



**Minmax Energy Technology Co.,Ltd.**  
 Floor 6, DongJie Building, Pingshanminying Industrial Park,  
 Huashan, Huadu District, Guangzhou City, China

## Material Safety Data Sheet

MSDS Reference No: PSDS-C-09008-19

Model/type reference .....: LIC18650 (19.24Wh)

Nominal Voltage.....: 7.4V

Typical Capacity.....: 2600mAh

### Section 1- Chemical Product and Company Identification

Product Name: **Lithium Ion Battery**

Supplier's Name: Minmax Energy Technology Co., Ltd.

Supplier's Address: 6th Floor, Dongjie Building, No.16, Pingshan Industrial Park, Huashan, Huadu, Guangzhou, China

Telephone number of the supplier: +86-20-86963755 Fax: +86-20-86963757

Preparation Date: JAN. 04, 2018, Item Number: 2018010419

Referenced documents: ISO 9001:2015 Safety data sheet for chemical

### Section 2 – Hazards Identification

Preparation hazards and classification	Not dangerous with normal use. Do not dismantle, open or shred <i>Lithium Ion battery</i> Battery. Exposure to the ingredients contained within or their combustion products could be harmful.
Appearance, Odor	Solid object with no odor.
Primary Route(s) of Exposure	These chemicals are contained in a sealed aluminum foil. Risk of exposure occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, exposure to the electrolyte solution contained within can occur by Inhalation, Ingestion, Eye contact and Skin contact
Potential Health Effects:	<p><b>ACUTE (short term):</b> see Section 8 for exposure controls In the event that this battery has been ruptured, the electrolyte solution contained within the battery would be corrosive and can cause burns.</p> <p><b>Inhalation:</b> Inhalation of materials from a sealed battery is not an expected route of exposure. Vapors or mists from a ruptured battery may cause respiratory irritation.</p> <p><b>Ingestion:</b> Swallowing of materials from a sealed battery is not an expected route of exposure. Swallowing the contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract.</p> <p><b>Skin:</b> Contact between the battery and skin will not cause any harm. Skin contact with contents of an open battery can cause severe irritation or burns to the skin.</p> <p><b>Eye:</b> Contact between the battery and the eye will not cause any harm. Eye contact with contents of an open battery can cause severe irritation or burns to the eye.</p> <p><b>CHRONIC (long term):</b> see Section 11 for additional toxicological data</p>
Medical Conditions Aggravated by Exposure	Not applicable
Reported as carcinogen	Not applicable

### Section 3 – Composition/Information on Ingredients

Hazardous Ingredients (Chemical Name)	Concentration or concentration ranges (%)	CAS Number
Aluminum Foil(Al)	5%	7429-90-5
Copper Foil (Cu)	10%	7440-50-8
Cobalt lithium dioxide (CoO <sub>2</sub> .Li)	20-40%	12190-79-3
Graphite(C)	20%	7782-42-5
Electrolyte	15%	N/A
Stainless steel, Nickel and inert materials	5%	N/A
PCB	3~5%	N/A
Other	5%	N/A

Labeling according to EC directives.

No symbol and risk phrase are required.

Note: CAS number is Chemical Abstract Service Registry Number. N/A=Not apply.

### Section 4 – First-aid Measures

<b>Inhalation</b>	If contents of an opened battery are inhaled, remove source of contamination or move victim to fresh air. Obtain medical advice.
<b>Skin contact</b>	If skin contact with contents of an open battery occurs, as quickly as possible remove contaminated clothing, shoes and leather goods. Immediately flush with lukewarm, gently flowing water for at least 30 minutes. If irritation or pain persists, seek medical attention. Completely decontaminate clothing, shoes and leather goods before reuse or discard.
<b>Eye contact</b>	If eye contact with contents of an open battery occurs, immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes while holding the eyelids open. Neutral saline solution may be used as soon as it is available. If necessary, continue flushing during transport to emergency care facility. Take care not to rinse contaminated water into the unaffected eye or onto face. Quickly transport victim to an emergency care facility.
<b>Ingestion</b>	If ingestion of contents of an open battery occurs, never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 60 to 240 mL (2-8 oz.) of water. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Quickly transport victim to an emergency care facility.

