编号 No.: DSP23111393-2

UN38.3 测试报告

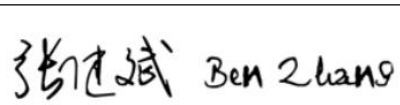
UN38.3 Test Report

样 品 名 称：	锂离子电池 7.4V, 2000mAh, 14.8Wh
Sample name：	Lithium-ion Battery 7.4V, 2000mAh, 14.8Wh
型 号 Model：	18650-2000mAh
委 托 单 位：	温州赛纬新能源科技有限公司
Consignor：	Wenzhou Saiwei New Energy Technology Co., LTD

检测单位：东莞市中认联科检测技术有限公司
Laboratory: Dongguan ZRLK Testing Technology Co., Ltd.
地址：广东省东莞市松山湖园区科技十路 1 号 2 栋
Address: Building 2, No.1, Technology 10th Road, Songshan Lake Park, Dongguan, Guangdong, China
电话(Tel): +86-769-26621775
邮政编码(Post Code): 523808
Email: Marketing@zrlklab.com
Web: www.zrlklab.com

委托单位信息 Consignor information	名称 Name	温州赛纬新能源科技有限公司 Wenzhou Saiwei New Energy Technology Co., LTD
	地址 Address	浙江省温洲市平阳县万全镇机电创业园兴强路 30-70 号 2 栋 2 楼 2F, Building 2, No. 30-70, Xingqiang Road, Electromechanical Pioneer Park, Wanquan Town, Pingyang County, Wenzhou City, Zhejiang Province, P.R. China
制造商信息 Manufacturer information	名称 Name	温州赛纬新能源科技有限公司 Wenzhou Saiwei New Energy Technology Co., LTD
	地址 Address	浙江省温洲市平阳县万全镇机电创业园兴强路 30-70 号 2 栋 2 楼 2F, Building 2, No. 30-70, Xingqiang Road, Electromechanical Pioneer Park, Wanquan Town, Pingyang County, Wenzhou City, Zhejiang Province, P.R. China
	电话 Phone number	+86-13868890089
	邮箱地址 Email address	408622877@qq.com
	网址 Website	-
工厂信息 Factory information	名称 Name	温州赛纬新能源科技有限公司 Wenzhou Saiwei New Energy Technology Co., LTD
	地址 Address	浙江省温洲市平阳县万全镇机电创业园兴强路 30-70 号 2 栋 2 楼 2F, Building 2, No. 30-70, Xingqiang Road, Electromechanical Pioneer Park, Wanquan Town, Pingyang County, Wenzhou City, Zhejiang Province, P.R. China
	电话 Phone number	+86-13868890089
	邮箱地址 Email address	408622877@qq.com
	网址 Website	-
(电芯) 制造商信息 (Cell) Manufacturer information	名称 Name	温州清明电子有限公司 Wenzhou Qingming Electronics., Ltd.
	地址 Address	浙江省温州市平阳县万全镇郑楼标准厂房丰源路 2 号 No.2 Fengyuan Road, Zhenglou standard workshop, Wanquan Town, Pingyang County, Wenzhou City, Zhejiang Province
	电话 Phone number	+86-18968768383
	邮箱地址 Email address	364499515@qq.com
	网址 Website	-

样品描述及说明 General product information			
样品类型(是否可充电) Sample Type(Rechargeable or not)	■是/Yes		□否/No
样品信息 Sample information：			
产品名称 Product Name	锂离子电池 Lithium-ion Battery	型号 Model	18650-2000mAh
商标 Trade mark	无 N/A	样品编号 Sample No.	B01#~B16# C01#~C30#
标称电压 Nominal Voltage	7.4V	额定容量 Rated Capacity	2000mAh
额定能量 Rated Energy	14.8Wh	充电截止电压 Charge Cut-off Voltage	8.4V
最大充电电流 Max. Charging Current	1000mA	标准充电电流 Standard Charging Current	400mA
充电截止电流 Charge Cut-off Current	40mA	放电终止电压 Discharge Cut-off Voltage	5.2V
最大放电电流 Max. Discharging Current	4000mA	标准放电电流 Standard Discharging Current	400mA
形状 Shape	棱柱形 Prismatic	尺寸 Size	66.8*36.8*19.2mm
样品质量 Sample Mass	93.1g	串并联方式 Connection composition of series-parallel	2S1P
电芯信息 Cell information：			
电芯型号 Cell Model	18650	标称电压 Nominal Voltage	3.7V
额定容量 Rated Capacity	2000mAh	最大放电电流 Max. Discharging Current	4000mA

