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UN38.3 报告 **UN38.3 Test Report**

样品名称: 锂离子电池

Sample Name: Lithium Ion Battery

委托单位: 深圳古瑞瓦特新能源有限公司

Applicant: Shenzhen Growatt New Energy Co., Ltd.



DIEBDK7IMV

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检测证书 **TEST REPORT**

. ()	IEST KEFORT
样品名称 Sample Name	锂离子电池 Lithium Ion Battery
型号 Model	APX 5.0P-B1
委托单位 Applicant	深圳古瑞瓦特新能源有限公司 Shenzhen Growatt New Energy Co., Ltd.
委托单位地址 Applicant Address	深圳市宝安区西乡街道固兴社区航城大道中德欧产业示范园 A 栋 A401,4—13 楼 4-13/F,Building A,Sino-German(Europe) Industrial Park,Hangcheng Ave,Bao'an District,Shenzhen,China
生产单位 Manufacture	广东省古瑞瓦特新能源有限公司 Guangdong Growatt New Energy Co., Ltd.
生产单位地址 Manufacture Address	惠州市惠阳区平潭镇房坑村公路边第17号房屋 Growatt Industrial Park,No.17 Pingheng Road Pingtan Town,Huiyang District,Huizhou,Guangdong,China
样品外观与性状 Appearance & Odor	白色金属外壳 White metal shell
测试方法和判定标准 Test method and criterion	联合国《关于危险货物运输的建议书 试验和标准手册》ST/SG/AC.10/11/Rev.7, 38.3 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS", Manual of Tests and Criteria ST/SG/AC.10/11/Rev.7, 38.3
接样时间 Accepted date	2022-11-17 测试日期 Test date 2022-11-17~2022-12-17
测试项目 Test items	高度模拟、温度试验、振动、冲击、外部短路、挤压、过 慢 饱饱度和成量。 Altitude simulation, Thermal test, Vibration, Shock, External short circus, Crush Overcharge, Forced discharge.
结论 Conclusion	经测试,该样品符合联合国《关于危险货物运输的建议书 试验和标准手册》 ST/SG/AC.10/11/Rev.7, 38.3 标准要求。 The sample has passed the test items of UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS", Manual of Test and Criteria ST/SG/AC.10/11/Rev.7, 38.3.
备注 Remark	1.随附 UN38.3 试验概要(编号: 01112200003494-2(E))。 Attached with UN38.3 test summary (No.: 01112200003494-2(E)).

批准

性品强

野初吃

Appraiser:









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电池组信息:

The batteries information:

电池类型 Battery type	锂离子电池组 Lithium ion batteries	标称电压 Nominal Voltage	385V
额定容量 Rated Capacity	100Ah	总能量 Total Energy	5.0kWh
充电限制电压 Limited Charge Voltage	450V	标准充电电流 Standard Charge Current	6.75A
最大充电电流 Maximum Charge Current	12.12A	充电截止电流 Charge Cut-off Current	2.0A
标准放电电流 Standard discharge Current	6.75A	最大放电电流 Maximum Discharge Current	6.75A
放电截止电压 Discharge Cut-off Voltage	330V	尺寸 Overall Dimensions (W×D×H)	690(W)*185(D)*295(H)±2mm
电芯数量 Cell Quantity	16PCS	重量 Mass	50±2kg
电芯容量 Cell Capacity	102Ah	电芯型号 Cell Model	SBP-01-1000
电芯生产单位 Manufacturer of cell		欣旺达电动汽车电池有限 inwoda Electric Vehicle Ba Ltd.	

