Material Safety Data Sheet (MSDS)

Product picture and name:

TG7

T7LTE

EN: This material safety data sheet refers to the batteries encapsulated in **all Trusted data loggers/trackers in the 7-series***. Standard products are pictured.

Trusted A/S declares that these products contain **XL-060F/1S3P/Wire+XLC1325** battery packs as documented on the following pages.

DE: Dieses Sicherheitsdatenblatt bezieht sich auf die Batterien, die in **allen Trusted Datenloggern/Trackern der 7er-Serie*** verkapselt sind. Standardprodukte sind abgebildet.
Trusted A/S erklärt, dass diese Produkte **XL-060F/1S3P/Wire+XLC1325** enthalten Akkupacks, wie auf den folgenden Seiten dokumentiert.

FR: Cette fiche de données de sécurité fait référence aux batteries encapsulées dans tous **les enregistreurs de données/traqueurs Trusted de la série 7***. Les produits standard sont illustrés.
Trusted A/S déclare que ces produits contiennent **XL-060F/1S3P/Wire+XLC1325** batteries comme documenté dans les pages suivantes.

ES: Esta hoja de datos de seguridad del material se refiere a las baterías encapsuladas en **todos los registrdores/rastreadores de datos Trusted de la serie 7***. Los productos estándar se muestran en la imagen.
Trusted A/S declara que estos productos contienen **XL-060F/1S3P/Wire+XLC1325** baterías como se documenta en las siguientes páginas.

IT: Questa scheda di sicurezza dei materiali si riferisce alle batterie incapsulate in **tutti i data logger/tracker Trusted della serie 7***. I prodotti standard sono illustrati.
Trusted A/S dichiara che questi prodotti contengono **XL-060F/1S3P/Wire+XLC1325** batterie come documentato nelle pagine seguenti.

PT: Esta ficha de dados de segurança do material refere-se às baterias encapsuladas em **todos os registradores/rastreadores de dados Trusted da série 7***. Os produtos padrão são retratados.
Trusted A/S declara que estes produtos contêm **XL-060F/1S3P/Wire+XLC1325** baterias conforme documentado nas páginas a seguir.

Table of contents:

* All relevant editions are marked with "Type: T7.xxx" on the label and "B1" in the end of the QC code

Version 1.5 – Date issued: Mar 2023

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Product Category: Lithium-Thionyl Chloride (Li-$SOCl_2$) Battery

Nominal Voltage: 3.6 V

Product Name

Type	CLASS 9 (UN)	Lithium (gr.)	
ER14250		0.31	
ER14250C		0.31	
ER14250V		0.31	
ER14335		0.43	
ER14505		0.69	
ER14505_ SPC-2		2.07	(ER14505-3+SPC1520/W)
ER17505		0.93	
ER18505		0.98	
ER14250M		0.19	
ER14335M		0.34	
ER14505M		0.51	
ER17505M		0.72	
ER18505M		0.90	
ER22G68（BEL）		0.10	
ER32L65（1/10D）		0.25	
ER32L100（1/6D）		0.44	
ER1860		0.07	
ER2450T		0.13	
EF651615（LTC-3PN）		0.10	
EF651620（LTC-5PN）		0.14	
EF651625（LTC-7PN）		0.19	
EF702338（LTC-16PN）		0.41	
ER26500	Class 9	2.20	
ER26500C	Class 9	2.20	
ER34615	Class 9	4.92	
ER34615C	Class 9	4.92	
ER34615E	Class 9	4.40	
ER341245	Class 9	9.07	
ER26500M	Class 9	1.55	
ER34615M	Class 9	3.36	
ES-261520/W	Class 9	2.20	
ES-261550/W	Class 9	2.20	

ES-341520/W	Class 9	4.92
ES-341550/W	Class 9	4.92
ES-341520/W DD	Class 9	9.07
ES-341550/W DD	Class 9	9.07

Supplier's Name:	EVE Energy Co., Ltd
Supplier's Address:	EVE Industrial Park, Xikeng Industrial Zone, Huihuan Town, Huizhou, Guangdong, China.
Post Code:	516006
Emergency Telephone:	(+86) -752-2606966
Fax:	(+86) -752-2606033

Note: The battery is neither substance nor mixture but product and having no risk to life and health under normal use or transportation because ingredients of battery is not leaked out by virtue of hermetical sealing with metal case.
This sheet notifies possible risk of our battery under abnormal use but mainly aim to provide information about ingredients, notification of handling and transportation regulations as a useful reference.

2. Hazards identification

The important hazards and adverse effects of the chemical product	No information available
Chemical product – specific hazards	No information available
Outline of an anticipated emergency	Chemical contents are seal in metal can. Therefore, risk of exposure never occurs unless battery is mechanically or electrically abused. Risk of explosion by fire is anticipated if batteries are dispose of in fire or heated above 100 degree Celsius. Stacking or jumbling of batteries may cause external short circuits, heat generation, in some case, allowing fire or explosion.

Note: our battery is not classified in accordance with the GHS classification.

3. Composition/Information on Ingredient

Chemical Name	Molecular Formula	CAS No.	Weight(%)
Lithium	Li	7439-93-2	3.5~5.0
Carbon	C	1333-86-4	3~6
Tetrafluoroethylene	$(C_2F_4)_n$	9002-84-0	N/A
Thionyl Chloride	$SOCl_2$	7719-09-7	40~45
Aluminum Chloride	$AlCl_3$	7446-70-0	1-5
Lithium Chloride	LiCl	7447-41-8	N/A
Stainless Steel	N/A	N/A	N/A

Glass	$Na_2O.CaO.6SiO_2$	N/A	N/A
Nickel	Ni	7440-02-0	N/A

4. First-aid measures

Inhalation	If ingredient leaked out from inside of a battery and if inhaled it, move to a place where fresh air is provided. Refer for medical attention.
Skin contact	If ingredient leaked out from inside of a battery and stuck on skin, wash the contact areas off immediately with plenty of water and soap. If appropriate procedures are not taken, this may cause sores on the skin. Refer for medical attention.
Eyes contact	If ingredient leaked out from inside of a battery and came into eyes, flush the eyes with plenty of water for at least 15 minutes immediately without rubbing. Take a medical treatment. If appropriate procedures are not taken, this may cause an eye irritation.
Swallowing	In case of swallowing of battery, immediately refer for medical attention.

5. Fire-fighting Measures

Fire extinguishing agent:

Dry chemical, alcohol-resistant foam, powder, atomized water, carbon dioxide and dry sand are effective.

Extinguishing method:

Escape batteries to safe place prevent from ignition by spreading fire.

Because of packing material of battery is paper, use water extinguisher, CO2 extinguisher or powder extinguisher as normal extinguisher.

Since vapor, generated from burning batteries may make eyes, nose and throat irritate, be sure to extinguish the fire on the windward side. Wear the respiratory protection equipment in some cases.

6. Accidental Release Measures

Chemical contents are sealed in metal can. But if the battery is mechanically or electrically abused, contents may leak out. In such case, take action as shown below.

Personal precautions: Temporary inhalation of odor and attaching of electrolyte to skin does not cause serious health hazard. Be sure the ventilation and washing out of electrolyte quickly.

Environmental precautions: Clean up it quickly. Specific environmental precaution is not necessary.

Method and materials for containment and methods and materials for cleaning up:

Contain and collect spillage and place in container for disposal according to local regulations.

7. Handling and Storage

Handing	Do not charge, short-circuit, disassemble, deform, heat above 100℃ or incinerate. Do not pile up or mingle battery with each other. Do not place battery on metal case, metal plate or antistatic material. In case of multi cell application, replace all batteries to new at once when replacing used batteries.
Storage	Be sure to store batteries in well-ventilated, dry and cool conditions. Keep away from water, rain, snow, frost or dew condensation. Do not store batteries near source of heat or nozzle of hot air. Do not store batteries in direct sunshine. Take care not to get wet packing by dew condensation when packing is removed from cold to warm and humid condition. Enough number of fire fighting apparatuses should be installed in warehouse

8. Exposure Controls and Personal Protection

There is no need of personal protective equipment on regular handling and storage. In the event, however, a large amount of electrolyte should be released by mechanical or electrical abuse, use the protection as shown below.

Respiratory protection: Mask (with a filter preferably)

Hand protection : Synthetic rubber gloves

Eye protection : Goggles or glasses

9. Physical and Chemical Properties

State：Solid

Shape: Cylindrical、Prismatic

10. Stability and Reactivity

Stability: Stable on regular handling

Conditions to Avoid: External short circuit of battery, deformation by crush, exposure at high temperature of more than 100 degree C (may cause heat generation and ignition), direct sunlight, high humidity.

Materials to avoid: Substances that cause short circuit.

11. Toxicological Information

Inhalation, skin contact and eye contact are possible when the battery is opened. Exposure to internal contents, the corrosive fumes will be very irritating to skin, eyes and mucous membranes. Overexposure can cause symptoms of non-fibrotic lung injury and membrane irritation.

12. Ecological Information

Persistence and degradability	No information available
Mobility in soil	No information available

13. Disposal Considerations

Dispose of batteries in accordance with applicable federal, state and local regulations.

For safety precaution, battery should be insulated in proper manner; covering both terminals by tape, wrapping of battery in insulative bag or packing battery in original package is recommended in order to prevent ignition due to short-circuit.

