中国认可
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MATERIAL SAFETY DATA SHEET
材料安全数据表

Product 产品	Lithium Battery 锂/亚硫酰氯柱式电池
Type/Model 型号	See next page 请参见下页
Issue Date 签发日期	2025-12-03
Validity 有效期	2026-01-01～ 2026-12-31
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广州邦禾检测技术有限公司
Guangzhou MCM Certification & Testing Co., Ltd.

Material Safety Data Sheet
材料安全数据表

SECTION 1 - CHEMICAL AND COMPANY IDENTIFICATION
第1节—化学品和公司标识

Product **产品**	Lithium Battery 锂/亚硫酰氯柱式电池
Type/Model: **型号**	The same chemical system and structural design existed in following series of models 以下系列型号具有相同的化学体系与结构设计：
Parameter **参数**	型号Model / 额定电压 Voltage (V) / 容量 Capacity (mAh) / 锂含量 Lithium content (g)
	ER32L100 / 3.6 / 2000 / 0.55
	ER2450 / 3.6 / 500 / 0.15
	ER14250 / 3.6 / 1200 / 0.35
	ER14335 / 3.6 / 1600 / 0.435
	ER14335M / 3.6 / 1300 / 0.42
	ER14505 / 3.6 / 2400 / 0.69
	ER18505 / 3.6 / 3800 / 0.98
	ER14505M / 3.6 / 2100 / 0.70
	ER18505M / 3.6 / 3500 / 0.96
Usage **用途**	(Further) Used in Portable Equipment （后续）用于便携式设备
Company **公司**	Wuhan Lixing (Torch) Power Sources Co., Ltd. 武汉力兴(火炬)电源有限公司
Address **地址**	The Guandong industrialized country of East Lake high and new technology development zone, Wuhan 武汉市东湖高新技术开发区关东工业园
Fax 传真	
Zip code 邮编	
E-mail 电子邮箱	huangqin@lisun.com
Emergency Tel. **紧急联系电话**	027-87531792
Manufacturer **制造单位**	Wuhan Lixing (Torch) Power Sources Co., Ltd. 武汉力兴(火炬)电源有限公司
Address **地址**	The Guandong industrialized country of East Lake high and new technology development zone, Wuhan 武汉市东湖高新技术开发区关东工业园
Factory **生产单位**	Wuhan Lixing (Torch) Power Sources Co., Ltd. 武汉力兴(火炬)电源有限公司
Address **地址**	The Guandong industrialized country of East Lake high and new technology development zone, Wuhan 武汉市东湖高新技术开发区关东工业园

MCM Technology & Service

SECTION 2 - HAZARDS IDENTIFICATION
第2节—危害识别

Classification 分类：

According to Regulation (EC) No 1272/2008 (CLP), the goods are not considered dangerous goods and therefore no SDS is required. **The hazards mentioned in this document are in the case of a ruptured battery (Electrolyte leakage).**

根据法规(EC) No 1272/2008 (CLP)，该货物不被视为危险货物，因此不需要提供SDS。

本文件提到的危险是针对电池破裂（电解液泄漏）的情况。

Acute toxicity, Category 3, oral; H301 急毒性-类别3口服；H301
Skin corrosion, Category 1A; H314 皮肤腐蚀-类别1A；H314
Serious eye damage, Categories I; H318 严重眼损伤-类别1；H318
Specific target organ toxicity following repeated exposure, Categories I; H372 特定目标器官毒性 重复接触-类别1；H372

Label elements 标签要素：	
Hazard pictograms 象形图	
Signal Word 警示词	**Danger** **危险**
Hazard Statements 风险声明	
H301	Toxic if swallowed 吞咽会中毒
H314	Causes severe skin burns and eye damage 造成严重皮肤灼伤和眼损伤
H372	Causes damage to organs through prolonged or repeated exposure 长期或反复接触会对器官造成损害

