

材料安全数据表 **Material Safety Data Sheet****第一节 - 物质 / 制剂和公司 / 企业的标识 Section 1 - IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING**

产品名称: 锂离子电池

Product Name: Li-ion Battery

电池类型: 锂离子电池

Battery type: Li-ion Battery

型号 Model	电压 Voltage	容量 (Ah) Capacity (Ah)			能量 (Wh) Energy (Wh)
		标准 Typical	最小值 Min	最大值 Max	
LF304	3.2V	304	/	/	972.8

产品用处: 储能系统

Product Use: Energy Storage System

MSDS信息准备日期: 2023年1月1日

MSDS Date of Preparation: January 1st, 2023

公司标识:

Company Identification:

公司名称: 湖北亿纬动力有限公司

Name: EVE Power Co., Ltd

地址: 湖北省荆门市荆南大道 68 号

Address: No.68, Jingnan Avenue Hi-Tech Zone, Jingmen, Hubei, China

邮政编码: 448000

Post Code: 448000

电话: +86-724-6079630

Tel: +86-724-6079630

传真: +86-724-6079688

Fax: +86-724-6079688

第二节-危险性概述 Section 2 - Hazards Identification**● 健康危害 (急性和慢性) Health Hazards (Acute and Chronic)**

这些化学物质储存在密封的方形铝壳中。只有在电池被机械或者电气滥用的情况下才有泄露的风险。

应避免电解液与皮肤和眼睛接触。These chemicals are contained in a sealed Aluminum-plastic film.

Risk of exposure occurs only if the battery is mechanically or electrically abused. Contact of electrolyte with skin and eyes should be avoided.

● 暴露迹象/症状 Sign/Symptoms of Exposure

电池短路与皮肤接触时可能会产生燃烧灼伤和化学灼伤, 甚至可能是生殖伤害。A shorted battery can cause thermal and chemical burns upon contact with the skin. Maybe a reproductive hazard.

这些产品被归类为 REACH 产品, 不受供应链信息要求 (安全数据表和标签) 的约束。如果电池损坏, 可能

会释放有害物质,但这不是 REACH 中定义的预期释放。在 CLP 中电池没有被定义为危险物。These products are classified as Articles under REACH and are not subject to the requirements for Information in the Supply Chain (Safety Data Sheets and Labels). While batteries may release hazardous substances if damaged, this is not an intended release as defined under REACH. Batteries are not classified as hazardous under the CLP.

以下信息有助于安全使用我们的产品。The following information is provided to assist in the safe use of our products.

注意：电池在过热、拆解、短路、过充、暴露在火中、高温或者插入不正确的情况下，可能会发生爆炸或者泄露。请保持原始包装直到需要使用的時候。不要将电池放在口袋里或者钱包里。保持电池远离儿童。如果吞食，立即就医。在某些误用的情况下或者通过滥用打开电池，暴露的金属锂会与空气中的水和湿气接触，可能会发生灼伤或者火灾现象。CAUTION: Battery can explode or leak if heated, disassembled, shorted, recharged, exposed to fire or high temperature or inserted incorrectly. Keep in original package until ready to use. Do not carry batteries loose in your pocket or purse. Keep batteries away from children. If swallowed, consult a physician at once. Under certain misuse conditions and by abusively opening the battery, exposed lithium can react with water or moisture in the air causing potential thermal burns or fire.

第三节 - 配料的成分和组成信息 Section 3 – Composition/Information on Ingredient

材料或成分 Material or ingredient	化学式 Chemical Formula	CAS No.	Wt %
镍钴锰锂氧化物 Lithium Nickel Cobalt Manganese Oxide	LiFePO ₄	15365-14-7	43%
六氟磷酸锂 Phosphate(1-),hexafluoro,lithium	LiPF ₆	21324-40-3	21%
碳 Graphite	C	7782-42-5	22%
铝 Aluminum	Al	7429-90-5	4%
铜 Copper	Cu	7440-50-8	7%
聚丙烯 Polypropylene	PE	9003-07-0	3%

第 4 节-急救措施 Section 4 - First Aid Measures

● 一般建议 General Advice

本产品中的化学物质密封在包装内。除非电池泄露、暴露在高温下或者机械、物理以及电气滥用，否则不会接触到这些化学物质。The chemicals in this product are contained in a sealed package.

Exposure to the contents will not occur unless the battery leaks, is exposed to high temperatures or is mechanically, physically, or electrically abused.

