

# 材料安全数据表

## MATERIAL SAFETY DATA SHEET

**Report No.:**

报告编号:

BTI26061300904

**Model:**

型号:

JH 553147

**Name of Goods:**

物品名称:

Polymer Lithium-ion Battery

聚合物锂离子电池

**Applicant:**

申请商:

Seeed Technology Co.,Ltd

深圳矽递科技股份有限公司

**Effective Date:**

生效日期:

Jun. 26, 2026

2026.06.26

**tested:**

主检员:

Hina Gan 甘荣康

**Approved:**

批准人:

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**Date of Issue:**

签发日期:

2026.06.26

**Shenzhen BTI Testing & Technology Co., Ltd.**

深圳市信宝检测技术有限公司



\* The MSDS is prepared based on the information provided by client. The contents and formats of this MSDS are revised as per client's request.

这份材料安全数据表是根据客户提供的信息编辑，其内容和格式按客户要求来修订。

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

|                                 |                                                                                                                                 |                                      |                    |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|--------------------|
| Name of Goods<br>产品名称           | Polymer Lithium-ion Battery<br>聚合物锂离子电池                                                                                         | Weight (g)<br>重量 (g)                 | 17.395             |
| Model<br>型号                     | JH 553147                                                                                                                       | Size (mm) L×W×T<br>尺寸 (mm) L×W×T     | 49.5×31.5×5.8      |
| Ratings<br>额定参数                 | 3.85V, 1100mAh, 4.24Wh                                                                                                          | Trade Mark/ identification<br>商标/识别码 | --                 |
| Manufacturer<br>制造商             | ShenZhen Jinghao Energy Technology CO.,Ltd<br>深圳市晶昊能源科技有限公司                                                                     |                                      |                    |
| Manufacturer's address<br>制造商地址 | 602, Building 4, No. 3, Huachang Road, Langkou Community, Dalang Street, Longhua District, Shenzhen<br>深圳市龙华区大浪街道浪口社区华昌路3号4栋602 |                                      |                    |
| Contact person<br>联系人           | Mr. Ou<br>欧阳                                                                                                                    | E-mail<br>邮箱                         | bill@jhbattery.com |
| Emergency Telephone<br>应急电话     | 28101858                                                                                                                        | Fax<br>传真                            | /                  |

## Section 2- Composition Information 第二部分-成分信息

| Chemical Composition<br>化学成分         | Chemical Formula<br>化学式 | CAS No.<br>CAS号(化学文摘索引登记号) | Concentration or<br>concentration ranges (%)<br>浓度或浓度范围 (%) |
|--------------------------------------|-------------------------|----------------------------|-------------------------------------------------------------|
| Lithium Cobalt Oxide<br>钴酸锂          | LiCoO <sub>2</sub>      | 12190-79-3                 | 39.55                                                       |
| Graphite<br>石墨                       | C                       | 7782-42-5                  | 21.32                                                       |
| Lithium hexafluorophosphate<br>六氟磷酸锂 | F <sub>6</sub> LiP      | 21324-40-3                 | 18.56                                                       |
| Copper Foil<br>铜箔                    | Cu                      | 7440-50-8                  | 9.02                                                        |
| Separator<br>隔离膜                     | PE                      | 9002-88-4                  | 0.95                                                        |
| Aluminium Foil<br>铝箔                 | Al                      | 7429-90-5                  | 8.77                                                        |
| Nickel<br>镍                          | Ni                      | 7440-02-0                  | 1.83                                                        |

## Section 3- Hazards Identification

## 第三部分-危险性概述

|                                          |                                                          |
|------------------------------------------|----------------------------------------------------------|
| Emergency overview<br>紧急情况概述             | N/A<br>不适用                                               |
| Classification according to GHS<br>GHS分类 | Not a dangerous substance according to GHS<br>不属于GHS危险物品 |
| Label elements:<br>标签元素                  |                                                          |
| Hazard pictogram(s)<br>危险标签图             | Not Applicable<br>不适用                                    |
| Signal word<br>提示语                       | Not Applicable<br>不适用                                    |
| Hazard statement(s)<br>危险声明              | Not Applicable<br>不适用                                    |
| Precautionary statement(s):<br>预防声明      |                                                          |
| Prevention<br>预防                         | Not Applicable<br>不适用                                    |
| Response<br>反应                           | Not Applicable<br>不适用                                    |
| Disposal<br>废弃处理                         | Not Applicable<br>不适用                                    |
| Environmental hazards:<br>环境危害           | No relevant information<br>无相关信息                         |
| Important symptoms:<br>重要症状              | See section 11 for more information<br>见第11部分更多信息        |

