

Certificado de batería

Datos de seguridad y transporte de la batería de su producto.



PARA EL PRODUCTO

Paiseec W3 – Silla Eléctrica 3 en 1

SKU: AFSE-W3-P1

✈ Apta para viajar en avión



Datos de la batería

288 Wh

Energía

24 V

Voltaje

12 Ah

Capacidad

Litio

Química

Sí

Batería removible

Aprobada

Prueba UN 38.3



APTA PARA AVIÓN • Clase 9 — batería de litio

288 Wh: dentro del límite IATA de 300 Wh por batería para ayudas de movilidad, pero requiere aprobación previa de la aerolínea. Avísele al reservar (idealmente 48 h antes).



¿Dudas sobre la batería? Escriba a María por WhatsApp

Le ayudamos con la carga, el cuidado, el servicio y sus viajes.
Escanee el código o escriba al:

WhatsApp 55 9990 2396

s.andafacil.com/wabateriaafsew3p1



Cómo viajar con su producto

1. Al reservar, avise que viaja con una silla eléctrica con batería de litio removible.
2. En el mostrador, retire la batería, proteja sus terminales (cinta o bolsa) y llévela en cabina.
3. La silla, apagada y plegada, viaja documentada o se entrega en la puerta del avión.
4. Muestre este certificado y los originales del fabricante si se los piden.



Consejo de Don Andy: avise a su aerolínea al reservar que viaja con una silla eléctrica y lleve este certificado impreso y en su celular.

Evidencia del fabricante

Documento	Detalle
Nombre de la mercancía (como aparece en el certificado)	Lithium Ion Battery
Modelo de batería	ADCF080379238
Fabricante	Guangdong BAK Benhoo Technology Co., Ltd.
Resumen de prueba UN 38.3	Report No. 1815C40270212701 · Shenzhen Anbotek Compliance Laboratory Limited · 2024.12.06
Hoja de datos de seguridad (MSDS)	Report No. 1815C40270212706 · Shenzhen Anbotek Compliance Laboratory Limited · 2025-09-11

Originales del fabricante (páginas siguientes): **2**

Cada aerolínea define sus propias reglas: confírmelas al reservar. ANDAFACIL identifica el producto; los datos técnicos provienen de los certificados originales que se adjuntan.

Battery certificate

Safety and transport data for your product's battery.



FOR THE PRODUCT

**Paiseec W3 – 3-in-1
Electric Chair (Chair +
Assistance + Walker)**

SKU: AFSE-W3-P1

✈️ **Approved for air travel**



Battery data

288 Wh
Energy

24 V
Voltage

12 Ah
Capacity

Lithium-ion
Chemistry

Yes
Removable
battery

Passed
UN 38.3 test



APPROVED FOR AIR TRAVEL • Class 9 – lithium battery

288 Wh: within the IATA 300 Wh per-battery limit for mobility aids, but it needs the airline's prior approval. Tell the airline when booking (ideally 48 h ahead).



Battery questions? Message Marla on WhatsApp

We help with charging, care, service and travel (Spanish and English).
Scan the code or write to:

WhatsApp 55 9990 2396

s.andafacil.com/wabateriaafsew3p1



How to travel with your product

1. When booking, tell the airline you travel with a power wheelchair with a removable lithium battery.
2. At check-in, remove the battery, protect its terminals (tape or bag) and carry it in the cabin.
3. The chair, switched off and folded, is checked in or handed over at the aircraft door.
4. Show this certificate and the manufacturer originals when asked.



Don Andy's tip: tell your airline when booking that you travel with a power wheelchair, and carry this certificate printed and on your phone.

Manufacturer evidence

Document	Detail
Goods name (as printed on the certificate)	Lithium Ion Battery
Battery model	ADCF080379238
Manufacturer	Guangdong BAK Benhoo Technology Co., Ltd.
UN 38.3 Test Summary	Report No. 1815C40270212701 · Shenzhen Anbotek Compliance Laboratory Limited · 2024.12.06
MSDS	Report No. 1815C40270212706 · Shenzhen Anbotek Compliance Laboratory Limited · 2025-09-11

Manufacturer originals (following pages): **2**

Each airline sets its own rules: confirm them when booking. ANDAFACIL identifies the product; the technical data comes from the original certificates attached.

UN38.3 Test Report

UN38.3 测试报告

Client Name : Guangdong BAK Benhoo Technology Co., Ltd.
委托单位 : 广东比克奔虎新能源科技有限公司

Client Address : Floor 3, Building A, Industrial Park, No. 55
Zengkeng Road, Zengkeng Team, Xintang
单位地址 : Village, Qiuchang Sub-district, Huiyang District,
Huizhou City, Guangdong Province, China
惠州市惠阳区秋长街道新塘村增坑小组增坑路 55
号工业园 A 栋 3 楼

Product Name : Lithium Ion Battery
产品名称 : 锂离子电池

Report Date : 2024.12.06
报告日期

Shenzhen Anbotek Compliance Laboratory Limited
深圳安博检测股份有限公司



1. SAMPLE DESCRIPTION 样品描述:

Sample Name: 样品名称		Lithium Ion Battery 锂离子电池		Sample Model: 样品型号		ADCF080379238	
Manufacturer: 制造商		Guangdong BAK Benhoo Technology Co., Ltd. 广东比克奔虎新能源科技有限公司					
Address of manufacturer: 制造商地址		Floor 3, Building A, Industrial Park, No. 55 Zengkeng Road, Zengkeng Team, Xintang Village, Qiuchang Sub-district, Huiyang District, Huizhou City, Guangdong Province, China 惠州市惠阳区秋长街道新塘村增坑小组增坑路 55 号工业园 A 栋 3 楼					
Factory: 工厂		Guangdong BAK Benhoo Technology Co., Ltd. 广东比克奔虎新能源科技有限公司					
Address of factory: 工厂地址		Floor 3, Building A, Industrial Park, No. 55 Zengkeng Road, Zengkeng Team, Xintang Village, Qiuchang Sub-district, Huiyang District, Huizhou City, Guangdong Province, China 惠州市惠阳区秋长街道新塘村增坑小组增坑路 55 号工业园 A 栋 3 楼					
Battery Nominal Voltage: 电池标称电压	24V	Rated Capacity: 额定容量	12Ah/ 288Wh	Trademark: 商标	/		
Standard Charge Current: 标准充电电流	2.4A	Maximum Charge Current: 最大充电电流	3A	Charge Limited Voltage: 充电限制电压	28.8V		
Standard Discharge Current: 标准放电电流	2.4A	Maximum Discharge Current: 最大放电电流	20A	Discharge Cut-off Voltage: 放电终止电压	20V		
Cells Number: 内含电芯个数	24PCS, (8S/3P)	Cell Model: 电芯型号	26700FB	Cell Rated Capacity: 电芯额定容量	4Ah		
Date of Sample Received: 样品接收日期		2024.11.21					
Date of Test: 检测日期		2024.11.21~2024.12.03					
Written by 编制		杨艳萍		Checked by 审核		朱洁	

