
MSDS 报告 Report

报告编号 : AGC03910230501UA05
Report No.

产 品 名 称 : 可充电锂离子电芯
PRODUCT DESIGNATION : Rechargeable Li-ion Cell

商 标 : N/A
BRAND NAME

样 品 型 号 : INR18650-3000
MODEL NAME

委 托 单 位 : 河南省鹏辉电源有限公司
APPLICANT : HENAN GREAT POWER ENERGY CO.,LTD.

签 发 日 期 : 2023-06-12
DATE OF ISSUE

检 测 标 准 : GB/T16483-2008&ISO11014:2009
STANDARD(S)

报 告 版 本 : V1.0
REPORT VERSION

深圳市鑫宇环检测有限公司

Attestation of Global Compliance (Shenzhen) Co., Ltd.

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报告修订记录REPORT REVISE RECORD:

Report Revise Record: 报告修订记录:				
Report Version 版本号	Revise Time 修改次数	Issued Date 签发日期	Valid Version 有效性	Notes 备注
V1.0	/	2023-06-12	Valid 有效	Original report 原始报告

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化学品安全技术说明书

Material Safety Data Sheet

依据 GB/T16483-2008&ISO11014:2009 编制

According to GB/T16483-2008&ISO11014:2009

第一部分 化学品及企业标识

Section 1 - Chemical Product and Company Identification

化学品信息 Chemical product information			
样品名称 Sample Name	可充电锂离子电芯 Rechargeable Li-ion Cell	样品型号 Sample Model	INR18650-3000
收样日期 Sample Receiving Date	2023-05-20	规格 Rating	3.6V 3000mAh 10.8Wh
单位信息 Company information			
委托单位 Applicant	河南省鹏辉电源有限公司 HENAN GREAT POWER ENERGY CO.,LTD.		
委托单位地址 Applicant Address	中国河南省驻马店市中原大道与淮河大道交叉口西北角 Northwest Part,Junction of Zhongyuan Avenue and Huaihe Avenue, Zhumadian City, 463000 Henan,P.R.China		
生产单位 Manufacturer	河南省鹏辉电源有限公司 HENAN GREAT POWER ENERGY CO.,LTD.		
生产单位地址 Manufacturer address	中国河南省驻马店市中原大道与淮河大道交叉口西北角 Northwest Part,Junction of Zhongyuan Avenue and Huaihe Avenue, Zhumadian City, 463000 Henan,P.R.China		
联系电话 Telephone	15978898680		
传真号码 Fax number	---		
邮政编码 Post code	463000		
应急电话 Emergency telephone	0396-2709555		
电子邮件 E-mail	lishuai@greatpower.net		

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第二部分 危险性概述

Section 2 - Hazards Identification

爆炸危险性 Explosive risk	该物品不属于爆炸危险品 This article does not belong to the explosion dangerous goods
易燃危险性 Flammable risk	该物品不属于易燃危险品 This article does not belong to the flammable material
氧化危险性 Oxidation risk	该物品不属于氧化危险品 This article does not belong to the oxidation of dangerous goods
毒害危险性 Toxic risk	该物品不属于毒害危险品 This article does not belong to the toxic dangerous goods
放射危险性 Radioactive risk	该物品不属于放射危险品 This article does not belong to the radiation of dangerous goods
腐蚀危险性 Mordant risk	该物品不属于腐蚀危险品 This article does not belong to the corrosion of dangerous goods
其他危险性 other risk	该物品为锂离子电芯，瓦时率为10.8Wh This article is Li-ion Cell, Watt hour rate 10.8Wh

第三部分 成分/组成信息

Section 3 - Composition, Information on Ingredients

该物质或混合物的分类: 物质 混合物

Classification of the substance or mixture: substance mixture

化学名称 Chemical Composition	CAS No.	百分含量 Weight (%)
钴锂锰镍的氧化物 Cobalt lithium manganese nickel oxide	182442-95-1	28.4
石墨 C	7782-42-5	17.1
六氟磷酸锂 LiPF ₆	21324-40-3	1.3
碳酸乙烯酯 EC	96-49-1	3.4
碳酸二乙酯 DEC	105-58-8	4.7
碳酸二甲酯 DMC	616-38-6	3.8
聚丙烯 Polypropylene	9003-07-0	2

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化学名称 Chemical Composition	CAS No.	百分含量 Weight (%)
铁 Fe	7439-89-6	31.1
铜 Cu	7440-50-8	5.7
铝 Al	7429-90-5	2.5

第四部分 急救措施 Section 4 - First Aid Measures

总说明: 正常情况下, 不需要特别的措施。

General information: No special measures required.

吸入: 立即将人员移至通风处, 如果呼吸困难, 速进行人工呼吸抢救。如症状持续, 速就医。

After inhalation: Remove victim to fresh area. Administer artificial respiration if breathing is difficult. Seek medical attention.

皮肤接触: 脱去污着衣物, 用大量的水清洗, 然后清洗双手, 衣物清洗后再使用。如果症状持续, 速就医。

After skin contact: Remove contaminated clothing and shoes. Immediately wash with water and soap and rinse thoroughly. Wash clothing and shoes before reuse. If irritation occurs, get medical attention.

眼睛接触: 张开眼睛在流水下冲洗数分钟, 如果症状仍然持续, 请咨询医生。

After eye contact: Flush eyes with plenty of water for several minutes while holding eyelids open. Get medical attention if irritation persists.

食入: 禁止催吐, 速就医。

After swallowing: Do not induce vomiting. Get medical attention.

第五部分 消防措施 Section 5 - Fire Fighting Measures

灭火剂: 使用适合当地情况和周围环境的灭火剂, 如干粉, CO₂。

Suitable extinguishing agents: Use extinguishing agent suitable for local conditions and the surrounding environment. Such as dry powder, CO₂.

特别危险性: 在起火条件下, 电池可能会破裂, 释放出有害的分解产物。在经受高温(> 150°C(302°F))时, 含有易燃电解液的电池, 可能泄漏, 点燃, 产生火花, 当损坏或滥用(如机械损伤或过度充电)时, 可能燃烧迅速与耀斑燃烧效果, 也可能引燃其他在电池附近衣服。

Special hazards arising from the substance or mixture: Battery may burst and release hazardous decomposition products when exposed to a fire situation. Lithium ion batteries contain flammable electrolyte that may vent, ignite and produce sparks when subjected to high temperature(>150°C(302°F)), when damaged or abused (e.g. mechanical damage or electrical overcharging); may burn rapidly with flare-burning effect; may ignite other batteries in clothes proximity.

灭火方法注意事项及防护措施: 请使用大量水, 干燥的化学粉末等合适的介质。如起火, 佩戴自主呼吸机和防护服。

Attention extinguishing method and protective measures: Please use plenty of water, dry chemical powder, etc. Wear self-contained respirator. Wear fully protective impervious suit.

第六部分 泄露应急处理 Section 6 - Accidental Release Measures

作业人员防护措施、防护装备和应急处置程序: 穿上保护装备, 疏散人群, 确保有足够的通风。

Homework personnel protective measures, protective equipment and emergency disposal procedures: Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation

环境保护措施: 若无政府许可, 勿将材料排入周围环境。

Environmental precautions: Do not allow material to be released to the environment without proper governmental permits.

泄漏化学品的收容、清除方法及所使用的处置材料: 从泄露区移除所有的火源, 隔离人员。用一个不产生粉尘的方法打扫处理泄漏物, 尽可能多地收集泄漏处理物于有标签的合适的容器中。泄露处理物禁止倒入下水道, 沟渠或水源。所有废弃物必须参照联合国, 国家, 地方性法规进行处置。

Steps to be taken in case material is spilled or released and Waste disposal method: Remove ignition sources, evacuate area. Sweep up using a method that does not generate dust. Collect as much of the spilled material as possible, placed the spilled material into a suitable disposal container. Keep spilled material out of sewers, ditches and bodies of water. All waste must refer to the United Nations, the national and local regulations for disposal.

