Material Safety Data Sheet

化学品安全技术说明书

Sample Name： **样品名称：**	Rechargeable Li-ion Battery 可充电锂离子电池
Model： **型号：**	See Page 2 见第二页
Applicant： **申请商：**	Ningbo Lvneng Lithium Battery Technology Co., Ltd. 宁波绿能锂电池科技有限公司
Report No.： **报告编号：**	NBLN20251222MSDS01
Category： **报告类别：**	MSDS

广州三帕认证技术服务有限公司

Guangzhou CPUP Certification Technology Service Co., Ltd.

Section 1 - Chemical and Company Identification 第一部分-化学品及企业标识		
Sample Name 样品名称		Rechargeable Li-ion Battery 可充电锂离子电池
Model/型号		1) 18650-6000mAh, 2) 1IMR18/65-3 3.7V 24.42Wh, 3) 1IMR18/65-2 3.7V 16.28Wh, 4) 18650-4000mAh, 5) 18650-3600mAh 3.7V 13.32Wh, 6) 18650-3000mAh 3.7V 11.1Wh, 7) 18650-2600mAh, 8) 18650-2000mAh, 9) 18650-1500mAh, 10) 18650-1200mAh 3.7V4.44Wh.
Ratings/额定参数		1) 3.7V, 6000mAh, 22.2Wh, 2) 3.7V, 6600mAh, 24.42Wh, 3) 3.7V, 4400mAh, 16.28Wh, 4) 3.7V, 4000mAh,1 4.8Wh, 5) 3.7V, 3600mAh,13.32Wh, 6) 3.7V, 3000mAh, 11.1Wh, 7) 3.7V, 2600mAh, 9.62Wh, 8) 3.7V,2000mAh, 7.4Wh, 9) 3.7V, 1500mAh, 5.55Wh, 10) 3.7V, 1200mAh, 4.44Wh
Applicant 申请商		Ningbo Lvneng Lithium Battery Technology Co., Ltd. 宁波绿能锂电池科技有限公司
Applicant address 申请商地址		220 Jiangning Road, Jiangkou Street, Fenghua, Ningbo, Zhejiang, China 浙江省宁波市奉化市江口街道江宁路 220 号
Manufacturer 制造商		Ningbo Lvneng Lithium Battery Technology Co., Ltd. 宁波绿能锂电池科技有限公司
Manufacturer Contact information 制造商联系信息	address 地址	220 Jiangning Road, Jiangkou Street, Fenghua, Ningbo, Zhejiang, China 浙江省宁波市奉化市江口街道江宁路 220 号
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Section 2 - Hazards Identification
第二部分-危险性概述

Hazards Identification：危险性描述

Not dangerous with normal use. Do not dismantle, open or shred the battery ingredients contained within or their ingredients products could be harmful.

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害的。

Primary Route (s) of Exposure: 接触途径

inhalation, ingestion, Skin contact and Eye contact.

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

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

眼睛：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 第三部分-成分/组成信息		
Chemical Name **化学名称**	**CAS Number** **CAS 号（化学文摘登记号）**	**Concentration or concentration ranges (%)** **浓度或浓度范围(%)**
$LiNiCoMnO_2$	346417-97-8	14.26~16.21
$LiMn_2O_4$	12057-17-9	21.81~23.89
Carbon	7440-44-0	15.30~17.31
$LiPF_6$	21324-40-3	1.51~1.72
Acetylene Black	1333-86-4	0.16~0.18
PVDF	7782-41-4	0.61~0.84
SBR	7723-14-0	0.58~0.74
Copper	7440-50-8	6.11~6.80
Aluminum	7429-90-5	3.21~3.52
Nickel	7440-02-0	0.16~0.18
Note: CAS number is Chemical Abstract Service Registry Number. 注意：CAS 号是化学文摘服务注册号。 N/A= Not applicable.. N/A=不适用		

Section 4- First Aid Measure 第四部分-急救措施	
Inhalation **吸入**	Remove source of contamination or move victim to fresh air. Obtain medical advice. 移除污染源或者将受害者移至新鲜空气处。寻求医生建议。
Ingestion **食入**	Please rinse mouth thoroughly with water, induce vomiting under the guidance of professional personage. Please seek medical treatment in time. 立即用清水漱口，在专业人士的指导下催吐，速就医。
Skin contact **皮肤接触**	Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Get medical aid. 脱下已污染衣服，用大量的水冲洗至少 15 分钟，速就医。
Eye contact **眼睛接触**	Irrigate with flowing water for 15 minutes. If irritation persists, consult a physician. 用流动水冲洗 15 分钟，如刺激持续发生，请求助于医生。

