

# Material Safety Data Sheet

## 材料安全数据表

No.: 20250101108

Date: 2025-01-01

Version: E01

### Section I - Product and Company Identification 第一节-产品和企业标识

Product Name: Rechargeable Li-ion Cell

产品名称: 可充电锂离子电池

Product Model 产品型号: 1254PF4D

Nominal Voltage 额定电压: 3.85 V

Minimal Capacity 最小容量: 70 mAh

Watt-hour 瓦 时: 0.27 Wh

Manufacturer's Name : CHONGQING VDL ELECTRONICS CO.,LTD.

制造商名称: 重庆市紫建电子股份有限公司

Address: Building 1-4, Puli Industrial New Area, Zhaojia Street, Kaizhou District, Chongqing, China.

地址: 重庆市开州区赵家街道浦里工业新区 1-4 号楼

Postal Code 邮编: 405401

Telephone 电话: +86-23-52977888

E-mail 邮箱: vdl@gdvd.com

Web 网址: www.gdvd.com

In case of emergency contact 紧急联系电话: +86-23-52977888

Referenced documents 参考文件: ISO 11014:2009 Safety data sheet for chemical products

### Section 2 - Hazards summarizing 第二节-危险性概述

Hazards Identification: Lithium-ion batteries are classified as Class IX dangerous goods. Not dangerous with normal use. Do not dismantle, open or shred the battery ingredients contained within or their ingredients products could be harmful.

危险性识别: 锂离子电池属于第九类危险品。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毒的。

Primary Route(s) of Exposure: Inhalation, Ingestion, Skin contact and Eye contact.

接触途径: 吸入、食入、皮肤接触、眼睛接触。

Potential Health Effects:

潜在健康影响

• Inhalation:

Vapors or mists from a ruptured battery may cause respiratory irritation.

• 吸入:

破裂的电池散发出来的气雾会引起呼吸道刺激。

• Ingestion:

The battery ingredients contained within or their ingredients products can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract.

• 食入:

电池的组成成分或原料可以导致嘴、食道和胃肠道的严重化学烧伤。

• Skin contact:

Skin contact with contents of an open battery can cause severe irritation or burns to the skin.

• 皮肤接触:

皮肤接触到电池的内部化学材料可能会导致严重的刺激或烧伤皮肤。

• Eye contact:

Eye contact with contents of an open battery can cause severe irritation or burns to the eye.

• 眼睛接触:

# Material Safety Data Sheet

## 材料安全数据表

No.: 20250101108

Date: 2025-01-01

Version: E01

眼睛接触到电池的内部化学材料可能会导致严重的刺激或烧伤眼睛。

### Section 3 - Composition / Information on Ingredients 第三节-组成/成分信息

Ingredient Name 成分名称	Concentration 含量	CAS No. CAS 号
Lithium Cobalt Oxide 钴酸锂	30%~50%	12190-79-3
Carbon Black 炭黑	0.5%~1%	1333-86-4
Polyvinylidene Fluoride PVDF	0.5%~1%	24937-79-9
Aluminium 铝	5%~10%	7429-90-5
Graphite 石墨	15%~25%	7782-42-5
Styrene-Butadiene Rubber SBR	0.2%~1%	9003-55-8
Carboxy methyl cellulose CMC	0.2%~1%	9004-32-4
Copper 铜	5%~15%	7440-50-8
Nickel 镍	0.5%~1.5%	7440-02-0
Lithium Hexafluorophosphate 六氟磷酸锂	1%~15%	21324-40-3
Ethylene carbonate 碳酸乙烯酯	1%~15%	96-49-1
Propylene carbonate 碳酸丙烯酯	1%~15%	108-32-7
Ethyl propionate 丙酸乙酯	1%~15%	105-37-3
Propyl propionate 丙酸丙酯	1%~15%	106-36-5
1,3-Propanesultone 1,3-丙烷磺酸内酯	0.075%~0.6%	1120-71-4
Polyethylene 聚乙烯	1%~5%	9002-88-4
Nylon6 尼龙6	0.5%~1%	25038-54-4
Poly(ethylene terephthalate) PET 聚酯膜	0.5~5%	25038-59-9

### Section 4 - First Aid Measures 第四节-急救措施

Once battery shell rupture, content contact with the human body will produce harm, once contact, should take the

# Material Safety Data Sheet

## 材料安全数据表

No.: 20250101108

Date: 2025-01-01

Version: E01

following emergency measures:

电池外壳一旦破裂，内容物接触人体会产生危害，一旦发生接触，应采取以下应急措施：

- **Inhalation:**

Remove from exposure to fresh air immediately, give oxygen if breathing is difficult, seek medical attention immediately

- **吸入：**

需要立即从有害物质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:**

If ingestion of contents of an open battery occurs, never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 60 to 240 mL (2-8 oz.) of water. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Quickly transport victim to an emergency care facility.

- **摄入：**

如果摄入了电池的內部物质，如果患者突然失去意识，或是无意识的抽搐，不要给患者口服任何东西。让患者用清水彻底清洗口腔。不要催吐，让患者饮用 60 到 240 毫升（2-8 盎司）的清水。如果发生自然地呕吐是自然现象，让患者身体自然前倾。让患者再次用水清洗口腔。迅速将患者送往急救中心。

- **Skin contact:**

Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Get medical aid.

- **皮肤接触：**

万一接触，用大量水冲洗至少 15 分钟，同时除去污染的衣物和鞋子，迅速就医。

- **Eye contact:**

Do not rub eyes. Immediately flush eyes with water continuously for at least 15 minutes. Seek medical attention.

- **眼睛接触：**

不要擦拭眼睛。立即用清水冲洗眼睛至少 15 分钟。寻求医疗援助。

### Section 5 - Fire Fighting Measures 第五节-消防措施

- **Suitable extinguishing media:**

Plenty of water, carbon dioxide gas, nitrogen gas, chemical powder fire extinguishing medium and fire foam.

- **合适的灭火媒介：**

大量的水，二氧化碳气体，氮气，化学干粉灭火介质或泡沫介质。

- **Specific hazards:**

Corrosive gas may be emitted during fire.

- **具体危害：**

火灾期间可能释放腐蚀性气体（一氧化碳，二氧化碳，锂氧化物烟气等）。

- **Specific fire extinguishing measures:**

when the battery and other combustible materials are burned, the fire extinguishing mode can be taken corresponding to the combustible materials. Put out the fire on the upwind whenever possible.

- **具体灭火措施：**

当电池和其他可燃物燃烧的同时可采取与可燃物相对应得灭火方式。尽可能在上风向进行灭火。

- **Special protective equipment for firefighters:**

1. Respiratory protection: Respiratory equipment of a gas cylinder style or protection-against-dust mask Hand protection; 2. Protective gloves Eye protection; 3. Goggle or protective glasses; 4. designed to protect against liquid splashes Skin and body protection: Protective clothes.

# Material Safety Data Sheet

## 材料安全数据表

No.: 20250101108

Date: 2025-01-01

Version: E01

- 消防人员的特殊防护设备：  
1、呼吸防护：气瓶式呼吸设备或防尘口罩手防护；2、护眼防护手套；3、护目镜或防护眼镜；4、用于防止液体飞溅皮肤和身体防护：防护服。

### Section 6 - Accidental Release Measures 第六节-泄漏应急处理

#### Emergency Procedures 应急程序：

- Minor Spills of Cell Materials
- 电池材料的轻微泄露
  - Remove all ignition sources.  
移除所有点火源。
  - Clean up all spills immediately.  
迅速清理所有泄露。
  - Avoid contact with skin and eyes.  
避免接触皮肤和眼睛。
  - Control personal contact by using protective equipment.  
使用防护设备控制个人接触。
  - Use dry clean up procedures and avoid generating gas or volatile.  
使用干式清洁程序，避免产生气体或挥发性物质。
  - Ventilate the storage area.  
给储藏区通风。
  - Discharge the cell to Zero Voltage by a over 5 Ohm resistance, before place into waste container.  
在放入废物容器之前，使用超过 5 欧姆的电阻将电池放电至零电压。
  - Place in a suitable labeled container for waste disposal.  
放置在适当的贴有标签的容器中进行废物处理。
- Major Spills of Cell Material
- 电池材料的重大泄漏
  - Clean up all spills immediately.  
迅速清理所有泄露。
  - Wear protective clothing, safety glasses, dust mask, gloves.  
穿戴防护服、安全眼镜、防尘口罩、手套。
  - Secure load if safe to do so. Collect recoverable product.  
如果安全的话，固定负载.收集可回收产品。
  - Use dry clean up procedures and avoid generating gas or volatile.  
使用干式清洁程序，避免产生气体或挥发性物质。
  - Ventilate the storage area.  
给储藏区通风。
  - Discharge the cell to Zero Voltage by a over 5 Ohm resistance, before place into waste container.  
在放入废物容器之前，通过超过 5 欧姆的电阻将电池放电至零电压。
  - Collect remaining material in containers with covers for disposal.  
将剩余材料收集在带盖子的容器中进行处理。
  - Flush spill area with water.  
用水冲洗溢出区域。
- Protective Actions for Spill
- 泄露的保护措施

# Material Safety Data Sheet

## 材料安全数据表

No.: 20250101108

Date: 2025-01-01

Version: E01

Measures to be taken in the event of a material leak or spill: The preferred response is to leave the area and allow the cell to cool and the vapours to dissipate. Avoid skin and eye contact or inhalation of vapours. Remove spilled liquid with absorbent and incinerate.

