

# SAFETY DATA SHEET

## 化学品安全技术说明书

Product: Rechargeable Li-ion Battery Pack  
产品: 二次锂离子电池组

Model/type reference: C22N2211  
型号:

Ratings: 7.74V 75Wh  
额定容量

Applicant: SIMPLO TECHNOLOGY CO., LTD.  
申请人: 新普科技股份有限公司

Address: No.471, Sec.2, Bade Rd., Hukou Township, Hsinchu County  
地址: 303104, Chinese Taipei  
新竹县湖口乡八德路 2 段 471 号

Report No: P23070602301  
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Laboratory: **Shenzhen NTEK New Energy Technology Co., Ltd.**  
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China.

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*Jesse Zhang*

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## Section 1- Identification of the Substance/Preparation and of the Company/Undertaking

### 第 1 部分：化学品及企业标识

#### Product Identifier 产品信息

**Product Name 产品名:** Rechargeable Li-ion Battery Pack 二次锂离子电池组

**Model No. 型号:** C22N2211

#### Other means of identification 其他信息

**Synonyms 别名:** None

#### Recommended use of the chemical and restrictions on use 产品用途

**Recommended Use 推荐用途:** LITHIUM ION BATTERIES

**Uses advised against 限制用途:** No information available

#### Details of the supplier of the safety data sheet 企业信息

**Manufacturer's/ Supplier Name:** SIMPLO TECHNOLOGY CO., LTD.

**制造商/供应商名称:** 新普科技股份有限公司

**Address:** No.471, Sec.2, Bade Rd., Hukou Township, Hsinchu County 303104, Chinese Taipei

**地址:** 新竹县湖口乡八德路 2 段 471 号

**Telephone number of the manufacturer/supplier 电话:** +886-3-5695920

**Emergency Telephone Number (24h) 应急电话 (24 小时):** +886-3-5695920

**E-mail address 邮箱:** Zola\_Lee@simplo.com.tw

**Version number 版本号:** V2.0

## Section 2 – Hazards Identification

### 第 2 部分：危险性概述

#### Classification 危险性类别

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200) this product is an article which is a sealed battery and as such does not require an MSDS per the OSHA hazard communication standard unless ruptured. The hazards indicated are for a ruptured battery.

根据 2012 年职业安全与卫生管理局危险标准(29 CFR 1910.1200)，该化学品没有危险。本产品是一种密封电池的物件，因此，除非破裂，根据职业安全与卫生管理局危险标准不需要 MSDS。所示的危险是电池破裂后的危险。

Skin corrosion/irritation 皮肤腐蚀/刺激性	Category 2 2 类
Serious eye damage/eye irritation /刺激性 严重眼睛损伤/刺激性	Category 2 2 类
Skin sensitization 皮肤过敏	Category 1 1 类
Specific target organ toxicity (repeated exposure) 器官毒性	Category 1 1 类

#### GHS Label elements, including precautionary statements GHS 标签要素

##### **Emergency Overview 紧急情况概述**

**Signal word 警示词:** Danger

**Hazard Statements 危害说明**

Causes skin irritation 皮肤刺激性  
 Causes serious eye irritation 严重眼睛刺激性  
 May cause an allergic skin reaction 怀疑引起皮肤过敏  
 May cause cancer 怀疑致癌



This product is an article which contains a chemical substance. Safety information is given for exposure to the article as sold. 本产品是一种含有化学物质的物品，安全信息供可接触售出物品使用。

Intended use of the product should not result in exposure to the chemical substance This is a battery. In case of rupture: the above hazards exist. 预期的使用产品不会导致化学物质暴露，这是一个电池。如发生破裂：存在上述危险。

**Appearance 颜色** Black 黑色    **Physical State 物理性状** Solid 固体    **Odor 气味** Odorless 无味

<p><b>Precautionary Statements - Prevention 预防措施</b></p>	<p>Obtain special instructions before use 使用前阅读说明                  Do not handle until all safety precautions have been read and understood 在阅读和理解了所有的安全预防措施前，不要进行作业。                  Use personal protective equipment as required 根据需要使用个人防护装备                  Wash face, hands and any exposed skin thoroughly after handling 作业后彻底清洗脸、手和任何暴露的皮肤                  Contaminated work clothing should not be allowed out of the workplace 不将受污染的工作服带离工作场所                  Wear protective gloves 戴防护手套                  Do not breathe dust/fume/gas/mist/vapors/spray 请勿吸入粉尘、烟雾、雾、喷雾                  Do not eat, drink or smoke when using this product 在使用本产品时，请勿进食、饮水或吸烟</p>
<p><b>Precautionary Statements - Response 紧急响应</b></p>	<p>IF exposed or concerned: Get medical advice/attention 如果接触：立即就医                  Specific treatment (see supplemental first aid instructions on this label) 具体处理方法（参见本标签上的补充急救说明）                  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing If eye irritation persists: Get medical advice/attention 如果进了眼睛：用水小心冲洗几分钟，如果有，摘下隐形眼镜。如果眼睛刺激持续存在，请继续冲洗：立即就医                  IF ON SKIN: Wash with plenty of soap and water 如果在皮肤上：用大量的肥皂和酸水清洗                  Take off contaminated clothing and wash before reuse 脱下受污染的衣服，清洗后再重复使用                  If skin irritation or rash occurs: Get medical advice/attention 如果出现皮肤刺激或皮疹：立即就医</p>
<p><b>Precautionary Statements - Storage</b></p>	<p>Store locked up 存放处需加锁</p>