Precautionary Statements – Prevention **预防说明—预防**	
P270	Do not eat, drink or smoke when using this product 使用本产品时不要进食、饮水或吸烟
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection 戴防护手套/穿防护服/戴防护眼罩/戴防护面具/戴听力保护装置
Precautionary Statements – Response **预防声明—响应**	
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. 如误吞咽：漱口。不要诱导呕吐
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower]. 如皮肤（或头发）沾染：立即脱掉所有沾染的衣服。用水清洗患处[或淋浴]。
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing 如误吸入：将人转移到空气新鲜处，保持呼吸舒适体位
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing 如进入眼睛：用水小心冲洗几分钟。如戴隐形眼镜并可方便地取出，取出隐形眼镜。继续冲洗。
Precautionary Statements – Storage **预防声明—存储**	
P405	Store locked up 存放处须加锁
Precautionary Statements – Disposal **预防声明—处置**	
P501	Dispose of contents/container, in accordance with local/regional/national/international regulations 处置内装物/容器，根据当地/地区/国家/国际要求

Hazards not otherwise classified (HNOC) 未分类的危险

Not applicable 不适用

Other information 其他信息

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
对水生生物有害，可能对水生环境造成长期不利影响。

Interactions with other chemicals与其他化学物质的相互作用

Use of alcoholic beverages may enhance toxic effect.
使用酒精饮料可能会增强毒性作用

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENT
第3节—成分信息

Ingredient **成分**	**Molecular formula** **分子式**	**CAS No.** **CAS 号**	**Weight** **含量**
Lithium /锂	Li	7439-93-2	3.5-3.9%
Thionyl Dichloride /亚硫酰氯	$SOCl_2$	7719-09-7	33-49.8%
Stainless steel /不锈钢	SUS304	7228-33-9	43.4-58.1%
Carbon /碳	C	7440-44-0	3-5%
Polypropylene /聚丙烯	C_3H_6	9003-07-0	0.03-0.05%
Lithium tetrachloroaluminate /四氯铝酸锂	$AlCl_4.Li$	14024-11-4	4-6%

SECTION 4 - FIRST AID MEASURES
第4节—急救措施

Eye Exposure 眼睛接触

In case of contact with eyes, flush with copious of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.
如果与眼睛接触，用大量的水冲洗至少15分钟。用手指分开眼睑，确保充分的冲洗。寻求医生。

Skin Exposure 皮肤接触

If the internal battery materials of an opened battery cell come into contact with skin, immediately flush with plenty of water or soap.
如果打开的电池的内部电池材料接触到皮肤，立即用大量的水或肥皂冲洗。

Inhalation Exposure 吸入

In case of inhaling gas volatilized from inside of the battery, seek immediate medical attention.
如果吸入了电池内部挥发的气体，请立即就医。

Ingestion Exposure 吞咽

If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.
如果吞咽，请就医。除非医务人员指示，否则不要催吐。

SECTION 5 - FIRE FIGHTING MEASURES
第5节—消防措施

Danger characteristic 危险特性

Exposure to excessive heat can cause venting of the liquid electrolyte.
暴露在过热的环境中会导致液体电解质的释放。
Battery may burst and release hazardous decomposition products when exposed to a fire situation.
当暴露在火灾环境中时，电池可能会爆裂并释放出危险的分解产物。

Hazardous combustion products 有害危险产物

Corrosive and toxic gas may be emitted during fire.
着火期间可能会排放腐蚀性和有毒气体。

Fire-Fighting method 灭火措施

The staff must equip with filtermask (full mask) or isolated breathing apparatus.
员工必须配备过滤器面罩或隔离式呼吸器。
The staff must wear the clothes which can defense the fire in the upwind direction.
工作人员必须穿能在逆风方向防火的衣服。
Remove the burning object to the open space as soon as possible.
尽快将着火物体移到空地上。
Spray water on the burning object to keep them cool until finish extinguishment.
把水喷在着火物体上，使其降温，直到熄灭。

Fire-Fighting media 灭火介质

Plenty of water, dry chemical powder or carbon dioxide.
大量的水，干粉或二氧化碳。

SECTION 6 - ACCIDENTAL RELEASE MEASURES
第6节—意外泄漏措施

Emergency treatment 紧急处理

If the battery material is released, remove personnel from area until the batteries cool down and fumes dissipate.
如果电池材料被释放，请将人员从该区域撤离，直到电池冷却和烟雾消散。
Provide maximum ventilation to clear out hazardous gases and avoid skin and eye contact or inhalation of vapors.
提供最大的通风以清除有害气体和避免皮肤和眼睛接触或吸入蒸汽。
Remove spilled liquid with absorbent and incinerate waste.
用吸收剂除去溢出的液体并焚烧废物。