材料泄漏或溢出时应采取的措施: 首选的反应是离开该区域, 让电池冷却, 蒸汽消散。避免皮肤和眼睛接触或吸入蒸汽。用吸收剂清除溢出的液体并焚烧。

### Section 7 - Handling and storage 第七节-操作处置与储存

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.

禁止打开、毁坏或焚烧电池, 因为电池有可能在这些处理过程中发生爆炸、破裂或泄露等事故。禁止将电池短路、过充、强制放电或扔入火中。禁止挤压刺穿电池或将电池浸入溶液中。

#### Operation Disposition:

Don't handling the batteries in manner that allows terminals to short circuit. Do not open, disassemble, crush or burn battery.

#### 操作处置:

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。

#### Precautions in storage:

Must be stored in an air-conditioned environment, requirements:  $-20^{\circ}\text{C} \leq \text{temperature} \leq 35^{\circ}\text{C}$ , humidity:  $\leq 75\%$ . Try to isolate from organic solvents and toxic, corrosive substances, such as by the conditions can not be isolated, the battery should be avoided and any toxic, corrosive substances or organic solvents in contact with the contact (including gas contact). Prohibit high temperature storage of the battery, contact with heating equipment, avoid direct sunlight, etc., and the distance from the heat source (heating equipment, etc.) shall not be less than 2m.

#### 储存中的防范措施:

必须在空调环境中存储, 要求:  $-20^{\circ}\text{C} \leq \text{温度} \leq 35^{\circ}\text{C}$ , 湿度:  $\leq 75\%$ ; 尽量与机溶剂及有毒、有腐蚀性的物质隔离, 如受条件限制不能隔离, 应避免电池与任何有毒、有腐蚀性物质或有机溶剂接触(包括气体接触)。禁止将电池高温储存、接触加热设备、避免阳光直射等, 与热源(暖气设备等)的距离不得小于 2m。

#### Other Precautions:

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.

#### 其他要注意的防范措施:

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。

Keep out of reach of children.

储存在小孩接触不到的地方。

### Section 8 - Exposure Controls, Personal Protection 第八节-接触控制/个体防护

#### Personal protective equipment

个人防护设施

Respiratory protection: Respirator with air cylinder, dust mask.

呼吸防护: 带气瓶的呼吸器、防尘口罩。

Hand protection: Protective gloves.

接触防护: 防护手套。

Eye protection: Goggle or protective glasses designed to protect against liquid splashes.

眼睛防护：设计用于防止液体飞溅的护目镜或防护眼镜。

Skin and body protection: Working clothes with long sleeve and long trousers.

皮肤和身体防护：长袖长裤工作服。

### Section 9 - Physical And Chemical Properties 第九节-理化特性

Physical state: Solid

物理状态：固态

Odor: Odorless.If leaking, smells of medical ether.

气味：无气味。如有泄漏，有醚的气味。

pH: NA

酸碱度：不适用

Specific temperatures/temperature ranges where changes in physical state occur: No useful information on mixture products.

具体温度/物理状态发生变化的温度范围：没有关于混合物产品的有用信息。

Flash point: NA

闪点：不适用

Explosion properties: NA

爆炸特性：不适用

Density: NA

稠度：不适用

Solubility, with indication of the solvent(s): Insoluble in water.

溶解性，有溶剂指示：不溶于水。

### Section 10 - Stability and Reactivity 第十节-稳定性和反应性

Stability:Stable under normal conditions of use.

稳定性：在正常使用条件下稳定。

- Conditions to avoid: Hazardous reactions occurring under specific conditions.
- 避免的条件：在特定条件下发生的危险反应。
- Conditions to avoid: When cell is exposed to an external short-circuit, crushes,deformation, high temperature above 100 degree C, it will cause heat generation and ignition. Avoid direct sunlight and high humidity.
- 应避免的条件：当电池暴露在外部短路、挤压、变形、温度高于 100 摄氏度时，会导致发热和点火。避免阳光直射和高湿度。
- Materials to avoid: Conductive materials, water, seawater, strong oxidizers and strong acids.
- 避免使用的材料：导电材料、水、海水、强氧化剂和强酸。
- Toxic Fumes, and may form peroxides.
- 有毒烟雾，并可能形成过氧化物。

If leaked,forbidden to contact with strong oxidizers,mineral acids,strong alkalis,halogenated hydrocarbons.

如果发生泄露，避免与强氧化剂、无机酸、强碱、卤代烃接触。

### Section 11 - Toxicological Information 第十一节-毒理学信息

Lithium cobalt Oxide - LiCoO<sub>2</sub> 钴酸锂 - LiCoO<sub>2</sub>

- Acute toxicity: No applicable data.
- 急性毒性：无适用数据。
- Reference: cobalt,LDLo;oral - Guinea pig 20mg/kg

# Material Safety Data Sheet

## 材料安全数据表

No.: 20250101108

Date: 2025-01-01

Version: E01

- 参考: 钴, LDLo; 口服-豚鼠 20mg/kg
- Local effects: Unknown.
- 局部效应: 未知。
- Sensitization: The nervous system of respiratory organs may be stimulated sensitively.
- 致敏: 呼吸器官的神经系统可能受到敏感刺激。
- Chronic toxicity/Long term toxicity: By the long-term inhalation of coarse particulate or vapor of cobalt, it is possible to cause the serious respiratory-organs disease. Skin reaction or a lung disease for allergic or hypersensitive person may be caused.
- 慢性毒性/长期毒性: 长期吸入粗颗粒物或钴蒸气, 有可能导致严重的呼吸器官疾病。过敏或过敏症患者可能会出现皮肤反应或肺部疾病。
- Skin causticity: Although it is very rare, the rash of the skin and allergic erythema may result.
- 皮肤腐蚀性: 虽然非常罕见, 但可能会导致皮肤皮疹和过敏性红斑。

### Manganese 锰

- When manganese's concentration is 0.1 mg/L in water, make BOD<sub>5</sub> reduced.
- 当锰在水中的浓度为 0.1mg/L 时, 使 BOD<sub>5</sub> 降低。
- Mainly for chronic poisoning, damage to the central nervous system especially.
- 主要用于慢性中毒, 尤其是对中枢神经系统的损害。
- Extrapyramidal system 锥体外系:  
LD<sub>50</sub>: 9000 mg/kg (through the rats mouth), LC<sub>50</sub>: No data LD<sub>50</sub>: 9000 mg/kg (通过鼠口腔), LC<sub>50</sub>: 无数据。

### Aluminum 铝

- Local effects: Aluminum itself has no toxicity. When it goes into a wound, dermatitis may be caused.
- 局部效应: 铝本身没有毒性。当它进入伤口时, 可能会引起皮炎。
- Chronic toxicity/Long term toxicity: By the long-term inhalation of coarse particulate or fume, it is possible to cause lung damage (aluminum lungs).
- 慢性毒性/长期毒性: 长期吸入粗颗粒物或烟雾可能导致肺损伤 (铝肺)。

### Copper 铜

- Acute toxicity: 60-100mg sized coarse particulate causes a gastrointestinal disturbance with nausea and inflammation. TDLo, hypodermic - Rabbit 375mg/kg
- 急性毒性: 60-100mg 大小的粗颗粒会引起胃肠道紊乱, 伴有恶心和炎症。TDLo, 皮下注射-兔子 375mg/kg
- Local effects: Coarse particulate stimulates nose and tracheal. When it goes into one's eyes, reddening and pain may occur.
- 局部影响: 粗颗粒刺激鼻子和气管。当它进入眼睛时, 可能会变红和疼痛。
- Sensitization: Sensitization of the skin may be caused by long-term or repetitive contact.
- 致敏: 皮肤的致敏可能是由长期或反复接触引起的。
- Reproductive toxicity: TDLo, oral - Rat 152mg/kg.
- 生殖毒性: TDLo, 口服-大鼠 152mg/kg。

### Nickel 镍

- Local effects: Through the pores and sebaceous glands penetrate into the skin, causing skin allergies inflammation, Its clinical manifestations is dermatitis and eczema.
- 局部效应: 皮脂腺通过毛孔渗入皮肤, 引起皮肤过敏性炎症, 其临床表现为皮炎和湿疹。

# Material Safety Data Sheet

## 材料安全数据表

No.: 20250101108

Date: 2025-01-01

Version: E01

### Graphite 石墨

- Acute toxicity: Unknown.
- 急性毒性：未知。
- Local effects: When it goes into one's eyes, it stimulates one's eyes; conjunctivitis, thickening of corneal epithelium or edematous inflammation palpebra may be caused.
- 局部效应：当它进入眼睛时，刺激眼睛；可能引起结膜炎、角膜上皮增厚或眼睑水肿性炎症。
- Chronic toxicity/Long term toxicity: Long-term inhalation of high levels of graphite coarse particulate may cause lung disease or a tracheal disease.
- 慢性毒性/长期毒性：长期吸入高水平的石墨粗颗粒可能导致肺部疾病或气管疾病。
- Carcinogenicity 致癌性：
- Graphite is not recognized as a cause of cancer. 石墨不被认为是致癌的原因。

### Organic Electrolyte 有机电解液

- Acute toxicity: LD50, oral - Rat 2000mg/kg or more HLD(half lethal dose), 2000mg/kg or more (take orally); 60-100mg copper particles can cause stomach sicchasia and inflammation.
- 急性毒素: LD50, 口服-大鼠 2000mg/kg 或更多 HLD (半致死剂量), 2000mg/kg 或更多 (口服); 60-100mg 铜颗粒可导致胃干燥和炎症。
- Local effects: Unknown.
- 局部效应：未知。
- Skin irritation study: Rabbit - Mild
- 皮肤刺激性研究：兔子-轻度。
- Eye irritation study: Rabbit - Very severe.
- 眼睛刺激性研究：兔子 - 重度。

### Section 12 - Ecological Information 第十二节-生态信息

Marine Pollutant: Not Determined. No data for Polymer Lithium-ion Battery.

