

## MD600148 M60 Battery MSDS and Safety Report, APP00326

## **REVISION HISTORY**

Rev	Description	Originator	Date	
Α	Initial release per CO-22-1050	Bill Yu	06/30/2022	
В	Update per CO-22-1207: Revised document name and updated content structure.	Bill Yu	07/20/2022	
С	Update per CO-24-1286: Corrected document PN as "MD600148" in the header.	Bill Yu	07/18/2024	

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MD600148
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## **Contents**

- 1. Material Safety Datasheet for rechargeable Li-ion battery APP00326 3.8V 4000mAh 15.2Wh
- 2. UN38.3 test summary for rechargeable Li-ion battery APP00326 3.8V 4000mAh 15.2Wh
- 3. UN38.3 test report for rechargeable Li-ion battery APP00326 3.8V 4000mAh 15.2Wh
- 4. 1.2m drop test report for rechargeable Li-ion battery APP00326 3.8V 4000mAh 15.2Wh

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### Material Safety Data Sheet

#### Section 1 Chemical Product and Company Identification

Product information battery Model: APP00326	Product	information	battery	Model:	APP00326
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Lithium-Ion Rechargeable cell Model: Li-Fun 486085-01

Nominal Voltage: 3.8V

Watt-hour Rating: 15.2Wh

Manufacturer: APACK.TECHNOLOGY CO., LTD.

Address: 6F, No. 653-2, Jhongjheng Rd., Sinjhuang Dist, New Taipei City 242, Taiwan

Telephone: +886-2-2903-1303

#### Section 2 Composition/Information on Ingredients

INGREDIENTS	Weight	CAS No.
	Percentage/%(about)	
Cobaltic lithium oxide钴酸锂	35.05%	12190-79-3
Graphite powder石墨	15.98%	7782-42-5
Garbon black导电炭黑	0.79%	1333-86-4
Hexafluoropropylene-vinylidene fluoride copolymer氣共聚物	9.87%	9011-17-0
Dimethyl carbonate碳酸二甲酯	4.38%	616-38-6
Copper 铜	8.39%	7440-50-8
Styrene-butadiene rubber(SBR)丁苯橡胶	0.71%	61789-96-6
Aluminium 铝	9.38%	7429-90-5
Ethyl methyl carbonate碳酸甲乙酯	2.29%	623-53-0
Lithium hexafluorophosphate六氟磷酸锂	2.95%	21324-40-3
Ethylene carbonate(EC)碳酸乙烯酯	6.34%	96-49-1
Diethyl carbonate(DEC)二甲基碳酸酯	2.76%	105-58-8
Propylene carbonate(PC)丙烯碳酸酯	1,11%	108-32-7

#### **Section 3 Hazards Identification**

The lithium ion batteries are not hazardous used according to the instructions of manufacturer under normal conditions. In case of abuse, there's a risk of explode, rupture, fire, heat, leakage of internal components, which could cause casualty loss. Abuses include but not limited to the following cases: charge for a long time, short circuit, put into fire, whack with hard object, puncture with acute object, crush, break.

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#### **Section 4 First-aid Measures**

The lithium batteries are not hazardous with eye and skin contact under normal circumstance. In case of fire or rupture, the leakage of internal hazardous substance and formation of hazardous substance would occur, take the following measures if contact with it:

Eye: Check for and remove any contact lenses. Immediately flush with plenty of clean water for atlest 15 minutes, seek medical assistance;

**Skin:** Immediately flush with plenty of clean water for 15 minutes; seek medical assistance if severe;

**Inhalation**: If inhaled, remove to fresh air immediately, seek medical assistance, and ventilate the contaminated area.

**Ingestion**: Rinse mouth with clean water immediately, activate vomit under the direction of expert, and seek medical assistance.

#### Section 5 Fire-fighting Measures

Extinguish with plenty of water, dry powder extinguishers, sands, earth. Combustion products and decomposed products by contact of water or air with internal substance include: carbon monoxide, carbon dioxide, hydrogen fluoride, phosphorus fluoride.

#### Section 6 Accidental Release Measures

When leakage of batteries happens, liquid could be absorbed with sands, earth or other inert substance, and the contaminated area should be ventilated meantime.