SECTION 7 - HANDLING AND STORAGE
第7节—处理和储存

Handling 处理

1. Do not allow battery terminates to contact each other, or contact with other metals.
   不要让电池端子相互接触或与其他金属接触。
2. Do not put the cell or battery into a fire or heat it. Do not solder the cell directly. Do not use or leave the cell or battery in a place near fire or heaters.
   不要将电芯或电池放入火中或加热。不要直接焊接电池。不要将电芯或电池放在靠近火源或加热器等地方。
3. Do not expose the battery to excessive physical shock or vibration.
   不要让电池受到过度的物理冲击或振动。
4. Do not immerse, throw, and wet a battery in water.
   不要将电池浸入水中、投掷或弄湿。
5. Short-circuiting should be avoided. Short circuit will reduce the life of the battery and can lead to ignition of surrounding materials. Physical contact with to short- circuited battery can cause skin burn.
   应避免短路。短路会降低蓄电池的寿命，并可能导致周围材料着火。与短路电池的物理接触会导致皮肤灼伤。
6. The batteries should not be opened, destroyed or incinerate, since they may leak or rupture and release to the environment the ingredients that they contain in the hermetically sealed container.
   不应打开、销毁或焚烧电池，因为电池可能泄漏或破裂，并将密封容器中的成分释放到环境中。
7. Place the cell beyond the child packing and container.
   将电池放置在儿童触及不到的地方。
8. Do not connect the battery directly to an electric outlet or cigarette socket in a car.
   不要将电池直接连接到汽车的电源插座或香烟插座上。
9. Be sure to use the specified charger for battery, and follow the charging instructions correctly.
   请务必使用指定的蓄电池充电器，并正确遵循充电说明。
10. Do not mix old and new batteries together, neither with Ni-Cd, dry batteries or another manufacturer batteries or product.
    不要将新旧电池混合在一起使用，也不要与镍镉电池、干电池或其他制造商的电池或产品混合使用。

Storage 储存

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.
   电池应与其他材料分开，并存放在不燃、通风良好、有洒水装置保护的结构中，墙壁和电池堆之间应有足够的间隙。
2. Keep the sample in the cool, dry and well-ventilated place (Recommended control temperature: -20~30 ºC, humidity: 45~85%). Do not exposure to direct sunlight for long periods. Keep away from fire and heating sources. Keep away from prohibited compounds and store them in different storage rooms.
   将样品置于阴凉、干燥、通风良好的地方（建议控制温度-20~30℃，湿度：45~85%）。不要长时间暴露在阳光直射下。远离火源和热源。远离禁配物，与禁配物分别存放于不同库室。
3. Equip with relevant types and quantities of the extinguishment instruments. The storage place should be equipped with suitable shelter materials for divulgence handling.
   配备相应种类和数量的灭火器材。储存场所应配备适当的掩蔽材料，以便进行泄漏处理。
4. For rechargeable battery, charge the battery every 6 months to the amount specified by the manufacture, even if the battery is not used.
   对于可充电电池，即使不使用电池，也应每6个月将电池充电至制造商规定的电量。

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION
第8节—暴露控制与个人防护措施

Engineering Control 工程控制

Keep away from heat and open flame. Supply with sufficient partial air exhaust. Store in a cool, dry place.
远离热源和明火。提供足够的局部排气。存放在阴凉干燥的地方。

Respiratory Protection 呼吸保护

Not necessary under conditions of normal use. Wear self-contained breathing filtermask if the density exceed in the air. Wear breathing apparatus under the condition of emergency rescue or evacuation.
在正常使用条件下不需要。如果环境内气体密度超过空气中的密度，请佩戴自给式呼吸过滤器。在紧急救援或疏散的情况下，佩戴呼吸器。

Eyes Protection 眼睛保护

Not necessary under conditions of normal use. Wear protective glasses if handling a leaking or ruptured battery.
在正常使用条件下不需要。如果处理泄漏或破裂的电池，请戴上防护眼镜。

Skin and Body Protection 皮肤和身体保护

Not necessary under conditions of normal use. Wear fireproofing, gas defense clothes in case of handling a leaking or ruptured battery.
在正常使用条件下不需要。在处理泄漏或破裂的电池时，穿上防火防毒服。

Hands Protection 手部保护

Not necessary under conditions of normal use. Wear chemical resistant rubber glove in case of handling a leaking or ruptured battery.
在正常使用条件下不需要。在处理泄漏或破裂的电池时，需佩戴耐磨耐化学腐蚀的橡胶手套。