2. REFERENCE METHOD 参考方法

UN "Manual of Tests and Criteria" Eighth revised edition ST/SG/AC.10/11/Rev.8/Subsection 38.3
联合国《试验和标准手册》第八修订版 38.3 节

3. EQUIPMENT LIST 设备清单

Name of equipment /Model

设备名称/型号

Battery charging and discharging system

电池充放电系统

Altitude Simulation Testing Machine

模拟高空低压试验箱

High Fast Temperature&Humidity Chamber

快速温变箱

Vibration Testing Machine

振动试验机

Shock Testing Machine

机械冲击台

Short Circuit Testing Machine

短路试验机

Battery Internal resistance

电池内阻测试仪

Impact testing machine

冲击试验机

DC Power Supply

直流电源

Electronic loading

电子负载

Multimeter

万用表

Electronic Balance

电子天平

Data Acquisition/Swith Unit

温升记录仪

4. ENVIRONMENTAL CONDITIONS OF THE TEST 环境条件

Temperature: (20±5) °C

温度

R.H.: (25~75) %RH

相对湿度



5. TEST ITEM AND CONCLUSION 测试项目及结论

ITEM 测试项目	SAMPLE NUMBER 样品编号	STANDARD 执行标准	CONCLUSION 结论
T1 Altitude simulation 高度模拟	B1~B4, B5~B8	ST/SG/AC.10/11/Rev.8	经测试，该样品符合联合国《试验和标准手册》第八修订版 38.3 节标准要求 The sample has passed the items of UN "Manual of Tests and Criteria" Eighth revised edition ST/SG/AC.10/11/Rev.8/Subsection 38.3
T2 Thermal test 热测试			
T3 Vibration 振动			
T4 Shock 冲击			
T5 External short circuit 外部短路			
T6 Impact 撞击	C1~C5, C6~C10		
T7 Overcharge 过度充电	B9~B12, B13~B16		
T8 Forced discharge 强制放电	C11~C20, C21~C30		

说明 Notes:

B1-B4, B9-B12	为第一个充放电周期完全充电状态的电池组 Batteries at first cycle in fully charged states
B5-B8, B13-B16	为 25 个充放电周期后完全充电状态的电池组 Batteries after 25 cycles ending in fully charged states
C1-C5	为第一个充放电周期后 50%设计额定容量状态的电池 Cells at first cycle at 50% of the design rated capacity
C6-C10	为 25 个充放电周期后 50%设计额定容量状态的电池 Cells after 25 cycle at 50% of the design rated capacity
C11-C20	为第一个充放电周期后完全放电状态的电池 Cells at first cycle in fully discharged states
C21-C30	为 25 个充放电周期后完全放电状态的电池 Cells after 25 cycles ending in fully discharged states



6. TEST METHOD 测试方法

Tests T.1 to T.5 shall be conducted in sequence on the same cell or battery. Tests T.6 and T.8 shall be conducted using not otherwise tested cells or batteries. Test T.7 may be conducted using undamaged batteries previously used in Tests T.1 to T.5 for purposes of testing on cycled batteries. In order to quantify the mass loss, the following procedure is provided:

$$\text{Mass loss(\%)} = (M_1 - M_2) / M_1 \times 100$$

Where M_1 is the mass before the test and M_2 is the mass after the test. When mass loss does not exceed the values in Table blow, it shall be considered as "no mass loss".

小型电池或电池组应按顺序进行试验 T.1 至 T.5。试验 T.6 和 T.8 应使用未另外试验过的电池或电池组。试验 T.7 可以使用原先在试验 T.1 至 T.5 中使用过的未损坏电池组进行，以便测试经过充放电的电池组。

质量损失的量化数值可用下式计算：

$$\text{质量损失(\%)} = (M_1 - M_2) / M_1 \times 100$$

式中 M_1 是试验前的质量， M_2 是试验后的质量。如质量损失不超过下表所列数值，即视为“无质量损失”。

Mass M of cell or battery 电池或电池组质量 M	Mass loss limit 质量损失限值
$M < 1\text{g}$	0.5%
$1\text{g} \leq M \leq 75\text{g}$	0.2%
$M > 75\text{g}$	0.1%

Test T.1 Altitude simulation

Test cells and batteries shall be stored at a pressure of 11.6 kPa or less for at least six hours at ambient temperature ($20 \pm 5^\circ\text{C}$).

Cells and batteries meet this requirement if there is no leakage, no venting, no disassembly, 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.

试验 T.1 高度模拟

试验电池和电池组应在压力等于或低于 11.6 千帕和环境温度($20 \pm 5^\circ\text{C}$)下存放至少 6 小时。

如果无渗漏、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%，电池和电池组即符合这一要求。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。

Test T.2 Thermal test

Test cells and batteries are to be stored for at least six hours at a test temperature equal to $72 \pm 2^\circ\text{C}$, followed by storage for at least six hours at a test temperature equal to $-40 \pm 2^\circ\text{C}$. 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 ($20 \pm 5^\circ\text{C}$). For large cells and batteries the duration of exposure to the test temperature extremes should be at least 12 hours.

Cells and batteries meet this requirement if there is no leakage, no venting, no disassembly, 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.

试验 T.2 温度试验

试验电池和电池组应先在试验温度等于 $72 \pm 2^\circ\text{C}$ 的条件下存放至少 6 小时，接着再在试验温度等于 $-40 \pm 2^\circ\text{C}$ 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，完成 10 次，接着将所有试验电芯和电池在环境温度 ($20 \pm 5^\circ\text{C}$) 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。



如果无渗漏、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%, 电池和电池组即符合这一要求。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。

Test T.3 Vibration

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.

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).

For cells and small batteries: from 7 Hz a peak acceleration of 1 g_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 8 g_n occurs (approximately 50 Hz). A peak acceleration of 8 g_n is then maintained until the frequency is increased to 200 Hz.

For large batteries: from 7 Hz to a peak acceleration of 1 g_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 2 g_n occurs (approximately 25 Hz). A peak acceleration of 2 g_n is then maintained until the frequency is increased to 200 Hz.

Cells and batteries meet this requirement if there is no leakage, no venting, no disassembly, no rupture and no fire during the test and after the test and if the open circuit voltage of each test cell or battery directly after testing in its third perpendicular mounting position 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.

试验 T.3 振动

电池和电池组紧固于振动机平台,但紧固程度不能造成电芯变形以致不能准确传递振动。振动应是正弦波形,对数频率扫描从 7 赫兹和 200 赫兹,再回到 7 赫兹,跨度为 15 分钟。这一振动过程须对三个相互垂直的电芯安装方位的每一方向重复进行 12 次,共为时 3 小时。其中一个振动方向必须与端面垂直。

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)应有所不同。

对电池和小型电池组:从 7 赫兹开始,保持 1 g_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(总位移 1.6 毫米),并增加频率直到最大加速度达到 8 g_n (频率约为 50 赫兹)。将最大加速度保持在 8 g_n 直到频率增加到 200 赫兹。

对大型电池组:从 7 赫兹开始,保持 1 g_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(总行程 1.6 毫米)并增加频率直到最大加速度达到 2 g_n (频率约为 25 赫兹)。将最大加速度保持在 2 g_n 直到频率增加到 200 赫兹。

如果试验中和试验后无渗漏、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%, 电池和电池组即符合本项要求。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。

Test T.4 Shock

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.