● 眼睛 Eye

用大量清水冲洗眼睛至少 15 分钟，偶尔提起上下眼睑，并立即就医。Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

● 皮肤 Skin

脱掉被污染的衣服，用大量水冲洗皮肤或淋浴 15 分钟，并立即就医。Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Get medical aid.

- **吸入 Inhalation**

立即离开泄露处并转移到新鲜空气中，如果有氧气，使用氧气。Remove from exposure and move to fresh air immediately. Use oxygen if available.

- **摄入 Ingestion**

至少喝两杯牛奶或水进行催吐。如果病人昏迷，立即打电话急救。Give at least 2 glasses of milk or water. Induce vomiting unless patient is unconscious. Call a physician.

- **医师须知**

已发表的报告建议通过内镜（直接可视化）切除食管。食道以外的电池不需要取回，除非有损伤胃肠道的迹象或大直径电池无法通过幽门。如果没有症状，后续的x光检查只需确认通过较大的电池。在大多数情况下，最好通过大便检查来确认。Published reports recommend removal from the esophagus be done endoscopically (under direct visualization). Batteries beyond the esophagus need not be retrieved unless there are signs of injury to the GI tract or a large diameter battery fails to pass the pylorus. If asymptomatic, follow up x rays are necessary only to confirm the passage of larger batteries. Confirmation by stool inspection is preferable under most circumstances.

第 5 节-消防措施 Section 5 - Fire Fighting Measures

- **火灾和爆炸危险 Fire and Explosion Hazards**

当暴露在火灾环境中时，电池可能爆裂并释放出危险的分解产物。Batteries may burst and release hazardous decomposition products when exposed to a fire situation.

- **灭火介质 Extinguishing Media**

CO₂.

- **特殊消防措施 Special Fire-Fighting Procedures**

自给式呼吸器 Self-contained breathing apparatus.

- **异常火灾和爆炸危险 Unusual Fire and Explosion Hazards**

电池在过热时可能会排气，从而释放电池内物质。Cell may vent when subjected to excessive heat-exposing battery contents.

- **有害燃烧产物 Hazardous Combustion Products**

CO、CO₂、氧化锂烟雾 Carbon monoxide, carbon dioxide, lithium oxide fumes.

第 6 节-意外泄漏措施 Section 6 - Accidental Release Measures

- **材料泄漏或溢出时应采取的措施 Steps to be Taken in case Material is Released or Spilled**

如果电池内材料泄漏，请将人员撤离该区域，直到烟雾散尽。提供最大程度的通风以清除有害气体。用布擦干净，放入塑料袋中处理，放入钢罐中。首选的反应是离开该区域，让电池冷却，蒸汽散失。提供最大通风。避免皮肤和眼睛接触或吸入蒸汽。用吸收剂除去溢出的液体并焚烧。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 incinerate.

- **废物处理方法 Waste Disposal Method**

建议将电池放电至空电，将废弃电池交由相关部门统一处理，咨询州环境保护局和/或联邦环保局，并按照当地、州和联邦批准的要求进行处理。It is recommended to discharge the battery to the end, handing in the abandoned batteries to related department unified, dispose of the batteries in

accordance with approved local, state, and federal requirements. Consult state environmental protection agency and/or federal EPA.

第 7 节-搬运和存储 Section 7 - Handling and Storage

不得打开、毁坏或焚烧电池，因为电池可能泄漏或破裂，并将密封容器中的成分释放到环境中。不要使端子短路，或使电池过度充电，强迫过度放电，并将其扔到火中。不要挤压或刺穿电池，或浸入液体中。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 liquids.

- **搬运和储存时应采取的预防措施 Precautions to be taken in Handling and Storing**

避免机械或电气滥用。最好存放在阴凉、干燥、通风的地方，温度变化不大。应避免高温储存。不要将电池放在加热设备附近，也不要长时间暴露在阳光直射下。Avoid mechanical or electrical abuse. Storage preferably 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.

- **其他注意事项 Other Precautions**

如果拆下、压碎或暴露在火灾或高温下，电池可能会爆炸或导致灼伤。

不要短路或安装极性不正确。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.

- **储存 Storage**

将电池储存在室温下干燥的地方。Store batteries in a dry place at normal room temperature.

第 8 节-暴露控制、个人防护 Section 8 - Exposure Controls, Personal Protection

- **接触限制: 正常使用时不得接触电池组件。Exposure Limits:** No exposure to the battery components should occur during normal use.

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

- **呼吸防护 Respiratory Protection**

在电池通风的情况下，提供尽可能多的通风。避免密闭区域与通风电芯核心。在正常使用条件下不需要呼吸保护。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.

