Report No.：CCJC2512063R02

Material Safety Data Sheet

MSDS 报告

MSDS Report

申请商： Prepared For:	上海邦邦机器人有限公司 Shanghai Bangbang Robotics Co.,Ltd.
地址： Address:	上海市松江区中辰路 188 号 3 幢 501 室 Room 501, Building 3, No.188 Zhongchen Road, Songjiang District, Shanghai
产品名称： Product Name:	锂离子电池 Lithium-ion battery
型号： Model:	LY-BT-09
参数： Parameters:	24V, 20Ah, 480Wh
质量： Weight:	Approx(约). 3346.72g
尺寸： Dimension:	75mm×116mm×170mm (T×W×L)
编制单位： Prepared By:	深圳诚测检测技术有限公司 Shenzhen CCJC Technology Co.,Ltd. 广东省深圳市宝安区松岗街道溪头社区溪头路25号厂房101（1-3层） 1-3/F., Factory 101, No.25, Xitou Road, Xitou, Songgang Street, Bao'an District, Shenzhen, Guangdong, China

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主检人： Tested by:	李远勇 Li Yuan Yong	批准人： Approved by:	程鹏 Roc Cheng
职位 Position:	测试工程师 Test Engineer	职位 Position:	技术负责人 Technical Manager
审核人： Inspected by:	钟庭芝 Tosha Zhong	签发日期： Date of Issue:	2025-04-02
职位 Position:	项目工程师 Project Engineer		

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Material Safety Data Sheet

第一部分 化学品及企业标识
Section 1 - Chemical Product and Company Identification

产品名称： *Product Name:*	锂离子电池 Lithium-ion battery
产品型号 *Product Model:*	LY-BT-09
制造商： *Manufacture:*	安徽超锂电子科技有限公司 Anhui Chaoli Electronic Technology Co., Ltd.
地址： *Address:*	安徽省蚌埠市五河县城南中小产业园 19 号 No. 19, Chengnan middle and small industrial park, Wuhe County, Bengbu, Anhui
电话： *Tel:*	+86-18120090111
传真： *Fax:*	/
应急电话： *Emergency Tel:*	+86-18120090111
邮箱： *E-mail:*	fredque@163.com

第二部分 危险性概述
Section 2 - Hazards Identification

危险性类别 *Classification of Danger*	见第十四部分。 See section 14.
浸入途径 *Primary Route(s) of Exposure*	眼睛，皮肤接触，摄入。 Eye, skin contact, ingestion.
健康危害 *Health Hazard*	正常条件下根据制造商的说明使用电池不会产生危害。使用不当的情况下，有破裂、起火、发烫、内部成分泄漏的危险，并可能造成意外损失。使用不当的行为包括但不限于下列情况：长时间充电、短路、投入火中、硬物撞击、尖物刺破、破碎，和破裂。 The batteries are not hazardous when used according to the instructions of manufacturer under normal conditions. In case of abuse, there's risk of rupture, fire, heat, leakage of internal components, with could cause casualty loss. Abuses include but not limited to the following cases: charged for long time, short circuited, put into fire, whacked with hard object, punctured with acute object, crushed, and broken.

第三部分 成分/组成信息
Section 3 – Composition/Information on Ingredients

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化学名称 Chemical Composition	CAS 编号 CAS No.	浓度或浓度范围(%) Concentration or concentration ranges (%)
钴酸锂 Lithium Cobalt Oxide	12190-79-3	37.82
聚偏氟乙烯 Polyvinylidene Fluoride(PVDF)	24937-79-9	1.46
铝 Aluminum(Al)	7429-90-5	9.03
石墨 Graphite	7782-42-5	16.48
丁苯橡胶 Styrene-Butadiene Rubber (SBR)	61789-96-6	0.39
羧甲基纤维素 Carboxymethylcellulose	9000-11-7	0.31
铜 Copper (Cu)	7440-50-8	9.74
镍 Nickel (Ni)	7440-02-0	1.08
六氟磷酸锂 Lithium Hexafluorophosphate	21324-40-3	18.56
聚乙烯 Polyethylene	9002-88-4	3.03
尼龙 Nylon	24937-16-4	0.8
聚丙烯 Polypropylene	9003-07-0	1.3

标签根据EC指令。
Labeling according to EC directives.

