

惠州市惠德瑞锂电科技股份有限公司产品安全数据表

PRODUCT SAFETY DATA SHEET (MSDS)

本电池产品豁免于 OSHA 危险通讯标准要求。本资料仅供参考，以下信息和建议在规定日期内确保准确有效，但惠州市惠德瑞锂电科技股份有限公司对内容不作担保。

This product is a consumer product which is used in a hermetically sealed state. So, it is not an object of the SDS system. This document is provided to customers as reference information for the safe handling of the product. The information and recommendations set forth are made in good faith and are believed to be accurate at the date of preparation. Huiderui Lithium Battery Technology Co., LTD. makes no warranty expressed or implied.

1. 产品和公司信息 Product and Company identification

产品名称 Name of Product: 锂锰电池 Lithium Manganese Dioxide Battery

是否设计为可充电: 否, 电池为不可充电

Designed for Recharge: No, Nonrechargeable Battery

额定电压 Nominal Voltage: 3V

锂含量 Lithium content per cell:

型号Type	锂含量 (克)Lithium (gr.)
CR123A	0.51

生产企业名称: 惠州市惠德瑞锂电科技股份有限公司

Supplier's Name: Huizhou Huiderui Lithium Battery Technology Co., LTD

生产企业地址 Supplier's Address:

广东省惠州市仲恺高新区陈江街道兴业大道 4 号

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2. 危险性概述 Hazards identification

本产品包含锂,有机溶剂及其他易燃材料, 非正当使用电池将导致电池变形、漏液*、过热、,爆炸或起火, 造成人员受伤或设备损坏。请严格遵守安全指示。(*漏液指电池有液体渗出)

GHS Classification: Not applicable

Toxicity : Vapor generated from burning batteries, may irritate eyes, skin and throat.

Hazard : Electrolyte and lithium metal are inflammable.

Risk of explosion by fire if batteries are disposed in fire or heated above 100℃.

Stacking or jumbling batteries may cause external short circuits, heat generation, fire or explosion.

3. 产品组成和成分 Composition/ information on Ingredients

成分 MATERIAL OR INGREDIENT	PEL (OSHA)	TLV (ACGIH)	含量 %/wt.
Active material:活性材料			
二氧化锰 Manganese Dioxide (CAS Number:1313-13-9)	5 mg Mn/m³ Ceiling	5 mg Mn/m³	30.0-39.0
锂 Lithium Metal (CAS Number:7439-93-2)			
高氯酸锂 Lithium Perchlorate (CAS Number:7791-03-9)	Not established	Not established	2.0-3.5
Lithium Oxalyldifluoroborate 草酸二氟硼酸锂 (CAS Number:409071-16-5)			
碳酸丙烯酯 Propylene Carbonate(PC) (CAS Number:108-32-7)	Not established	Not established	1.0-1.5
乙二醇二甲基醚 Dimethoxyethane(DME) (CAS Number:110-71-4)			
Water	/	/	<0.01
Inert material:惰性材料			
乙炔黑 Acetylene black (CAS Number: 1333-86-4)	3.5 mg/m³ TWA(as carbon black)	3.5 mg/m³ TWA(as carbon black)	2.5-3.0
石墨 Graphite (CAS Number: 7782-42-5)			
聚四氟乙烯 Polytetrafluoro-Ethylene (CAS Number:9002-84-0)	5 mg/m3 TWA (respirable fraction) 15 mg/m3 TWA (total dust)	2 mg/m3 TWA (respirable fraction)	0-1.0
聚丙烯 polypropylene (CAS Number:9003-07-0)			
铁 Iron(Fe)	/	/	30.0-35.0

(CAS Number:7439-89-6)			
镍 Nickel-plate (CAS Number:7440-02-0)	1mg[Ni]/m ³	0.05mg/m ³ [Ni]	<0.2
铝 Aluminium(Al) (CAS Number:7429-90-5)	10mg/m ³ (dust)	5mg/m ³ (smog)	4.0-5.5
聚氯乙烯 Polyvinyl chloride(PVC) (CAS Number:9002-86-2)	Not established	Not established	0.5-1.0
Heavy metal:			
汞 Hydrargyrum(Hg) (CAS Number:7439-97-6)	0.1mg/m ³	0.0025mg[Hg]/m ³	<0.0001
铅 Lead(Pb) (CAS Number:7439-92-1)	Not established	0.05mg/m ³	<0.0001
镉 Cadmium(Cd) (CAS Number:7440-43-9)	Not established	0.01mg/m ³	<0.0002

4. 急救措施First-aid measures

气体吸入 Inhalation	不慎吸入气体后，确保人员呼吸到新鲜空气，如有必要请及时就医。 If ingredient leaked out from inside of a battery and if inhaled it, move to a place where fresh air is provided. Refer for medical attention.
皮肤接触 Skin contact	立即用大量清水冲洗，如化学品持续产生痕痒或刺激感请立即就医。 If ingredient leaked out from inside of a battery and stuck on skin, wash the contact areas off immediately with plenty of water and soap. If appropriate procedures are not taken, this may cause sores on the skin. Refer for medical attention.
眼睛 Eyes contact	立即用大量清水冲洗 15 分钟，立即就医。 If ingredient leaked out from inside of a battery and came into eyes, flush the eyes with plenty of water for at least 15 minutes immediately without rubbing. Take a medical treatment. If appropriate procedures are not taken, this may cause an eye irritation.
误食 Swallowing	如不慎吞入电池，请立即就医。 如化学品不慎进入口中。请立即用大量清水冲洗并就医。 In case of swallowing of battery, immediately refer for medical attention.

