Safety Data Sheet

化学品安全技术说明书

Section 1 - Chemical Product and Company Identification

第一部分 化学品及企业标识

Product Name:Lithium battery pack
产品名称：锂离子电池组

Model/Type：ICR 18650 4400mAh 3.7V 16.28Wh

型号/类型： ICR 18650 4400mAh 3.7V 16.28Wh

Manufacturer： NINGBO DUOLI ELECTRONIC TECH PROGRESS CO.,LTD
生产企业名称：宁波多立电子科技发展有限公司

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Section 2 -Composition/Information on Ingredient
第二部分 成分/组成信息

Chemical Composition 化学名称	Chemical Formula 分子式	CAS No: CAS 号：	Weight(%) 百分含量（%）
Lithium cobalt oxide 钴酸锂	$LiCoO_2$	12190-79-3	37
Graphite 石墨	C	7782-42-5	20
Lithium 六氟磷酸锂	F^6LiP	21324-40-3	18
PVDF 聚偏氟乙烯	$C_2H_2F_2$	24937-79-9	5
polyvinyl chloride 聚氯乙烯	$C^5H^7CLO^2$	9002-86-2	3
Copper 铜	Cu	7440-50-8	10
Aluminum 铝	Al	7429-90-5	6
Nickel 镍	Ni	7440-02-0	1

Section 3 -Hazards Identification
第三部分 危险性概述

Health Hazards (Acute and Chronic)
健康危害

These chemicals are contained in a sealed can .Risk of exposure occurs only if the battery is mechanically or electrically abused. Contact of electrolyte and extruded lithium with skin and eyes should avoided.
化学物质泄漏会产生危害。电池 机械性或电力性破损会产生接触性伤害。避免皮肤和眼睛接触电解液。

Sign/symptoms of Exposure
暴露症状
A shorted lithium battery can cause thermal and chemical burns upon contact with the skin.
短路的锂电池接触皮肤会产生电热性损伤。

Section 4-first Aid Measures
第四部分 急救措施

Eye：Flush eyes with plenty of water for at least 20 minutes ,occasionally lifting the upper and lower eyelids. Get medical aid.
眼睛接触：迅速用大量水冲洗 20 分钟以上，期间提起上下眼睑。速就医。

Skin：Remove contaminated clothes and rinse skin with plenty of water or shower for 20 minutes .Get medical aid.
皮肤接触：除去附着衣物，用大量水冲洗 20 分钟。速就医。

Inhalation：Remove from exposure and move to fresh air immediately. Use oxygen if available.
吸入：移到通风片。如需要给予输氧。

Ingestion：give at least 2 glasses of milk or water. Induce vomiting unless patient is unconscious. call a physician.
食入：口服 2 杯牛奶或水。人员无意识下禁止催吐。速就医。

Section 5 -Fire Fighting Measures
第五部分 消防措施

Flash point ：N/A
闪点：不涉及

Auto-Ignition Temperature：N/A
燃点：无资料

Extinguishing Media ：Dry chemical, CO 2 .
灭火剂 ：干粉，CO 2 .

Special Fire-Fighting Procedures
灭火过程方法

Self-contained breathing apparatus.
配戴自主呼吸器
Unusual Fire and Explosion Hazards
燃爆危害
Cell my vent when subjected excessive heat-exposing battery contents.
过度加热会导致内含物溢出
Hazardous Combustion Products

燃烧产物

Carbon monoxide, carbon dioxide, lithium oxide fumes.
二氧化碳，一氧化碳、锂的金属氧化物，其他刺激性和毒性气体

Section 6-Accidental Release Measures
第六部分 泄漏应急处理

Steps to be Taken in case Material is Released or Spilled
泄漏处理
If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. With a cloth and dispose of it in a plastic bag and put into a steel can. The preferred response is to leave the area and allow the batteries to cool and vapors to dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerate.
如电池发生破损并且电解液泄漏，疏散人员直到烟雾散尽。用布擦净，并装入袋子放入钢桶内。
如电池灼热，先远离现场，冷却电池，使蒸汽消散。充分通风。避免工眼睛接触蒸汽。