不需要象形符号和危险短语。
No symbol and risk phrase are required.

注意: CAS 号是化学文摘服务注册号码。
Note: CAS number is Chemical Abstract Service Registry Number.

N/A =不适用。
N/A=Not apply.

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

眼睛 *Eye*	万一接触，立即用大量的清水冲洗至少15 分钟，翻起上下眼睑，直到化学的残留物消失为止，迅速就医。 Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

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皮肤 *Skin*	万一接触，用大量水冲洗至少15 分钟，同时除去污染的衣物和鞋子，迅速就医。 Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Get medical aid.
吸入 *Inhalation*	立即从暴露处移至空气清新处，如果呼吸困难给予输氧，立即就医。 Remove from exposure and move to fresh air immediately. Use oxygen if available.
食入 *Ingestion*	饮用至少两杯牛奶或水。如果当事人仍然清醒可以采取催吐的方法，并且立即就医。 Give at least 2 glasses of milk or water. Induce vomiting unless patient is unconscious. Call a physician.

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

危险特性 *Characteristics of Hazard*	高密度粉尘遇空气会形成爆炸性混合物。燃烧生成有毒烟雾。 Dusts at sufficient concentrations can form explosive mixtures with air. Combustion generates toxic fumes.
燃烧产生的危险物品 *Hazardous Combustion Products*	二氧化碳。 Carbon dioxide.
灭火方法及灭火剂 *Fire-extinguishing Methods and Extinguishing Media*	对于小型火险，可使用水枪，干冰（也就是液态二氧化碳）或化学泡沫。 For small fires, use water spray, dry chemical, carbon dioxide or chemical foam.
灭火注意事项 *Attention in Fire-extinguishing*	因为压强关系，要穿戴可呼吸式全身防护装备，MSHA/NIOSH（经认证或等效的）， 以及佩戴全套防护装置。 Wear self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

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

个人预防措施、防护装备和应急程序 *Personal Precautions, protective equipment, and emergency procedures*	万一破裂。注意！腐蚀性物质。避免接触皮肤，眼睛或衣服。确保空气流通。根据需要使用个人防护装备。将人员撤离到安全区域。让人们远离溢出/泄漏处和处于逆风。参考第七部分和第八部分中列出的防护措施。 In case of rupture. Attention! Corrosive material. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Refer to protective measures listed in Sections 7 and 8.
环境保护措施 *Environmental Precautions*	防止产品污染土壤和进入下水道或水道。 Prevent product from contaminating soil and from entering sewers or waterways.
方法和材料控制 *Methods and materials for Containment*	出于安全，阻止泄漏，可以用干砂或泥土来遏制液体溢出，立即清理溢出物。 Stop the leak if safe to do so. Contain the spilled liquid with dry sand or earth. Clean up spills immediately.
清理的方法和材料 *Methods and materials for cleaning up*	用惰性吸收剂(干砂或泥土)吸收溢出的材料。污染物转移到可接受的废物容器中。收集所有受污染的吸收剂，按照第十三部分的说明进行处理。用洗涤剂和水清洁污染区域，收集所有受污染的洗涤水，妥善处理。 Absorb spilled material with an inert absorbent (dry sand or earth). Scoop contaminated absorbent into an acceptable waste container. Collect all contaminated absorbent and dispose of according to directions in Section 13. Scrub the area with detergent and water; collect all contaminated wash water for proper disposal.