- **皮肤保护 Skin Protection:** 正常使用不需要。处理泄漏的电池时，请戴丁基橡胶手套。None required for normal use. Use butyl rubber gloves when handling leaking batteries.

- **眼睛保护 Eye Protection:** 正常使用不需要。处理泄漏的电池时，请佩戴护目镜。None required for normal use. Wear safety goggles when handling leaking batteries.

- **防护手套 Protective Gloves**

如果发生泄漏，戴上手套，其他情况不需要。In the event of leakage wear gloves, Others not need.

- **其他防护服或设备 Other Protective Clothing or Equipment**

在正常使用条件下不需要。Not necessary under conditions of normal use.

建议对开阀电池进行个人防护：呼吸防护、防护手套、防护服和带侧护板的安全玻璃。Personal Protection is recommended for venting battery: Respiratory protection, Protective gloves, protective clothing and safety glass with side shields.

第 9 节-物理和化学性质 Section 9 - Physical and Chemical Properties

外观和气味 Appearance and Odor: 方形电芯, 无气味 prismatic cell, no odor.

水溶性 Water Solubility: 不溶 Insoluble

闪点 Flash Point: 52°F (25°C) ((DMC)

第 10 节-稳定性和反应性 Section 10 - Stability and Reactivity**● 稳定性 Stability**

稳定 Stable

● 避免条件 Conditions to Avoid

加热、机械滥用和电气滥用 Heating, mechanical abuse and electrical abuse.


● 有害分解产物 Hazardous Decomposition Products

N/A.

● 危险聚合物 Hazardous Polymerization

N/A.

第 11 节-毒理学信息 Section 11 - Toxicological Information

- **潜在健康危害 Potential Health Effects:** 本产品中的化学物质密封在包装内。除非电池泄漏、暴露在高温下或机械、物理、电气滥用, 否则不会接触到内容物。The chemicals in this product are contained in a sealed package. Exposure to the contents will not occur unless the battery leaks, is exposed to high temperatures or is mechanically, physically, or electrically abused.
- **眼睛接触 Eye Contact:** 接触电池内容物可能会引起刺激。Contact with battery contents may cause irritation.
- **皮肤接触 Skin Contact:** 接触电池内物质可能会引起过敏。Contact with battery contents may cause irritation. 
- **吸入 Inhalation:** 吸入热释放的蒸汽、烟雾或大量泄漏的电池可能会引起呼吸和眼睛过敏。Inhalation of vapors or fumes released due to heat or a large number of leaking batteries may cause respiratory and eye irritation.
- **摄入 Ingestion:** 立即就医。食管内的电池应立即取出, 因为在摄入后两小时内会发生泄漏、腐蚀性烧伤和穿孔。暴露于泄漏的蓄电池后, 可能会对口腔内外部产生刺激。Seek immediate medical advice. Batteries lodged in the esophagus should be removed immediately since leakage, caustic burns and perforation package occur as soon as two hours after ingestion. Irritation to the internal/external mouth areas, may occur following exposure to a leaking battery.

第 12 节-生态信息 Section 12 - Ecological Information

及时使用或处置电池不会对环境造成危害。处理时, 远离水、雨和雪。When promptly used or disposed the battery does not present environmental hazard. When disposed, keep away from water, rain and snow.

第 13 节-处置注意事项 Section 13 - Disposal Considerations

● **处理物质或制剂的适当方法 APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION**

如果电池仍充满电或仅部分放电，则可将其视为因废电池中残留大量未反应或未消耗的锂而产生的活性危险废物。在作为危险废物处置之前，必须通过经批准的二级处理设施对蓄电池进行中和。电池的回收可在授权设施内，通过持牌废物运输公司进行。

锂离子电池的标签符合欧盟电池指令 2006/66/EC。

If batteries are still fully charged or only partially discharged, they can be considered a reactive hazardous waste because of significant amount of not reaction or unconsumed lithium remaining in the spent battery. The battery must be neutralized through an approved secondary treatment facility prior to disposal as a hazardous waste. Recycling of battery can be done in authorized facility, through licensed waste carrier.

lithium ion cell batteries are labeled in compliance with the EU Battery Directive 2006/66/EC.

第 14 节-运输信息 Section 14 - Transport Information

紧急救援电话Emergency Phone Number:

CHEMTREC 24 小时应急响应热线（+86-752-2606966） CHEMTREC 24 Hour Emergency Response Hotline（+86-752-2606966）

准备或提供运输用锂电池的人员必须经过培训和认证。Persons who prepare or offer lithium batteries for transport are required by regulation to be trained and certified.