Each cell shall be subjected to a half-sine shock of peak acceleration of 150 g_n and pulse duration of 6 milliseconds. Alternatively, large cells may be subjected to a half-sine shock of peak acceleration of 50 g_n and pulse duration of 11 milliseconds.

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.



Battery 电池	Minimum peak acceleration 最小峰值加速度	Pulse duration 脉冲持续时间
Small batteries 小型电池组	150 g _n or result of formula 150 g _n 或公式计算 $\text{Acceleration 加速度}(g_n)=\sqrt{\frac{100850}{\text{mass 质量}^*}}$ whichever is smaller 取数值较少者	6 ms 6 毫秒
Large batteries 大型电池组	50 g _n or result of formula 50 g _n 或公式计算 $\text{Acceleration 加速度}(g_n)=\sqrt{\frac{30000}{\text{mass 质量}^*}}$ whichever is smaller 取数值较少者	11 ms 11 毫秒

* Mass is expressed in kilograms 质量单位为千克

Each cell or battery shall be subjected to three shocks in the positive direction and to three shocks in the negative direction in each of three mutually perpendicular mounting positions of the cell or battery for a total of 18 shocks.

Cells and batteries meet this requirement if there is no leakage, no venting, no disassembly, 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.

试验 T.4 冲击

试验电池和电池组用坚固支架紧固在试验机上，支架支撑着每个试验电池的所有安装面。

每个电芯须经受最大加速度 150 g_n 和脉冲持续时间 6 毫秒的半正弦波冲击。不过，大型电池须经受最大加速度 50 g_n 和脉冲持续时间 11 毫秒的半正弦波冲击。

每个电池须经受的正弦波冲击的最大加速度取决于电池组的质量。小型电池组的脉冲持续时间 6 毫秒，大型电池组的脉冲持续时间 11 毫秒。以上公式用于计算合适的最低限度最大加速度。

每个电池或电池组须在三个相互垂直的电池或电池组安装方位的正极方向经受三次冲击，接着在负极方向经受三次冲击，总共经受 18 次冲击。

如果无渗漏、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%，电池和电池组即符合这一要求。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。。

Test T.5 External short circuit

The cell or battery to be tested shall be heated for a period of time necessary to reach a homogeneous stabilized temperature of 57±4°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±4°C shall be subjected to one short circuit condition with a total external resistance of less than 0.1 ohm.

This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to 57±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.

Cells and batteries meet this requirement if their external temperature does not exceed 170°C and there is no disassembly, no rupture and no fire during the test and within six hours after the test.

试验 T.5 外部短路

对于待试电池或电池组，应加温一段必要的时间，使从外壳测量的温度达到均匀的稳定温度 57±4°C，这段时间的长短取决于电池或电池组的大小和设计，对于这个持续时间应加以评估和记录。如无法进行



这种评估, 则小型电池和小型电池组的暴露时间应至少 6 小时, 大型电池和大型电池组的暴露时间应至少 12 小时。然后, 电池或电池组应在 $57\pm4^{\circ}\text{C}$ 下经受总外电阻小于 0.1 欧姆的短路条件。

这一短路条件应在电池或电池组外壳温度回到 $57\pm4^{\circ}\text{C}$ 后继续至少 1 小时, 或在大型电池组的情况下外壳温度降幅达试验中所观察的最高升温幅的二分之一并保持低于该数值。

短路和降温阶段应至少相当于环境温度。

如果外壳温度不超过 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, 电池和电池组即符合本项要求。

Test T.6 Impact / Crush

Test procedure - Impact (applicable to cylindrical cells not less than 18 mm in diameter)

The test sample cell or component cell is to be placed on a flat smooth surface. A $15.8\text{ mm} \pm 0.1\text{ mm}$ diameter, at least 6 cm long, or the longest dimension of the cell, whichever is greater, Type 316 stainless steel bar is to be placed across the centre of the sample. A $9.1\text{ kg} \pm 0.1\text{ kg}$ mass is to be dropped from a height of $61 \pm 2.5\text{ cm}$ at the intersection of the bar and sample in a controlled manner using a near frictionless, vertical sliding track or channel with minimal drag on the falling mass. The vertical track or channel used to guide the falling mass shall be oriented 90 degrees from the horizontal supporting surface.

The test sample is to be impacted with its longitudinal axis parallel to the flat surface and perpendicular to the longitudinal axis of the $15.8\text{ mm} \pm 0.1\text{ mm}$ diameter curved surface lying across the centre of the test sample. Each sample is to be subjected to only a single impact.

Test procedure - Crush (applicable to prismatic, pouch, coin/button cells and cylindrical cells less than 18 mm in diameter)

A cell or component cell is to be crushed between two flat surfaces. The crushing is to be gradual with a speed of approximately 1.5 cm/s at the first point of contact. The crushing is to be continued until the first of the three options below is reached.

- (a) The applied force reaches $13\text{ kN} \pm 0.78\text{ kN}$;
- (b) The voltage of the cell drops by at least 100 mV; or
- (c) The cell is deformed by 50% or more of its original thickness.

Once the maximum pressure has been obtained, the voltage drops by 100 mV or more, or the cell is deformed by at least 50% of its original thickness, the pressure shall be released.

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.

Each test cell or component cell is to be subjected to one crush only. The test sample 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.

Cells and component cells meet this requirement if their external temperature does not exceed 170°C and there is no disassembly and no fire during the test and within six hours after this test.

试验 T.6 撞击/挤压

试验程序—撞击 (适用于直径不小于 18 毫米的圆柱形电池)

试样电池或原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, 或电池最长端的尺寸, 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水平支撑表面呈 90 度落下。

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 毫米 ± 0.1 毫米弯曲表面的纵轴垂直。每一试样只经受一次撞击。

试验程序—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)

将电池或原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) 施加的力量达到 13 千牛顿 ± 0.78 千牛顿;
- (b) 电池的电压下降至少 100 毫伏; 或
- (c) 电池变形达到原始厚度的 50%或以上。

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。



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。

每个试样电池或原件电池只做一次挤压试验。试样应继续观察 6 小时。试验应使用之间未做过其他试验的电池或原件电池进行。

如果外壳温度不超过 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, 电池和电池组即符合本项要求。

Test T.7 Overcharge

The charge current shall be twice the manufacturer's recommended maximum continuous charge current. The minimum voltage of the test shall be as follows:

(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.

(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.

Tests are to be conducted at ambient temperature; the duration of the test shall be 24 hours.

Rechargeable batteries meet this requirement if there is no disassembly and no fire during the test and within seven days after the test.

试验 T.7 过度充电

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:

(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池最大充电电压的两倍或 22 伏两者中的较小者;

(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。

试验应在环境温度下进行, 进行试验的时间应为 24 小时。

可充电电池组在试验过程中和试验后 7 天内无解体, 无起火, 即符合本项要求。

Test T.8 Forced discharge

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.

