

Material Safety Data Sheet

材料安全数据表

Inspection according to 鉴定依据
: EEC Directive 93/112/EC

UN "Recommendations on the TRANSPORT OF DANGEROUS GOODS"

联合国《关于危险品货物运输的建议书》

Section 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION 产品名称及企业标识

1.1 Product identifier 产品标识:

Name of Sample 样品名称: Li-Ion Battery pack (51NR19/66)
锂离子电池

Model 型号: ZR009719/SS-2230004077

Rating Parameter 额定参数: 18.5V, 3000mAh, 55.5Wh

1.2 Details of the supplier of the safety data sheet 安全数据供应商详细信息:

Manufacturer 生产单位: Suzhou EUP Electric Co., Ltd.
苏州爱普电器有限公司

Manufacturer address 生产单位地址: 90 JINSHAN RD NEW DISTRICT, SUZHOU, JIANGSU, 215011
江苏省苏州市高新区金山路90号

Emergency telephone call 应急电话: 0512-68081222

Contact person (E-mail) 邮箱: xushuo@eup.cn

宁波众联检测技术有限公司
Ningbo Zhonglian Testing Technology Co., Ltd

Issuing date 签发日期: 2025-10-12

Section 2. COMPOSITION INFORMATION成分/组成信息			
Chemical Composition 化学成分	Chemical Formula 化学式	CAS No. CAS 号	Weight (%) (About) 重量百分比 (约)
Lithium Nickel Oxide 锂镍氧化物	LiNiO ₂	12325-84-7	35-40%
Graphite石墨	C	7782-42-5	20~24%
Iron 铁	Fe	7439-89-6	10-15%
Copper Foil铜箔	Cu	7440-50-8	8-12 %
Cobalt lithium Dioxide 钴酸锂	LiCoO ₂	12190-79-3	1-5%
Methyl Propanoate 丙酸甲酯	C ₄ H ₈ O ₂	554-13-2	5-10%
Aluminium铝	Al	7429-90-5	2-5%
Lithium hexafluorophosphate 六氟磷酸锂	LiPF ₆	21324-40-3	10-15%

Section 3. Hazards Identification危险性概述	
Explosive risk 爆炸危险性	This article does not belong to the explosion dangerous goods 该物品不属于爆炸危险品
Flammable risk 易燃危险性	This article does not belong to the flammable material 该物品不属于易燃危险品
Oxidation risk 氧化危险性	This article does not belong to the oxidation of dangerous goods 该物品不属于氧化危险品
Toxic risk毒害危险性	This article does not belong to the toxic dangerous goods 该物品不属于毒害危险品
Radioactive risk放射危险性	This article does not belong to the radiation of dangerous goods 该物品不属于放射危险品
Mordant risk腐蚀危险性	This article does not belong to the corrosion of dangerous goods 该物品不属于腐蚀危险品
other risk其他危险性	This article is Li-ion battery, Watt hour rate55.5Wh, which belong to the miscellaneous dangerous goods, as is described in IMDG CODE and IATA DGR.该物品为锂离子电池,瓦时55.5Wh, 属于 IMDG CODE和IATA DGR 中的第九类危险品

Section 4. First aid measures急救措施

Ingestion: Give at least 2 glasses of milk or water. Induce vomiting unless patient is unconscious. Call a physician. 摄入：引用两杯牛奶或水。如果当事人仍然清晰可以采取催吐的方法，并且立即就医。

Inhalation: Remove from exposure and move to fresh air immediately. Use oxygen if available. 吸入：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。

Eye: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid. 眼睛：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。

contaminated clothes and rinse skin with plenty of water or shower for 15 minutes, Get medical aid. 皮肤：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

Section 5. Fire-fighting measures消防措施

Flash Point: N/A. 燃点：不适用

Auto-Ignition Temperature: N/A. 自燃温度：不适用

Extinguishing Media: Water, CO2 灭火介质：大量水（降温），二氧化碳

Special Fire-Fighting Procedures: Self-contained breathing apparatus. 特殊灭火程序：自给式呼吸器

Unusual Fire and Explosion Hazards: Cell may vent when subjected to excessive heat-exposing battery contents. 异常火灾或爆炸：当电芯暴露于过热的环境中时，安全阀可能会打开。

Hazardous Combustion Products: Carbon monoxide, carbon dioxide, lithium oxide fumes. 燃烧产生的危险物品：一氧化碳，二氧化碳，锂氧化物烟气

Section 6. Accidental release measures泄露应急处理

Steps to be taken in case Material is Released or Spilled 为防止电池材料泄露或释放采取的措施

If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. Wipe it up with a cloth, and dispose of it in a plastic bag and put into a steel can. The preferred response is to leave the area and allow the battery to cool and vapors to dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors. Remove spilled liquid with absorbent and contain for disposal. 如果电池内部材料泄露，试验人员应立刻撤离试验区直到烟气消散。将通风设备打开吹散危险性气体。用抹布擦净试验区，清除溢出的液体，将泄露电池放进塑料袋中，然后放进钢制容器。避免皮肤和眼睛接触或吸入有害气体。