安全存储	
<b>Precautionary Statements - Disposal</b> 废弃处置	Dispose of contents/container to an approved waste disposal plant 经批准的废物处理厂 对内容物/容器进行处置
<b>Hazards not otherwise classified (HNOC)</b> 未分类危害	Not applicable 不适用
<b>Unknown Toxicity</b> 未知毒性	-
<b>Other information</b> 其他信息	May be harmful if swallowed 如果吞食可能会有害 Very toxic to aquatic life with long lasting effects 对水生生物毒性极大, 持久影响 Repeated or prolonged skin contact may cause allergic reactions with susceptible persons 反复或长时间的皮肤接触可能会引起对易感人群的过敏反应
<b>Interactions with Other Chemicals</b> 反应物质	No information available. 无可资料

## Section 3 – Composition/Information on Ingredients

### 第 3 部分：成分/组成信息

Chemical Name 化学名	CAS Number CAS 编号	Weight-% 重量%	Trade Secret
Lithium Cobalt Oxide	12190-79-3	42.63	-
Graphite powder	7782-42-5	22.78	-
Copper	7440-50-8	13.06	-
Aluminum	7429-90-5	4.74	-
Polyethylene	9002-88-4	3.47	-
Ethylene carbonate	96-49-1	2.18	-
Diethyl carbonate	105-58-8	2.18	-
Dimethyl carbonate	616-38-6	2.18	-
Propylene carbonate	108-32-7	2.18	-
Ethyl methyl carbonate	623-53-0	2.18	-
Lithium hexafluorophosphate	21324-40-3	0.73	-

POLY (PROPYLENE-CO-ETHYLENE)	9010-79-1	0.49	-
1,3-Propanesultone	1120-71-4	0.48	-
Nylon-6	25038-54-4	0.41	-
Nickel	7440-02-0	0.28	-
Polymer with 1,4-benzenedicarboxylic acid	60088-52-0	0.03	-

\* The exact percentage (concentration) of composition has been withheld as a trade secret.  
成分的百分比（浓度）是商业机密，需保密。

## Section 4 – First-aid Measures

### 第 4 部分：急救措施

<p><b>General Advice</b> 通用措施</p>	<p>First aid is upon rupture of sealed battery. 电池破裂时的急救措施。</p> <p><b>Eye contact:</b> If symptoms persist, call a physician. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Do not rub affected area. 眼部接触：如果症状持续存在，立即就医。立即用足够的水对眼睑下进行冲洗，冲洗至少 15 分钟。冲洗时要睁大眼睛，如果有，移除隐形眼镜。持续冲洗，不要揉搓受影响的区域。</p> <p><b>Skin contact:</b> Wash off immediately with soap and plenty of water for at least 15 minutes. In the case of skin irritation or allergic reactions see a physician. May cause an allergic skin reaction. 皮肤接触：立即用肥皂和大量的水冲洗干净，至少冲洗 15 分钟，如果出现皮肤刺激或过敏反应，立即就医。可能会引起皮肤过敏反应。</p> <p><b>Inhalation:</b> Remove to fresh air. If symptoms persist, call a physician. Get medical attention immediately if symptoms occur. 吸入：移至新鲜空气的场所。如果症状持续存在，请立即就医。</p> <p><b>Ingestion:</b> Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Call a physician. 摄入：不要引起呕吐。立即漱口，多喝水，立即就医。</p> <p><b>Self-protection of the first aider:</b> Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wear personal protective clothing (see section 8). 急救员的自我保护：避免接触皮肤、眼睛或衣服。根据需要使用个人防护装备。穿戴个人防护服（见第 8 部分）。</p>
<p><b>Most important symptoms and effects, both acute and delayed</b> 主要症状，急性和迟发</p>	<p><b>Most important symptoms and effects:</b> Itching. Coughing and/ or wheezing. 主要症状和影响是：瘙痒。咳嗽和/或喘息。</p>

性效应	
Indication of any immediate medical attention and special treatment needed 医疗护理和特殊治疗	<b>Notes to Physician:</b> Treat symptomatically. May cause sensitization of susceptible persons. 医生须知：对症治疗。

## Section 5 – Fire-fighting Measures

### 第 5 部分：消防措施

<b>Suitable extinguishing Media</b> 灭火方法和灭火剂	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. 使用适合当地环境和周围环境的灭火措施。
<b>Unsuitable extinguishing Media</b> 不合适的灭火方法和灭火剂	CAUTION: Use of water spray when fighting fire may be inefficient. 注意：灭火时使用喷水器可能效率低下。
<b>Specific Hazards arising from the chemical</b> 特殊危害	Product is or contains a sensitizer. May cause sensitization by skin contact. 产品或含有一种致敏剂，可能因皮肤接触而引起致敏作用。
<b>Hazardous Combustion Products</b> 危险易燃产品	Carbon oxides. 碳氧化物。
<b>Explosion Data</b> 爆炸数据	<b>Sensitivity to Mechanical Impact:</b> No. 机械冲击灵敏度：不敏感。 <b>Sensitivity to Static Discharge:</b> No. 静电灵敏度：不敏感。
<b>Protective Equipment and precautions for firefighters</b> 保护消防人员的防护设备及注意事项	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. 在任何火灾中，佩戴自给式呼吸器压力要求、MSHA/NIOSH（批准或同等）和全套防护装备。