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).

Primary or rechargeable cells meet this requirement if there is no disassembly and no fire during the test and within seven days after the test.

试验 T.8 强制放电

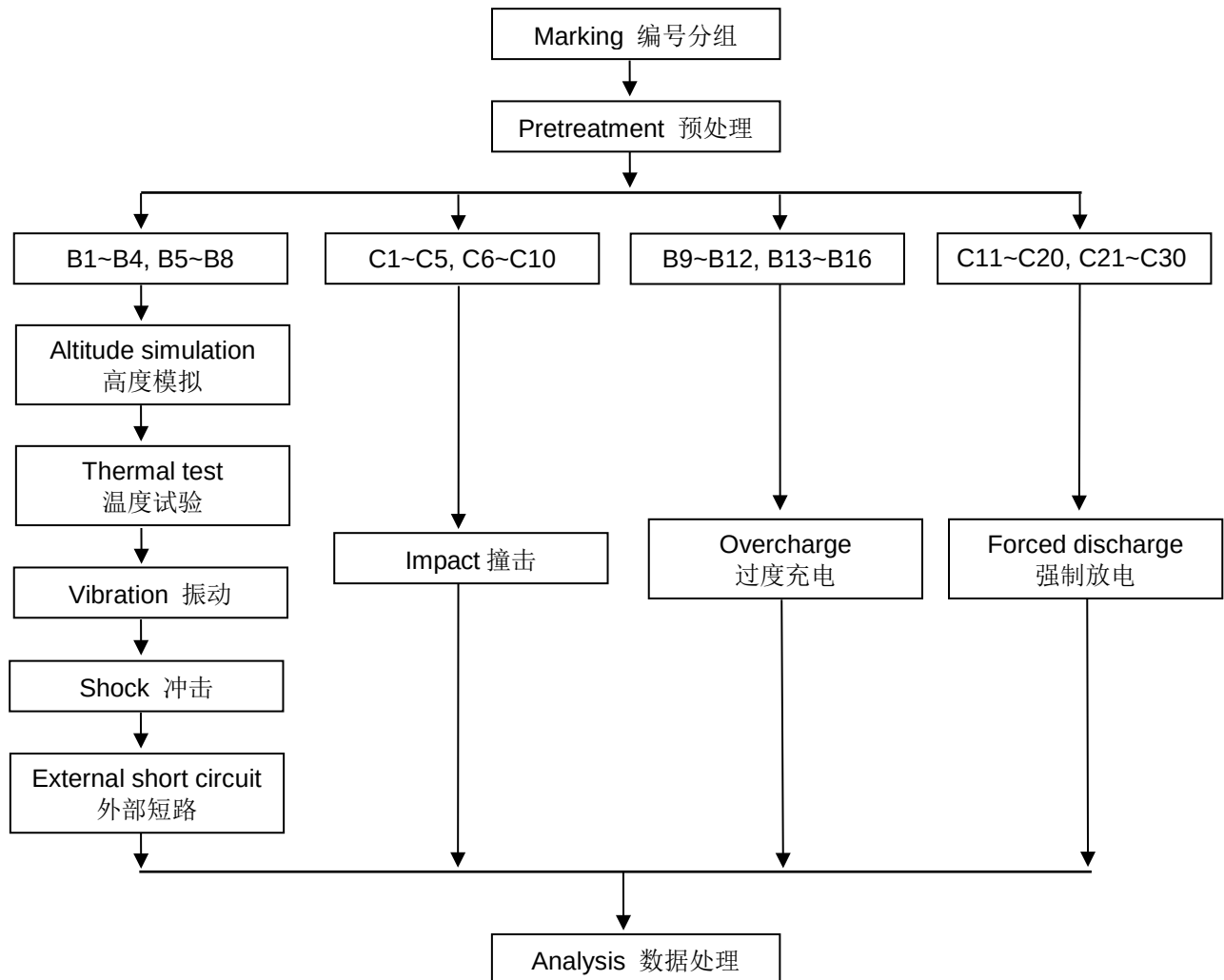
每个电池应在环境温度下与 12 伏直流电源串联在起始电流等于制造商给定的最大放电电流的条件下强制放电。

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)。

原电池或可充电电池如在试验过程中和试验后 7 天内无解体, 无起火, 即符合本项要求。



7. TEST PROCEDURE 测试程序



8. DATA 测试数据

T.1 Altitude simulation 高度模拟

Sample No. 样品编号	Pre-test 测试前		After test 测试后		Mass loss 质量亏损 (%)	Residual OCV 剩余电压 (%)	Results 结果
	Mass 质量	Voltage 电压	Mass 质量	Voltage 电压			
B1	3783.40g	28.62V	3782.82g	28.56V	0.02	99.79	Pass 通过
B2	3783.32g	28.61V	3782.95g	28.49V	0.01	99.58	Pass 通过
B3	3783.39g	28.60V	3783.26g	28.54V	0.00	99.79	Pass 通过
B4	3783.33g	28.65V	3782.74g	28.63V	0.02	99.93	Pass 通过
B5	3783.33g	28.67V	3783.05g	28.67V	0.01	100.00	Pass 通过
B6	3783.34g	28.67V	3783.16g	28.55V	0.00	99.58	Pass 通过
B7	3783.37g	28.67V	3783.18g	28.58V	0.01	99.69	Pass 通过
B8	3783.35g	28.62V	3782.98g	28.61V	0.01	99.97	Pass 通过
Requirements 要求: After the test, there is no leakage, no venting, no disassembly, no rupture and no fire. 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.测试后, 样品无渗漏、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%。							

T.2 Thermal test 热测试

Sample No. 样品编号	Pre-test 测试前		After test 测试后		Mass loss 质量亏损 (%)	Residual OCV 剩余电压 (%)	Results 结果
	Mass 质量	Voltage 电压	Mass 质量	Voltage 电压			
B1	3782.82g	28.56V	3782.00g	28.18V	0.02	98.67	Pass 通过
B2	3782.95g	28.49V	3782.00g	28.17V	0.03	98.88	Pass 通过
B3	3783.26g	28.54V	3781.90g	28.25V	0.04	98.98	Pass 通过
B4	3782.74g	28.63V	3781.43g	28.22V	0.03	98.57	Pass 通过
B5	3783.05g	28.67V	3781.65g	28.21V	0.04	98.40	Pass 通过
B6	3783.16g	28.55V	3782.19g	28.17V	0.03	98.67	Pass 通过
B7	3783.18g	28.58V	3782.91g	28.09V	0.01	98.29	Pass 通过
B8	3782.98g	28.61V	3782.63g	28.17V	0.01	98.46	Pass 通过
Requirements 要求: After the test, there is no leakage, no venting, no disassembly, no rupture and no fire. 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.测试后, 样品无渗漏、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%。							