Waste Disposal Method
废弃物处理法
It is recommended to discharge the battery to the end, handing in the abandoned batteries to related department unified, dispose of the batteries in accordance with approved local,state,and federal requirements. Consult state environmental protection agency and/or federal EPA.
电池应放电完全，将废弃的电池统一上交于相关部门，所有废弃物必须参照联合国，国家，地方性法规进行处置。参照国家环保局或联邦 EPA。

Section 7 -Handling and Storage
第七部分 操作处置与存储

The batteries should not be opened, destroyed or incinerate, since they may leak or rupture and release to the environment the ingredients 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.
电池禁止拆开，损毁或焚烧，严禁破损流出电解液。需在密封容器内储存。
禁止短路，过充电、强制放电 或投入火中。
禁止挤压或刺穿电池。
禁止将电池放入液体中。

Precautions to be taken in handling and storing
操作和储存
Avoid mechanical or electrical abuse. storage preferably in cool, dry and ventilated area, which is subject to little temperature change, Storage at high temperatures should be avoided. Do not place the battery near heating equipment, nor expose to direct sunlight for long periods.
禁止机械或电力损伤电池。储存在干燥、凉爽、通风的环境中，避免温度化或高温。远离热源，避免长时间阳光照射。电池在拆开、挤压、遇火或高温情况下，会引起起火或爆炸，严禁短路或非正确操作。

Other precautions
Batteries may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

Section 8 - Exposure Controls, Personal Protection
第八部分 接触控制/个体防护

Respiratory Protection
呼吸系统防护
In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting batteries. Respiratory protection is not necessary under conditions of normal use.
如电池泄漏，需充分通风。
Ventilation
手防护
Not necessary under conditions of normal use.
正常使用下，不需要
Protective Gloves
个人防护
Not necessary under conditions of normal use.
正常使用下，不需要
Other protective clothing or Equipment
其他防护
Not necessary under conditions of normal use.
正常使用下，不需要
Personal protection is recommended for venting batteries：Respiratory Protection Protective Gloves, Protective Clothing and safety glass with side shields.
如电池发生泄漏，需佩戴呼吸器，防护手套，作业工作服，化学防护镜。

Section 9 Physical and Chemical Properties
第九部分 理化特性

Nominal Voltage：3.7V

标称电压：3.7V
Rated Capacity：4400mAh
额定电容量：4400mAh
Appearance Characters： Solid batteries for the cylindrical tasteless
外观与性状：圆柱形无味的固体电池。

Section 10 -Stability and Reactivity
第十部分 稳定性和反应活性

Stability：Under normal use, good stability
稳定性：正常使用下，稳定性良好
Conditions to Avoid：Heating ,mechanical ,abuse and electrical abuse.
禁忌物：高温、高热、机械或电力损伤
Hazardous Decomposition Products：N/A
热分解产物：N/A
Hazardous Polymerization：N/A
聚合产物：N/A
If leaked ,forbidden to contact with strong oxidizers, mineral acids, strong alkalis, halogenated hydrocarbons.
如果泄漏，避免接触强氧化剂，避免接触酸、碱、卤素。

Section 11- Toxicological information
第十一部分 毒理学资料

Inhalation ,skin contact and eye contact are possible when the battery is opened, Exposure to internal contents, the corrosive fumes will be very irritation to skin ,eyes and mucous membranes. Overexposure can cause symptoms of non-fibrotic lung injury and membrane irritation.
当电池破损时，吸入，皮肤接触或眼睛接触可能产生刺激作用。刺激性蒸汽会损伤皮肤，眼睛和呼吸粘膜。

Section 12 -Ecological information
第十二部分 生态学资料

When promptly used or disposed the battery odes not present environmental hazard.
When disposed, keep away from water, rain and snow.
环境影响：正确使用和处置电池不会对环境产生危害。
处置废弃时，远离水源，雨水和雪水。