## Section 6 – Accidental Release Measures

### 第 6 部分：泄漏应急处理

<b>Personal Precautions, protective equipment, and emergency procedures</b> 作业人员防护措施、防护设备和应急	<b>Personal Precautions:</b> Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. 作业人员注意事项：避免接触皮肤、眼睛或衣服。确保作业场所通风充足，根据需要使用个人防护装备，疏散人员到安全区域。 <b>Other Information:</b> Refer to protective measures listed in Sections 7 and 8. 其
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处置程序	他信息：参见第7、8部分所列的防护措施。
<b>Environmental Precautions 环境保护措施</b>	Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. 请参见第7部分和第8部分中列出的防护措施。如果安全，防止进一步泄漏或溢出。
<b>Methods and material for containment and cleaning up 泄露化学品的收容和清理方法</b>	<b>Methods for Containment:</b> Prevent further leakage or spillage if safe to do so. <b>Methods for cleaning up:</b> Pick up and transfer to properly labeled containers. 清理方法：取出并转移到标签正确的容器中。

## Section 7 – Handling and Storage

### 第 7 部分：操作处置与存储

<b>Precautions for safe handling 操作处置</b>	<b>Handling:</b> In case of rupture. Use personal protection equipment. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Do not breathe dust/fume/gas/mist/vapors/spray. 搬运：如发生破裂。使用个人防护设备。避免接触皮肤、眼睛或衣服。确保通风充足。请勿吸入灰尘、烟雾、气雾、喷雾。
<b>Conditions for safe storage, including any incompatibilities 安全存储的条件</b>	<b>Storage:</b> Keep containers tightly closed in a dry, cool and well-ventilated place. <b>Incompatible Products:</b> Strong acids. Strong oxidizing agents. Strong bases. 储存：将容器密封在干燥、凉爽、通风良好的地方。不相容的产品：强酸。强氧化剂。强大的基础。

## Section 8 – Exposure Controls and Personal Protection

### 第 8 部分：接触控制和个体防护

#### Control parameters 控制参数

#### Exposure Guidelines 接触指南

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Graphite 7782-42-5	TWA: 2 mg/m <sup>3</sup> respirable fraction all forms except graphite fibers	TWA: 15 mg/m <sup>3</sup> total dust synthetic TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic (vacated) TWA: 2.5 mg/m <sup>3</sup> respirable dust natural (vacated) TWA: 10 mg/m <sup>3</sup> total dust synthetic (vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic	IDLH: 1250 mg/m <sup>3</sup> TWA: 2.5 mg/m <sup>3</sup> respirable dust

		TWA: 15 mppcf natural	
Copper 7440-50-8	TWA: 0.2 mg/m <sup>3</sup> fume TWA: 1 mg/m <sup>3</sup> Cu dust and mist	TWA: 0.1 mg/m <sup>3</sup> fume TWA: 1 mg/m <sup>3</sup> dust and mist (vacated) TWA: 0.1 mg/m <sup>3</sup> Cu dust, fume, mist	IDLH: 100 mg/m <sup>3</sup> dust, fume and mist TWA: 1 mg/m <sup>3</sup> dust and mist TWA: 0.1 mg/m <sup>3</sup> fume
Phosphate(1-), hexafluoro-, lithium 21324-40-3	TWA: 2.5 mg/m <sup>3</sup> F	TWA: 2.5 mg/m <sup>3</sup> F TWA: 2.5 mg/m <sup>3</sup> dust (vacated) TWA: 2.5 mg/m <sup>3</sup>	-
Lithium Cobalt Oxide (LiCoO <sub>2</sub> ) 12190-79-3	TWA: 0.02 mg/m <sup>3</sup>	-	-
Nickel 7440-02-0	TWA: 1.5 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup> (vacated) TWA: 1 mg/m <sup>3</sup>	IDLH: 10 mg/m <sup>3</sup> TWA: 0.015 mg/m <sup>3</sup>
Aluminum 7429-90-5	TWA: 1 mg/m <sup>3</sup> respirable fraction	TWA: 15 mg/m <sup>3</sup> total dust TWA: 5 mg/m <sup>3</sup> respirable fraction (vacated) TWA: 15 mg/m <sup>3</sup> total dust (vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction (vacated) TWA: 5 mg/m <sup>3</sup> Aluminum	TWA: 10 mg/m <sup>3</sup> total dust TWA: 5 mg/m <sup>3</sup> respirable dust

\*ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits NIOSH IDLH Immediately Dangerous to Life or Health 美国政府工业卫生学家会议-阈值OSHA PEL: 职业安全与健康管理局-允许暴露限制NIOSH IDLH立即对生命或健康造成危险

**Other Exposure Guidelines 其他接触指南**

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992) See section 15 for national exposure control parameters 上诉法院在美国劳联-产联诉。俄亥俄州, 965 F.2d 962 (1992年第11届) 国家接触控制参数见第15部分