14. Transport Information

Lithium metal cells and batteries are given UN numbers as shown in the below table.

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 Ⅱ hazardous goods.

Cells and batteries must be packed in inner packagings that completely enclose the cell or battery then placed in a strong outer packaging.

Each package must be capable of withstanding a 1.2 m drop test in any orientation without:

-damage to cells or batteries contained therein;

-shifting of the contents so as to allow battery to battery (or cell to cell) contact;

-release of contents.

The goods are primary lithium batteries. Each package must be marked indicating that it contains lithium batteries and that special procedures should be followed in the event that the package is damaged. Each shipment must be accompanied with a document indicating that the packages contain lithium batteries and that special procedures should be followed in the event a package is damaged.

UN No.	Proper Shipping Name/Description
3090	Lithium metal batteries
3091	Lithium metal batteries contained in equipment
3091	Lithium metal batteries packed with equipment

Related regulations: Following regulations shall be cited and considered.

Transportations	Related organization / Issue documents
Air transport (by airplane)	ICAO (International Civil Aviation Organization) / TI (Technical Instruction) IATA (International Air Transport Association) / DGR (Dangerous Goods Regulations)
Maritime transport (by ship)	IMO (International Maritime Organization) / IMDG Code (International Maritime Dangerous Goods Code)

Land transport (Intra-European)	RID (International Carriage of Dangerous Goods by Rail) , ADR (International Carriage of Dangerous Goods by Road)
USA / UN	USDOT (US Department of Transportation) / DOT 49 CFR (US law) UN: Recommendations on the transport of dangerous goods: Manual of Tests and Criteria the 61st edition Amendment 1 [ST/SG/AC.10/11/Rev.5/Amend.1]: Part III, Subsection 38.3

15. Regulatory Information

Environment-related law of batteries: EU nations have applicable law in accordance with Directive 2006/66/EC and other some countries, China, Korea, Brazil, some provinces of USA and Canada or so have similar law.

16. Other information

Reference

- **IATA Dangerous Goods Regulations, 61st edition**

This sheet refers to normal use of the product in question. EVE Corp. makes no warranty expressed or implied.

ENERGY VERY ENDURE

International size reference: *AA*

ER14505

Lithium-thionyl Chloride ($Li\text{-}SOCl_2$) Battery

KEY FEATURES

- ✔ High and stable operating voltage
- ✔ High minimum voltage during pulsing
- ✔ Low self discharge rate (less than 1% after1 year of storage at+25℃)
- ✔ Stainless steel container
- ✔ Hermetic glass-to-metal sealing
- ✔ Non-flammable electrolyte
- ✔ Non-restricted for transport
- ✔ Compliant with IEC 60086-4 Safety standard and EN 60079 -11 intrinsic safety standard
- Underwriters Laboratories (UL) Component Recognition (File Number MH28717)

MAIN APPLICATIONS

- ✔ Utility metering
- ✔ Alarms and security devices
- ✔ Memory back-up
- ✔ Tracking systems
- ✔ Automotive electronics
- ✔ Professional electronics ... etc.

ELECTRICAL CHARACTERISTICS

(typical values for cells stored for one year or less, at 25℃)

Nominal capacity *2.7Ah*

(At 2 mA, +25℃, 2.0V cut off. The capacity restored by the cell varies according to current drain, temperature and cut off voltage.)

Nominal voltage *3.6V*

Maximum continuous current *50mA*

(For the fresh cell* to get 50% of the nominal capacity at +25℃ 2.0V cut off.Higher currents possible, consult EVE.)

Maximum pulse capability: *Typical up to 150mA*

(150mA/0.1 second pulse, drained every 2 min at 25℃ from undischarged cells with 10uA base current, yield voltage readings above 3.0V. This data is base on the fresh battery* performance, voltage readings may vary according to the pulse characteristics, the temperature, and the cell's previous history.
Fitting the cell with a Lithium-ion Battery Capacitor or a capacitor may be recommended in servere conditions, consult EVE.

Storage *(recommended)* *+30℃ max*

(for more severe condition consult EVE)

Operating temperature range *-60℃ / +85℃*

(Operation at temperature different from ambient may lead to reduced capacity and lower voltage plateau readings.)

Typical weight *19g*

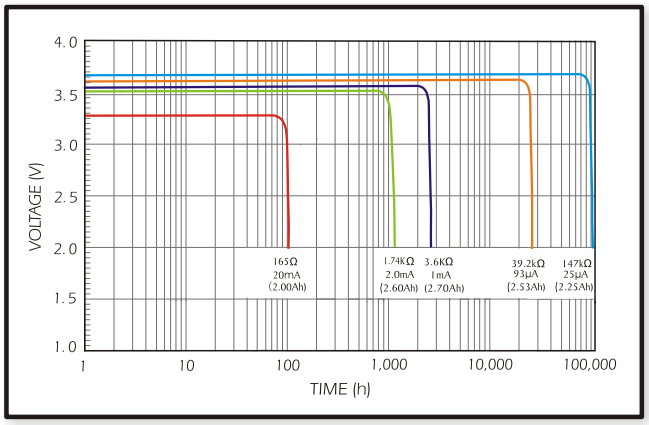
*Fresh cell/battery:
Defined as the cell or battery that stored at +25℃ max. Within 3 months.

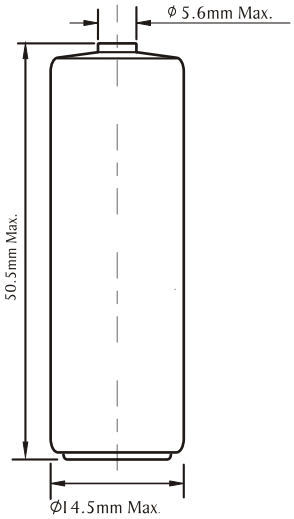
WARNING:

Fire, explosion and severe burn hazard. Do not recharge, crush, disassemble, heat above 100℃, incinerate, or expose contents to water.
Do not solder directery to the cell, use tabbed cell intead.

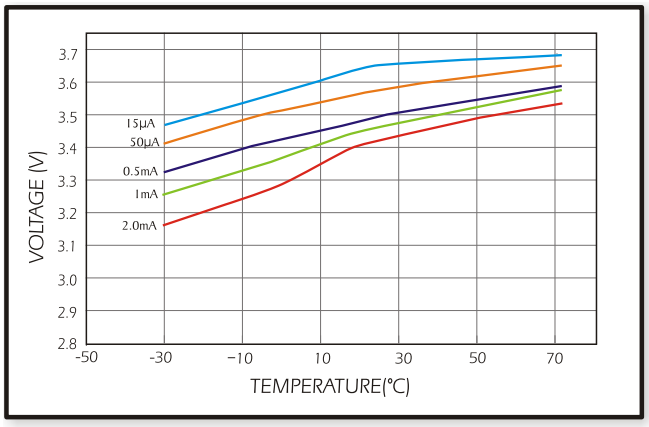
ER14505

1.Typical discharge profile at +25℃ (Median value)





2. Voltage plateau versus Current and Temperature (at mid-discharge)

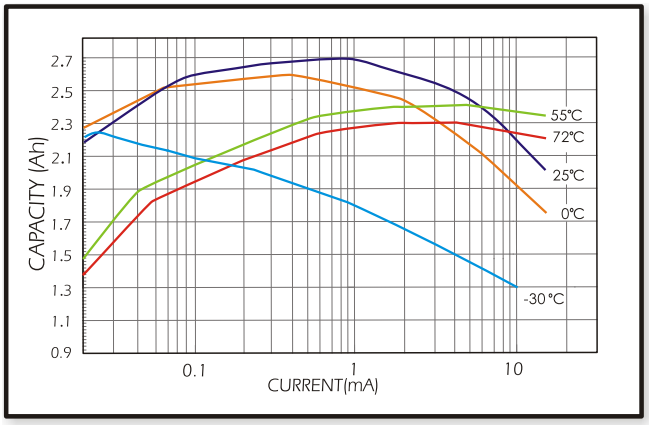


AVAILABLE TERMINATIONS

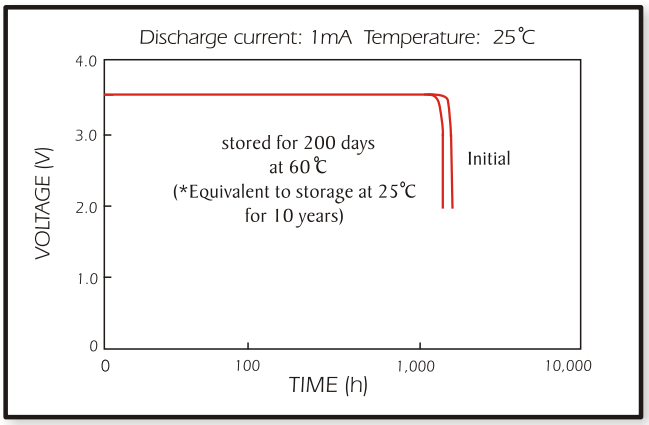
Suffix-/S	*Standard*
Suffix-/P	*Axial Pins*
Suffix-/T	*Solder Tabs*
Suffix-/2PT	*Radial Pins*
Suffix-/3PT/3TP	*Radial Pins*

View available terminations

3. Capacity versus Current and Temperature (2.0V cut off)



4. STORAGE CHARACTERISTICS



Attention:
Information in this document is subject to change without notice. Any representations in this document concerning performance are for informational purpose only. This document becomes contractual only after written confirmation by EVE.