海洋污染物：未确定。没有聚合物锂离子电池的数据。

Kindly Reminder: Disallow material discharge or abandon a natural environment that have no government's permission .  
温馨提醒：不允许物质排放或放弃未经政府许可的自然环境。

The lithium ion battery disposal must, in accordance with professional treatment: Enterprise treat hazardous waste and transport the waste must accord with the government and local government requirements. Don't allow individuals to burn the battery.

企业处理危险废物和运输危险废物必须符合政府和当地的要求，不允许个人焚烧电池。

### Section 13 - Disposal Consideration 第十三节-废弃处置

Waste disposal must be in accordance with the applicable regulations. Disposal of the lithium ion battery/cell should be performed by permitted, professional disposal Page: firms knowledgeable in State or Local requirements of hazardous waste treatment and hazardous waste transportation. Incineration should never be performed by battery eventually by trained professional in authorized facility with proper gas and fume but users, treatment.

废物处理必须符合适用法规。锂离子电池/电池的处置应由许可的专业处置机构进行：了解州或地方危险废物处理和危险废物运输要求的公司。焚烧最终不得由经过培训的专业人员在具有适当气体和烟雾的授权设施中使用电池进行，但应由用户进行处理。

# Material Safety Data Sheet

## 材料安全数据表

No.: 20250101108      Date: 2025-01-01      Version: E01

### Section 14 - Transport Information 第十四节-运输信息

当锂离子电池的含电量不超过 20Wh/电芯、100Wh/电池组，并且满足 PI 965 第 IB 节、PI 966/967 第 II 节的包装要求时，根据联合国关于危险货物运输的建议，只要包装牢固并防止产品短路，就可以被视为“非危险货物”。

When Lithium ion batteries' containing no more than 20Wh/cell, 100Wh/battery pack and meet the package requirement of PI 965 Section IB, PI 966/967 Section II can be treated as "Non-dangerous goods" under the United Nations Recommendations on the Transport of Dangerous Goods, provided that packaging is strong and prevent the products from short-circuit.

UN No. and Shipping name: UN 3480 Lithium ion batteries.

UN 编号及运输专有名称: UN 3480 锂离子电池

UN 3481 Lithium ion batteries packed with equipment.

UN 3481 与设备包装在一起的锂离子电池

UN 3481 Lithium ion batteries contained in equipment

UN 3481 锂离子电池包括锂聚合物电池

Label for conveyance: Battery Mark, class 9 lithium battery or sodium ion battery hazard label (Only for UN3480), Cargo Aircraft Only Label (Only for UN3480)

运输标签: 电池标记, 第 9 类锂电池或钠离子电池危险品标签(只适用 UN3480), 仅限货机标签(只适用 UN3480)

Packaging Group: N/A

包装等级: 不适用

EmS No./EmS : F-A, S-I

Marine pollutants: No

海洋污染物: 无

ICAO/IATA	Shipped by air in accordance with International Civil Aviation Organization (ICAO), TI or International Air Transport Association (IATA), DGR Packing Instructions PI 965 IB, PI 966 II, PI 967 II. 根据国际民用航空组织(ICAO), TI 或者国际航空协会(IATA), DGR 包装说明 PI 965 IB, PI 966 II, PI 967 II 相关规定进行空运。	DGR 66 th (2025)ICAO (2025-2026 edition)
IMDG CODE	Shipped by sea in accordance with International Maritime Dangerous Code (IMDG CODE) Special Provision 188. 根据《国际海运危险货物规则》(IMDG CODE)特殊规定 188 条款相关规定运输。	IMDG CODE (Amdt. 42-24)

Our products are properly classified,described,packaged,marked and labeled.And are in proper condition for transportation according to all the applicable international and national governmental regulations,not limited to the above mentioned. We further certify that the enclosed products have been tested and fulfilled the requirements and conditions in accordance with UN Recommendations (T1~T8) on the Transport of Dangerous Goods Model Regulations and Manual of the Testes and Criteria that can be treated as "Non-Dangerous Goods".

我们的产品根据所有适用的国际和国家政府法规（不限于上述规定）进行了适当的分类、描述、包装、标记和标签，并处于适当的运输状态。我们进一步证明，所附产品已根据联合国关于危险货物运输模式的建议（T1~T8）进行测试，并满足要求和条件可被视为“非危险品”的试验法规和手册以及标准。

**Manual of Test and Criteria(38.3 Lithium battery) 测试和标准手册（38.3 锂电池）**

No.	Test Item 测试项目	Test Results 测试结果	Remark 备注
T1	Altitude Simulation 高空模拟	Passed 通过	
T2	Thermal Test 热试验	Passed 通过	
T3	Vibration 振动	Passed 通过	

# Material Safety Data Sheet

## 材料安全数据表

No.: 20250101108

Date: 2025-01-01

Version: E01

T4	Shock 震动	Passed 通过	
T5	External Short Circuit 外部短路	Passed 通过	
T6	Impact/Crush 冲击/挤压	Passed 通过	for cell only 只针对电池
T7	Overcharge 过充测试	Passed 通过	for pack only 只针对包装
T8	Forced Discharge 强制放电	Passed 通过	for cell only 只针对电池

### Section 15 - Regulatory information 第十五节-法规信息

#### Law information

#### 法律信息

《Dangerous Goods Regulations》

《危险品规则》

《Recommendations on the Transport of Dangerous Goods Model Regulations》

《关于危险货物运输的建议书 规章范本》

《International Maritime Dangerous Goods Code》

《国际海运危险货物规则》

《Technical Instructions for the Safe Transport of Dangerous Goods》

《危险品安全运输技术指令》

《Safety data sheet for chemical products -Content and order of sections》

《化学品安全技术说明书 内容和项目顺序》

《Guidance on the compilation of safety data sheet for chemical products》

《化学品安全技术说明书编写指南》

《List of Dangerous Chemical Substances 2015》

《危险化学品目录（2015）》

《Safety data sheet for chemical products-Content and order of sections》

《化学品安全技术说明书 内容和项目顺序》

《Globally Harmonized System of Classification and Labeling of Chemicals (GHS)》

《全球化学品统一分类和标签制度（全球统一制度）》

### Section 16 - Other information 第十六节-其他信息

For more information please contact:

获取更多信息请联系:

General Manager: xian mao Zhou

总经理: 周显茂

Add: Building 1-4, Puli Industrial New Area, Zhaojia Street, Kaizhou District, Chongqing, China

地址: 中国重庆市开州区赵家街道浦里工业新区 1-4 号楼

Tel 电话: +86-23-52977888

Fax: 传真: +86-23-52675969

Web 网站: [www.gdvdl.com](http://www.gdvdl.com)

Producer 制作人: Jijia Xu 徐佳佳

Remark: The batteries are safe for transportation, and it is advised to use dry powder fire extinguisher in case of explosion or inflammation.

备注: 电池运输安全, 建议使用干粉灭火器, 以防爆炸或燃烧。

# Material Safety Data Sheet

## 材料安全数据表

No.: 20250101107

Date: 2025-01-01

Version: E01

### Section I - Product and Company Identification 第一节-产品和企业标识

Product Name: Rechargeable Li-ion Battery

产品名称: 可充电锂离子电池

Product Model 产品型号: 772130

Nominal Voltage 额定电压: 3.85 V

Minimal Capacity 最小容量: 500 mAh

Watt-hour 瓦 时: 1.925 Wh

Manufacturer's Name : CHONGQING VDL ELECTRONICS CO.,LTD.

制造商名称: 重庆市紫建电子股份有限公司

Address: Building 1-4, Puli Industrial New Area, Zhaojia Street, Kaizhou District, Chongqing, China.

地址: 重庆市开州区赵家街道浦里工业新区 1-4 号楼

Postal Code 邮编: 405401

Telephone 电话: +86-23-52977888

E-mail 邮箱: vdl@gdvd.com

Web 网址: www.gdvd.com

In case of emergency contact 紧急联系电话: +86-23-52977888

Referenced documents 参考文件: ISO 11014:2009 Safety data sheet for chemical products

### Section 2 - Hazards summarizing 第二节-危险性概述

Hazards Identification: Lithium-ion batteries are classified as Class IX dangerous goods. Not dangerous with normal use. Do not dismantle, open or shred the battery ingredients contained within or their ingredients products could be harmful.

危险性识别: 锂离子电池属于第九类危险品。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毒的。

Primary Route(s) of Exposure: Inhalation, Ingestion, Skin contact and Eye contact.

接触途径: 吸入、食入、皮肤接触、眼睛接触。

Potential Health Effects:

潜在健康影响

• Inhalation:

Vapors or mists from a ruptured battery may cause respiratory irritation.

• 吸入:

破裂的电池散发出来的气雾会引起呼吸道刺激。

• Ingestion:

The battery ingredients contained within or their ingredients products can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract.

• 食入:

电池的组成成分或原料可以导致嘴、食道和胃肠道的严重化学烧伤。

• Skin contact:

Skin contact with contents of an open battery can cause severe irritation or burns to the skin.