#### Section 7 Handling and Storage

Don't handle and store batteries with metalwork. Store and use far away from heat, sparks, open flame, or any other ignition source, and under room temperature (<30°C) in ventilating and dehumidifying environments.

#### Section 8 Exposure Controls/Personal Protection

There is no need for protect under normal conditions.Inengineering aspect, ventilation equipment should beinstalled. Gas mask, blinkers, gloves enduring chemicalerosion anexposure suit are required when dealing with fire and leakage.

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#### Section 9 Physical and Chemical Properties

Batteries are not single chemical material; there are no specific physical and chemical properties such as melting point and boiling point. Main purpose of lithium batteries: used in portable and digital products.

#### Section 10 Stability and Reactivity

Batteries are safe under normal conditions. The following substance might appear after catching fire or leakage: organic carbonate, hydrogen fluoride, carbon monoxide, carbon dioxide, phosphorus fluoride.

#### Section 11 Toxicological Information

Batteries are not hazardous when used properly. If the batteries catch fire or the internal substance leaks, combustion products and decomposed products might have irritation and toxicity to skin, eye and respiratory systems. Toxicity data of some substance are listed following:

Hydrogen fluoride:

Extremely toxic. May be fatal if inhaled or ingested. Readily absorbed through the skin contact may be fatal. Possible mutagen.LCLo: 50 ppm/30m (human beings), LC50: 1276 ppm/1h (rats)  $_{\circ}$ 

Carbon and graphite:

Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation. Causes chronic damage to upper respiratory tract and cardiovascular system.

Copper: Dust may cause respiratory irritation.LD50: 3.5 mg kg<sup>-1</sup>(mouse). Aluminium: There is no hazard.

#### **Section 12 Ecological Information**

There is no influence to ecology and environment when used properly.

#### Section 13 Disposal

Deserted batteries couldn't be treated as ordinary trash. Be put to garbage box which recycle batteries after being placed into plastic bags or bedealt as special trash. Couldn't be

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thrown into fire or placed in high temperature. Couldn't be dissected, pierced, crushed or treated similarly. The package and plastic box which contain batteries could be treated as ordinary trash. Best way is recycling.

#### **Section 14 Transport Information**

For the international transport of lithium batteries, they must comply with these regulations: the International Maritime Dangerous Goods (IMDG) Code by International Maritime Organization (IMO), Dangerous Goods Regulations (DGR) by International Air Transport Association (IATA) and Technical Instructions for the Safe Transport of Dangerous Goods by Air (TI) by International Civil Aviation Organization (ICAO). These regulations are based on the UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria.

Lithium batteries which meet the requirements of UN38.3 (UN Manual of Tests and Criteria, Part III, subsection 38.3) could be transported by air and by sea as ordinary goods, otherwise should be transported according to Class 9, Packing Group 1 hazardous goods.

According to UN classification: However this product's shipping name is "lithium ion batteries" (or "Lithium ion Batteries packed with equipment" or "Lithium ion Batteries contained in equipment"), it is not recognized as "DANGEROUS GOODS" when its transport condition accords with "packing instruction 965 section IB of IATA-DGR" (or "Packing instruction 966 section II" or "Packing instruction 967 section II") or "special provision 188 of IMO-IMDG Code".

- For lithium ion batteries, UN ID number is 3480. For lithium ion batteries contained in equipment or lithium ion batteries packed with equipment, UN ID number is 3481.
- 2. The consignment should be fully described by proper shipping name and packed, marked and in proper condition for carriage by air. The consignment is not classified as dangerous under the current edition of the IATA 61st Effective 01 January 2020, Dangerous goods regulation and all applicable carrier and government regulations
- For transported by air, Lithium-ion Cells/Batteries shipped as "Not Restricted" Cargo:
   Must comply with section IB of PI965 or section II of PI967 accordingly; For cells,
   the Watt-hour rating should not be more than 20Wh; For batteries, the Watt-hour

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rating should not be more than 100Wh. Watt-hour rating must be marked on the outside of the battery case (marked by manufacturer),

- 4. Each consignment must be accompanied with a document such as an air waybill with anindication. For those Lithium ion cells/ batteries contained in equipment, the equipment must be equipped with an effective means of preventing accidental activation. The telephone number for additional information for Apack Battery is +886-2-2903-1303.
- 5. Quantity per package shall not exceed 10 kg.
- Each package must be capable of withstanding a 1.2m drop test in any orientation without damage of cells or batteries contained therein.
- 7. Lithium batteries which meet the requirements of A154 could be transported by air, and the batteries manufactured by Apack meet these requirements. (A154 Lithium batteries identified by the manufacturer as being defective for safety reasons, or that have been damaged, that have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport.)
- Cells and batteries must be 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.
- 9. Transport condition should accord with "special provision 188 of IMO-IMDG Code".

