此 报 告 本 年 度 有 效
有效期至 2026 年 12 月 31 日

MSDS Report

Applicant Name: **申请商:**	Shenzhen Mitacbattery Technology Co., LTD. 深圳市神通天下科技有限公司 4 Floor, 3 Floor, 1 Floor, 5 Floor 1 Building, No. 47, Kengwei Avenue, Shangwu Community, Shiyan 深圳市宝安区石岩街道上屋社区坑尾大道 47 号厂房 1 栋五层，一层、 三层、 四层
Product Name: **产品名称:**	Li-ion Polymer Battery 锂离子聚合物电池
Model 型号:	482428
Nominal Voltage: **标称电压:**	3.87V
Typical Capacity: **典型容量:**	450mAh 1.74Wh
Weight 重量:	6.688g
Dimension 尺寸:	(28.0×23.5×4.7)mm (L×W×T)
Prepared By **编制单位**	Guangdong NTT Testing Technology Co., Ltd. 广东诺检标准技术有限公司 Room 201, Building 1, No. 11, Shimenqian Street, Wentang, Dongcheng, Dongguan City, Guangdong Province, China 广东省东莞市东城街道温塘石门前街 11 号 1 栋 201 室
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Material Safety Data Sheet
化学品安全技术说明书

Section 1- Chemical Product & Company Identification

第一部分 化学品及企业标识

Product Name: Li-ion Polymer Battery

产品名称: 锂离子聚合物电池

Manufacture: Shenzhen Hui Li Neng Electronic Technology Co., Ltd

制造商: 深圳市神通天下科技有限公司

Address: 4 Floor, 3 Floor, 1 Floor, 5 Floor 1 Building, No. 47, Kengwei Avenue, Shangwu Community, Shiyan

地址: 深圳市宝安区石岩街道上屋社区坑尾大道 47 号厂房 1 栋五层，一层、 三层、 四层

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Section 2- Hazards Identification

第二部分 危险性概述

Classification according to GHS **GHS 分类**	Not a dangerous substance according to GHS 不属于GHS危险物品
Hazard Description **危险性描述**	Not dangerous with normal use. Do not dismantle, open or shred the battery ingredients contained within or their ingredients products could be harmful. 正常使用没有危险，不能拆解、打开或分解电池，里面的材料或成分是有害的。
Primary Route(s) of Exposure	Inhalation, Ingestion, Skin contact and Eye contact. 吸入、食入、皮肤接触、眼睛接触。

接触途径	
Health Hazard **健康危害**	In case of abuse, there's Hazard of rupture, fire, heat, leakage of internal components 使用不当的情况下,有破裂、起火、发烫、内部成分泄漏的危险。 Contact with the electrolyte of battery may be irritating to skin, eyes and mucous tissue. Combustion may produce irritating, corrosive and/or toxic gases. Fumes may cause dizziness or suffocation. 电池的电解质会刺激皮肤、眼睛和黏膜组织。燃烧可能产生刺激性、腐蚀性和/或毒性气体。烟雾可能导致头晕或窒息。

Section 3- Composition/Information on Ingredients

第三部分 成分/组成信息

Chemical Name 化学名称	**Concentration or concentration ranges (%)** 浓度或浓度范围(%)	**CAS Number** **CAS 号(化学文摘索引登记号)**
Lithium Cobalt Oxide 钴酸锂	35	12190-79-3
Graphite 石墨	22	7782-42-5
Copper 铜	10	7440-50-8
Aluminum 铝	5	7429-90-5
Ethylene carbonate 碳酸乙烯酯	14	96-49-1
Polypropylene 聚丙烯	5	9003-07-0
Carbonate, methyl ethyl 碳酸甲乙酯	4	623-53-0
Phosphate(1-), hexafluoro-, lithium 六氟磷酸锂	5	21324-40-3

Note: CAS number is Chemical Abstract Service Registry Number.
注意：CAS 号是化学文摘服务注册号。
N/A=Not apply.
N/A =不适用。

Section 4- First Aid Measures

第四部分 急救措施

Inhalation **吸入**	If the internal materials of battery are inhaled, remove from scene immediately to fresh air. If breathing is difficult, give oxygen and seek medical attention immediately. 若吸入电池内的物质，立即脱离现场至空气新鲜处，如果呼吸困难给予输氧，立即就医。