### Section 5 – Fire-fighting Measures

Flammable Properties	In the event that this battery has been ruptured, the electrolyte solution contained within the battery would be flammable. Like any sealed container, battery cells may rupture when exposed to excessive heat; this could result in the release of flammable or corrosive materials.
Suitable Extinguishing Media	Use extinguishing media suitable for the materials that are burning.
Unsuitable extinguishing Media	Not available
Explosion Data	<b>Sensitivity to Mechanical Impact:</b> This may result in rupture in extreme cases <b>Sensitivity to Static Discharge:</b> Not Applicable
Specific Hazards arising from the chemical	Fires involving lithium ion battery can be controlled with water. When water is used, however, hydrogen gas may evolve. In a confined space, hydrogen gas can form an explosive mixture. In this situation, smothering agents are recommended to extinguish the fire
Protective Equipment And precautions for firefighters	As for any fire, evacuate the area and fight the fire from a safe distance. Wear a pressure-demand, self-contained breathing apparatus and full protective gear. Fight fire from a protected location or a safe distance. Use NIOSH/MSHA approved full-face self-contained breathing apparatus(SCBA) with full protective gear
NFPA	Health: 0 Flammability: 0 Instability: 0

### Section 6 – Accidental Release Measures

Personal Precautions, protective equipment, and emergency procedures	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.
Environmental Precautions	Prevent material from contaminating soil and from entering sewers or waterways.
Methods and materials for Containment	Stop the leak if safe to do so. Contain the spilled liquid with dry sand or earth. Clean up spills immediately.
Methods and materials for cleaning up	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.

### Section 7 – Handling and Storage

Handling	Don't handling Lithium Ion Battery with Metal work. Do not open, disassemble, crush or burn battery. Ensure good ventilation/exhaustion at the workplace. Prevent formation of dust. Information about protection against explosions and fires: Keep ignition sources away- Do not smoke.
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Storage	<p>If the Lithium Ion Battery are subject to storage for such a long term as more than 3 months, it is recommended to recharge the li-polymer battery periodically.</p> <p>3 months: -10°C~+40°C, 45 to 85%RH And recommended at 0°C~+35°C for long period storage.</p> <p>The capacity recovery rate in the delivery state(50% capacity of fully charged) after storage is assumed to be 80% or more.</p> <p>The voltage for a long time storage shall be 3.7V~3.9V range.</p> <p>Do not storage Li-Polymer Battery haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects. Keep out of reach of children.</p> <p>Do not expose Li-Polymer Battery to heat or fire.</p> <p>Avoid storage in direct sunlight. Do not store together with oxidizing and acidic materials.</p>
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### Section 8 – Exposure Controls and Personal Protection

Engineering Controls	Use local exhaust ventilation or other engineering controls to control sources of dust,mist, fumes and vapor.Keep away from heat and open flame. Store in a cool, dry place.
Personal Protective Equipment	<p><b>Respiratory Protection:</b> Not necessary under normal conditions.</p> <p><b>Skin and body Protection:</b> Not necessary under normal conditions, Wear neoprene or nitrile rubber gloves if handling an open or leaking battery.</p> <p><b>Hand protection:</b> Wear neoprene or natural rubber material gloves if handling an open or leaking battery.</p> <p><b>Eye Protection:</b> Not necessary under normal conditions, Wear safety glasses if handling an open or leaking battery.</p>
Other Protective equipment	Have a safety shower and eye wash fountain readily available in the immediate work area.
Hygiene Measures	Do not eat, drink, or smoke in work area. Maintain good housekeeping.

### Section 9 - Physical and Chemical Properties

Physical State	Form: Solid
	Color: White
	Odor: Monotony
Change in condition:	
pH, with indication of the concentration	Not applicable
Melting point/freezing point	Not available.
Boiling Point, initial boiling point and Boiling range:	Not available.
Flash Point	Not available.
Upper/lower flammability or explosive limits	Not available.
Vapor Pressure:	Not applicable
Vapor Density: (Air = 1)	Not applicable
Density/relative density	Not available.
Solubility in Water:	Insoluble
n-octanol/water partition coefficient	Not available.
Auto-ignition temperature	130°C
Decomposition temperature	Not available.
Odour threshold	Not available.
Evaporation rate	Not available.
Flammability (soil, gas)	Not available.
Viscosity	Not applicable

### Section 10 - Stability and Reactivity

Stability	The product is stable under normal conditions.
Conditions to Avoid (e.g. static discharge, shock or vibration)	Do not subject Lithium Ion Battery to mechanical shock. Vibration encountered during transportation does not cause leakage,fire or explosion. Do not disassemble, crush, short or install with incorrect polarity. Avoid mechanical or electrical abuse.
Incompatible Materials	Not Available
Hazardous Decomposition Products	This material may release toxic fumes if burned or exposed to fire
Possibility of Hazardous Reaction	Not Available

