| 1.3 | Result | | | | | | | |
| | 测试结果 | | <u> </u> | | | | | |
| Sample No. | Before T | est测试前 | After Tes | st测试后 | Mass loss | Residual | Test | |
| 样品编号 | Mass | Voltage | Mass | Voltage | 质量损失 | OCV 剩余电压 | result | |
| 1十月19冊 寸 | 样品质量 | 开路电压 | 样品质量 | 开路电压 | (%) | (≥90%) | 测试结果 | |
| . 4 11 | (g) | (V) | (g) | (V) | 0.000 | | • | |
| c1# | 74.563 | 4.364 | 74.563 | 4.364 | 0.000 | 100.00 | 0 | |
| c2# c3# | 74.651 74.486 | 4.365 4.364 | 74.651 74.486 | 4.365 4.364 | 0.000 | 100.00 | 0 | |
| c3# | 74.460 | 4.361 | 74.460 | 4.361 | 0.000 | 100.00 | 0 | |
| c5# | 74.473 | 4.362 | 74.472 | 4.361 | 0.000 | 99.98 | 0 | |
| c6# | 74.384 | 4.364 | 74.384 | 4.364 | 0.000 | 100.00 | 0 | |
| c7# | 74.509 | 4.361 | 74.509 | 4.361 | 0.000 | 100.00 | 0 | |
| c8# | 74.497 | 4.365 | 74.497 | 4.365 | 0.000 | 100.00 | 0 | |
| c9# | 74.575 | 4.365 | 74.575 | 4.365 | 0.000 | 100.00 | 0 | |
| c10# | 74.322 | 4.364 | 74.322 | 4.364 | 0.000 | 100.00 | 0 | |
| | <u> </u> | <u> </u> | <u> </u> | I | I | | | |

Note: **L**-Leakage, **V**-Venting, **D**-Disassembly, **R**-Rupture, **F**-Fire, **O**-No leakage, no venting, no disassembly, no rupture, no fire.

注: L- 泄漏; V- 排气; D- 解体; R- 破裂; F- 起火; O- 无泄漏、无排气、无解体、无破裂、无起火。



Shenzhen Precise Testing Technology Co., Ltd

Report No.:S-23050505A0

Page 10 of 15

| | Appendix 5 | | | | | |
|--------------------|--|---------------------|--------------|--|--|--|
| | 附表 | 5 | | | | |
| Test Items 测试项目 | External short circuit 外部短路 | | | | | |
| 1.1 | Test procedure 测试步骤 | | | | | |
| | The cell or battery to be tested shall be temperature stabilized so that its external case temperature reaches $57\pm4\%$ and then the cell or battery shall be subjected to a short circuit condition with a total external resistance of less than 0.1 ohm at $57\pm4\%$, This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to $57\pm4\%$, the cell or battery must be observed for a further six hour for the test to be concluded. 保持试验环境温度稳定在 $57\pm4\%$,以使电芯或电池样品外表温度达到 $57\pm4\%$,然后,在此温度下,将其正负极用小于0.1欧姆的线路短接,待电芯或电池的外表温度恢复到 $57\pm4\%$ 之后再持续1小时以上,对电芯或电池必须进一步观察6个小时才能下结论。 | | | | | |
| 1.2 | Sample status 样品状态 | | | | | |
| | c1# ~ c5#, at first cycle in fully charged st charged states. c1# ~ c5#, 在第一个循环完全充电; c6# ~ | • | | | | |
| 1.3 | Result 测试结果 | | | | | |
| Sample No. 样品编号 | Max. External Temperature 样品表面最高温度 (℃) | Test result 测试结果 | Remark 备注 | | | |
| c1# | 57.7 | 0 | / | | | |
| c2# | 57.8 | 0 | / | | | |
| c3# | 57.8 | 0 | / | | | |
| c4# | 57.8 | 0 | / | | | |
| c5# | 57.8 | 0 | / | | | |
| c6# | 57.6 | 0 | / | | | |
| c7# | 57.7 | 0 | / | | | |
| c8# | 57.4 | 0 | / | | | |
| c9# | 57.8 | 0 | / | | | |
| c10# | 57.7 | 0 | / | | | |

