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受控文件

产品技术规格书

TECHNICAL DATA SHEET

锂/二氧化锰电池

Lithium Manganese Dioxide Cell

型号：CR1225

Model: CR1225

批准 Approved	审核 Checked	编制 Draft

客户回签 Customer signature
公司名称： Company name: 批准人： Approved by: 签（章）日期： Signature date：

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惠州亿纬锂能股份有限公司

EVE Energy Co., Ltd.

修订记录

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1. 适用范围 Scope

The document applies to CR1225(Li/MnO_2) battery supplied by EVE Energy Co., Ltd. Specify quality, test method, performance, quality assurance and matters need attention etc..

该产品规格书适用于惠州亿纬锂能股份有限公司（简称 EVE）出品的 CR1225（锂-二氧化锰）扣式电池，规定产品的性能指标、测试方法、品质控制，以及使用注意事项等。

2. 标称规格 Nominal specification

2-1 机型（电芯） Model	CR1225
2-2 标称电压 Nominal Voltage	3.0 V
2-3 标称容量 Normal Capacity	50mAh （在 20±3℃环境下 62KΩ 放电至 2.0V） 50mAh (62KΩ to cut-off voltage 2.0V at 20±3℃)
2-4 最大持续放电电流 Maximum Continuous Discharge Current	0.5mA
2-5 尺寸 Dimensions	见附图 See the attaching drawing
2-6 重量 Approx. Weight	1.0g
2-7 外观 Appearance	无明显变形、标志清晰。 There shall be no obvious deformation, and the mark shall be clear.
2-8 温度 Temperature	工作：-20~70℃ （注意：如果持续使用温度超出-10℃~+60℃，请联系 EVE） Operating: -20~70℃ (Note: Consult EVE when using batteries at temperatures exceeding the -10℃ to +60℃ range)
2-9 建议贮存条件 Recommendable Storage Condition	温度：5℃~35℃ 湿度：小于 70%RH Temperature: 5℃~35℃ Humidity: Less than 70%RH

2-10 电池组成 Battery Composition	锂原电池是由二氧化锰正极、锂金属负极、有机电解液及锂盐组成。 Lithium primary battery composed of cathode from manganese dioxide, anode from lithium, and electrolyte from organic solvent and lithium salt.

3. 电池特性 Battery characteristics

序号 NO.	项目 Item	测试方法 Test method	测试温度 Test temperature	初始值 Initial Value
3-1	开路电压 Open circuit voltage	两极端之间的电压（最小值） Voltage between two terminals (min.)	20℃±3℃	3.05V
3-2	内阻 Internal resistance	1 kHz 正弦波的方法（最大值） 1 kHz sine wave method (max.)	20℃±3℃	100Ω
3-3	负载电压 Load voltage	62kΩ测试 2s（最小值） 62kΩ, during 2s(Min.)	20℃±3℃	2.7V
3-4	标称容量 Nominal capacity	62kΩ持续放电至 2.0V 62kΩ Continuous discharge to 2.0V	20℃±3℃	850h
	快速放电 Fast discharge duration	3kΩ持续放电至 2.0V 3kΩ Continuous discharge to 2.0V		28h

4. 测试 Test

4.1 测试条件 Test condition

常规测试条件如下（除非另有规定）：

温度: 20±3℃，相对湿度：65±10%,气压: 1.0atm.

The test normal condition is as follow (unless otherwise specified)

Temperature: 20±3℃, Relative Humidity：65±10%, Pressure: 1.0atm.

4.2 测试设备 Test Instrument

4.2.1 尺寸测试：卡尺，精度为 0.02mm，或者具有相同精度的其他量具。

Dimension measurement: Caliper with accuracy of 0.02mm, or other gauges with the same

accuracy.

4.2.2 电压表公差为±0.01V，阻抗大于或等于 10MΩ

Voltmeter: The tolerance shall be ±0.01V and the input resistance rating shall be 10MΩ or more.

4.2.3 精密电阻：精度为±0.5%

Exactitude resistance: accuracy of ±0.5%.

4.2.4 电阻计：精度为±0.5%

Resistance meter: accuracy of ±0.5%.

4.2.5 恒温箱：精度为±2℃

Constant temperature oven: accuracy of ±2℃.

4.2.6 电子称：公差为±0.01g

Electronic scale: tolerance shall be ±0.01g.

4.3 初始值测试 Initial test

电池应在交付后 1 个月内进行测试。

Batteries should be tested in the first 1 month after delivery.

4.3.1 外部尺寸 Outside dimensions

使用 4.2 规定的量具进行测试。测试结果应符合 2-5 要求。

The gauge as specified in 4.2 is used. The result should meet the requirement of 2-5.