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序号 No.	测试项目名称 Name of test	标准要求或标准条款号 Stand requirement or the clause number of standard	测试结果 Test result	本项结论 Test conclusion	备注 Remark
1	高度模拟 Altitude simulation	联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.7, 38.3 试验T.1 Test T.1	见附表 1 See Appendix 1	合格 Passed	/ NOTO
2	温度试验 Thermal test	联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.7, 38.3 试验T.2 Test T.2	见附表 2 See Appendix 2	合格 Passed	/ /
3	振动 Vibration	联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.7, 38.3 试验T.3 Test T.3	见附表 3 See Appendix 3	合格 Passed	5ZHOJ CW
4	冲击 Shock	联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.7, 38.3 试验T.4 Test T.4	见附表 4 See Appendix 4	合格 Passed	A CENTRE
5	外部短路 External short circuit	联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.7, 38.3 试验T.5 Test T.5	见附表 5 See Appendix 5	合格 Passed)
6	挤压 Crush	联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.7, 38.3 试验T.6 Test T.6	见附表 6 See Appendix 6	合格 Passed	STOMS V
7	过度充电 Overcharge	联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.7, 38.3 试验T.7 Test T.7	见附表 7 See Appendix 7	合格 Passed	/
8	强制放电 Forced discharge	联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.7, 38.3 试验T.8 Test T.8	见附表 8 See Appendix 8	合格 Passed	1,5
Test	测试环境 environment condition	环境温度:20℃-25℃;环: Ambient temperature: 20℃-25℃, A			KRIT

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Post No. Appendix Name of test Altitude simulation		V		2 3	-7			1/
地組应无重量损失、无渗漏、无排气、无解体、无破裂和无燃烧,并且每个试验电池或电池或电池或电池或电池或电池域验后的开路电压不少于其在进行这一试验前电压的 90% (完全放电状态的试验电池或电池组除外)。 Requirement of Standard		Aj		STONE			EAV	
甘油状态 Sample status b1#~b2#: first cycle in fully charged states; b3#~b4#: 第二十五个循环完全充电的电池。 b3#~b4#: 第二十五个循环完全充电的电池。 b3#~b4#: 第二十五个循环完全充电的电池。 b3#~b4#: 第二十五个循环完全充电的电池。 b3#~b4#: 第二十五个循环完全充电的电池。 b3#本b4#: 第二十五个循环完全充电的电池。 b3#本b4#: 第二十五个循环完全充电的电池。 b maxific first cycle in fully charged states. 样品编号 Sample No. 测试前 Before 测试后 After 质量损失 Mass loss (%) 测试结果 Test result of the part of the pa	Requirement	池组应无重量 在试验后的开 组除外)。 Test cells and temperature 2 venting, no di battery after to	量损失、无渗漏 F路电压不少于 batteries shall b 0±5℃. Cells and sassembly, no ru esting is not less	、无排气、无允 其在进行这一i e stored at a pre d batteries meet upture and no fin than 90% of its	解体、无破裂 试验前电压的 essure of 11.6kl this requirement are and if the op- voltage immed	和无燃烧,并 90%(完全放 Pa or less for at nt if there is no en circuit volta diately prior to	且每个试验电电状态的试验 least six hours mass loss, no l ge of each test this procedure.	池或电池组 电池或电池 at ambient leakage, no cell or The
样品编号 Sample No. 电池质量 m1(kg) 开路电压 v1(V) 电池质量 m2(kg) 开路电压 v2(V) 质量损失 Mass loss (%) 聚esidual OCV(%) Test result Test results b1# 46.520 383.9 46.520 383.8 0.00 99.97 O b2# 46.388 383.5 46.388 383.4 0.00 99.97 O b3# 46.466 384.2 46.466 384.2 0.00 100.00 O	Sample	b1#~b2#: fi: b3#~b4#: 第	rst cycle in fully 二十五个循环分	charged states; 完全充电的电池				HAGII EMIE
Sample No. 电池质量 m1(kg) 开路电压 v1(V) 电池质量 m2(kg) 开路电压 v2(V) Mass loss (%) Residual OCV(%) Test results r	样品编号	测试前	Before	测试后	After			测试社里
b2# 46.388 383.5 46.388 383.4 0.00 99.97 O b3# 46.466 384.2 46.466 384.2 0.00 100.00 O	70	1.27			7.7	CA	1.7/2	Test result
b3# 46.466 384.2 46.466 384.2 0.00 100.00 O	b1#	46.520	383.9	46.520	383.8	0.00	99.97	0
TESTILL TESTS OF STATE OF STAT	b2#	46.388	383.5	46.388	383.4	0.00	99.97	О
b4# 46.456 383.8 46.456 383.8 0.00 100.00 O	b3#	46.466	384.2	46.466	384.2	0.00	100.00	О
2, 2, 1, 2, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4,	b4#	46.456	383.8	46.456	383.8	0.00	100.00	O -

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 Rupture & No Fire.