<b>Appropriate engineering controls 工程控制方法</b>	<b>Engineering Measures 工程措施:</b> Showers 淋浴设备 Eyewash stations 洗眼站 Ventilation systems. 通风系统
<b>Individual protection measures, such as personal protective equipment 个人防护设备</b>	<b>Eye/Face Protection:</b> If splashes are likely to occur:. Wear safety glasses with side shields (or goggles). None required for consumer use. 眼睛/面部保护: 如果有可能发生飞溅: 佩戴带侧护罩的安全眼镜 (或护目镜)。 <b>Skin and Body Protection:</b> Wear protective gloves and protective

	<p>clothing. Long sleeved clothing. Impervious gloves. 皮肤和身体防护: 佩戴防护手套和防护服, 长袖衣服, 防渗手套。</p> <p><b>Respiratory Protection:</b> No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required. 呼吸防护: 在正常使用条件下, 不需要任何防护设备。如果超过接触限值或出现刺激, 可能需要通风和疏散。</p> <p><b>Hygiene Measures:</b> Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Wash hands before breaks and immediately after handling the product. 卫生措施: 按照良好的工业卫生和安全规范进行操作, 在使用本产品时, 请勿进食、饮水或吸烟, 取下受污染的衣服, 清洗后再重复使用, 避免接触皮肤、眼睛或衣服, 佩戴合适的手套和眼睛/面部保护措施, 在休息前和处理产品后立即洗手。</p>
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## Section 9 - Physical and Chemical Properties

### 第 9 部分: 理化特性

<b>Physical Properties</b> 理化特性	<b>Physical state</b> 物理状态: Solid 固体	
	<b>Appearance</b> 外观: Black and Prismatic 黑色、棱柱形	
	<b>Color</b> 颜色: Black 黑色	
	<b>Odor</b> 气味: Odorless 无味	
	<b>Odor Threshold</b> 嗅觉阈值: No information available 无资料	
<b>Chemical Properties</b> 化学特性:		
<b>Property</b> 特性	<b>Values</b> 值	<b>Remarks/ Method</b> 备注
pH 酸碱度	No data available	None known
<b>Melting / freezing point</b> 熔点和冰点	No data available	None known
<b>Boiling point / boiling range</b> 沸点/沸程	No data available	None known
<b>Flash Point</b> 闪点	No data available	None known
<b>Evaporation Rate</b> 蒸发率	No data available	None known
<b>Flammability (solid, gas)</b> 易燃性 (固体、气体)	No data available	None known
<b>Flammability Limit in Air</b> 空气中的易燃性极限 Upper flammability limit 燃点上限 Lower flammability limit 燃点下限	No data available No data available	-

Vapor pressure 蒸气压力	No data available	None known
Vapor density 蒸汽密度	No data available	None known
Specific Gravity 比重	No data available	None known
Water Solubility 水溶性	Insoluble in water	None known
Solubility in other solvents 其他溶剂中的溶解度	No data available	None known
Partition coefficient: n-octanol/water 分配系数	0.00001	None known
Autoignition temperature 自燃温度	130°C	None known
Decomposition temperature 分解温度	No data available	None known
Kinematic viscosity 运动粘度	No data available	None known
Dynamic viscosity 动态粘滞度	0.00001	None known
Explosive properties 爆炸特性	No data available	-
Oxidizing Properties 氧化特性	No data available	-

#### Other Information 其他信息

Softening Point 软化温度	No data available
VOC Content (%)	No data available
Particle Size 粒径	No data available
Particle Size Distribution 粒径分布	No data available

## Section 10 - Stability and Reactivity

### 第 10 部分：稳定性和反应性

Reactivity 反应性	No data available. 无资料
Chemical stability 化学稳定性	Stable under recommended storage conditions. 在推荐的储存条件下保持稳定。
Possibility of Hazardous Reactions 发生危险反应的可能性	None under normal processing. 无
Hazardous Polymerization 危险聚合	Hazardous polymerization does not occur. 不会发生危险的聚合反应。
Conditions to avoid 应避免的条件	None known based on information supplied. 无资料
Incompatible materials 不相容物质	Strong acids. Strong oxidizing agents. Strong bases. 强酸。强氧化剂
Hazardous Decomposition Products 危险分解产物	Carbon oxides. 碳氧化物。

## Section 11 - Toxicological Information

## 第 11 部分：毒理学信息

### Information on likely routes of exposure 可能的接触途径

<b>Product Information 产品信息</b>	Product does not present an acute toxicity hazard based on known or supplied information. In case of rupture: 如有破裂，根据已知或提供的信息，产品不存在急性毒性危害。
<b>Inhalation 吸入</b>	Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract. 没有关于该物质或混合物的具体测试数据。可能会引起对呼吸道的刺激。
<b>Eye Contact 眼部接触</b>	Specific test data for the substance or mixture is not available. Expected to be an irritant based on components. Irritating to eyes. May cause redness, itching, and pain. May cause temporary eye irritation. 没有关于该物质或混合物的具体测试数据。成分可能是刺激物，刺激眼睛，可能会引起发红、瘙痒和疼痛，可能会引起暂时性的眼睛刺激。
<b>Skin Contact 皮肤接触</b>	Specific test data for the substance or mixture is not available. Expected to be an irritant based on components. Irritating to skin. Prolonged contact may cause redness and irritation. 没有关于该物质或混合物的具体测试数据。成分可能是刺激物，长时间的接触皮肤可能会引起发红和刺激。
<b>Ingestion 摄取</b>	Specific test data for the substance or mixture is not available. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. 没有关于该物质或混合物的具体测试数据。摄入可能会刺激粘膜，摄入可引起胃肠道刺激、恶心、呕吐和腹泻。