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

操作 *Handling*	拆解、挤压、直接放入火中或高温条件下，电池可能发生爆炸和燃烧。禁止短路或将电池正负极错误的安装在设备中。 In case of rupture. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Use personal protection equipment.
储存 *Storage*	储藏于阴凉，干燥，通风处，远离接触会发生反应的材料。存储锁定。放在儿童无法接触的地方。 Store in a cool, dry, well-ventilated area away from incompatible substances. Store locked up. Keep out of the reach of children.
其他要注意的防范措施 *Other Precautions*	万一破裂。按照良好的工业卫生和安全规范进行操作。 避免接触皮肤，眼睛或衣服。使用个人防护设备。 The battery may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

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

工程控制 *Engineering Controls*	保证空气流通使空气密度保持在低水平。如果在会生成微粒的情况下使用，应仔细观察 3mg/m^3 ACGIH TLV-TWA 的吸入量（总量为 10mg/m^3）。 Use adequate ventilation to keep airborne concentrations low. If used under conditions that generate particulates, the ACGIH TLV-TWA of 3mg/m^3 respirable fraction (10mg/m^3 total) should be observed.
个人防护设备 *Personal Protective Equipment*	眼睛和脸部保护：消费者无需使用。如果有接触危险： 密封安全护目镜。面部防护罩。 Eye and Face Protection: None required for consumer use. If there is a risk of contact: Tight sealing safety goggles. Face protection shield. 皮肤和身体防护：消费者无需使用。如果有接触危险：穿戴防护手套和防护服。 Skin and Body Protection: None required for consumer use. If there is a risk of contact: Wear protective gloves and protective clothing. 呼吸系统防护：正常使用条件下不需要防护设备。如果超过暴露限值或发生刺激，可能需要通风和疏散。 Respiratory Protection: No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

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

物理状态 *Physical State*	外形：棱柱形 Appearance: Prismatic
	颜色：黑色 Color: Black
	气味：泄漏时，医用乙醚的气味。 Odour: If leaking, smells of medical ether.

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变化的条件: *Change in condition*	
酸碱度 *pH*	不适用。 Not applicable as supplied.
熔点/凝固点 *Melting point/freezing point*	不适用。 Not applicable as supplied.
沸点、初沸点和沸程 *Initial boiling point and boiling range*	不适用。 Not applicable as supplied.
闪点 *Flash Point*	不适用。 Not applicable as supplied.
爆炸极限 *Explosion Limits*	不适用。 Not applicable as supplied.
蒸气压 *Vapour pressure*	不适用。 Not applicable as supplied.
蒸气密度 *Vapor density*	不适用。 Not applicable as supplied.
密度/相对密度 *density/Relative density:*	不适用。 Not applicable as supplied.
溶解性 *Solubility*	不适用。 Not applicable as supplied.
n-辛醇/水分配系数 *Partition coefficient: n-octanol/water*	不适用。 Not applicable as supplied.
自燃温度 *Auto-ignition temperature*	不适用。 Not applicable as supplied.
分解温度 *Decomposition temperature*	不适用。 Not applicable as supplied.
气味阈值 *Odour threshold*	不适用。 Not applicable as supplied.
蒸发速率 *Evaporation rate*	不适用。 Not applicable as supplied.
易燃性(固体、气体) *Flammability (solid, gas)*	不适用。 Not applicable as supplied.

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

化学稳定性 *Chemical Stability*	稳定的。 Stable.
危险反应的可能性 *Possibility of Hazardous Reactions*	不适用。 Not Available.
应避免的条件 *Conditions to Avoid*	火焰、火花和其他火源，不相容的材料。 Flames, sparks, and other sources of ignition, incompatible materials.
不相容材料 *Incompatible materials*	氧化剂、酸、碱。 Oxidizing agents, acid, base.
有危害分解物 *Hazardous Decomposition Products*	一氧化碳、二氧化碳、氧化锂烟雾。 Carbon monoxide, carbon dioxide, lithium oxide fumes.

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第十一部分 毒理学信息
Section 11 - Toxicological Information

刺激 *Irritation*	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.
致敏 *Sensitization*	不适用。 Not Available.
再生毒性 *Reproductive Toxicity*	不适用。 Not Available.
协同材料毒理学 *Toxicologically Synergistic Materials*	不适用。 Not Available.

第十二部分 生态学信息
Section 12 - Ecological Information

通用信息： *General note:*	不允许未稀释或大量的产品接触地下水、水道或污水处理统。 Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
化学产品在环境/可能的环境预期的行为的一种生态毒性 *Anticipated behavior of a chemical product in environment/possible environmental impact/ ecotoxicity*	不适用。 Not Available.