• 皮肤接触:

皮肤接触到电池的内部化学材料可能会导致严重的刺激或烧伤皮肤。

• Eye contact:

Eye contact with contents of an open battery can cause severe irritation or burns to the eye.

• 眼睛接触:

# Material Safety Data Sheet

## 材料安全数据表

No.: 20250101107

Date: 2025-01-01

Version: E01

眼睛接触到电池的内部化学材料可能会导致严重的刺激或烧伤眼睛。

### Section 3 - Composition / Information on Ingredients 第三节-组成/成分信息

Ingredient Name 成分名称	Concentration 含量	CAS No. CAS 号
Lithium Cobalt Oxide 钴酸锂	30%~50%	12190-79-3
Carbon Black 炭黑	0.5%~1%	1333-86-4
Polyvinylidene Fluoride PVDF	0.5%~1%	24937-79-9
Aluminium 铝	5%~10%	7429-90-5
Graphite 石墨	15%~25%	7782-42-5
Styrene-Butadiene Rubber SBR	0.2%~1%	9003-55-8
Carboxy methyl cellulose CMC	0.2%~1%	9004-32-4
Copper 铜	5%~15%	7440-50-8
Nickel 镍	0.5%~1.5%	7440-02-0
Lithium Hexafluorophosphate 六氟磷酸锂	1%~15%	21324-40-3
Ethylene carbonate 碳酸乙烯酯	1%~15%	96-49-1
Propylene carbonate 碳酸丙烯酯	1%~15%	108-32-7
Ethyl propionate 丙酸乙酯	1%~15%	105-37-3
Propyl propionate 丙酸丙酯	1%~15%	106-36-5
1,3-Propanesultone 1,3-丙烷磺酸内酯	0.075%~0.6%	1120-71-4
Polyethylene 聚乙烯	1%~5%	9002-88-4
Nylon6 尼龙6	0.5%~1%	25038-54-4
Poly(ethylene terephthalate) PET 聚酯膜	0.5~5%	25038-59-9

### Section 4 - First Aid Measures 第四节-急救措施

Once battery shell rupture, content contact with the human body will produce harm, once contact, should take the

# Material Safety Data Sheet

## 材料安全数据表

No.: 20250101107

Date: 2025-01-01

Version: E01

following emergency measures:

电池外壳一旦破裂，内容物接触人体会产生危害，一旦发生接触，应采取以下应急措施：

- **Inhalation:**

Remove from exposure to fresh air immediately, give oxygen if breathing is difficult, seek medical attention immediately

- **吸入：**

需要立即从有害物质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:**

If ingestion of contents of an open battery occurs, never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 60 to 240 mL (2-8 oz.) of water. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Quickly transport victim to an emergency care facility.

- **摄入：**

如果摄入了电池的內部物质，如果患者突然失去意识，或是无意识的抽搐，不要给患者口服任何东西。让患者用清水彻底清洗口腔。不要催吐，让患者饮用 60 到 240 毫升（2-8 盎司）的清水。如果发生自然地呕吐是自然现象，让患者身体自然前倾。让患者再次用水清洗口腔。迅速将患者送往急救中心。

- **Skin contact:**

Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Get medical aid.

- **皮肤接触：**

万一接触，用大量水冲洗至少 15 分钟，同时除去污染的衣物和鞋子，迅速就医。

- **Eye contact:**

Do not rub eyes. Immediately flush eyes with water continuously for at least 15 minutes. Seek medical attention.

- **眼睛接触：**

不要擦拭眼睛。立即用清水冲洗眼睛至少 15 分钟。寻求医疗援助。

### Section 5 - Fire Fighting Measures 第五节-消防措施

- **Suitable extinguishing media:**

Plenty of water, carbon dioxide gas, nitrogen gas, chemical powder fire extinguishing medium and fire foam.

- **合适的灭火媒介：**

大量的水，二氧化碳气体，氮气，化学干粉灭火介质或泡沫介质。

- **Specific hazards:**

Corrosive gas may be emitted during fire.

- **具体危害：**

火灾期间可能释放腐蚀性气体（一氧化碳，二氧化碳，锂氧化物烟气等）。

- **Specific fire extinguishing measures:**

when the battery and other combustible materials are burned, the fire extinguishing mode can be taken corresponding to the combustible materials. Put out the fire on the upwind whenever possible.

- **具体灭火措施：**

当电池和其他可燃物燃烧的同时可采取与可燃物相对应得灭火方式。尽可能在上风向进行灭火。

- **Special protective equipment for firefighters:**

1. Respiratory protection: Respiratory equipment of a gas cylinder style or protection-against-dust mask Hand protection; 2. Protective gloves Eye protection; 3. Goggle or protective glasses; 4. designed to protect against liquid splashes Skin and body protection: Protective clothes.

# Material Safety Data Sheet

## 材料安全数据表

No.: 20250101107

Date: 2025-01-01

Version: E01

- 消防人员的特殊防护设备：
  - 1、呼吸防护：气瓶式呼吸设备或防尘口罩手防护；
  - 2、护眼防护手套；
  - 3、护目镜或防护眼镜；
  - 4、用于防止液体飞溅皮肤和身体防护：防护服。

### Section 6 - Accidental Release Measures 第六节-泄漏应急处理

#### Emergency Procedures 应急程序：

- Minor Spills of Cell Materials
- 电池材料的轻微泄露
  - Remove all ignition sources.  
移除所有点火源。
  - Clean up all spills immediately.  
迅速清理所有泄露。
  - Avoid contact with skin and eyes.  
避免接触皮肤和眼睛。
  - Control personal contact by using protective equipment.  
使用防护设备控制个人接触。
  - Use dry clean up procedures and avoid generating gas or volatile.  
使用干式清洁程序，避免产生气体或挥发性物质。
  - Ventilate the storage area.  
给储藏区通风。
  - Discharge the cell to Zero Voltage by a over 5 Ohm resistance, before place into waste container.  
在放入废物容器之前，使用超过 5 欧姆的电阻将电池放电至零电压。
  - Place in a suitable labeled container for waste disposal.  
放置在适当的贴有标签的容器中进行废物处理。
- Major Spills of Cell Material
- 电池材料的重大泄漏
  - Clean up all spills immediately.  
迅速清理所有泄露。
  - Wear protective clothing, safety glasses, dust mask, gloves.  
穿戴防护服、安全眼镜、防尘口罩、手套。
  - Secure load if safe to do so. Collect recoverable product.  
如果安全的话，固定负载.收集可回收产品。
  - Use dry clean up procedures and avoid generating gas or volatile.  
使用干式清洁程序，避免产生气体或挥发性物质。
  - Ventilate the storage area.  
给储藏区通风。
  - Discharge the cell to Zero Voltage by a over 5 Ohm resistance, before place into waste container.  
在放入废物容器之前，通过超过 5 欧姆的电阻将电池放电至零电压。
  - Collect remaining material in containers with covers for disposal.  
将剩余材料收集在带盖子的容器中进行处理。
  - Flush spill area with water.  
用水冲洗溢出区域。
- Protective Actions for Spill
- 泄露的保护措施

# Material Safety Data Sheet

## 材料安全数据表

No.: 20250101107

Date: 2025-01-01

Version: E01

Measures to be taken in the event of a material leak or spill: The preferred response is to leave the area and allow the cell to cool and the vapours to dissipate. Avoid skin and eye contact or inhalation of vapours. Remove spilled liquid with absorbent and incinerate.

材料泄漏或溢出时应采取的措施: 首选的反应是离开该区域, 让电池冷却, 蒸汽消散。避免皮肤和眼睛接触或吸入蒸汽。用吸收剂清除溢出的液体并焚烧。

### Section 7 - Handling and storage 第七节-操作处置与储存

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.

禁止打开、毁坏或焚烧电池, 因为电池有可能在这些处理过程中发生爆炸、破裂或泄露等事故。禁止将电池短路、过充、强制放电或扔入火中。禁止挤压刺穿电池或将电池浸入溶液中。

#### Operation Disposition:

Don't handling the batteries in manner that allows terminals to short circuit. Do not open, disassemble, crush or burn battery.

#### 操作处置:

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。

#### Precautions in storage:

Must be stored in an air-conditioned environment, requirements:  $-20^{\circ}\text{C} \leq \text{temperature} \leq 35^{\circ}\text{C}$ , humidity:  $\leq 75\%$ . Try to isolate from organic solvents and toxic, corrosive substances, such as by the conditions can not be isolated, the battery should be avoided and any toxic, corrosive substances or organic solvents in contact with the contact (including gas contact). Prohibit high temperature storage of the battery, contact with heating equipment, avoid direct sunlight, etc., and the distance from the heat source (heating equipment, etc.) shall not be less than 2m.

#### 储存中的防范措施:

必须在空调环境中存储, 要求:  $-20^{\circ}\text{C} \leq \text{温度} \leq 35^{\circ}\text{C}$ , 湿度:  $\leq 75\%$ ; 尽量与机溶剂及有毒、有腐蚀性的物质隔离, 如受条件限制不能隔离, 应避免电池与任何有毒、有腐蚀性物质或有机溶剂接触(包括气体接触)。禁止将电池高温储存、接触加热设备、避免阳光直射等, 与热源(暖气设备等)的距离不得小于 2m。

#### Other Precautions:

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.

#### 其他要注意的防范措施:

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。

Keep out of reach of children.

储存在小孩接触不到的地方。

### Section 8 - Exposure Controls, Personal Protection 第八节-接触控制/个体防护

#### Personal protective equipment

个人防护设施

Respiratory protection: Respirator with air cylinder, dust mask.