防止次生灾害的预防措施: 有关安全处理的资料请参阅第七部分。有关个人防护装备的资料请参阅第八部分。有关弃置的资料请参阅第十三部分。

To prevent the secondary disasters prevention measures: See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

第七部分 操作处置与储存 Section 7 - Handling and Storage

操作注意事项: 储存时远离食物和水源。吃饭喝水前彻底清洗双手。储有化学物的容器搬用时需防止静电的产生和积聚。

Precautions for safe handling: Consumption of food and beverage should be avoided in work areas. Wash hands with soap and water before eating, drinking. Ground containers when transferring liquid to prevent static accumulation and discharge.

有关火灾及防止爆炸的资料: 电池在拆开、挤压、遇火或高温情况下, 会引起起火或爆炸, 严禁短路或非正确操作。

Information about fire and explosion protection: Batteries may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

储存注意事项: 储存在一个低温, 干燥, 通风良好的环境。远离热源, 避免长时间阳光照射。未使用时密封容器。

Conditions for safe storage, including any incompatibilities: Requirements to be met by storerooms and receptacles. Store in a cool, dry, well-ventilated place. Keep away from heat, avoiding the long time of sunlight.

第八部分 接触控制/个体防护 Section 8 - Exposure Controls, Personal Protection

工程控制

Engineering control

一般保护和卫生措施: 当处理化学物品时, 应遵循一般的预防措施。远离食物和水源。立即脱掉所有脏衣服或被污染的衣物。在休息之前和工作结束之后洗手。

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General protective and hygienic measures:The usual precautionary measures for handling chemicals should be followed.Keep away from foodstuffs, beverages and feed. Remove all soiled and contaminated clothing immediately. Wash hands before breaks and at the end of work.



呼吸防护: 当电池排气阀打开时, 应尽量使通风设备开至最大, 避免将打开排气阀的电芯局限在某一狭窄空间内。正常操作条件下, 呼吸保护是不必要的。

Respiratory Protection: In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting cell cores. Respiratory Protection is not necessary under conditions of normal use.

通风条件: 正常使用条件下不需要。

Ventilation:Not necessary under conditions of normal use.

个体防护设备 Personal Protection

手防护 Hand protection	眼睛防护 Eye protection
 Protective gloves	 Tightly sealed goggles

第九部分 理化特性
Section 9 - Physical and Chemical Properties

有关基本物理及化学特性的信息 Information on basic physical and chemical properties	
外观 Appearance	蓝色 Blue
形状 Form	圆柱形 Cylindrical
气味 Odour	无味 Odorless

第十部分 稳定性和反应活性
Section 10 - Stability and Reactivity

稳定性: 正常情况下稳定。

Chemical stability: Stable in normal circumstances.

应避免条件: 火焰, 火花和其他热源, 禁忌物。

Conditions to Avoid: Flames, sparks, and other sources of ignition, incompatible materials.

禁配物: 氧化剂, 酸, 碱。

Incompatibilities: Oxidizing agents, acid, base.

危险的分解产物: 有毒烟雾, 并可能形成过氧化物。

Hazardous Combustible Products: toxic fumes and may form peroxides.

第十一部分 毒理学资料
Section 11 - Toxicological Information

标志及症状: 无, 除非电池破裂。

Signs & symptoms: None, unless battery ruptures.

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内部物质暴露的情况下，蒸汽烟雾可能对眼睛和皮肤的刺激性。

In the event of exposure to internal contents, vapour fumes may be very irritating to the eyes and skin.

吸入：对肺有刺激性。

Inhalation: Lung irritant.

皮肤接触：对皮肤刺激性。

Skin contact: Skin irritant.

眼睛接触：对眼睛有刺激性。

Eye contact: Eye irritant.

食入：吞下中毒。

Ingestion: Poisoning if swallowed.

第十二部分 生态学资料 Section 12 - Ecological Information

对哺乳动物的影响：目前未知。

Mammalian effects: None known at present.

生态毒性：目前未知。

Eco-toxicity: None known at present.

生物体内积累：慢慢地生物降解。

Bioaccumulation potential: Slowly Bio-degradable.

环境危害：目前没有已知的环境危害。

Environmental fate: None known environmental hazards at present.

第十三部分 废弃处置 Section 13 - Disposal Considerations

废弃处置方法建议：请参考国家和地方的相关法规正确进行处理。

Waste treatment methods and Recommendation: Consult state, local or national regulations to ensure proper disposal.

受污染的容器和包装建议：必须根据官方的规章来丢弃。

Uncleaned packaging and Recommendation: Disposal must be made according to official regulations.

第十四部分 运输信息 Section 14 - Transport Information

联合国危险货物编号 UN Number	UN3480 UN3481
UN 运输专用名称 UN Proper shipping name	锂离子蓄电池 Lithium Ion Batteries 锂离子蓄电池与设备打包 Lithium Ion Batteries Packed With Equipment 锂离子蓄电池装在设备中 Lithium Ion Batteries Contained In Equipment
运输危险等级 Transport hazard class(es)	/

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包装组别 Packing group	/
海运污染物质 Marine pollutant	否 No

运输信息: 该锂电池 (INR18650-3000 3.6V 3000mAh) 已通过UN38.3测试。

Transport information: The Lithium Battery (INR18650-3000 3.6V 3000mAh) has passed the test UN38.3.

运输过程中请根据危险品规则DGR第64版包装规定965第IB部分, 966/967第II部分执行。

According to the Packing Instruction 965 section IB,966/967 section II of IATA DGR 64th Edition for transportation.

运输过程中请根据海运危险品规则IMDG (40-20)特殊规定188, 或者《联合国危险货物运输的建议书规章范本》(22)执行, 该产品属于非限制货物。

According to the special provision 188 of IMDG (40-20) or the <<Recommendations On The Transport Of Dangerous Goods-Model Regulations>> (22). The package is subjected to non-restricted goods.

更多关于锂离子电池运输, 测试, 包装等相关规定请参见网址<http://www.labelmaster.com>.

More information concerning shipping, testing, marking and packaging can be obtained from Label master at <http://www.labelmaster.com>.

电池相互隔开并防止短路, 泄露, 并装放在结实的容器内运输。

注: 该电池在运输过程中应防止剧烈振动、冲击或挤压, 防止日晒雨淋。具体细节请参照本文第七部分操作处置与储存。

Separate Lithium-ion batteries when shipping to prevent short-circuiting. They should be packed in strong packaging for support during transport. Take in a cargo of them without falling, dropping, and breakage. Prevent collapse of cargo piles and wet by rain.

备注: 电池净重<5kg(空运, 电池与设备打包运输)。

Note: Batteries weight in the package<5kg(By air, Batteries packed with equipment).

备注: 电池净重<5kg(空运, 电池装在设备中运输)。

Note: Batteries weight in the package<5kg(By air, Batteries installed in equipment).

运输方式: 空运, 海运, 铁路, 公路。

Transport Fashion: By air, by sea, by railway, by road.

第十五部分 法规信息 Section 15 - Regulatory Information

此MSDS符合法规 (EC) No. 1907/2006.

This Material Safety Data Sheet complies with the requirements of Regulation (EC) No. 1907/2006.