### Component Information 组件信息

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Graphite 7782-42-5	> 10000 mg/kg ( Rat )	-	-
Nickel 7440-02-0	> 9000 mg/kg ( Rat )	-	-
Propylene carbonate 108-32-7	= 29000 mg/kg ( Rat )	> 20 mL/kg ( Rabbit )	-

<b>Information on toxicological effects 毒理学作用信息</b>	<b>Symptoms:</b> Erythema (skin redness). May cause redness and tearing of the eyes. Itching. Rashes. Hives. 症状：出现红斑（皮肤发红），可能会导致眼睛发红，皮疹，荨麻疹。
<b>Delayed and immediate effects as well as chronic effects from short and long-term exposure 短期和长期接触造成的急慢性影响</b>	<b>Sensitization:</b> May cause sensitization of susceptible persons. May cause sensitization by skin contact. 敏感：可能引起易感人群的敏感。皮肤接触致敏。 <b>Mutagenic Effects:</b> No information available. 诱变效应：无资料。 <b>Carcinogenicity:</b> The table below indicates whether each agency has listed any ingredient as a carcinogen 致癌性：下表显示了每个机构是否已将任何成分列为致癌物

Chemical Name	ACGIH	IARC	NTP	OSHA
Lithium Cobalt Oxide (LiCoO <sub>2</sub> ) 12190-79-3	A3	Group 2B	-	X
Nickel 7440-02-0	-	Group 1 Group 2B	Reasonably Anticipated	X

**ACGIH (American Conference of Governmental Industrial Hygienists 美国政府工业卫生学家会议)**  
A1 - Known Human Carcinogen 已知人类致癌物  
A3 - Animal Carcinogen 动物致癌物

**IARC (International Agency for Research on Cancer 国际癌症研究机构)**  
Group 1 - Carcinogenic to Humans 人类致癌物  
Group 2B - Possibly Carcinogenic to Humans 可能对人类致癌  
Group 3 - Not Classifiable as to Carcinogenicity in Humans 非人类致癌物

**NTP (National Toxicology Program 国际毒理学计划)**  
Known - Known Carcinogen 已知致癌物

**OSHA (Occupational Safety and Health Administration of the US Department of Labor 美国劳工部职业安全与健康管理局)**  
X - Present 呈现

<b>Reproductive Toxicity 生殖毒性</b>	No information available. 无资料
<b>STOT - single exposure 单次接触</b>	No information available. 无资料
<b>STOT - repeated exposure 反复接触</b>	Causes damage to organs through prolonged or repeated exposure. Based on classification criteria from the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200), this product has been determined to cause systemic target organ toxicity from chronic or repeated exposure. (STOT RE). 通过长时间或反复接触对器官造成损害。根据2012年职业安全与健康管理局危害标准(29CFR1910.1200)的分类标准, 该产品已被确定为慢性或反复接触引起全身靶器官毒性。(STOT RE).
<b>Chronic Toxicity 慢性毒性</b>	Contains a known or suspected carcinogen. Avoid repeated exposure. Prolonged exposure may cause chronic effects. May cause adverse liver effects. 含有已知或疑似的致癌物。避免反复接触, 长期接触可能会导致慢性影响, 可能会引起对肝脏的不良反应。
<b>Target Organ Effects 特异性靶器官系统毒性</b>	Respiratory system. Eyes. Skin. Gastrointestinal tract (GI). Central Vascular System (CVS). Kidney. Liver. Lungs. Heart. 呼吸系统。眼睛。皮胃肠道(GI)。中央血管系统(CVS)。肾脏与肾脏有关。肝脏肺部。心。
<b>Aspiration Hazard 吸入危害</b>	No information available. 无资料

**Numerical measures of toxicity Product Information 毒性、产品信息的数值测量方法**

The values which are on the right are calculated based on chapter 3.1 of the GHS document. 右边的值是根据GHS文档的第3.1章计算出来的	<b>ATEmix (oral)</b> <b>ATEmix (dermal)</b> <b>ATEmix (inhalation-dust/mist)</b>
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## Section 12 - Ecological Information