EVE ENERGY CO., LTD.
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Operator: (86-752)260 6966 Fax: (86-752)260 6033

中国认可
检验
INSPECTION
CNAS IB0011

货物运输条件鉴定报告书

Report for Safe Transport of Goods

No.: UN2021-4962-2

 海运 By Sea	第九类危险品（P903） Dangerous Goods Class 9 (P903) 同时包含锂金属电芯和锂离子电芯的锂电池 Lithium batteries containing both primary lithium metal cells and rechargeable lithium ion cells 报告有效期 Period of validity：2022-12-31

样 品 名 称 .....:	锂亚硫酰氯电池组 ER14505-3+SPC1520/W 3,6V 8100mAh
Sample Name..... :	**Lithium Primary Battery Pack** ER14505-3+SPC1520/W 3,6V 8100mAh
委 托 单 位 .....:	惠州亿纬锂能股份有限公司
Commissioner ..... :	**EVE Energy Co.,Ltd.**

威凯检测技术有限公司

CVC Testing Technology Co., Ltd.

货物运输条件鉴定报告书

Report for Safe Transport of Goods

样品信息/ Sample information	
样品名称 .....:	锂亚硫酰氯电池组
Sample name.....:	Lithium Primary Battery Pack
电池类别/Battery Category .....:	锂金属电池/Lithium metal batteries
电池型号规格/Battery Type.....:	ER14505-3+SPC1520/W 3,6V 8100mAh
合计锂金属含量/Total Lithium content of all lithium metal cells.....:	2,07g
合计锂离子容量/ Total capacity of all lithium ion cells .....:	0,137Wh
外观颜色/ Appearance.....:	黑色/ Black
委托单位/ Commissioner information	
委托单位 .....:	惠州亿纬锂能股份有限公司
Commissioned by .....:	EVE Energy Co.,Ltd.
制造商/Manufacturer information	
制造商:.....:	惠州亿纬锂能股份有限公司
Manufacturer .....:	EVE Energy Co.,Ltd.
包装件信息/Package information	
包装件重量/Package quantity.....:	10,24kg
电池净重/ Battery net weight .....:	7,62kg
电池个数/ Battery Number.....:	120pcs
包装件尺寸/Package size .....:	350mm*280mm*340mm
时间信息/ Date	
鉴定日期/ Inspection date.....:	2021-11-26~2021-12-03
报告有效期 Period of validity .....:	2022-12-31

鉴定依据/Inspection refer to

《国际海运危险货物规则》

IMDG CODE (Amdt.40-20) 2020 Edition

鉴定结论/ Certification

1. 运输名称/Proper Shipping name:

— 锂金属电池（包括锂合金电池）/ Lithium metal batteries(Including lithium alloy batteries)

2. 危险性识别/ Hazards identification ：

— 第九类 UN3090/ Class 9 UN3090

3. 包装符合 IMDG CODE（Amdt. 40-20）2020 版包装导则 P903 的要求/ Package complies with the Packing Instruction P903 of IMDG CODE（Amdt. 40-20）2020 Edition.

— 包装箱满足包装等级 II 的要求。/ The package meet the Packing Group II performance standards.

签发日期：

Issue Date: 2021-12-15

鉴定单位盖章

(Seal of CVC)

批准人: 黄鲲 审核人: 张思瑶 鉴定人: 姜维维

Approved by: 黄鲲 Reviewed by: 张思瑶 Appraisal by: 姜维维

检查结果及其他事项 Inspection results and other information	
1	本报告所述锂电池已经通过联合国《试验和标准手册》第三部分第 38.3 节的相关测试要求。UN38.3 测试报告编号及试验概要的编号为 RZUN2020-1843 / RZUN2020-1843-TS The Lithium cells/batteries listed in the report are of type proven to meet the requirements of each test in the UN Manual of Tests and Criteria Part III subsection 38.3. The UN38.3 test report and test summary numbers are : RZUN2020-1843 / RZUN2020-1843-TS
2	本报告所述锂电池按照《国际海运危险货物规则》（40-20 版）2.9.4（5）规定的质量管理体系进行制造。 Lithium cells and batteries listed in this report were manufactured under the quality management program as described in IMDG CODE（Amdt. 40-20）2020Edition 2.9.4（5）.
3	锂电池具有适当的防短路措施。 Cells and batteries are properly protected so as to prevent short circuits.
4	锂电池有适当的保护措施防止其在包装件内移位。 Cells and batteries are properly protected so as to secured against movent within the outer package.

备注：

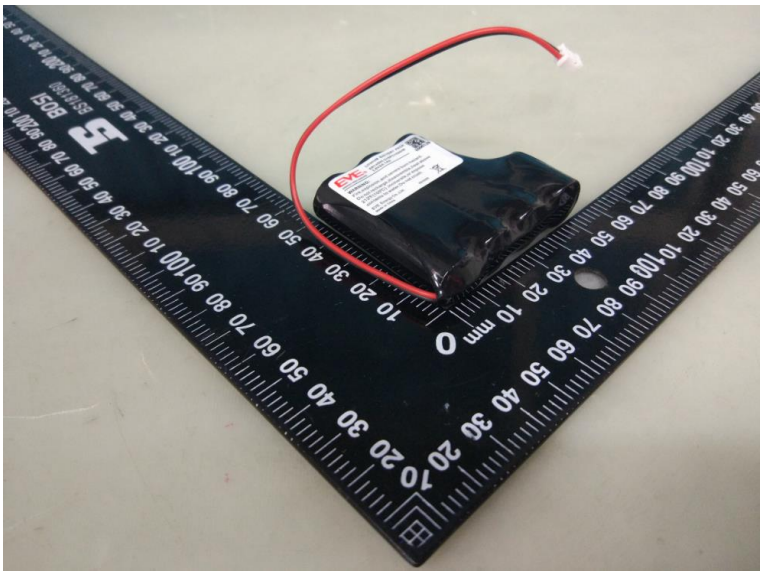
Remarks:

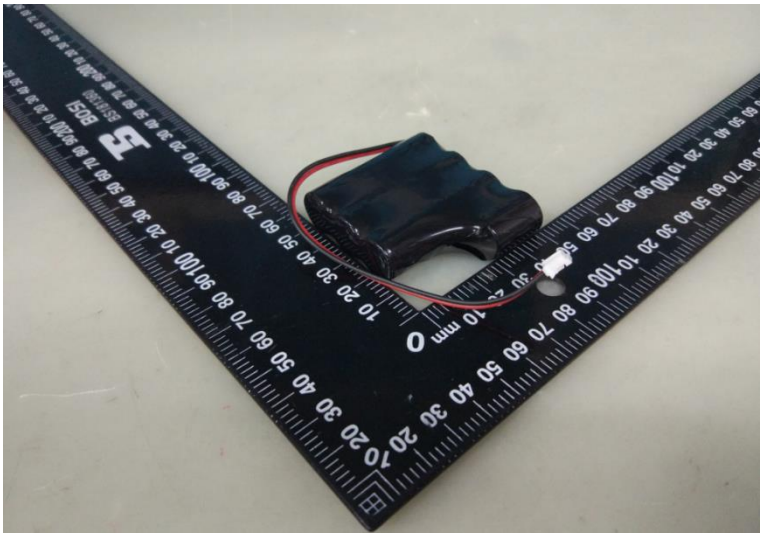
该报告中逗号用以代替小数点。

Throughout this report a comma is used as the decimal separator.

样品照片
Photos of Samples

电池/ Battery (ER14505-3+SPC1520/W 3,6V 8100mAh)





包装照片
Photos of Packages

包装箱/ Package

注 意 事 项

Important Notice

1. 本鉴定报告书仅对送检样品有效。
   This report is valid for the tested samples only.
2. 申请人提供的样品须与实际运输货物一致。
   The goods applied for shipment must be in conformity with the tested samples.
3. 本鉴定报告书无鉴定单位印章无效。
   This report is invalid without the official stamp of CVC.
4. 本鉴定报告书无批准人、审核人及鉴定人签名无效。
   This report is invalid without the signatures of Ratifier, Reviewer and Appraiser.
5. 本鉴定报告书涂改无效。
   This report is invalid if altered.
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   The original softcopy or hardcopy of this report is the only valid version. Any form of unauthorized copies of the report are invalid, including but not limited to, copy, fax and scan etc..
7. 本鉴定报告书可以通过扫描封面二维码或登录网站 http://www.cvc.org.cn 上核实。
   This appraisal report can be verified by scanning the QR code on the cover or visiting the website http://www.cvc.org.cn.

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电　　话(Tel)：(020)32293888
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邮政编码(Post Code)：510663
E-mail: office@cvc.org.cn
http://www.cvc.org.cn

中国认可
检验
INSPECTION
CNAS IB0011

货物运输条件鉴定报告书

Report for Safe Transport of Goods

No.: UN2021-4962-1

 空运 By Air	第九类危险品（PI 968 IA） Dangerous Goods Class 9 (PI 968 IA) 同时包含锂金属电芯和锂离子电芯的锂电池 Lithium batteries containing both primary lithium metal cells and rechargeable lithium ion cells

样 品 名 称 ……:	锂亚硫酰氯电池组
	ER14505-3+SPC1520/W 3,6V 8100mAh
Sample Name..... :	**Lithium Primary Battery Pack**
	ER14505-3+SPC1520/W 3,6V 8100mAh
委 托 单 位 ……:	惠州亿纬锂能股份有限公司
Commissioner ..... :	**EVE Energy Co.,Ltd.**

威凯检测技术有限公司

CVC Testing Technology Co., Ltd.