下列法律、法规、规章和标准对该物质或混合物的管理做了相应的规定:

The following laws, regulations, rules and standards of the substance or mixture of management to do the corresponding provisions:

组成 Composition	CAS No.	IECSC	TSCA	DSL/NDSL	EINECS/ ELINCS/ NLP
钴锂锰镍的氧化物 Cobalt lithium manganese nickel oxide	182442-95-1	列入 Listed	列入 Listed	未列入 Not Listed	未列入 Not Listed
石墨 C	7782-42-5	列入 Listed	列入 Listed	DSL	列入 Listed

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组成 Composition	CAS No.	IECSC	TSCA	DSL/NDSL	EINECS/ ELINCS/ NLP
六氟磷酸锂 LiPF ₆	21324-40-3	列入 Listed	列入 Listed	NDSL	列入 Listed
碳酸乙烯酯 EC	96-49-1	列入 Listed	列入 Listed	DSL	列入 Listed
碳酸二乙酯 DEC	105-58-8	列入 Listed	列入 Listed	DSL	列入 Listed
碳酸二甲酯 DMC	616-38-6	列入 Listed	列入 Listed	DSL	列入 Listed
聚丙烯 Polypropylene	9003-07-0	列入 Listed	列入 Listed	DSL	未列入 Not Listed
铁 Fe	7439-89-6	列入 Listed	列入 Listed	DSL	列入 Listed
铜 Cu	7440-50-8	列入 Listed	列入 Listed	DSL	列入 Listed
铝 Al	7429-90-5	列入 Listed	列入 Listed	DSL	列入 Listed

注: EINECS: 欧盟现有化学物质名录 (European Inventory of Existing Chemical Substances)

ELINCS: 欧洲已申报化学物质名录 (European List of Notified Chemical Substances)

DSL: 加拿大国内化学物质名录 (Canadian Domestic Chemical Substances)

IECSC: 中国现有化学物质名录 (Inventory of Existing Chemical Substances in China)

NDSL: 加拿大非国内化学物质名录 (Canadian non-domestic Chemical Substances)

NLP: 欧盟不被认为是聚合物的名录

TSCA: 美国TSCA物质名录 (Toxic Substances Control Act of USA)

第十六部分 其他信息 Section 16 - Additional Information

注意 Declare to reader:

上述信息是基于现有的数据信息, 在实际应用过程中可能出现其他未预料的情况, 其相应信息可能需要修改, 我方不承担此项责任。在操作中请根据实际情况作出相应的正确的处置。

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编制人 Prepared by

肖旭东

审核人 Checked by

叶文兵

批准人 Approved by

祝志伟

---报告结束 End of Report---

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Attestation of Global Compliance(Shenzhen)Co., Ltd

Attestation of Global Compliance(Shenzhen)Std & Tech Co., Ltd

Tel: +86-755 2523 4088 E-mail: agc@agccert.com Web: http://www.agccert.com/



签发测试报告条款 **Conditions of Issuance of Test Reports**

1. 深圳市鑫宇环检测有限公司(以下简称[本公司])为提供符合下述条款的测试和报告，而接受有关样品和货品。本公司基于下述条款提供服务，下述条款为本公司与申请服务的个人，企业或公司(以下简称[客户])的协议。 All samples and goods are accepted by the Attestation of Global Compliance (Shenzhen) Co., Ltd (the “Company”) solely for testing and reporting in accordance with the following terms and conditions. The company provides its services on the basis that such terms and conditions constitute express agreement between the company and any person, firm or company requesting its services (the “Clients”).
2. 由此测试申请所发出的任何报告(以下简称[报告])，本公司会严格为客户保密。未经本公司的书面同意，报告的整体或部分不得复制，也不得用于广告或授权的其他用途。然而，客户可以将本公司印制的报告或认可的副本，向其客户、供货商或直接相关的其他人出示或提交。除非相关政府部门、法律或法规要求，否则未经客户同意，本公司不得将报告内容向任何第三方讨论或披露。 Any report issued by Company as a result of this application for testing services (the “Report”) shall be issued in confidence to the Clients and the Report will be strictly treated as such by the Company. It may not be reproduced either in its entirety or in part and it may not be used for advertising or other unauthorized purposes without the written consent of the Company. The Clients to whom the Report is issued may, however, show or send it, or a certified copy thereof prepared by the Company to its customer, supplier or other persons directly concerned. The Company will not, without the consent of the Clients, enter into any discussion or correspondence with any third party concerning the contents of the Report, unless required by the relevant governmental authorities, laws or court orders.
3. 除非相关政府部门、法律或法院要求，否则未经公司预先书面同意，本公司毋需也无义务到法院对有关报告作证。 The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.
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5. 本公司接受样品进行测试的前提是,该测试报告不能作为针对本公司法律行动的依据。Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.
6. 如因使用本公司任何报告内的资料,或任何传播信息所描述与之有关的测试或研究导致的任何损失或损害,本公司概不负责。The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.
7. 若需要在法院审理程序或仲裁过程中使用测试报告,客户必须在提交测试样品前将该意图告知本公司。Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.
8. 电子版报告更改后将不被追回,客户有义务将更改后的报告提供给使用原报告的相关方。The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.
9. 该测试报告的支持数据和信息本公司保存6年。个别评审机构有特别要求的,检测数据和报告的保存期可依情况变动。一旦超过上述提交的保存期限,数据和信息将被处理掉。任何情况下,本公司不必提供任何被处理的过期数据或信息。即使本公司事先被告知可能会发生相关的损害,本公司在任何情况下也不必承担任何损害,包括(但不限于)补偿性赔偿、利润损失、数据遗失、或任何形式的特殊损害、附带损害、间接损害、从属损害或任何违反约定、违反承诺、侵权(包括疏忽)、产品责任或其他原因的惩罚性损害。Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.

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锂电池 UN38.3 测试报告

Lithium Battery UN38.3 Test Report

报告编号 : AGC03910230501UA01
Report No.

产品名称 : 可充电锂离子电芯
PRODUCT DESIGNATION : Rechargeable Li-ion Cell

商 标 : N/A
BRAND NAME

样品型号 : INR18650-3000
MODEL NAME

委托单位 : 河南省鹏辉电源有限公司
APPLICANT : HENAN GREAT POWER ENERGY CO.,LTD.

签发日期 : 2023-06-12
DATE OF ISSUE

检测标准 : 联合国《试验和标准手册》(第 7 修订 1 版) 38.3 节
STANDARD(S) : UN "Manual of Tests and Criteria"
ST/SG/AC.10/11/Rev.7/Amend1/Subsection 38.3

报告版本 : V1.0
REPORT VERSION



深圳市鑫宇环检测有限公司

Attestation of Global Compliance (Shenzhen) Co., Ltd.

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1. 样品描述 Sample Description			
样品名称 Sample Name	可充电锂离子电芯 Rechargeable Li-ion Cell	样品型号 Model Name	INR18650-3000
测试实验室 Testing Laboratory	深圳市鑫宇环检测有限公司 Attestation of Global Compliance (Shenzhen) Co., Ltd.		
测试地址 Testing Address	深圳市宝安区福海街道和平社区重庆路骏丰工业园厂房 19 栋第一、二层 1, 2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China.		
委托单位 Applicant	河南省鹏辉电源有限公司 HENAN GREAT POWER ENERGY CO.,LTD.		
委托单位地址 Applicant Address	中国河南省驻马店市中原大道与淮河大道交叉口西北角 Northwest Part, Junction of Zhongyuan Avenue and Huaihe Avenue, Zhumadian City, 463000 Henan, P.R.China		
生产单位 Manufacturer	河南省鹏辉电源有限公司 HENAN GREAT POWER ENERGY CO.,LTD.		
生产单位地址 Manufacturer Address	中国河南省驻马店市中原大道与淮河大道交叉口西北角 Northwest Part, Junction of Zhongyuan Avenue and Huaihe Avenue, Zhumadian City, 463000 Henan, P.R.China		
电芯生产单位 Manufacturer Of Cell	河南省鹏辉电源有限公司 HENAN GREAT POWER ENERGY CO.,LTD.		
制造商联系电话 Manufacturer's Contact Telephone	0396-2709555	邮箱 E-mail	lishuai@greatpower.net
		网址 Web	www.greatpower.net
电池类型 Battery Type	可充电锂电芯 Rechargeable Li Cell	组成方式 Composing Mode	单电芯 Single Cell
标称电压 Nominal Voltage	3.6V	额定容量 Rated Capacity	3000mAh
瓦时 Watt-hour	10.8Wh	形状 Form	圆柱形 Cylindrical
充电上限电压 Limited Charge Voltage	4.2V	截止电压 Cut-off Voltage	2.75V
充电电流 Charge Current	600mA	最大持续充电电流 Max. Continuous Charge Current	1500mA
最大持续放电电流 Max. Continuous Discharge Current	9000mA	充电截止电流 End Charge Current	30mA
电芯型号 Cell Model	INR18650-3000	电芯容量 Cell Rated Capacity	3000mAh
测试开始日期 Test start date	2023-05-20	测试结束日期 Test end date	2023-06-11