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Sample No. 电池质量 m1(kg) 开路电压 v1(V) 电池质量 m2(kg) 开路电压 v2(V) Mass loss (%) Residual OCV(%) Test b1# 46.520 383.8 46.520 383.5 0.00 99.92 b2# 46.388 383.4 46.388 383.4 0.00 100.00	CX	AV	40					10
下存放至少 12h。两个极端试验温度之间的最大时间间隔为 30min。重复 10 次,再将月验电池或电池组在环境温度 20±5°C下存放 24h。试验电池或电池组应无重量损失、无效工作气、无解体、无破裂和无燃烧,并且每个试验电池或电池组除外小。 Test large cells and batteries are to be stored for at least 12 hours at a test temperature equal to 72±2°C, followed by storage for at least 12 hours at a test temperature equal to repeated 10 times, after which all test cells and batteries are to be stored for 24 hours at an test temperature equal to repeated 10 times, after which all test cells and batteries are to be stored for 24 hours at a mbie temperature (20±5°C). Cells and batteries meet this requirement if there is no mass loss, no less than 90% of its voltage immediately prior to this procedure. The requirement relating to voltage is not applicable to test cells and batteries at fully discharged status ## ## ## ## ## ## ## ## ## ## ## ## ##			The state of the s			,1510		
Requirement of Standard 72±2°C, followed by storage for at least 12 hours at a test temperature equal to -40±2°C. The maximum time interval between test temperature extremes is 30 minutes. This procedure is to repeated 10 times, after which all test cells and batteries are to be stored for 24 hours at ambie temperature (20±5°C). Cells and batteries meet this requirement if there is no mass loss, no lead to repeated 10 times, after which all test cells and batteries are to be stored for 24 hours at ambie temperature (20±5°C). Cells and batteries meet this requirement if there is no mass loss, no lead to require testing is not less than 90% of its voltage immediately prior to this procedure. The requirement relating to voltage is not applicable to test cells and batteries at fully discharged status. b1#~b2#: 第一个循环完全充电的电池; b1#~b2#: first cycle in fully charged states; b3#~b4#: 第二十五个循环完全充电的电池。 b3#~b4#: 第二十五个循环完全充电的电池; b1#~b2#: first cycle in fully charged states.	SC CHELOWER	下存放至少 12 验电池或电池 无排气、无解 其在进行这一	2h。两个极端试 组在环境温度 2 体、无破裂和无 试验前电压的 9	验温度之间的 0±5℃下存放 5燃烧,并且每 0%(完全放	7最大时间间隔 24h。试验电 季个试验电池 电状态的试验	鬲为 30min。 池或电池组应 或电池组在试 电池或电池组	重复 10 次,再 五无重量损失、 3验后的开路电 且除外)。	手将所有试 无渗漏、 上压不少于
maximum time interval between test temperature extremes is 30 minutes. This procedure is to repeated 10 times, after which all test cells and batteries are to be stored for 24 hours at ambie temperature (20±5°C). Cells and batteries meet this requirement if there is no mass loss, no let no venting, no disassembly, no rupture and no fire and if the open circuit voltage of each test obattery after testing is not less than 90% of its voltage immediately prior to this procedure. The requirement relating to voltage is not applicable to test cells and batteries at fully discharged some batteries are to be stored for 24 hours at ambie temperature (20±5°C). Cells and batteries are to be stored for 24 hours at ambie temperature extremes is 30 minutes. This procedure is to repeated 10 times, after which all test cells and batteries are to be stored for 24 hours at ambie temperature extremes is 30 