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检测报告 UN38.3

Name	of sample:		Polymer Lithium-ion Batter	y Times
	产品名称:	天)納 7ian Su 湖	聚合物锂离子电池	Pian Su 天開
	Client:	A. 州 Pian S	54 € V	
	委托单位:	天湖.	714	Team Sir Film
Cla	ssification:	天衛 Tian Sa	Commission Test	天湖 Tian Su
	检测类别:	ian Su KM	委托测试 委托测试	列ian Su M Su

Shenzhen Tiansu Calibration and Testing Co.,Ltd 深圳天溯计量检测股份有限公司

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UN38.3

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Name of samples: Polymer Lithium-ion Battery 样品名称: 聚合物锂离子电池	Trade mark: - 商标: -	A
	<u>-</u>	The state of the s
Type/Model 型号规格: 451012	shape: Prismatic 样品形状: 棱柱形	
Appearance color: Yellow 样品颜色: 黄色	Sample size 样品尺寸: T(4.55mm)*W(9.20mm)*L(9.68mm)	
Rated info. 额定信息: 35mAh\0.1295Wh\3.7V	Cell quantity 组成电芯数量: N/A	10
Quantity of sample: 40cells 样品数量: 40个电芯	Cell mode 电芯型号: N/A	
Limited charge voltage 充电限制电压: 4.2V	Cut-off voltage 放电截止电压: 3.0V	
Standard charge current 标准充电电流: 17.5mA	Max continuous charge current 最大持续充电电流: 35mA	
Standard discharge current 标准放电电流: 17.5mA	Max continuous discharge current 最大持续放电电流: 35mA	× 1
Receiving date 接样日期: 2021 年 01 月 5 日	Sample identification 样品标识序号: 1#-40#	
Completing date 完成日期: 2021 年 1 月 14 日 文	Test item: 7 items 州	
Test conclusion: 检测结论·	Jen St.	

检测结论

The Polymer Lithium-ion Battery submitted by 38.3 of the Sixth Revised Edition Amendment 1 of the Recommendations on the Francisco Sixth Revised Edition Amendment 1 of the Recommendations on the Francisco Sixth Revised Edition Amendment 1 of the Recommendations on the Francisco Sixth Revised Edition Amendment 1 of the Recommendations on the Francisco Sixth Revised Edition Amendment 1 of the Recommendations on the Francisco Sixth Revised Edition Amendment 1 of the Recommendations on the Francisco Sixth Revised Edition Amendment 1 of the Recommendations on the Francisco Sixth Revised Edition Amendment 1 of the Recommendations on the Francisco Sixth Revised Edition Amendment 1 of the Recommendations on the Francisco Sixth Revised Edition Amendment 1 of the Recommendations on the Francisco Sixth Revised Edition Amendment 1 of the Recommendations on the Francisco Sixth Revised Edition Amendment 1 of the Recommendations on the Francisco Sixth Revised Edition Six Sixth Revised Edition Sixth Revised Edition Sixth Revised Editi

由东莞市

版修正1第38.3节进行检测,测试结果符合标准相关要求。

批准\Approved by 技术负责人\

Technology Supervisor

专业

审核\Reviewed by 项目工程师\ Project Engineer



主检\Tested by 测试工程师\ Test Engineer



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Description and illustration of the sample:

样品说明及描述:

Test item	Sample No.	State & M	Remark
测试项目	样品编号	状态	备注
X 70	1#~5#	at first cycle in fully charged states; 在第一个循环完全充电;	Cell
T.1~T.5	6#~10#	after 25 cycles ending in fully charged states; 在第二十五个循环完全充电;	电芯
e 7ian 5"	11#~15#	at first cycle at 50% of the design rated capacity; 在第一个循环充电 50%的额定容量;	Cell
T.6	16#~20#	after 25 cycles ending in fully charged at 50% of the design rated capacity; 在第二十五个循环充电 50%的额定容量;	电芯
T.7	M /	天瀬 Tran Su 天湖 Tran Su	N/A
7 as 5"	人洲	Jian Su Jian Su	不适用
T.8	21#~30#	at first cycle in fully discharged states; 在第一个循环完全放电;	Cell
1.0	31#~40#	after 25 cycles ending in fully discharged states; 在第二十五个循环完全放电;	电芯

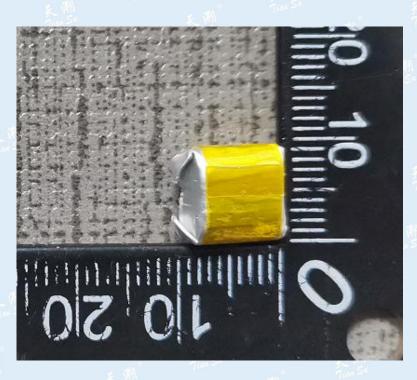
(i)	31#~40#	在第二十五个征	盾环完全放电;	eress	da.	ian 5"	
Z vin 7ian Su							
Description of th	ne sampling pro	cedure:	4000	584	Fian Sa		天侧
取样程序的说明							
- June -							
天帆 Tian Su			1				
_{pt} 54	天型	ė.	7	ian Si		Will Su	
Description of re	eport revision:						
报告修订的说明							
± WA	之湖 Tian Su	天 湖 7 _{1/411} S ¹	Mian St	支潮	天湖 7ian S) (0)	天湖 Tian Si
Tian Su							
Remarks:							
备注: 7144.50							
, 54							
The Polym	er Lithium-ion	Battery subm	itted by				are single
cell.		VA in Su	毛 潮				iii Sa uu Sa