T.3 Vibration 振动

Sample No. 样品编号	Pre-test 测试前		After test 测试后		Mass loss 质量亏损 (%)	Residual OCV 剩余电压 (%)	Results 结果
	Mass 质量	Voltage 电压	Mass 质量	Voltage 电压			
B1	3782.00g	28.18V	3780.60g	28.05V	0.04	99.54	Pass 通过
B2	3782.00g	28.17V	3780.93g	28.10V	0.03	99.75	Pass 通过
B3	3781.90g	28.25V	3781.59g	28.19V	0.01	99.79	Pass 通过
B4	3781.43g	28.22V	3781.18g	28.12V	0.01	99.65	Pass 通过
B5	3781.65g	28.21V	3780.72g	28.04V	0.02	99.40	Pass 通过
B6	3782.19g	28.17V	3780.68g	28.04V	0.04	99.54	Pass 通过
B7	3782.91g	28.09V	3781.66g	28.08V	0.03	99.96	Pass 通过
B8	3782.63g	28.17V	3782.26g	28.04V	0.01	99.54	Pass 通过
Requirements 要求: After the test, there is no leakage, no venting, no disassembly, no rupture and no fire. 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.测试后, 样品无渗漏、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%。							

T.4 Shock 冲击

Sample No. 样品编号	Pre-test 测试前		After test 测试后		Mass loss 质量亏损 (%)	Residual OCV 剩余电压 (%)	Results 结果
	Mass 质量	Voltage 电压	Mass 质量	Voltage 电压			
B1	3780.60g	28.05V	3779.66g	27.97V	0.02	99.71	Pass 通过
B2	3780.93g	28.10V	3780.59g	28.09V	0.01	99.96	Pass 通过
B3	3781.59g	28.19V	3781.37g	28.12V	0.01	99.75	Pass 通过
B4	3781.18g	28.12V	3780.83g	28.01V	0.01	99.61	Pass 通过
B5	3780.72g	28.04V	3779.69g	27.96V	0.03	99.71	Pass 通过
B6	3780.68g	28.04V	3780.51g	27.96V	0.00	99.71	Pass 通过
B7	3781.66g	28.08V	3781.30g	28.06V	0.01	99.93	Pass 通过
B8	3782.26g	28.04V	3781.39g	27.95V	0.02	99.68	Pass 通过
Requirements 要求: After the test, there is no leakage, no venting, no disassembly, no rupture and no fire. 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.测试后, 样品无渗漏、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%。							



T.5 External short circuit 外部短路

Sample No. 样品编号	Max. surface temperature (°C) 表面最高温度	Results 结果
B1	57.0	Pass 通过
B2	58.3	Pass 通过
B3	57.1	Pass 通过
B4	57.0	Pass 通过
B5	57.9	Pass 通过
B6	58.2	Pass 通过
B7	57.1	Pass 通过
B8	57.0	Pass 通过
Requirements 要求: Test sample external temperature does not exceed 170 °C and there is no disassembly, no rupture and no fire during the test and within six hours after the test. 测试样品表面温度不超过 170°C, 测试中与测试后 6 小时内无解体、无破裂、无起火。		

T.6 Impact 撞击

Sample No. 样品编号	Max. surface temperature (°C) 表面最高温度	Results 结果
C1	80.9	Pass 通过
C2	77.8	Pass 通过
C3	81.5	Pass 通过
C4	80.0	Pass 通过
C5	75.4	Pass 通过
C6	88.4	Pass 通过
C7	84.5	Pass 通过
C8	72.4	Pass 通过
C9	70.3	Pass 通过
C10	77.6	Pass 通过
Requirements 要求: Test sample external temperature does not exceed 170 °C and there is no disassembly, no rupture and no fire during the test and within six hours after the test. 测试样品表面温度不超过 170°C, 测试中与测试后 6 小时内无解体、无破裂、无起火。		



T.7 Overcharge 过度充电

Sample No. 样品编号	Results 结果
B9	Pass 通过
B10	Pass 通过
B11	Pass 通过
B12	Pass 通过
B13	Pass 通过
B14	Pass 通过
B15	Pass 通过
B16	Pass 通过
Requirements 要求: There is no disassembly and no fire during the test and within seven days after the test.样品在测试中和测试后 7 天内无解体、无起火。	

T.8 Forced discharge 强制放电

Sample No. 样品编号	Results 结果
C11	Pass 通过
C12	Pass 通过
C13	Pass 通过
C14	Pass 通过
C15	Pass 通过
C16	Pass 通过
C17	Pass 通过
C18	Pass 通过
C19	Pass 通过
C20	Pass 通过
C21	Pass 通过
C22	Pass 通过
C23	Pass 通过
C24	Pass 通过
C25	Pass 通过
C26	Pass 通过
C27	Pass 通过
C28	Pass 通过
C29	Pass 通过
C30	Pass 通过
Requirements 要求: There is no disassembly and no fire during the test and within seven days after the test.样品在测试中和测试后 7 天内无解体、无起火。	



9. PHOTOS OF THE SAMPLE 样品照片

Battery 电池组

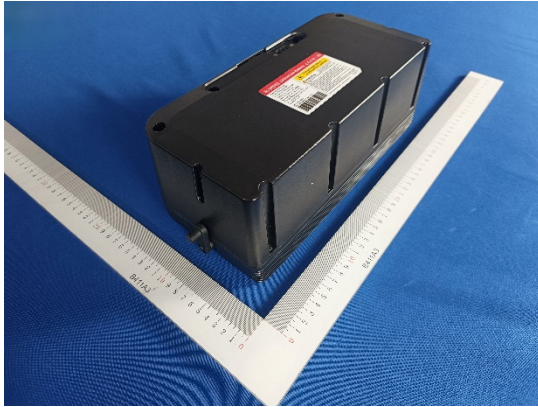


Photo 1 图片 1



Photo 2 图片 2



Photo 3 图片 3

Cell 电芯



Photo 4 图片 4

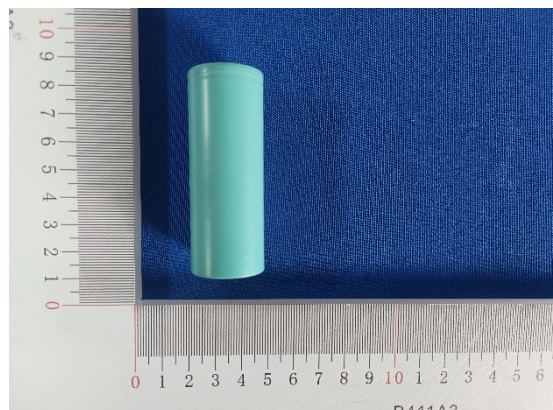


Photo 5 图片 5



DECLARATION

声明

1. Test place Lab: Shenzhen Anbotek Compliance Laboratory Limited
Address: 401, 402, Building A, Hourui No.3 Industrial Zone, No.2 Kaicheng Road,
Hourui Community, Hangcheng Street, Baoan District, Shenzhen, Guangdong,
China.
测试实验室: 深圳安博检测股份有限公司
地址: 广东省深圳市宝安区航城街道后瑞社区凯成路2号后瑞第三工业区A栋401、402
2. This report shall not be revised and deleted.
本报告不能修改和删除。
3. The test results presented in this report are only relevant to the test sample.
本报告出现的试验结果仅与试验样品有关。
4. This report shall not be published as advertisement without the approval of
Shenzhen Anbotek Compliance Laboratory Limited.
本报告在未经深圳安博检测股份有限公司书面许可情况下不能用于宣传、广告之用。
5. This report shall not be copied partly without the written approval of Shenzhen
Anbotek Compliance Laboratory Limited.
除非全部复制, 否则无深圳安博检测股份有限公司书面批准本报告不得部分复制。