样品接收日期 Accepted date	2023-11-05	测试起讫日期 Test date	2023-11-05 ~ 2023-11-27
测试方法 和判定标准 Test method and criterion	联合国《试验和标准手册》（第 7 版 修订 1）38.3 节 UN "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.7/Amend.1/Subsection 38.3		
测试项目 Test items	高度模拟、温度试验、振动、冲击、外部短路、重物冲击、过度充电、强制放电 Altitude simulation, Thermal test, Vibration, Shock, External short circuit, Impact, Overcharge, Forced discharge.		
测试结论 Conclusion	经测试，该样品符合联合国《试验和标准手册》ST/SG/AC.10/11/Rev.7/Amend.1, 38.3 标准要求。 The sample has passed the test items of UNITED NATIONS “Manual of Tests and Criteria” ST/SG/AC.10/11/Rev.7/Amend.1, 38.3. 签发日期(Issue date): 2023-11-27		
备注 Remark	----		
主检(职位) Tested by: (Position)	李镇宗 Henry Li (Test Engineer)		东莞市中认联科检测技术有限公司 Dongguan ZRLK Testing Technology Co., Ltd.
审核(职位) Checker: (Position)	张健斌 Ben Zhang (Item Engineer)		
批准(职位) Approver: (Position)	马孝琴 Ailis Ma (Approved by)		

序号 No.	测试项目名称 Name of test	标准要求或标准条款号 Standard requirement or the clause number of standard	测试结果 Test result	本项结论 Test conclusion	备注 Remarks
1	高度模拟 Altitude simulation	联合国《试验和标准手册》（第 7 版 修订 1）38.3 节试验 T.1 UN "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.7/Amend.1/Subsection 38.3 Test T.1	见附表 1 See Appendix 1	合格 Passed	/
2	温度试验 Thermal test	联合国《试验和标准手册》（第 7 版 修订 1）38.3 节试验 T.2 UN "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.7/Amend.1/Subsection 38.3 Test T.2	见附表 2 See Appendix 2	合格 Passed	/
3	振动 Vibration	联合国《试验和标准手册》（第 7 版 修订 1）38.3 节试验 T.3 UN "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.7/Amend.1/Subsection 38.3 Test T.3	见附表 3 See Appendix 3	合格 Passed	/
4	冲击 Shock	联合国《试验和标准手册》（第 7 版 修订 1）38.3 节试验 T.4 UN "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.7/Amend.1/Subsection 38.3 Test T.4	见附表 4 See Appendix 4	合格 Passed	/
5	外部短路 External short-circuit	联合国《试验和标准手册》（第 7 版 修订 1）38.3 节试验 T.5 UN "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.7/Amend.1/Subsection 38.3 Test T.5	见附表 5 See Appendix 5	合格 Passed	/
6	重物冲击 Impact	联合国《试验和标准手册》（第 7 版 修订 1）38.3 节试验 T.6 UN "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.7/Amend.1/Subsection 38.3 Test T.6	见附表 6 See Appendix 6	合格 Passed	/
7	过度充电 Overcharge	联合国《试验和标准手册》（第 7 版 修订 1）38.3 节试验 T.7 UN "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.7/Amend.1/Subsection 38.3 Test T.7	见附表 7 See Appendix 7	合格 Passed	/
8	强制放电 Forced discharge	联合国《试验和标准手册》（第 7 版 修订 1）38.3 节试验 T.8 UN "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.7/Amend.1/Subsection 38.3 Test T.8	见附表 8 See Appendix 8	合格 Passed	/
测试环境条件 Test environment condition		环境温度： 20°C - 25°C； 环境湿度： 45% - 75% Ambient temperature: 20°C - 25°C, Ambient humidity: 45% - 75%			

Procedure 说明

Test T.1 to test T.5 must be conducted in sequence on the same cell or battery. Test T.6 and test T.8 shall be conducted using not otherwise tested cells or batteries.
必须用相同的电芯或电池按顺序进行试验 1 到试验 5。试验 6 和试验 8 须用没进行过其它试验的电芯或电池。为了测试循环后的电池，试验 7 可用试验 1 到试验 5 后没损坏的电池。

Batteries of B01#~B08# are full charged after one cycle;
电池 B01#~B08#为 1 次循环满电状态；
Batteries of B09#~B16# are full charged after 25th cycle;
电池 B09#~B16#为 25 次循环满电状态；
Cells of C01#~C05# are 50% charged after one cycle;
电芯 C01#~C05#为 1 次循环后 50%充电状态;
Cells of C06#~C10# are 50% charged after 25th cycle;
电芯 C06#~C10#为 25 次循环后 50%充电状态;
Cells of C11#~C20# are full discharged after one cycle;
电芯 C11#~C20#为 1 次循环完全放电状态;
Cells of C21#~C30# are full discharged after 25th cycle.
电芯 C21#~C30#为 25 次循环后完全放电状态。