Note: $\bf D$ –Disassembly, $\bf R$ –Rupture, $\bf F$ –Fire, $\bf OT$ –Over Temperature, $\bf O$ –no disassembly, no rupture, no fire, no Over temperature

注: D- 解体; R- 破裂; F- 起火; OT- 超过170℃; O- 无解体、无破裂、无起火、不超过170℃



Shenzhen Precise Testing Technology Co., Ltd

Report No.:S-23050505A0

Page 11 of 15

| нероп No.:5-230503 | Appendix 6 |
|--------------------|--|
| Test Items | 附表 6 |
| 测试项目 | Crush 挤压/Impact 撞击 |
| 1.1 | Test procedure |
| | 测试步骤 |
| | □ Crush 挤压 |
| | A cell or component cell is to be crushed between two flat surfaces. The crushing is |
| | to be gradual with a speed of approximately 1.5 cm/s at the first point of contact. The |
| | crushing is to be continued until the first of the three options below is reached. |
| | (a) The applied force reaches 13kN±0.78kN; |
| | (b) The voltage of the cell drops by at least 100 mV; or |
| | (c) The cell is deformed by 50% or more of its original thickness. Once the maximum pressure has been obtained, the voltage drops by 100mV or |
| | more, or the cell is deformed by at least 50% of its original thickness, the pressure |
| | shall be released. |
| | 电池芯或组成电池芯在两个平面间挤压。挤压在第一个接触点以约1.5cm/s 的速度慢 |
| | 慢进行,直到下面三个选项之一达到为止: |
| | (a)作用力达到 13kN±0.78kN; |
| | (b)电池芯电压降至少达到100mV; |
| | (c)电池厚度和最初比较变形至少50%。 |
| | 一旦达到最大压力,电压降超过100 mV或者电池芯变形超过50%,压力应该解除。 |
| | |
| | □ Impact 撞击 |
| | (applicable to cylindrical cells not less than 18mm in diameter) |
| | The sample cell or component cell is to be placed on a flat smooth surface. A 15.8 |
| | mm ± 0.1 mm diameter, at least 6 cm long, or the longest dimension of the cell, whichever is greater, Type 316 stainless steel bar is to be placed across the centre |
| | of the sample. A 9.1 kg \pm 0.1 kg mass is to be dropped from a height of 61 \pm 2.5 cm |
| | at the intersection of the bar and sample in a controlled manner using a near |
| | Frictionless, vertical sliding track or channel with minimal drag on the falling mass. |
| | The vertical track or channel used to guide the falling mass shall be oriented 90 |
| | degrees from the horizontal supporting surface. |
| | The test sample is to be impacted with its longitudinal axis parallel to the flat surface |
| | and perpendicular to the longitudinal axis of the 15.8 mm \pm 0.1 mm diameter curved |
| | surface lying across the centre of the test sample. Each sample is to be subjected to |
| | only a single impact. |



