



山东高质新能源检测有限公司  
Shandong High Quality New Energy Testing Co., Ltd.

## 材料安全数据表 MATERIAL SAFETY DATA SHEET

报告编号/Report No: (2025) SHQ MSDS 036

Issued for

polynom ag

Stauseestrasse 73, CH-5314, Kleindöttingen, Switzerland

产品名称: Product Name:	LiFePO <sub>4</sub> rechargeable battery
型号名称: Model Name:	275831
标称电压: Nominal Voltage:	3.2V
额定容量: Rated Capacity:	4.5Ah
商标: Brand:	ELUBAT
版本号: Version number:	V1.0

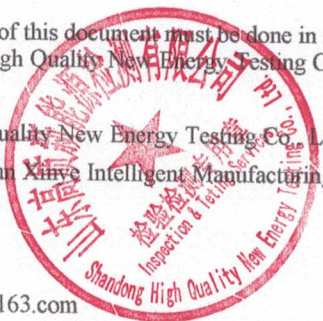
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**修订历史/Revision History**

Rev.	Issue Date	Report No.	Effect Page	Contents
00	21.Jan.2025	(2025) SHQ MSDS 036	ALL	Initial Issue



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

产品名称Product Identification: LiFePO<sub>4</sub> rechargeable battery  
商标Brand Name: ELUBAT  
型号名称Model Name: 275831  
额定能量Rated Power: 14.4Wh  
制造商 Manufacture's/Supplier Name: Sander Elektronik AG  
地址Address: Stauseestrasse73, CH-5314, Kleindöttingen, Switzerland  
生产企业 Factory: Shandong Goldencell Power Technology Co., Ltd.  
地址Address: No.X6699 Guangming Boulevard Zaozhuang Hi-Tech District, Shandong Province China  
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准备日期Preparation Date: 21.Jan.2025

This MSDS was prepared by Shandong High Quality New Energy Testing Co., Ltd.

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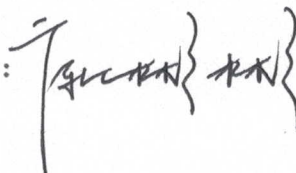
Compiled by

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Technical Manager

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Authorized Signatory

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## Section 2 –危险性概述 Hazards Identification

GHS 危险性类别 GHS Hazard Category	<p>该产品符合“物品”的定义。在全球化学品统一分类和标签制度（GHS）中，美国职业安全健康管理署“危险公示标准”（29 CFR 1910.1200）或类似定义界定的“物品”，不属于这一制度的范围。依据联合国 GHS 制度（第十修订版），该产品分为非危险化学品。</p> <p>This product meets the definition of an “article”. In the Globally Harmonized System of Classification and Labeling of Chemicals (GHS), “articles” as defined by the U.S. Occupational Safety and Health Administration's “Hazard Communication Standard” (29 CFR 1910.1200) or similar definitions do not fall within the scope of this system. This product is classified as a non-hazardous chemical under the United Nations GHS (Rev.10).</p>
GHS 标签要素 GHS Labeling Elements	<p>不适用</p> <p>N/A</p>
危险性说明 Hazard statement	<p>不适用</p> <p>N/A</p>
物理和化学危害 Physical and chemical hazards	<p>当外壳、安全电路被破坏或明显受损时，不排除会放出大量电荷，如处理不当，会造成人员受伤甚至伤亡。机械损伤可导致危险。电池产品暴露在高温条件下，可能会产生热失控情况，引发火灾。</p> <p>When the outer enclosure and safety circuits have been compromised or have been significantly damaged, it is likely to contain substantial electrical charge and can cause injury or death if mishandled. Mechanical damage can lead to danger. Battery products exposed to high temperature conditions, may produce heat out of control, causing fire.</p>
健康危害 Health hazard	<p>吸入：吸入该物质可能会引起对健康有害的影响或呼吸道不适。</p> <p>食入：意外食入本品可能对个体健康有害。</p> <p>皮肤接触：通过割伤、擦伤或病变处进入血液，可能产生全身损伤的有害作用。</p> <p>眼睛：眼睛直接接触本品可导致暂时不适。</p> <p>Inhalation: Inhalation of this substance may cause harmful health effects or respiratory distress.</p> <p>Ingestion: Accidental ingestion of this product may be harmful to an individual's health.</p> <p>Skin contact: Entry into the bloodstream through cuts, abrasions or lesions may produce harmful effects of systemic damage.</p> <p>Eyes: Direct eye contact with this product may cause temporary discomfort.</p>
环境危害 Environmental hazard	<p>参阅第十二部分。</p> <p>See Section 12.</p>