Remark:Circular preprocessing is provided by customers
备注：循环预处理由客户提供

附 表 1
Appendix 1

序号 No.	1	测试项目名称 Name of Test Items		高度模拟 Altitude simulation				
样品编号 Sample No.	样品状态 Sample status	测试前 Before		测试后 After		质量损失 Mass loss (%)	剩余电压 Residual OCV (%)	测试结果 Test result
		电池质量 m_1 (g)	开路电压 V_1 (V)	电池质量 m_2 (g)	开路电压 V_2 (V)			
B01#	首次完全充电 1 CYC Fully Charged	92.8611	8.376	92.8516	8.370	0.01	99.9	O
B02#	首次完全充电 1 CYC Fully Charged	93.0028	8.371	92.9972	8.366	0.01	99.9	O
B03#	首次完全充电 1 CYC Fully Charged	93.1018	8.373	93.0903	8.357	0.01	99.8	O
B04#	首次完全充电 1 CYC Fully Charged	92.8827	8.366	92.8784	8.361	0.00	99.9	O
B09#	25 次完全充电 25 CYC Fully Charged	93.1264	8.368	93.1213	8.354	0.01	99.8	O
B10#	25 次完全充电 25 CYC Fully Charged	92.8028	8.369	92.7922	8.355	0.01	99.8	O
B11#	25 次完全充电 25 CYC Fully Charged	93.0127	8.365	93.0078	8.360	0.01	99.9	O
B12#	25 次完全充电 25 CYC Fully Charged	93.0092	8.362	93.0005	8.353	0.01	99.9	O
以下空白								

注: L-泄露; V-排气; D-解体; R-破裂; F-起火; O-无泄露、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

附 表 2
Appendix 2

序号 No.	2	测试项目名称 Name of Test Items		温度试验 Thermal test				
样品编号 Sample No.	样品状态 Sample status	测试前 Before		测试后 After		质量损失 Mass loss (%)	剩余电压 Residual OCV (%)	测试结果 Test result
		电池质量 m_1 (g)	开路电压 V_1 (V)	电池质量 m_2 (g)	开路电压 V_2 (V)			
B01#	首次完全充电 1 CYC Fully Charged	92.8516	8.370	92.7945	8.233	0.06	98.4	O
B02#	首次完全充电 1 CYC Fully Charged	92.9972	8.366	92.9496	8.241	0.05	98.5	O
B03#	首次完全充电 1 CYC Fully Charged	93.0903	8.357	93.0429	8.237	0.05	98.6	O
B04#	首次完全充电 1 CYC Fully Charged	92.8784	8.361	92.8309	8.229	0.05	98.4	O
B09#	25 次完全充电 25 CYC Fully Charged	93.1213	8.354	93.0644	8.239	0.06	98.6	O
B10#	25 次完全充电 25 CYC Fully Charged	92.7922	8.355	92.7357	8.244	0.06	98.7	O
B11#	25 次完全充电 25 CYC Fully Charged	93.0078	8.360	92.9507	8.238	0.06	98.5	O
B12#	25 次完全充电 25 CYC Fully Charged	93.0005	8.353	92.9339	8.232	0.07	98.6	O
以下空白								

注: L-泄露; V-排气; D-解体; R-破裂; F-起火; O-无泄露、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

附 表 3
Appendix 3

序号 No.	3	测试项目名称 Name of Test Items		振动 Vibration				
样品编号 Sample No.	样品状态 Sample status	测试前 Before		测试后 After		质量损失 Mass loss (%)	剩余电压 Residual OCV (%)	测试结果 Test result
		电池质量 m_1 (g)	开路电压 V_1 (V)	电池质量 m_2 (g)	开路电压 V_2 (V)			
B01#	首次完全充电 1 CYC Fully Charged	92.7945	8.233	92.7697	8.227	0.03	99.9	O
B02#	首次完全充电 1 CYC Fully Charged	92.9496	8.241	92.9327	8.229	0.02	99.9	O
B03#	首次完全充电 1 CYC Fully Charged	93.0429	8.237	93.0237	8.217	0.02	99.8	O
B04#	首次完全充电 1 CYC Fully Charged	92.8309	8.229	92.8157	8.216	0.02	99.8	O
B09#	25 次完全充电 25 CYC Fully Charged	93.0644	8.239	93.0437	8.222	0.02	99.8	O
B10#	25 次完全充电 25 CYC Fully Charged	92.7357	8.244	92.7217	8.231	0.02	99.8	O
B11#	25 次完全充电 25 CYC Fully Charged	92.9507	8.238	92.9281	8.219	0.02	99.8	O
B12#	25 次完全充电 25 CYC Fully Charged	92.9339	8.232	92.9127	8.221	0.02	99.9	O
以下空白								

注: L-泄露; V-排气; D-解体; R-破裂; F-起火; O-无泄露、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

附 表 4
Appendix 4

序号 No.	4	测试项目名称 Name of Test Items		冲击 Shock				
样品编号 Sample No.	样品状态 Sample status	测试前 Before		测试后 After		质量损失 Mass loss (%)	剩余电压 Residual OCV (%)	测试结果 Test result
		电池质量 m_1 (g)	开路电压 V_1 (V)	电池质量 m_2 (g)	开路电压 V_2 (V)			
B01#	首次完全充电 1 CYC Fully Charged	92.7697	8.227	92.7607	8.220	0.01	99.9	O
B02#	首次完全充电 1 CYC Fully Charged	92.9327	8.229	92.9287	8.220	0.00	99.9	O
B03#	首次完全充电 1 CYC Fully Charged	93.0237	8.217	93.0187	8.209	0.01	99.9	O
B04#	首次完全充电 1 CYC Fully Charged	92.8157	8.216	92.8113	8.210	0.00	99.9	O
B09#	25 次完全充电 25 CYC Fully Charged	93.0437	8.222	93.0386	8.214	0.01	99.9	O
B10#	25 次完全充电 25 CYC Fully Charged	92.7217	8.231	92.7168	8.224	0.01	99.9	O
B11#	25 次完全充电 25 CYC Fully Charged	92.9281	8.219	92.9224	8.209	0.01	99.9	O
B12#	25 次完全充电 25 CYC Fully Charged	92.9127	8.221	92.9097	8.214	0.00	99.9	O
以下空白								

