

MATERIAL SAFETY DATA SHEET

1、 IDENTIFICATION (of the product and the supplier)

(1) Product: Li-ion Rechargeable Battery

Trade name and model 633567

LITHIUM-ION RECHARGEABLE BATTERY PACK containing a Li-ion cell,

RDW/ type WT 633567

Ratings: 3.7V,1800mAh capacity model with a Watt-hour rating of 6.66Wh.

Electrochemical system: Lithium-ion Cobalt Di-Oxide

Electrodes	Negative electrode Carbon/Graphite	Positive electrode Lithium-ion cobaltite (LiCoO ₂)*
Electrolyte	Solution of Lithium-ion hexafluorophosphate (LiPF ₆) In a mixture of organic solvents**	
Nominal voltage	3.7 Volts	

Equivalent name: lithiated cobalt oxide.

Ethylene Carbonate (EC)+DiEthyl Carbonate (DMC)+DiEthyl Carbonate (DEC)+Ethyl Acetate (EA).

(2) Supplier:

Name: NINGBO HUITONG NEW ENERGY TECHNOLOGY CO.,LTD

Address: ROOM 902,BLOCK B,BUILDING LIYUANS HAGNDU,NO39, LANE 158,

SOUTHTELEPHONE,HUAN CHENG WEST ROAD,NINGBO,CHINA

TELEPHONE NUMBER: 0086 574 87687913 FAX : 0086 574 87681912

recommendations of the manufacturer.

Under normal conditions of use, the solid electrode materials and liquid electrolyte they contain are non-reactive provided the battery integrity is maintained and seals remain intact. There is Risk of exposure only in cases of abuse (mechanical, thermal, electrical), which leads to the activation of the safety valve and/or the rupture of the battery container. Electrolyte leakage, electrode materials reaction with moisture/water or battery vent/explosion/fire may follow, depending upon the circumstances.

In case of excessive internal pressure and/or temperature Thunder Sky batteries are fitted with a safety vent for protection and/or rupture of the cell case.

(2) Chemical

Classification of dangerous substances contained into the product
as per directive 67/548/EEC

Substance		Melting point	Boiling point	Classification			
CAS N ^o	Chemical Symbol			Exposure limit	Indication of danger	Special risk (1)	Safety advices (2)
12190-79-3	LiCoO ₂	> 1000°C	N/A	0.1mg/m ³ OSHA		R 22 R43	S2 S22 S24 S26 S36 S37 S43 S45
EC: 96-49-1 DMC: 616-38-6 DEC: 105-58-8 EA: 141-78-6	Organic Solvents (DC-DMC DEC-EA)	EC: 38°C DMC: 4°C DEC: -43°C EA: -84°C	EC: 243°C DMC: 90°C DEC: 127°C EA: 77°C	None Established OSHA	Flammable	R21 R22 R41 R42/43	S2 S24 S26 S36 S37 S45
21324-40-3	LiPF ₆	N/A (decomposes at 160°C)	N/A	None Established OSHA	Irritant Corrosive	R14 R21 R22 R41 R43	S2 S8 S22 S24 S26 S36 S37 S45

A、Nature of Special risks:

R14 Reacts with water.

R 21 Harmful in contact with skin.

R22 Harmful if swallowed.

R41 Risk of serious damage to the eye.

R42/43 May cause sensitization by inhalation and skin contact.

R43 May cause sensitization by skin contact.

B、Safety advices:

S 2 Keep out of reach from children.

S 8 Keep away from moisture.

S22 Do not breathe dust.

S24 Avoid contact with skin.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical attention.

S36 Wear suitable gloves.

S45 In case of incident, seek medical attention

4、FIRST AID MEASURES

In case of battery rupture or explosion, evacuate personnel from contaminated area and provide maximum ventilation to clean out fumes/gases.

In all cases, seek medical attention.

Eye contact:

Flush with plenty of water (eyelids held open) for at least 15 minutes.

Skin contact: Remove all contaminated clothing and flush affected areas with plenty of Water and soap for at least 15 minutes

Do not apply greases or ointments.

Ingestion: Dilute by giving plenty of water and get immediate medical attention.

Assure that the victim does not aspirate vomited material by use of positional drainage.

Assure that mucus does not obstruct the airway.

Do not give anything by mouth to an unconscious person.

Inhalation: Remove to fresh air and ventilate the contaminated area.

Give oxygen or artificial respiration if needed.

5、FIRE-FIGHTING MEASURES

Fire and explosion hazard: The batteries can leak and/or spout vaporized or decomposed and combustible electrolyte fumes in case of exposure above 80°C resulting from inappropriate use, abuse, or from the environment. Possible formation of hydrogen fluoride (HF) and phosphorous oxides during fire. LiPF₆ salt contained in the electrolyte releases hydrogen fluoride (HF) in contact with water.

Extinguishing media: Suitable: Type D extinguishers, CO₂, Dry chemical or Foam extinguishers

Not to be used: Spray or immerse in water

Special exposure hazards: Following cell overheating due to external source or due to improper use, electrolyte leakage or battery container rupture may occur and release inner component/material in the environment.

Eye contact: The electrolyte solution contained in the battery is irritant to ocular tissues.

Skin contact: The electrolyte solution contained in the battery causes skin irritation.

Ingestion: The ingestion of electrolyte solution causes tissue damage to throat and gastro/respiratory tract.

Inhalation: Contents of a leaking or ruptures battery can cause respiratory tract, mucus, membrane irritation and edema.

Special protective equipment: Use self-contained breathing apparatus to avoid breathing irritant fumes. Wear protective clothing and equipment to prevent body contact with electrolyte solution.