Other Protections 其他保护

No smoking, dining and drinking water in the workplace. Keep good habit of hygiene.
工作场所禁止吸烟、就餐和饮水。保持良好的卫生习惯。

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES
第9节—理化性质

Appearance and properties 外观与性状	Solid 固体		
Smell 气味	Odorless 无特殊气味	pH value (indicate concentration) pH值（指明浓度）	NA
Melting/freezing point 熔点/凝固点	NA	(initial)boiling point & boiling range （初）沸点和沸程	NA
Relative vapor density (air =1) 相对蒸气密度(空气=1)	ND	Saturated vapor pressure 饱和蒸气压	NA
Odor threshold 气味临界值	ND	Evaporation rate 蒸发速率	NA
Relative density (water =1) 相对密度(水=1)	ND	Flash point 闪点	NA
Viscosity 黏度	NA	Decomposition temperature 分解温度	ND
Partition coefficient: n-octanol/water n-辛醇/水分配系数	NA	Upper explosion limit 爆炸上限	NA
Ignition temperature 引燃温度	ND	Lower explosion limit 爆炸下限	NA
Solubility 溶解性	Insoluble in water 不溶于水	Flammability 易燃性	ND
Remark NA= Not applicable；ND= No Data 备注 NA=不适用；ND=无信息			

SECTION 10 - STABILITY AND REACTIVITY
第10节—稳定性与反应性

Stability 稳定性

Stable under normal temperature and pressure.
常温常压下稳定。

Distribution of Ban 禁配物
Explosives, inflammables, strong oxidants and corrosives. 爆炸品、易燃物、强氧化剂和腐蚀剂。
Conditions to Avoid 应避免的条件
Fire source, heating source, disassemble, external short circuit, crushes, deformation, high temperature above 100°C, direct sunlight and high humidity, immerse in water or overcharge. 火源、热源、拆卸、外部短路、压碎、变形、100°C 以上高温、阳光直射、高湿度、浸水或过充。
Hazardous Polymerization 危险聚合
Will not occur. 不会发生。
Hazardous Decomposition Products 有害分解产物
Metal oxides, carboxyl compound such as CO, CO_2, etc. 金属氧化物，碳化合物例如一氧化碳、二氧化碳，等等。

SECTION 11 - TOXICOLOGICAL INFORMATION 第11节—毒理学信息	
Acute Toxicity 急性毒性	No Data 无信息
Sub-acute and Chronic Toxicity 亚急性和慢性毒性	No Data 无信息
Skin irritation or corrosion 皮肤刺激性或腐蚀性	No Data 无信息
Eye irritation or corrosion 眼睛刺激或腐蚀	No Data 无信息
Skin sensitization 皮肤致敏	No Data 无信息
Respiratory sensitization 呼吸致敏	No Data 无信息
Germ cell mutation 生殖细胞突变性	No Data 无信息
Reproductive toxicity 生殖毒性	No Data 无信息
Specific target organ system toxicity - one exposure 特异性靶器官系统毒性--一次接触	No Data 无信息
Specific target organ system toxicity - repeated exposure 特异性靶器官系统毒性--反复接触	No Data 无信息
Inhalation hazard 吸入危害	No Data 无信息
Other effects on the organism 其他对生物体的影响	No Data 无信息

SECTION 12 - ECOLOGICAL INFORMATION 第12节—生态信息	
Acute aquatic toxicity 急性水生毒性	No Data 无信息
Chronic aquatic toxicity 慢性水生毒性	No Data 无信息
Durability and degradability 持久性和降解性	No Data 无信息
Potential bioaccumulation 潜在的生物累积性	No Data 无信息
Migration in soils 土壤中的迁移性	No Data 无信息
Other effects on the ecosphere 其他对生态的影响	No Data 无信息

SECTION 13 - DISPOSAL CONSIDERATIONS
第13节—处置注意事项

Appropriate Method of Substance 物质处理方法

The battery should be completely discharged prior to disposal in order to prevent short circuit.
为了防止短路，在处理前应将蓄电池完全放电。
The battery contains recyclable materials, and it is suggested recycle.
电池含有可回收材料，建议回收利用。
Refer to National or Local regulations before handling.
操作前请参阅国家或地方法规。
Disposal of the battery should be performed by permitted, professional disposal firms knowledgeable in National or Local regulations of hazardous waste treatment and hazardous waste transportation.
电池的处理应由获得国家或地方法规的许可的具有危险废物处理和危险废物运输的专业处理公司进行。

