Material Safety Data Sheet

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Product Name: Lithium-ion cell
Product Identification：103450

Item	Value	Remark
Wh-capacity	6.66Wh	

Manufacture: BetterPower Battery CO.,LTD
Address: No.11 Buildings , Tongfu village industrial park , Dalang , Longhua new district ,ShenZhen City
Tel: 0755-28078088
Emergency Telephone: 0755-28078588
Fax: 0755-28078588
Email: QA01@betterpower.com.cn

2. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Weight-%	Trade Secret
Lithium Cobalt Oxide (CoLiO2)	12190-79-3	25-40	
Graphite	7782-42-5	10-20	
Copper	7440-50-8	5-15	
Aluminum	7429-90-5	10-40`	
Organic electrolyte	N/A	10-20	
1,1-Difluoroethylene polymer	24937-79-9	≤1	
1,3-propanesultone	1120-71-4	0.2	

* The exact percentage (concentration) of composition has been withheld as a trade secret.

3. HAZARDS IDENTIFICATION

Classification

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29CFR 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.

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2
Skin sensitization	Category 1
Specific target organ toxicity (repeated exposure)	Category 1

GHS Label elements, including precautionary statements

Emergency Overview

Signal word: Danger
Hazard Statements
Causes skin irritation
Causes serious eye irritation
May cause an allergic skin reaction
May cause cancer



This product is an article which contains a chemical substance. Safety information is given for
exposure to the article as sold.
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.

Appearance Silver **Physical State** Solid **Odor** Odorless

Precautionary Statements Prevention	Obtain special instructions before use Do not handle until all safety precautions have been read and understood Use personal protective equipment as required Wash face, hands and any exposed skin thoroughly after handling Contaminated work clothing should not be allowed out of the workplace Wear protective gloves Do not breathe dust/fume/gas/mist/vapors/spray Do not eat, drink or smoke when using this product
Precautionary Statements Response	IF exposed or concerned: Get medical advice/attention Specific treatment (see supplemental first aid instructions on this label) 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 IF ON SKIN: Wash with plenty of soap and water Take off contaminated clothing and wash before reuse If skin irritation or rash occurs: Get medical advice/attention
Precautionary Statements Storage	Store locked up
Precautionary Statements Disposal	Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)	Not applicable
Unknown Toxicity	

Other Information	May be harmful if swallowed- Very toxic to aquatic life with long lasting effects Repeated or prolonged skin contact may cause allergic reactions with susceptible Persons
Interactions with Other Chemicals	No information available.

4. FIRST-AID MEASURES

Ingestion: Do not induce vomiting or give food or drink. Seek medical attention immediately.
Inhalation: Provide fresh air and seek medical attention.
Eyes contact: Immediately flush eyes thoroughly with water for at least 15 minutes, lifting upper and lower lids, until no evidence of the chemical remains. Seek medical attention.
Skin contact: Remove contaminated clothing and thoroughly wash with soap and plenty of water. If irritation persists, seek medical attention.

5. FIRE-FIGHTING MEASURE

Flash Point: N/A
Auto-Ignition Temperatur
Extinguishing Media: Water, CO_2
Special Fire-Fighting Procedures: Self-contained breathing apparatus.
Unusual Fire and Explosion Hazards: Cell may vent when subjected to excessive heat-exposing battery contents.
Hazardous Combustion Products: Carbon monoxide, carbon dioxide, lithium oxide fumes.

6. ACCIDENTAL RELEASE MEASURES

Steps to be Taken in case Material is Released or Spilled
If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. Wipe it up 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 battery 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.
Waste Disposal method
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.

7. HANDLING AND STORAG

Storage: Do not place the cell or battery near heating equipment, nor expose to direct sunlight for long periods. Elevated temperatures can result in shortened battery life and degrade performance.
Store in cool place (temperature: -20-45C, humidity: 45-75%).
Mechanical Containment: If potting or sealing the cell or battery in an airtight or

watertight container is required, consult your BetterPower Battery CO.,LTD.

Representative for precautionary suggestions. Do not obstruct safety release vents on cells.
Encapsulation of batteries will not allow cell venting and can cause h igh pressure rupture.
Handling: Never throw out cells in a fire or expose to high temperatures. Do not soak cells in water and seawater. Do not expose to strong oxidizers. Do not give a strong mechanical shock or throw down. Never disassemble, modify or deform. Do not connect the positive terminal to the negative terminal with electrically conductive material. Incompatible products: Conductive materials, water, seawater, strong oxidizers and strong acids Packing material (recommended, not suitable): Insulative and tear proof materials are recommended.
The contents of a leaking cell, when exposed to water, may result in a fire and/or explosion. Crushed or damaged cells and batteries may result in a fire.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls: Investigate engineering techniques to reduce exposures use with adequate ventilation and recommended personal protective equipment.
Eye/Face protection: Use good industrial practice to avoid eye contact. Processing of this product releases vapors or fumes which may cause eye irritation. Where eye contact may be likely wear chemical goggles and have eye flushing equipment
available
Skin protection: Minimize skin contamination by following good industrial hygiene practices. Wearing protective glove is recommended. Wash hands and contaminated skin thoroughly after handling.
Respiratory protection: Avoid breathing dust and processing vapors. When adequate ventilation is not available, wear a NIOSH/MSHA respirator approved for protection against inorganic dusts.
Special clothing: Robber gloves.