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Photos of cell\电芯图片





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38.3.4	Procedure/测记	式步骤	w/o.	夫州 Tian Su		天湖	ian 5"	
表 側	Test 1: Altitude simulation/测试 1: 高度模拟							
天渊。	Test cells and batteries shall be stored at a pressure of 11.6kPa or less for at least six hour at ambient temperature (20±5℃). 将电芯和电池在温度为 20±5℃,大气压力为不大于 11.6kpa 的环境中贮存不少于 6 个小时。							
7ian 5*	Requirement/标准要求: 1.Cells and batteries Mass loss limit: ≤0.5% .							
38.3.4.1		voltage not les	s than 90%, Th batteries at full	=	relating to voltag	je is not	'(am ⊃" P ₹ • • • • • • • • • • • • • • • • • • •	
天湖 Tian Sa	和电芯。 3.No leakage,	no venting, no	disassembly, n	o rupture and r		54 天潮		
A 70	Result 测试结果) 应几η液、九	排气、尤胜体、	九饭袋以及九	着火现象的发生。	· #	K Viff 7ian Su	
Sample No.	Before test 测试前		After Test 测试后		Mass loss	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)	质量损失(%)	剩余电压(%)	测试结果	
1#	0.781	4.169	0.781	4.169	0.00	100.00	P	
2#	0.771	4.168	0.771	4.168	0.00	100.00	Р	
3#	0.773	4.165	0.772	4.164	0.13	99.98	Tian Su P	
4#	0.773	4.174	0.773	4.174	0.00	100.00	Р	
5#	0.777	4.178	0.777	4.178	0.00	100.00	Р	
6#	0.777	4.171	0.776	4.171	0.13	100.00	P	
7#	0.781	4.171	0.781	4.170	0.00	99.98	Р	
8#	0.781	4.174	0.781	4.174	0.00	100.00	Р	
9#	0.765	4.177	0.765	4.176	0.00	99.98	Р	
10#	0.765	4.168	0.764	4.168	0.13	100.00	Р	

Other supplements: Test result "P" decides that the test item passes.

其他补充:测试结果"P"代表判定该测试项目通过。

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38.3.4	Procedure/测]试步骤					_	
天湖	Test 2: Thern	mal test/测试 2	: 温度测试		天徽	Trans		
	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。							
38.3.4.2 Su 2 VA 7 Lan Su 7 Lan Su	Requirement/标准要求: 1.Cells and batteries Mass loss limit: ≤0.5%. 样品质量损失≤0.5%. 2.Open circuit voltage not less than 90%, The requirement relating to voltage is not applicable to test cells and batteries at full discharged states. 样品试验后开路电压应不低于试验前开路电压的 90%,此要求不适用于完全放完电的电池和电芯。 3.No leakage, no venting, no disassembly, no rupture and no fire. 样品(电池)应无漏液、无排气、无解体、无破裂以及无着火现象的发生。							
	Result 测试结果							
Sample No. 样品编号	Before 测记 Mass 样品质量 (g)	re test 式前 Voltage 开路电压(V)	After 测访 Mass 样品质量(g)		Mass loss 质量损失(%)	Residual OCV 剩余电压(%)	Test result 测试结果	
	作即灰里 (9)	TA .		/ P (V)				
1#	作 印 灰 重 (g)	4.169	0.779	4.141	0.781	4.169	Р	
M. 5	£ 1	4.169 4.168	x ta	7,	0.781	4.169 4.168	P 5 P	
1#	0.781	- NA	0.779	4.141	A VIII Francis	<u> </u>	in a second	
1#	0.781 0.771	4.168	0.779	4.141 4.139	0.771	4.168	S P	
1# 2# 3#	0.781 0.771 0.772	4.168 4.164	0.779 0.770 0.771	4.141 4.139 4.136	0.771 0.772	4.168	P P	
1# 2# 3# 4#	0.781 0.771 0.772 0.773	4.168 4.164 4.174	0.779 0.770 0.771 0.770	4.141 4.139 4.136 4.142	0.771 0.772 0.773	4.168 4.164 4.174	P P	
1# 2# 3# 4# 5#	0.781 0.771 0.772 0.773 0.777	4.168 4.164 4.174 4.178	0.779 0.770 0.771 0.770 0.775	4.141 4.139 4.136 4.142 4.147	0.771 0.772 0.773 0.777	4.168 4.164 4.174 4.178	P P P	
1# 2# 3# 4# 5#	0.781 0.771 0.772 0.773 0.777	4.168 4.164 4.174 4.178 4.171	0.779 0.770 0.771 0.770 0.775	4.141 4.139 4.136 4.142 4.147 4.149	0.771 0.772 0.773 0.777 0.776	4.168 4.164 4.174 4.178 4.171	P P P	
1# 2# 3# 4# 5# 6#	0.781 0.771 0.772 0.773 0.777 0.776 0.781	4.168 4.164 4.174 4.178 4.171 4.170	0.779 0.770 0.771 0.770 0.775 0.775	4.141 4.139 4.136 4.142 4.147 4.149 4.139	0.771 0.772 0.773 0.777 0.776	4.168 4.164 4.174 4.178 4.171 4.170	P P P P	

Other supplements: Test result "P" decides that the test item passes.

其他补充:测试结果"P"代表判定该测试项目通过。

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38.3.4	Procedure/测	试步骤					_	
天湖	Test 3: Vibra	tion/测试 3: 拢	表动 Fran Su		天棚	-7:an >" 		
	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. 将电芯和电池牢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。							
38.3.4.3	Requirement/标准要求: 1.Cells and batteries Mass loss limit: ≤0.5%. 样品质量损失≤0.5%. 2.Open circuit voltage not less than 90%, The requirement relating to voltage is not applicable to test cells and batteries at full discharged states. 样品试验后开路电压应不低于试验前开路电压的 90%,此要求不适用于完全放完电的电池和电芯。						P 天衛 Tran S 天衛 Tran Su	
		3.No leakage, no venting, no disassembly, no rupture and no fire. 样品(电池)应无漏液、无排气、无解体、无破裂以及无着火现象的发生。						
	Result 测试结果		美蘭 nian Su	7ian Su E	飘。 Fica	谢 " S"	天 V Tian	
Sample No.		re test 式前		r Test 试后	Mass loss	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)	质量损失(%)	剩余电压(%)	测试结果	
1#	0.779	4.141	0.779	4.141	0.00	100.00	Р	
2#	0.770	4.139	0.769	4.138	0.13	99.98	Р	
	MINUSU		K WI		7i	_{.4} .5"	K	

3# 0.771 4.136 0.771 4.136 0.00 100.00 Ρ 4# 0.770 4.142 0.769 4.142 0.13 100.00 Ρ 5# 0.775 4.147 0.775 4.146 0.00 99.98 P 6# 0.775 4.149 0.775 4.149 0.00 100.00 Ρ 7# 0.780 4.139 0.779 4.139 0.13 100.00 Ρ 4.146 0.00 0.779 4.146 0.779 100.00 Р 8# 0.00 9# 0.764 4.152 0.764 4.151 99.98 Ρ 0.763 0.763 0.00 10# 4.139 4.139 100.00 Ρ

Other supplements: Test result "P" decides that the test item passes.