Ingestion 食入	Do not induce vomiting if the internal materials of battery are swallowed and seek medical attention immediately. 若食入电池内的物质，禁止催吐，立即就医。
Skin contact 皮肤接触	If in contact with the internal materials of battery, remove the contaminated clothing, shoes and socks, immediately flush with plenty of water for more than 20 minutes, seek medical attention immediately. 若接触到电池内的物质，脱下已污染衣服和鞋袜，用流动的水冲洗 20 分钟以上，立即就医。
Eye contact 眼睛接触	If in contact with the internal materials of battery, turn up the upper and lower eyelids, rinse with running water for more than 20 minutes, seek medical attention immediately 若接触到电池内的物质，翻起上下眼睑, 用流动水冲洗 20 分钟以上，立即就医

Section 5- Fire Fighting Measures

第五部分 消防措施

Characteristics of Hazard 危险特性	Fumes may cause dizziness or suffocation. 燃烧可能产生刺激性、腐蚀性和/或毒性气体。烟雾可能导致头晕或窒息。
Hazardous Combustion Products 燃烧产生的危险物品	Carbon monoxide, carbon dioxide, lithium oxide fumes and so on. 一氧化碳，二氧化碳，锂氧化物烟气等。
Fire-extinguishing Methods and Extinguishing Media 灭火方法及灭火剂	Please use water, dry sand and other proper fire extinguishing media. 请使用水，干燥沙等合适的灭火介质。
Attention in Fire-extinguishing 灭火注意事项	The firemen should put on antigas masks and full fire-fighting suits. 消防人员须佩戴防毒面具、穿全身消防服。

Section 6- Accidental Release Measures

第六部分 泄露应急处理

Personal Precautions, protective equipment, and emergency procedures 个人预防措施、防护装备和应急程序	Restrict access to area until completion of clean-up. Do not touch the spilled material. Wear adequate personal protective equipment as indicated in Section 8. 限制区域，直到完成清理工作。请勿触摸泄漏的材料。穿戴适当的个人防护设备，如第 8 部分所示。
Environmental Precautions 环境保护措施	Prevent material from contaminating soil and from entering sewers or waterways. 防止物质污染土壤和进入下水道或水道。
Methods and materials for Containment	Stop the leak if safe to do so. Contain the spilled liquid with dry sand or earth. Clean up spills immediately.

方法和材料控制	出于安全，阻止泄漏，可以用干砂或沙土来遏制液体泄露，立即清理泄漏。
Methods and materials for cleaning up 清理的方法和材料	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. 用惰性吸收剂(干砂或沙土)吸收溢出的材料。污染物转移到可吸收废物的容器。收集所有受污染的吸收剂和根据第 13 部分的指令处置。用洗涤剂和水清洁污染区域,收集所有受污染的洗涤水进行适当处置。

Section 7- Handling and Storage

第七部分 操作处置与储存

Handling 操作	Don't handing the batteries in manner that allows terminals to short circuit. Do not open, disassemble, crush or burn battery. 不要以让接头短路的方式对电池进行操作。不要打开，分解，挤压或燃烧电池。 Operators should be trained and strictly follow the operating procedures. 操作人员应经过培训，严格遵守操作规程。
Storage 储存	Store in a cool, ventilated, dry warehouse. Keep away from fire, heat and heat. Keep strong oxidants, inflammables and corrosive products separately. Must be firmly in the inner packaging to effectively prevent short circuits and prevent movement that can cause short circuits. The storage area is equipped with the corresponding varieties and quantities of fire equipment, leakage emergency treatment equipment and appropriate containment materials. 储存于阴凉，通风，干燥的库房内。远离火种，热源，避免高温。应于强氧化剂，易燃物和腐蚀品分开存放。必须牢固在内包装中，以有效防止短路和防止可导致短路的移动。存储区配备相应品种和数量的消防器材，泄露应急处理设备和合适的收容材料。 Keep out of reach of children. 储存在小孩接触不到的地方。
Other Precautions 其他要注意的防范措施	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. 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

第八部分 接触控制和个体防护

Engineering Controls 工程控制	Use local exhaust ventilation or other engineering controls to control sources of dust, mist, fumes and vapor.