#### Section 15 Regulatory Information

OSHA	hazard c	əmmu	nic	ation standard (29 CFR 1910,1200)
	hazardo	us\	1	Non-hazardous

#### **Section 16 Other Information**

This information is not effective to all the batteries manufactured by Apack. This information comes from reliable sources, but no warranty is made to the completeness and accuracy of information contained. Apack doesn't assume responsibility for any damage or loss because of misuse of batteries. Users should grasp the correct use method and be responsible for the use of batteries.

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Audited:

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## UN38.3 试验概要 UN38.3 Test Summary



	单位信息 Compar	y information					
委托单位 Consignor	典暉科技股份有限公司 APack Te 台灣新北市新莊區中正路 649-2 st New Taipei City 242, Taiwan 886229031303 ce@ap	chnology Co., Ltd. 虎 3 樓 3F, No. 649-2, Jho ack.com.tw	ongjheng Rd., Sinjhuang Dist, http://www.apack.com.t. w/				
生产单位 Manufacturer		号 4 号楼 401 室 Room 40 ,Guangdong Province P.R @funpack.com.cn	.China http://www.apack.com.t				
测试单位 Test lab	上海化工院检测有限公司 Shanghai Research Institute of Chemical Industry Testing Co., Ltd. 中国.上海.普陀区云岭东路 345 号, 200062 No.345 East Yunling Road, Putuo, Shanghai, China 200062  86-21-31765555 battery@ghs.cn www.ghs.cn						
	电池信息 Batter	y information					
名称 Name	二次锂离子电池 Rechargeable Li-ion Battery	品牌 Brand	1				
型号 Type	APP00326	原始测试型号 Original tested type	1				
标称电压(V) Nominal voltage	3.8	容量/能量 Capacity/energy	4000mAh 15.2Wh				
描述 Description	可充电锂离子单电芯电池 Rechargeable Li-ion single cell battery	锂含量(g) Li content	1				
质量(kg) Mass	0.0611	外观 Appearance	黑色塑料薄膜外壳 black plastic film shell				
ividss	测试信息 Tes	t information					
原报告编号 Original test report No.	1120080485	测试报告日期 Date of test report	2020-09-27				
测试标准 Test standard	联合国《关于危险货物运输的建议书 试验和标准于 测试标准						
T.1 高度模拟 Altitude simulation	合格 Passed	T.2 温度测试 Thermal test	合格 Passed				
T.3 振动测试 Vibration	合格 Passed	T.4 冲击测试 Shock	合格 Passed				
T.5 外部短路 External short circuit	合格 Passed	T.6 挤压 Crush	合格 Passed				
T.7 过度充电 Overcharge	合格 Passed	T.8 强制放电 Forced discharge	合格 Passed				
38.3.3 (f)	1	38.3.3 (g)	ACRES / STATE OF				

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# 报

## Test Report

样品名称:

二次锂离子电池 APP00326 3.8V 4000mAh 15.2Wh

Name of Sample:

Rechargeable Li-ion Battery APP00326 3.8V 4000mAh

15. 2Wh

委托单位:

典晖科技股份有限公司

Consignor:

Industry Testing Co., Ltd. Shanghai Research Institute

## 上海化工院检测有限公司 检 测 报 告

Shanghai Research Institute of Chemical Industry Testing Co., Ltd. Test Report

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样品名称	中文 Chinese	二次锂离子电池 APP00326 3.8V 4000mAh 15.2Wh			
Name of Sample	英文 English	Rechargeable Li-ion Battery APP00326 3.8V 4000mAh 15.2Wh			
样品编号 Sample No.		1120080485			
委托单位 Consignor		典晖科技股份有限公司			
生产单位 Manufacturer		东莞市丰晖电子有限公司 Dongguan Funpack elec Co.,LTD.			
检测方法 Test method		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.6 Amend.1 38.3 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3			
判定标准 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.6 Amend.1 38.3 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3				
样品外观 Appearance	黑色 塑料薄膜外壳 Black Plastic film shell				
样品接受日期 Accepted Date	2020-08-27				
检测项目 Test Items	高度模拟:热测试:振动:冲击:外短路:挤压;过充电;强制放电 Altitude simulation,Thermal test,Vibration,Shock,External short circuit,Crush,Overcharge,Forced discharge				
检测结论 Conclusion	经检测,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.6 Amend.1 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 Tests and Criteria ST/SG/AG.10/11/Rev.6 Amend.1 38.3				
备注 Comment	可充电单电	达电池Rechargeable Single Cell Battery./			
委托单位地址 Consignor Address		邮政编码 / Post Code			

批准 Approver: 主星

审核 Checker: 编制 Compiler:



职务 Title:

副总工程师(Vice chief engineer)



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序号 No.	检测项目名称 Name of Test Items	标准要求或 Standard requ Clause Numb	irement or l er of Stand	he ard	检测结果 Test Result	本项结论 Conclusion	备注 Remark
1	高度模拟 Altitude	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. 6 Amend. 1 38. 3 试验T.1 UN Manual of Tests and Criteria ST/SG/AC. 10/11/Rev. 6 Amend. 1 Section 38. 3 Test T.1			见附表 1 See Appendix 1	合格 Passed	1
2	4-2 hits +4-	联合国《关于危险货物 准手册》ST/SG/AC. 10/ 试验T. 2 UN Manual of Tests a ST/SG/AC. 10/11/Rev. 6 38. 3 Test T. 2	11/Rev. 6 Am and Criteria 3 Amend. I S	end. 1 38.3	见附表 2 See Appendix 2	合格 Passed	1
3	振动 Vibration	联合国《关于危险货物 准手册》ST/SG/AC. 10, 试验T. 3 UN Manual of Tests a ST/SG/AC. 10/11/Rev. 0 38. 3 Test T. 3	11/Rev. 6 Am and Criteria	end. 1 38. 3	见附表 3 See Appendix 3	合格 Passed	/
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》ST/SG/AC. 10/11/Rev. 6 Amend. 1 38. 3 试验T. 4 UN Manual of Tests and Criteria ST/SG/AC. 10/11/Rev. 6 Amend. 1 Section			见附表 4 See Appendix 4	合格 Passed	/
5	外短路 External short circuit	38.3 Test T.4 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.6 Amend.1 38.3 试验T.5 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.5			见附表 5 See Appendix 5	合格 Passed	/
6	挤压 Crush	36.3 lest 1.3 联合国《关于危险货物运输的建议书 试验和标 淮手册》ST/SG/AC.10/11/Rev.6 Amend.1 38.3 试验T.6 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.6			见附表 6 See Appendix 6	介格 Passed	/
7	过充电 Overcharge	联合国《关于危险货物 准手册》ST/SG/AC. 10 试验T. 7 UN Manual of Tests ST/SG/AC. 10/11/Rev. 38. 3 Test T. 7	/11/Rev.6 Ar and Criteria	nend. 1 38. 3	见附表 7 See Appendix 7	合格 Passed	1
8	强制放电 Forced discharge	38.3 Test T.7 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.6 Amend.1 38.3 试验T.8 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.8			见附表 8 See Appendix 8	合格 Passed	1
检测环境条件 Test Environment Condition		环境温度:20℃-25℃;环境湿度:/% Ambient temperature:20℃-25℃;Ambient humidity:/%					
5 6 14 mt 14 m		检测项目 Test Item			/		
1000	包检验情况 contracted Test	分包实验室 Subcontracted	名称 Name		1	邮编 Post Code	/
	Condition	Laboratory	地址 Address		/	电话 Tel	1