-- End of report --

-- 报告结束 --



MATERIAL SAFETY DATA SHEET

MSDS报告

Report No.
报告号 : 1815C40270212706

Client Name
委托单位 : Guangdong BAK Benhoo Technology Co., Ltd.
广东比克奔虎新能源科技有限公司

Client Address
单位地址 : Floor 3, Building A, Industrial Park, No. 55
Zengkeng Road, Zengkeng Team, Xintang
Village, Qiuchang Sub-district, Huiyang District,
Huizhou City, Guangdong Province, China
惠州市惠阳区秋长街道新塘村增坑小组增坑路55
号工业园A 栋3楼

Product Name
产品名称 : Lithium Ion Battery
锂离子电池

Effective Date
生效日期 : 2025-09-11

Shenzhen Anbotek Compliance Laboratory Limited
深圳安博检测股份有限公司



MATERIAL SAFETY DATA SHEET
材料安全数据清单

1. Chemical Product and Company Identification产品及申请公司信息

Sample name: Lithium Ion Battery
样品名称 锂离子电池

Sample model: ADCF080379238
样品型号

Rating: 24V/12Ah/288Wh
规格

Weight 重量: 3783.4g

Manufacturer: Guangdong BAK Benhoo Technology Co., Ltd.
制造商 广东比克奔虎新能源科技有限公司

Address: Floor 3, Building A, Industrial Park, No. 55 Zengkeng Road,
Zengkeng Team, Xintang Village, Qiuchang Sub-district, Huiyang
District, Huizhou City, Guangdong Province, China
制造商地址 惠州市惠阳区秋长街道新塘村增坑小组增坑路55 号工业园A 栋3 楼

Factory: Guangdong BAK Benhoo Technology Co., Ltd.
工厂 广东比克奔虎新能源科技有限公司

Address: Floor 3, Building A, Industrial Park, No. 55 Zengkeng Road,
Zengkeng Team, Xintang Village, Qiuchang Sub-district, Huiyang
District, Huizhou City, Guangdong Province, China
工厂地址 惠州市惠阳区秋长街道新塘村增坑小组增坑路 55 号工业园 A 栋 3 楼

Telephone no: 18319643169
联系电话

Fax: /
传真

E-mail: fanjl@baknp.com
邮箱

Written by
编写

杨艳萍

Approved by
签发

朱

2. Composition/Information on Ingredients 原料成分信息

Chemical Composition 化学成分	Chemical Formula 化学式	CAS No. CAS 号	Weight (%) 重量含量 (%)
Lithium Iron Phosphate 磷酸铁锂	LiFePO ₄	15365-14-7	15 - 40
Graphite 石墨	C	7782-42-5	10 - 30
Lithium hexafluorophosphate 六氟磷酸锂	LiPF ₆	21324-40-3	10 - 30
Copper 铜箔	Cu	7440-50-8	7-13
Aluminium 铝箔	Al	7429-90-5	5-10
Nickel 镍	Ni	7440-02-0	1-5

3. Hazards Summarizing 危险概述

Danger sort 危险类别: N/A

Routes of entry 进入途径:

1. Eyes and Skin – When leaking, the electrolyte solution contained in the battery irritates to ocular tissues and the skin.
眼睛和皮肤 – 当电池泄漏时, 电池内部的电解液会刺激眼膜和皮肤, 甚至有疼痛感。
2. Inhalation—Respiratory (and eye) irritation may occur if fumes are released due heat or an abundance of leaking batteries.
吸入 — 电池大量泄漏产生热量导致冒烟, 吸入会刺激呼吸系统。
3. Ingestion – The ingestion of the battery can be harmful. Content of open battery can cause serious chemical burns of mouth, esophagus and gastrointestinal tract.
吞食 – 吞食电池对身体有很大伤害。电池里含的物质会引起嘴、食道和胃肠道化学灼伤。

Health harm 健康损害:

Exposure to leaking electrolyte from ruptured or leaking battery can cause 电池破裂导致电解液外漏会导致以下伤害:

1. Inhalation—Burns and irritation of the respiratory system, coughing, wheezing, and shortness of breath.
吸入—灼伤或刺激呼吸系统, 可能会产生咳嗽、喘息和呼吸浅短等现象。
2. Eyes—Redness, tearing, burns. The electrolyte is corrosive to all ocular

tissues.

眼睛—红肿, 疼痛, 灼伤。电解液会腐蚀视网膜。

3. Skin—The electrolyte is corrosive and causes skin irritation and burns.

皮肤—电解液有腐蚀性, 会刺激皮肤甚至灼伤皮肤。

4. Ingestion—The electrolyte solution causes tissue damage to throat and gastrointestinal track.

吞食—电解液会导致咽喉组织损伤和胃肠道损伤。

Environment harm 环境危害: Not necessary under conditions of normal use. 正常使用条件下没有危害。

Explosion danger 爆炸危险: The battery may be explosive at high temperature (above 60°C) or exposing to the fire. 电池在高温条件下 (大于 60°C) 或者置于火中会导致爆炸。

4. First Aid Measures 急救措施

Skin contact: Not anticipated. If the battery is leaking and the contained material contacts the skin, flush with copious amounts of clear water for at least 15 minutes.

Eye contact: Not anticipated. If the battery is leaking and the contained material contacts eyes, flush with copious amounts of clear water for at least 15 minutes. Get medical attention at once.

Inhalation: Not anticipated. If the battery is leaking, remove to fresh air. If irritation persists, consult a physician.

Ingestion: Not anticipated. If the battery is leaking and the contained material is ingested, rinse mouth and surrounding area with clear water at once. Consult a physician immediately for treatment.

皮肤接触: 没有事先预料的, 如果电池漏液接触到皮肤上, 立即用大量的清水冲洗至少 15 分钟。

眼睛接触: 没有事先预料的, 如果电池漏液接触到眼睛上, 立即用大量的清水冲洗至少 15 分钟, 并立即就医。

吸入: 没有事先预料的电池泄漏, 转移到空气新鲜的地方, 如果刺激性还存在, 请咨询医生。

吞食: 没有事先预料的, 如果电池漏液并且吞食了电池原料, 立即用清水冲洗嘴部及周围部位, 并就医治疗。

5. Fire Fighting Measures 消防措施

Unusual Fire and Explosion Hazards: Battery may explode or leak potentially hazardous vapors subject to: exposed to excessive heat (above the maximum rated temperature as specified by the manufacturer) or fire, over-charged, short circuit, punctured and crushed.