9. PHYSICAL and CHEMICAL PROPERTIES

Nominal Voltage:3.7V
Nominal Capacity:1800mAh

Appearance characters: odorless, solid battery.

10. STABILITY AND REACTIVITY

Stability: Stable
Conditions to Avoid: Heating, mechanical abuse and electrical
Hazardous Decomposition Products: N/A
If leaked, forbidden to contact with strong oxidizers, mineral acids, strong alkalies, halogenated hydrocarbons.

11. TOXICOLOGICAL INFORMATION

Inhalation, skin contact and eye contact are possible when the battery is opened. Exposure to internal contents, the corrosive fumes will be very irritating to skin, eyes and mucous membranes. Overexposure can cause symptoms of

non-fibrotic lung injury and membrane irritation.

12. ECOLOGICAL INFORMATION

When promptly used or disposed the battery does not present environmental hazard. When disposed, keep away from water, rain and snow.

13. DISPOSAL CONSIDERATIONS

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

If battery are still fully charged or only partially discharged, they can be considered a reactive hazardous waste because of significant amount of not reaction or unconsumed lithium remaining in the spent battery. The battery 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.

14. TRANSPORT INFORMATION

Label for conveyance: Lithium Battery Label, or Lithium Battery Class 9 Hazard Label, or Cargo Aircraft Only Label.

UN Number: 3480&3481

Packaging Group: N/A

Marine pollutant: No

Proper Shipping name: Lithium Ion Batteries(Including Lithium Polymer Batteries) , Lithium Ion Battery Packed With Equipment, Lithium Ion Battery Contained In Equipment

Transport information: Lithium Polymer battery is of a type proved to meet the Requirements of each test in the UN MANUALOF TESTS AND CRITERIA, PartⅢ,sub-section 38.3.

The lithium-ion battery with a watt-hour rating not exceeding 100Wh or the cell with the watt-hour rating is not exceeding 20Wh, The lithium-ion battery according to Section II/Section IB of PACKING INSTRUCTION 965, or Section II of PACKING INSTRUCTION 966～967 of the IATA Dangerous Goods Rgulations61st Edition may be transported.

The goods shall be complied with the requirements of special provision 188 of IMDG CODE (Amdt. 39-18) 2018 , The goods to be transport as Non-restricted Good

- The US Hazardous Materials Regulation 49 CRF (Code of Federal Regulations), sections 173-185 Lithium batteries and cells.
- The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria 38.3Lithium batteries, Rev.6, Amend.1

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.

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

Report NO:200101-001

Manual of Test and Criteria (38.3 Lithium battery)			
No.	Test items	Test results	Remark
T1	Altitude simulation	Pass	
T2	Thermal test	Pass	
T3	Vibration	Pass	
T4	Shock	Pass	
T5	External short circuit	Pass	
T6	Impact / Crush	Pass	
T7	Overcharge	Pass	
T8	Forced discharge	Pass	

Additional Requirements for air transport:

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.
2. Cells and batteries must be manufactured under a quality management program.
3. The Watt-hour rating must be marked on the outside of the battery case except those manufactured before 1 January 2009.
4. 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.
5. Each consignment must be accompanied with a document with an indication that:
   • the package contains lithium ion cells or batteries;
   • the package must be handled with care and that a flammability hazard exists if the package is damaged;
   • special procedures must be followed in the event the package is damaged, to include inspection and repacking if necessary; and atelephone number for additional information.
6. Each package must be labelled with a lithium battery handling label.
7. A Shipper's Declaration for Dangerous Goods is not required.
8. Any person preparing or offering cells for transport must receive adequate instruction on these requirements commensurate with their responsibilities.
9. Maximum net quantity of lithium ion cells must not be more than 5 kg.
10. Equipment must be equipped with an effective means of preventing accidental activation.
11. 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.
12. 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.
13. 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.

15. REGULATORY INFORMATION

Law Information

Dangerous Goods Regulation
Recommendations on the Transport of Dangerous Goods Model Regulations
International Maritime Dangerous Goods

Classification and Code of Dangerous Goods
OSHA Hazard Communication Standard Status
Toxic Substances Control Act (TSCA) Status
In accordance with all Federal, State and Local Laws.

16. OTHER INFORMATION

The data in this Material Safety Data Sheet relates only to the specific material designate herein.

For more information, please contact：

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