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2、测试标准 Standard		
联合国《试验和标准手册》（第 7 修订 1 版）38.3 节 UN "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.7/Amend1/Subsection 38.3		
3、测试项目及结论 Test Item And Conclusion		
测试项目 Item	测试样品编号 Samples Number	结论 Conclusion
高度模拟 Altitude simulation	Z1~Z5 X1~X5	通过 Pass
温度试验 Thermal test		通过 Pass
振动 Vibration		通过 Pass
冲击 Shock		通过 Pass
外部短路 External Short Circuit		通过 Pass
撞击 Impact	Z6~Z10 X6~X10	通过 Pass
过度充电 Overcharge	---	不适用 N/A (Not applicable)
强制放电 Forced discharge	Z11~Z20 X11~X20	通过 Pass
送检样品符合《联合国试验和标准手册》(ST/SG/AC.10/11/Rev.7/Amend1), 38.3 章的要求。 The samples submitted for inspection meet the requirements of the "United Nations Manual of Tests and Criteria" (ST/SG/AC.10/11/Rev.7/Amend1), Chapter 38.3		

报告修订记录 Report Revise Record:				
版本号 Report Version	修改次数 Revise Time	签发日期 Issued Date	有效性 Valid Version	备注 Notes
V1.0	/	2023-06-12	有效 Valid	首次发行 Initial release

主检人 Tested by	肖旭东	审核人 Reviewed by	叶文兵	批准人 Approved by	祝志伟
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样品描述及说明 Description of the sample

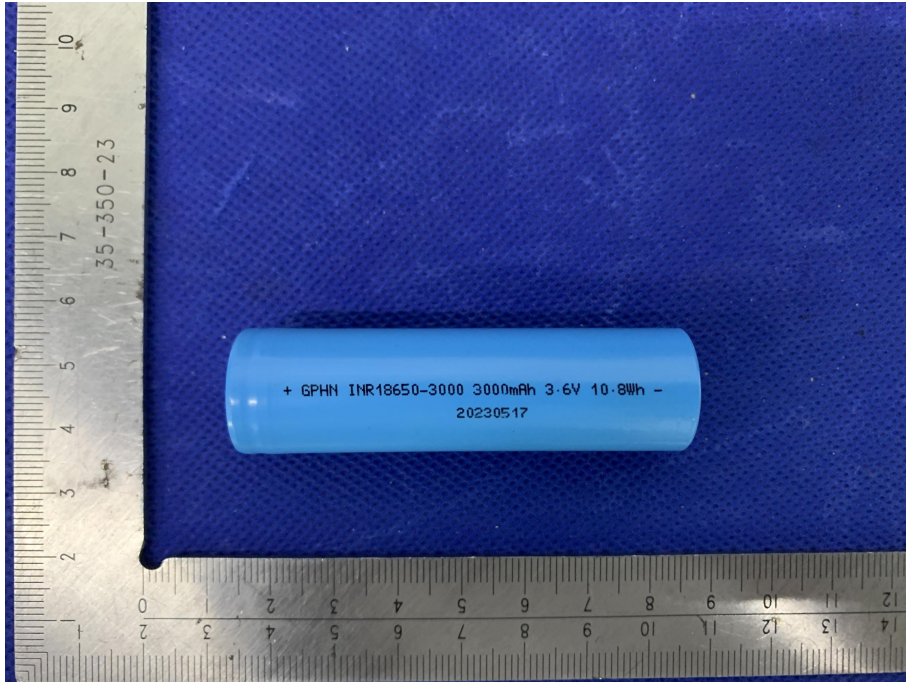
Z1~Z5	第1个交替充电放电周期完全充电状态的电芯; Battery in full charge state during the first charge-discharge cycle;
X1-X5	第25个交替充电放电周期结束后完全充电状态的电芯; Battery in full charge state during the 25th charge-discharge cycle;
Z6~Z10	第1个交替充电放电周期完全充电状态电芯容量设计值50%的电芯; The first charge and discharge cycle 50% of the battery cell with rated capacity state;
X6-X10	第25个交替充电放电周期完全充电状态电芯容量设计值50%的电芯; The 25th cycle of charging and discharging 50% of the battery cell in rated capacity state;
Z11~Z20	第 1 个交替充电放电周期完全放电状态的电芯; Cells at first cycle in fully discharged states;
X11~X20	第25个交替充电放电周期结束后完全放电状态的电芯; Cells after 25 cycles ending in fully discharge states.

可能的试验情况判定 Test case verdicts:

—要求不适用本产品 Test case does not apply to the test object	N/A(Not applicable)
—试验结果符合要求 Test item does meet the requirement	P(ass)
—试验结果不符合要求 Test item does not meet the requirement	F(ail)

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4、样品图片 Sample Photos



本报告仅对送检样品负责

The test report is valid for the tested samples only

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5、测试方法及判定 Test Method And Verdict

章节 Clause	标准要求 Requirements	测试结果 Result	判定 Verdict
38.3.4.1	测试 1: 高度模拟 Test 1: Altitude simulation	见表 1 See Table 1	P
	<p>试验电池和电池组应压力不大于11.6kpa和环境温度为20±5℃的条件下贮存不少于6个小时。</p> <p>Test cells and batteries shall be stored at a pressure of 11.6kPa or less for at least six hour at ambient temperature (20±5℃)</p> <p>要求电池和电池组无渗漏、无排气、无解体、无破裂和无起火, 并且每个试验电池或电池组在试验后的开路电压不小于其在进行这一试验前电压的90%。有关电压的要求不适用于完全放电状态的试验电池和电池组。</p> <p>Cells and batteries meet this requirement if there is no leakage, no venting, no disassemble, no rupture and no fire and if the open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. The requirement relating to voltage is not applicable to test cells and batteries at fully discharged states.</p>	<p>无渗漏, 无排气, 无解体, 无破裂和无起火。</p> <p>No leakage, no venting, no disassemble, no rupture and no fire.</p>	P
38.3.4.2	测试 2: 温度试验 Test 2: Thermal test	见表 2 See Table 2	P
	<p>试验电池和电池组先在试验温度等于72℃±2℃的条件下存放至少6小时, 接着再在试验温度等于-40℃±2℃的条件下存放至少6小时。两个极端试验温度之间的最大时间间隔为30分钟。此程序重复进行, 共完成10次, 接着将所有试验电池和电池组在环境温度(20℃±5℃)下存放24小时。对于大型电池和电池组, 暴露于极端试验温度的时间至少应为12小时。</p> <p>Test cells and batteries are to be stored for at least six hours at a test temperature equal to 72±2℃, followed by storage for at least six hours at a test temperature equal to -40±2℃. The maximum time interval between test temperature extremes is 30 minutes. This procedure is to be repeated until 10 total cycles are complete, after which all test cells and batteries are to be stored for 24 hours at ambient temperature (20 ± 5℃). For large cells and batteries the duration of exposure to the test temperature extremes should be at least 12 hours.</p> <p>要求电池和电池组无渗漏、无排气、无解体、无破裂和无起火, 并且每个试验电池或电池组在试验后的开路电压不小于其在进行这一试验前电压的90%。有关电压的要求不适用于完全放电状态的试验电池和电池组。</p> <p>Cells and batteries meet this requirement if there is no leakage, no venting, no disassemble, no rupture and no fire and if the open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. The requirement relating to voltage is not applicable to test cells and</p>	<p>无渗漏, 无排气, 无解体, 无破裂和无起火。</p> <p>No leakage, no venting, no disassemble, no rupture and no fire.</p>	P