Shenzhen Precise Testing Technology Co., Ltd

Report No.:S-23050505A0

Page 12 of 15

| Report No.:S-230505 | Appendix | Page 12 | 0113 | | | | |
|---------------------|--|--------------------------------|------------------------|--|--|--|--|
| | 附表 6 | | | | | | |
| Test Items | Crush 挤压/Impact 撞击 | | | | | | |
| 测试项目 | | | | | | | |
| | Cells and component cells meet th | is requirement if their extern | al temperature does | | | | |
| | not exceed 170°C and there is no | disassembly and no fire duri | ng the test and within | | | | |
| | six hours after this test. | | | | | | |
| | (适用于直径不小于18毫米的圆柱形电池)将电池或元件电池样品平放在一个平面上,其纵轴平行于测试台面年,将一直径为15.8mm±0.1 mm的316型不锈钢棒横放在电池中心位置。然后,将一质量为9.1kg±0.1kg的物体从61±2.5 cm的高度落向样品。样品在进行试验时,其外表温度应不超过170℃。且试验结束后6个小时之内,样品应无解体、无起火现象发生。 | | | | | | |
| 1.2 | Sample status | Sample status | | | | | |
| | 样品状态 | 17 | | | | | |
| | c11# ~ c15#, at first cycle at 50% of the design rated capacity; c16# ~ c20#, after 25 cycles ending at 50% of the design rated capacity. c11# ~ c15#, 在第一个循环50%的额定容量; c16# ~ c20#, 在第25个循环50%的额定容量。 | | | | | | |
| 1.3 | Result | | | | | | |
| Oanania Nia | 测试结果 | T | Dama di | | | | |
| Sample No. | Max. External Temperature | Test result | Remark | | | | |
| 样品编号 | 样品表面最高温度(℃) | 测试结果 | 备注 | | | | |
| c11# | 24.5 | 0 | / | | | | |
| c12# | 24.4 | 0 | / | | | | |
| c13# | 23.3 | 0 | / | | | | |
| c14# | 24.1 | 0 | / | | | | |
| c15# | 24.2 | 0 | / | | | | |
| c16# | 23.7 | 0 | / | | | | |
| c17# | 22.7 | 0 | / | | | | |
| c18# | 23.0 | 0 | / | | | | |
| c19# | 23.6 | 0 | / | | | | |
| c20# | 22.8 | 0 | / | | | | |

Note: ${\bf D}$ -Disassembly, ${\bf R}$ -Rupture, ${\bf F}$ -Fire, ${\bf OT}$ -Over Temperature, ${\bf O}$ - no disassembly, no fire, no Over temperature

注: D- 解体; R- 破裂; F - 起火; OT- 超过170℃; O-无解体、无起火、不超过170℃



Shenzhen Precise Testing Technology Co., Ltd

Report No.:S-23050505A0

Page 13 of 15

| Heport No.:5-23 | Appendix 7 | | 13 01 15 | | | |
|--------------------|--|---------------------|--------------|--|--|--|
| | 附表 7 | | | | | |
| Test Items 测试项目 | Overcharge 过度充电 | | | | | |
| 1.1 | Test procedure 测试步骤 | | | | | |
| | When the manufacturer's recommended charge voltage is not more than 18V, the minimum voltage of the test shall be the lesser of two times the maximum charge voltage of the or 22V, whichever is less. When the manufacturer's recommended charge voltage is more than 18V, the charging voltage of the test shall be 1.2 times maximum charge voltage. The charging current is 2 times of the maximum charging current recommended by the manufacturer。如果厂家推荐的充电电压不超过18V,本测试的最小充电电压应该是两倍的厂家标定最大充电电压或者是22V,取其中较小者。如果厂家推荐的充电电压超过18V,充电电压应该为 1.2倍的厂家标定最大充电电压。充电电流为厂家推荐的最大充电电流2倍。 | | | | | |
| 1.2 | Sample status 样品状态 | | | | | |
| | c21# ~ c24#, at first cycle in fully charged states; c25# ~c28#, after 25 cycles ending in fully charged states. c21# ~ c24#, 在第一个循环完全充电; c25# ~c28#, 在第25个循环完全充电。 | | | | | |
| 1.3 | Result 测试结果 | | | | | |
| Sample No. 样品编号 | Voltage Before test(V) 测试前开路电压(V) | Test result 测试结果 | Remark 备注 | | | |
| c21# | 4.443 | О | / | | | |
| c22# | 4.442 | 0 | / | | | |
| c23# | 4.443 | 0 | / | | | |
| c24# | 4.442 | 0 | / | | | |
| c25# | 4.445 | 0 | / | | | |
| c26# | 4.443 | 0 | / | | | |
| c27# | 4.442 | 0 | / | | | |
| c28# | 4.442 | О | / | | | |

Note: **D** -Disassembly, **F**-Fire, **O**- no disassembly, no fire.