minutes. This procedure is to repeated 10 times, after which all test cells and batteries are to be stored for 24 hours at ambie temperature extremes is 30 minutes. This procedure is to repeated 10 times, after which all test cells and batteries are to be stored for 24 hours at ambie temperature extremes is 30 minutes. This procedure is to repeated to be stored for 24 hours at ambie temperature extremes is 30 minutes. This procedure is to repeated to be stored for 24 hours at ambie temperature extremes is 30 minutes. This procedure is to repeated there is no mass loss, no let to extreme if there is no mass loss, no let to extreme if there is no mass loss, no let to extreme if there is no mass loss, no let to extreme if there is no mass loss, no let to extreme if the open circuit voltage of each test observed to the stored in the open circuit voltage of each test observed to the population of the open circuit voltage of each test observed to the population of the open circuit voltage of each test observed to the population of the open circuit voltage of each test observed to the population of the population of the population of								
temperature (20±5°C). Cells and batteries meet this requirement if there is no mass loss, no lear no venting, no disassembly, no rupture and no fire and if the open circuit voltage of each test of battery after testing is not less than 90% of its voltage immediately prior to this procedure. The requirement relating to voltage is not applicable to test cells and batteries at fully discharged states. **Elitable** **Eli		maximum time	interval between	n test temperati	ure extremes is	30 minutes.	This procedure	is to be
作品状态 Sample status b1#~b2#: first cycle in fully charged states; b3#~b4#: 第二十五个循环完全充电的电池。 b3#~b4#: 第二十五个循环完全充电的电池。 b3#~b4#: after 25 cycles ending in fully charged states. 样品编号 Sample No. 地域前 Before 測试后 After 质量损失 Mass loss (%) Residual OCV(%) b1# 46.520 383.8 46.520 383.5 0.00 99.92 b2# 46.388 383.4 46.388 383.4 0.00 100.00	A CELYLIE	no venting, no battery after tes	0 ± 5 °C). Cells and disassembly, no sting is not less the	d batteries mee rupture and no nan 90% of its	t this requirem fire and if the voltage immed	ent if there is open circuit v liately prior to	no mass loss, r voltage of each o this procedure	no leakage, test cell or e. The
样品编号 Sample No. 电池质量 m ₁ (kg) 开路电压 v ₁ (V) 电池质量 m ₂ (kg) 开路电压 v ₂ (V) 质量损失 Mass loss (%) Residual OCV(%) b1# 46.520 383.8 46.520 383.5 0.00 99.92 b2# 46.388 383.4 46.388 383.4 0.00 100.00	Sample	b1#~b2#: firs b3#~b4#: 第二	st cycle in fully c 二十五个循环完	harged states; 全充电的电池		GUANT CET	Alle Marie	LOGYCERNE
Sample No. 电池质量 m ₁ (kg) 开路电压 v ₁ (V) 电池质量 m ₂ (kg) 开路电压 v ₂ (V) Mass loss (%) Residual OCV(%) Test b1# 46.520 383.8 46.520 383.5 0.00 99.92 b2# 46.388 383.4 46.388 383.4 0.00 100.00	17 日 6 日	测试前	Before	测试后	After	质量损失	剩余电压	加以以用
b2# 46.388 383.4 46.388 383.4 0.00 100.00	(3)					/		测试结果 Test result
	b1#	46.520	383.8	46.520	383.5	0.00	99.92	O @
b3# 46.466 384.2 46.466 383.9 0.00 99.92	b2#	46.388	383.4	46.388	383.4	0.00	100.00	0
30.100 30.100 30.00 37.72	b3#	46.466	384.2	46.466	383.9	0.00	99.92	О
b4# 46.456 383.8 46.456 383.6 0.00 99.95	b4#	46.456	383.8	46.456	383.6	0.00	99.95	O CO