### 第 12 部分：生态学信息

#### Ecotoxicity 生态毒性

Very toxic to aquatic life with long lasting effects. 对水生生物毒性极大，具有持久的影响。

Chemical Name 化学名	Toxicity to Algae 对藻类的毒性	Toxicity to Fish 对鱼类的毒性	Toxicity to Microorganisms 对微生物的毒性	Daphnia Magna (Water Flea) 水蚤 (水跳蚤)
Copper 7440-50-8	96h EC50: 0.031 - 0.054 mg/L (Pseudokirchneriella subcapitata) 72h EC50: 0.0426 - 0.0535 mg/L (Pseudokirchneriella subcapitata)	96h LC50: 0.0068 - 0.0156 mg/L (Pimephales promelas) 96h LC50: 0.112 mg/L (Poecilia reticulata) 96h LC50: 0.3 mg/L (Cyprinus carpio) 96h LC50: 0.8 mg/L (Cyprinus carpio) 96h LC50: 1.25 mg/L (Lepomis macrochirus) 96h LC50: 0.052 mg/L (Oncorhynchus mykiss) 96h LC50: 0.2 mg/L (Pimephales promelas) 96h LC50: < 0.3 mg/L (Pimephales promelas)	-	48h EC50: = 0.03 mg/L
Nickel 7440-02-0	72h EC50: = 0.18 mg/L (Pseudokirchneriella subcapitata) 96h EC50: 0.174 - 0.311 mg/L (Pseudokirchneriella subcapitata)	96h LC50: > 100 mg/L (Brachydanio rerio) 96h LC50: 1.3 mg/L (Cyprinus carpio) 96h LC50: 10.4mg/L (Cyprinus carpio)	-	48h EC50: > 100 mg/L 48h EC50: 1 mg/L

Propylene carbonate 108-32-7	72h EC50: > 500 mg/L (Desmodesmus subspicatus)	96h LC50: > 1000 mg/L (Cyprinus carpio) 96h LC50: 5300 mg/L (Leuciscus idus)	EC50: > 10000 mg/L 17 h	48h EC50: > 500 mg/L
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<b>Persistence and Degradability</b> 持久性和降解性	No information available. 无资料
<b>Bioaccumulation</b> 生物积累性	No information available 无资料
<b>Other adverse effects</b> 其他不良影响	No information available. 无资料

## Section 13 – Disposal Considerations

### 第 13 部分：废弃处置

#### Waste treatment methods 废物处理方法

**Disposal methods** 处置方法: This material, as supplied, is not a hazardous waste according to Federal regulations (40CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements. 根据联邦法规 (40CFR 261)，材料不是危险废物，如果与危险废物混合或以其他方式接触，如果添加化学品，或经过加工改变，该材料可能成为危险废物，请参考40 CFR 261，以确定已改变的材料是否为危险废物。有关其他要求，请咨询适当的州、以地区或地方法规。

**Contaminated Packaging:** Dispose of in accordance with federal, state and local regulations. 受污染的包装：根据联邦、州和地方法规进行处理。

Chemical Name	RCRA	RCRA - D Series Wastes	RCRA - U Series Wastes	OSHA
Nickel 7440-02-0	(hazardous constituent – no waste number)	Included in waste streams: F006, F039	-	-

#### **California Hazardous Waste Codes 141** 加州危险废物法规141

This product contains one or more substances that are listed with the State of California as a hazardous waste. 本产品含有一种或多种列入加利福尼亚州列为危险废物的物质。

Chemical Name 化学名	California Hazardous Waste 加州危险废物
Copper 7440-50-8	Toxic
Lithium Cobalt Oxide (LiCoO <sub>2</sub> ) 12190-79-3	Toxic
Nickel 7440-02-0	Toxic powder Ignitable powder
Aluminum 7429-90-5	Ignitable powder

## Section 14 – Transport Information

### 第 14 部分：运输信息

The Rechargeable Li-ion Battery Pack as stated in Appendix is made in compliance to the requirements stated in the latest edition of the IATA Dangerous Goods Regulations Packing Instruction 965 section I B or 966 section II or 967 section II. 附录中所述的二次锂离子电池组是符合最新版国际航空运输协会危险品条例包装说明965第IB或966第II或967第II节的规定的。

With regard to transport, the following regulations are cited and considered: 关于运输问题，我们引用并考虑了以下规定：

- The International Civil Aviation Organization (ICAO) Technical Instructions, Packing instruction 965 section I B or 966 section II or 967 section II (2023-2024 Edition). 国际民用航空组织(ICAO)技术说明，包装说明965第IB或966第II或967第II节（2023-2024版）。
- The International Air transport Association (IATA) Dangerous Goods Regulations, Packing instruction 965 section I B or 966 section II or 967 section II (64<sup>th</sup> Edition, 2023). 国际航空运输协会(IATA)危险货物条例，包装说明第965第IB或966第II或967第II节（第64版，2023）
- Special provision 188 of the International Maritime Dangerous Goods (IMDG) Code (Amendment 40-20 Edition). 《国际海上危险货物(IMDG)规范》（修正案40-20版）第188条。
- The US Hazardous Materials Regulation 49 CFR (Code of Federal Regulations), sections 173-185 Lithium batteries and cells. 美国危险材料法规 49 CFR（联邦法规法规），第173-185节锂电池和电池。
- The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria 38.3 Lithium batteries. 联合国关于危险货物运输的建议，试验手册和标准38.3锂电池。

These 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 the Manual of Tests and Criteria. 这些产品经过适当的分类、描述、包装、标记和标签，并根据所有适用的国际和国家政府法规，符合适当的运输条件，但不限于上述规定。附件产品已经过测试，并符合联合国关于危险货物运输模型法规的建议(T1-T8)和试验和标准手册的要求和条件。