其他补充: 测试结果"P"代表判定该测试项目通过。

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38.3.4	Procedure/测	试步骤					_
天概	Test 4: Shock	k/测试 4: 冲击	7ian Su		天洲	Trans	
7 can Su 7 can Su 7 can Su 7 can Su 38.3.4.4	to a half-sine smaller) and p subjected to a smaller) and p three shocks three mutually 以稳固的托架(或与√nosso) 须经受最大加每个电池或电	shock of peak oulse duration of half-sine of peoulse duration of the positive of perpendicular 固定住每个电芯中的较小值)的速度 50gn(或池组须在三个基	acceleration of of 6 milliseconds eak acceleration of 11 millisecond direction follower mounting posit same 地样品的全工主弦的加速度与	150gn (or Acce s, large cells ar of 50gn (or Ac ds. Each cell or d by three sho cons of the cell 全部配件表面。双 连撞击,脉冲持约	hine, and each sl leration(gn)= nd large batteries celeration(gn)= battery shall be cks in the negation or battery for a to 对每个电芯或电池 读6毫秒,大型电 续时间 11毫秒的 向经受三次冲击,	which is shall be shall be which is subjected to we direction of tal of 18 shocks. 以峰值为 150gn 池和大型电池组 1半正弦波冲击。	天讲 7ian S Ian St
	受三次冲击,总共经受 18 次冲击。 Requirement/标准要求: 1. Cells and batteries Mass loss limit: ≤0.5%. 样品质量损失≤0.5%. 2. Open circuit voltage not less than 90%, The requirement relating to voltage is not applicable to test cells and batteries at full discharged states. 样品试验后开路电压应不低于试验前开路电压的 90%,此要求不适用于完全放完电的电池和电芯。						
	3.No leakage, no venting, no disassembly, no rupture and no fire. 样品(电池)应无漏液、无排气、无解体、无破裂以及无着火现象的发生。 Result/测试结果						
Sample	Result/测试组	果		1.	7:41 WA	, 5# 	Z i
		e test	2.03	Test 式后	Mass loss	Residual OCV	Test
Sample No. 样品编号	Befor	e test	2.03		Mass loss 质量损失(%)	7 M 7 can Su	Test result 测试结;
No.	Befor 测证 Mass	e test 式前 Voltage	测i Mass	式后 Voltage	- 6700	Residual OCV	result
No. 样品编号	Befor 测证 Mass 样品质量 (g)	e test 式前 Voltage 开路电压(V)	测i Mass 样品质量(g)	式后 Voltage 开路电压(V)	质量损失(%)	Residual OCV 剩余电压(%)	result 测试结:
No. 样品编号 1#	Befor 测证 Mass 样品质量 (g) 0.779	e test 式前 Voltage 开路电压(V) 4.141	测i Mass 样品质量(g) 0.778	Voltage 开路电压(V) 4.141	质量损失(%) 0.13	Residual OCV 剩余电压(%) 100.00	result 测试结: P
No. 样品编号 1# 2#	Befor 测记 Mass 样品质量 (g) 0.779 0.769	e test 式前 Voltage 开路电压(V) 4.141 4.138	测i Mass 样品质量(g) 0.778 0.769	Voltage 开路电压(V) 4.141 4.137	质量损失(%) 0.13 0.00	Residual OCV 剩余电压(%) 100.00 99.98	result 测试结 P P
No. 样品编号 1# 2# 3#	Befor 测证 Mass 样品质量 (g) 0.779 0.769 0.771	e test 式前 Voltage 开路电压(V) 4.141 4.138 4.136	测记 Mass 样品质量(g) 0.778 0.769 0.771	Voltage 开路电压(V) 4.141 4.137 4.136	质量损失(%) 0.13 0.00 0.00	Residual OCV 剩余电压(%) 100.00 99.98 100.00	result 测试结 P P
No. 样品编号 1# 2# 3# 4#	Befor 测证 Mass 样品质量 (g) 0.779 0.769 0.771	e test 式前 Voltage 开路电压(V) 4.141 4.138 4.136 4.142	Mass 样品质量(g) 0.778 0.769 0.771 0.769	Voltage 开路电压(V) 4.141 4.137 4.136 4.142	质量损失(%) 0.13 0.00 0.00 0.00	Residual OCV 剩余电压(%) 100.00 99.98 100.00	P P P
No. 样品编号 1# 2# 3# 4# 5#	Befor 测证 Mass 样品质量 (g) 0.779 0.769 0.771 0.769 0.775	e test 式前 Voltage 开路电压(V) 4.141 4.138 4.136 4.142 4.146	Mass 样品质量(g) 0.778 0.769 0.771 0.769 0.774	Voltage 开路电压(V) 4.141 4.137 4.136 4.142 4.146	质量损失(%) 0.13 0.00 0.00 0.00 0.13	Residual OCV 剩余电压(%) 100.00 99.98 100.00 100.00	P P P P
No. 样品编号 1# 2# 3# 4# 5# 6#	Befor 测证 Mass 样品质量 (g) 0.779 0.769 0.771 0.769 0.775	e test 式前 Voltage 开路电压(V) 4.141 4.138 4.136 4.142 4.146 4.149	Mass 样品质量(g) 0.778 0.769 0.771 0.769 0.774 0.775	Voltage 开路电压(V) 4.141 4.137 4.136 4.142 4.146 4.148	质量损失(%) 0.13 0.00 0.00 0.00 0.13 0.00	Residual OCV 剩余电压(%) 100.00 99.98 100.00 100.00 99.98	P P P P

Other supplements: Test result "P" decides that the test item passes.