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 Rupture & No Fire.

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序号 No.		附表 3 ppendix 3	STONE	测试项目名称 Name of test		振动 Vibrati	
标准要求 Requirement of Standard	Ign 的最大加强速度达到 2gn 的电池或电池或电池或电池 玩失、无渗漏电压不少于其 The large Cell distorting the consinusoidal wave until 18Hz is refrequency increof 2gn is then retimes for a total of the direction requirement if if the open circummediately property in the second seco	速度,直到 18Hz。 速度,直到 18Hz。 频率约为 25Hz) 组安装方向的每 无排气这一试验 s and batteries are cells in such a may reform with a log eached. The amp reased until a peal maintained until t al of 3 hours for each of the soft vibration may there is no mass cuit voltage of each of the soft vibration may there is no mass cuit voltage of each of the soft vibration may there is no mass cuit voltage of each of the soft vibration of the soft vibration of the soft vibration may there is no mass cuit voltage of each of the soft vibration of the soft vibrat	然后将振幅 .将最大加速是 .将最大加速是 .体、无破裂和 .全前电压的 90 e firmly secure nner as to faith arithmic sweel litude is then rak acceleration he frequency it each of three must be perpend loss, no leakage the test cell or later. The requirements	保持在 0.8mme 度保持在 2gn 直 进行 12 次,一 可无燃烧,并且 %(完全放电 d to the platfor a from 7Hz to a maintained at 0. of 2gn occurs (a s increased to 2 autually perpendicular to the ter ge, no venting, poattery after tes	(总偏移 1.6m 五到频率增加 共振动 3h。 i 上每个试验电 状态的试验电 the vibration. a peak accelera .8mm (1.6mm approximately 200Hz. This cy dicular mounts rminal face. Co no disassemble sting is not less	m),并增加频率到 200Hz。对三式验电池或电池或电池组在记述或电池组在记述的 machine w The vibration shation of 1g _n is m total excursion) 25Hz). A peak ycle shall be reping positions of ells and batteries y, no rupture and than 90% of its than 90% of its	直到最大加 上个互相垂直 出组应无重量 、验后的开路外)。 ithout nall be a naintained and the acceleration eated 12 the cell. One s meet this d no fire and s voltage
样品状态 Sample status	b1#~b2#: fir b3#~b4#: 第二	一个循环完全充 st cycle in fully c 二十五个循环完 ter 25 cycles endi	harged states; 全充电的电池		ECHADIDO,	DISTRICT TECHN	, STONE DISTR
样品编号 Sample No.	测试前 电池质量 m _l (kg)	Before 开路电压 v ₁ (V)	测试后 电池质量 m ₂ (kg)	于 After 开路电压 v ₂ (V)	质量损失 Mass loss (%)	剩余电压 Residual OCV(%)	测试结果 Test result
b1#	46.520	383.5	46.520	383.4	0.00	99.97	0
	K~	0	16.200	202.4	0.00	100.00	O CHIN
b2#	46.388	383.4	46.388	383.4	, 0.00	100.00	O
b2# b3#	46.388 46.466	383.4 383.9	46.388	383.4	0.00	99.95	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 Rupture & No Fire.

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序号 No.		附表 4 ppendix 4	ETON	测试项目名 Name of te		冲 ī Sho	
标准要求 Requirement of Standard	gn=√(30000 / 其正负极各冲 解体、无破裂 验前电压的 90 Test cells and I support all mos shock of peak milliseconds. I by three shock or battery for a leakage, no ver cell or battery requirement re	a组用坚硬支架紧加ass)中较小者自由 3次,共冲击和无燃烧,并且现象 (完全放电物 batteries shall be unting surfaces of acceleration of 50 Each cell or batters in the negative of total of 18 shock nting, no disasser after testing is no lating to voltage in the mass is express	内正弦波冲击 f 18次。各试 每个试验电池 大态的试验电 secured to the f each test bate Ogn or accelerate ry shall be sub direction of the tas. Cells and be mbly, no ruptu t less than 90% is not applicate	,脉冲持续时 强 电池或电池 过或电池组在试 池或电池组除 testing machin tery. Each Larg tion $(g_n) = \sqrt{30}$ jected to three ree mutually per atteries meet the re and no fire a for its voltage	间 11ms,按三 组应无重量损 独后的开路电 外)。 e by means of a e batteries shall 0000 / mass) a shocks in the po- prendicular mo- its requirement and if the open of immediately pro-	个相互垂直的 失、无渗漏、 压不少于其在 a rigid mount w be subjected to nd pulse duration positive direction ounting position if there is no me circuit voltage of rior to this proc	轴向分别对 无排气、无 进行这一试 hich will o a half-sine on of 11 a followed as of the cell ass loss, no of each test edure. The
样品状态 Sample status	b1#~b2#: firs b3#~b4#: 第二	一个循环完全充 st cycle in fully cl 二十五个循环完 er 25 cycles endi	harged states; 全充电的电池		CHMOLOGY CEN	ALC'I TECHNO	OG SDISTRI
样品编号 Sample No.	测试前 电池质量 m _I (kg)	Before 开路电压 v ₁ (V)	测试后 电池质量 m ₂ (kg)	后 After 开路电压 v ₂ (V)	质量损失 Mass loss (%)	剩余电压 Residual OCV(%)	测试结果 Test result
b1#	46.520	383.4	46.520	383.4	0.00	100.00	& o
b2#	46.388	383.4	46.388	383.3	0.00	99.97	0
b3#	46.466	383.7	46.466	383.6	0.00	99.97	О
213	G		177	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 Rupture & No Fire.