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章节 Clause	标准要求 Requirements	测试结果 Result	判定 Verdict
	batteries at fully discharged states.		
38.3.4.3	测试3: 振动 Test 3: Vibration	见表 3 See Table 3	P
	<p>电池和电池组紧固于振动机平台，但不得造成电池变形，并能准确可靠地传播振动。振动应是正弦波形，对数扫描频率在 7 赫兹和 200 赫兹之间，再回到 7 赫兹，跨度为 15 分钟。这一振动过程须对三个互相垂直的电池安装方位的每一方向重复进行 12 次，总共为时 3 小时。其中一个振动方向必须与端面垂直。</p> <p>Cells and batteries are firmly secured to the platform of the vibration machine without distorting the cells in such a manner as to faithfully transmit the vibration. The vibration shall be a sinusoidal waveform with a logarithmic sweep between 7 Hz and 200 Hz and back to 7 Hz traversed in 15 minutes. This cycle shall be repeated 12 times for a total of 3 hours for each of three mutually perpendicular mounting positions of the cell. One of the directions of vibration must be perpendicular to the terminal face.</p> <p>作对数式频率扫描，对总质量不足 12 千克的电池和电池组（电池和小型电池组），和对 12 千克及更大的电池组（大型电池组）有所不同。</p> <p>The logarithmic frequency sweep shall differ for cells and batteries with a gross mass of not more than 12 kg (cells and small batteries), and for batteries with a gross mass of more than 12 kg (large batteries).</p> <p>对电池和小型电池组：从 7 赫兹开始，保持 $1g_n$ 的最大加速度，直到频率达到 18 赫兹。然后将振幅保持在 0.8 毫米（总偏移 1.6 毫米），并增加频率直到最大加速度达到 $8g_n$（频率约为 50 赫兹）。将最大加速度保持在 $8g_n$ 直到频率增加到 200 赫兹。</p> <p>For cells and small batteries: from 7 Hz a peak acceleration of $1g_n$ is maintained until 18 Hz is reached. The amplitude is then maintained at 0.8 mm (1.6 mm total excursion) and the frequency increased until a peak acceleration of $8g_n$ occurs (approximately 50 Hz). A peak acceleration of $8g_n$ is then maintained until the frequency is increased to 200 Hz.</p> <p>对大型电池组：从 7 赫兹开始，保持 $1g_n$ 的最大加速度，直到频率达到 18 赫兹。然后将振幅保持在 0.8 毫米（总偏移 1.6 毫米），并增加频率直到最大加速度达到 $2g_n$（频率约为 25 赫兹）。将最大加速度保持在 $2g_n$ 直到频率增加到 200 赫兹。</p> <p>For large batteries: from 7 Hz to a peak acceleration of $1g_n$ is maintained until 18 Hz is reached. The amplitude is then maintained at 0.8 mm (1.6 mm total excursion) and the frequency increased until a peak acceleration of $2g_n$ occurs (approximately 25 Hz). A peak acceleration of $2g_n$ is then maintained until the frequency is increased to 200 Hz.</p>	<p>无渗漏，无排气，无解体，无破裂和无起火。</p> <p>No leakage, no venting, no disassemble, no rupture and no fire.</p>	P
	要求电池和电池组试验中和试验后无渗漏、无排气、无解体、无破		

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章节 Clause	标准要求 Requirements	测试结果 Result	判定 Verdict									
	<p>裂和无起火，并且每个试验电池或电池组在第三个垂直安装方位上的试验后立即测得的开路电压不小于在进行这一试验前电压的 90%。有关电压的要求不适用于完全放电状态的试验电池和电池组。</p> <p>Cells and batteries meet this requirement if there is no leakage, no venting, no disassemble, no rupture and no fire and if the open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. The requirement relating to voltage is not applicable to test cells and batteries at fully discharged states.</p>											
38.3.4.4	<p>测试4：冲击 Test 4: Shock</p>	见表 4 See Table 4	P									
	<p>试验电池和电池组用坚硬支架紧固在试验装置上，支架支撑着每个试验电池组的所有安装面。</p> <p>Test cells and batteries shall be secured to the testing machine by means of a rigid mount which will support all mounting surfaces of each test battery.</p> <p>每个电池需经受最大加速度$150g_n$和脉冲持续时间6毫秒的半正弦波冲击。针对大型电池需经受最大加速度$50g_n$和脉冲持续时间11毫秒的半正弦波冲击。</p> <p>Each cell shall be subjected to a half-sine shock of peak acceleration of $150g_n$ and pulse duration of 6 milliseconds. Alternatively, large cells may be subjected to a half-sine shock of peak acceleration of $50g_n$ and pulse duration of 11 milliseconds.</p> <p>每个电池组应根据电池组的质量而受到峰值加速度的半正弦波冲击。对于小型电池组的脉冲持续时间应6毫秒，对于大型电池组的脉冲持续时间应为11毫秒，下面的公式用于计算适当的最小峰值加速度。</p> <table border="1" data-bbox="315 1346 1107 1944"> <thead> <tr> <th>电池 Battery</th> <th>最小峰值加速度 Minimum peak acceleration</th> <th>脉冲持续时间 Pulse duration</th> </tr> </thead> <tbody> <tr> <td>小型电池 Small batteries</td> <td> $150g_n$ 或公式结果中的较小值 $150g_n$ or result of formula $\text{Acceleration } (g_n) = \sqrt{\left(\frac{100850}{\text{mass}^*}\right)}$ whichever is smaller </td> <td>6毫秒 6ms</td> </tr> <tr> <td>大型电池 Large batteries</td> <td> $50g_n$ 或公式结果中的较小值 $50g_n$ or result of formula $\text{Acceleration } (g_n) = \sqrt{\left(\frac{3000}{\text{mass}^*}\right)}$ whichever is smaller </td> <td>11毫秒 11ms</td> </tr> </tbody> </table>	电池 Battery	最小峰值加速度 Minimum peak acceleration	脉冲持续时间 Pulse duration	小型电池 Small batteries	$150g_n$ 或公式结果中的较小值 $150g_n$ or result of formula $\text{Acceleration } (g_n) = \sqrt{\left(\frac{100850}{\text{mass}^*}\right)}$ whichever is smaller	6毫秒 6ms	大型电池 Large batteries	$50g_n$ 或公式结果中的较小值 $50g_n$ or result of formula $\text{Acceleration } (g_n) = \sqrt{\left(\frac{3000}{\text{mass}^*}\right)}$ whichever is smaller	11毫秒 11ms	<p>无渗漏，无排气，无解体，无破裂和无起火。</p> <p>No leakage, no venting, no disassemble, no rupture and no fire.</p>	P
电池 Battery	最小峰值加速度 Minimum peak acceleration	脉冲持续时间 Pulse duration										
小型电池 Small batteries	$150g_n$ 或公式结果中的较小值 $150g_n$ or result of formula $\text{Acceleration } (g_n) = \sqrt{\left(\frac{100850}{\text{mass}^*}\right)}$ whichever is smaller	6毫秒 6ms										
大型电池 Large batteries	$50g_n$ 或公式结果中的较小值 $50g_n$ or result of formula $\text{Acceleration } (g_n) = \sqrt{\left(\frac{3000}{\text{mass}^*}\right)}$ whichever is smaller	11毫秒 11ms										

