# 安全技术说明书
# Safety Data Sheet

**报告编号Report No.: S03A25121875S00101**

| | |
|---|---|
| **样品名称：**<br>Sample Name: | 聚合物锂离子电池<br>Polymer Lithium-Ion Battery |
| **样品型号：**<br>Sample Model: | LP501745 |
| **委托单位：**<br>Applicant: | Ropla Elektronik HP Sp. z o.o. |
| **签发日期：**<br>Issue Date: | 2026-01-14 |

广东储能检测技术有限公司

Guangdong ESTL Technology Co., Ltd.

| 第一部分 化学品及企业标识<br>Section 1 Chemical Product and Company Identification | |
|---|---|
| 样品名称<br>Sample Name | 聚合物锂离子电池<br>Polymer Lithium-Ion Battery |
| 样品型号<br>Sample Model | LP501745 |
| 规格<br>Rating | 3.7V 360mAh 1.332Wh |
| 测试实验室<br>Testing laboratory | 广东储能检测技术有限公司<br>Guangdong ESTL Technology Co., Ltd. |
| 测试地址<br>Testing Address | 广东省东莞市松山湖园区总部二路9号1栋1单元101、201-208 室、4单元201室和11号1栋2单元101室。<br>Room 101, 201-208, Unit 1, & Room 201, Unit 4, Building 1, No.9/Room 101, Unit 2, Building 1, No.11, Zongbu 2nd Road, Songshanhu Park, Dongguan, Guangdong, China |
| 委托单位<br>Applicant | Ropla Elektronik HP Sp. z o.o. |
| 委托单位地址<br>Applicant Address | Wroclawska 1C, 52-200 Suchy Dwor  POLAND |
| 生产单位<br>Manufacturer | Ropla Elektronik HP Sp. z o.o. |
| 生产单位地址<br>Manufacturer  Address | Wroclawska 1C, 52-200 Suchy Dwor  POLAND |
| 鉴定依据<br>Inspection according to | 依据GB/T16483-2008&ISO11014:2009编制<br>According to GB/T16483-2008&ISO11014:2009 |
| 紧急联系电话<br>Emergency telephone call | +48 71 3698743 |
| 接样日期<br>Date of sample receipt | 2025-12-12 |
| 生效时间<br>Effective Date | 2026-01-14 |

检测 Tested by　　审核 Reviewed by　　批准 Approved by

广东储能检测技术有限公司 报告专用章 Special Seal for Report Guangdong ESTL Technology Co., Ltd. 4419820021070

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

| | |
|---|---|
| 危险性类别<br>Classification of Danger | 见第十四部分<br>see section 14 |
| 侵入途径<br>Invasion Route: | 眼睛、皮肤、食入<br>eyes, skin contact, ingestion |
| 健康危害<br>Health Hazard | 正常条件下根据制造商的说明使用锂离子电池不会产生危害。使用不当的情况下，有破裂、火灾、热、内部成分的漏出的风险，并可能造成意外损失。使用不当的行为包<br>括但不限于下列情况：长时间充电、短路，投入火灾，硬物撞击、尖物刺破、破碎、破裂。<br>the lithium ion 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. |
| 环境危害<br>Environmental Hazard | 未见报道<br>Not reported |
| 燃爆危险<br>The Danger of Burning and Exploding | 高温或短路条件下可能会引发火灾或爆炸<br>May occur fire or explosion in high temperature or short circuit. |

## 第三部分 成分/组成信息
## Section 3 Composition/Information on Ingredient

| 危险成分（化学名称）<br>Hazardous Ingredients (Chemical Name) | 含量及含量百分比(%)<br>Concentration or concentration ranges (%) | CAS编号<br>CAS Number |
|---|---|---|
| 钴酸锂<br>Lithium Cobalt Oxide | 49.5 | 12190-79-3 |
| 聚偏氟乙烯 PVDF | 0.33 | 24937-79-9 |
| 铝 Aluminium | 7.6 | 7429-90-5 |
| 石墨 Graphite | 16.3 | 7782-42-5 |
| 丁苯橡胶 SBR | 0.05 | 9003-55-8 |
| 羧甲基纤维素 Carboxymethylcellulose | 0.28 | 9000-11-7 |
| 铜 Copper | 6.96 | 7440-50-8 |
| 镍 Nickel | 0.06 | 7440-02-0 |
| 六氟磷酸锂 Lithium Hexaflourophosphate | 10.96 | 21324-40-3 |
| 聚乙烯 Polyethlene | 4.03 | 9002-88-4 |
| 尼龙 Nylon | 3.93 | 24937-16-4 |

# 第四部分 急救措施
# Section 4 First aid measures

正常环境条件下，眼睛和皮肤接触锂离子电池不会产生危害。在内部有害物质漏出的情况，
如果身体部位接触到这些物质，应采取以下措施：

The lithium ion batteries are not hazardous with eye and skin contact under normal circumstance. In case of internal hazardous substance leaking an hazardous substance, following measures should be taken if body parts contact with these substance