5. 消防措施Fire-fighting measures

灭火器Fire extinguishing agent:

干粉、耐酒精泡沫、粉末、雾化水；二氧化碳和干沙是有效的。

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

灭火方法Extinguishing method:

将电池转移到安全的地方，防止扩散火灾。由于电池的包装材料为纸张，所以一般灭火器可采用水灭火器、二氧化碳灭火器或粉状灭火器。

由于电池燃烧产生的蒸汽会刺激眼睛、鼻子和喉咙，所以一定要在迎风的一侧灭火。在某些情况下，应佩戴呼吸保护设备。

Escape batteries to safe place prevent from ignition by spreading fire. Because packaging material of battery is paper, use water extinguisher, CO₂ extinguisher or powder extinguisher as normal extinguisher.

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

6. 泄露应急处理Accidental release measures

化学物质被密封在金属壳中。但是，如果电池被滥用，内部物质可能会泄露。在这种情况下，采取如下行动。

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

个人注意事项：暂时性吸入性气味和电解质对皮肤不造成严重的健康危害。但是需快速通风和洗涤。

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

环保措施：迅速清理。专门的环境预防措施是没有必要的。

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

用于清洁的方法和材料：根据当地的规定，收集在容器中放置在指定位置。

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

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

7. 操作处置与储存 Handling and storing

操作 Handling	不要将电池吞食、充电、加热、置入火中、拆卸、正负极反向安装、短路，不能直接对电池进行焊接、混用不同类电池、接触任何电池泄露出来的液体、置放于火旁或过期使用。 Do not charge, short-circuit, disassemble, deform, heat above 100°C or incinerate. Do not pile up or mingle batteries with each other. Handling Do not place battery on metal case, metal plate or antistatic material. In case of multi cell application, replace all batteries to new at once when replacing used batteries.
储存 Storage	将电池储存在干燥的地方,避免存放在高温和潮湿的地方。 Be sure to store batteries in well-ventilated, dry and cool conditions. Keep away from water, rain, snow, frost or dew condensation. Do not store batteries near source of heat or nozzle of hot air.

	Do not store batteries in direct sunshine. Take care not to get wet packing by dew condensation when packing is removed from cold to warm and humid condition. Enough number of fire fighting apparatuses should be installed in warehouse.
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8. 接触控制/个体防护 Exposure controls and personal protection

常规操作与储存无需个人防护设备。但是，由于电池被滥用导致大量电解液泄露，需采用如下防护：

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

呼吸系统防护Respiratory protection	口罩（带过滤的）Mask (with a filter preferably)
皮肤接触Hand protection	橡胶手套Synthetic rubber gloves
眼睛防护Eye protection	护目镜Goggles or glasses

9. 理化特性 Physical and chemical properties

物理状态State	固体Solid
形状Shape	圆柱形Cylindrical

10. 稳定性和反应活性 Stability and reactivity

稳定性：在正常的储存和操作条件下稳定。

Stability: Stable on regular handling

避免接触的条件：见第7部分。

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

避免接触的物质：导致短路的物质。

Materials to avoid: Substances that cause short circuit

11. 毒理学特性Toxicological information

由于化学物质被密封在金属壳中，因此电池本身不存在危害。

Since chemicals are contained in a sealed can, there are no hazards.

电池内部主要成分的毒理学资料如下:Toxicological information of main components of battery is shown below as reference.

二氧化锰Manganese Dioxide

急性毒性Acute toxicity: 兔子 rabbit *¹: : LD₀ (blue pipe) = 45mg/kg,

小鼠mouse²:LD₅₀ (subcutaneous) = 422mg/kg

局部效应: 刺激眼睛, 鼻子, 喉咙和皮肤

Local effects: Stimulus to an eye, a nose, a throat, and a skin

慢性毒性或长期毒性: 吸入粉尘或烟雾的长期(至少 3 个月)可能会导致特定的中枢神经症状, 如帕金森氏症。

Chronic toxicity or long-term toxicity: Inhalation of powder dust or fume for a long time (at least 3 months) may cause specific central nerve symptom like Parkinson's disease.

生殖毒性: 小鼠吸入 TCL₀=49mg/m³

Reproduction toxicity: Mouse³ inhalation TCL₀=49mg/m³

锂Lithium metal

急性毒性: 金属状态无相关信息。Acute toxicity: No information in a metal state

局部效应: 皮肤或眼睛接触引起热烧伤和碱性化学烧伤。

Local effects: Touching on a skin or an eye causes thermal burn and alkaline chemical burn.