注: D- 解体; F- 起火; O-无解体、无起火。



Shenzhen Precise Testing Technology Co., Ltd

Report No.:S-23050505A0

Page 14 of 15

| · | Appendix 8 附表 8 | | | | | | |
|--------------------|---|--|--------------------|---------------------------------------|---------------------|--|--|
| Test Items 测试项目 | Forced discharge 强制放电 | P13 4X | 0 | | | | |
| 1.1 | Test procedure 测试步骤 | | | | | | |
| | Each cell shall be forced discharged at ambient temperature by connecting it in series with a 12V D. C, power supply at an initial current equal to the maximum discharge current specified the manufacturer The specified discharge current is to be obtained by connecting a resistive load of the appropriate size and rating in series with the test cell, Each cell shall be forced discharged for a time interval(in hours) equal to its rated capacity divided by the initial test current(in ampere). 在20±5℃的环境温度下,将单个电芯连接在12V的直流电源上进行强制放电,此直流电源提供每个电芯初始电流为制造厂指定的最大放电电流,放电时间为额定容量除以初始电流。 | | | | | | |
| 1.2 | Sample status 样品状态 | | | | | | |
| 1.3 | fully discharged state | c29# ~ c38#, at first cycle in fully discharged states; c39# ~ c48#, after 25 cycles ending in fully discharged states. c29# ~ c38#, 在第一个循环完全放电; c39# ~ c48#, 在第25个循环完全放电。 | | | | | |
| | 测试结果 | | | | | | |
| Sample No. 样品编号 | Voltage Before test 测试前开路电压 (V) | Test result 测试结果 | Sample No. 样品编号 | Voltage Before test 测试前开路电压 (V) | Test result 测试结果 | | |
| c29# | 3.371 | 0 | c39# | 3.380 | 0 | | |
| c30# | 3.367 | 0 | c40# | 3.360 | 0 | | |
| c31# | 3.352 | 0 | c41# | 3.367 | 0 | | |
| c32# | 3.328 | 0 | c42# | 3.357 | 0 | | |
| c33# | 3.357 | 0 | c43# | 3.392 | 0 | | |
| c34# | 3.366 | 0 | c44# | 3.365 | 0 | | |
| c35# | 3.369 | 0 | c45# | 3.373 | 0 | | |
| c36# | 3.386 | 0 | c46# | 3.399 | 0 | | |
| c37# | 3.371 | 0 | c47# | 3.377 | 0 | | |
| c38# | 3.367 | 0 | c48# | 3.378 | 0 | | |
| | | | | | | | |

Note: ${\bf D}$ -Disassembly, ${\bf F}$ -Fire, ${\bf O}$ - no disassembly, no fire.

注: D- 解体; F - 起火; O-无解体、无起火。



Shenzhen Precise Testing Technology Co., Ltd

Report No.:S-23050505A0

Page 15 of 15

注意事项

Important Information

- 1. 本报告无批准人签名和"报告专用章"无效。
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 The results shown in the report only apply to the sample(s) as tested.
- 6. 本检测结果中"N/A"表示"不适用","P"表示"通过","F"表示"不通过"。 As for the test result "N/A" means "Not Applicable", "P" means "Pass" and "F" means "Fail".

深圳普瑞赛思检测技术有限公司

Shenzhen Precise Testing Technology Co., Ltd.

广东省深圳市宝安区石岩街道上屋社区爱群路同富裕工业区4-7#厂房一层-五层 1-5/F., Factory Building 4-7#, Tongfuyu Industrial Park, Aigun Road, Shangwu Community,

Shiyan Subdistrict, Bao' an District, Shenzhen, Guangdong, China

TEL: 0755-23406061

E-mail: precise@ptl-global.com URL: http://www.ptl-global.com

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