Section 13 -Disposal Considerations
第十三部分 废弃处置

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

If batteries are still fully charged or only partially discharged ,they can be considered a reactive hazardous waste because of significant amount of uncreated or unconsumed lithium remaining in the spent battery. The batteries must be neutralized through an approved secondary treatment facility prior to disposal as a hazardous waste .Recycling of battery can be done in authorized facility ,through licensed waste carrier.
如果锂电池未完全放电 或只部分放电 的情况 下，由于 部分未耗尽的锂存在于电池中，此电池视为具有一定危害的危险废弃物。必须通过经认可的其进行处理方可废弃。在相关法律法规下，电池可循环再利用。

Sections 14 -Transport information
第十四部分 运输信息

According to packing instruction PI965~970 section II of IATA 65th Edition for transportation or the special provision 188 of IMDG.
运输过程中请根据危险品规则 IATA 第 65 版包装规定 PI965~970 第 2 部分，海运危险品规则 IMDG 特殊规定 188 执行。
IATA:
Proper Shipping Name: Lithium batteries
UN Number:UN 3480
Hazard Class:9
Packaging requirement:According to IATA DGR 65th Edition,PACKING INSTTUCTION 965 of section IB for transportation.
Proper Shipping Name:Lithium batteries contained in equipment.“Lithium batteries packed with equipment”,
UN Number:UN 3481
Hazard Class:Not restricted
Packaging requirement:According to IATA DGR 65 th Edition,PACKING INSTTUCTION 966 and 967of section II for transportation.
IMO:
Proper Shipping Name:Lithium batteries.
UN Number:UN 3480 & UN 3481
Hazard Class:Not restricted
Packing Group:Not restricted
The goods are not restricted to IMO IMDG Code(Amend 41-22)according to special provision 188.

More information concerning shipping .testing, marking and packaging can be obtained from Label master at http://www.labelmaster.com.
更多关于锂离子电池运输、测试、 包装等相关规定
请参见网址：http://www.labelmaster.com.

Separate Lithium -ion batteries when shipping to prevent short -circuiting. They should Be Packed in strong packaging for support during transport .Take in a cargo of them

Without Falling,dropping,and breakage. Prevent collapse of cargo piles and wet by rain.
电池相互隔开并防止短路、泄漏，并装放在结实的容器内运输。

注：该电池在运输过程中应防止剧烈振动、冲击或挤压，防止日晒雨淋。具体细节请对照本文第七部分操作处置与储存。
Transport Fashion：By air ,by sea.
运输方式：空运，海运。

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

Law Information
法规信息
《Dangerous Goods Regulation》
《危险品规则》
《Recommendations on the Transport of Dangerous Goods Model Regulations》
《危险品货物运输规章范本》
《International Maritime Dangerous Goods》
《国际海上危险货物运输规则》
《Technical Instructions for the Safe Transport of Dangerous Goods》
《危险物品航空安全运送技术指南》
《Classification and code of dangerous goods》
《危险货物分类和品名编号》
《Occupational Safety and Health Act》(OSHA)
《职业安全与卫生条例的危害》
《Toxic Substances Control Act 》(TSCA)
《毒性物质控制法》
《Consumer Product Safety Act 》(CPSA)
《消费品安全法》
《Federal Environmental Pollution Control Act 》(FEPCA)
《联邦环境污染控制法》
《The Oil Pollution Act 》(OPA)
《石油污染法》
《 Superfund Amendments and Reauthorization Act Title III(302/311/312/313) 》(SARA)
《附加基金修正复审法 III(302/311/312/313)》
《Resource Conservation and Recovery Act 》(RCRA)
《资源保护和回收法》
《Safety Drinking Water Act 》(CWA)
《安全饮水法》
《California Proposition 65》
《加州提案 65》
《Code of Federal Regulations 》(CFR)
《美国联邦法规》

In accordance with all Federal, State and Local laws.
可参照联合国、国家、地方性法规。

Section 16-Additional Information
第十六部分 其他信息

The above information is based on the data of which we are aware and is believed to be correct as of the data hereof. Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the data hereof may suggest modifications of the information, we do bot assume any responsibility for the results of its use. This information is furnished upon condition that person receiving it shall made his own determination of the suitability of the material for his particular purpose.
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