## Section 4- First Aid Measures

## 第四部分-急救措施

|                      |                                                                                                                                                                                 |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Eye contact<br>眼睛接触  | Flush eyes with plenty of water for least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.<br>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。 |
| Skin contact<br>皮肤接触 | Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Get medical aid.<br>万一接触, 用大量的水冲洗至少15分钟, 同时除去污染的衣物和鞋子, 迅速就医。                          |
| Inhalation<br>吸入     | Remove from exposure and move to fresh air immediately. Use oxygen if available.<br>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。                                                            |
| Ingestion<br>摄入      | Give at least 2 glasses of milk or water. Induce vomiting unless patient is unconscious. Call a physician.<br>饮用两杯牛奶或水, 如果当事人仍然清晰可以采取催吐的方法, 并且立即就医。                             |

## Section 5- Fire Fighting Measures

## 第五部分-消防措施

|                                                                |                                                                                                                                                                                      |
|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Characteristics of Hazard<br>危险特性                              | The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors.<br>该产品会导致眼睛,皮肤和粘膜灼伤。热分解可能导致释放刺激性气体和蒸汽。        |
| Hazardous Combustion Products<br>燃烧产生的危险物品                     | Carbon monoxide, Carbon dioxide, Lithium oxide fumes.<br>一氧化碳, 二氧化碳, 锂氧化物烟气                                                                                                          |
| Fire-extinguishing Methods and Extinguishing Media<br>灭火方法及灭火剂 | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.<br>使用适合当地情况和周围环境的灭火措施。                                                       |
| Attention in Fire-extinguishing<br>灭火注意事项                      | Wear self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.<br>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。 |

## Section 6- Accidental Release Measures

### 第六部分-泄露应急处理

|                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Personal precautions, protective equipment and emergency procedures:<br>个人预防措施、保护设备和应急程序 | 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.<br>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。            |
| Environment precautions<br>环境预防措施                                                        | Prevent product from contaminating soil and from entering sewers or waterways.<br>防止产品污染土壤和进入下水道或水道。                                                                                                                                                                                                                                                                                                                                  |
| Methods and material for containment<br>方法和材料控制                                          | Stop the leak if safe to do so. Contain the spilled liquid with dry sand or earth. Clean up spills immediately.<br>出于安全, 阻止泄漏, 可以用干砂或泥土来遏制液体溢出, 立即清理溢物。                                                                                                                                                                                                                                                                               |
| Methods and materials for cleaning up<br>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.<br>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。 |

## Section 7- Handling and Storage

### 第七部分-操作处置和储存

|                                 |                                                                                                                                                                                                                        |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Handling<br>操作处置                | The battery may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures.<br>Do not short or install with incorrect polarity.<br>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。 |
| Storage<br>储存                   | Store in a cool, dry, well-ventilated area away from incompatible substances. Store locked up.<br>Keep out of the reach of children.<br>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。                                 |
| Other Precautions<br>其他要注意的防范措施 | In case of rupture. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing.<br>Use personal protection equipment.<br>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。 |
|--|-----------|

## Section 8- Exposure Controls/Personal Protection

### 第八部分-接触控制和个体防护

|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Engineering Controls<br>工程控制            | Use adequate ventilation to keep airborne concentrations low. If used under conditions that generate particulates, the ACGIH TLV-TWA of 3mg/m <sup>3</sup> respirable fraction (10mg/m <sup>3</sup> total) should be observed.<br>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 <sup>3</sup> ACGIH TLV-TWA 3 的吸入量 (总量为 10mg/m <sup>3</sup> )。                                                                                                                                                                                                                                                                                               |
| Personal Protective Equipment<br>个人防护装备 | Eye and Face Protection: None required for consumer use. If there is a Hazard of contact: Tight sealing safety goggles. Face protection shield.<br>Skin and Body Protection: None required for consumer use. If there is a Hazard of contact: Wear protective gloves and protective clothing.<br>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.<br>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。<br>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。<br>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。 |
| Hygiene Measures<br>卫生措施                | Do not eat, drink, or smoke in work area. Maintain good housekeeping.<br>在工作区域不得进食, 饮水或吸烟。                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