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CN	~ ~ ~		10
序号	附表 5	测试项目名称	外部短路
No.	Appendix 5	Name of test	External short circuit
标准要求 Requirement of Standard	小于 0.1Ω 的短路条件,当电池: 再观察电池或电池组 6h 才结束 6h 内应无解体、无破裂和无燃烧 The cell or battery to be tested sha reaches 57±4℃ and then the cell external resistance of less than 0.1 least one hour after the cell or batt battery must be observed for a furt	all be temperature stabilized so that if or battery shall be subjected to a show ohm at 57 ± 4 °C. This short circuit catery external case temperature has rether six hours for the test to be conclumperature does not exceed 170 °C at a subject of the stabilized in the stabilized shall be subjected to a show of the stabilized shall be subjected to a show of the stabilized shall be subjected to a show of the stabilized shall be subjected to a show of the stabilized shall be subjected to a show of the stabilized shall be subjected to a show of the stabilized shall be subjected to a show of the stabilized shall be subjected to a show of the stabilized shall be subjected to a show of the stabilized shall be subjected to a show of the stabilized shall be subjected to a show of the stabilized shall be subjected to a show of the stabilized shall be subjected to a show of the stabilized shall be subjected to a show of the stabilized shall be subjected to a shall be subjected to	继续至少 1h,然后短路断开, 还不超过 170℃,并且试验后 ts external case temperature ort circuit condition with a total ondition is continued for at turned to 57±4℃. The cell or luded. Cells and batteries meet
样品状态 Sample status	b1#~b2#: 第一个循环完全充电 b1#~b2#: first cycle in fully chan b3#~b4#: 第二十五个循环完全 b3#~b4#: after 25 cycles ending	rged states;	POT GURT
样品编号 Sample No.	样品表面最高温度 Max External Temperature	测试结果 e(℃) Test result	备注 Remark
b1#	55.5	THEOLOGICAL STATE O	- DISTR /STOME
b2#	55.7	THE O ST	OME THOUGH
b3#	55.5	JISTO NE THOUCH	CHANGE /
b4#	55.6	THOUSE O	18

注: D-解体; R-破裂; F-起火; O-无解体、无破裂、无起火。

Note: D-Disassembly, R-Rupture, F-Fire, O-No Disassembly, No Rupture & No Fire.