Section 5- Fire Fighting Measures 第五部分-消防措施	
Characteristics of Hazard **危险特性**	Toxic fumes, gases or vapors may evolve on burning. 火灾时可释放有害浓烟、气体或者蒸汽。
Hazardous Combustion Products **燃烧产生的危险物品**	Carbon monoxide, carbon dioxide, lithium oxide fumes and so on. 一氧化碳，二氧化碳，锂氧化物烟气等。

Fire-extinguishing Methods and Extinguishing Media **灭火方法及灭火剂**	Please use water, dry sand and other proper fire extinguishing media. 请使用水，干沙等合适的灭火介质。
Attention in Fire-extinguishing **灭火注意事项**	The firemen should put on antigas masks and full fire-fighting suits. 消防人员须佩戴防毒面具、穿全身消防服。

Section 6- Accidental Release Measure **第六部分-泄漏应急处理**	
Personal Precautions, protective equipment, and emergency procedures **个人预防措施、防护装备和应急程序**	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. 限制区域，直到完成清理工作。请勿触摸泄漏的材料。穿戴适当的个人防护设备，如第 8 部分所示。
Environmental Precautions **环境保护措施**	Prevent material from contaminating soil and from entering sewers or waterways. 防止物质污染土壤和进入下水道或水道。
Methods and materials for Containment **方法和材料控制**	Stop the leak if safe to do so. Contain the spilled liquid with dry sand or earth. Clean up spills immediately. 出于安全，阻止泄漏，可以用干沙或沙土来遏制液体泄露，立即清理泄漏。
Methods and materials for cleaning up **清理的方法和材料**	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. 用惰性吸收剂(干沙或沙土)吸收溢出的材料。污染物转移到可吸收废物的容器。收集所有受污染的吸收剂和根据第 13 部分的指令处置。用洗涤剂和水清洁污染区域,收集所有受污染的洗涤水进行适当处置。

Section 7- Handling and Storage **第七部分-操作处置与储存**	
Handling **操作**	Don't handing the batteries in manner that allows terminals to short circuit. Do not open, disassemble, crush or burn battery. 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。
Storage **储存**	If the battery is subject to storage for such a long term as more than 3 months, it is recommended to recharge the battery periodically. 如果电池长期存放超过 3 个月，建议定期对电池充电。 Long period storage: 25±5°C, 60±25%R.H 长期存储：25±5°C,相对湿度 60±25% Do not storage the battery haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects. 不要将电池随意丢在盒子或抽屉里，以免电池之间或电池与其他金属物质发生短路。 Keep out of reach of children.

	储存在小孩接触不到的地方。 Do not expose the battery to heat or fire. Avoid storage in direct sunlight. 不要将电池暴露在火源和热源附近，避免在阳光直射下存储。 Do not store together with oxidizing and acidic materials. 不要与氧化和酸性物质存储在一起。

Section 8 - Exposure Controls/Personal Protection **第八部分-接触控制和个体防护**	
Engineering Controls **工程控制**	No engineering controls are required for handling batteries that have not been damaged. Personal protective equipments for damaged batteries should include chemical resistant gloves and safety glasses. 操作未破损的电池，没有工程控制要求。对于破损的电池，个人防护用品应包括化学品防护手套和安全眼镜。
Personal Protective Equipment **个人防护设备**	Respiratory Protection: in case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting cell cores. Respiratory Protection is not necessary under conditions of normal use. Not necessary under conditions of normal use. 呼吸保护：当电池排气阀打开时，应尽量使通风设备开至最大，避免将打开排气阀的电芯局限在某一狭窄空间内。正常操作条件下，呼吸保护是不必要的。正常使用条件下不必考虑。 Protective Gloves: Not necessary under conditions of normal use. 防护手套：正常使用条件下不必考虑。 Other Protective Clothing or Equipment: Not necessary under conditions of normal use. 其他防护服装或设备：正常使用条件下不必考虑。 Personal Protection is recommended for venting battery: Respiratory Protection, Protective Gloves, Protective Clothing and safety glass with side shields. 当电池排气阀打开时，应做好个人防护：呼吸防护、防护手套、防护服装和有护边的安全玻璃罩都是要准备的。

Section 9- Physical and Chemical Properties **第九部分-理化特性**
Physical state: Solid **物理状态：**固体
Odor: Odorless **气味：**无气味
Solubility: Partial soluble in water **溶解度：**部分溶于水