货物运输条件鉴定报告书

Report for Safe Transport of Goods

样品信息/ Sample information	
样品名称 .....:	锂亚硫酰氯电池组
Sample name.....:	Lithium Primary Battery Pack
电池类别/Battery Category .....:	锂金属电池/Lithium metal batteries
电池型号规格/Battery Type.....:	ER14505-3+SPC1520/W 3,6V 8100mAh
合计锂金属含量/Total Lithium content of all lithium metal cells.....:	2,07g
合计锂离子容量/ Total capacity of all lithium ion cells .....:	0,137Wh
外观颜色/ Appearance.....:	黑色/ Black
委托单位/ Commissioner information	
委托单位 .....:	惠州亿纬锂能股份有限公司
Commissioned by .....:	EVE Energy Co.,Ltd.
制造商/Manufacturer information	
制造商:.....:	惠州亿纬锂能股份有限公司
Manufacturer .....:	EVE Energy Co.,Ltd.
包装件信息/Package information	
包装件重量/Package quantity.....:	10,24kg
电池净重/ Battery net weight .....:	7,62kg
电池个数/ Battery Number.....:	120pcs
包装件尺寸/Package size .....:	350mm*280mm*340mm
时间信息/ Date	
鉴定日期/ Inspection date.....:	2021-11-26~2021-12-03
报告有效期 Period of validity .....:	2022-12-31

鉴定依据/Inspection refer to

国际航空运输协会《危险品规则》第 63 版

IATA Dangerous Goods Regulations 63rd Edition

鉴定结论/ Certification

1. 运输名称/Proper Shipping name:

— 锂金属电池（包括锂合金电池）/ Lithium metal batteries (Including lithium alloy batteries)

2. 危险性识别/ Hazards identification ：

— 第九类 UN3090/ Class 9 UN3090

3. 包装满足 IATA 第 63 版 DGR 手册包装说明 968 IA 节要求/ Package complies with the requirements of section IA of Packing Instruction 968 of 63rd DGR Manual of IATA.

— 包装箱满足包装等级 II 的要求。/ The package meet the Packing Group II performance standards.

— 包装件净重不超过 35kg。/ The net quantity of the package does not exceed 35kg.

— 仅限货机运输。/ Apply to Transport of Cargo Aircraft Only.

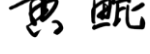
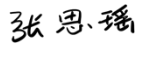
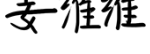
签发日期：

Issue Date: 2021-12-15

鉴定单位盖章

(Seal of CVC)

批准人: 黄鲲 审核人: 张思瑶 鉴定人: 姜维维

Approved by:  Reviewed by:  Appraisal by: 

检查结果及其他事项 Inspection results and other information	
1	本报告所述锂电池已经通过联合国《试验和标准手册》第三部分第 38.3 节的相关测试要求。UN38.3 测试报告编号及试验概要的编号为 RZUN2020-1843 / RZUN2020-1843-TS The Lithium cells/batteries listed in the report are of type proven to meet the requirements of each test in the UN Manual of Tests and Criteria Part III subsection 38.3. The UN38.3 test report and test summary numbers are : RZUN2020-1843 / RZUN2020-1843-TS
2	本报告所述锂电池满足《危险品规则》（63 版）3.9.2.6.1 规定的要求，并按照 3.9.2.6.1（e）规定的质量管理体系进行制造。 本报告所述锂电池不属于因安全原因召回的锂电池。 本报告所述锂电池不属于以回收或处置为目的的航空运输，不属于废弃锂电池。 Lithium cells and batteries listed in this report are meet the requirements as described in IATA DGR 63rd 3.9.2.6.1, and which were manufactured under the quality management program as described in 3.9.2.6.1(e). Lithium cells and batteries listed in this report are not the defective cells or batteries returned to the manufacturer for safety reasons. Lithium cells and batteries listed in this report are not waste cells or batteries, and they will not be shipped for recycling or disposal.
3	锂电池具有适当的防短路措施。 Cells and batteries are properly protected so as to prevent short circuits.
4	锂电池装在能完全封闭其的内包装再放置在外包装。 Cells and batteries are packed in inner packagings that completely enclose the cell or battery then place in outer package.
5	本报告所述锂电池禁止与除 1.4S 的第 1 类爆炸物质（除 1.4 类弹药）、第 2.1 类易燃气体、第 3 类易燃液体、第 4.1 类易燃固体和 5.1 类氧化物质危险品包装在同一外包装箱里。 本报告所述锂电池包装禁止与含有除 1.4S 的第 1 类爆炸物质（除 1.4 类弹药）、第 2.1 类易燃气体、第 3 类易燃液体、第 4.1 类易燃固体和 5.1 类氧化物质危险品的包装箱合成包装。 Lithium cells and batteries listed in this report must not packed in the same outer packaging with dangerous goods classified in Class 1 (explosives) other than Division 1.4S, Division 2.1 (flammable gases), Class 3 (flammable liquids), Division 4.1 (flammable solids) or Division 5.1 (oxidizers). Packages containing cells or batteries must not be placed in an overpack with packages containing dangerous goods classified in Class 1 other than Division 1.4S, Division 2.1, Class 3, Division 4.1 or Division 5.1.

备注：

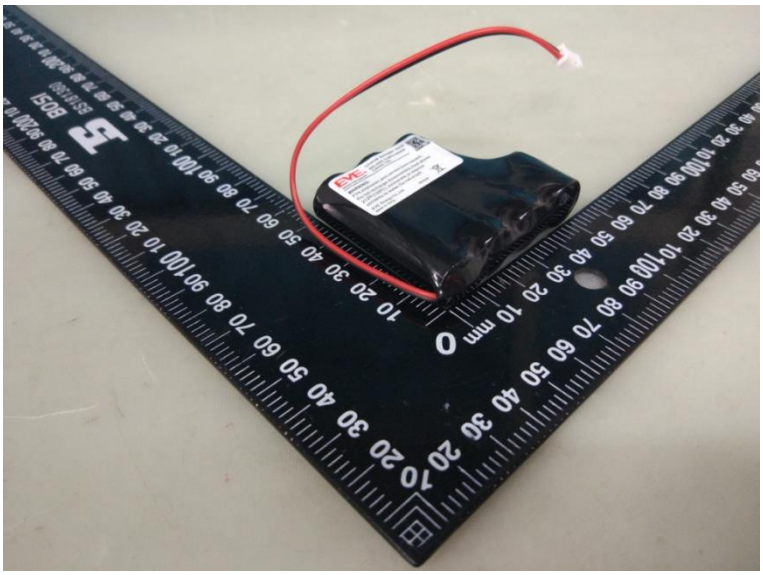
Remarks:

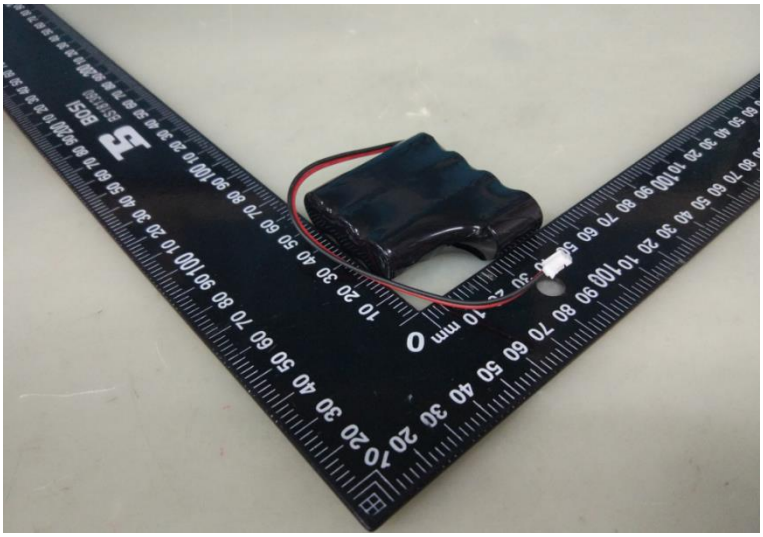
该报告中逗号用以代替小数点。

Throughout this report a comma is used as the decimal separator.

样品照片
Photos of Samples

电池/ Battery (ER14505-3+SPC1520/W 3,6V 8100mAh)





包装照片
Photos of Packages

包装箱/ Package

注 意 事 项

Important Notice

1. 本鉴定报告书仅对送检样品有效。
   This report is valid for the tested samples only.
2. 申请人提供的样品须与实际运输货物一致。
   The goods applied for shipment must be in conformity with the tested samples.
3. 本鉴定报告书无鉴定单位印章无效。
   This report is invalid without the official stamp of CVC.
4. 本鉴定报告书无批准人、审核人及鉴定人签名无效。
   This report is invalid without the signatures of Ratifier, Reviewer and Appraiser.
5. 本鉴定报告书涂改无效。
   This report is invalid if altered.
6. 本鉴定报告仅纸质版或电子版原件有效，任何形式未经许可的报告复制件均无效，包括但不限于复印件、传真件及扫描件等。
   The original softcopy or hardcopy of this report is the only valid version. Any form of unauthorized copies of the report are invalid, including but not limited to, copy, fax and scan etc..
7. 本鉴定报告书可以通过扫描封面二维码或登录网站 http://www.cvc.org.cn 上核实。
   This appraisal report can be verified by scanning the QR code on the cover or visiting the website http://www.cvc.org.cn.