## Section 9- Physical and Chemical Properties

### 第九部分-物理和化学特性

|                                                             |                                                       |
|-------------------------------------------------------------|-------------------------------------------------------|
| Shape<br>形状                                                 | Cuboid<br>长方体                                         |
| Color<br>颜色                                                 | Silver<br>银色                                          |
| Odour<br>气味                                                 | If leaking, smells of medical ether.<br>泄漏时, 医用乙醚的气味。 |
| pH<br>酸碱度                                                   | Not Applicable<br>不适用                                 |
| Melting point/freezing point<br>熔点/凝固点                      | Not Applicable<br>不适用                                 |
| Boiling Point and Boiling range<br>沸点、沸点范围                  | Not Applicable<br>不适用                                 |
| Flash Point<br>易燃度                                          | Not Applicable<br>不适用                                 |
| Upper/lower flammability or explosive limits<br>自燃或爆炸的上、下极限 | Not Applicable<br>不适用                                 |
| Vapor Pressure<br>蒸汽压                                       | Not Applicable<br>不适用                                 |
| Vapor Density<br>蒸汽密度                                       | Not Applicable<br>不适用                                 |

|                                         |                       |
|-----------------------------------------|-----------------------|
| Relative density<br>相对密度                | Not Applicable<br>不适用 |
| Solubility in Water<br>水溶性              | Not Applicable<br>不适用 |
| Auto-ignition temperature<br>自燃温度       | Not Applicable<br>不适用 |
| Decomposition temperature<br>分解温度       | Not Applicable<br>不适用 |
| Evaporation rate<br>蒸发速率                | Not Applicable<br>不适用 |
| Flammability (soil, gas)<br>易燃性(土壤、天然气) | Not Applicable<br>不适用 |

## Section 10- Stability and reactivity

### 第十部分 稳定性和反应活性

|                                               |                                                                                                                                                                     |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chemical Stability<br>化学稳定性                   | Stable under recommended storage conditions.<br>在推荐的储存条件下可以保持稳定。                                                                                                    |
| Conditions to Avoid<br>应避免的条件                 | Incinerate. Deform, Mutilate, Crush, Disassemble, Overcharge, Short circuit, Expose over a long period to humid conditions.<br>焚烧、变形、毁坏、粉碎、拆卸、过充电、短路, 长时间暴露在潮湿的条件下。 |
| Incompatible Materials<br>不兼容的材料              | Oxidizing agents, acid, base.<br>氧化剂, 酸, 碱。                                                                                                                         |
| Hazardous Decomposition Products<br>危险分解物     | Carbon monoxide, carbon dioxide, lithium oxide fumes.<br>一氧化碳、二氧化碳、氧化锂烟雾。                                                                                           |
| Possibility of Hazardous Reaction<br>危险反应的可能性 | Not Applicable<br>不适用                                                                                                                                               |

## Section 11 – Toxicological Information

### 第十一部分-毒理学资料

|                                                 |                                                                                                                                           |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Irritation<br>刺激                                | In the event of exposure to internal contents, vapour fumes may be very irritating to the eyes and skin.<br>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。 |
| Sensitization<br>致过敏                            | Not Applicable<br>不适用                                                                                                                     |
| Neurological Effects<br>影响神经系统                  | Not Applicable<br>不适用                                                                                                                     |
| Reproductive Toxicity<br>再生毒性                   | Not Applicable<br>不适用                                                                                                                     |
| Mutagenicity (Genetic Effects)<br>诱变(遗传效应)      | Not Applicable<br>不适用                                                                                                                     |
| Toxicologically Synergistic Materials<br>附带材料毒性 | Not Applicable<br>不适用                                                                                                                     |

## Section 12- Ecological Information

### 第十二部分-生态学资料

|                                          |                                                                                                                                                |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| General note<br>通用信息                     | Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.<br>不允许未稀释或大量的产品接触地下水、水道或污水处理系统。 |
| Ecological Toxicity<br>生态毒性              | Not Applicable<br>不适用                                                                                                                          |
| Mobility in soil<br>在土壤中的流动性             | Not Applicable<br>不适用                                                                                                                          |
| Persistence and Degradability<br>持久性和分解性 | Not Applicable<br>不适用                                                                                                                          |
| Bioaccumulation potential<br>生物累积        | Not Applicable<br>不适用                                                                                                                          |
| Other Adverse Effects<br>其他不利影响          | Not Applicable<br>不适用                                                                                                                          |

### Section 13- Disposal Considerations

#### 第十三部分-废弃处置

|                                             |                                                                           |
|---------------------------------------------|---------------------------------------------------------------------------|
| Product disposal recommendation<br>产品废弃处理建议 | Observe local, state and federal laws and regulations.<br>遵守当地、州和联邦法律和法规。 |
| Packaging disposal recommendation<br>包装处理建议 | Disposal must be made according to official regulations<br>废弃处理必须根据当地法规   |