6、ACCIDENTAL RELEASE MEASURES

The material contained within the batteries would only be expelled under abusive conditions.

Soak under water or spray with copious amounts of water, place in approved container (after cooling if necessary) and dispose in accordance with local regulations.

7、HANDLING AND STORAGE

The batteries should not be opened, destroyed nor incinerate since they may leak or rupture and release in the environment the ingredients they contain.

Handling: Do not crush, pierce, short (+) and (–) battery terminals with conductive (i.e. metal) goods. Do not directly heat or solder. Do not throw into fire. Do not mix batteries of different types and brands. Do not mix new and used batteries. Keep batteries in nonconductive (i.e. plastic) trays.

Storage: Store in a cool (preferably below 30°C) and ventilated area away from moisture, sources of heat, open flames, food and drink. Keep adequate clearance between walls and batteries. Temperature above 70°C may result in battery leakage and rupture. Since short circuit can cause burn, leakage and rupture hazard, keep batteries in original packaging until use and do not jumble them.

Other: Follow manufacturer recommendations regarding maximum recommended currents and operating temperature range.

Applying pressure or deforming the battery may lead to disassembly followed by eye, skin and throat irritation.

8、EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection: Not necessary under normal use. In case of battery rupture, use self-contained full-face respiratory equipment.

Hand protection: Not necessary under normal use. Use Viton rubber gloves if handling a leaking battery.

Eye protection: Not necessary under normal use. Wear safety goggles or glasses with side shields if handling a leaking or ruptured battery.

Skin protection: Not necessary under normal use. Use rubber apron and protective working

in case of handling of a ruptured battery.

9、PHYSICAL AND CHEMICAL PROPERTIES

(1) Appearance: Solid, rectangular form.

(2) Temperature range:

	Continuous	Occasional
In storage during	+ 30°C max	-40/+ 70°C
discharge during	-30/+ 70°C	-40/+ 70°C
charge during	0/+ 50°C	0/+ 50°C

(3) Specific energy: with a Watt – hour rating of 4.18Wh and mass of 25g energy per kg
 $= 178 \text{ Wh/kg}$

(4) Specific pulse power: 600w–650w/kg

(5) Mechanical resistance: As defined in relevant IEC standard

(6) Other: N/A

10、STABILITY AND REACTIVITY

Conditions to avoid: Heat above 70°C or incinerate.

Deform, mutilate, crush, pierce, disassemble.

Short circuit.

Prolonged exposure to Humid conditions.

Materials to avoid: N/A

Hazardous decomposition products: Corrosive/Irritant Hydrogen fluoride (HF) is produced in case of reaction of Lithium-ion hexafluorophosphate (LiPF_6) with water. Combustible vapors and formation of Hydrogen fluoride (HF) and phosphorous oxides during fire.

11 –TOXOLOGICAL INFORMATION

Lithium-Ion rechargeable batteries do not contain toxic materials.

12、ECOLOGICAL INFORMATION

When properly used and disposed of, Lithium-Ion rechargeable batteries do not present an environmental hazard. There is no additional ecological information available.

13、DISPOSAL CONSIDERATIONS

Dispose of in accordance with applicable regulations, which vary from country to country.

Lithium-Ion batteries should have their terminals insulated and be preferably wrapped in individual plastic bags prior to disposal.

(1) Incineration: Incineration should never be performed by battery users but eventually by trained professionals in authorized facilities with proper gas and fumes treatment.

(2) Recycling: Send to authorized recycling facilities.

14、TRANSPORT INFORMATION

The product is classified as NOT being dangerous goods as defined in the IATA Dangerous Goods Regulations (DGR) 55th edition and UN Recommendations on the Transport of Dangerous Goods, Model Regulations, Rev.15.

When packed with other equipment, The UN classification of the batteries is UN no:3481 and they are compliant with IATA Packing Instructions 966, Section II.

When shipped alone as a replacement part, the UN classification of the batteries is UN no. 3480 and they are compliant with IATA Packing Instructions 965, Section II.

The consignment is packed with protection of exposed terminals so as to prevent potential Danger by short-circuiting, according to Special Provision A45 under the current edition of the IATA Dangerous Goods Regulations

The battery pack is intended only for powering the mobile phone device with which it has been supplied.

The product is safe for air transportation, However, do not load or transport packages that have been damaged.

International conventions:	Air	IATA-A45	Yes
	Sea	IMDG	Yes
	Land	ADR(road)	Yes
		RID(rail)	Yes

15. REGULATORY INFORMATION

The transportation of rechargeable Lithium-ion batteries is regulated by various bodies(IATA,IMO,ADR,US-DOT) that follow the United Nations Recommendations on the Transport of Dangerous Goods, Model Regulations, Rev,15.

In accordance with the IATA Dangerous Goods Regulations (DGR)55th edition,Lithium-ion cells and batteries may be offered for air transportation on condition that they comply with the following:

For cells,the Watt-hour rating shall be not more than 20Wh;

For cells,the Watt-hour rating shall be not more than 100Wh;

The LITHIUM-ION battery models listed in this MSDS have Watt-hour ratings of less than 20Wh.

Lithium batteries are subject to shipping requirements exceptions under 49 CFR 173.185,paragraph (C).

Shipping of Lithium batteries by sea is regulated under the International Maritime Dangerous Goods (IMDG) requirements.

16. OTHER INFORMATION/DISCLAIMER

Additional information is available by calling the telephone number above which is designated for this purpose.

Prepared:Mr Liao 2014.01.03 Audited:Mr Fan 2014.01.03 Approved:Mr Huang 2014.01.03