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序号 No. Appendix 6 测试项目名称 Name of test (适用于棱柱形、袋装、硬币/纽扣电池和直径小于 18mm 的圆柱形电池): 将电池或元件电池放在两个平面之间挤压,挤压力度逐渐加大,在第一个接为 1.5cm/s。挤压持续进行,直到出现以下三种情况之一即解除压力: (a)施加的力量达到 13kN±0.78kN; (b)电池的电压下降至少 100 毫伏;或(c)电池变形量达原始厚度的 50%或以上。 棱柱形或袋装电池应从最宽的一面施压。纽扣/硬币电池应从其平坦表面施压与纵轴垂直的方向施压。每个电池只做一次挤压试验。 试验电池或电池组的组成电芯外部温度不超过 170℃,并且在试验过程中和无解体、无破裂、无起火。 Crush (applicable to prismatic, pouch, coin/button cells and cylindrical cells not m diameter): A cell or component cell is to be crushed between two flat surfaces. The crush delay with a great of component cell is to be crushed between two flat surfaces. The crush of surfaces.	。圆柱形电池应
将电池或元件电池放在两个平面之间挤压,挤压力度逐渐加大,在第一个接为 1.5cm/s。挤压持续进行,直到出现以下三种情况之一即解除压力: (a)施加的力量达到 13kN±0.78kN; (b)电池的电压下降至少 100 毫伏;或 (c)电池变形量达原始厚度的 50%或以上。 棱柱形或袋装电池应从最宽的一面施压。纽扣/硬币电池应从其平坦表面施压与纵轴垂直的方向施压。每个电池只做一次挤压试验。 试验电池或电池组的组成电芯外部温度不超过 170℃,并且在试验过程中和一天解体、无破裂、无起火。 Crush (applicable to prismatic, pouch, coin/button cells and cylindrical cells not m diameter): A cell or component cell is to be crushed between two flat surfaces. The	。圆柱形电池应
(a)施加的力量达到 13kN±0.78kN; (b)电池的电压下降至少 100 毫伏;或 (c)电池变形量达原始厚度的 50%或以上。 核柱形或袋装电池应从最宽的一面施压。纽扣/硬币电池应从其平坦表面施压与纵轴垂直的方向施压。每个电池只做一次挤压试验。 试验电池或电池组的组成电芯外部温度不超过 170℃,并且在试验过程中和最大量的 50 km 2 km	
(c)电池变形量达原始厚度的 50%或以上。 棱柱形或袋装电池应从最宽的一面施压。纽扣/硬币电池应从其平坦表面施压 与纵轴垂直的方向施压。每个电池只做一次挤压试验。 试验电池或电池组的组成电芯外部温度不超过 170℃,并且在试验过程中和 无解体、无破裂、无起火。 Crush (applicable to prismatic, pouch, coin/button cells and cylindrical cells not m diameter): A cell or component cell is to be crushed between two flat surfaces. The	
与纵轴垂直的方向施压。每个电池只做一次挤压试验。 试验电池或电池组的组成电芯外部温度不超过 170℃,并且在试验过程中和 无解体、无破裂、无起火。 Crush (applicable to prismatic, pouch, coin/button cells and cylindrical cells not m diameter): A cell or component cell is to be crushed between two flat surfaces. The	
Requirement of Standard Crush (applicable to prismatic, pouch, coin/button cells and cylindrical cells not m diameter): A cell or component cell is to be crushed between two flat surfaces. The	
diameter): A cell or component cell is to be crushed between two flat surfaces. The	
gradual with a speed of approximately 1.5cm/s at the first point of contact. The crucontinued 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 100mV;or	e crushing is to be
(c)The cell is deformed by 50% or more of its original thickness. Once the maximum pressure has been obtained, the voltage drops by at least 100m cell is deformed by at least 50% of its original thickness, the pressure shall be released to test cell or component cell is to be subjected to one crush only. Cells and conthis requirement if their external temperature does not exceed 170°C and there is no fire during the test and within six hours after this test.	ased. nponent cells mee
C1#~C5#: 第一个循环 50%的额定容量的电芯。 C1#~C5#: first cycle at 50% of the design rated capacity of cell. Sample status C6#~C10#: 第二十五个循环 50%的额定容量的电芯。 C6#~C10#: after 25 cycles at 50% of the design rated capacity of cell.	3LHOUCE
May Hytornal May Hytornal May Hytornal	试结果 备注 est result Remark
C1# 25.3 O / C6# 25.3	O /
C2# 25.6 O / C7# 25.4	0
C3# 25.5 O / C8# 25.4	O /
C4# 25.5 O / C9# 25.6	O
	O /

注: D-解体; R-破裂; F-起火; O-无解体、无破裂、无起火。

Note: D-Disassembly, R-Rupture, F-Fire, O-No Disassembly, No Rupture & No Fire.