#### Test results of the UN Recommendation on the Transport of Dangerous Goods

##### 联合国关于危险货物运输的建议的测试结果

Manual of Test and Criteria (38.3 Lithium battery) 测试和标准手册（38.3锂电池）			
No. 编号	Test items 测试项目	Test results 测试结果	Remark
T1	Altitude simulation 高空模拟	Pass	-
T2	Thermal test 热滥用	Pass	-
T3	Vibration 震动	Pass	-
T4	Shock 冲击	Pass	-
T5	External short circuit 外部短路	Pass	-
T6	Crush 挤压	Pass	-

T7	Overcharge 过充电	Pass	-
T8	Forced discharge 强制放电	Pass	-

**Additional Requirements for air transport 关于航空运输的附加要求:**

1. Cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit. 电芯和电池必须保护以防止短路，这包括防止与同一包装内的导电材料接触，从而可能导致短路。
2. Cells and batteries must be manufactured under a quality management program. 电芯和电池必须按照质量管理程序进行生产。
3. The Watt-hour rating must be marked on the outside of the battery case except those manufactured before 1 January 2009. 除2009年1月1日之前生产的电池外壳外，必须在电池外壳外部标记。
4. Cells and batteries must be packed in strong outer packagings. (Applicable to PI 965 only) 电芯和电池必须用坚固的外包装来包装。（仅适用于PI 965）
5. Cells and batteries must be packed in inner packagings that completely enclose the cell or battery. To provide protection from damage or compression to the batteries, the inner packagings must be placed in a strong rigid outer packaging of one of the packaging types shown below. 电芯和电池必须包装在完全包裹电池或电池的内包装中。为了防止电池损坏或压缩，内包装必须放置在以下所示包装类型之一的坚固的硬外包装中。
6. Each consignment must be accompanied with a document with an indication that 每批货物必须附有一份文件，其中应表明:
  - the package contains lithium ion cells or batteries 该包装盒中包含锂离子电芯或电池;
  - the package must be handled with care and that a flammability hazard exists if the package is damaged 包装必须小心处置，如果包装损坏，则存在易燃危险;
  - special procedures must be followed in the event the package is damaged, to include inspection and repacking if necessary; and 如果包装损坏，必须遵循特殊程序，必要时包括检查和重新包装；以及
  - a telephone number for additional information 要获取更多信息的电话号码。
7. Each package must be labelled with a lithium battery handling label (Figure 7.4.H) in addition to the Class 9 hazard label (Figure 7.3.W) and Cargo Aircraft Only label. 除9类危险标签（图7.3.W）和货运飞机专用标签外，每个包装件都必须标明锂电池处理标签。  
Each package must be marked in accordance with the requirements of 7.1.4.1(a) and (b) and in addition the net weight when required by 7.1.4.1(c) must be marked on the package. (Applicable to PI 965 only) 每个包装都必须按照7.1.4.1(a)和(b)的要求进行标记，而且当7.1.4.1(c)要求时的净重必须在包装上进行标记。（仅适用于PI 965）
8. Each package must be capable of withstanding a 1.2 m drop test in any orientation without(Applicable to PI 965 and 966 only) 每个包装必须能够承受任何方向的1.2 m的跌落试验（仅适用于PI 965和966）而无下列情况:
  - damage to cells or batteries contained therein; 电芯或电池被损坏;
  - shifting of the contents so as to allow battery to battery (or cell to cell) contact; 内容物移动，使电池与电池（或电芯）接触;
  - release of contents 内容物泄露。
9. Each package must be labelled with a lithium battery handling label (Figure 7.4.H). (Applicable to PI 966 and 967 only) 每个包装上都必须贴有锂电池处理标签。（仅适用于PI 966和967）
10. A Shipper's Declaration for Dangerous Goods is not required. (Applicable to PI 966 and 967 only) 不需要托运人的危险货物声明。（仅适用于PI 966和967）

11. Any person preparing or offering cells or batteries for transport must receive adequate instruction on these requirements commensurate with their responsibilities. 任何准备或提供运输电芯或电池的人必须得到与其责任相称的关于这些要求的充分指示。
12. The equipment must be secured against movement within the outer packaging and must be equipped with an effective means of preventing accidental activation. (Applicable to PI 966 only) 设备必须固定在外包装内，防止移动，并必须配备防止意外激活的有效方法。（仅适用于PI 966）
13. The maximum number of batteries in each package must be the minimum number required to power the equipment plus two spares. (Applicable to PI 966 only) 每个电池包中的最大电池数量必须是为设备供电所需的最小数量，再加上两个备件。（仅适用于PI 966）
14. The words “Lithium ion batteries in compliance with Section II of PI 966” must be included on the air waybill, when an air waybill is used. The information should be shown in the “Nature and Quantity of Goods” box of the air waybill. (Applicable to PI 966 only) 当使用航空运单时，航空运单上必须包含“符合PI966第II节规定的锂离子电池”字样。该信息应显示在航空运单的“货物的性质和数量”框中。（仅适用于PI 966）
15. Maximum net quantity of lithium ion cells must not be more than 5 kg. (Applicable to PI 966 and 967 only) 锂离子电池的最大净用量不得超过5公斤。（仅适用于PI 966和967）
16. Equipment must be equipped with an effective means of preventing accidental activation. (Applicable to PI 967 only) 设备必须配备一种防止意外激活的有效方法。（仅适用于PI 967）
17. The equipment containing the cells or batteries must be secured against movement within the outer packaging and be packed so as to prevent accidental operation during air transport. (Applicable to PI 967 only) 包含电芯或电池的设备必须确保不在外包装内移动，并进行包装，以防止在空气运输过程中发生意外操作。（仅适用于PI 967）
18. The equipment must be packed in strong outer packagings constructed of suitable material of adequate strength and design in relation to the packaging's capacity and its intended use unless the cell or battery is afforded equivalent protection by the equipment in which it is contained. (Applicable to PI 967 only) 设备必须被包装在坚固的外包装中，用适当的材料构成，与包装的强度和 design 有关，除非电池或电池由其包含的设备提供同等的保护。（仅适用于PI 967）
19. Where a consignment includes packages bearing the lithium battery handling label, the words “Lithium ion batteries in compliance with Section II of PI 967” must be included on the air waybill, when an air waybill is used. The information should be shown in the “Nature and Quantity of Goods” box of the air waybill. (Applicable to PI 967 only) 如果托运包括带有锂电池处理标签的包装，在使用航空单时，航空单上必须包括“符合PI967第II节的锂离子电池”字样。该信息应显示在航空运单的“货物的性质和数量”框中。（仅适用于PI 967）