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章节 Clause	标准要求 Requirements	测试结果 Result	判定 Verdict
	<p>* 质量单位用千克计算 Mass is expressed in kilograms.</p> <p>Each battery shall be subjected to a half-sine shock of peak acceleration depending on the mass of the battery. The pulse duration shall be 6 milliseconds for small batteries and 11 milliseconds for large batteries. The formulas below are provided to calculate the appropriate minimum peak accelerations.</p> <p>每个电池或电池组需在三个互相垂直的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> <p>Each cell or battery is subjected to three shocks in the positive direction followed by three shocks in the negative direction of each of three mutually perpendicular mounting positions of the cell for a total of 18 shocks.</p> <p>要求电池和电池组无渗漏、无排气、无解体、无破裂和无起火，并且每个试验电池或电池组在试验后的开路电压不小于其在进行这一试验前电压的90%。有关电压的要求不适用于完全放电状态的试验电池和电池组。</p> <p>Cells and batteries meet this requirement if there is no leakage, no venting, no disassemble, no rupture and no fire and if the open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. The requirement relating to voltage is not applicable to test cells and batteries at fully discharged states.</p>		
38.3.4.5	<p>测试 5: 外部短路 Test 5: External Short Circuit</p>	见表 5 See Table 5	P
	<p>待测试的电池或电池组应加热一段时间，以使其外表面温度达到均匀稳定的 $57\pm 4^{\circ}\text{C}$ 的温度。加热时间取决于电池或电池组的大小和设计，并应进行评估和记录。如果这种评估是不可行的，对于小型电池和小型电池组至少在 $57\pm 4^{\circ}\text{C}$ 的环境下存放 6 小时，对于大型电池和大型电池组至少在 $57\pm 4^{\circ}\text{C}$ 的环境下存放 12 小时。然后电池或电池组在 $57\pm 4^{\circ}\text{C}$ 的环境中，应接受一个外部总阻值小于 0.1 欧姆的短路条件。</p> <p>The cell or battery to be tested shall be shall be heated for a period of time necessary to reach a homogeneous stabilized temperature of $57\pm 4^{\circ}\text{C}$, measured on the external case. This period of time depends on the size and design of the cell or battery and should be assessed and documented. If this assessment is not feasible, the exposure time shall be at least 6 hours for small cells and small batteries, and 12 hours for large cells and large batteries. Then the cell or battery at $57\pm 4^{\circ}\text{C}$ shall be subjected to one short circuit condition with a total external resistance of less than 0.1 ohm.</p> <p>这一短路条件应在电池或电池组的外壳温度回到 $57\pm 4^{\circ}\text{C}$ 后继续短路 1 小时，或对于大型电池组其外壳温度已下降了一半的最大升温，并保持低于该值。短路和冷却过程至少在环境温度中进行。</p> <p>This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to $57 \pm$</p>	无解体，无破裂，无起火。 No disassemble, no rupture and no fire.	P

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章节 Clause	标准要求 Requirements	测试结果 Result	判定 Verdict
	<p>4 °C, 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. The short circuit and cooling down phases shall be conducted at least at ambient temperature.</p> <p>要求电池和电池组外壳温度不超过 170°C，并且在试验过程中及试验后 6 小时内无解体，无破裂，无起火。</p> <p>Cells and batteries meet this requirement if their external temperature does not exceed 170°C and there is no disassemble, no rupture and no fire within six hours of this test.</p>		
38.3.4.6	<p>测试 6: 撞击/挤压 Test 6: Impact / Crush</p>	见表 6 See Table 6	P
	<p>撞击（适用于直径大于等于 18 毫米的圆柱形电池） Impact (applicable to cylindrical cells not less than 18mm in diameter)</p> <p>试样电池或元件电池放在平坦光滑的表面上，一根 316 型不锈钢棒横放在试样中心，钢棒直径 15.8 毫米±0.1 毫米，长度至少 6 厘米，或电池最长端的尺度，取二者之长者。将一块 9.1 千克±0.1 千克的重锤从 61±2.5 厘米高处跌落到钢棒和试样交叉处，使用一个几乎没有摩擦的、对落体重锤阻力最小的垂直轨道或管道加以控制。垂直轨道或管道用于引导落锤沿与水平支撑表面呈 90 度落下。</p> <p>The test sample cell or component cell is to be placed on a flat smooth surface. A 15.8mm±0.1mm diameter, at least 6cm long, or the longest dimension of the cell, whichever is greater, Type 316 stainless steel bar is to be placed across the centre of the sample. A 9.1 kg ± 0.1kg mass is to be dropped from a height of 61 ± 2.5 cm at the intersection of the bar and sample in a controlled manner using a near friction less, vertical sliding track or channel with minimal drag on the falling mass. The vertical track or channel used to guide the falling mass shall be oriented 90 degrees from the horizontal supporting surface.</p> <p>接受撞击的试样，纵轴应与平坦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。每一试样只经受一次撞击。</p> <p>The test samples is to be impacted with its longitudinal axis parallel to the flat surface and perpendicular to the longitudinal axis of the 15.8mm±0.1mm diameter curved surface lying across the centre of the test samples. Each sample is to be subjected to only a single impact.</p> <p>要求电池和电池组外壳温度不超过 170°C，并且在试验过程中及试验后 6 小时内无解体，无起火。</p> <p>Cells and component cells meet this requirement if their external temperature does not exceed 170°C and there is no disassemble and no fire during the test and within six hours after this test.</p>	无解体，无破裂，无起火。 No disassemble , no rupture and no fire.	P

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	<p>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> <p>Crush (applicable to prismatic, pouch, coin/button cells and cylindrical cells less than 18mm in diameter)</p> <p>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：</p> <p>(a) 施加的力量达到13千牛±0.78千牛；</p> <p>(b) 电池的电压下降至少100毫伏；或</p> <p>(c) 电池变形达原始厚度的50%或以上。</p> <p>A cell or component cell is to be crushed between two flat surfaces. The crushing is to be gradual with a speed of approximately 1.5cm/s at the first point of contact. The crushing is to be continued until the first of the three options below is reached.</p> <p>(a) The applied force reaches 13kN±0.78kN;</p> <p>(b) The voltage of the cell drops by at least 100mV; or</p> <p>(c) The cell is deformed by 50% or more of its original thickness.</p> <p>一旦达到最大压力、电压下降 100 毫伏或更多，或电池变形至少达原厚度的 50%，即可解除压力。</p> <p>Once the maximum pressure has been obtained, the voltage drops by 100mV or more, or the cell is deformed by at least 50% of its original thickness, the pressure shall be released.</p> <p>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。圆柱形电池应从与纵轴垂直的方向施压。</p> <p>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.</p> <p>每个试样电池或元件电池只做一次挤压试验。试样应继续观察 6 小时。试验应使用之前未做过其他试验的电池或元件电池进行。</p> <p>Each test cell or component cell is to be subjected to one crush only. The test Samples shall be observed for a further 6 h. The test shall be conducted using test cells or component cells that have not previously been subjected to other tests.</p> <p>要求电池和电池组外壳温度不超过 170℃，并且在试验过程中及试验后 6 小时内无解体，无起火。</p> <p>Cells and component cells meet this requirement if their external temperature does not exceed 170℃ and there is no disassemble and no fire during the test and within six hours after this test.</p>	N/A	N/A
38.3.4.7	<p>测试 7：过充电</p> <p>Test 7: Overcharge</p>	N/A	N/A
	<p>充电电流必须是制造商建议的最大持续充电电流的两倍。试验的最小电压如下：</p> <p>(a) 制造商建议的充电电压不大于18伏时，试验的最小电压应是电</p>		