地　　址：中国　广州市科学城开泰大道天泰一路 3 号
Address: No.3,Tiantaiyi Road, Kaitai Avenue, Science City, Guangzhou, P. R. China.
电　　话(Tel)：(020)32293888
传　　真(FAX)：(020)32293889
邮政编码(Post Code)：510663
E-mail: office@cvc.org.cn
http://www.cvc.org.cn

UN38.3 Lithium Battery(Cell) Test Summary
UN38.3 锂电池(电芯)试验概要

No. : RZUN2020-1843-TS

Cell or Battery Information 电池/电芯信息				
Name 名称:	Lithium Primary Battery Pack / 锂亚硫酰氯电池组			Other Physical Description: 其它相关描述: 锂亚硫酰氯电池组 ER14505-3+SPC1520/W 是同时包含锂金属电芯和锂离子电芯（非设计用于外部充电）的锂电池组/ The Lithium Primary Battery Packs G0066A-LF are lithium batteries that containing both primary lithium metal cells and rechargeable lithium ion cells，that are not designed to be externally charged.
Type/Model 型号:	ER14505-3+SPC1520/W 3.6V 8100mAh			
Color 颜色:	Black/黑色			
Shape 形状:	Irregular shape/不规则形状			
Completed Battery/Cell Mass 电池/电芯整体质量	63.5g			
☐	Belongs to Lithium-ion Battery/Cell, the Wh rating is 属于锂离子电池/电芯，瓦时数为	-		
☒	Belongs to Lithium metal Battery/Cell, the Lithium content is 属于锂金属电池/电芯，锂金属含量为	2.07g		

Manufacturer Information 制造商信息			
Manufacturer: 制造商:	EVE Energy Co.,Ltd. 惠州亿纬锂能股份有限公司		
Address: 地址:	NO.38, HuiFeng7thRoad, ZhongkaiHi-TechZone, HuiZhou, Guangdong, China 广东省惠州市仲恺高新区惠风七路 38 号		
Telephone 电话:	0752-5848736	Email 电邮:	048723@evebattery.com
Website 网址:	www.evebattery.com		

Laboratory Information 检测试验室信息					
Laboratory: 检测试验室:	Vkan Certification & Testing Co., Ltd. 威凯检测技术有限公司				
Address: 地址:	No.3,Tiantaiyi Road, Kaitai Avenue, Science City, Guangzhou P. R. China. 中国广州市科学城开泰大道天泰一路 3 号				
Tel 电话:	+86-020-32293888	Email 电邮:	office@cvc.org.cn	Website 网址:	http://www.cvc.org.cn

UN38.3 Test conducted and results UN38.3 试验项目和结果			
Test Report ID 检测报告编号:	RZUN2020-1843	Date of Test Report 检测报告签发日期:	2020-06-28
Manual of Test and Criteria version / amendment: 试验和标准手册版本号/修订版:	ST/SG/AC.10/11/Rev.6/Amend.1/Section 38.3		

List of Tests Completed 已完成的试验项目清单

Test Items 试验项目	Pass 通过	Fail 失败
☒ T1 Altitude Simulation 高度模拟	☒	☐
☒ T2 Thermal Test 热冲击	☒	☐
☒ T3 Vibration 振动	☒	☐
☒ T4 Shock 冲击	☒	☐
☒ T5 External Short Circuit 外部短路	☒	☐
☒ T6 Impact/ Crush 撞击/ 挤压	☒	☐
☐ T7 Overcharge 过充电	☐	☐
☒ T8 Forced Discharge 强制放电	☒	☐

Reference to assembled battery testing requirement:
关于组合电池的试验要求:

☒	Not applicable 不适用
☐	Applicable，reference to 38.3.3 (f) 适用于 38.3.3 (f)
☐	Applicable，reference to 38.3.3 (g) 适用于 38.3.3 (g)

Other executive standards/其他执行标准:

Note：The test results of this summary are only valid for the tested samples listed in test report RZUN2020-1843.

注：此摘要的测试结果仅对测试报告 RZUN2020-1843 中列出的测试样品有效

Title/职务: Manager/经理

Stamp of CVC:
CVC 印章:

Signatory/签发人: 黄鲲 (黄鲲)

检验检测专用章

160008222171

中国认可
国际互认
检测
TESTING
CNAS L0095

Ref. No.: RZUN2020-1843

检 测 报 告
TEST REPORT

UN38.3

NAME OF SAMPLE: 产品名称：	Lithium Primary Battery Pack 锂亚硫酰氯电池组
CLIENT: 委托单位：	EVE Energy Co.,Ltd. 惠州亿纬锂能股份有限公司
CLASSIFICATION OF TEST: 检测类别：	Commission Test 委托测试

威凯检测技术有限公司
Vkan Certification & Testing Co., Ltd.

检 测 报 告
TEST REPORT

Name of samples: Lithium Primary Battery Pack 样品名称: 锂亚硫酰氯电池组	Type/Model: 型号规格: ER14505-3+SPC1520/W 3,6V 8100mAh
Color: Black 样品颜色:黑色	Physical shape: Irregular shape 样品形状：不规则形状
Commissioned by: EVE Energy Co.,Ltd. 委托单位: 惠州亿纬锂能股份有限公司	Manufacturer: EVE Energy Co.,Ltd. 制造商: 惠州亿纬锂能股份有限公司
Commissioner address: NO.38, HuiFeng7thRoad, ZhongkaiHi-TechZone, HuiZhou, Guangdong, China 委托单位地址: 广东省惠州市仲恺高新区惠风七路 38 号	Manufacturer address: NO.38, HuiFeng7thRoad, ZhongkaiHi-TechZone, HuiZhou, Guangdong, China 制造商地址: 广东省惠州市仲恺高新区惠风七路 38 号
Classification of test: Commission Test 检测类别: 委托测试	Quantity of sample: 8 battery packs, 50 Cells 样品数量: 8 个电池组, 50 个电芯
Tested according to: 测试标准：ST/SG/AC.10/11/Rev.6/Amend.1/Section 38.3	Sample identification: 样品标识序号:b1#~b8#, c1#~c50#
Receiving date: 接样日期：2020-06-11	Means of receiving: Submitted by Commissioner 接样方式：委托单位送样
Completing date: 完成日期：2020-06-24	Test item: 7 items 测试项目：7 项

Test conclusion:
检测结论:

The Lithium Primary Batteries Pack submitted by EVE Energy Co.,Ltd. are tested according to Section 38.3 of the Sixth revised Edition Amendment 1 of the Recommendations on the Transport of Dangerous Goods, Manual of Test and Criteria (ST/SG/AC.10/11/Rev.6/Amend.1/Section 38.3). The test items are full items. The test results comply with the relevant requirements of the standard.

由惠州亿纬锂能股份有限公司送检的锂亚硫酰氯电池组，依据《关于危险货物运输的建议书》试验和标准手册第六修订版修正 1 第 38.3 节进行检测，试验为全项目，测试结果符合标准相关要求。

Seal of CVC
CVC 印章
Date of issue:
签发日期: 2020-06-28

Title: Manager
批准人职务： 经理

Approved by: 批准： Huangkun

Reviewed by: 审核： zhangsiyao

Tested by: 检测： Wei Guohua

Description and illustration of the sample:
样品说明及描述:
The sample's status is good
样品状况良好。
Cell Dimensions/电芯尺寸: Lithium metal cells/锂金属电芯: φ14,0mm×50,5mm
Lithium ion cells/锂离子电芯: φ15,0mm×20mm

Test item 测试项目	Sample No. 样品编号	State 状态	Remark 备注
T.1~T.5	b1#~b4#	in undischarged states 未放电状态	-
	b5#~b8#	in fully discharged states 完全放电状态	-
T.6	c1#~c5#	in undischarged states 未放电状态	The samples are primary lithium metal cells /样品为锂金属电芯
	c6#~c10#	in fully discharged states 完全放电状态	
	c21#~c25#	at first cycle at 50% of the design rated capacity 第一个交替充电放电周期充电到设计额定容量的 50%	The samples are rechargeable lithium ion cells /样品为锂离子电芯
	c26#~c30#	after 25 cycles ending at 50% of the design rated capacity 第 25 个交替充电放电周期充电到设计额定容量的 50%	
T.8	c11#~c20#	in fully discharged states 完全放电状态	The samples are primary lithium metal cells /样品为锂金属电芯
	c31#~c40#	at first cycle, in fully discharged states 第一个交替充电放电周期完全放电状态	The samples are rechargeable lithium ion cells /样品为锂离子电芯
	c41#~c50#	after 25 cycles ending in fully discharged states 第 25 个交替充电放电周期完全放电状态	

Description of the sampling procedure:
取样程序的说明:

/

Description of the deviation from the standard, if any:
测试结果不符合标准项的说明:

/

Remarks:
备注：

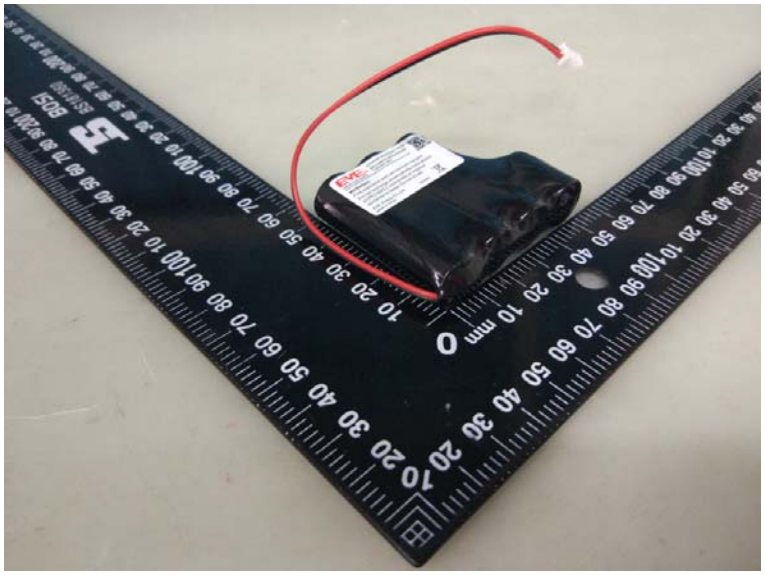
Throughout this report a comma is used as the decimal separator.
本报告中以逗号代替小数点。

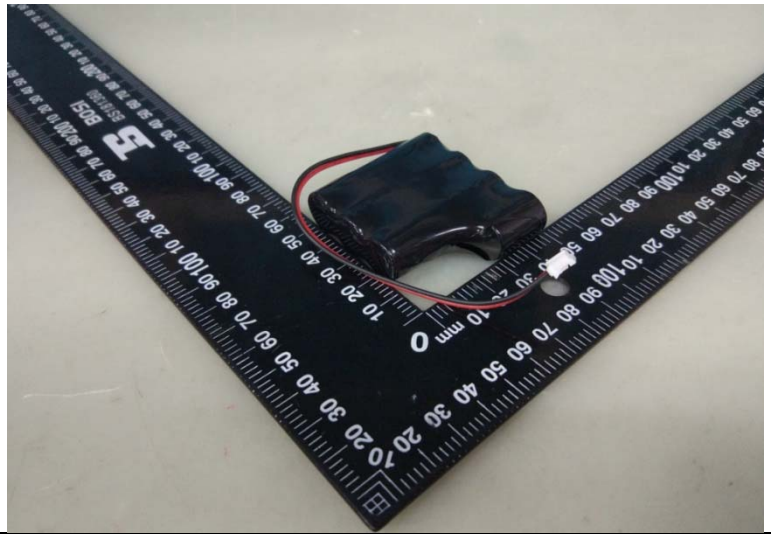
The Lithium Primary Battery Packs submitted by EVE Energy Co.,Ltd. are lithium batteries that containing both primary lithium metal cells and rechargeable lithium ion cells，that are not designed to be externally charged. According to the standard, both types of cells are considered as "component cells" and shall be tested according to the testing requirements for "component cells".

由惠州亿纬锂能股份有限公司所送的锂亚硫酰氯电池组是同时包含锂金属电芯和锂离子电芯（非设计用于外部充电）的锂电池组。根据标准要求，两种电芯都被视为"组成电芯"，须根据"组成电芯"的实验要求进行试验。

Photos of Samples and Labels/样品照片及标识

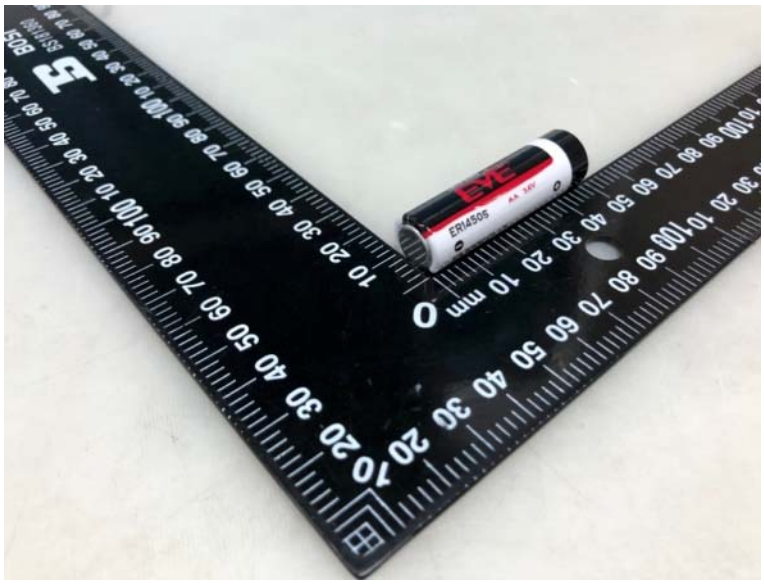
Battery/电池 （ER14505-3+SPC1520/W 3,6V 8100mAh）