	Keep away from heat and open flame. Store in a cool, dry place. 设计局部排气通风或其它设计来控制粉尘、雾、烟雾和气体。
Personal Protective Equipment 个人防护设备	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. Not necessary under conditions of normal use. 呼吸保护：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。正常使用条件下不必考虑。 Protective Gloves: Not necessary under conditions of normal use. 防护手套：正常使用条件下不必考虑。 Other Protective Clothing or Equipment: Not necessary under conditions of normal use. 其他防护服装或设备：正常使用条件下不必考虑。 Personal Protection is recommended for venting battery: Respiratory Protection, Protective Gloves, Protective Clothing and safety glass with side shields. 当电池排气阀打开时，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是要准备的。

Section 9- Physical and Chemical Properties

第九部分 理化特性

Physical State 物理状态	Form: Solid 形态：固体
	Color: Silver 颜色：银色
	Odour: Odorless 气味：无气味
Change in condition 变化条件:	
pH, with indication of the concentration pH，有浓度指示	No data is available 无数据可提供
Melting point/freezing point 熔点/凝固点	No data is available 无数据可提供
Boiling Point, initial boiling point 沸点，初沸点	No data is available 无数据可提供
Flash Point 闪点	No data is available 无数据可提供
Upper/lower flammability or explosive limits 上/下燃烧或爆炸限值	No data is available 无数据可提供

Vapor Pressure 蒸汽压	No data is available 无数据可提供
Vapor Density: (Air = 1) 蒸汽密度: (空气= 1)	No data is available 无数据可提供
Density/relative density 密度/相对密度	No data is available 无数据可提供
Solubility in Water 水溶性	No data is available 无数据可提供
n-octanol/water partition coefficient 正辛醇/水分配系数	No data is available 无数据可提供
Auto-ignition temperature 自燃温度	No data is available 无数据可提供
Decomposition temperature 分解温度	No data is available 无数据可提供
Odout threshold 溴阈	No data is available 无数据可提供
Evaporation rate 蒸发速率	No data is available 无数据可提供
Flammability (soil, gas) 易燃性（土壤，气体）	No data is available 无数据可提供
Viscosity 粘度	No data is available 无数据可提供

Section 10 – Stability and Reactivity

第十部分 稳定性和反应性

Stability 稳定性	Stable under normal temperatures and pressures. 常温常压下稳定。
Conditions to Avoid 应避免的条件	Avoid misoperation, open flame, high temperature, mechanical abuse, overcharge, prevent short circuit and prevent movement that can cause short circuit. 避免误操作，明火，高温，机械滥用，过充电，防止短路和防止可导致短路的移动。
Hazardous Decomposition Products 危害分解物	Carbon monoxide, carbon dioxide, lithium oxide fumes. 一氧化碳、二氧化碳、氧化锂烟雾。
Incompatible material 不相容材料	Strong oxidizing agent, flammable and corrosive. 强氧化剂，易燃性和腐蚀性。
Possibility of Hazardous Reaction 危险反应的可能性	No data is available 无数据可提供

Section 11 – Toxicological Information

第十一部分 毒理学信息

Acute toxicity **急性毒性**	No data is available 无数据可提供
Irritation **刺激**	In the event of exposure to internal contents, vapor 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产生刺激性。
Sensitization **致敏**	No data is available 无数据可提供
Reproductive Toxicity **再生毒性**	No data is available 无数据可提供
Toxicologically Synergistic Materials **协同材料毒理学**	No data is available 无数据可提供

Section 12-Ecological Information

第十二部分 生态学信息

General note **通用信息**	Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system. 不允许未稀释或大量的产品到达地下水、水道或污水系统。
Anticipated behavior of a chemical product in environment/possible environmental impact/ ecotoxicity **化学产品在环境/可能的环境预期的行为的一种生态毒性**	No data is available 无数据可提供
Mobility in soil **土壤中移动性**	No data is available 无数据可提供
Persistence and Degradability **持久性和降解性**	No data is available 无数据可提供

Section 13 – Disposal Considerations

第十三部分 废弃处置

Waste Treatment	Recycle or dispose of in accordance with government, state & local

废弃处置方法	regulations. 建议遵照国家和地方法规处置或再利用。
Attention for Waste Treatment **废弃注意事项**	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. 废电池不能被当做普通垃圾。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。最好的办法是回收利用。