**Section 3 –成分/组成信息 Composition/Information on Ingredients**

化学名称 Chemical Name	化学式 Chemical Formula	百分含量 Percentage content	CAS号 CAS Number
磷酸铁锂 Lithium iron phosphate	$\text{LiFePO}_4$	26~38	15365-14-7
聚偏氟乙烯 Poly(vinylidene fluoride)	$[-\text{CH}_2-\text{CF}_2-]_n$	0.8~1.0	24937-79-9
羧甲基纤维素钠 Sodium carboxymethyl cellulose	$[\text{C}_6\text{H}_7\text{O}_2(\text{OH})_2\text{OCH}_2\text{COONa}]_n$	0.2~0.3	9000-11-7
丁苯橡胶 Styrene butadiene rubber	$\text{C}_{12}\text{H}_{14}$	0.4~0.5	9003-55-8
石墨 Graphite	$\text{C}$	17~19	1333-86-4
聚丙烯 polypropylene	$(\text{C}_3\text{H}_6)_n$	2~3	9003-07-0
六氟磷酸锂 Lithium hexafluorophosphate	$\text{LiPF}_6$	1.2~1.5	21324-40-3
碳酸二甲酯 (DMC) Dimethyl Carbonated	$\text{C}_3\text{H}_6\text{O}_3$	2.5~3.0	616-38-6
碳酸甲乙酯 (EMC) Methyl-Ethyl Carbonate	$\text{C}_4\text{H}_8\text{O}_3$	4.0~6.0	623-53-0
碳酸乙烯酯 (EC) Ethylene Carbonate	$\text{C}_3\text{H}_4\text{O}_3$	2.0~2.5	96-46-1
铜箔 Copper Foil	$\text{Cu}$	7.0~9.0	7440-50-8
铝箔 Aluminum Foil	$\text{Al}$	3.0~4.0	7429-90-5
铁 Iron	$\text{Fe}$	20~23	7439-89-6
铅 Lead	$\text{Pb}$	Not Detected	7439-92-1
镉 Cadmium	$\text{Cd}$	Not Detected	7440-43-9
汞 Mercury	$\text{Hg}$	Not Detected	7439-97-6





## Section 4 –急救措施 First-aid Measures

食入 Ingestion	切勿给失去知觉者从嘴里喂食任何东西。立即呼叫医生或中毒控制中心。 Accidental ingestion of the product may be harmful to the health of the individual.
吸入 Inhalation	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。 Remove from exposure and move to fresh air immediately. Use oxygen if available.
皮肤接触 Skin contact	如果电池泄漏，液体溅入眼睛或皮肤，不要摩擦，用清水清洗，并立即就医。 If the battery leaks and the liquid spills into the eyes or skin, do not rub, clean with water and seek medical attention immediately.
眼睛接触 Eye contact	如果电池泄漏，液体溅入眼睛或皮肤，不要摩擦，用清水清洗，并立即就医。 If the battery leaks and the liquid spills into the eyes or skin, do not rub, clean with water and seek medical attention immediately.

## Section 5 –消防措施 Fire-fighting Measures

灭火介质： Extinguishing Media:	使用适用于周围环境的灭火介质。 Use extinguishing media suitable for surrounding area.
特殊保护设备和防备措施： Special protective equipment precautions:	1 灭火时，应佩戴呼吸面具（符合 MSHA/NIOSH 要求的或相当的）并穿上全身防护服。 2 在安全距离处、有充足防护的情况下灭火。 3 防止消防水污染地表和地下水系统。 1 As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear. 2 Fight fire from a safe distance, with adequate cover. 3 Prevent fire extinguishing water from contaminating surface water or the ground water system.
异常火灾或爆炸： Unusual Fire and Explosion Hazards:	1 火灾时可能产生有害的可燃气体或蒸气。 2 受热或接触火焰可能会产生膨胀或爆炸性分解。 1 Development of hazardous combustion gases or vapor possible in the event of fire. 2 May expansion or decompose explosively when heated or involved in fire.