**眼睛接触：**提起眼皮用大量水冲洗眼睛至少15分钟，立即就医。

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

**皮肤接触：**脱掉被污染的衣服，并用大量水或淋浴冲洗皮肤15分钟，立即就医。

**After Skin Contact：**Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Get medical aid.

**吸 入：**如有吸入，迅速脱离现场至新鲜空气处，如果停止呼吸，进行人工呼吸。如果呼吸困难，供给氧气。

**After Inhalation：**If inhaled, quickly leave the site to fresh air. If you stop breathing, perform artificial respiration. If breathing is difficult, supply oxygen.

**食 入：**如有知觉，请用水冲洗口腔， 就医。

**After Ingestion：**If swallowed, wash out mouth with water provided person is conscious Call a physician.

# 第五部分 消防措施
# Section 5 Fire-fighting measures

**危险特性：**在火灾时可释放有害浓烟、气体或者蒸汽。

**Characteristics of Hazard:** Toxic fumes; gases or vapors may evolve on burning.

**有害燃烧产物：**一氧化碳和二氧化碳、HF、氟磷化物。

**Hazardous Combustion Products:** CO,$CO_2$, HF, phosphorus fluoride.

**灭火方法及灭火剂：**对锂电池，大量冷水是一个有效的灭火剂。不要使用温或热水。不要使用哈龙类灭火材料。可使用干粉、沙、土。

**Fire-extinguishing Methods and Extinguishing Media:** Copious amounts of cold water are an effective extinguishing medium for lithium batteries. Don't use warm or hot water. Don't use Halon type extinguishing material.

**May use dry powder, sand, earth.**

**灭火注意事项：**消防人员须佩戴防毒面具、穿全身消防服。

**Attention in Fire-extinguishing:** The Firemen should put on antigas masks and full fire-fighting suits.

## 第六部分 泄漏应急处理
## Section 6 Accidental release measures

当电池发生泄漏，液体可以用砂，土，或其他惰性物质吸收，受污染的区域应同时通风。

When leakage of batteries happens, liquid could be absorbed with sands, earth, or other inert substance, and the contaminated area should be ventilated meantime.

未放热或燃烧的破损电池，应装入密封的塑料袋或容器。

Damaged batteries that are not hot or burning should be placed in a sealed plastic bag or container.

## 第七部分 操作处置和储存
## Section 7 Handling and storage

**操作注意事项**：不要以让接头短路的方式对电池进行操作。

**Handlin**g: don't handling the batteries in manner that allows terminals to short circuit

**储存注意事项**：储存在一个低温，干燥，通风良好的环境。远离热源，避免长时间阳光照射。未使用时密封容器。

**Conditions for safe storage, including any incompatibilities**: Requirements to be met by storerooms and receptacles. Store in a cool, dry, well-ventilated place. Keep away from heat, avoiding the long time of sunlight.

## 第八部分 接触控制 / 个体保护
## Section 8 Exposure controls/personal protection

**最高容许浓度**：没有适用标准

**Maximum Allowable Concentration:** No Standard available

**工程控制**：操作未破损的电池，没有工程控制要求。对于破损的电池，个人防护用品应包括 化学品防护手套和安全眼镜。

**Engineering Controls:** no engineering controls are required for handling batteries that have not been damaged. Personal protective equipment for damaged batteries should include chemical resistant gloves and safety glasses.

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

| 有关基本物理及化学特性的信息<br>Information on basic physical and chemical properties | |
|---|---|
| **外观Appearance** | 银色 Silvery |
| **形状Form** | 方形 Prismatic |
| **气味Odour** | 无味 Odorless |

# 第十部分 稳定性和反应性
# Section 10 Stability and reactivity

**稳定性：**常温常压稳定。

**Stability:** Stable under normal temperatures and pressures.

**禁配物：**氧化剂。

**Incompatibility:** Oxidizing agents.

**避免接触的条件：**热和明火、短路和水。

**Conditions to Avoid:** Heat and open flame, short circuit, and water.

**聚合危害：**不会发生。

**Hazardous polymerization:** Will not occur.

**分解产物：**一氧化碳、二氧化碳、HF、氟磷化物。

**Decomposition Products:** CO, $CO_2$, HF, Phosphorus fluoride.

## 第十一部分 毒理性资料
## Section 11 Toxicological information

在日常操作和使用中本产品不会引起毒理学性能。
Product does not elicit toxicological properties during routine handling and use.