Section 14 – Transport Information

第十四部分 运输信息

Transport **运输**	Tested according to the requirements of the UNITED NATIONS "Manual of Tests and Criteria" Part III, subsection 38.3 经过测试符合联合国《试验和标准手册》第三部分，第38.3章节的要求。
UN Number **UN编号**	UN3480 or UN3481 UN3480或UN3481
UN Proper shipping name **联合国运输专用名称**	Lithium ion batteries or Lithium ion batteries packed with equipment or Lithium ion batteries contained in equipment. 锂离子电池，锂离子电池与设备包装在一起或锂离子电池内置于设备中。
Transport hazard class(es) **运输风险类别**	Class 9 (PI 965 Section IB) or N/A(PI 966~PI 967 Section II) 9类危险品(包装说明965第IB部分)或者 不适用(包装说明966~967第II部分)
Packing group **包装等级**	N/A 不适用
IATA DGR(67th Edition)	The product can be shipped by air in according to Section IB of PACKING INSTRUCTION 965 or Section II of PACKING INSTRUCTION 966~967 of the 2026 IATA Dangerous Goods Regulations 67th Edition. 本物品可根据2026年IATA危险品规则第67版包装说明965第IB部分或包装说明966~967第II部分空运运输。
ADR(2025 Edition)	The product is not subject to the other provision of ADR(2025 Edition) according to Special Provision 188 本物品根据ADR 2025版特殊规定188, 运输时不受本规则其他规定限制。
RID(2025 Edition)	The product is not subject to the other provision of RID(2025 Edition) according to Special Provision 188 本物品根据RID 2025版特殊规定188, 运输时不受本规则其他规定限制。
IMO IMDG CODE (2024 Edition)	The product is not subject to the other provision of IMO IMDG CODE 2024 Edition(Amdt 42-24) according to Special Provision 188 本物品根据IMO IMDG CODE 2024版(Amdt 42-24)特殊规定188, 运输时不受本规则其他规定限制。
IMDG EmS No.: **IMDG EmS 编号：**	F-A, S-I
Marine pollutant **海洋污染物**	No 不属于

Can be shipped without being declared as Class 9 dangerous goods, when Maritime, Road, Railway meet to Special Provision 188.
当海运，道路，铁路满足特殊规定 188，不需要申报成 9 类危险品装运。

Section 15 – Regulatory Information

第十五部分 法规信息

Dangerous Goods Regulations
《危险品规则》
Recommendations on the Transport of Dangerous Goods, Model Regulations
联合国《关于危险货物运输的建议书 规章范本》
International Maritime Dangerous Goods
《国际海运危险货物规则》
Technical Instructions for the Safe Transport of Dangerous Goods By Air(TI)
《危险物品安全航空运输技术细则》 (技术细则)
European Agreement concerning the International Carriage of Dangerous Goods by Road(ADR)
《国际危险货物道路运输欧洲协定》
Regulations concerning the International Carriage of Dangerous Goods by Rail(RID)
《国际铁路运输危险货物规则》(RID)
List of Railway Dangerous Goods (TB/T 30006-2022)
《铁路危险货物品名表》(TB/T 30006-2022)
Regulations Concerning Road Transportation of Dangerous Goods(JT/T 617--2018)
《危险货物道路运输规则》(JT/T 617-2018)
Classification and code of dangerous goods
《危险货物分类和品名编号》
Occupational Safety and Health Act(OSHA)
《职业安全与健康法》(OSHA)
Toxic Substance Control Act(TSCA)
《有毒物质控制法》（TSCA）
Resource Conservation and Recovery Act(RCRA)
《资源保护和恢复法案》（RCRA）
Code of Federal Regulations(CFR) 49 CFR sections 100-185, 49 CFR -173.185
《联邦条例》(CFR) 49 CFR sections 100-185, 49 CFR -173.185
New EU Battery Regulations (EU) 2023/1542
欧盟新电池法规(EU) 2023/1542
Regulation (EC) No. 1907/2006 on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)

关于化学品的注册、评估、授权和限制(EC)第 1907/2006 号规例
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

第十六部分 其他信息

The information in this MSDS has only been compiled based on the information in the relevant materials currently in our possession and is intended only to describe the health, safety and environmental requirements of this product so that all interested parties can better understand and trust this product. However, we makes no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. This material safety data sheet provides guidelines for the safe handling and use of this product; it does not and cannot advise on all possible situations, therefore, your specific use of this product should be evaluated to determine if additional precautions are required.

The data/information contained herein has been reviewed and approved for general release on the basis that this document contains no export controlled 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。但是，对于这些信息，我们不对商品的性能做任何明示的或者暗示的保证，我们也不对使用这些信息造成的后果担负任何责任。 用户应当自己调查研究后决定这些信息是否适用于他们的特定用途。尽管在该文档里提出了合理的预警，但是这仅仅只是给您做参考，考量和调查。这份化学品安全技术说明书提供了安全处理和使用该产品的指南，但是它没有，也不能对所有可能发生的情景提出建议，所以您需要根据您对该产品的特定使用情况来决定是否需要其他的预防措施。

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********End of report 报告结束********