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	<p>池组最大充电电压的两倍或22伏两者中的较小者；</p> <p>(b) 制造商建议的充电电压大于18伏时，试验的最小电压应为最大充电电压的1.2倍。</p> <p>试验应在环境温度下进行，进行试验的时间应为 24 小时。</p> <p>The charge current shall be twice the manufacturer’s recommended maximum continuous charge current. The minimum voltage of the test shall be as follows:</p> <p>(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.</p> <p>(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.</p> <p>Tests are to be conducted at ambient temperature; the duration of the test shall be 24 hours.</p> <p>要求充电电池组在试验过程中和试验后 7 天内无解体，无起火。</p> <p>Rechargeable batteries meet this requirement if there is no disassemble and no fire during the test and within seven days after the test.</p>		
38.3.4.8	<p>测试 8: 强制放电</p> <p>Test 8: Forced discharge</p>	<p>见表 8</p> <p>See Table 8</p>	<p>P</p>
	<p>每个电池应在环境温度下与 12V 直流电源上进行强制放电，此直流电源串联在起始电流等于制造商给定的最大放电电流条件下强制放电。</p> <p>Each cell shall be forced discharged at ambient temperature by connecting it in series with a 12V D.C. power supply at an initial current equal to the maximum discharge current specified by the manufacturer.</p> <p>将适当大小和额定值的电阻负荷与试验电池串联，计算得出给定的放电电流。对每个电池进行强制放电，放电时间（小时）应等于其额定容量除以初始试验电流（安培）。</p> <p>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).</p> <p>要求原电池或充电电池在试验过程中和试验后 7 天内无解体，无起火。</p> <p>Primary or rechargeable cells meet this requirement if there is no disassemble and no fire during the test and within seven days after the test.</p>	<p>无分解，无起火。</p> <p>No disassemble and no fire.</p>	<p>P</p>

6、测试数据 Test Data

表 1 Table 1	高度模拟 Altitude simulation						P
样品 编号 Sample No.	质量 Mass (g)		质量亏损 Mass loss (%)	电压 Voltage (V)		电压亏损 Voltage loss (%)	有无渗漏，排气， 解体，破裂和起火 Whether leakage, venting, disassemble, rupture, fire (Y/N)
	测试前 Pre-test	测试后 After test		测试前 Pre-test	测试后 After test		
Z1	44.638	44.638	0.000	4.18	4.18	0.00	N
Z2	44.621	44.620	0.002	4.18	4.17	0.24	N
Z3	44.644	44.644	0.000	4.18	4.18	0.00	N
Z4	44.658	44.658	0.000	4.18	4.18	0.00	N
Z5	44.619	44.619	0.000	4.18	4.18	0.00	N
X1	44.596	44.596	0.000	4.18	4.18	0.00	N
X2	44.583	44.583	0.000	4.18	4.18	0.00	N
X3	44.612	44.612	0.000	4.18	4.18	0.00	N
X4	44.633	44.633	0.000	4.18	4.18	0.00	N
X5	44.569	44.569	0.000	4.18	4.18	0.00	N

表 2 Table 2	温度试验 Thermal test						P
样品 编号 Sample No.	质量 Mass (g)		质量亏损 Mass loss (%)	电压 Voltage (V)		电压亏损 Voltage loss (%)	有无渗漏，排气， 解体，破裂和起火 Whether leakage, venting, disassemble, rupture, fire (Y/N)
	测试前 Pre-test	测试后 After test		测试前 Pre-test	测试后 After test		
Z1	44.638	44.614	0.054	4.18	4.13	1.20	N
Z2	44.620	44.608	0.027	4.17	4.14	0.72	N
Z3	44.644	44.632	0.027	4.18	4.14	0.96	N
Z4	44.658	44.641	0.038	4.18	4.13	1.20	N
Z5	44.619	44.605	0.031	4.18	4.14	0.96	N
X1	44.596	44.579	0.038	4.18	4.14	0.96	N
X2	44.583	44.565	0.040	4.18	4.13	1.20	N
X3	44.612	44.589	0.052	4.18	4.14	0.96	N
X4	44.633	44.611	0.049	4.18	4.13	1.20	N
X5	44.569	44.554	0.034	4.18	4.13	1.20	N

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表 3 Table 3	振动 Vibration						P
样品编号 Sample No.	质量 Mass (g)		质量亏损 Mass loss (%)	电压 Voltage (V)		电压亏损 Voltage loss (%)	有无渗漏, 排气, 解体, 破裂和起火 Whether leakage, venting, disassemble, rupture, fire (Y/N)
	测试前 Pre-test	测试后 After test		测试前 Pre-test	测试后 After test		
Z1	44.614	44.614	0.000	4.13	4.13	0.00	N
Z2	44.608	44.608	0.000	4.14	4.14	0.00	N
Z3	44.632	44.632	0.000	4.14	4.14	0.00	N
Z4	44.641	44.641	0.000	4.13	4.13	0.00	N
Z5	44.605	44.605	0.000	4.14	4.14	0.00	N
X1	44.579	44.578	0.002	4.14	4.13	0.24	N
X2	44.565	44.565	0.000	4.13	4.13	0.00	N
X3	44.589	44.589	0.000	4.14	4.14	0.00	N
X4	44.611	44.611	0.000	4.13	4.13	0.00	N
X5	44.554	44.554	0.000	4.13	4.13	0.00	N

表 4 Table 4	冲击 Shock						P
样品编号 Sample No.	质量 Mass (g)		质量亏损 Mass loss (%)	电压 Voltage (V)		电压亏损 Voltage loss (%)	有无渗漏, 排气, 解体, 破裂和起火 Whether leakage, venting, disassemble, rupture, fire (Y/N)
	测试前 Pre-test	测试后 After test		测试前 Pre-test	测试后 After test		
Z1	44.614	44.614	0.000	4.13	4.13	0.00	N
Z2	44.608	44.607	0.002	4.14	4.13	0.24	N
Z3	44.632	44.632	0.000	4.14	4.14	0.00	N
Z4	44.641	44.641	0.000	4.13	4.13	0.00	N
Z5	44.605	44.605	0.000	4.14	4.14	0.00	N
X1	44.578	44.578	0.000	4.13	4.13	0.00	N
X2	44.565	44.565	0.000	4.13	4.13	0.00	N
X3	44.589	44.588	0.002	4.14	4.13	0.24	N
X4	44.611	44.611	0.000	4.13	4.13	0.00	N
X5	44.554	44.554	0.000	4.13	4.13	0.00	N

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表 5 Table 5	外短路 External short circuit			P
样品编号 Sample No.	电路电阻 Resistance of circuit (mΩ)	最高温度 Peak temperatur e (°C)	有无解体, 破裂, 起火 Whether disassemble, rupture, fire (Y/N)	
Z1	82	104.2	N	
Z2	82	105.8	N	
Z3	81	108.1	N	
Z4	85	108.6	N	
Z5	84	107.7	N	
X1	83	109.5	N	
X2	85	104.2	N	
X3	88	108.9	N	
X4	89	105.9	N	
X5	81	101.8	N	

表 6 Table 6	撞击 Impact		P
样品编号 Sample No.	最高温度 Peak temperature (°C)	有无解体, 起火 Whether disassemble, fire (Y/N)	
Z6	26.3	N	
Z7	25.4	N	
Z8	26.9	N	
Z9	24.8	N	
Z10	25.1	N	
X6	25.8	N	
X7	24.6	N	
X8	25.7	N	
X9	25.0	N	
X10	24.7	N	