注: L-泄露; V-排气; D-解体; R-破裂; F-起火; O-无泄露、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

附 表 5
Appendix 5

序号 No.	5	测试项目名称 Name of Test Items	外部短路 External short circuit	
样品编号 Sample No.	样品状态 Sample status	样品表面最高温度 Max. External Temperature (℃)	测试结果 Test result	备注 Remark
B01#	首次完全充电 1 CYC Fully Charged	57.7	O	/
B02#	首次完全充电 1 CYC Fully Charged	57.6	O	/
B03#	首次完全充电 1 CYC Fully Charged	58.2	O	/
B04#	首次完全充电 1 CYC Fully Charged	57.8	O	/
B09#	25 次完全充电 25 CYC Fully Charged	57.9	O	/
B10#	25 次完全充电 25 CYC Fully Charged	57.8	O	/
B11#	25 次完全充电 25 CYC Fully Charged	57.7	O	/
B12#	25 次完全充电 25 CYC Fully Charged	57.6	O	/
以下空白				

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

附 表 6
Appendix 6

序号 No.	6	测试项目名称 Name of Test Items	重物冲击 Impact	
样品编号 Sample No.	样品状态 Sample status	样品表面最高温度 Max. External Temperature (℃)	测试结果 Test result	备注 Remark
C01#	首次 50%容量 1 CYC 50% Capacity	130.7	O	/
C02#	首次 50%容量 1 CYC 50% Capacity	129.6	O	/
C03#	首次 50%容量 1 CYC 50% Capacity	122.4	O	/
C04#	首次 50%容量 1 CYC 50% Capacity	122.7	O	/
C05#	首次 50%容量 1 CYC 50% Capacity	120.8	O	/
C06#	25 次 50%容量 25 CYC 50% Capacity	118.6	O	/
C07#	25 次 50%容量 25 CYC 50% Capacity	122.4	O	/
C08#	25 次 50%容量 25 CYC 50% Capacity	127.5	O	/
C09#	25 次 50%容量 25 CYC 50% Capacity	124.3	O	/
C10#	25 次 50%容量 25 CYC 50% Capacity	123.7	O	/
以下空白				

注: D-解体; F-起火; O-无解体、无起火。
Note: D-Disassembly, F-Fire, O-No disassembly & no fire

附 表 7
Appendix 7

序号 No.	7	测试项目名称 Name of Test Items	过度充电 Overcharge

样品编号 Sample No.	样品状态 Sample status	测试结果 Test result	备注 Remark
B05#	首次完全充电 1 CYC Fully Charged	O	/
B06#	首次完全充电 1 CYC Fully Charged	O	/
B07#	首次完全充电 1 CYC Fully Charged	O	/
B08#	首次完全充电 1 CYC Fully Charged	O	/
B13#	25 次完全充电 25 CYC Fully Charged	O	/
B14#	25 次完全充电 25 CYC Fully Charged	O	/
B15#	25 次完全充电 25 CYC Fully Charged	O	/
B16#	25 次完全充电 25 CYC Fully Charged	O	/
以下空白			

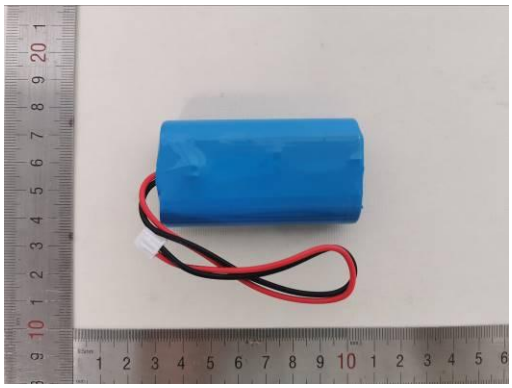
注: D-解体; F-起火; O-无解体、无起火。
Note: D-Disassembly, F-Fire, O-No disassembly & no fire