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序号 No.	附表 7 Appendix 7	测试项目名称 Name of test		充电 charge
标准要求 Requirement of Standard	充电电流必须是制造商建议的氧电压不倍或 22V 两者中的较少者。 (b)制造商建议的充电电压大可再充电电池组在环境温度可The charge current shall be twice current. The minimum voltage of (a) When the manufacturer's recorvoltage of the test shall be the less 22V. (b) When the manufacturer's record the test shall be 1.2 times the manufacturer the manufacturer's record the test shall be 1.2 times the manufacturer's record the test	大于 18V 时,试验的最小 于 18V 时,试验的最小 下试验 24h。试样在试验 the manufacturer's recommended charge voltage is ser of two times the maximum charge voltage. The	电压应是最大充电电压后7天内应无解体和无mended maximum contings: is not more than 18V, the num charge voltage of the duration of the test sharps.	的 1.2 倍。 燃烧。 nuous charge e minimum te battery or nimum voltage
样品状态 Sample status	b5#~b6#: 第一个循环完全充电 b5#~b6#: first cycle in fully cha b7#~b8#: 第二十五个循环完全 b7#~b8#: after 25 cycles ending	arged states;	OLOGYCEMIE	TECHNOLOGY
样品编号 Sample No.	测试结果 Test result	"Moloco	备注 Remark	ETONST
b5#	eterm High o	.ci 160	STONS /	"IOI COS
b6#	O NET	2 STONIS	THOUGH / THE	GL.
b7#	of the state of th	THOUGH WILL	MGV /	All the second
b8#	THOUSE O	JAHOV	Willer 1	OG OF

注: D-解体; R-破裂; F-起火; O-无解体、无破裂、无起火。

Note: D-Disassembly, R-Rupture, F-Fire, O-No Disassembly. No Rupture & No Fire.

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		A.V			
序号 No.	附表 8 Appendix	8	测试项目名 Name of te		强制放电 Forced discharge
标准要求 Requirement of Standard	定的最大放电电流的燃烧。 Each cell shall be for D.C. power supply a manufacturer. The spappropriate size and interval (in hours) equivalence.	的条件下强制放序 rced discharged at t an initial current pecified discharge rating in series wi jual to its rated cap	电。原电池或可再 ambient temperate equal to the maxin current is to be ob th the test cell. Eac pacity divided by the	F充电电池在试验后 ure by connecting it i mum discharge curre stained by connecting ch cell shall be force the initial test current	
样品状态 Sample status	C11#~C20#: 第一 C11#~C20#: first cyc C21#~C30#: 第二- C21#~C30#: after 25	cle in fully dischar 十五个循环完全放	rged states; 效电的电芯。	" CANETHONCO	CHAMER
样品编号 Sample No.	测试结果 Test result	备注 Remark	样品编号 Sample No.	测试结果 Test result	备注 Remark
C11#	O COL	1	C21#	0	TECHN /
C12#	0	, ctraff?	C22#	THE O	Rich / OHED
	0 .0	o , , , , , o	C23#	0	,5
C13#	CV OV	700	C23#	O	300
C13#	O	, , , , , , , , , , , , , , , , , , ,	C23#	0	action /
	10,	Medie Active	0,67.		MARCHIO 1
C14#	0	A THE A STATE OF THE STATE OF T	C24#	, ou of other	James Heart I
C14# C15#	0	ONE DE LEGITE LA COLLEGA LA COLLE	C24# C25#	0	Joseph J.
C14# C15# C16#	0 0 0		C24# C25# C26#	0 0	I A LEGIS I
C14# C15# C16# C17#	0 0 0	JANGTHE JANGTHE	C24# C25# C26# C27#	0 0	

注: D-解体; R-破裂; F-起火; O-无解体、无破裂、无起火。

Note: D-Disassembly, R-Rupture, F-Fire, O-No Disassembly, No Rupture & No Fire.

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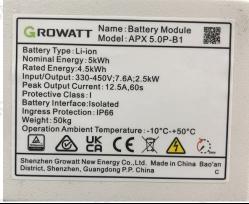
样品图片

Photo of the sample

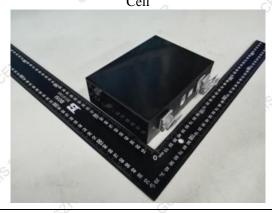




电池铭牌(含 Wh) Battery nameplate (With Wh)







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7. 检测地址: 广东省广州市科学城南翔支路 1 号 C102 房 (汽车与装备检测研究所科学城)

Test Address: Room C102, No.1 Nanxiangzhi Road, Science City, Guangzhou, Guangdong, China (Institute of Automobile and Equipment Testing in Science City)

电话(Tel): 020-38669019-811

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