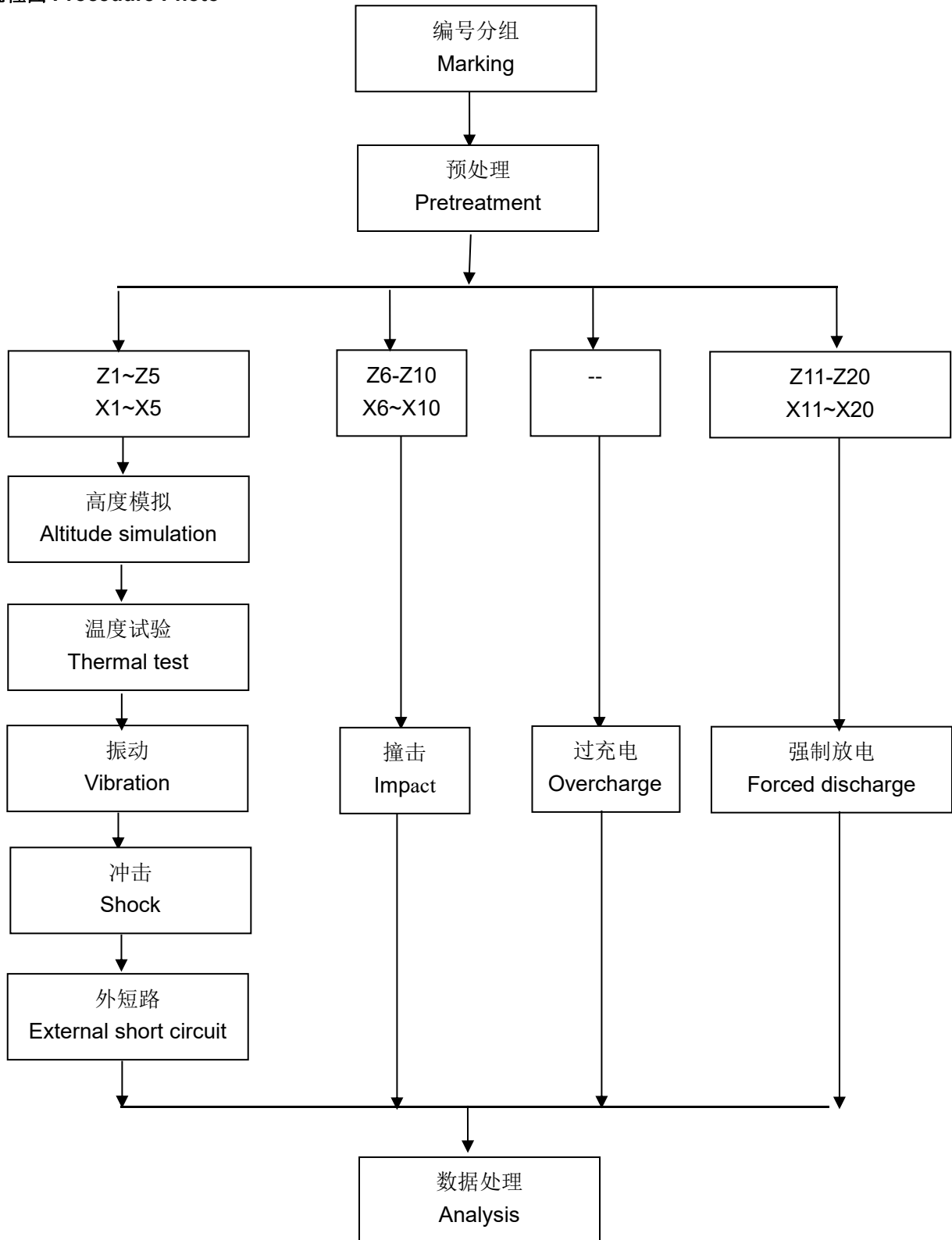
表 7 Table 7	过度充电 Overcharge	不适用 N/A

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表 8 Table 8	强制放电 Forced discharge	P
样品编号 Sample No.	有无解体, 起火 Whether disassemble, fire (Y/N)	
Z11	N	
Z12	N	
Z13	N	
Z14	N	
Z15	N	
Z16	N	
Z17	N	
Z18	N	
Z19	N	
Z20	N	
X11	N	
X12	N	
X13	N	
X14	N	
X15	N	
X16	N	
X17	N	
X18	N	
X19	N	
X20	N	

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7、流程图 Procedure Photo



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8、测试设备 Test equipment

AGC-BT-E145	精密天平 Electronic balance
AGC-BT-E154	万用表 Digital multimeter
AGC-BT-E062	电池测试系统 Battery Testing System
AGC-BT-E133	真空试验箱 Vacuum Tester
AGC-BT-E123	快速温变试验箱 Rapid Temperature Change Tester
AGC-BT-E163	振动试验台 Vibration test instrument
AGC-BT-E162	加速度冲击试验机 Acceleration impact tester
AGC-BT-E139	温控型电池短路试验机 Battery Short-circuit Tester
AGC-BT-E125	重物冲击试验机 Battery Impact Tester
AGC-BT-E144	数据采集仪 Data Acquisition Instrument
AGC-BT-E054	直流稳压电源 DC power supply

---报告结束 End of Report---

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5. 本公司接受样品进行测试的前提是,该测试报告不能作为针对本公司法律行动的依据。Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.
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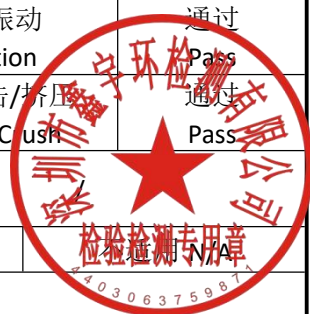
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锂电池 UN38.3 试验概要 Lithium Battery Test Summary

项目编号: AGC03910230501UA06

单位信息 Company Information			
委托单位 Consignor	河南省鹏辉电源有限公司 中国河南省驻马店市中原大道与淮河大道交叉口西北角 电话/Tel: 0396-2709555 邮箱/Mail: lishuai@greatpower.net 网址/Website: www.greatpower.net		
生产单位 Manufacturer	河南省鹏辉电源有限公司 中国河南省驻马店市中原大道与淮河大道交叉口西北角 电话/Tel: 0396-2709555 邮箱/Mail: lishuai@greatpower.net 网址/Website: www.greatpower.net		
测试单位 Test Lab	深圳市鑫宇环检测有限公司 深圳市宝安区福海街道和平社区重庆路骏丰工业园厂房 19 栋第一、二层 电话/Tel: +86-755-2523 4088 邮箱/Mail: agc@agccert.com 网址/Website: www.agccert.com		
电池信息 Battery Information			
名称 Name	可充电锂离子电芯 Rechargeable Li-ion Cell	电池/电芯类别 Battery/Cell Classification	锂离子电芯 Li-ion Cell
型号 Type	INR18650-3000	商标 Trademark	/
额定电压 Normal Voltage	3.6V	额定容量 Rated Capacity	3000mAh
额定能量 Watt-hour rating	10.8Wh	外观/Appearance	蓝色近圆柱体 Approximate Blue Cylinder
质量/Mass	44.63g	锂含量/Li Content	不适用 N/A
测试信息 Test Information			
测试报告编号 Test Report Number	AGC03910230501UA01	测试报告签发日期 Date of Test Report	2023-06-12
测试标准 Edition of UN Manual of Tests and Criteria Used	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/Amend1/Subsection 38.3		
T.1: 高度模拟 Altitude Simulation	通过 Pass	T.2: 温度试验 Thermal Test	通过 Pass
T.4: 冲击 Shock	通过 Pass	T.5: 外部短路 External Short Circuit	通过 Pass
T.7: 过度充电 Overcharge	不适用 N/A	T.8: 强制放电 Forced Discharge	通过 Pass
UN38.3.3(f)	不适用 N/A		UN38.3.3(g)
签名 Signatory 职务 Title	肖旭东 检验员		签发日期 Issued Date 2023-06-12



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