## 第十二部分 生态学资料
## Section 12 Ecological information

**生态毒性：** 无
**Ecological Toxicity:** N/A
**生物降解性：**无
**Biodegradability:** N/A
**非生物降解性：**无
**Non-biodegradability:** N/A
**其它有害作用：**该物质对环境有无明显危害。
**Other Hazardous:** Will not effect environmental evidently。

# 第十三部分 废弃处置
# Section 13 Disposal consideration

**废弃处置方法：**建议遵照国家和地方法规处置或再利用。

**Waste Treatment:** Recycle or dispose of in accordance with government, state & local regulations.

**废弃注意事项：**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。最好的办法是回收利用。

**Attention for Waste Treatment:** 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<br>UN NO. | UN3480 UN3481 |
| 运输专有名称<br>Proper Shipping Name | UN3480 锂离子电池<br>UN3480 Lithium Ion Batteries<br>UN3481 锂离子电池与设备打包<br>UN3481 Lithium Ion Batteries Packed With Equipment<br>UN3481 锂离子电池装在设备中<br>UN3481 Lithium Ion Batteries Contained In Equipment |
| 运输标签<br>Label for conveyance | 电池标记 Battery Mark<br>锂电池和钠离子电池第九类危险品标签<br>Lithium Battery or Sodium Ion Battery Class 9 Label<br>仅限货机标签 Cargo aircraft Only Label |
| 海洋污染物<br>Marine pollutants | 无 No |
| 应急措施<br>EMS | F-A,S-I |

危险品规例规定，运输前，每一个电池设计通过联合国《试验和标准手册》第38.3节测试。

报告编号：S03A25121875U00101。

The dangerous goods regulations require that each battery design be subject to tests contained in UNITED NATIONS the "Manual of Test and Criteria" Section 38.3.

Report No.: S03A25121875U00101.

**危险性分类：**

该电池包装应遵守IATA DGR 67版包装说明965 Section IB / 966 Section II / 967 Section II的运输要求。

The package of battery should be complied with the requirements of Packing Instruction 965 Section IB / 966 Section II / 967 Section II of IATA DGR 67th Edition for transportation.

该电池包装应遵守IMDG-CODE（42-24）特殊规定SP188，可按非危险货物运输。

The package of battery should complied the requirements Special Provisions 188 of IMDG-CODE (42-24) and can be shipped as non-dangerous goods.

# 第十五部分 法规信息
# Section 15 Regulation information

**法规信息：**

联合国《关于危险货物运输的建议书 规章范本》（23版）、国际航空运输协会 《危险品规则》（67版）、《国际海运危险货物规则》（IMDG-CODE）（42-24版）、《国际危险货物道路运输欧洲协定》（ADR）（2025版）、《国际危险货物铁路运输欧洲协定》（RID）（2025 版）

Regulatory information:

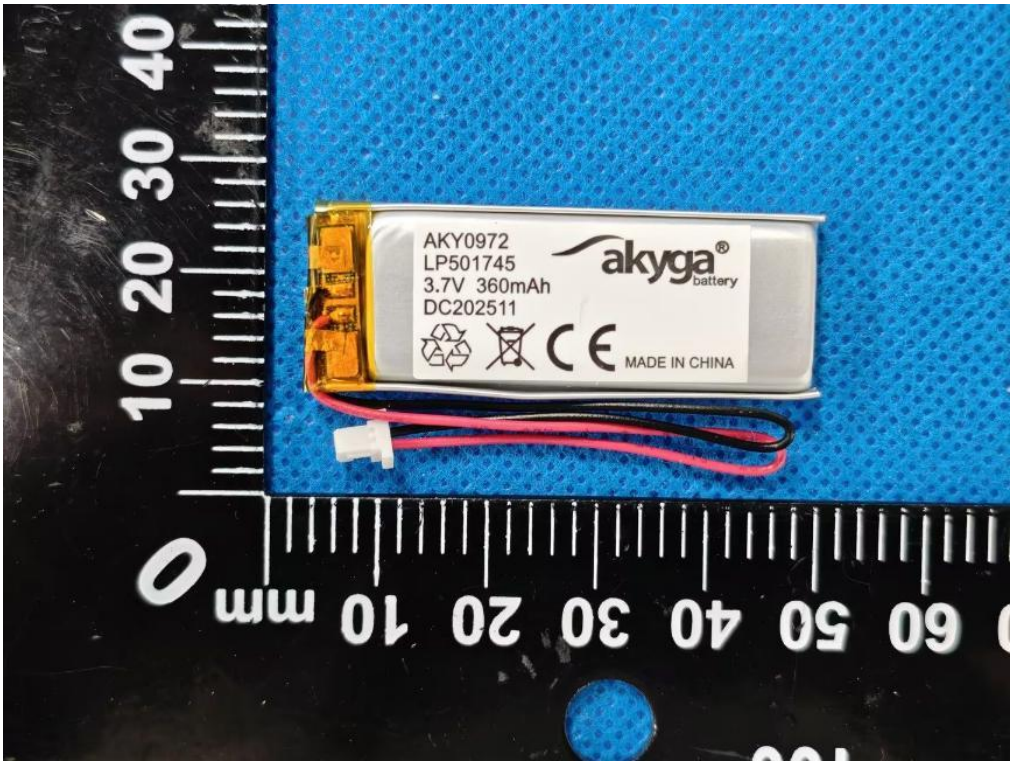
Recommendations on the transport of dangerous goods-model Regulations 23rd, IATA dangerous goods regulations 67th, International Maritime Dangerous Goods Code (42-24), European Agreement concerning the International Carriage of Dangerous Goods by Road (2025), Regulations concerning the International Carriage of Dangerous Goods by Rail (2025)