Waste Disposal Method废弃物处置方法

Despite being rechargeable, the battery has a limited life span, Replace when usage time between charges becomes short. 电池的循环寿命是有限的，充满电后的电池使用时间比较短时，需要更换新的电池。

Please offer all used batteries for recycling according with local guidelines and regulation. Do not throw in the trash. 请提供所有电池用于回收符合当地的指导和监管。禁止扔入垃圾箱。

Section 7. Handling and storage操作处置和储存

The battery 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. Do not short circuit terminals, or over charge the battery, forced over-discharge, throw to fire. Do not crush or puncture the battery, or immerse in any liquids. 禁止打开、毁坏或焚烧电池，因为电池有可能在这些处理过程中发生爆炸、破裂或泄露等事故。禁止将电池短路、过充、强制放电或扔入火中。禁止挤压刺穿电池或将电池浸入溶液中。

Precautions to be taken during handling and storage操作处置和储存中的防范措施

Avoid mechanical or electrical abuse. Preferably storage in cool, dry and ventilated area, which is subject to little temperature change. Storage at high temperatures should be avoided. Do not place the battery near heating equipment, nor expose to direct sunlight for long periods. 禁止物理或电滥用，禁止高温储存，最好将电池储存在阴凉、干燥、通风等温度变化较小的环境中。禁止将电池接触加热设备或将电池直接暴露与阳光中。

Other Precautions其他防范措施

The battery may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short circuit or install with incorrect polarity. 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。禁止短接或将电池正负极错误的安装在设备中。

Section 8. Exposure controls/personal protection接触控制/个人防护

Respiratory Protection: In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting cell cores. Respiratory Protection is not necessary under conditions of normal use. 呼吸防护：当电池排气阀打开时，应尽量使通风设备开至最大，避免将打开排气阀的电芯局限在某一狭窄空间内。正常操作条件下，呼吸保护是不必要的。

Ventilation: Not necessary under conditions of normal use. 通风条件：正常使用条件下不需要。

Protective Gloves: Not necessary under conditions of normal use. 防护手套：正常使用条件下不需要。

Other Protective Clothing or Equipment: Not necessary under conditions of normal use. 其他防护服装或设备：正常使用条件下不需要。

Personal Protection is recommended for venting battery: Respiratory Protection, Protective Gloves, Protective Clothing and safety glass with side shields. 电池开阀试验时应做好个人防护：呼吸防护，防护手套，防护服装和有护边的安全玻璃罩都要准备的。

Section 9. Physical and chemical properties

Appearance: Prismatic外形：棱柱形

Odour: If leaking, smells of medical ether. 气味：泄漏时，有醚的气味

pH: Not applicable as supplied. 酸碱度：不适用

Flash Point: Not applicable unless individual components exposed.

燃点：除单个电芯暴露试验外其他不适用。

Flammability: Not applicable unless individual components exposed.

可燃性：除单个电芯暴露试验外其他不适用。

Relative density: Not applicable unless individual components exposed

相对密度：除单个电芯暴露试验外其他不适用。

Solubility (water): Not applicable unless individual components exposed

溶解性（水溶性）：除单个电芯暴露试验外其他不适用

Solubility (other): Not applicable unless individual components exposed

溶解性（其他）：除单个电芯暴露试验外其他不适用。

Section 10. Stability and reactivity稳定性和反应活性

Stability: Product is stable under conditions described in Section 7.

稳定性：产品在第 7 节所述的条件下稳定。

Conditions to Avoid: Heat above 70°C or incinerate、deform、mutilate、crush、disassemble、overcharge、short circuit or expose over a long period to humid conditions. 应避免的条件：加热 70° C 以上或焚烧、变形、毁坏、粉碎、拆卸、过充电、短路或长时间暴露 在潮湿的条件下。

Materials to avoid: Oxidizing agents, alkalis, water. 应避免的材料：氧化剂，碱，水。

Hazardous Decomposition Products: Toxic Fumes, and may form peroxides. 危险分解物：有毒烟雾，并可能形成过氧化物。

Hazardous Polymerization: N/A. 聚合危害：不适用

If leaked, forbidden to contact with strong oxidizers、mineral acids、strong alkalies or halogenated hydrocarbons. 如果发生泄露，避免与强氧化剂、无机酸、强碱或卤代烃接触。

Section 11. Toxicological information毒理学资料

Signs & symptoms: None, unless battery ruptures. 标志及症状：无，除非电池破裂。

In the event of exposure to internal contents, vapour fumes may be very irritating to the eyes and skin. 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。

Inhalation: Lung irritant. 吸入：对肺有刺激性。

Skin contact: Skin irritant. 皮肤接触：对皮肤刺激性。

Eye contact: Eye irritant眼睛接触：对眼睛有刺激性。

Ingestion: Poisoning if swallowed.. 食入：吞下中毒。

Medical conditions generally aggravated by exposure: In the event of exposure to internal contents, moderate to severe irritation, burning and dryness of the skin may occur, Target organs nerves, liver and kidneys. 下列情况下健康状况会恶化：万一发生与电池内部材料接触的事故，轻微或严重的刺激，都可能使皮肤出现干燥和灼烧的感觉，并且损坏靶器官（肝脏，肾脏）的神经。

Section 12. Ecological information生态学资料

There is no influence to ecology and environment when used properly.