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序号 No.	1		百名称 Test Items	高度模拟 Altitude	simulation			
	N m III b	试验前 Before		试验后 After				其他
样品 编号 Sample No.	样品状态 Sample Status	质量 Mass /g	开路电压 OCV /V	质量 Mass /g	开路电压 OCV /V	质量损失 Mass Loss /%	剩余电压 Residual OCV /%	现象 Other Event
001	1CYC完全充电 1CYC Fully charged	60. 7887	4. 33	60. 7829	4. 32	0. 01	99. 77	О
002	1CYC完全充电 1CYC Fully charged	60.7671	4. 33	60. 7613	4. 32	0. 01	99. 77	О
003	ICYC完全充电 ICYC Fully charged	61.0265	4. 33	61. 0220	4. 32	0. 01	99. 77	О
004	ICYC完全充电 ICYC Fully charged	60. 5068	4. 32	60. 5023	4. 32	0. 01	100.00	0
005	1CYC完全充电 1CYC Fully charged	60. 6270	4, 33	60. 6223	4. 32	0. 01	99. 77	0
006	25CYC完全充电 25CYC Fully charged	60. 9348	4. 32	60. 9293	4. 32	0. 01	100.00	0
007	25CYC完全充电 25CYC Fully charged	60, 2486	4. 33	60. 2433	4. 32	0. 01	99. 77	0
800	25CYC完全充电 25CYC Fully charged	60. 8729	4. 33	60. 8676	4. 32	0. 01	99. 77	0
009	25CYC完全充电 25CYC Fully charged	60. 4631	4. 33	60. 4575	4. 32	0.01	99.77	0
010	25CYC完全充电 25CYC Fully charged	60. 6861	4. 32	60. 6802	4. 32	0. 01	100.00	0
以下空自	This space intentionally left blank							
				B				

备注: L-泄漏 V-漏气 D-解体 R-破裂 F-起火 0-无泄漏、无漏气、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.	2	Name of	目名称 Test Items Before	热测试 Thermal t				
样品 编号 Sample No.	样品状态 Sample Status	质量 Mass	开路电压 OCV /V	质量 Mass	后 After 开路电压 OCV /V	质量损失 Mass Loss /%	剩余电压 Residual OCV /%	其他 现象 Other Event
001	ICYC完全充电 ICYC Fully charged	60. 7829	4. 32	60. 7658	4. 26	0.03	98. 61	0
002	1CYC完全充电 1CYC Fully charged	60. 7613	4. 32	60. 7425	4. 26	0.03	98. 61	0
003	ICYC完全充电 ICYC Fully charged	61.0220	4. 32	61.0035	4. 26	0.03	98. 61	0
004	ICYC完全充电 ICYC Fully charged	60. 5023	4. 32	60. 4831	4. 26	0. 03	98. 61	0
005	1CYC完全充电 1CYC Fully charged	60. 6223	4. 32	60. 6032	4. 26	0.03	98. 61	О
006	25CYC完全充电 25CYC Fully charged	60. 9293	4. 32	60. 9107	4. 25	0. 03	98. 38	O
007	25CYC完全充电 25CYC Fully charged	60, 2433	4. 32	60. 2250	4. 26	0. 03	98. 61	0
008	25CYC完全充电 25CYC Fully charged	60. 8676	4. 32	60. 8495	4. 27	0. 03	98. 84	0
009	25CYC完全充电 25CYC Fully charged	60. 4575	4. 32	60. 4397	4. 26	0. 03	98. 61	О
010	25CYC完全充电 25CYC Fully charged	60. 6802	4. 32	60. 6629	4. 25	0. 03	98. 38	0
以下空白	This space intentionally left blank							
				1				