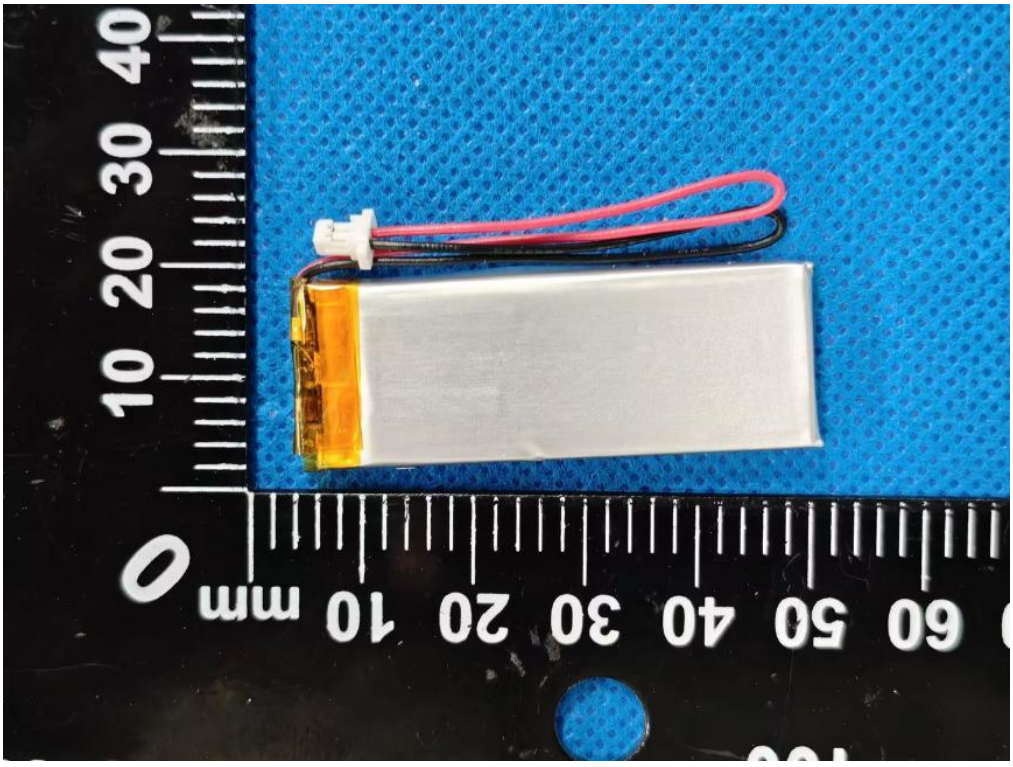
# 第十六部分 其他信息
# Section 16 Other information

此信息并非对所有由Ropla Elektronik HP Sp. z o.o.生产的电池均有效。此信息来自可靠来源，但不对所包含信息的完整性和准确性做任何保证。广东储能检测技术有限公司对因电池使用不当造成的任何损坏或损失不承担任何责任，用户应掌握正确的使用方法并对电池的使用负责。

This information is not effective to all the batteries manufactured by Ropla Elektronik HP Sp. z o.o.. This information comes from reliable sources, but no warranty is made to the completeness and accuracy of information contained. Guangdong ESTL Technology Co., Ltd. doesn’t assume responsibility for any damage or loss because of misuse of batteries. User’s should grasp the correct use method and be responsible for the use of batteries.

**Photos of Samples and Labels/样品照片及标识**



--- 报告结束 ---

--- End of Report ---

# 声明
# Declaration

1. 本报告无批准人、审核人及检测人签名无效。

The test report is invalid without the signatures of Ratifier, Reviewer and Testing engineer.

2. 对检验报告若有异议，应于收到报告之日起十五天内向检验单位提出。

Objections to the test report must be submitted to ESTL within 15 days.

3. 未经本试验室书面同意，不得部分地复制本报告。

Nobody is allowed to photocopy or partly photocopy this test report without written permission of ESTL.

4. 本报告仅对送检样品负责。

The test report is valid for the tested samples only.

5. 本报告涂改无效。

The test report is invalid if altered.