4.3.2 重量 Weight

使用 4.2 规定的量具进行测试。测试结果应符合 2-6 要求。

The gauge as specified in 4.2 is used. The result should meet the requirement of 2-6.

4.3.3 开路电压 Open circuit voltage

电池在常规条件下放置 24 小时，然后使用 4.2 规定的电压表测试电池“+”和“-”两端的电压，测试结果应符合 3-1 要求。

Batteries should be stored for 24 hours at the normal conditions. Then at the same circumstance use voltmeter, specified in 4.2 to measure voltage between "+" and"-". Results should meet the requirement of 3-1.

4.3.4 内阻 Internal resistance

电池在测试环境下放置应不少于 2 小时，然后使用 4.2 规定的电阻计测试电池的内阻。测试值应符合

3-2 要求。

Measure the internal resistance with the resistance meter specified in 4.2 after keeping the battery for 2 hours at least in measurement environment. Internal resistance should meet the requirement of 3-2.

4.3.5 负载电压 Load voltage

电池在常规条件下放置 24 小时，使用 4.2 规定的电压表表笔与 62kΩ 精密电阻并联后，测试电池“+”和“-”两端的电压。测试结果应符合 3-3 要求。

Batteries should be stored for 12 hours at the normal conditions. Then at the same circumstance, parallel connect voltmeter and 62kΩ resistance specified in 4.2 to measure voltage between "+" and"-". Result should meet the requirement of 3-3.

4.3.6 容量测试 Nominal capacity

电池在常规条件下放置应不少于 24 小时，连接使用 4.2 规定的 62kΩ精密电阻进行放电，2.0V 截止，测试结果满足 3-4 要求。

Batteries should be stored for not less than 24 hours at the normal conditions. Then at the same circumstance continually discharge at 62kΩ resistance specified in 4.2 to cut-off voltage 2.0V. Results should meet the requirement of 3-4.

4.3.7 快速放电 Fast discharge duration

电池在常规条件下放置应不少于 24 小时，连接使用 4.2 规定的 3kΩ精密电阻进行放电，2.0V 截止，测试结果满足 3-4 要求。

Batteries should be stored for not less than 24 hours at the normal conditions. Then at the same circumstance continually discharge at 3kΩ resistance specified in 4.2 to cut-off voltage 2.0V. Results should meet the requirement of 3-4.

4.3.8 外观 Appearance

电池满足 2-7 外观要求。

The battery meets the appearance requirements of 2-7.

4.3.9 极端 Terminal

良好的导电性能，无变形。

Good conduction performance, no deformation

4.3.10 温度循环测试 Temperature cycling test

电池放置在试验箱中，经历以下循环测试：在 30min 内从 20±3℃升温到 70±3℃保持 4h，然后用 30min 降温到 20±3℃保持 2h，再用 30min 降温到.-40±3℃保持 4h，最后再用 30min 升温到 20±3℃。如此循环 10 次。试验完毕后在常规条件下电池失重率≤0.2%。

The batteries are to be placed in a test chamber and subjected to the following cycles: raising the chamber temperature to 70±3℃ within 30min and maintaining for 4h, then reducing the chamber temperature to 20±3℃ and maintaining for 2h, then reducing to -40±3℃ and keep it for 4h, at last, raising to 20±3℃ with 30min. Repeat the sequence for a further 10 cycles. Batteries meet the weight loss requirement of ≤0.2%.

5. 安全 Safety

通过美国 UL1642 安全认证测试，认证号为 MH28717

UL1642 recognized component: file No.MH28717.

6. 标志 Mark

6.1 电池类型：CR1225

Battery type : CR1225

6.1 电池商标名称：EVE

Battery brand name: EVE

6.2 极性：+

Polarity: +

7 来料检验 Incoming inspection

EVE 电池在工厂发货之前，会 100%检测电池的开路电压（OCV）以及负载电压。抽样检测电池的容量、视觉外观以及尺寸。

Before shipping, EVE will 100% check open circuit voltage of the battery (OCV) and the load voltage. Also EVE will sampling tests the battery capacity, visual appearance and size.

对于客户端的来料检验，EVE 推荐使用 GB2828.1-2012，GB2829-2002 标准执行。

As for the customer's incoming inspection, EVE recommended sampling according to GB2828.1-2012, GB2829-2002 standard.

表 1 可接受品质水平

Table 1 Acceptability quality level

序号 No	项目 Item	技术要求 Technical request	检测水平 Check level	AQL
1	尺寸 Dimension	2-6	II	1.0
2	外观 Appearance	2-8	II	1.5
3	开路电压 Open circuit voltage	3-1	II	0.65

表 2 抽样数量

Table 2 Sampling amount

批量 Lot size	抽样数量 sampling amount
≤3200	32
3200~10 000	50
>10 000	80

8 包装 Package

根据供需双方协议，按照规定方式方法对电池进行包装，外箱应贴产品标识，产品检验合格标识。

The batteries are packed as the agreement of the customer and supplier. The box should have the eligible identifiers and QC PASS mark.