呼吸防护: 带气瓶的呼吸器、防尘口罩。

Hand protection: Protective gloves.

接触防护: 防护手套。

Eye protection: Goggle or protective glasses designed to protect against liquid splashes.

# Material Safety Data Sheet

## 材料安全数据表

No.: 20250101107

Date: 2025-01-01

Version: E01

眼睛防护：设计用于防止液体飞溅的护目镜或防护眼镜。

Skin and body protection: Working clothes with long sleeve and long trousers.

皮肤和身体防护：长袖长裤工作服。

### Section 9 - Physical And Chemical Properties 第九节-理化特性

Physical state: Solid

物理状态：固态

Odor: Odorless.If leaking, smells of medical ether.

气味：无气味。如有泄漏，有醚的气味。

pH: NA

酸碱度：不适用

Specific temperatures/temperature ranges where changes in physical state occur: No useful information on mixture products.

具体温度/物理状态发生变化的温度范围：没有关于混合物产品的有用信息。

Flash point: NA

闪点：不适用

Explosion properties: NA

爆炸特性：不适用

Density: NA

稠度：不适用

Solubility, with indication of the solvent(s): Insoluble in water.

溶解性，有溶剂指示：不溶于水。

### Section 10 - Stability and Reactivity 第十节-稳定性和反应性

Stability:Stable under normal conditions of use.

稳定性：在正常使用条件下稳定。

- Conditions to avoid: Hazardous reactions occurring under specific conditions.
- 避免的条件：在特定条件下发生的危险反应。
- Conditions to avoid: When cell is exposed to an external short-circuit, crushes,deformation, high temperature above 100 degree C, it will cause heat generation and ignition. Avoid direct sunlight and high humidity.
- 应避免的条件：当电池暴露在外部短路、挤压、变形、温度高于 100 摄氏度时，会导致发热和点火。避免阳光直射和高湿度。
- Materials to avoid: Conductive materials, water, seawater, strong oxidizers and strong acids.
- 避免使用的材料：导电材料、水、海水、强氧化剂和强酸。
- Toxic Fumes, and may form peroxides.
- 有毒烟雾，并可能形成过氧化物。

If leaked,forbidden to contact with strong oxidizers,mineral acids,strong alkalis,halogenated hydrocarbons.

如果发生泄露，避免与强氧化剂、无机酸、强碱、卤代烃接触。

### Section 11 - Toxicological Information 第十一节-毒理学信息

Lithium cobalt Oxide - LiCoO<sub>2</sub> 钴酸锂 - LiCoO<sub>2</sub>

- Acute toxicity: No applicable data.
- 急性毒性：无适用数据。
- Reference: cobalt,LDLo;oral - Guinea pig 20mg/kg

# Material Safety Data Sheet

## 材料安全数据表

No.: 20250101107

Date: 2025-01-01

Version: E01

- 参考: 钴, LDLo; 口服-豚鼠 20mg/kg
- Local effects: Unknown.
- 局部效应: 未知。
- Sensitization: The nervous system of respiratory organs may be stimulated sensitively.
- 致敏: 呼吸器官的神经系统可能受到敏感刺激。
- Chronic toxicity/Long term toxicity: By the long-term inhalation of coarse particulate or vapor of cobalt, it is possible to cause the serious respiratory-organs disease. Skin reaction or a lung disease for allergic or hypersensitive person may be caused.
- 慢性毒性/长期毒性: 长期吸入粗颗粒物或钴蒸气, 有可能导致严重的呼吸器官疾病。过敏或过敏症患者可能会出现皮肤反应或肺部疾病。
- Skin causticity: Although it is very rare, the rash of the skin and allergic erythema may result.
- 皮肤腐蚀性: 虽然非常罕见, 但可能会导致皮肤皮疹和过敏性红斑。

### Manganese 锰

- When manganese's concentration is 0.1 mg/L in water, make BOD<sub>5</sub> reduced.
- 当锰在水中的浓度为 0.1mg/L 时, 使 BOD<sub>5</sub> 降低。
- Mainly for chronic poisoning, damage to the central nervous system especially.
- 主要用于慢性中毒, 尤其是对中枢神经系统的损害。
- Extrapyramidal system 锥体外系:  
LD<sub>50</sub>: 9000 mg/kg (through the rats mouth), LC<sub>50</sub>: No data LD<sub>50</sub>: 9000 mg/kg (通过鼠口腔), LC<sub>50</sub>: 无数据。

### Aluminum 铝

- Local effects: Aluminum itself has no toxicity. When it goes into a wound, dermatitis may be caused.
- 局部效应: 铝本身没有毒性。当它进入伤口时, 可能会引起皮炎。
- Chronic toxicity/Long term toxicity: By the long-term inhalation of coarse particulate or fume, it is possible to cause lung damage (aluminum lungs).
- 慢性毒性/长期毒性: 长期吸入粗颗粒物或烟雾可能导致肺损伤 (铝肺)。

### Copper 铜

- Acute toxicity: 60-100mg sized coarse particulate causes a gastrointestinal disturbance with nausea and inflammation. TDLo, hypodermic - Rabbit 375mg/kg
- 急性毒性: 60-100mg 大小的粗颗粒会引起胃肠道紊乱, 伴有恶心和炎症。TDLo, 皮下注射-兔子 375mg/kg
- Local effects: Coarse particulate stimulates nose and tracheal. When it goes into one's eyes, reddening and pain may occur.
- 局部影响: 粗颗粒刺激鼻子和气管。当它进入眼睛时, 可能会变红和疼痛。
- Sensitization: Sensitization of the skin may be caused by long-term or repetitive contact.
- 致敏: 皮肤的致敏可能是由长期或反复接触引起的。
- Reproductive toxicity: TDLo, oral - Rat 152mg/kg.
- 生殖毒性: TDLo, 口服-大鼠 152mg/kg。

### Nickel 镍

- Local effects: Through the pores and sebaceous glands penetrate into the skin, causing skin allergies inflammation, Its clinical manifestations is dermatitis and eczema.
- 局部效应: 皮脂腺通过毛孔渗入皮肤, 引起皮肤过敏性炎症, 其临床表现为皮炎和湿疹。

# Material Safety Data Sheet

## 材料安全数据表

No.: 20250101107

Date: 2025-01-01

Version: E01

### Graphite 石墨

- Acute toxicity: Unknown.
- 急性毒性：未知。
- Local effects: When it goes into one's eyes, it stimulates one's eyes; conjunctivitis, thickening of corneal epithelium or edematous inflammation palpebra may be caused.
- 局部效应：当它进入眼睛时，刺激眼睛；可能引起结膜炎、角膜上皮增厚或眼睑水肿性炎症。
- Chronic toxicity/Long term toxicity: Long-term inhalation of high levels of graphite coarse particulate may cause lung disease or a tracheal disease.
- 慢性毒性/长期毒性：长期吸入高水平的石墨粗颗粒可能导致肺部疾病或气管疾病。
- Carcinogenicity 致癌性：
- Graphite is not recognized as a cause of cancer. 石墨不被认为是致癌的原因。

### Organic Electrolyte 有机电解液

- Acute toxicity: LD50, oral - Rat 2000mg/kg or more HLD(half lethal dose), 2000mg/kg or more (take orally); 60-100mg copper particles can cause stomach sicchasia and inflammation.
- 急性毒素: LD50, 口服-大鼠 2000mg/kg 或更多 HLD (半致死剂量), 2000mg/kg 或更多 (口服); 60-100mg 铜颗粒可导致胃干燥和炎症。
- Local effects: Unknown.
- 局部效应：未知。
- Skin irritation study: Rabbit - Mild
- 皮肤刺激性研究：兔子-轻度。
- Eye irritation study: Rabbit - Very severe.
- 眼睛刺激性研究：兔子 - 重度。

### Section 12 - Ecological Information 第十二节-生态信息

Marine Pollutant: Not Determined. No data for Polymer Lithium-ion Battery.

海洋污染物：未确定。没有聚合物锂离子电池的数据。

Kindly Reminder: Disallow material discharge or abandon a natural environment that have no government's permission .

温馨提醒：不允许物质排放或放弃未经政府许可的自然环境。

The lithium ion battery disposal must, in accordance with professional treatment: Enterprise treat hazardous waste and transport the waste must accord with the government and local government requirements. Don't allow individuals to burn the battery.

企业处理危险废物和运输危险废物必须符合政府和当地的要求，不允许个人焚烧电池。

### Section 13 - Disposal Consideration 第十三节-废弃处置

Waste disposal must be in accordance with the applicable regulations. Disposal of the lithium ion battery/cell should be performed by permitted, professional disposal Page: firms knowledgeable in State or Local requirements of hazardous waste treatment and hazardous waste transportation. Incineration should never be performed by battery eventually by trained professional in authorized facility with proper gas and fume but users, treatment.

废物处理必须符合适用法规。锂离子电池/电池的处置应由许可的专业处置机构进行：了解州或地方危险废物处理和危险废物运输要求的公司。焚烧最终不得由经过培训的专业人员在具有适当气体和烟雾的授权设施中使用电池进行，但应由用户进行处理。

# Material Safety Data Sheet

## 材料安全数据表

No.: 20250101107      Date: 2025-01-01      Version: E01

### Section 14 - Transport Information 第十四节-运输信息

当锂离子电池的含电量不超过 20Wh/电芯、100Wh/电池组，并且满足 PI 965 第 IB 节、PI 966/967 第 II 节的包装要求时，根据联合国关于危险货物运输的建议，只要包装牢固并防止产品短路，就可以被视为“非危险货物”。

When Lithium ion batteries' containing no more than 20Wh/cell, 100Wh/battery pack and meet the package requirement of PI 965 Section IB, PI 966/967 Section II can be treated as "Non-dangerous goods" under the United Nations Recommendations on the Transport of Dangerous Goods, provided that packaging is strong and prevent the products from short-circuit.