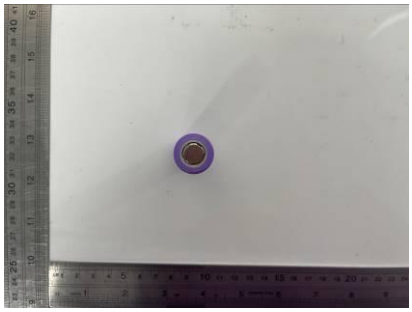
附 表 8
Appendix 8

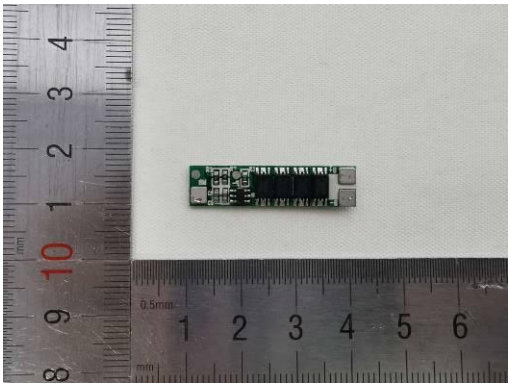
序号 No.	8	测试项目名称 Name of Test Items	强制放电 Forced discharge
样品编号 Sample No.	样品状态 Sample status	测试结果 Test result	备注 Remark
C11#	首次完全放电 1 CYC Fully Discharged	O	/
C12#	首次完全放电 1 CYC Fully Discharged	O	/
C13#	首次完全放电 1 CYC Fully Discharged	O	/
C14#	首次完全放电 1 CYC Fully Discharged	O	/
C15#	首次完全放电 1 CYC Fully Discharged	O	/
C16#	首次完全放电 1 CYC Fully Discharged	O	/
C17#	首次完全放电 1 CYC Fully Discharged	O	/
C18#	首次完全放电 1 CYC Fully Discharged	O	/
C19#	首次完全放电 1 CYC Fully Discharged	O	/
C20#	首次完全放电 1 CYC Fully Discharged	O	/
C21#	25 次完全放电 25 CYC Fully Discharged	O	/
C22#	25 次完全放电 25 CYC Fully Discharged	O	/
C23#	25 次完全放电 25 CYC Fully Discharged	O	/
C24#	25 次完全放电 25 CYC Fully Discharged	O	/
C25#	25 次完全放电 25 CYC Fully Discharged	O	/
C26#	25 次完全放电 25 CYC Fully Discharged	O	/
C27#	25 次完全放电 25 CYC Fully Discharged	O	/
C28#	25 次完全放电 25 CYC Fully Discharged	O	/
C29#	25 次完全放电 25 CYC Fully Discharged	O	/
C30#	25 次完全放电 25 CYC Fully Discharged	O	/

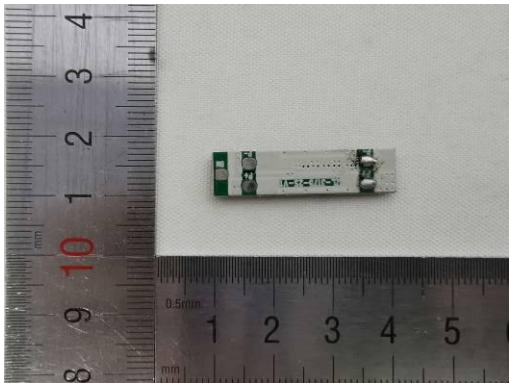
注: D-解体; F-起火; O-无解体、无起火。
Note: D-Disassembly, F-Fire, O-No disassembly & no fire

样 品 照 片
Sample photo









********** The end **********

注意事项
Important Notice

1. 本报告无 ZRLK 盖章无效。
   The test report is invalid without the official stamp of ZRLK.
2. 未经本试验室书面同意，不得复制或部分地复制本报告。
   Nobody is allowed to photocopy or partly photocopy this report without written permission of ZRLK.
3. 本报告无批准人、审核人及编制人签名无效。
   The test report is invalid without the signatures of Approver, Checker and Compiler.
4. 客户必须如实提供样品及资料，并保证申报品名和样品以及运输货物相同，否则本检测单位不承担任何相关责任。
   The client should provide samples and relevant data, at the same time, they should guarantee the consistence of the product's name the declared, the samples they provided and the goods to be transported. Otherwise we will not bear any relevant responsibilities.
5. 本报告涂改无效。
   The test report is invalid if altered.
6. 对检验报告若有异议，应于收到报告之日起十五天内向检验单位提出 。
   Objection to the test report must be submitted to ZRLK within 15 days.
7. 本报告仅对送检样品负责。
   The test report is valid for the tested samples only.
8. 任何情况下检测单位的赔偿责任都不会超过检测单位就本次检测所收取的检测费用。
   ZRLK's liability under no circumstance will exceed the testing fee received from applicant for test conducted hereof this testing report.
9. 本报告中的中文内容仅供参考。
   The Chinese contents in this report are only for reference.
10. CNAS 未涉及“☆”的项目。
    “☆”item cannot be Accredited by CNAS.