4.139

0.763

4.139

0.00

100.00

Ρ

其他补充:测试结果"P"代表判定该测试项目通过。

0.763

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38.3.4	Procedure/测试步骤	_
	Test 5: External short circuit/测试 5: 外部短路	1
7can S4 7can S4 38.3.4.5	The cell or battery to be tested shall be temperature stabilized so that its external case temperature reaches 57±4℃ 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±4℃, This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to 57±4℃, 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±4℃,以使电芯或电池样品外表温度达到 57±4℃,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±4℃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。	大瀬 Tian Su Ian Su P
	Requirement/标准要求: 1.Cells and batteries meet this requirement if their external temperature does not exceed 170℃; 电芯或电池的外壳温度应不超过 170℃;	天湖 7ian S
	2. No disassembly, no rupture and no fire during the test and within six hours after this test. 试验后 6 小时内无解体、无破裂、无起火。	天湖 Tian Su
天湖	Result 加多 加多 加多 加	9
Sample No. 样品编号	Max External Temp 样品表面最高温度(℃)	Test result 测试结果
1#	101.6 7000 美洲	Р
2#	117.5	Р
3#	104.6	Tian Su P
4#	7 Lan Su 7 Lan Su	Р
5#7 m 5	118.9	s P
6#	116.5	Р
7#	103.7 Team Su	P
	114.7	Р
8#		9 W/S
8# 9#	7 119.6 × 110.5°	Jun Pu

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38.3.4	Procedure/测试步骤	_
天湖 Tian Su	Test 6: Crush\Impact/ 测试 6: 挤压(适用) 撞击(不适用)	7
	Crush 挤压 採	Pion Su
	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.	M ian Su
	(a) The applied force reaches 13kN±0.78kN;	
	(b) The voltage of the cell drops by at least 100 mV;	8
	(c) The cell is deformed by 50% or more of its original thickness.	6
	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:	天湖 Tian Su
	(a)作用力达到 13kN±0.78kN;	* M
	(b)电池芯电压降至少达到 100mV;	Tian Su
	(c)电池厚度和最初比较变形至少 50%。	į.
	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。	À a
	Impact 7im 5"	
	撞击 5 m	Jan S
38.3.4.6	(applicable to cylindrical cells not less than 18mm in diameter)	Р
	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 ± 0.1 kg mass is to be dropped from a height of 61 ± 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.	天湖 7ian Su 祖 Sa
	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 ± 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.	F. H
	Cells and component cells meet this requirement if their external temperature does not exceed 170°C and there is no disassembly and no fire during the test and within six hours after this test.	天湖
	(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 15.8 mm ± 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 9.1 kg ± 0.1 kg 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。	报 5u 天
	Requirement/标准要求:	Tiam
	1.Cells and component cells meet this requirement if their external temperature does not exceed 170°C;	天湖
	电芯的外壳温度应不超过 170℃; 2. No disassembly, no fire during the test and within six hours after this test.	quas S"
	2. No disassembly, no fire during the test and within six hours after this test. 试验后 6 小时内无解体、无起火。	

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	Result 测试结果	天開 7can Su 天開 7can Su	Jian ⊃ ⁿ ≸
Sample No. 样品编号	OCV prior to test 试验前电压(V)	Max External Temp 样品表面最高温度(℃)	Test result 测试结果
11#	7100 Su 3.107 5 MA	23.2	P-VIII
12#	大学 3.105 天谱	24.3 Tun 54	Р
13#	3.145	24.3	Р
14#	3.137	Tian Su 23.6 Fran Su	Р
15#	3.094	23.7	Р
16#	3.135	23.3	Р
17#	3.149 Jun 54	23.1	Pian Si
18#	3.146	23.1 A	Р
19#	3.141	24.8	7P
20#	3.123 £ WA	24.4 Tran Su	_® Р

Other supplements: Test result "P" decides that the test item passes.

其他补充:测试结果"P"代表判定该测试项目通过。



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38.3.4	Procedure/测试步骤	_
天概	Test 7: Overcharge/测试 7: 过度充电	
71201 34 71201 54 38.3.4.7	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	A Time S N/A 不适用
	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。 Requirements/标准要求: No disassembly and no fire during the test and within seven days after the test.	F. V
	试验样品在试验中和试验后7天内,应无解体和无起火现象发生。	天徽
	Result 测试结果	

其他补充:测试结果"N/A"代表不适用。

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天湖	Test 8: Forced discharge/澳	试 8: 强制放电		天潮	AA P			
7 (24) 3 " 7 (4) 5 4 7 (4) 5 4 7 (4) 5 4 7 (4) 5 4 7 (4) 5 4	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。							
	Requirements/标准要求: No disassembly and no fire d 试验样品在试验中和试验后 7			<u> </u>	天 Pian			
	Result 测试结果	· · · · · · · · · · · · · · · · · · ·	天湖 7ian Su	Tian Su 天開 Tian Su	K MA Tian Su			
Sample No. 样品编号	OCV prior to test 试验前电压(V)	Test result 测试结果	Sample No. 样品编号	OCV prior to test 试验前电压(V)	Test resu 测试结果			
21#	7 3.306	P	31#	3.331	P			
22#	3.332	Р	32#	3.327	Р			
00#	3.319	Р	33#	3.305	P			
23#	2.200	P	34#	3.317	Р			
24#	3.296	2 1/11			100			
A	3.298	P	35#	7 in 5 3.298	Р			
24#	7ian 2"	# 1014 Tran 5"	35# 36#	3.298 3.321	P P			
24# 25#	3.298	Р	天學 ——	7	,,, St			
24# 25# 26#	3.298	P P	36#	3.321	P			
24# 25# 26# 27#	3.298 3.337 3.327	P P	36#	3.321	P R P ^{71a}			

其他补充:测试结果"P"代表判定该测试项目通过。

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STATEMENTS

声明

- 1. The test report is invalid without the official stamp of Tiansu. 本报告无检测单位印章无效。
- 2. Nobody is allowed to photocopy or partly photocopy this test report without written permission of Tiansu.