## Section 6 – 泄漏应急处理 Accidental Release Measures

为防止电池材料 泄漏或释放采取 的措施: Steps to be Taken in case Material is Released or Spilled:	<ol style="list-style-type: none"><li>1 在确保安全的情况下, 采取措施防止进一步的泄漏或溢出。</li><li>2 避免排放到周围环境中。</li><li>3 尽可能切断泄漏源。</li><li>4 泄漏场所保持通风。</li><li>5 隔离泄漏污染区, 限制出入。</li><li>6 建议应急处理人员戴防尘口罩。</li><li>7 用洁净的铲子收集泄漏物, 置于干净、干燥、盖子较松的容器中, 将容器移离泄漏区。</li></ol> <ol style="list-style-type: none"><li>1 Prevent further leakage or spillage if safe to do so.</li><li>2 Discharge into the environment must be avoided.</li><li>3 Cut off the source of the leak as much as possible.</li><li>4 Keep leaks in a ventilated place.</li><li>5 Isolation of contaminated areas and restrictions on access.</li><li>6 It is recommended that emergency personnel wear dust masks.</li><li>7 Collect the spill with a clean shovel and place it in a clean, dry, loosely closed container and move the container away from the leak.</li></ol>
废弃物处置方法 Waste Disposal Method	<p>按当地法规处理。</p> <p>Handle it according to local regulations.</p>

## Section 7 – 处理和储存 Handling and Storage

处理: Handling:	<ol style="list-style-type: none"><li>1 在通风良好处进行操作。</li><li>2 避免进入眼睛。</li><li>3 远离热源、火花、明火和热表面。</li></ol> <ol style="list-style-type: none"><li>1 Handling is performed in a well ventilated place.</li><li>2 Avoid contact with eyes.</li><li>3 Keep away from heat/sparks/open flames/ hot surfaces.</li></ol>
储存: Storing:	<ol style="list-style-type: none"><li>1 保持容器密闭。</li><li>2 储存在干燥、阴凉和通风处。</li><li>3 远离热源、火花、明火和热表面。</li><li>4 存储于远离不相容材料和食品容器的地方。</li></ol> <ol style="list-style-type: none"><li>1 Keep containers tightly closed.</li><li>2 Keep containers in a dry, cool and well-ventilated place.</li><li>3 Keep away from heat/sparks/open flames/hot surfaces.</li><li>4 Store away from incompatible materials and foodstuff containers.</li></ol>





## Section 8 -接触控制和个人防护 Exposure Controls and Personal Protection

工程控制: Engineering controls	1 保持充分的通风, 特别在封闭区内。 2 确保在工作场所附近有洗眼和淋浴设施。 3 设置应急撤离通道和必要的泄险区。 4 根据良好的工业卫生和安全规范进行操作。 1 Ensure adequate ventilation, especially in confined areas. 2 Ensure that eyewash stations and safety showers are close to the workstation location. 3 Set up emergency exit and necessary risk-elimination area. 4 Handle in accordance with good industrial hygiene and safety practice.
呼吸防护: Respiratory Protection:	正常使用条件下不需要。 Not necessary under conditions of normal use.
通风条件: Ventilation:	正常使用条件下不需要。 Not necessary under conditions of normal use.
防护手套: Protective Gloves:	正常使用条件下不需要。 Not necessary under conditions of normal use.
其他防护服装或设备: Other Protective Clothing or Equipment:	正常使用条件下不需要。 Not necessary under conditions of normal use.

## Section 9 -物理和化学特性 Physical and Chemical Properties

外形: Appearance:	不规则 Irregular
颜色: Color:	白色 White
气味: Odour:	不适用 N/A.
酸碱度: pH:	不适用 N/A.
燃点: Flash Point:	不适用 N/A.
可燃性: Flammability:	不适用 N/A.
相对密度: Relative density:	不适用 N/A.
溶解性(水溶性): Solubility (water):	不适用 N/A.
溶解性(其他): Solubility (other):	不适用 N/A.





## Section 10 -稳定性和反应活性 Stability and Reactivity

稳定性: Stability:	该产品在正常条件下稳定 The product is stable under normal conditions.
应避免的条件: Conditions to Avoid:	不相容物质, 热、火焰和火花。 Incompatible materials, heat, flame and spark.
应避免的材料: Materials to avoid:	金属乙炔化合物、卤素及卤间化合物、卤素的氧化物、硝酸、氧化氮、硝酸盐、亚硝酸盐、卤素含氧酸盐、铬酸盐、高锰酸盐、无机过氧化物、金属氧化物和过氧甲酸。卤素、卤间化合物、强氧化剂、非金属、水和酸 Metal acetylide, halogen, interhalogen, halogen oxides, nitric acid, nitrous oxide, nitrates, nitrites, halogen oxyacid salts, chromates, permanganates, inorganic peroxides, metal oxides and peroxyformic acid. Halogen, interhalogen, strong oxidant, water and acids.
危险分解物: Hazardous Decomposition Products:	在正常的储存和使用条件下, 不会产生危险的分解产物。 Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11 -毒理学资料 Toxicological Information