电解液Electrolyte

急性毒性: 目前无相关信息。Acute toxicity: No information at present

局部效应: 轻微的刺激眼睛。Local effects: Slight stimulus to an eye

12. 生态学资料Ecological information

生态学毒性: 正确使用和处置电池不会对环境产生危害。

持久性和降解性Persistence and degradability	无现成信息No information available
土壤中的迁移率Mobility in soil	无现成信息No information available

13. 废弃处理Disposal considerations

请根据各国或本地规定正确处理电池。废弃电池内若仍带电量可造成电池变形、漏液、过热或爆炸。如与其他金属接触, 请在丢弃前确保电池正负极端绝缘。

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

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

14. 运输信息Transportation Information

运输名称: 锂电池

Proper shipping Name: Lithium metal batteries

危险类别: 第 9 类

UN Class: Class 9

UN 编号: UN3090 (单独运输)

UN3091 (安装在设备中或与设备包装在一起)

UN Number: UN3090

UN3091 (When cell/batteries contained in equipment / packed with equipment, it is UN3091)

如满足所有以下要求, 锂金属电池在运输过程将不会被列为危险品。

Even though the cells are classified as lithium metal batteries (UN3090 or 3091), they are exempted from Dangerous Goods because they meet the following:

1. 电芯锂含量小于1g, 电池组含量小于2g

For cells, the lithium content is not more than 1g;

For Batteries, the lithium content is not more than 2g;

2. 已证明符合联合国《试验和标准手册》第38.3节中各项试验要求

Each cell is of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3.

3. 已证明包装件能承受1.2m跌落测试

The packange is capable of withstanding a 1.2 m drop test.

4. 每个电芯都是在ISO9001质量管理体系下制造的

Each cell is manufactured in ISO9001 certified factory.

请参阅以下关于具体运输方式的参考信息, 包装标签和运输单据的实际内容因运输公司而异, 请务必提前与您的运输公司确认。

Please refer to the following reference information about concrete ways of transportation. Actual content of packaging label and shipping documents varies by shipping companies. Make sure to confirm in advance with your shipping company.

参考资料 Information of reference

	参考Reference (Reference number)	UN编号 UN Number	包装说明Packing Instruction(PI)/ Special provision(SP)	备注Note
空运 Air transport	国际航空协会《危险品规则》 IATA DGR	UN3090	PI 968 Section IA	电芯, 仅限货机运输, 每个包装件最大重量超过2.5kg, 但不超过35kg。 Cells, Cargo Aircraft only; Net quantity per package 2.5kg~35kg
			PI 968 Section IB	电芯, 仅限货机运输, 每个包装件最大重量不超过2.5kg Cells, Cargo Aircraft only; net quantity per package Max. 2.5kg
		UN3091	PI 969 Section	电芯与设备包装在一起 Cells packed with equipment
			PI 970 Section	电芯安装在设备中 Cells contained in equipment
海运 Marine transport	国际海事组织《国际海运危险货物规则》 IMDG Code	UN3090 UN3091	SP 188	每个包装件最大重量不超过 30kg Gross quantity per package Max. 30kg 符合特殊规定SP188, 不受IMDG Code其他条款限制。 The article is not subject to other provisions of IMO IMDG Code according to special provision 188.

15. 法规信息Regulatory information

与电池相关环境法规信息：欧盟 Regulation (EU) 2023/1542，中国、韩国、加拿大、美国、巴西等国家和地区都有类似的法律。

- 国际航空协会《危险品规则》67 版，2026

IATA Dangerous Goods Regulations 67th Edition, 2026 (IATA DGR)

- 国际海事组织《国际海运危险货物规则》2024版

IMO International Maritime Dangerous Goods Code 2024 Edition (IMDG Code)

- 联合国《关于危险货物运输的建议书 规章范本》

UN Recommendations on the Transportation of Dangerous Goods, Model Regulations

- 联合国《试验和标准手册》

UN Manual of Tests and Criteria

- 欧盟《电池与废电池法规》

Regulation (EU) 2023/1542

- 化学品注册、评估、授权和限制（REACH）的第 1907/2006 号法规（EC）

Regulation (EC) No. 1907/2006 on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)

- 加利福尼亚州法规-高氯酸盐的最佳管理实践

State of California Regulations - Best management practices for Perchlorate Materials.

16. 其他信息Other information

本份MSDS中的信息只是基于我们当前的所拥有的相关材料的信息而编制的，只是为了描述本品的健康、安全与环境需求，以使各有关方面能更好地了解和信任本产品。这些信息只是提供给您，以供考虑、研究和确认。其中的一些危害预防措施描述并非是唯一的。其中无任何使用这些信息担保的暗示、描述或表达，惠州市惠德瑞锂电科技股份有限公司对该MSDS的使用不承担任何的法律责任。

This MSDS is provided to customers as reference information in order to handle batteries safely. It is necessary for the customer to take appropriate measures depending on the actual situation such as the individual handling, based on this information.

--End of the report--

Prepared and approved by

Huizhou Huiderui Lithium Battery Technology Co., Ltd.