未经本试验室书面同意,不得部分地复制本报告。

3. The test report is invalid without the signatures of Ratifier, Reviewer and Testing engineer.

本报告无批准人、审核人及鉴定人签名无效。

4. The test report is invalid if altered.

本报告涂改无效。

- 5. Objections to the test report must be submitted to Tiansu within 15 days. 对检测报告若有异议,应于收到报告之日起十五天内向检测单位提出。
- 6. The test report is valid for the tested samples only. 本报告仅与送检样品有关。

-----报告结束-----







第 1 页 共 14 页

UN38.3 检测报告 UN38.3 TEST REPORT

产品名称...... 聚合物锂离子电芯

Product.....: Polymer Lithium-ion Cell

委托单位.....:

Applicant....:

检测类别......委托检测

Classification..: Request examination

Shenzhen Tiansu Calibration and Testing Co.,Ltd

深圳天溯计量检测股份有限公司

B/1/4, NO.2 Jinlong Road, Longgang District, Shenzhen, China

深圳市龙岗区宝龙街道锦龙大道2号1栋、4栋

Web: www.tiansu.org E-mail: tsjc@tiansu.org Tel: 0755-89457984





第 2 页 共 14

Rep. No.: TCTTJ202101096	896ZB-BR06			第 2 页 共 14
样品名称	聚合物锂离子电芯	天 VIII	- 3A	Han 2"
Sample Name		n Cell		
型号规格	o Time	54		70 ×10°
Type/Model	602025			
委托单位				° ake
Applicant				
委托单位地址				
Applicant Address				
A WA			10000	
制造单位		39.6	10.5	
Manufacture	:			
制造单位地址	:			
Manufacture Address	:			
制造商联系电话(Phone)	:			
制造商联系邮箱(Email)	· 1			
制造商网址(Website)				
样品参数 人	额定信息	- 1/m - 5"	样品颜色	银色
Sample parameters		3.7V\250mAh\0.925Wh	Sample color	Silver
测试参数	样品形状	棱柱形	样品尺寸(mm)	
Test parameters		Prismatic	Sample size	24.97*19.85*5.94
	充电限制电压	4.01/	放电截止电压	0.75)/
	Limiting voltage	4.2V	Cut-off voltage	2.75V
	标准充电电流 Standard charge	125mA	标准放电电流 Standard discharge	50mA
	current	120IIIA	current	JOHA THAT
	最大持续充电电流 Max continuous	250mA	最大持续放电电流 Max continuous discharge current	250mA
	charge current	7100 50		2 181
	组成电芯数量	N/A	电芯型号	N/A
	Cell quantity	190 - 7100 Su	Cell model	
	接样日期 Receiving date	2021/1/19	测试完成日期 Completion date	2021/1/28
14 141 17 114		11 \- +\ 11 -+ \\\ 1> \\\ 1\ -\		T 4 1/2 00 0 1/2
检测依据		物运输的建议书 - 试验 Rev.6/Amend.1/Sectio		止 1 第 38.3 节
Testing basis		合联合国《关于危险》		验和标准毛期》 笛
位则结论 Test conclusion	· 六版修正 1 第 38.3		以1000世間的建以下 国	72711711111111111111111111111111111111
7,4	A 100 / A 1 2 10 10 10 10 10 10 10 10 10 10 10 10 10	sed the test items of UN	NITED NATIONS "Reco	mmendations on the
	131000	ANGEROUS GOODS",		
rea Team St		ev.6/Amend.1/Section38		* VIII
签发日期	2021/2/4	7 Jun 54	表前	A Company
Test conclusion	2021/2/4	第	Time 5	W

批准

Approved by 授权签字人 Authorized Signatory



审批

Reviewed by 项目主管 Project Supervisor





第 3 页 共 14 页

Sample information and other instructions:

样品信息及其他说明:

	Test item	Sample No.	State State	Remark
	测试项目	样品编号	Tan 54	备注
	T1. T5	C01~C05	At first cycle in fully charged states; 在第一个循环完全充电;	天 in S
76	T.1~T.5	C06~C10	After 25 cycles ending in fully charged states; 在第二十五个循环完全充电;	/
0	Mian :	C11~C15	At first cycle at 50% of the design rated capacity; 在第一个循环充电 50%的额定容量;	A VIII Tian Su
	T.6	C16~C20	After 25 cycles ending in fully charged at 50% of the design rated capacity; 在第二十五个循环充电 50%的额定容量;	月 第 Sa
	T.7	天瀬1 Tian Su 1	1 美欄 Tran Su Tran Su	1 × 1
71	Tax Su	1 美賞	Time Su 天湖	,
4	TO	C21~C30	At first cycle in fully discharged states; 在第一个循环完全放电;	天湖
	T.8	C31~C40	After 25 cycles ending in fully discharged states; 在第二十五个循环完全放电;	A. 1

Description of	f the sam	pling prod	cedure:
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取样程序的说明:

无(N/A)

Laboratory subcontract test instructions:

实验室分包测试说明:

无(N/A)

Description of report revision:

报告修订的说明:

无(N/A)

Remarks:

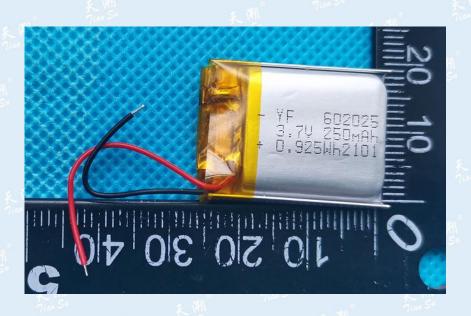
备注:

样品类型: 锂离子电芯

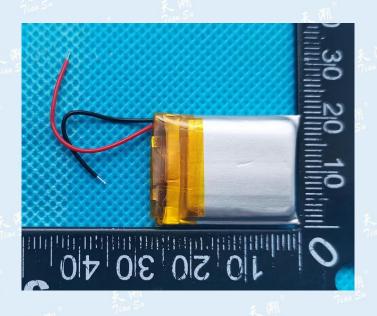
Sample type: Lithium ion cell

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电池图片 Photos of Battery



电池正面图 Front view of battery



电池背面图 Back view of battery

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38.3.4	Procedure	/测试步骤	,5"	Į. Vi	h Se	± 1	A. T	yan Si		
- 18	Test 1: Alti	tude simulation	n/测试 1: 高	度模拟	主 湖	7 can	Ŝ#	F.		
Pian S	ambient te	and batteries s emperature (20 已池在温度为 2	℃ ±5 ℃).	7 ian Sa						
38.3.4.1	1.Cells an 样品质量力 2.Open cir test cells a 样品试验后 3.No leaka	Requirement/标准要求: 1.Cells and batteries Mass loss limit: ≤ 0.2%. 样品质量损失≤ 0.2%。 2.Open circuit voltage not less than 90%, The requirement relating to voltage is not applicable to test cells and batteries at full discharged states. 样品试验后开路电压应不低于试验前开路电压的 90%,此要求不适用于完全放完电的电芯和电池。 3.No leakage, no venting, no disassembly, no rupture and no fire. 样品应无漏液、无排气、无解体、无破裂以及无着火现象的发生。								
	1十四四九师	对 水、 儿 排 气、	九胖 件、 九%	及农以及几有	入光》的及	生。美丽				
F. Will Transu	样品编号 No.	测试前 Before Test		测试后 After Test		质量损失	剩余电压	测试结果		
		样品质量 m ₁ (g)	开路电压 V ₁ (V)	样品质量 m ₂ (g)	开路电压 V ₂ (V)	Mass loss(%)	Residual OCV(%)	Test result		
	C01	5.151	4.179	5.151	4.179	0.00	100.00	Р		
	C02	5.164	4.178	5.163	4.177	0.02	99.98	Р		
	C03	5.165	4.167	5.165	4.166	0.00	99.98	Р		
Result	C04	5.161	4.171	5.161	4.171	0.00	100.00	Р		
测试结果	C05	5.152	4.163	5.151	4.163	0.02	100.00	P. 5		
	C06	5.153	4.165	5.153	4.165	0.00	100.00	Р		
	C07	5.146	4.161	5.146	4.161	0.00	100.00	Р		
	C08	5.152	4.172	5.151	4.171	0.02	99.98	Р		
	C09	5.160	4.173	5.160	4.173	0.00	100.00	Р		
	C10	5.151	4.164	5.151	4.164	0.00	100.00	Р		

其他补充:测试结果"P"代表判定该测试项目通过。 Other supplements :Test result "P" decides that the test item passes.

Rep. No.: TO	第6页共14页
38.3.4	Procedure/测试步骤
2 渊	Test 2: Thermal test/测试 2: 温度测试
Mian Su	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℃,
- M	The maximum time interval between test temperature extremes in 30 minutes, This procedure
Tian Su	is to be repeated until 10 total cycles are complete, after which all test cells and batteries are to
4	be stored for 24 hours at ambient temperature (20 ℃±5 ℃).
78 T	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
54	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
38.3.4.2	在环境温度为 20℃±5℃的条件下放置 24 个小时。
4500	Requirement/标准要求:
	1.Cells and batteries Mass loss limit: ≤ 0.2%.
美術	样品质量损失≤0.2%。 2.Open circuit voltage not less than 90%, The requirement relating to voltage is not applicable
7ian 5"	to test cells and batteries at full discharged states.
*	样品试验后开路电压应不低于试验前开路电压的90%,此要求不适用于完全放完电的电芯和电
MA T	池。
.Se	3.No leakage, no venting, no disassembly, no rupture and no fire. 样品应无漏液、无排气、无解体、无破裂以及无着火现象的发生。
天開 Tian Sa	什印四· 九州· 八州· 八州· 八州· 八州· 八州· 八州· 八州· 八州· 八州· 八
	WIND Defens Test WIND After Test

	样品编号	测试前 Be	fore Test	测试后 /	After Test	质量损失	剩余电压	测试结果
天湖 Tian Su	No.	样品质量 m ₁ (g)	开路电压 V ₁ (V)	样品质量 m ₂ (g)	开路电压 V ₂ (V)	Mass loss(%)	Residual OCV(%)	Test result
1000	C01	5.151	4.179	5.148	4.158	0.06	99.50	Р
MA.	C02	5.163	4.177	5.160	4.154	0.06	99.45	Р
un Su	C03	5.165	4.166	5.164	4.144	0.02	99.47	Р
Result	C04	5.161	4.171	5.159	4.147	0.04	99.42	Р
测试结果	C05	5.151	4.163	5.150	4.139	0.02	99.42	Р
6	C06	5.153	4.165	5.151	4.140	0.04	99.40	P
天湖 Tian Su	C07	5.146	4.161	5.144	4.135	0.04	99.38	Р
0.00	C08	5.151	4.171	5.150	4.148	0.02	99.45	Р
782	C09	5.160	4.173	5.159	4.159	0.02	99.66	P
an Su	C10	5.151	4.164	5.148	4.151	0.06	99.69	Р

其他补充:测试结果"P"代表判定该测试项目通过。

Other supplements: Test result "P" decides that the test item passes.

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38.3.4	Procedure/测试步骤					
- 18A	Test 3: Vibration/测试 3: 振动					
	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.					
	将电芯和电池牢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					
38.3.4.3	池从三个互相垂直的方向上循环 12 次,每个方向共 3 个小时。					
	Requirement/标准要求:					
	1.Cells and batteries Mass loss limit: ≤ 0.2%.					
	样品质量损失≤0.2%。					
	Open circuit voltage not less than 90%, The requirement relating to voltage is not applicable test cells and batteries at full discharged states.					
	样品试验后开路电压应不低于试验前开路电压的 90 %,此要求不适用于完全放完电的电芯和电					
	池。					
	3.No leakage, no venting, no disassembly, no rupture and no fire.					
	样品应无漏液、无排气、无解体、无破裂以及无着火现象的发生。					
550	测试前 Before Test 测试后 After Test 医具提片 剩入由口 测定计用					

Jian Su	样品编号	测试前 Be	efore Test	测试后 4	After Test	质量损失	剩余电压	测试结果
who *	No.	样品质量 m ₁ (g)	开路电压 V ₁ (V)	样品质量 m ₂ (g)	开路电压 V ₂ (V)	Mass loss(%)	Residual OCV(%)	Test result
天淵 Tim Su	C01	5.148	4.158	5.148	4.158	0.00	100.00	Р
	C02	5.160	4.154	5.160	4.154	0.00	100.00	Р
16A	C03	5.164	4.144	5.164	4.143	0.00	99.98	Tian S P
Result	C04	5.159	4.147	5.158	4.147	0.02	100.00	Р
测试结果	C05	5.150	4.139	5.150	4.138	0.00	99.98	Р
Tian -	C06	5.151	4.140	5.151	4.140	0.00	100.00	Р
	C07	5.144	4.135	5.144	4.135	0.00	100.00	P
天湖 Tian Su	C08	5.150	4.148	5.150	4.148	0.00	100.00	Р
	C09	5.159	4.159	5.159	4.158	0.00	99.98	Р
THE SECOND	C10	5.148	4.151	5.147	4.151	0.02	100.00	P

其他补充:测试结果"P"代表判定该测试项目通过。 Other supplements :Test result "P" decides that the test item passes.