UN No. and Shipping name: UN 3480 Lithium ion batteries.

UN 编号及运输专有名称: UN 3480 锂离子电池

UN 3481 Lithium ion batteries packed with equipment.

UN 3481 与设备包装在一起的锂离子电池

UN 3481 Lithium ion batteries contained in equipment

UN 3481 锂离子电池包括锂聚合物电池

Label for conveyance: Battery Mark, class 9 lithium battery or sodium ion battery hazard label (Only for UN3480), Cargo Aircraft Only Label (Only for UN3480)

运输标签: 电池标记, 第 9 类锂电池或钠离子电池危险品标签(只适用 UN3480), 仅限货机标签(只适用 UN3480)

Packaging Group: N/A

包装等级: 不适用

EmS No./EmS : F-A, S-I

Marine pollutants: No

海洋污染物: 无

ICAO/IATA	Shipped by air in accordance with International Civil Aviation Organization (ICAO), TI or International Air Transport Association (IATA), DGR Packing Instructions PI 965 IB, PI 966 II, PI 967 II. 根据国际民用航空组织(ICAO), TI 或者国际航空协会(IATA), DGR 包装说明 PI 965 IB, PI 966 II, PI 967 II 相关规定进行空运。	DGR 66 th (2025)ICAO (2025-2026 edition)
IMDG CODE	Shipped by sea in accordance with International Maritime Dangerous Code (IMDG CODE) Special Provision 188. 根据《国际海运危险货物规则》(IMDG CODE)特殊规定 188 条款相关规定运输。	IMDG CODE (Amdt. 42-24)

Our products are properly classified,described,packaged,marked and labeled.And are in proper condition for transportation according to all the applicable international and national governmental regulations,not limited to the above mentioned. We further certify that the enclosed products have been tested and fulfilled the requirements and conditions in accordance with UN Recommendations (T1~T8) on the Transport of Dangerous Goods Model Regulations and Manual of the Testes and Criteria that can be treated as "Non-Dangerous Goods".

我们的产品根据所有适用的国际和国家政府法规（不限于上述规定）进行了适当的分类、描述、包装、标记和标签，并处于适当的运输状态。我们进一步证明，所附产品已根据联合国关于危险货物运输模式的建议（T1~T8）进行测试，并满足要求和条件可被视为“非危险品”的试验法规和手册以及标准。

**Manual of Test and Criteria(38.3 Lithium battery) 测试和标准手册（38.3 锂电池）**

No.	Test Item 测试项目	Test Results 测试结果	Remark 备注
T1	Altitude Simulation 高空模拟	Passed 通过	
T2	Thermal Test 热试验	Passed 通过	
T3	Vibration 振动	Passed 通过	

# Material Safety Data Sheet

## 材料安全数据表

No.: 20250101107

Date: 2025-01-01

Version: E01

T4	Shock 震动	Passed 通过	
T5	External Short Circuit 外部短路	Passed 通过	
T6	Impact/Crush 冲击/挤压	Passed 通过	for cell only 只针对电池
T7	Overcharge 过充测试	Passed 通过	for pack only 只针对包装
T8	Forced Discharge 强制放电	Passed 通过	for cell only 只针对电池

### Section 15 - Regulatory information 第十五节-法规信息

**Law information**

**法律信息**

《Dangerous Goods Regulations》

《危险品规则》

《Recommendations on the Transport of Dangerous Goods Model Regulations》

《关于危险货物运输的建议书 规章范本》

《International Maritime Dangerous Goods Code》

《国际海运危险货物规则》

《Technical Instructions for the Safe Transport of Dangerous Goods》

《危险品安全运输技术指令》

《Safety data sheet for chemical products -Content and order of sections》

《化学品安全技术说明书 内容和项目顺序》

《Guidance on the compilation of safety data sheet for chemical products》

《化学品安全技术说明书编写指南》

《List of Dangerous Chemical Substances 2015》

《危险化学品目录（2015）》

《Safety data sheet for chemical products-Content and order of sections》

《化学品安全技术说明书 内容和项目顺序》

《Globally Harmonized System of Classification and Labeling of Chemicals (GHS)》

《全球化学品统一分类和标签制度（全球统一制度）》

### Section 16 - Other information 第十六节-其他信息

For more information please contact:

获取更多信息请联系:

General Manager: xian mao Zhou

总经理: 周显茂

Add: Building 1-4, Puli Industrial New Area, Zhaojia Street, Kaizhou District, Chongqing, China

地址: 中国重庆市开州区赵家街道浦里工业新区 1-4 号楼

Tel 电话: +86-23-52977888

Fax: 传真: +86-23-52675969

Web 网站: [www.gdvdl.com](http://www.gdvdl.com)

Producer 制作人: Jijia Xu 徐佳佳

Remark: The batteries are safe for transportation, and it is advised to use dry powder fire extinguisher in case of explosion or inflammation.

备注: 电池运输安全, 建议使用干粉灭火器, 以防爆炸或燃烧。

# **MATERIAL SAFETY DATA SHEET**

## **Rechargeable Li-ion Coin Cell**

**Model: SP 1254**

<b>Prepared by</b>	<b>Approved by</b>
Xiaoshan Zhang	Fenzhi Shi

# Material Safety Data Sheet

## Section 1 - Chemical Product and Company Identification

### Product Identification

Product: Rechargeable Li-ion Coin Cell  
 Model No.: SP 1254  
 Rated Capacity: 70mAh (0.27Wh)  
 Output Voltage: 3.85V  
 Revision Date: 2024-11-15  
 Expiry date: 2025-12-31

### Manufacturer

Company name: Huizhou Highpower Technology Co., Ltd.  
 Address: Xinhui Industrial Zone, Ma'an Town, Huicheng District, Huizhou City, Guangdong Province, P.R. China  
 Postcode: 516000  
 Telephone: +86-752-5807 998  
 E-mail: zhangxiaoshan@highpowertech.com

## Section 2 - Hazards Identification

Preparation hazards and classification	Not dangerous with normal use. Do not dismantle, open or shred the Rechargeable Li-ion Coin Cell. Exposure to the ingredients contained within or their ingredients products could be harmful.
Appearance, Color, and Odor	Solid object with no odor, no color.
Primary Route(s) of Exposure	These chemicals are contained in a sealed enclosure. Risk of exposure occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, exposure to the electrolyte solution contained within can occur by Inhalation, Ingestion, Eye contact and Skin contact.

Potential Health Effects:	<p><b>ACUTE (short term):</b> see Section 8 for exposure controls In the event that this battery has been ruptured, the electrolyte solution contained within the battery would be corrosive and can cause burns.</p> <p><b>Inhalation:</b> Inhalation of materials from a sealed battery is not an expected route of exposure. Vapors or mists from a ruptured battery may cause respiratory irritation.</p> <p><b>Ingestion:</b> Swallowing of materials from a sealed battery is not an expected route of exposure. Swallowing the contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract.</p> <p><b>Skin:</b> Contact between the battery and skin will not cause any harm. Skin contact with contents of an open battery can cause severe irritation or burns to the skin.</p> <p><b>Eye:</b> Contact between the battery and the eye will not cause any harm. Eye contact with contents of an open battery can cause severe irritation or burns to the eye.</p> <p><b>CHRONIC (long term):</b> see Section 11 for additional toxicological data</p>
Medical Conditions Aggravated by Exposure	Not applicable
Reported as carcinogen	Not applicable

### Section 3 - Composition/Information on Ingredients

Rechargeable Li-ion Coin Cell is a mixture.

Chemical Composition	Concentration or concentration range (%)	CAS No.
Lithium Cobalt Oxide	35~38%	12190-79-3
Graphite	23~25%	7782-42-5
PVDF	0.5~2%	24937-79-9
SBR	0.01~0.05%	9003-55-8
Carboxymethylcellulose	0.1~0.3%	9000-11-7
Lithium Hexafluorophosphate	6~10%	21324-40-3
Aluminum	5~10%	7429-90-5
Copper	5~10%	7440-50-8
Nickel	2~3%	7440-02-0
Polypropylene	2~6%	9003-07-0
PET	0.01~1.05%	25038-59-9
Polyethylene	2~5%	9002-88-4
Nylon	2~5%	24937-16-4

## Section 4 - First-aid Measures

Inhalation	If contents of an opened battery are inhaled, remove source of contamination or move victim to fresh air. Obtain medical advice.
Skin contact	If skin contact with contents of an open battery occurs, as quickly as possible remove contaminated clothing, shoes and leather goods. Immediately flush with lukewarm, gently flowing water for at least 30 minutes. If irritation or pain persists, seek medical attention. Completely decontaminate clothing, shoes and leather goods before reuse or discard.
Eye contact	If eye contact with contents of an open battery occurs, immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes while holding the eyelids open. Neutral saline solution may be used as soon as it is available. If necessary, continue flushing during transport to emergency care facility. Take care not to rinse contaminated water into the unaffected eye or onto face. Quickly transport victim to an emergency care facility.
Ingestion	If ingestion of contents of an open battery occurs, never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 60 to 240 mL (2-8 oz.) of water. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Quickly transport victim to an emergency care facility.