Section 10 - Stability and Reactivity **第十部分-稳定性和反应性**	
Stability **稳定性**	Stable under normal temperatures and pressures. 常温常压下稳定。
Conditions to Avoid	Heat above 70°C or Incinerate, Deform, Mutilate, Crush, Disassemble,

应避免的条件	Overcharge, Short circuit, Expose over a long period to humid conditions. 加热 70°C 以上或焚烧、变形、毁坏、粉碎、拆卸、过充电、短路，长时间暴露在潮湿的条件下。
Hazardous Decomposition Products **危害分解物**	Toxic Fumes, and may form peroxides. 有毒烟雾，并可能形成过氧化物。
Possibility of Hazardous Reaction **危险反应的可能性**	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 **第十一部分-毒理学信息**	
Irritation **刺激**	In the event of exposure to internal contents, vapor fumes may be very irritating to the eyes and skin. 内部物质暴露的情况下，蒸汽烟雾可能对眼睛和皮肤产生刺激性。
Sensitization **致敏**	Not applicable. 不适用
Reproductive Toxicity **再生毒性**	Not applicable. 不适用
Toxicologically Synergistic Materials **协同材料毒理学**	Not applicable. 不适用

Section 12-Ecological Information **第十二部分-生态学信息**	
General note **通用信息**	Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system. 不允许未稀释或大量的产品到达地下水、水道或污水系统。
Anticipated behavior of a chemical product in environment/possible environmental impact/ecotoxicity **化学产品在环境/可能的环境预期的行为的一种生态毒性**	Not applicable. 不适用
Mobility in soil **土壤中移动性**	Not applicable. 不适用
Persistence and Degradability **持久性和降解性**	Not applicable. 不适用

Section 13 - Disposal Considerations **第十三部分-废弃处置**	
Waste Treatment **废弃处置方法**	Recycle or dispose of in accordance with government, state & local regulations. 建议遵照国家和地方法规处置或再利用。
Attention for Waste Treatment	Deserted batteries couldn't be treated as ordinary trash. Couldn't be thrown into fire or placed in high temperature. Couldn't be dissected, pierced, crushed or treated similarly.

废弃注意事项	Best way is recycling. 废电池不能被当做普通垃圾。不能扔进火中或置于高温下。不能解体，刺穿，破碎或类似的处理。最好的办法是回收利用。

Section 14 - Transport Information
第十四部分-运输信息

The battery shall be passed the test items of the UNITED NATIONS “Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria" section 38.3 and meet the requirements of UNITED NATIONS “Recommendations on the Transport of Dangerous Goods, model Regulations "
该电池必须通过联合国《关于危险货物运输的建议书 试验和标准手册》第 38.3 章节的测试项目和满足联合国《关于危险货物运输的建议书 规章范本》的要求。

The battery shall be 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.
该电池必须做好防短路保护。包括防止与同一封装内的导电材料接触可能导致的短路。

The packaging shall be adequate to avoid mechanical damage during transport, handling and stacking.
包装应足以避免在运输，处理和堆放期间的机械损坏。

The package must be handled with care and that a flammability hazard exists if the package is damaged.
包装必须小心处理，如果包装损坏，存在易燃危险。

With regard to transport, the following regulations are cited and considered:
关于运输，引用和考虑了以下法规：
-The international Civil Aviation Organization (ICAO) Technical Instructions.
-国际民用航空组织(ICAO)技术细则。
-The international Air transport Association (IATA) Dangerous Goods Regulations.
-国际航空运输协会(IATA)危险物品规则。
The battery can be shipped by air in according to PACKING INSTRUCTION 965 Section IB, or PACKING INSTRUCTION 966∽967 Section II of the 2026 IATA Dangerous Goods regulations 67th Edition.
该电池可以根据 2026 年 IATA 危险物品规则第 67 版包装说明 965 第 IB 部分或包装说明 966∽967 第 II 部分运输。
UN number: UN3480 or UN3481;
UN 编号：UN3480 或 UN3481；
UN Proper shipping name/Description (technical name): Lithium ion batteries or Lithium ion batteries packed with equipment or Lithium ion batteries contained in equipment;
UN 合适的运输名称/描述(技术名称)：锂离子电池或锂离子电池与设备包装在一起或锂离子电池内置于设备中；
UN Classification (Transport hazard class): Class 9 (PI965 Section IB) or Not applicable (PI966∽967 Section II)
UN 分类(运输危险类别)：9 类危险品(包装说明 965 第 IB 部分)或者不适用(包装说明 966∽967 第 II 部分)
UN Packing Group: Not applicable
UN 包装类别：不适用