化学品安全技术说明书（MSDS）

委托方 Client	温州赛纬新能源科技有限公司 Wenzhou Saiwei New Energy Technology Co., LTD
委托方地址 Add. of Client	浙江省温洲市平阳县万全镇机电创业园兴强路 30-70 号 2 栋 2 楼 2F, Building 2, No. 30-70, Xingqiang Road, Electromechanical Pioneer Park, Wanquan Town, Pingyang County, Wenzhou City, Zhejiang Province, P.R. China
样品名称 Description	锂离子电池 Lithium-ion Battery
型号规格 Model/Type	18650-2000mAh
标称电压 Nominal Voltage	7.4V
额定容量 Rated Capacity	2000mAh
额定能量 Rated Energy	14.8Wh
制造厂 Manufacturer	温州赛纬新能源科技有限公司 Wenzhou Saiwei New Energy Technology Co., LTD
制造厂地址 Add. Of Manufacturer	浙江省温洲市平阳县万全镇机电创业园兴强路 30-70 号 2 栋 2 楼 2F, Building 2, No. 30-70, Xingqiang Road, Electromechanical Pioneer Park, Wanquan Town, Pingyang County, Wenzhou City, Zhejiang Province, P.R. China
技术依据 Reference documents	ISO 11014:2009 化学品安全技术说明书—内容和项目顺序 ISO 11014:2009 Safety data sheet for chemical products-Content and order of sections GB/T 16483-2008 化学品安全技术说明书 内容和项目顺序 GB/T 16483-2008 Safety data sheet for chemical products-Content and order of sections 国际航空运输协会《危险品规则》（第 65 版） IATA Dangerous Goods Regulation (65th) 国际海事组织《国际海运危险货物规则》（第 41-22 版） IMO International Maritime Dangerous Goods Code (41-22 edition)

出版日期 Date of Receipt	2023 年 11 月 27 号
生效日期 Effective Date	2024 年 01 月 01 号

编写：

审核：

一． 样品信息 Sample information

样品名称 Sample Name	锂离子电池 Lithium-ion Battery	样品型号 Type	18650-2000mAh
标称电压 Nominal voltage	7.4V	额定容量 Rated capacity	2000mAh
样品外观 Shape	棱柱形 Prismatic		

二．内容与说明 Content and instructions

1. 化学品及企业标识 Chemical product and company identification

化学品的名称 Name of chemical product		锂离子电池 Lithium-ion Battery
制造商 Manufacturer	名称 Name	温州赛纬新能源科技有限公司 Wenzhou Saiwei New Energy Technology Co., LTD
	地址 Address	浙江省温洲市平阳县万全镇机电创业园兴强路 30-70 号 2 栋 2 楼 2F, Building 2, No. 30-70, Xingqiang Road, Electromechanical Pioneer Park, Wanquan Town, Pingyang County, Wenzhou City, Zhejiang Province, P.R. China
	电话号码 Telephone number	+86-13868890089
	应急咨询电话 Emergency telephone number	+86-13868890089
	电子邮件 E-mail address	408622877@qq.com

这份 MSDS 报告由东莞市中认联科检测技术有限公司签发；
This MSDS was prepared by Dongguan ZRLK Testing Technology Co., Ltd.

2. 危险性概述 Hazards identification

1) 主要的物理及化学危险性 Important Physical and chemical hazards

在强压变形、拆解、短路时有起火爆炸与化学烧伤等危险，在高温环境或放置于火焰环境中、超负荷使用时有起火爆炸危险.

When the battery is in extreme pressure deformation, high-temperature environment, overload, short-circuit condition, or disassemble the battery, an explosion of fire and chemical burn hazards may occur.

2) 对人体健康影响 Effects of the human health.

眼睛 Eyes

正常使用下无危害性，但在拆解、弯曲、短路可能会引起电池起火爆炸伤害眼睛。破损时挥发出气体会对眼睛产生刺激。

In normal condition, contact between the battery and eyes will not cause any harms. However, the gas Volatilize from a damaged battery may be harmful to eyes.

皮肤 Skin

正常情况下接触无对皮肤危害性。在电池破损情况下接触有可能引起化学烧伤或皮肤过敏发炎症状。

In normal condition, contact between the battery and skin will not cause any harms. Contact with a damaged battery may cause skin allergies or chemical burns.

吸入 Inhalation

完好电池并无挥发出可供吸入气体情况。破损时会挥发出微量气体会刺激呼吸道，严重者可能引起过敏反应。

A battery volatilizes no gas unless it was damaged. Damaged battery will volatilize little gas that may stimulate the respiratory tract or cause an anaphylaxis in serious condition.

食入 Ingestion

食入会对呼吸道产生伤害、对肠胃产生烧伤，严重会造成永久性损害

Swallowing battery will be damaged to the respiratory tract and cause chemical burns to the stomach; in serious conditions it will cause Permanent damage.