标志及症状: Signs & symptoms:	无, 除非电池破裂。 None, unless battery ruptures.
吸入: Inhalation:	有刺激性。 Have irritation.
皮肤接触: Skin contact:	有刺激性。 Have irritation.
眼睛接触: Eye contact:	有刺激性。 Have irritation.
食入: Ingestion:	吞下中毒。 Poisoning if swallowed..



## Section 12 -生态学资料 Ecological Information

对哺乳动物的影响: Mammalian effects:	目前未知。 None known at present
生态毒性: Eco-toxicity:	目前未知。 None known at present.
生物体内积累: Bioaccumulation potential:	目前未知。 None known at present.
环境危害: Environmental fate:	目前没有已知的环境危害。 None known environmental hazards at present.

## Section 13 -废弃处置 Disposal Considerations

废弃电池端子的电极应覆盖绝缘纸，以减少放置时的安全隐患。按照相应的地方性法规处理。  
The electrodes of discarded battery terminals shall be covered with insulating paper to reduce safety hazards. Dispose of in accordance with appropriate local regulations.

## Section 14 -运输信息 Transport Information

运输标签：第九类标识

Label for conveyance: class 9 hazard label.

编号：UN3480

UN Number: UN3480

包装级别：II

Packaging Group: II

海洋污染物：无

Marine pollutant: No

正确的装运名称：锂离子电池（包括锂离子聚合物电池）

Proper Shipping name: Lithium ion batteries (Including lithium ion polymer batteries)

运输危险等级：9

Transport hazard class: 9

危害分类：货物应遵守 IATA 第 66 版 DGR 手册包装说明 965 IB 节要求和包装符合 IMDG CODE (Amdt. 41-22) 2022 版要求，包括通过 UN38.3 测试手册要求。

Hazard Classification: The goods shall be complied with the requirements of section IB of Packing Instruction 965 of 66th DGR Manual of IATA. And Package complies with the IMDG CODE (Amdt. 41-22) 2022 Edition., including the passing of the UN38.3 test.







## Section 15 -法规信息 Regulatory Information

法律信息

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》

《危险品安全运输技术指令》

《Technical Instructions for the Safe Transport of Dangerous Goods》

《危险货物分类和品名编号》

《Classification and code of dangerous goods》

《职业安全卫生法》

《Occupational Safety and Health Act》(OSHA)

《有毒物质控制法》

《Toxic Substance Control Act》(TSCA)

《消费产品安全法》

《Consumer Product Safety Act》(CPSA)

《联邦环境污染控制法》

《Federal Environmental Pollution Control Act》(FEPCA)

《石油污染法案》

《The Oil Pollution Act》(OPA)

《超级基金修正案和再授权法案III(302/311/312/313)》

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

《资源保护及恢复法案》

《Resource Conservation and Recovery Act》(RCRA)

《安全饮用水法》

《Safety Drinking Water Act》(CWA)

《加州 65 提案》

《California Proposition 65》

《美国联邦法规》

《Code of Federal Regulations》(CFR)

根据所有联邦、州和地方法律。

In accordance with all Federal, State and local laws.



## Section 16 -其他信息 Other Information

编制日期: 2025-01-21

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本文件仅对由委托方polynom ag提供的, 并由Sander Elektronik AG生产的电池(275831)有效。该电池的成分信息由委托方提供并承诺其完整性和准确性。用户应仔细阅读此文件, 并按照正确的方法使用电池, 如因电池使用不当造成的损害或损失, 山东高质新能源检测有限公司不承担任何责任。

This file is only effective to the batteries (275831) provided by commissioner polynom ag, which manufactured by Sander Elektronik AG. The commissioner provides the composition information of batteries, and promises its integrity and accuracy. Users should read this file carefully, and use the batteries in correct method. Shandong High Quality New Energy Testing Co., Ltd. doesn't assume responsibility for any damage or loss because of misuse of batteries.

.....END OF THE REPORT.....

Shandong High Quality New Energy Testing Co., Ltd.