## Section 5 - Fire Fighting Measures

Flammable Properties	In the event that this battery has been ruptured, the electrolyte solution contain within the battery would be flammable. Like any sealed container, battery cells may rupture when exposed to excessive heat; this could result in the release of flammable or corrosive materials.
Suitable extinguishing Media	Use extinguishing media suitable for the materials that are burning.
Unsuitable extinguishing Media	Not available
Explosion Data	Sensitivity to Mechanical Impact: This may result in rupture in extreme cases Sensitivity to Static Discharge: Not Applicable
Specific Hazards arising from the chemical	Fires involving Rechargeable Li-ion Coin Cell are controlled with water. When water is used, however, hydrogen gas may evolve. In a confined space, hydrogen gas can form an explosive mixture. In this situation, smothering agents are recommended to extinguish the fire.

Protective Equipment and precautions for firefighters	As for any fire, evacuate the area and fight the fire from a safe distance. Wear a pressure-demand, self-contained breathing apparatus and full protective gear. Fight fire from a protected location or a safe distance. Use NIOSH/MSHA approved full-face self-contained breathing apparatus (SCBA) with full protective gear.
NFPA	Health: 0 Flammability: 0 Instability: 0

## Section 6 - Accidental Release Measures

Personal Precautions, protective equipment, and emergency procedures	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.
Environmental Precautions	Prevent material from contaminating soil and from entering sewers or waterways.
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.
Methods and materials for cleaning up	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.

## Section 7 - Handling and Storage

Handling	<p>Don't handle Rechargeable Li-ion Coin Cell with metalwork. Do not open, disassemble, crush or burn battery.</p> <p>Ensure good ventilation/ exhaustion at the workplace.</p> <p>Prevent formation of dust. Information about protection against explosions and fires: Keep ignition sources away- Do not smoke.</p>
Storage	<p>If the Rechargeable Li-ion Coin Cell is subject to storage for such a long term as more than 3 months, it is recommended to recharge the Rechargeable Li-ion Coin Cell periodically. 3 months: -10°C~+40°C, 45 to 85%RH And recommended at 0°C~+35°C for long period storage.</p> <p>The capacity recovery rate in the delivery state (50% capacity of fully charged) after storage is assumed to be 80% or more.</p> <p>Do not store Rechargeable Li-ion Coin Cell haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects.</p> <p>Keep out of reach of children.</p> <p>Do not expose Rechargeable Li-ion Coin Cell to heat or fire. Avoid storage in direct sunlight.</p>

Do not store together with oxidizing and acidic materials.

## Section 8 - Exposure Controls and Personal Protection

Engineering Controls	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.
Personal Protective Equipment	<p><b>Respiratory Protection:</b> Not necessary under normal conditions.</p> <p><b>Skin and body Protection:</b> Not necessary under normal conditions, Wear neoprene or nitrile rubber gloves if handling an open or leaking battery.</p> <p><b>Hand protection:</b> Wear neoprene or natural rubber material gloves if handling an open or leaking battery.</p> <p><b>Eye Protection:</b> Not necessary under normal conditions, Wear safety glasses if handling an open or leaking battery.</p>
Other Protective Equipment	Have a safety shower and eye wash fountain readily available in the immediate work area.
Hygiene Measures	Do not eat, drink, or smoke in work area. Maintain good housekeeping.

## Section 9 - Physical and Chemical Properties

Physical State	Form: Solid
	Color: White
	Odour: Monotony
Change in condition:	
pH, with indication of the concentration	Not applicable
Melting point/freezing point	Not available.
Boiling Point, initial boiling point and Boiling range:	Not available.
Flash Point	Not available.
Upper/lower flammability or explosive limits	Not available.
Vapor Pressure:	Not applicable
Vapor Density: (Air = 1)	Not applicable
Density/relative density	Not available.

Solubility in Water:	Insoluble
n-octanol/water partition coefficient	Not available.
Auto-ignition temperature	130°C
Decomposition temperature	Not available.
Odour threshold	Not available.
Evaporation rate	Not available.
Flammability (soil, gas)	Not available.
Viscosity	Not applicable

## Section 10 - Stability and Reactivity

Stability	The product is stable under normal conditions.
Conditions to Avoid (e.g. static discharge, shock or vibration)	Do not subject Rechargeable Li-ion Coin Cell to mechanical shock. Vibration encountered during transportation does not cause leakage, fire or explosion. Do not disassemble, crush, short or install with incorrect polarity. Avoid mechanical or electrical abuse.
Incompatible Materials	Not Available
Hazardous Decomposition Products	This material may release toxic fumes if burned or exposed to fire
Possibility of Hazardous Reaction	Not Available

## Section 11 - Toxicological Information

Irritation	Risk of irritation occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, irritation to the skin, eyes and respiratory tract may occur.
Sensitization	Not Available
Neurological Effects	Not Available
Teratogenicity	Not Available

Reproductive Toxicity	Not Available
Mutagenicity (Genetic Effects)	Not Available
Toxicologically Synergistic Materials	Not Available

## Section 12 - Ecological Information

General note:	Water hazard class 1(Self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Anticipated behavior of a chemical product in environment/possible environmental impace/ecotoxicity	Not Available
Mobility in soil	Not Available
Persistence and Degradability	Not Available
Bioaccumulation potential	Not Available
Other Adverse Effects	Not Available

## Section 13 - Disposal Considerations

Product disposal recommendation: Observe local, state and federal laws and regulations.

Packaging disposal recommendation: Be aware discarded batteries may cause fire, tape the battery terminals to insulate them. Don't disassembly the battery. Completely discharge containers (no tear drops, no powder rest, scraped carefully). Containers may be recycled or re-used. Observe local, state and federal laws and regulations.

## Section 14 - Transport Information

This report applies to by sea, by air and by land;

The Rechargeable Li-ion Coin Cell tested according to the requirements of the 8th revised edition of the UN manual of tests and Criteria, Part III, subsection 38.3;

Rechargeable Li-ion Coin Cell was protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to short circuit;

The Rechargeable Li-ion Coin Cell (1254) according to Section II/IA/IB of PACKING INSTRUCTION 965/966 /967 of the Dangerous Goods Regulations 66<sup>th</sup> Edition: International Air Transport Association (IATA) may be transported and applicable U.S.DOT regulations for the safe transport of Rechargeable Li-ion Coin Cell.

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

The packaging shall be adequate to avoid mechanical damage during transport, handling and stacking. The materials and pack design shall be chosen so as to prevent the development of unintentional electrical conduction, corrosion of the terminals and ingress of moisture.

The package must be handled with care and that a flammability hazard exists if the package is damaged; Each package must be labeled with a Li-ion Battery handling label or in addition to the Class 9 hazard label. With regard to transport, the following regulations are cited and considered:

- The International Civil Aviation Organization (ICAO) Technical Instructions (2025-2026 edition).
- The International Air transport Association (IATA) Dangerous Goods Regulations (66<sup>th</sup> edition).

UN number of lithium battery: UN3480 or UN3481;

UN Proper shipping name/Description (technical name): Lithium ion batteries or Lithium ion batteries contained in equipment or Lithium ion batteries packed with equipment;

UN Classification (Transport hazard class): Non dangerous;

Marine pollutant (Y/N): N;

- The International Maritime Dangerous Goods (IMDG) Code (Amdt. 42-24).

For lithium-ion batteries by sea, provided that packaging is strong and prevent the products from short-circuit.

UN number of lithium battery: UN3480 or UN3481;

UN Proper shipping name/Description (technical name): Lithium ion batteries or Lithium ion batteries contained in equipment or Lithium ion batteries packed with equipment;

UN Classification (Transport hazard class): Non dangerous; Marine pollutant (Y/N): N;

Special Provision: International maritime dangerous goods code (IMDG) 188, 230, 310, 348, 957;

- The US Hazardous Materials Regulation (HMR) pursuant to a final rule issued by RSPA
- The Office of Hazardous Materials Safety within the US Department of Transportations' (DOT)

Research and Special Programs Administration (RSPA)

## Section 15 - Regulatory Information

OSHA hazard communication standard (29 CFR 1910.1200)

\_\_\_\_\_ Hazardous

\_\_\_\_\_ V \_\_\_\_\_ Non-hazardous

## Section 16 - Other Information

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

\*\*\*\*\*End of MSDS\*\*\*\*\*

# **MATERIAL SAFETY DATA SHEET**

## **Rechargeable Li-ion Battery**

**Model: 772030**

<b>Prepared by</b>	<b>Approved by</b>
Xiaoshan Zhang	Fenzhi Shi

# Material Safety Data Sheet

## Section 1 - Chemical Product and Company Identification

### Product Identification

Product: Rechargeable Li-ion Battery  
Model No.: 772030  
Rated Capacity: 500mAh (1.925Wh)  
Output Voltage: 3.85V  
Revision Date: 2024-11-15  
Expiry date: 2025-12-31

### Manufacturer

Company name: Springpower Technology (Shenzhen) CO., LTD.  
101, No. 2, Chaoshun Industrial Zone, 101 Building 6 and 101 Building 7, No. 221 on  
Address: Renmin Road, Fumin Community, Fucheng Street, Longhua District, Shenzhen,  
Guangdong, China  
Postcode: 518110  
Telephone: +86-755-6186 2699  
Fax: +86-755-2952 2241  
E-mail: zhangxiaoshan@highpowertech.com

## Section 2 - Hazards Identification

Preparation hazards and classification	Not dangerous with normal use. Do not dismantle, open or shred the Rechargeable Li-ion Battery. Exposure to the ingredients contained within or their ingredients products could be harmful.
Appearance, Color, and Odor	Solid object with no odor, no color.
Primary Route(s) of Exposure	These chemicals are contained in a sealed enclosure. Risk of exposure occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, exposure to the electrolyte solution contained within can occur by Inhalation, Ingestion, Eye contact and Skin contact.