3. 成分/组成信息 Composition/information on ingredients

Hazardous Ingredients (Chemical Name)	Concentration or concentration ranges (%)	CAS Number
钴酸锂 Lithium Cobalt Oxide (LiCoO2)	35.5	12190-79-3
铝 Aluminum Foil (Al)	9	7429-90-5
聚偏氟乙烯树脂 1.1-Difluoroethylene polymer	1	24937-79-9
石墨 Graphite (C)	18	7782-42-5

铜 Copper Foil (Cu)	15	7440-50-8
丁苯橡胶 Styrene-Butadiene polymer	1.5	9003-55-8
六氟磷酸锂 /Lithium hexafluorophosphate	2.8	21324-40-3
碳酸乙烯酯 Ethylene carbonate	5	96-49-1
碳酸二甲酯 Dimelene carbonate	5	616-38-6
碳酸甲乙酯 Carbonate, methyl ethyl	5	623-53-0
镍/Nickel	2.2	7440-02-0

4. 急救措施 First-aid measures

眼睛 Eyes

如有接触损坏电池，立即用清水清洗眼睛 15 分钟以上直至刺痛/刺激感消失为止，并及时去就医。

If your eyes contact with a damaged battery, flush with copious amount of water for at least 15 minutes until the stinging and irritation subside, and Seek immediate medical attention.

皮肤 Skin

如有接触，立即脱下被污染衣服并用大量清水冲洗皮肤或淋浴，如灼伤感持续立刻去就医。

If your skin contact with a damaged battery, immediately take off contaminated clothing and flush your skin with copious amount of water or have a shower. Seek immediate medical attention if burning sensation continues.

吸入 Inhalation

立刻转移到空气新鲜环境下呼吸新鲜空气，休息。如出现呼吸困难或头晕头痛等症状立刻请人陪同去就医。

Remove to fresh air immediately and have a rest, If you feel dyspnea, dizziness or headache, seek immediate medical attention.

食入 Ingestion

如果食入电池，不要催吐且不要再吃下食物或喝饮料，立刻就医

If battery or open battery is ingested, do not induce vomiting or give food or drink. Seek medical attention immediately.

5. 消防措施 Fire-fighting measures

此产品在强压弯曲或短路等情况下容易起火并冒出大量烟雾，应正确使用并置于阴凉环境下，避免放置在高温、日光照射及受重压的地方。如发生起火，戴上防毒面具在条件允许情况下洒水或用灭火器让毗邻的未起火电池降温避免火势蔓延并用工具把起火电池和其他电池分离，让其自然熄灭；或用大量的水灭火，但起火电池一般都会在内部化学物质反应完后火才熄灭下来。如果有电池起火火势较大，立刻报火警并疏散人员到安全地方。

This battery can get fire easily and made a lot of smoke under the forced bending and short-circuit condition, so it should be properly used and placed in a cool environment and Avoid placing the battery package under heat,

pressure and direct sunlight. In the event of fire, wear gas masks and cool the adjacent batteries and control the spread of fire with water or extinguishers, separate the fire batteries with other batteries as conditions permit, let the fire naturally extinguished, otherwise put out the fire with lots of water. In normal condition the fire is not extinguished until the reactions that between the chemicals contained in the battery are completed. In the event of a big fire, report the fire immediately and evacuate to a safe place.

6. 泄漏应急处理 Accidental release measures

将溢漏物与电池清扫，并放进干燥可密闭的金属容器或材质不易燃的容器中，交由电池回收企业进行环保处理。避免电池弃扔到自然环境中。

Clean the spills and batteries, place them in a dry sealed metal container or nonflammable material container, and bring them to battery recycling companies to deal with environmental protection. Do not throw away the damaged batteries or waste batteries.

7. 操作处置与储存 Handling and storage

操作 Handling

不能擅自组装拆解电池或短路，不能让电池接近火源。运输电池应避免暴力装卸电池货物、避免电池受到挤压或剧烈振动。

Do not assemble and disassemble a battery, battery short-circuit is not allowed too. Keep the battery away from the fire. When transporting these batteries, the battery should be careful handling to avoid the battery being squeezed or excessive vibration.

储存 Storage

长时间存储前先充满电。电池应储存于阴凉环境中。

The battery should be fully charged before long term storage. The battery should be stored in a cool environment.

8. 接触控制和个体防护 Exposure controls/Personal Protection

工程控制 Engineering control

选择合理的通风设备，足够量的防毒面具灭火器及水源，配备存放泄漏电池的金属容器。配备洗浴设备。

Choose the suitable ventilation equipment; provide sufficient quantity of fire extinguishers, gas mask and water; equip with metal storage containers and bathing equipments.

呼吸系统防护 Respiratory protection

正常情况下无必要作防护 Normally there is no need to do protection.

眼睛防护 Eye protection

正常情况下无必要作防护 Normally there is no need to do protection.

身体和皮肤防护 The body and skin protection

正常情况下无必要作防护 Normally there is no need to do protection.

9. 理化特性 Physical and chemical properties

物品外观与形状 Object appearance and shape
棱柱形 Prismatic

气味 Odour
无 None

10. 稳定性和反应性 Stability and reactivity

稳定性 Stability
正常环境下稳定。 Stable under the regular environment.

应避免的条件 Should avoid conditions
高温或过湿环境，撞击震动或受挤压，正负极反接使用。
High temperature, wet environment, mechanical shock, vibration, crush, reverse polarity used should be avoided.

不相容物质 Incompatible materials
无 None

危险的分解产物 Hazardous decomposition products
在起火时会释放出刺鼻的浓烟雾。
When the battery catches fire, it will release pungent thick smoke.