备注: L-泄漏 V-漏气 D-解体 R-破裂 F-起火 0-无泄漏、无漏气、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.	3		目名称 Test Items	振动 Vibration	1			
样品	样品状态		Before		Á After	质量损失	剩余电压	其他现象
编号 Sample	Sample Status	质量 Mass	开路电压 OCV /V	质量 Mass /g	开路电压 OCV /V	Mass Loss	Residual OCV /%	Other Event
No. 001	ICYC完全充电 ICYC Fully charged	60. 7658	4. 26	60. 7815	4. 26	0.00	100.00	0
002	ICYC完全充电 ICYC Fully charged	60. 7425	4. 26	60. 7557	4. 26	0.00	100.00	0
003	1CYC完全充电 1CYC Fully charged	61.0035	4. 26	61. 0202	4. 26	0.00	100.00	0
004	1CYC完全充电 1CYC Fully charged	60. 4831	4. 26	60. 4993	4. 26	0.00	100.00	0
005	1CYC完全充电 1CYC Fully charged	60.6032	4. 26	60. 6205	4. 26	0.00	100.00	0
006	25CYC完全充电 25CYC Fully charged	60. 9107	4. 25	60. 9273	4. 25	0.00	100.00	0
007	25CYC完全充电 25CYC Fully charged	60. 2250	4. 26	60. 2403	4. 26	0.00	100.00	0
008	25CYC完全充电 25CYC Fully charged	60. 8495	4. 27	60. 8641	4. 26	0.00	99. 77	0
009	25CYC完全充电 25CYC Fully charged	60. 4397	4. 26	60. 4540	4. 26	0.00	100.00	0
010	25CYC完全充电 25CYC Fully charged	60.6629	4. 25	60. 6781	4. 25	0.00	100.00	0
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备注: L-泄漏 V-漏气 D-解体 R-破裂 F-起火 0-无泄漏、无漏气、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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SRICI Testing Co., Ltd. Test Report—Appendix

NO. 1120080485

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序号 No.	4		目名称 Test Items	冲击 Shock				
样品 编号 Sample No.	样品状态 Sample Status	试验前 质量 Mass	Before 开路电压 OCV /V	试验原质量 Mass	After 开路电压 OCV /V	质量损失 Mass Loss /%	剩余电压 Residual OCV /%	其他 现象 Other Event
001	ICYC完全充电 ICYC Fully charged	60. 7815	4. 26	60. 7796	4. 26	0.00	100.00	0
002	1CYC完全充电 1CYC Fully charged	60. 7557	4. 26	60. 7533	4. 26	0.00	100.00	0
003	ICYC完全充电 ICYC Fully charged	61. 0202	4. 26	61.0182	4. 26	0.00	100.00	0
004	1CYC完全充电 1CYC Fully charged	60. 4993	4. 26	60. 4975	4. 26	0.00	100.00	O
005	1CYC完全充电 1CYC Fully charged	60. 6205	4.26	60. 6182	4. 26	0.00	100.00	О
006	25CYC完全充电 25CYC Fully charged	60. 9273	4, 25	60. 9251	4. 25	0.00	100.00	0
007	25CYC完全充电 25CYC Fully charged	60. 2403	4. 26	60. 2383	4. 26	0.00	100.00	0
008	25CYC完全充电 25CYC Fully charged	60. 8641	4. 26	60. 8633	4. 26	0.00	100.00	0
009	25CYC完全充电 25CYC Fully charged	60. 4540	4. 26	60. 4536	4. 26	0.00	100.00	0
010	25CYC完全充电 25CYC Fully charged	60. 6781	4. 25	60. 6763	4. 25	0.00	100.00	0
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备注: L-泄漏 V-漏气 D-解体 R-破裂 F-起火 O-无泄漏、无漏气、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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SRICI Testing Co., Ltd. Test Report—Appendix

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序号 No.	5	检测项目名称 Name of Test Items	外短路 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 /℃	其他现象 Other Event
001	1CYC完全充电 1CYC Fully charged	58. 6	0
002	1CYC完全充电 1CYC Fully charged	58. 7	0
003	1CYC完全充电 1CYC Fully charged	58. 9	0
004	1CYC完全充电 1CYC Fully charged	59. 0	0
005	1CYC完全充电 1CYC Fully charged	59. 2	0
006	25CYC完全充电 25CYC Fully charged	59. 0	0
007	25CYC完全充电 25CYC Fully charged	57. 6	0
008	25CYC完全充电 25CYC Fully charged	58. 4	0
009	25CYC完全充电 25CYC Fully charged	58. 1	0
010	25CYC完全充电 25CYC Fully charged	58. 7	0
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Note: D-Disassembly R-Ruptur F-Fire O-No Disassembly, No Fire & No Rupture.