### Section 14 – Transport Information

#### 第十四部分-运输信息

|                                        |                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| UN Number<br>联合国货物编号（UN编号）             | UN 3480 or UN 3481<br>UN 3480 或 UN 3481                                                                                                                                                                                                                                                                                                                                                             |
| UN Proper shipping name<br>联合国运输专用名称   | Lithium ion Batteries (Including lithium ion polymer batteries) (limited to a maximum of 30% SoC) or;<br>锂离子电池（包括锂离子聚合物电池）（荷电状态不得超过其额定容量的 30%）或；<br>Lithium ion Batteries packed with equipment (Including lithium ion polymer batteries) or;<br>与设备一起包装的锂离子电池（包括锂离子聚合物电池）或；<br>Lithium ion Batteries contained in equipments (Including lithium ion polymer batteries)<br>包含在设备中的锂离子电池（包括锂离子聚合物电池） |
| Label(s) / Placard Required<br>标签/标牌要求 | Miscellaneous Lithium BATT<br>杂项锂电池                                                                                                                                                                                                                                                                                                                                                                 |
| ICAO/IATA<br>国际民用航空组织/国际航空运输协会         | Can be shipped by air in accordance with international Civil Aviation Organization (ICAO) or International Air Transport Association (IATA) DGR Packing Instructions PI 965 Section IB, PI 966 Section II and PI 967 Section II appropriate of IATA DGR 67th for transportation.<br>可根据国际民用航空组织（ICAO）或国际航空协会（IATA），DGR 67版本包装说明PI 965第IB节，PI 966~PI 967第II节规定进行空运。                                  |
| IMDG CODE                              | The batteries are not restricted to IMDG Code 2024 Edition (Amdt 42-24) according to special provision 188.                                                                                                                                                                                                                                                                                         |

|                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 国际海运危险货物规则                                                                                                                                                                                                                                     | 根据特殊规定 188, 该电池不受 IMDG Code 2024 版 (Amdt 42-24) 限制。                                                                                                                                                                                                                                                                  |
| DOT<br>美国运输部                                                                                                                                                                                                                                   | Other requirements for the US Department of Transportation (DOT) Subchapter C. Hazardous Materials Regulations if shipped in compliance with 49 CFR 173.185.<br>美国运输部(DOT)有害物质规则 C 分章中的其他规定, 运输符合要求 49 CFR 173.185                                                                                                   |
| ADR/AND<br>欧洲国际陆运危险货物协定/关于内<br>陆水道国际运输危险货物的欧洲协<br>定                                                                                                                                                                                            | The batteries are not subject to the provisions of United Nations Economic Commission for Europe (UNECE) ADR/ADN if they meet the requirements of special provision 188 of Chapter 3.3. Applicable as from 1 January 2025.<br>自 2025 年 1 月 1 日起适用于联合国欧洲经济委员会(UNECE) ADR/AND, 如<br>果电池符合第 3.3 章第 188 条的特殊要求, 则电池不受限制。 |
| The dangerous goods regulations require that each battery design be subject to tests contained in Section 38.3 of the UN Manual of Tests and Criteria prior to being offered for transport.<br>危险品规例规定, 运输前, 每一个电池设计须通过联合国试验和标准手册 38.3 节所载的测试。 |                                                                                                                                                                                                                                                                                                                      |

## Section 15- Regulatory information

### 第十五部分 法规信息

《Dangerous Goods Regulations》

《危险物品规则》

《Recommendations on the Transport of Dangerous Goods》

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-Manual of Tests and Criteria

联合国《关于危险货物运输的建议书试验和标准手册》

International Air Transport Association

《国际航空运输协会》

International Maritime Dangerous Goods

《国际海运危险货物规则》

Technical Instructions for the Safe Transport of Dangerous Goods

《危险货物安全运输技术指南》

Classification and code of dangerous goods

《危险货物分类和品名编号》

2012 OSHA Hazard Communication Standard

2012《职业安全与健康标准》危险通信标准

Toxic Substance Control Act

《有毒物质控制法》

Code of Federal Regulations

《联邦条例》

In accordance with all Federal, State and local laws

符合所有联邦、州和地方法律

**Section 16- Other Information****第十六部分-其它信息**

The information above is believed to be accurate and represents the best information currently available to us. However, our company 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.

上面的信息被认为是准确代表了目前最好的信息提供给我们。然而，我司没有对商品性能保证或任何其他保证，包括明示或暗示，对这类信息的使用我们不承担责任。用户应作出自己的调查，以确定是否适合其特定用途的信息。虽然在此处所包含的数据的准备已经采取了合理的预防措施，这是仅为你提供的信息、考虑和调查。这个化学品安全技术说明书为本产品提供了安全操作指南和使用指南，它并不能对所有可能发生的情况提供建议，因此，您特殊使用该产品信息应先进行评估，以确定是否需要额外的预防措施。

**-- End of Report --****-- 报告结束 --**