Hazardous Combustion Products: Fire, excessive heat, or over voltage conditions may produce hazardous decomposition products. Damaged batteries can result in rapid heating and the release of flammable vapors.

Extinguishing Media: Dry chemical type extinguishers are the most effective means to extinguish a battery fire. A CO₂ extinguisher will also work effectively.

Fire Fighting Procedures: Use a positive pressure self-contained breathing apparatus if batteries are involved in a fire. Full protective clothing is necessary. During water application, caution is advised as burning pieces of flammable particles may be ejected from the fire.

异常着火和爆炸危险: 电池爆炸或漏液可能是由以下原因导致: 暴露于高温环境(超过制造商规定的最大额定温度) 或者火中, 电池过充电, 短路, 刺穿和挤压。

产品烧毁危害: 着火, 过热或者过压条件可能会导致产品分解。损坏的电池会导致快速升温 and 释放可燃性气体。

灭火仪器: 对于电池着火灭火最有效的是干燥的化学型灭火器, 二氧化碳灭火器也可。

消防程序: 如果火灾中有电池, 要使用正压呼吸装置, 全防护服是必不可缺的, 在使用水设备时要小心谨慎, 因为燃烧的一些可燃性颗粒会从火中喷射出。

6. Accidental Release Measures 意外泄漏措施

The material contained within the battery would only be released under abusive conditions. In the event of battery rupture and leakage, collect all the released materials that are not hot or burning in an appropriate waste disposal container while wearing proper protective clothing and ventilate the area. Placed in approved container and disposed according to the local regulations.

电池内部的原料只会在恶劣条件下释放。万一电池破裂和泄漏, 收集所有不热和燃烧后的残渣置于废料处理箱, 要穿上防护服和在通风的地方进行。放置在被批准的容器并按照规定处理废料。

7. Handling and Storage 操作和贮存

Handling 操作:

1. Batteries are designed to be recharged. However, improperly charging a battery may cause the battery to flame. When charging the battery, use dedicated chargers and follow the specified conditions.
电池被设计为可充电的, 然而不正确的充电方式可能会导致电池着火。当给电池充电时, 要使用专用的充电器并按照指定的充电条件进行。
2. Never disassemble or modify a battery. 不拆解电池。
3. Do not immerse, throw, and wet a battery in water. 不浸没、投掷和用水弄湿电池。
4. Should a battery unintentionally be crushed, thus releasing its contents, rubber gloves must be used to handle all battery components. Avoid the inhalation of any vapors that may be emitted. 如果电池被无意挤压而导致内部物质释放, 必须带上橡胶手套处理所有的电池成分, 避免吸入释放的任何气体。
5. Short circuit causes heating. In addition, short circuit reduces the life of the battery and can lead to ignition of surrounding materials. Physical contact with short-circuited battery can cause skin burn. 短路会引起电池过热。此外, 短路会使电池寿命大大减少, 甚至会导致周围材料着火。身体接触短路的电池会导致皮肤灼伤。

6. Avoid reversing the battery polarity, which can cause the battery to be damaged or flame.避免颠倒电池极性, 可能会引起电池损坏或者燃烧。
7. In the event of skin or eye exposure to the electrolyte, refer to Section 4, First Aid Measures.如果皮肤或者眼睛接触到电解液, 参考第四项并立即采取急救措施。

Storage 贮存:

1. Batteries should be separated from other materials and stored in a noncombustible, well ventilated, sprinkler-protected structure with sufficient clearance between walls and battery stacks. Do not place batteries near heating equipment, nor expose to direct sunlight for long periods.电池应该和其他材料分开并且贮存在通风且不易燃烧的地方。自动灭火装置应与墙和电池组保持足够的间隙。不要把电池靠近加热装置, 或者直接长时间的暴露于阳光直射的区域。
2. Do not store batteries above 35°C or below -20°C. Store batteries in a cool (about 20±5°C) in a long time, dry and ventilated area that is subject to little temperature change. Elevated temperatures can result in reduced battery cycle life. Battery exposure to temperatures in excess of 60°C will result in the battery venting flammable liquid and gases.不要在35°C以上和-20°C以下的环境贮存电池。电池应该贮存在干燥的、通风良好的阴凉区域(大约20±5°C)。升高温度会导致电池循环寿命减少。电池暴露于60°C以上的温度可能会导致电池泄漏可燃性液体和气体。
3. Keep batteries in original package until use and do not jumble them.保持电池最原始的包装直到使用时, 不要把电池弄混乱。

8. Exposure Controls/Personal Protection 暴露控制/自我防护

Engineering Controls: Keep away from heat and open flame.

Ventilation: Not necessary under conditions of normal use. In case of abuse, use adequate mechanical ventilation (local exhaust) for the battery that vent gas or fumes.

Respiratory Protection: Not necessary under conditions of normal use. If battery is burning, leave the area immediately. During fire fighting fireman should use self-contained breathing, full-face respiratory equipment. Fires may be fought but only from safe fire fighting distance, evacuate all persons from the area of fire immediately.

Eye Protection: Not necessary under conditions of normal use. Use safety glasses with side shields if handling a leaking or ruptured battery.

Body Protection: Not necessary under conditions of normal use. Use rubber apron and protective working in case of handling a leaking or ruptured battery.

Protective Gloves: Not necessary under conditions of normal use. Use chemical resistant rubber gloves if handling a leaking or ruptured battery.

Others: Use good chemical hygiene practice. Wash hands thoroughly after cleaning-up a battery spill caused by leaking battery. No eating, drinking, or smoking in battery storage area.

工程控制: 远离高温和明火。

通风设备: 正常使用条件下是不必要的。为了防止不合理的滥用, 要使用合适的机械通风设备排出电池产生的气体和黑烟。

呼吸防护: 正常使用条件下是不必要的。如果电池着火, 立即远离着火区域。在灭火期间要使用自给自足的全脸防护的呼吸装置。要保持安全的灭火距离并立即疏散着火区域的所有人员。

眼睛防护: 正常使用条件下是不必要的。处理泄漏或者破裂的电池时要戴上有边罩的防护眼镜。

身体防护: 正常使用条件下是不必要的。处理泄漏或者破裂的电池时要穿上有橡胶围裙或者安全工作服。

防护手套: 正常使用条件下是不必要的。处理泄漏或者破裂的电池时要戴上抗化学腐蚀的橡胶手套。

其他: 保持良好的化学卫生习惯。清理完泄漏电池的漏液后要彻底地清洗手。在贮存电池的区域不吃东西, 不喝酒, 不吸烟。

9. Physical and Chemical Properties 物理和化学特性

State 状态:	Solid 固体
Odor 气味:	N/A
PH 值:	N/A
Vapor pressure 气压:	N/A
Vapor density 气体密度:	N/A
Boiling point 沸点:	N/A
Solubility in water 在水中的溶解度:	Insoluble 不溶
Specific gravity 比重:	N/A
Density 密度:	N/A

10. Stability and Reactivity 稳定性和反应活性

Stability: Stable

Conditions to Avoid: Do not heat, throw into fire, disassemble, short circuit, immerse in water or overcharge, etc.