SECTION 14 - TRANSPORT INFORMATION
第14节—运输信息

General packaging requirement 一般包装要求:

1. The cells or batteries must be protected so as to prevent short circuits.
电芯或电池必须加以保护，以防止短路。
2. The cells or batteries or equipment must be packed in suitable strong outer packaging.
电芯或电池或设备必须包装在合适的坚固的外包装中。
3. If batteries contained in equipment, equipment must be secured against movement within the outer packaging and be packed so as to prevent accidental activation.
如果电池包含在设备中，设备必须在外包装内固定，防止移动，并进行包装，以防止意外激活。

No. 序号	**UN numbers & Proper Shipping Name**, if applicable **联合国编号及运输专用名**，如适用		
(1)	UN 3090_LITHIUM METAL BATTERIES UN 3090_锂金属电池		
(2)	UN 3091_LITHIUM METAL BATTERIES PACKED WITH EQUIPMENT UN 3091_锂金属电池与设备一同打包		
(3)	UN 3091_LITHIUM METAL BATTERIES CONTAINED IN EQUIPMENT UN 3091_锂金属电池安装在设备中		
(4)	/		
No. 序号	**Hazard Class** **危险等级**	**Packing Group** **包装类别**	**Packaging requirement** **包装要求**
☒	**Air transportation, according to IATA-DGR 67th Edition (Effective 1 January-31 December 2026)** **空运，依据IATA-DGR第67版（2026年1月1日至12月31日生效）**		
(1)	Class 9 第九类危险货物	Strong package 坚固包装	Packing Instruction 968, section IB 包装说明968-IB
(2)	Not restricted 不受限制	Strong package 坚固包装	Packing Instruction 969, section II 包装说明969-II
(3)	Not restricted 不受限制	Strong package 坚固包装	Packing Instruction 970, section II 包装说明970-II
☒	**Maritime transportation, according to IMO IMDG Code (Edition 42-24)** **海运，依据IMO IMDG Code (42-24版)**		
(1)	Not restricted 不受限制	Strong package 坚固包装	Packing as per sp188; EmS No.: F-A,S-I; Not Marine pollutant 按照sp188包装；应急处理代码：F-A,S-I；非海洋污染物
(2)	Not restricted 不受限制	Strong package 坚固包装	Packing as per sp188; EmS No.: F-A,S-I; Not Marine pollutant 按照sp188包装；应急处理代码：F-A,S-I；非海洋污染物
(3)	Not restricted 不受限制	Strong package 坚固包装	Packing as per sp188; EmS No.: F-A,S-I; Not Marine pollutant 按照sp188包装；应急处理代码：F-A,S-I；非海洋污染物
☒	**Road transportation, according to ADR-2025** **公路运输，依据ADR-2025**		
(1)	Not restricted 不受限制	Strong package 坚固包装	Packing as per sp188 按照sp188包装
(2)	Not restricted 不受限制	Strong package 坚固包装	Packing as per sp188 按照sp188包装
(3)	Not restricted 不受限制	Strong package 坚固包装	Packing as per sp188 按照sp188包装
☐	**Railway transportation, according to RID-2025** **铁路运输，依据RID-2025**		
Remark 备注	//		

SECTION 15 - REGULATORY INFORMATION
第15节—监管信息

Dangerous Goods Regulation (DGR)
Recommendations on the Transport of Dangerous Goods Model Regulations
International Maritime Dangerous Goods (IMDG)
Occupational Safety and Health Act (OSHA)
Toxic Substances Control Act (TSCA)
Code of Federal Regulations (CFR)
Technical Instructions for the Safe Transport of Dangerous Goods
California Proposition 65
Superfund Amendments and Reauthorization Act Title III (302/311/312/313) (SARA)
Globally Harmonized System of Classification and Labeling of Chemicals(GHS)
In accordance with all Federal, State and local laws. 符合所有联邦、州和地方法律。

SECTION 16 - ADDITIONAL INFORMATION
第16节—附加信息

According standard 标准依据:

GB/T 16483-2008 Safety data sheet for chemical products Content and order of sections
ISO 11014:2009(E) Safety data sheet for chemical products – Content and order of sections

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Other Information 其他信息

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--End of the report--