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序号 No.	6	检测项目名称 Name of Test Items	挤压 Crush
样品编号 Sample No.	样品状态 Sample Status	样品表面最高温度 Max. External Temperature /°C	其他现象 Other Event
011	1CYC 50%容量 1CYC 50% Capacity	22. 6	О
012	1CYC 50%容量 1CYC 50% Capacity	22. 9	О
013	1CYC 50%容量 1CYC 50% Capacity	22. 5	О
014	1CYC 50%容量 1CYC 50% Capacity	22. 5	0
015	1CYC 50%容量 1CYC 50% Capacity	22. 3	0
016	25CYC 50%容量 25CYC 50% Capacity	22. 5	0
017	25CYC 50%容量 25CYC 50% Capacity	22. 5	0
018	25CYC 50%容量 25CYC 50% Capacity	22. 3	0
019	25CYC 50%容量 25CYC 50% Capacity	22. 5	0
020	25CYC 50%容量 25CYC 50% Capacity	22. 8	0
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备注: D-解体 F-起火 O-无解体、无起火。

Note: D-Disassembly F-Fire O-No Disassembly & No Fire.

SRICI Testing Co., Ltd. Test Report—Appendix

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序号 No.	7	检测项目名称 Name of Test Items	过充电 Overcharge		
样品编号	样品状态	其他现象			
Sample No.	Sample Status		Other Event		
021	1CYC完全充电 1CYC Fully charged		0		
022	1CYC完全充电 1CYC Fully charged		0		
023	1CYC完全充电 1CYC Fully charged	О			
024	1CYC完全充电 1CYC Fully charged		O		
025	25CYC完全充电 25CYC Fully charged		О		
026	25CYC完全充电 25CYC Fully charged		0		
027	25CYC完全充电 25CYC Fully charged		0		
028	25CYC完全充电 25CYC Fully charged		0		
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		BIRTE	7		

备注: D-解体 F-起火 0-无解体、无起火。 Note: D-Disassembly F-Fire O-No Disassembly & No Fire.

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SRICI Testing Co., Ltd. Test Report—Appendix 8 NO. 1120080485

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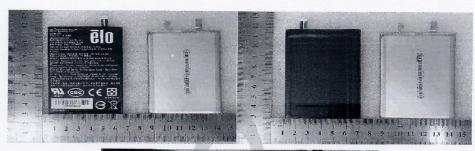
序号 No.	8	检测项目名称 Name of Test Items	强制放电 Forced discharge
样品编号 Sample No.	样品状态 Sample Status		其他现象 Other Event
029	1CYC完全放电 1CYC Fully discharged		O
030	1CYC完全放电 1CYC Fully discharged		0
031	1CYC完全放电 1CYC Fully discharged		O
032	1CYC完全放电 1CYC Fully discharged		0
033	1CYC完全放电 1CYC Fully discharged		0
034	1CYC完全放电 1CYC Fully discharged		0
035	1CYC完全放电 1CYC Fully discharged		0
036	1CYC完全放电 1CYC Fully discharged		0
037	1CYC完全放电 1CYC Fully discharged	7	O
038	1CYC完全放电 1CYC Fully discharged	SIRI	0
039	25CYC完全放电 25CYC Fully discharged		0
040	25CYC完全放电 25CYC Fully discharged		0
041	25CYC完全放电 25CYC Fully discharged		0
042	25CYC完全放电 25CYC Fully discharged		0
043	25CYC完全放电 25CYC Fully discharged		0
044	25CYC完全放电 25CYC Fully discharged		0
045	25CYC完全放电 25CYC Fully discharged		0
046	25CYC完全放电 25CYC Fully discharged		0
047	25CYC完全放电 25CYC Fully discharged		0
048	25CYC完全放电 25CYC Fully discharged		0

备注: D-解体 F-起火 0-无解体、无起火。

Note: D-Disassembly F-Fire O-No Disassembly & No Fire.

SRICI Testing Co., Ltd. Test Report—Appendix No. 1120080485

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\*\*\*报告结束\*\*\*

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NO.1120090110

# 检测报告

## Test Report

样品名称:

二次锂离子电池 APP00326 3.8V 4000mAh 15.2Wh

Name of Sample:

Rechargeable Li-ion Battery APP00326 3.8V 4000mAh

15. 2Wh

委托单位:

典晖科技股份有限公司

Consignor:

上海化主院检测存限公司

Shanghai Research Institute of Chemical Industry Testing Co., Ltd.