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100.00

100.00

100.00

99.98

100.00

99.98

100.00

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Ρ

Ρ

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Ρ

Ρ

Rep. No.: 10	11320210	109696ZB-B	KUO		30	1.00	第	8 贝 共 14)	
38.3.4	Procedure	/测试步骤	A.S	, o 710	, 5"	į.	WA .		
主 浙	Test 4: Sh	Test 4: Shock/测试 4: 冲击							
7100 54	Test cells and batteries shall be secured to the testing machine, and each shall be subjected to								
	a half-sine	shock of pe	ak accelerat	tion of 150g _n	(or Accelera	ation(gn)= $\sqrt{\frac{1000}{ma}}$	$\frac{850}{ass}$, which i	s smaller)	
· 湖		duration of 6							
Tim Su	half-sine c	of peak accel	eration of 50	gn (or Accel	eration(gn)=	$\sqrt{\frac{30000}{M9SS}}$, whic	h is smaller)	and pulse	
*	duration o	f 11 milliseco	onds. Each c	ell or battery	shall be sul	bjected to thr	ee shocks ir	the	
7A 7	positive di	rection follow	ved by three	shocks in th	e negative c	lirection of th	ree mutually	ian Su	
5.		ular mountin	· .		•				
z VA		毛架固定住每							
Tian Su		中的较小							
38.3.4.4		ル速度 50g₁							
2 141		也须在三个互		池安装方位的	1正方向经受	三次冲击,接	着在反方向给	至 受 三 次 冲	
Jian Su	击,总共约	圣受 18 次冲 -	击。						
*		ent/标准要求		Tion Su		天剛	(. 149	
7		d batteries M	lass loss lim	nit: ≤ 0.2%.					
.54		员失≤ 0.2%。 rcuit voltage	not less that	n 90% The r	equirement	relating to vo	oltage is not :	annlicable	
天湖		s and batteri				rolating to re	mage is not	арричавіс	
Jian 5ª		后开路电压应	不低于试验	前开路电压的	790%,此要表	 	全放完电的日	电芯和电	
	池。 3 No leaks	age, no venti	na no disas	sembly no r	unture and r	o fire			
大湖		局液、无排气		•					
Mias 5s		美棚			764		754		
	样品编号	测试前 B€	efore Test	测试后 A	After Test	质量损失	剩余电压	测试结果	
भ	No.	样品质量 m ₁ (g)	开路电压 V ₁ (V)	样品质量 m ₂ (g)	开路电压 V ₂ (V)	Mass loss(%)	Residual OCV(%)	Test result	
at 5"	C01	5.148	4.158	5.148	4.158	0.00	100.00	P	
美 豐		2.243	S 7,84	7-27		50		0	
7/44	C02	5.160	4.154	5.160	4.153	0.00	99.98	Р	
	C03	5.164	4.143	5.164	4.143	0.00	100.00	P	

其他补充:测试结果"P"代表判定该测试项目通过。

C04

C05

C06

C07

C08

C09

C10

Result

测试结果

Other supplements: Test result "P" decides that the test item passes.

5.158

5.150

5.151

5.144

5.150

5.159

5.147

4.147

4.138

4.140

4.135

4.148

4.158

4.151

5.158

5.149

5.151

5.143

5.150

5.159

5.147

4.147

4.138

4.140

4.134

4.148

4.157

4.151

0.00

0.02

0.00

0.02

0.00

0.00

0.00

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38.3.4	Procedure/测	武步骤 系	0.83					
天洲	Test 5: Extern	Test 5: External short circuit/测试 5: 外部短路						
	The cell or ba	ttery to be tested shall be temperature stabilized so that its external	case					
支潮		eaches $57^\circ\!\!\!\mathrm{C}\!\pm\!4^\circ\!\!\!\mathrm{C}$ and then the cell or battery shall be subjected to a						
		a total external resistance of less than 0.1 ohm at $57^\circ\!\!\!\!\!\mathrm{C}\pm\!\!\!\!\!\!4^\circ\!\!\!\!\mathrm{C}$, This sh						
		ontinued for at least one hour after the cell or battery external case to	•					
		o 57℃±4℃, the cell or battery must be observed for a further six ho	urs for the					
	test to be con	************************************	松二 七1					
38.3.4.5		温度稳定在 57℃±4℃,以使电芯或电池样品外表温度达到 57℃±4℃, 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						
天湖 Tian Sii		正贝依用小了 U.I 以两的线路应接, 特电心或电池的外表温度恢复到时以上, 对电芯或电池必须进一步观察 6 个小时才能下结论。	37 C±4 CZ					
		TIAN SIL TIAN	54					
	Requirement/		avceed					
	1.Cells and batteries meet this requirement if their external temperature does not exceed 170°C;							
7/20	电芯或电池的外表温度应不超过 170℃;							
	2. No disassembly, no rupture and no fire during the test and within six hours after this test. 试验后 6 小时内无解体、无破裂、无起火。							
A .	试验后 6 小时	N 九斛 体、 九 敬 教、 九 起 X 。	Minu Su					
	样品编号	样品表面最高温度	测试结果					
	No.	Max External Temperature(℃)	Test result					
	C01	105.5	Р					
	C02	115.2	Pine					
	C03	110.8	Р					
Result	C04	110.1	Р					
测试结果	C05	7 cm 5° 102.3	P					
	C06	117.3	Р					
	C07	118.8 Tun St	Р					
	C08	104.6	Р					
	C09	112.5	Pian					
	C10	102.1	Р					
其他补充:测	试结果"P"代表:	判定该测试项目通过。	* MA					
/ \ 10 11 /u · 1/	4 " 4 - H / I - 1 1 1 / V - 1	, 1/ C 2/ 2/1 6/ 2/ 1/ C 2/ C						