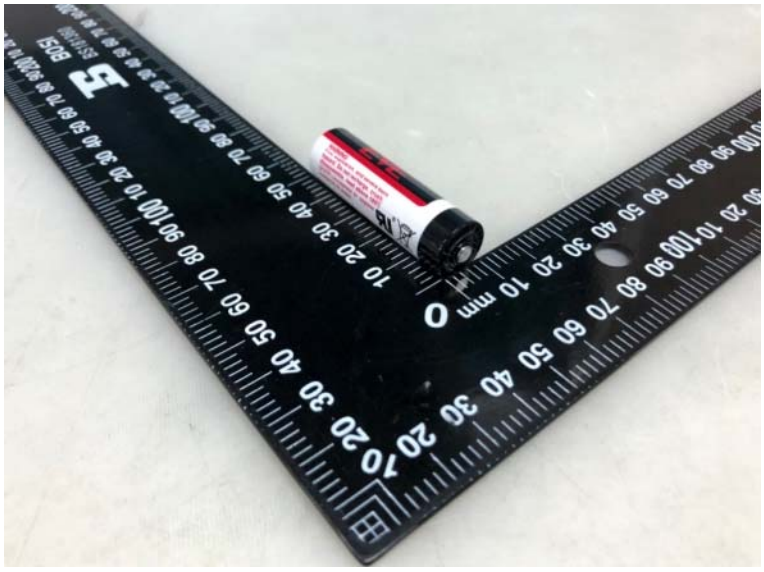




Photos of Samples and Labels/样品照片及标识

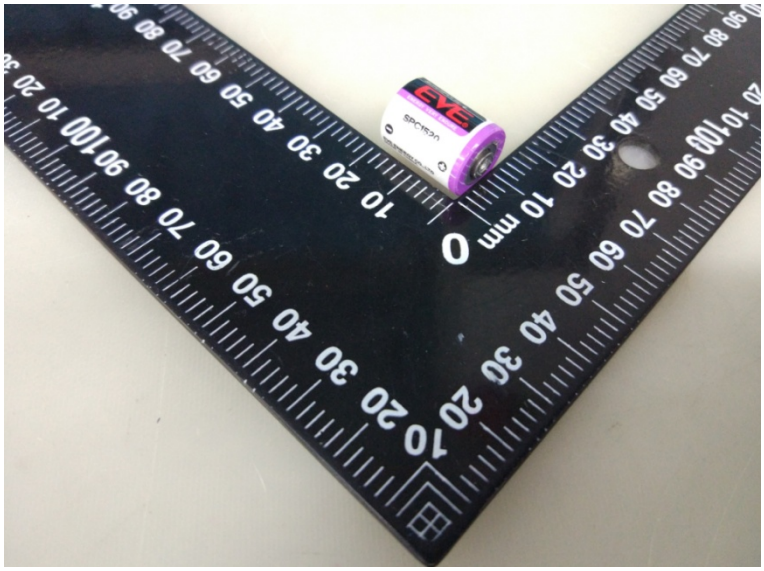
Cell/电芯（ER14505　3,6V 2700mAh）

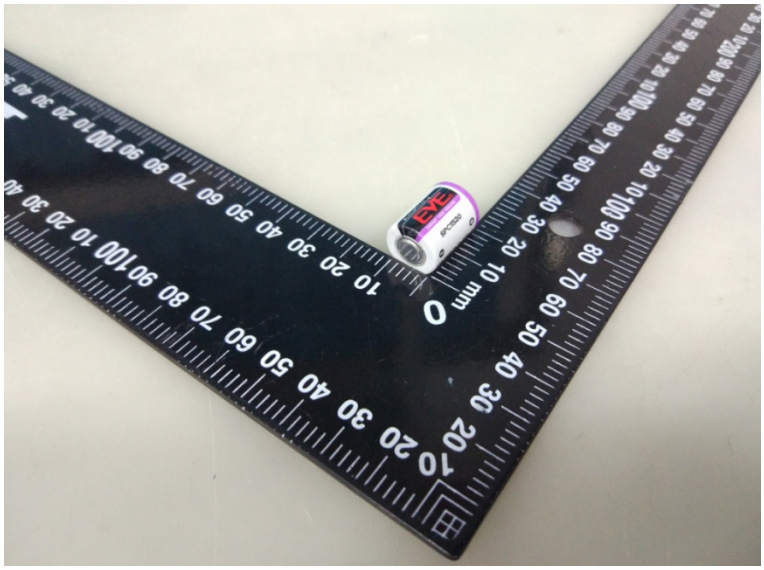




Photos of Samples and Labels/样品照片及标识

Cell/电芯（SPC1520　3,6V 38mAh）





ST/SG/AC.10/11/Rev.6/Amend.1/Section 38.3			
Clause **章节**	**Requirements** **标准要求**	**Result** **测试结果**	**Verdict** **判定**
38.3.4	**Procedure/测试步骤**		—
38.3.4.1	**Test 1: Altitude simulation/测试 1：高度模拟**		**P**
	Test cells and batteries shall be stored at a pressure of 11,6kPa or less for at least six hours 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		
	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	The samples b1#~b8# : No leakage, no venting, no disassembly, no rupture and no fire/编号为 b1#~b8# 的样品：无漏液、无排气、无解体、无破裂以及无着火现象 The data is shown in Table 1./数据见表 1	
38.3.4.2	**Test 2: Thermal test/测试 2: 热冲击**		**P**
	Test cells and batteries are to be stored for/电池存储条件如下： 1 For small cells and batteries: one temperature cycle: 72±2℃(6h) —-40±2℃(6h) /对于小型电芯和电池：一次温度循环为 72±2℃(6h) —-40±2℃(6h) For large cells and batteries: one temperature cycle: 72±2℃(12h) —-40±2℃(12h) /对于大型电芯和电池：一次温度循环为 72±2℃(12h) —-40±2℃(12h) 2 The maximum time interval between test temperature extremes is 30 minutes/温度转换最大间隔时间为 30min 3 This procedure is to be repeated 10 times/重复 10 次循环 4 after which all test cells and batteries are to be stored for 24 hours at ambient temperature (20±5℃)/循环结束后，电池在 20±5℃的条件下 搁置 24 小时		
	Requirements/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	The samples b1#~b8# : No leakage, no venting, no disassembly, no rupture and no fire/编号为 b1#~b8# 的样品：无漏液、无排气、无解体、无破裂以及无着火现象 The data is shown in Table 1./数据见表 1	

ST/SG/AC.10/11/Rev.6/Amend.1/Section 38.3			
Clause **章节**	**Requirements** **标准要求**	**Result** **测试结果**	**Verdict** **判定**
38.3.4.3	**Test 3: Vibration/测试 3: 振动** 1 Cells and batteries are firmly secured to the platform of the vibration machine / 电芯和电池牢固地安装在振动台（的台面）上 2 The vibration: a sinusoidal waveform with a logarithmic sweep between 7Hz and 200Hz and back to 7Hz traversed in 15 minutes/振动以正弦波形式，以 7Hz 增加至 200Hz，然后在减少回到 7Hz 为一个循环，一个循环持续 15 分钟的对数前移传送。 3 For cells and small batteries: from 7 Hz a peak acceleration of 1gn is maintained until 18Hz is reached. The amplitude is then maintained at 0.8mm (1.6mm total excursion) and the frequency increased until a peak acceleration of $8g_n$ occurs (approximately 50Hz). A peak acceleration of $8g_n$ is then maintained until the frequency is increased to 200Hz. / 对于电芯和小型电池：从 7Hz 开始，以 $1g_n$ 的峰值加速度保持不变，直到达到 18Hz。然后将振幅保持在 0.8mm（总偏移 1.6mm）并且频率增加直到出现 $8g_n$ 的峰值加速度（大约 50Hz）。然后保持 $8g_n$ 的峰值加速度，直到频率增加到 200Hz。 For large batteries: from 7Hz a peak acceleration of $1g_n$ is maintained until 18Hz is reached. The amplitude is then maintained at 0.8mm (1.6mm total excursion) and the frequency increased until a peak acceleration of $2g_n$ occurs (approximately 25Hz). A peak acceleration of $2g_n$ is then maintained until the frequency is increased to 200Hz. / 对于大型电池：从 7Hz 开始，以 $1g_n$ 的峰值加速度保持不变，直到达到 18Hz。然后将振幅保持在 0.8mm（总偏移 1.6mm）并且频率增加直到出现 $2g_n$ 的峰值加速度（大约 25Hz）。然后保持 $2g_n$ 的峰值加速度，直到频率增加到 200Hz。 4 This cycle repeated 12 times for a total of 3 hours for each of three mutually perpendicular mounting position of the cell. One of the directions of vibration must be perpendicular to the terminal face. /以振动的其中一个方向必须是垂直样品极性，对每个电芯从三个互相垂直的方向上循环 12 次，每个方向 3 个小时，共 9 小时。		**P**
	Requirements/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	The samples b1#~b8#: No leakage, no venting, no disassembly, no rupture and no fire/编号为 b1#~b8# 的样品：无漏液、无排气、无解体、无破裂以及无着火现象 The data is shown in Table 1./数据见表 1	

ST/SG/AC.10/11/Rev.6/Amend.1/Section 38.3			
Clause **章节**	**Requirements** **标准要求**	**Result** **测试结果**	**Verdict** **判定**
38.3.4.4	**Test 4: Shock/Test 4: 冲击** 1 Test cells and batteries shall be secured to the testing machine/以稳固的托架固定住每个电芯和电池样品的全部配件表面。 2 Each cell shall be subjected to a half-sine shock of peak acceleration of 150 g_n and pulse duration of 6 milliseconds. Large cells may be subjected to a half-sine shock of peak acceleration of 50 gn and pulse duration of 11 milliseconds. / 对每个电芯以峰值为 150g_n 的半正弦的加速度撞击，脉冲持续 6 毫秒，大型电芯须经受最大加速度 50g_n 和脉冲持续时间 11 毫秒的半正弦波冲击。 Small batteries shall be subjected to a half-sine shock of peak acceleration of 150 g_n (or Acceleration(g_n)= $\sqrt{\left(\frac{100850}{mass}\right)}$, which is smaller) and pulse duration of 6 milliseconds, large batteries shall be subjected to a half-sine of peak acceleration of 50 g_n (or Acceleration(g_n)= $\sqrt{\left(\frac{30000}{mass}\right)}$, which is smaller) and pulse duration of 11 milliseconds/对每个电池以峰值为 150g_n（或与 $\sqrt{\left(\frac{100850}{mass}\right)}$ 中的较小值）的半正弦的加速度撞击，脉冲持续 6 毫秒，大型电池须经受最大加速度 50g_n（或与 $\sqrt{\left(\frac{30000}{mass}\right)}$ 中的较小值）和脉冲持续时间 11 毫秒的半正弦波冲击。 3 Each cell or battery shall be subjected to three shocks in the positive direction followed by three shocks in the negative direction of three mutually perpendicular mounting positions of the cell or battery for a total of 18 shocks/每个电池或电池组须在三个互相垂直的电池安装方位的正方向经受三次冲击，接着在反方向经受三次冲击，总共经受 18 次冲击。		**P**
	Requirements/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	The samples b1#~b8# ： Acceleration=150g_n No leakage, no venting, no disassembly, no rupture and no fire/编号为 b1#~b8#的样品： 峰值加速度=150g_n 无漏液、无排气、无解体、无破裂以及无着火现象 The data is shown in Table 1./数据见表 1	

ST/SG/AC.10/11/Rev.6/Amend.1/Section 38.3			
Clause **章节**	**Requirements** **标准要求**	**Result** **测试结果**	**Verdict** **判定**
38.3.4.5	**Test 5: External Short Circuit/测试 5 外接短路** 1 The cell or battery to be tested shall be heated for a period of time necessary to reach a homogeneous stabilized temperature 57±4℃/加热电芯或电池样品直到温度稳定在 57±4℃ 2 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℃, or in the case of the large batteries, has decreased by half of the maximum temperature increase observed during the test and remains below that value. /将样品正负极用小于 0,1Ω 的总电阻回路进行短路，样品的外表温度恢复到 57±4℃之后保持短路状态 1 小时以上；对于大电池，电池温度降低至最高温升值的一半时实验结束。 3 The cell or battery must be observed for a further six hours for the test to be concluded, /对电芯或电池必须进一步观察 6 个小时才能下结论。		**P**
	Requirements/标准要求： During the test and within six hours after test ,the cells or batteries 在测试过程中以及之后 6 个小时内，电芯或电池样品 1. External temperature not exceed 170℃ 外表温度不超过 170℃ 2. No disassembly, no rupture and no fire. 无解体、无破裂和无着火现象发生。	The samples b1#~b8# ： no disassembly, no rupture and no fire/编号为 b1#~b8# 的样品：无解体、无破裂以及无着火现象 The data is shown in Table 1./数据见表 1	