## Section 15 - Regulatory Information

### 第 15 部分：法规信息

#### International Inventories 国际清单

TSCA: Complies 符合

DSL: All components are listed either on the DSL or NDSL. 所有组件都已在DSL或NDSL上列出。

**TSCA - United States Toxic Substances Control Act Section 8(b) Inventory** 美国有毒物质控制法第8节(b)清单

**DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List** 加拿大国内物质清单/非国内物质清单

#### US Federal Regulations 美国联邦法规

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RE-035 A/1

**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372 《1986年超级基金修正案和再授权法案》(Sara)第三章第313条。本产品包含化学品或化学品，符合法案和《联邦法规》第372部分第40条的报告要求

Chemical Name	CAS No	Weight-%	SARA 313 - Threshold Values %
Copper	7440-50-8	13.06	1.0
Lithium Cobalt Oxide (LiCoO <sub>2</sub> )	12190-79-3	42.63	0.1
Nickel	7440-02-0	0.28	0.1
Aluminum	7429-90-5	4.74	1.0

**SARA 311/312 Hazard Categories**

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

**CWA (Clean Water Act)**

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42) 本产品包含以下根据《清洁水法》(40 CFR 122.21和40 CFR 122.42)规定的污染物管理的物质

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Copper 7440-50-8	-	X	X	-
Nickel 7440-02-0	-	X	X	-

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) 所提供的材料包含根据《综合环境反应赔偿和责任法》(CERCLA)(40CFR302)规定的一种或多种危险物质

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Copper 7440-50-8	5000 lb	-	RQ 5000 lb final RQ RQ 2270 kg final RQ
Nickel 7440-02-0	100 lb	-	RQ 100 lb final RQ RQ 45.4 kg final RQ

**US State Regulations 美国州法规**

**California Proposition 65**

This product contains the following Proposition 65 chemicals.

本产品含有以下65号提案中的化学物质。

Chemical Name	California Proposition 65

Nickel - 7440-02-0	Carcinogen
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**U.S. State Right-to-Know Regulations 美国各州的知情权条例**

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Graphite 7782-42-5	X	X	X	-	-
Ethylene carbonate 96-49-1	-	X	X	-	-
Dimethyl carbonate 616-38-6	X	X	X	-	-
Copper 7440-50-8	X	X	X	X	X
Lithium Cobalt Oxide (LiCoO <sub>2</sub> ) 12190-79-3	X	-	X	X	X
Nickel 7440-02-0	X	X	X	X	X
Diethyl carbonate 105-58-8	X	X	X	-	-
Aluminum 7429-90-5	X	X	X	X	-

**International Regulations 全球法规**

**Mexico 墨西哥**

**National occupational exposure limits 国家职业暴露限值**

Component	Carcinogen Status	Exposure Limits
Graphite 7782-42-5 (22.78%)	-	Mexico: TWA= 2 mg/m <sup>3</sup>
Copper 7440-50-8 (13.06%)	-	Mexico: TWA= 1 mg/m <sup>3</sup> Mexico: TWA= 0.2 mg/m <sup>3</sup> Mexico: STEL= 2 mg/m <sup>3</sup>
Nickel 7440-02-0 (0.28%)	-	Mexico: TWA 1 mg/m <sup>3</sup>
Aluminum 7429-90-5 (4.74%)	-	Mexico: TWA= 10 mg/m <sup>3</sup>

Mexico - Occupational Exposure Limits - Carcinogens

**Canada 加拿大**

**WHMIS Hazard Class WHMIS危险等级**

Non-controlled

**Section 16 - Other Information**

**第 16 部分：其他信息**

<b>NFPA</b>	<b>Health Hazards 1</b>	<b>Flammability 0</b>	<b>Instability 1</b>	<b>Physical and Chemical Hazards - Personal Protection X</b>
<b>HMIS</b>	<b>Health Hazards 4</b>	<b>Flammability 0</b>	<b>Physical Hazard 1</b>	

**Revision Note 修订说明:** No information available 无

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**--End of Safety Data Sheet--**