9 运输 Transportation

本电池出厂时均处于满荷电状态，在运输过程中，应防止倒置、剧烈震动、冲击和挤压，并避免日晒雨淋。

The battery out of factory is full of electric power, so avoid fierce shake, strike and squeeze. Avoid the direct sunshine and raining.

10 注意事项 Warnings and Cautions

锂-二氧化锰电池含有挥发性物质，比如锂金属、有机电解液和其他化学物质。使用操作不当，有可能导致电池发热，起火甚至爆炸，存在人身伤害或损坏的风险。因此，为防止处理电池时发生的事故，必须遵循以下预防措施。

Lithium batteries contain volatile materials such as lithium, organic solvents and other chemical ingredients. Incorrect handling of lithium batteries may result in heat generation, fire or explosion, with the risk of personal injury or damage. To prevent accidents when handling batteries, be sure to follow the following precautions.

●严禁对电池进行短路、充电和正负极反接。

Do not short circuit, charge or make the anode and the cathode reversed.

●严禁强制过放电、挤压、刺穿和焚烧电池。

Do not force-discharge, squeeze, puncture or burn the battery.

●严禁拆卸和解剖电池。

Do not dissemble the battery.

●电池使用至终止电压时应从仪器中及时取出，废旧电池按照国家和当地的法律法规来处理。

The battery should be taken off from instrument when it is consumed to cut-off voltage, and dispose according to local laws, or hand it to professional recycle institution.

●不要混用不同型号的电池。

Do not mix different types of batteries.

●严禁将电池暴露于 85℃以上的高温环境中。

Do not expose the battery in the environment of over 85℃.

●严禁直接在电池上焊锡，请使用引线或者连接镍片点焊的方式。

Do not solder directly onto battery, please use wire or nickel sheet by spot welding.

●将电池贮存于原始包装，以消除任何可能发生的外部短路。

Store the battery by original pack to avoid any possibility of external short circuit.

●不要将电池贮存于导电性防静电袋或泡沫中。

Do not store the battery in ESD bag and foam.

●不要将电池放置在导电金属表面。

Do not store battery in electric metal surface.

●不要将电池堆放在一起，也不允许将贮存盒（/箱）中电池互相接触。

Do not stack or jumble batteries.

●不要将已经连接了任何导线的电池随意装在纸箱或包装带中。

Do not pack battery connected with any kinds of lead random in paper box or pack belt.

●产品应当远离小孩，并尽可能的采取措施防止吞食。

Batteries shall be far away from children, and take measures to prevent the swallow as much as possible.

11 修订 Modification of this specification

修订必须经过双方事先协商，任何争议所造成的问题，在本规格书中既没有定义也没有描述的，应双方共同协商解决。

Modification must be carried out after the prior mutual agreement. All accident or issues caused by any events that are neither defined nor described in this specification, mutual discussion shall take place for the resolution.

12 重要提示 Important notes

1）从出厂日期起贮存 12 个月内，电池保证符合本规格书所涵盖的内容，客户（设备制造商或经销商）任何要求必须在此时期内提出。在此保证期内，如果电池被证明是有缺陷的，EVE 将会及时提供无缺陷合格的电池。

The batteries are warranted to conform to the description contained in this specification for a period of twelve [12] months from the ex-factory date without use, any claim by customer (apparatus manufacturer or distributor) must be pointed out within such period. During that warranty period, if the batteries are proved to become defective under proper stored and handled, EVE will replace the batteries for free.

2）在实际应用中，客户有责任确认和保证电池与装置的匹配性和可靠性。

Customers are responsible to confirm and assure the matching and reliability of batteries under actual application.

3）在以下任何情况下，EVE 将不承担任何责任：客户未能适当处理、操作、安装、测试、维护、检测电池，或者未能遵循本规格书提供的指示、注意事项、注释，以及 EVE 其他的说明和建议。

EVE shall not warrant or be responsible in any case where customers fail to carry out proper handing, operating, installation, testing and maintaining batteries, or don't follow the instruction, cautions, warnings, notes provided in this specification and other EVE's reasonable instructions or advises.

4）此规格书从发行日期起 6 个月内未被退还，则认为已被客户接受，即可生效。

This product specification will be validated assuming that it is accepted when it is not returned within six months from the date of issue.

图 1 CR1225 电池结构

Fig1. Structure of CR1225

（1） 绝缘环（2）负极盖（3）Li 负极

（4）正极盖（5）MnO_2 正极（6）隔膜

（1）gasket（2）negative cap（3）Lithium anode

（4）positive can（5）MnO_2 cathode（6）separator