ST/SG/AC.10/11/Rev.6/Amend.1/Section 38.3			
Clause **章节**	**Requirements** **标准要求**	**Result** **测试结果**	**Verdict** **判定**
38.3.4.6	**Test 6: Impact / Crush / 测试 6: 撞击/挤压**		**P**
	Impact (applicable to cylindrical cells not less than 18mm in diameter) / 撞击（适用于直径不小于 18 毫米的圆柱形电池）		**N/A**
	1 This test sample cell or component cell is to be placed on a flat smooth surface/ 将试验样品用的电芯或聚合物电芯放在一个平坦光滑的平面上 2 A 15,8 mm diameter bar is to be placed across the center of the sample, A 9,1kg mass is to be dropped from a height of 61±2,5cm onto the sample./将一直径为 15,8mm 的直棒横过电池中部放置后，将一质量为 9,1kg 的物体从 61±2,5cm 的高度落向样品。 3 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 ± 0,1mm diameter curved surface lying across the centre of the test sample. Each sample is to be subjected to only a single impact./ 接受撞击的试样，纵轴应与平坦的表面平行并与横放在试样中心的直径 15,8±0,1 毫米弯曲表面的纵轴垂直。每一个试样只经受一次撞击。		
	Requirements/标准要求： 1 Cells external temperature not exceed 170℃.电芯或电池的最高表面温度应不超过 170℃ 2 No disassembly, no fire within six hours of this test 试验结束后 6 个小时之内，电芯和聚合物电芯应无解体和无着火现象发生	-	
	Crush (applicable to prismatic, pouch, coin/button cells and cylindrical cells less than 18mm in diameter) / 挤压（适用于棱柱形、袋装、硬币/纽扣电池和直径小于 18 毫米的圆柱形电池）		**P**
	1 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. / 将电池或元件电池放在两个平面之间挤压，挤压力度逐渐加大，在第一个接触点上的速度大约为 1,5 厘米/秒。挤压持续进行，直到出现以下三种情况之一： (a) The applied force reaches 13 kN ± 0,78 kN. / 施加的力达到 13kN±0,78kN (b) The voltage of the cell drops by at least 100 mV,/电池的电压下降至少 100 毫伏 (c) The cell is deformed by 50% or more of its original thickness./电池变形达原始厚度的 50%以上。 2. A prismatic or pouch cell shall be crushed by applying the force to the widest side. A button/coin cell shall be crushed by applying the force on its flat surfaces. For cylindrical cells, the crush force shall be applied perpendicular to the longitudinal axis. /棱柱形或袋装电池应从最宽的一面施压。纽扣/硬币形电池应从其平坦表面施压。圆柱形应从与纵轴垂直的方向施压。		
	Requirements/标准要求： 1 Cells external temperature not exceed 170℃.电芯或电池的最高表面温度应不超过 170℃ 2 No disassembly, no fire within six hours of this test 试验结束后 6 个小时之内，电芯和聚合物电芯应无解体和无着火现象发生	The samples c1#~c10#, c21#~c30#: no disassembly and no fire/ 编号为 c1#~c10#，c21#~c30#的样品：无解体、无着火现象 The data is shown in Table 2./数据见表 2	

ST/SG/AC.10/11/Rev.6/Amend.1/Section 38.3			
Clause 章节	**Requirements 标准要求**	**Result 测试结果**	**Verdict 判定**
38.3.4.7	**Test 7: Overcharge/测试 7: 过充电**		**N/A**
	1 The charge current shall be twice the manufacturer's recommended maximum continuous charge current/以 2 倍制造厂推荐的最大持续充电电流对样品充电 2 The minimum voltage of the test shall be as follows/本测试最小电压见下文		
	a) 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 battery or 22V/ 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是厂家标定最大充电电压的两倍或者是 22V 之中的较小者。 b) When the manufacturer's recommended charge voltage is more than 18V, the minimum voltage of the test shall be 1,2 times the maximum charge voltage/ 如果厂家推荐的充电电压超过 18V，本测试的最小充电电压应是厂家标定最大充电电压的 1,2 倍。 3 Tests are to be conducted at ambient temperature 20±5℃, The duration of the test shall be 24 hours/20±5℃的环境温度下，试验持续 24 小时。	-	
	Requirements/标准要求: No disassembly and no fire within seven days of this test 试验样品在试验中和试验后 7 天内，应无解体和无着火现象发生。	-	
38.3.4.8	**Test 8: Forced discharge/测试 8: 强制放电**		**P**
	Each cell shall be forced discharged at ambient temperature by connecting it in series with a 12 V D.C. power supply at an initial current equal to the maximum discharge current specified by the manufacturer, 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，此直流电源提供给每个电芯初始电流为制造厂指定的最大放电电流。		
	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) 指定的放电电流通过串联在测试电芯上的合适大小和功率的负载来获得，每个电芯的强制放电时间（小时）为额定容量除以初始电流（安培）。		
	Requirements/标准要求: No disassembly and no fire within seven days of this test 试验样品在试验中和试验后 7 天内，应无解体和无着火现象发生。	The samples c11#~c20#, c31#~c50# / 编号为 c11#~c20#, c31#~c50#的样品: For voltage data before test, see table 3. / 试验前电压见表 3 No disassembly and no fire / 无解体、无着火现象	

Table1：T1~T5 / 表 1. 试验 1~试验 5

Sample No. 样品号	**Mass prior to test / 试验前质量 (g)**	**OCV prior to test /试验前电压(V)**	**Test 1: Altitude simulation/ 测试 1：高度模拟**		**Test 2: Thermal test/ 测试 2: 热冲击**		**Test 3: Vibration/ 测试 3: 振动**		**Test 4: Shock/ 测试 4: 冲击**		**Test 5: External Short Circuit/测试 5 外接短路**
			Mass loss(%) 质量损失(%)	Change ratio 电压比(%)	Mass loss(%) 质量损失(%)	Change ratio 电压比(%)	Mass loss(%) 质量损失(%)	Change ratio 电压比(%)	Mass loss(%) 质量损失(%)	Change ratio 电压比(%)	Temp. (℃) 温度 (℃)
b1#	63,299	3,671	0,000	100,00	0,009	100,00	0,000	100,00	0,000	100,00	95,4
b2#	63,454	3,671	0,000	100,00	0,011	100,00	0,000	100,00	0,000	100,00	92,8
b3#	63,388	3,671	0,000	100,00	0,009	100,00	0,000	100,00	0,000	100,00	95,2
b4#	63,417	3,670	0,000	100,00	0,009	100,00	0,000	100,00	0,000	100,00	90,9
b5#	63,366	-	0,000	-	0,009	-	0,000	-	0,000	-	86,7
b6#	63,420	-	0,000	-	0,007	-	0,000	-	0,000	-	87,2
b7#	63,299	-	0,000	-	0,011	-	0,000	-	0,000	-	91,2
b8#	63,490	-	0,000	-	0,011	-	0,000	-	0,000	-	87,0

Table2: Crush | 表 2:挤压											
Test 6: Crush | 测试 6:挤压	Sample No. 样品号	c1#	c2#	c3#	c4#	c5#	c6#	c7#	c8#	c9#	c10#
	OCV prior to test / 试验前电压（V）	3,672	3,673	3,673	3,673	3,672	2,159	2,662	2,240	1,447	1,868
	Temp. (℃) 温度 (℃)	27,4	27,8	28,0	27,4	27,6	27,8	28,4	27,8	27,5	29,0
	Sample No. 样品号	c21#	c22#	c23#	c24#	c25#	c26#	c27#	c28#	c29#	c30#
	OCV prior to test / 试验前电压（V）	3,609	3,612	3,611	3,611	3,601	3,607	3,611	3,609	3,611	3,610
	Temp. (℃) 温度 (℃)	74,3	70,2	68,3	67,5	75,4	60,7	68,3	74,2	70,3	74,8

Table 3：Forced discharge / 表 3. 强制放电											
Test 8: Forced discharge / **测试 8: 强制放电**	Sample No. 样品号	c11#	c12#	c13#	c14#	c15#	c16#	c17#	c18#	c19#	c20#
	OCV prior to test / 试验前电压(V)	2,159	2,226	1,450	1,576	1,872	2,106	2,115	2,240	2,148	2,206
	Sample No. 样品号	c31#	c32#	c33#	c34#	c35#	c36#	c37#	c38#	c39#	c40#
	OCV prior to test / 试验前电压(V)	3,189	3,167	3,182	3,178	3,206	3,185	3,183	3,187	3,180	3,175
	Sample No. 样品号	c41#	c42#	c43#	c44#	c45#	c46#	c47#	c48#	c49#	c50#
	OCV prior to test / 试验前电压(V)	3,177	3,204	3,201	3,192	3,185	3,187	3,169	3,164	3,175	3,172

注 意 事 项
Important

1. 报告无检测单位印章无效。
   The test report is invalid without the official stamp of CVC.
2. 未经本试验室书面同意，不得部分地复制本报告。
   Nobody is allowed to photocopy or partly photocopy this test report without written permission of CVC.
3. 本报告无批准人、审核人及检测人签名无效。
   The test report is invalid without the signatures of Ratifier, Reviewer and Testing engineer.
4. 本报告涂改无效。
   The test report is invalid if altered,
5. 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。
   Objections to the test report must be submitted to CVC within 15 days,
6. 本报告仅对送检样品负责。
   The test report is valid for the tested samples only.
7. 判定栏中“-”表示“不需要判定”，“P”表示“通过”，“F”表示“不通过”，“N/A”表示“不适用”。
   As for the Verdict, “-” means “no need for judgement”, “P” means “pass” ， “F” means “fail” and “N/A” means “not applicable”.

报告中未加 CMA 标志时，检测数据和结果仅供科研、教学或内部质量控制之用。

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