正常使用时，电芯/电池不会有生态和环境方面的影响。

Section 13. Disposal consideration废弃处置

Depleted batteries shouldn't be treated as ordinary trash. Worn out batteries must be discharged, placed in plastic bags and then put into recycle bin. Shouldn't be thrown into fire or placed in high temperature. Shouldn't be dissected, pierced, crushed or treated similarly. The package and plastic box which contain batteries could be treated as ordinary trash. Best way is recycling. 废弃电芯不能直接当作普通垃圾处理，用塑料袋装好密封放入回收电池的垃圾桶或当作 特殊垃圾处理。废弃电芯不能丢进火中和置于高温环境，不要拆卸，同时不能刺穿和挤压等 等。电芯的包装纸盒和塑料盒可作为普通垃圾处理。

Section 14. Transport information 运输信息	
Label for conveyance 运输标签	Label for conveyance: Lithium Battery Mark. 锂电池操作标签
UN Number UN 编号	UN3480 or UN3481
UN Proper shipping name正确运输名称	1) Lithium ion batteries 锂离子电池 2) Lithium ion batteries packed with equipment 锂离子电池伴随设备包装在一起 3) Lithium ion batteries contained in equipment 锂离子电池安装在设备中
Packing group包装类别	N/A
Marine pollutant海洋污染物	NO
EmS No EmS 编号:	F-A , S-I

The article is not subject to other provisions of IMO IMDG Code according to special provision 188 (2022 Edition). 根据特殊规定188(2022)版,该物品不受IMO IMDG Code其他条款限制。

Lithium cells and batteries are subject to the requirements of UN38.3 (UN Manual of Tests and Criteria, Part III, subsection 38.3), PI965 to PI967 of IATA DGR 66rd Edition 2025Regular Bound Manual, and transported in accordance with applicable regulations and not restricted. 电芯/电池符合UN38.3 (《联合国建议书》第三部分第38.3条)、第66版IATA-DGR包装规范 中PI965或者PI966或PI967(2025年)的要求, 并且确定在运输时符合相关的规定而不受限制。

Batteries must be packaged and offered for transportation in a manner that prevents the dangerous evolution of heat (for example, by the effective insulation of exposed terminals) and protects against short circuits. 运输电池时, 电池必须经过打包, 且有措施 (例如将裸露的极耳绝缘) 防止由于产热而演变 的危险并短路防护。

Section 15. Regulation information 法规信息

Law information 《危险物品规则》

《Dangerous Goods Regulations》

《对危险货物运输的有关规定的建议》

《Recommendations on the Transport of Dangerous Goods Model Regulations》

《国际海运危险货物规则》

《International Maritime Dangerous Goods》

《危险货物分类和品名编号》

《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》

《Occupational Safety and Health Act》 (OSHA)

《职业安全卫生法》

《Toxic Substance Control Act》 (TSCA)

《有毒物质控制法》

《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》

《The Oil Pollution Act》(OPA)

《石油污染法案》

《Superfund Amendments and Reauthorization Act TitleIII (302/311/312/313)》(SARA)

《超级基金修正案和再授权法案III(302/311/312/313)》

《Resource Conservation and Recovery Act》(RCRA)

《资源保护及恢复法案》

《Safety Drinking Water Act》(CWA)

《安全饮用水法》

《California Proposition 65》

《加州65提案》

《Code of Federal Regulations》(CFR)

《美国联邦法规》

In accordance with all Federal,State and local laws.

根据所有联邦、州和地方法律。

Section 16. Other information 其他信息

本 MSDS 中的信息不对苏州爱普电器有限公司生产的所有电池有效。本文信息来源可靠,但我们不保证来源描述的完整性、精确性等。使用者须掌握正确使用电池的方法并对电池的使用负责,宁波众联检测技术有限公司对由于电池的滥用而造成的伤害和损失不承担责任。

This information is not effective to all the batteries manufactured by Suzhou EUP Electric Co., Ltd.This information comes from reliable sources, but no warranty is made to the completeness and accuracy of information contained. Ningbo Zhonglian Testing Technology Co., Ltd doesn't assume responsibility for any damage or loss because of misuse of batteries. Users should grasp the correct use method and be responsible for the use of batteries.