### 上海化工院检测有限公司 检测报告

Shanghai Research Institute of Chemical Industry Testing Co., Ltd. Test Report

NO. 1120090110

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样品名称	中文 二次锂离子电池 APP00326 3.8V 4000mAh 15.2Wh Chinese				
Name of Sample	英文 Rechargeable Li-ion Battery APP00326 3.8V 4000mAh 15.2Wh English				
样品编号 Sample No.	1120090110 典晖科技股份有限公司 /				
委托单位 Consignor					
生产单位 Manufacturer	东莞市丰晖电子有限公司 Dongguan Funpack elec Co.,LTD.				
检测方法 Test method	联合国《关于危险货物运输的建议书 规章范本》(20th)特殊规定188条款。 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Model Regulations(20th) special provisions 188				
判定标准 Criterion	联合国《关于危险货物运输的建议书 规章范本》(20th)特殊规定188条款。 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Model Regulations(20th) special provisions 188				
样品外观 Appearance	长方形瓦楞纸箱(280mm×240mm×150mm), 内装120个锂电池。 Rectangle corrugated carton(280mm×240mm×150mm), containing 120 lithium batteries.				
样品接受日期 Accepted Date	2020-09-09 ~ 2020-09-				
检测项目 Test Items	1.2m跌落试验 1.2m Drop test				
检测结论 Conclusion		并能够承受1.2m跌落试验。 package is capable of withstanding a 1.2 m drop/test.  生效日期(Date)。 2020-09-11			
备注 Comment	内包装: 塑料托盘。Inner package plastic trav. 包装件毛重(kg): 8.3 锂电池净重(kg): 7.3				
委托单位地址 Consignor Address		邮政编码 / Post Code			

批准 Approver:

审核 Checker: 高平

编制 Compiler: 頂丝

职务 Title:

副总工程师(Vice chief engineer)



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# 上海化工院检测有限公司 检 测 报 告

Shanghai Research Institute of Chemical Industry Testing Co., Ltd. Test Report

NO. 1120090110

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	序号 No	检测项目名称 Name of Test Items	标准要求或标准条款号 Standard requirement or The Clause Number of Standard	检测结果 Test Result		本项结论 Conclusion	备注 Remark		
			联合国《关于危险货物运输的建议书 规章范	顶部底部	损, 无导致动, 无内容 动, 无内容 The pack cracked. battery shifting to batte	c被裂。电池未 致电池直接接角容物泄漏。 kage is not No damage t contained, N g of the cont ery contact, ng of content	ents		
, a sa	1	1. 2米 跌落试验 1.2m Drop Test	本》(20th)特殊规定188条款 WNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Model Regulations(20th) special provisions 188	长短侧面	损, 无导动, 无内。 The pack cracked. battery shifting to batte	k破裂。电池未致电池直接接危容物泄漏。 Kage is not No damage t contained, N g of the cont ery contact, ng of content	o o o ents No	合格 Passed	/
				棱角	损, 无导致力, 无内容 The pack cracked. battery shifting to batte	t破裂。电池未致电池直接接条容物泄漏。 kage is not No damage t contained, N g of the cont ery contact, ng of content	ents		
		测环境条件 t Environment Condition	环境温度:23℃;环境湿度 Ambient temperature:23°		mbient	humidity:/%			
	分包检测情况 Subcontracted Test Condition		检测项目 Test Item	/					
			acted Test 分包实验室		称 me	/	Post	Code	/
			Laboratory		址 ress	/		· <b>话</b> Tel	1

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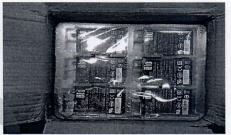


## 上海化工院检测有限公司 检测报告-附图

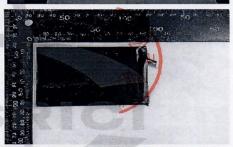
SRICI Testing Co., Ltd. Test Report—Appendix NO. 1120090110

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Model/型号/型號: APP00326 Nominal voltage/标称电压/標稱電壓: 3.8Vdc Limited charging voltage/充电限制电压/充電限制電壓 4. 35Vdc Capacity min. /额定容量/額定容量: 4000mAh

\*\*\*报告结束\*\*\*

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