深圳天溯计量检测股份有限公司 Shenzhen Tiansu Calibration and Testing Co.,Ltd

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38.3.4 Procedure/测试步骤

Test 6: Crush(Applicable) \ Impact(Not applicable)

测试 6: 挤压(适用) \撞击(不适用)

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;
- (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)电池厚度和初始厚度相比变形至少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

38.3.4.6

(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 \pm 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 61cm \pm 2.5cm 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 15.8mm±0.1mm diameter curved surface lying across the centre of the test sample. Each sample is to be subjected to only a single impact. Cells and component cells meet this requirement if their external temperature does not exceed 170°C and there is no disassembly and no fire during 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,将直径为 15.8 mm±0.1 mm 的 316 型不锈钢棒横放在样品中心位置。然后将质量为 9.1 kg±0.1 kg 的物体从 61cm±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。

Requirements/标准要求:

1.Cells and component cells meet this requirement if their external temperature does not exceed 170° C;

电芯的外表温度应不超过 170℃;

2. No disassembly, no fire during the test and within six hours after this test; 试验后 6 小时内无解体、无起火。

*续接下一页

Continued on next page;

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*绿娃 | 一面

Continued from previous page;

天渊 Tian Sa	样品编号 No.	试验前电压 OCV prior to test(V)	样品表面最高温度 Max external temperature(℃)	测试结果 Test result
Result	C11	3.824	23.7	P M
	C12	3.804	24.4	Р
	C13	3.791	24.7	Р
	C14	3.787	24.1	P
测试结果	C15	3.798	23.7	Р
走湖	C16	3.826	24.7	Р
Tian Su	C17	3.785	24.8	54 P
	C18	3.805	23.6	P #
天湖	C19	3.800	7 ₁₀₀ Se 23.7	P
	C20	3.803	23.8	Р

其他补充:测试结果"P"代表判定该测试项目通过。

Other supplements: Test result "P" decides that the test item passes.

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38.3.4	Procedure/测	试步骤 "				
38.3.4.7	Test 7: Overc	harge/测试 7:过度充电				
	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的 2 倍。					
	Requirements/标准要求: No disassembly and no fire during the test and within seven days after the test. 试验样品在试验中和试验后 7 天内,应无解体和起火现象发生。					
Result	样品编号 No.	试验前电压 OCV prior to test(V)	测试结果 Test result			
测试结果			500			

其他补充:测试结果"P"代表判定该测试项目通过。 Other supplements :Test result "P" decides that the test item passes.

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38.3.4	Procedure	/测试步骤	, Tia	.54	长 随	O. O			
天潮 7101 Sa	Test 8: Forced discharge/测试 8: 强制放电								
	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								
38.3.4.8	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,此直流电源损								
	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。								
		Requirements/标准要求:							
	No disassembly and no fire during the test and within seven days after the test. 试验样品在试验中和试验后 7 天内,应无解体和起火现象发生。								
Tian Su		\$ 1617	8	10 Miles (10 Miles)	SAME AND				
	样品编号	试验前电压	测试结果	样品编号	试验前电压	测试结果			
	样品编号 No.	试验前电压 OCV prior to test(V)	测试结果 Test result	样品编号 No.	试验前电压 OCV prior to test(V)				
	5314					200			
	No.	OCV prior to test(V)	Test result	No.	OCV prior to test(V)	Test resu			
	No. C21	OCV prior to test(V) 3.225	Test result	No.	OCV prior to test(V) 3.151	Test resu			
	No. C21 C22	OCV prior to test(V) 3.225 3.151	Test result P P	No. C31 C32	OCV prior to test(V) 3.151 3.197	Test resu			
	C21 C22 C23	OCV prior to test(V) 3.225 3.151 3.076	P P	No. C31 C32 C33	OCV prior to test(V) 3.151 3.197 3.091	Test resu			
	No. C21 C22 C23 C24	OCV prior to test(V) 3.225 3.151 3.076 3.192	Test result P P P P	No. C31 C32 C33 C34	OCV prior to test(V) 3.151 3.197 3.091 3.138	P P P			
	No. C21 C22 C23 C24 C25	OCV prior to test(V) 3.225 3.151 3.076 3.192 3.218	P P P	No. C31 C32 C33 C34 C35	OCV prior to test(V) 3.151 3.197 3.091 3.138 3.234	P P P			
	C21 C22 C23 C24 C25 C26	OCV prior to test(V) 3.225 3.151 3.076 3.192 3.218 3.063	P P P P	No. C31 C32 C33 C34 C35 C36	OCV prior to test(V) 3.151 3.197 3.091 3.138 3.234 3.149	P P P P			
Result 测试结果	No. C21 C22 C23 C24 C25 C26 C27	OCV prior to test(V) 3.225 3.151 3.076 3.192 3.218 3.063 3.169	P P P P P P	No. C31 C32 C33 C34 C35 C36 C37	OCV prior to test(V) 3.151 3.197 3.091 3.138 3.234 3.149 3.108	P P P P			

其他补充:测试结果"P"代表判定该测试项目通过。 Other supplements :Test result "P" decides that the test item passes.

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STATEMENTS

声明

1. The test report is invalid without the official stamp of Tiansu.

本报告无检测单位印章无效。

2. Nobody is allowed to photocopy or partly photocopy this test report without written permission of Tiansu.

未经本实验室书面同意,不得部分地复制本报告。

3. The test report is invalid without the signatures of Approver, Reviewer and Testing engineer.

本报告无批准人、审核人及主检人签名无效。

4. The test report is invalid if altered.

本报告涂改无效。

5. Objections to the test report must be submitted to Tiansu within 15 workdays.

对检测报告若有异议, 应于收到报告之日起十五个工作日内向检测单位提出。

6. The test report is valid for the tested samples only.

本报告仅与送检样品有关。

·······报告结束 End of report ·······