Incompatibility: None during normal operation. Avoid exposure heat, open flame and corrosives.

Hazardous Polymerization: Will not occur.

Hazardous Decomposition Products: The battery may release irritative gas once the electrolyte leakage.

稳定性: 稳定

避免条件: 不能加热, 不要置于火中, 不随便拆解, 不短路, 不浸入水中, 不过充等。

不适用性: 正常操作条件下没有。避免暴露在高温、明火和腐蚀性物质环境中。

聚合物危害:不会发生。

拆解产品危害:一旦电解液泄漏,电池会挥发出刺激性气体。

11. Toxicological Information有害物质信息

The battery does not elicit toxicological properties during routine handling and use. If the battery is opened through misuse or damage, discard immediately. Internal components of cell are irritant and sensitization.

Irritancy: The electrolytes contained in this battery can irritate eyes with any contact. Prolonged contact with the skin or mucous membranes may cause irritation.

Sensitization: No information is available.

Teratogenicity: No information is available.

Carcinogenicity: No information is available.

Mutagenicity: No information is available.

Reproductive toxicity: No information is available.

电池在正常的操作和使用中不能有发出有毒物质。如果由于不正确的使用或破坏导致电池裂开,立即丢掉。电芯内部成分有刺激性甚至诱发过敏。

刺激性: 电池内部的电解液会刺激眼睛。皮肤或黏膜长时间接触或产生刺激效应。

过敏: 没有可用的信息。

致畸胎性: 没有可用的信息。

致癌性: 没有可用的信息。

诱变性: 没有可用的信息。

生殖毒性: 没有可用的信息

12. Ecological Information生态信息

1. When properly used and disposed, the battery does not present environmental hazard.

正确使用电池时不会造成环境损害。

2. The battery does not contain mercury, cadmium, or lead.

电池不能含有汞、镉、铅。

3. Do not let internal components enter marine environment. Avoid releasing to water ways, wastewater or ground water.

不要让电池内部成分进入水生态。避免排入水路系统、废水和地下水中。

13. Disposal Considerations废弃处理

1. Disposal of the battery should be performed by permitted, professional disposal firms knowledgeable in Federal, State or Local requirements of hazardous waste treatment and hazardous waste transportation.处理电池要有许可,在联邦、国家或者当地危害物质处理部门和危害物质运输部门要求的专业处理知识。
2. The battery should be completely discharged prior to disposal and/or the

terminals taped or capped to prevent short circuit. When completely discharged it is not considered hazardous.处理电池之前要完全放电或者把电池末端用胶带粘上防止短路。完全放电的电池被认为是没有危害的。

3. The battery contains recyclable materials. Recycling options available in your local area should be considered when disposing of this product, through licensed waste Carrier.
电池包含可循环利用的材料。在当地回收利用这些处理掉的产品时，要取得废弃物处理的授权。

14. Transport Information运输信息

Label for conveyance 运输标签	Lithium Battery Label 锂电池标签
UN Number UN 编号	UN 3480 or UN3481 or UN 3556 or UN3171 UN 3480 或 UN3481 或 UN 3556 或 UN3171
Transport hazard class(es) 运输风险类别	9
Packing group 包装等级	965 II 952 --
Marine pollutant 海洋污染物	No 无污染
UN Proper shipping name 联合国运输专用名称	Lithium ion Batteries (Including lithium ion polymer batteries) 锂离子电池(包括锂离子聚合物电池) Vehicle, Lithium ion Battery powered 锂离子电池组驱动的车辆 Battery-powered vehicle or 电池驱动的车辆或 Battery-powered equipment 电池驱动的设备
ICAO/IATA	Can be shipped by air in accordance with international Civil Aviation Organization (ICAO), TI or International Air Transport Association (IATA) DGR 66th Packing Instructions Section IA of 965 or 952 appropriately. 可以根据国际民用航空组织(ICAO), TI 或国际航空运输协会(IATA) DGR 第 66 版本说明第 IA 节 965 或 952 进行空运
IMDG CODE	International Maritime Dangerous Goods Code IMDG CODE (Amdt 41-22) 《国际海运危险货物规则》(IMDG CODE)相关规定 IMDG CODE (Amdt 41-22) International Maritime Dangerous Goods Code IMDG CODE (Amdt 42-24) 《国际海运危险货物规则》(IMDG CODE)相关规定 IMDG CODE (Amdt 42-24)

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road 《国际危险货物道路运输欧洲协定》(ADR)相关规定
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail 《国际危险货物铁路运输欧洲协定》(RID)相关规定

The dangerous goods regulations require that each battery design be subject to tests contained in Section 38.3 of the UN Manual of Tests and Criteria prior to being offered for transport.
危险品规例规定, 运输前, 每一个电池设计须通过联合国试验和标准手册38.3节所载的测试。

15. Regulatory Information 监管信息

《Dangerous Goods Regulations》
《危险物品规则》
《Recommendation on the Transport of Dangerous Goods Model Regulations》
《对危险货物运输的有关规定的建议》
《International Maritime Dangerous Goods》
《国际海运危险货物规则》
《Technical Instructions for the Safe Transport of Dangerous Goods》
《危险品安全运输技术指令》
《Classification and code of dangerous Goods》
《危险货物分类和品名编号》
《Consumer Product Safety Act》(CPSA)
《消费产品安全法》
《Federal Environmental Pollution Control Act》(FEPCA)
《联邦环境污染控制法》
《Resource Conservation and Recovery Act》(RCRA)
《资源保护及恢复法案》
《European Agreement concerning the International Carriage of Dangerous》
《国际危险货物道路运输欧洲协定》
《Regulations concerning the International Carriage of Dangerous》
《国际危险货物铁路运输欧洲协定》

In according with all Federal, State and local laws.
根据所有联邦、州和地方法律。

16. Other Information 其他信息

The information above is believed to be accurate and represents the best information currently available to us. However, this document makes no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. Although reasonable precautions have been taken in the

preparation of the data contained herein, it is offered solely for your information, consideration and investigation. This material safety data sheet provides guidelines for the safe handling and use of this product; it does not and cannot advise on all possible situations, therefore, your specific use of this product should be evaluated to determine if additional precautions are required.

以上信息被认为是准确的, 代表了我们目前可获得的最佳信息。然而, 本文没有对商品性能保证或任何其他保证, 包括明示或暗示, 对这类信息的使用我们不承担责任。用户应做出自己的调查, 以确定是否适合其特定用途的信息。尽管在准备本文所载数据时已采取合理的预防措施, 但这些数据仅供您参考、考虑和调查。这个化学品安全技术说明书为本产品提供了安全操作指南和使用指南, 它并不能对所有可能发生的情况提供建议, 因此, 您特殊使用该产品应先进行评估, 以确定是否需要额外的预防措施。

*** The MSDS is prepared based on the information provided by client. The contents and formats of this MSDS are revised as per client's request.**

这份材料安全数据表是根据客户提供的信息编辑, 其内容和格式按客户要求来修订。

-- End of report --

-- 报告结束 --