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

废弃处置方法 *Waste Treatment*	建议遵照国家和地方法规处置或再利用。 Recycle or dispose of in accordance with government, state & local regulations.
废弃注意事项 *Attention for Waste Treatment*	废电池不能被当作普通垃圾。不能扔进火中或置于高温下。不能解体，刺穿，破碎或类似的处理。最好的处理办法是回收利用。 Deserted batteries couldn't be treated as ordinary trash. Couldn't be thrown into fire or placed in high temperature. Couldn't be dissected, pierced, crushed or treated similarly. Best way is recycling.

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

UN 编号 *UN number*	UN3480 or UN3481

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运输专用名称 *Proper shipping name*	锂离子电池（包括锂离子聚合物电池）或 Lithium ion batteries (including lithium ion polymer batteries) or 与设备包装在一起的锂离子电池（包括锂离子聚合物电池）或 Lithium ion batteries packed with equipment (including lithium ion polymer batteries) or 内置在设备中的锂离子电池（包括锂离子聚合物电池） Lithium ion batteries contained in equipment (including lithium ion polymer batteries)
危险货物类别 *Class or division*	9
海洋污染物（是/否） *Marine pollutant (Yes/No)*	否 No
包装等级 *Packing group*	/
备注 *Comment*	包装必须达到 II 级包装的性能标准 Packagings must meet packing group II performance standard
无论是对内还是对外的运输或运输方式，用户都需要注意或遵守的特殊预防措施。 *Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises*	
国际民间航空组织/国际航空运输协会： *ICAO / IATA:*	货物可根据民用航空组织(ICAO)，TI或国际航空运输协会(IATA)，DGR 66th (2025版)包装说明(PI)965 Section IA或PI 966 Section I 或PI 967 Section I 相关规定进行空运。 Can be shipped by air in accordance with International Civil Aviation Organization (ICAO), TI or International Air Transport Association (IATA), DGR Packing Instructions (PI) 965 Section IA, or (PI) 966 Section I, or (PI) 967 Section I appropriate of IATA DGR 66th (2025 Edition) for transportation.
国际海运危险货物规则： *IMDG CODE:*	该电池受IMDG Code 2024 版(Amdt 42-24)限制,包装说明P903. Can be shipped by sea in accordance with IMDG Code 2024 Edition (Amdt 42-24) Packing Instructions P903.
此外，每个锂电池和电池组类型都必须通过联合国《关于危险货物运输的建议书 试验和标准手册》第38.3 节规定的适用测试 In addition, to be permitted in transport each lithium cell and battery types must have passed the applicable tests set out in Subsection 38.3 of the UN Manual of Tests and Criteria.	

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

a) 《危险物品规则》
Dangerous Goods Regulations
b) 联合国《关于危险货物运输的建议书 规章范本》
Recommendations on the Transport of Dangerous Goods-Model Regulations
c) 联合国《关于危险货物运输的建议书 试验和标准手册》
Recommendations on the Transport of Dangerous Goods-Manual of Tests and Criteria
d) 《国际航空运输协会》（IATA）
International Air Transport Association (IATA)
e) 《国际海运危险货物规则》（IMDG）

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International Maritime Dangerous Goods (IMDG)

f) 《危险货物安全运输技术指南》
Technical Instructions for the Safe Transport of Dangerous Goods

g) 《危险货物分类和品名编号》- GB 6944-2012
Classification and code of dangerous goods (GB 6944-2012)

h) 2012《职业安全与健康标准》危险通信标准（29 CFR 1910.1200）
2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

i) 《有毒物质控制法》（TSCA）
Toxic Substance Control Act (TSCA)

j) 《联邦条例》
Code of Federal Regulations

k) 符合所有联邦、州和地方法律
In accordance with all Federal, State and local laws

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

本份 MSDS 中的信息只是基于我们当前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。所以本份 MSDS 不能作为使用本品实现任何特定目的的保证。各有关使用者有责任预先完成本品的安全性及其他方面的测试，以评判其是否满足您的使用目的。

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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Sample photo:

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