Potential Health Effects:	<p><b>ACUTE (short term):</b> see Section 8 for exposure controls In the event that this battery has been ruptured, the electrolyte solution contained within the battery would be corrosive and can cause burns.</p> <p><b>Inhalation:</b> Inhalation of materials from a sealed battery is not an expected route of exposure. Vapors or mists from a ruptured battery may cause respiratory irritation.</p> <p><b>Ingestion:</b> Swallowing of materials from a sealed battery is not an expected route of exposure. Swallowing the contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract.</p> <p><b>Skin:</b> Contact between the battery and skin will not cause any harm. Skin contact with contents of an open battery can cause severe irritation or burns to the skin.</p> <p><b>Eye:</b> Contact between the battery and the eye will not cause any harm. Eye contact with contents of an open battery can cause severe irritation or burns to the eye.</p> <p><b>CHRONIC (long term):</b> see Section 11 for additional toxicological data</p>
Medical Conditions Aggravated by Exposure	Not applicable
Reported as carcinogen	Not applicable

### Section 3 - Composition/Information on Ingredients

Rechargeable Li-ion Battery is a mixture.

Chemical Composition	Concentration or concentration range (%)	CAS No.
Lithium Cobalt Oxide	35~38%	12190-79-3
Graphite	23~25%	7782-42-5
PVDF	0.5~2%	24937-79-9
SBR	0.01~0.05%	9003-55-8
Carboxymethylcellulose	0.1~0.3%	9000-11-7
Lithium Hexafluorophosphate	6~10%	21324-40-3
Aluminum	5~10%	7429-90-5
Copper	5~10%	7440-50-8
Nickel	2~3%	7440-02-0
Polypropylene	2~6%	9003-07-0
PET	0.01~1.05%	25038-59-9
Polyethylene	2~5%	9002-88-4
Nylon	2~5%	24937-16-4

## Section 4 - First-aid Measures

Inhalation	If contents of an opened battery are inhaled, remove source of contamination or move victim to fresh air. Obtain medical advice.
Skin contact	If skin contact with contents of an open battery occurs, as quickly as possible remove contaminated clothing, shoes and leather goods. Immediately flush with lukewarm, gently flowing water for at least 30 minutes. If irritation or pain persists, seek medical attention. Completely decontaminate clothing, shoes and leather goods before reuse or discard.
Eye contact	If eye contact with contents of an open battery occurs, immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes while holding the eyelids open. Neutral saline solution may be used as soon as it is available. If necessary, continue flushing during transport to emergency care facility. Take care not to rinse contaminated water into the unaffected eye or onto face. Quickly transport victim to an emergency care facility.
Ingestion	If ingestion of contents of an open battery occurs, never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 60 to 240 mL (2-8 oz.) of water. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Quickly transport victim to an emergency care facility.

## Section 5 - Fire Fighting Measures

Flammable Properties	In the event that this battery has been ruptured, the electrolyte solution contain within the battery would be flammable. Like any sealed container, battery cells may rupture when exposed to excessive heat; this could result in the release of flammable or corrosive materials.
Suitable extinguishing Media	Use extinguishing media suitable for the materials that are burning.
Unsuitable extinguishing Media	Not available
Explosion Data	Sensitivity to Mechanical Impact: This may result in rupture in extreme cases Sensitivity to Static Discharge: Not Applicable

Specific Hazards arising from the chemical	Fires involving Rechargeable Li-ion Battery are controlled with water. When water is used, however, hydrogen gas may evolve. In a confined space, hydrogen gas can form an explosive mixture. In this situation, smothering agents are recommended to extinguish the fire.
Protective Equipment and precautions for firefighters	As for any fire, evacuate the area and fight the fire from a safe distance. Wear a pressure-demand, self-contained breathing apparatus and full protective gear. Fight fire from a protected location or a safe distance. Use NIOSH/MSHA approved full-face self-contained breathing apparatus (SCBA) with full protective gear.
NFPA	Health: 0 Flammability: 0 Instability: 0

## Section 6 - Accidental Release Measures

Personal Precautions, protective equipment, and emergency procedures	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.
Environmental Precautions	Prevent material from contaminating soil and from entering sewers or waterways.
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.
Methods and materials for cleaning up	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.

## Section 7 - Handling and Storage

Handling	<p>Don't handle Rechargeable Li-ion Battery with metalwork. Do not open, disassemble, crush or burn battery.</p> <p>Ensure good ventilation/ exhaustion at the workplace.</p> <p>Prevent formation of dust. Information about protection against explosions and fires: Keep ignition sources away- Do not smoke.</p>
Storage	<p>If the Rechargeable Li-ion Battery is subject to storage for such a long term as more than 3 months, it is recommended to recharge the Rechargeable Li-ion Battery periodically. 3 months: -10°C~+40°C, 45 to 85%RH And recommended at 0°C~+35°C for long period storage.</p> <p>The capacity recovery rate in the delivery state (50% capacity of fully charged) after storage is assumed to be 80% or more.</p> <p>Do not store Rechargeable Li-ion Battery haphazardly in a box or drawer where</p>

	<p>they may short-circuit each other or be short-circuited by other metal objects.          Keep out of reach of children.          Do not expose Rechargeable Li-ion Battery to heat or fire. Avoid storage in direct sunlight.          Do not store together with oxidizing and acidic materials.</p>
--	--

## Section 8 - Exposure Controls and Personal Protection

Engineering Controls	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.
Personal Protective Equipment	<p><b>Respiratory Protection:</b> Not necessary under normal conditions.</p> <p><b>Skin and body Protection:</b> Not necessary under normal conditions, Wear neoprene or nitrile rubber gloves if handling an open or leaking battery.</p> <p><b>Hand protection:</b> Wear neoprene or natural rubber material gloves if handling an open or leaking battery.</p> <p><b>Eye Protection:</b> Not necessary under normal conditions, Wear safety glasses if handling an open or leaking battery.</p>
Other Protective Equipment	Have a safety shower and eye wash fountain readily available in the immediate work area.
Hygiene Measures	Do not eat, drink, or smoke in work area. Maintain good housekeeping.

## Section 9 - Physical and Chemical Properties

Physical State	Form: Solid
	Color: White
	Odour: Monotony
Change in condition:	
pH, with indication of the concentration	Not applicable
Melting point/freezing point	Not available.
Boiling Point, initial boiling point and Boiling range:	Not available.
Flash Point	Not available.
Upper/lower flammability or explosive limits	Not available.
Vapor Pressure:	Not applicable

Vapor Density: (Air = 1)	Not applicable
Density/relative density	Not available.
Solubility in Water:	Insoluble
n-octanol/water partition coefficient	Not available.
Auto-ignition temperature	130°C
Decomposition temperature	Not available.
Odour threshold	Not available.
Evaporation rate	Not available.
Flammability (soil, gas)	Not available.
Viscosity	Not applicable

## Section 10 - Stability and Reactivity

Stability	The product is stable under normal conditions.
Conditions to Avoid (e.g. static discharge, shock or vibration)	Do not subject Rechargeable Li-ion Battery to mechanical shock. Vibration encountered during transportation does not cause leakage, fire or explosion. Do not disassemble, crush, short or install with incorrect polarity. Avoid mechanical or electrical abuse.
Incompatible Materials	Not Available
Hazardous Decomposition Products	This material may release toxic fumes if burned or exposed to fire
Possibility of Hazardous Reaction	Not Available

## Section 11 - Toxicological Information

Irritation	Risk of irritation occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, irritation to the skin, eyes and respiratory tract may occur.
Sensitization	Not Available

Neurological Effects	Not Available
Teratogenicity	Not Available
Reproductive Toxicity	Not Available
Mutagenicity (Genetic Effects)	Not Available
Toxicologically Synergistic Materials	Not Available

## Section 12 - Ecological Information

General note:	Water hazard class 1(Self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Anticipated behavior of a chemical product in environment/possible environmental impace/ecotoxicity	Not Available
Mobility in soil	Not Available
Persistence and Degradability	Not Available
Bioaccumulation potential	Not Available
Other Adverse Effects	Not Available

## Section 13 - Disposal Considerations

Product disposal recommendation: Observe local, state and federal laws and regulations.

Packaging disposal recommendation: Be aware discarded batteries may cause fire, tape the battery terminals to insulate them. Don't disassembly the battery. Completely discharge containers (no tear drops, no powder rest, scraped carefully). Containers may be recycled or re-used. Observe local, state and federal laws and regulations.

## Section 14 - Transport Information

This report applies to by sea, by air and by land;

The Rechargeable Li-ion Battery tested according to the requirements of the 8th revised edition of the UN manual of tests and Criteria, Part III, subsection 38.3;

Rechargeable Li-ion Battery was protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to short circuit;

The Rechargeable Li-ion Battery (772030) according to Section II/IA/IB of PACKING INSTRUCTION 965/ 966 /967 of the Dangerous Goods Regulations 66<sup>th</sup> Edition: International Air Transport Association (IATA) may be transported and applicable U.S.DOT regulations for the safe transport of Rechargeable Li-ion Battery.

More information concerning shipping, testing, marking and packaging can be obtained from label master at