以下信息仅供参考The information provided below is for informational purposes only.

锂离子电池 Lithium Ion Batteries
运输标签: 第九类危险品标签 Label for conveyance: Class 9 hazard Label
UN 编号: UN3480 UN Number: UN3480
包装级别: II Packaging Group: II
IATA DGR 包装说明: 965 第 IA 部分 IATA DGR Packing Instructions: Section IA of 965
EmS 编号: F-A, S-I EmS No: F-A, S-I
海洋污染物: 无 Marine pollutant: No
危害分类: 货物应遵守 IATA 第 64 版 DGR 手册包装说明 965 第 IA 节部分规定（2023 年版）联合国危险运输的建议规章范本第二十二版和 IMDG CODE (Amdt. 40-20) 2020 包装导则 P903 的要求，包括通过 UN38.3 测试守则要求。 Hazard Classification: The goods shall be complied with the requirements of Packing Instruction Section IA of 965 of 64th DGR Manual of IATA(2023 Edition), the Packing Instructions TDG 22th Edition and the Packing Instructions P903 of IMDG CODE (Amdt. 40-20) 2020 Edition , including the passing of the UN38.3 test.

自 2016 年 4 月 1 日起，锂离子电芯和电池必须以不超过其额定设计容量 30% 的荷电状态（SoC）运输。Lithium ion cells and batteries must be offered for transport at a state of charge (SoC) not exceeding 30% of their rated design capacity from 1 April 2016.

装有可充电锂电池的运输包装必须贴上标签，无论电池的大小或数量，都要贴上锂电池处理标签。

Shipping packages containing rechargeable lithium batteries must be labeled, regardless of size or number of batteries, with a lithium battery handling label.

有关装运、测试、标记和包装的更多信息，请访问 <http://www.labelmaster.com>。

More information concerning shipping, testing, marking and packaging can be obtained from Label master at <http://www.labelmaster.com>.

运输时将电池分开，以防短路。为了在电池运输过程中提供支撑，电池应该放置在坚固的包装内。收货时防止跌倒、坠落和破损。防止货物堆倒塌和被雨水淋湿。

Separate battery when shipping to prevent short-circuiting. They should be packed in strong packaging for support during transport. Take in a cargo of them without falling, dropping, and breakage. Prevent collapse of cargo piles and wet by rain.

第 15 节-监管信息 Section 15 - Regulatory Information

● **法律信息 Law Information**

- 《危险品规则》 《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》
- 《危险货物分类和命名编号》 《Classification and code of dangerous goods》
- 《职业安全卫生法》 (OSHA) 《Occupational Safety and Health Act》 (OSHA)
- 《有毒物质控制法》 (TSCA) 《Toxic Substances Control Act》 (TSCA)
- 《消费产品安全法》 (CPSA) 《Consumer Product Safety Act》 (CPSA)
- 《联邦环境污染控制法》 (FEPCA) 《Federal Environmental Pollution Control Act》 (FEPCA)
- 《石油污染法案》 (OPA) 《The Oil Pollution Act》 (OPA)
- 《超级基金修正和再授权法案 III (302/311/312/313)》 (SARA) 《Superfund Amendments and Reauthorization Act Title III (302/311/312/313)》 (SARA)
- 《资源保护与恢复法案》 (RCRA) 《Resource Conservation and Recovery Act》 (RCRA)
- 《安全饮用水法》 (CWA) 《Safety Drinking Water Act》 (CWA)
- 《加州 65 提案》 《California Proposition 65》
- 《美国联邦法规》 (CFR) 《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

第 16 节-其他信息 Section 16 – Other Information

EVE 危险等级: 健康: 0 火灾: 0 反应性: 0 **EVE Hazard Rating:** Health: 0 Fire: 0 Reactivity: 0
=====

所提供的数据仅用于职业安全和健康有关的情况。

Data supplied is for use only in connection with occupational safety and health.

免责声明: 本材料安全数据表旨在简要概述我们对本材料使用的知识和指导。此处包含的信息是根据EVE认为可靠的来源编制的，据公司所知是准确的。它并不意味着是一份包罗万象的关于全球危险通信法规文件。

DISCLAIMER: This MSDS is intended to provide a brief summary of our knowledge and guidance regarding the use of this material. The information contained here has been compiled from sources considered by EVE to be dependable and is accurate to the best of the Company’s knowledge. It is not meant to be an all inclusive document on worldwide hazard communication regulations.