11. 毒理学信息 Toxicological information

正常情况下接触电池无毒性作用。
In normal condition, contact with the battery is non-toxic.

12. 生态学信息 Ecological information

正常处理电池不会对生态环境产生影响。
Proper disposal of battery does not present ecological hazard.

13. 废弃处置 Disposal considerations

交由电池回收企业进行回收处置，不能随意丢弃于环境中。具体参照有关国家相关法规。
It needs to be referred to the waste battery recycling companies for recycling disposal, cannot arbitrarily discarded in the environment. Specific conditions reference to the relevant national laws and regulations.

14. 运输信息 Transport information

这份报告适用于海运，空运和陆运；
This report applies to by sea, by air and by land;

该电池样品为锂离子电池,该电池型号已通过 UN38.3 测试。

This battery sample is Lithium-ion Battery and This battery type is proved to meet the Requirements tests in the UN *Manual of Tests and Criteria,* Part III, subsection 38.3.

锂离子电池应满足 2024 国际航空运输协会《危险品规则》(65 版)的 3.9.2.6.1(e) 规定进行包装空运；

Lithium-ion Battery Can be transport by air according to the International Air transport Association (IATA) Dangerous Goods Regulations relevant regulations (65th) for section 3.9.2.6.1(e).

可按 IATA《危险品规则》中包装说明 PI965 IB、PI966 II 和 PI 967 II 章节相关规定进行包装空运。

Can be transport by air according to the Packing Instructions PI965 IB、PI966 II and PI 967 II Section of IATA

锂离子电池必须加以保护防止短路，包括防止与同一包装件内可能导致短路的导电材料接触；

Lithium-ion Battery was protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to short circuit;

锂离子电池必须放置于可将其完全封闭的内包装中，再放入外包装。为防止电池损坏和被挤压，内包装必须放电坚固硬质外包装中；

Lithium-ion Battery offered for transport must be packed in inner packaging's that completely enclose the cell or battery; to provide protection from damage or compression to the batteries, the inner packaging's must be placed in a strong rigid outer packaging;

UN No. UN 编号	Proper shipping name/Description (technical name) 运输专用名称	Class or Div. (Sub Hazard) 危险类别	Packing Group 包装等级	Packing Instruction 包装说明	Remark 备注
UN3480	Lithium ion batteries 锂离子电池	--	--	Section IB of PI 965 包装说明 PI965 的第 IB 部分	Lithium-ion cells and batteries must be transported in a state of charge (SoC) not exceeding 30% of their rated capacity; 锂离子电池芯和电池必须在荷电状态（SoC）不超过其额定容量的 30%状态下进行运输；
UN3481	Lithium ion batteries contained in equipment 锂离子电池安装在设备中 or 或 Lithium ion batteries packed with equipment 锂离子电池与设备包装在一起	--	--	Section II of PI 967 包装说明 PI967 的第 II 部分 or 或 Section II of PI 966 包装说明 PI966 的第 II 部分	--

可按 IMO IMDG CODE(2022 版)《国际海运危险货物规则》特殊规定第 188 条相关规定进行包装海运。
Can be transport by sea according to the special provision 188 of IMO *International Maritime Dangerous Goods Code relevant regulations*.
根据 IMO IMDG CODE(2022 版) 的 2.9.4.7，锂电池或电池组的制造商和生产后的销售商应提供联合国《试验和标准手册》第 III 部分第 38.3 小节第 38.3.5 段规定的 UN38.3 试验概要；
According to 2.9.4.7 of IMO IMDG Code (2022 Edition), Manufacturers and subsequent distributors of batteries manufactured shall make available the test summary as specified in the manual of tests and criteria, Part III, sub-section 38.3, paragraph 38.3.5;
根据 ADR-2023 (2023 版) 的 2.2.9.1.7(g), 锂电池组的制造商和生产后的销售商应提供联合国《试验和标准手册》第 III 部分第 38.3 小节第 38.3.5 段规定的 UN38.3 试验概要；
According to 2.2.9.1.7(g) of ADR-2023 (2023 Edition), Manufacturers and subsequent distributors of batteries manufactured shall make available the test summary as specified in the manual of tests and criteria, Part III, sub-section 38.3, paragraph 38.3.5;

15. 法规信息 Regulatory Information

《危险品规则》Dangerous Goods Regulations
《国际海运危险货物规则》IMO International Maritime Dangerous Goods Code relevant regulations.
参照联合国，国家，地方性法规。
Refer to U. N., national, local regulations.

16. 其他信息 Other information

上述信息是基于现有的数据信息，是我们目前所掌握的最佳资料。然而，不对此类信息做出适当性担保或任何其他明示或默示担保，我们也不承担使用此类信息所产生的任何责任。用户应自行调查，以确定信息是否适合其特定目的。虽然在编制本报告所载的数据时采取了合理的预防措施，但仅供你参考、考虑和调查。这份材料安全数据表为安全处理和使用本产品提供了指导方针；它没有也不能就所有可能的情况提出建议；因此，应该评估你对本产品的具体使用情况，以确定是否需要采取额外的预防措施。
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