-The international Maritime Dangerous Goods (IMDG) Code.
-国际海运危险货物(IMDG)规则。
UN number: UN3480 or UN3481;
UN 编号：UN3480 或 UN3481；

UN Proper shipping name/Description (technical name): Lithium ion batteries or Lithium ion batteries packed with equipment or Lithium ion batteries contained in equipment;
UN 合适的运输名称/描述(技术名称)：锂离子电池或锂离子电池与设备包装在一起或锂离子电池内置于设备中；
UN Classification (Transport hazard class): Not applicable
UN 分类(运输危险类别)：不适用
UN Packing Group: Not applicable
UN 包装类别：不适用
Ems No.: F-A,S-I
应急处理代码：F-A,S-I
The battery is not restricted according to IMO IMDG Code (inc. Amendment 42-24) Special Provision188.
海运按照国际海事组织《国际海运危险货物规则》(42-24 版)特殊规定 188 不受限制。

Section 15 - Regulatory Information
第十五部分-法规信息

International Civil Aviation Organization (ICAO) Technical Instructions:
ICAO 国际民用航空组织(ICAO)技术细则：

1.Unless be exempted according to ICAO TI, the lithium ion cell/batteries (UN 3480, PI 965) and lithium metal cell/batteries (UN 3090, PI 968) are forbidden for carriage on passenger aircraft.
除非依据《技术细则》的相关要求取得豁免，单独包装的锂离子电池（芯）（UN 3480, PI 965）和锂金属电池（芯）（UN 3090, PI 968）货物禁止使用客机运输。

2.Unless be approved according to ICAO TI, Lithium ion cells/batteries (UN 3480, PI 965) must be offered for transport at a state of charge (SoC) not exceeding 30% of their rated design capacity.
除非依据《技术细则》的相关要求取得特别批准，按照包装说明 965 要求运输的锂离子电池（芯）货物，交运时锂离子电池（芯）的荷电状态不得超过其额定容量的 30%。

3.Unless be approved according to ICAO TI, Lithium ion cells/batteries (UN 3481, PI 966 I) must be offered for transport at a state of charge (SoC) not exceeding 30% of their rated design capacity.
除非依据《技术细则》的相关要求取得特别批准，按照包装说明 966 第 I 部分要求运输的锂离子电池（芯）货物，交运时锂离子电池（芯）的荷电状态不得超过其额定容量的 30%。

4.Unless be approved according to ICAO TI, Lithium-ion cells and batteries (UN 3481, PI 966 II) with a Watt-hour rating in excess of 2.7 Wh must be offered for transport at a state of charge (SoC) not exceeding 30% of their rated capacity. Lithium-ion cells and batteries (UN 3481, PI 966 II) with a Watt-hour rating not exceeding 2.7 Wh should be offered for transport at a state of charge (SoC) not exceeding 30% of their rated capacity.
除非依据《技术细则》的相关要求取得特别批准，按照包装说明 966 第 II 部分要求运输的超过 2.7Wh 的锂离子电池（芯）货物，交运时锂离子电池（芯）的荷电状态不得超过其额定容量的 30%。按照包装说明 966 第 II 部分要求运输的不超过 2.7Wh 的锂离子电池（芯）货物，交运时锂离子电池（芯）的荷电状态应该不超过其额定容量的 30%。

5.Lithium-ion cells and batteries (UN 3481, PI 967) which are contained in equipment, those cells and batteries are offered for transport:
at a state of charge not exceeding 30% of their rated capacity; or
with an indicated battery capacity not exceeding 25%.
按照包装说明 967 要求运输的安装在设备中的锂离子电池（芯）货物，设备应该在以下情况下交付：
电池芯或电池的荷电状态不超过其额定容量的 30%；或
指示的电池容量不超过 25%。

Section 16 - Additional Information
第十六部分-附加信息

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Other Information 其他信息:

The information above is believed to be accurate and represents the best information currently available to us. However, we 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 and investigation. This 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.

在我们看来上面的信息是准确的，这是我们目前能提供的最佳的信息。但是，对于这些信息，我们不对商品的性能做任何明示的或者暗示的保证，我们也不对使用这些信息造成的后果担负任何责任。用户应当自己调查研究后决定这些信息是否适用于他们的特定用途。尽管在该文档里提出了合理的预警，但是这仅仅只是给您做参考、考量和调查。这份安全技术说明书提供了安全处理和使用该产品的指南，但是它没有，也不能对所有可能发生的情景提出建议，所以您需要根据您对该产品的特定使用情况来决定是否需要其他的预防措施。

--End of report--

--报告结束--