## Section 11 - Toxicological Information

Irritation	Risk of irritation occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, irritation to the skin, eyes and respiratory tract may occur.
Sensitization	Not Available
Neurological Effects	Not Available
Teratoaenicity	Not Available
Reproductive Toxicity	Not Available
Mutagenicity (Genetic Effects)	Not Available
Toxicologically Synergistic Materials	Not Available

## Section 12 - Ecological Information

General note:	Water hazard class 1(Self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Anticipated behavior of a chemical product in environment/possible environmental impact/ ecotoxicity	Not Available
Mobility in soil	Not Available
Persistence and Degradability	Not Available
Bioaccumulation potential	Not Available
Other Adverse Effects	Not Available

## Section 13 – Disposal Considerations

Product disposal recommendation: Observe local, state and federal laws and regulations.

Packaging disposal recommendation: Be aware discarded batteries may cause fire, tape the battery terminals to insulate them. Don't disassembly the battery. Completely discharge containers(no tear drops, no powder rest, scraped carefully). Containers may be recycled or re-used. Observe local, state and federal laws and regulations.

## Section 14 – Transport Information

1. Lithium ion batteries containing Watt-hour rating is not more than 20Wh.
2. Lithium Ion batteries can be treated as "Non-dangerous goods" under the United Nations Recommendations on the Transport of Dangerous Goods, Special Provision 188, provided that packaging is strong and prevent the products from short-circuit.
3. The Li-ion battery are complied with Section IB of PI965(59<sup>th</sup> Edition - 2018).
4. The consignment can be shipped as "Not Restricted" in accordance with the current edition-59<sup>th</sup> of IATA-DGR-2018.
5. With regard to air transport, the following regulations are cited and considered:
  - The International Civil Aviation Organization(ICAO) Technical Instructions.
  - The International Air transport Association (IATA) Dangerous Goods Regulations.
  - The International Maritime Dangerous Goods (IMDG) Code.
  - The US Hazardous Materials Regulation (HMR) pursuant to a final rule issued by RSPA
  - The Office of Hazardous Materials Safety within the US Department of Transportation's (DOT)

Research and Special Programs Administration (RSPA).

## Section 15 - Regulatory Information

OSHA hazard communication standard (29 CFR 1910.1200)

\_\_\_\_\_ Hazardous \_\_\_\_\_ V \_\_\_\_\_ Non-hazardous

## Section 16--SP188

Cell and batteries offered for transport are not subject to other provisions of this code if they meet the following:

- 1 For a lithium metal or lithium alloy cell, the lithium content is not more than 1 g, and for a lithium-ion cell, the Watt-hour rating is not more than 20 Wh;
- 2 For a lithium metal or lithium alloy battery, the aggregate lithium content is not more than 2 g, and for a lithium-ion battery, the Watt-hour rating is not more than 100 Wh. Lithium ion batteries subject to this provision shall be marked

with the Watt-hour rating on the outside case;

3 Each cell or battery is of the type proved to meet the requirements of each test in the United Nations Manual of Tests and Criteria, Part III, sub-section 38.3;

4 Cells and batteries, except when installed in equipment, shall be packed in inner packing that completely enclose the cell or battery. Cells and batteries 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 a short circuit. The inner packing shall be packed in strong outer packing which conform to the provisions of 4.1.1.1, 4.1.1.2, and 4.1.1.5.

5 Cells and batteries when installed in equipment shall be protected from damage and short circuit, and the equipment shall be equipped with an effective means of preventing accidental activation. When batteries are installed in equipment, the equipment shall be packed in strong outer packing constructed of suitable material of adequate strength and design in relation to the packaging's capacity and its intended use unless the battery is afforded equivalent protection by the equipment in which it is contained.

6 Except for packages containing button cell batteries installed in equipment (including circuit boards), or no more than four cells installed in equipment or no more than two batteries installed in equipment, each package shall be marked with the following:

- (i) an indication that the package contains "lithium metal" or "lithium ion" cells or batteries, as appropriate;
- (ii) an indication that the package shall be handled with care and that a flammability hazard exists if the package is damaged;
- (iii) an indication that special procedures shall be followed in the event the package is damaged, to include inspection and repacking if necessary; and
- (iv) a telephone number for additional information.

7 Each consignment of one or more packages marked in accordance with paragraph .6 shall be accompanied with a document including the following:

- (i) an indication that the package contains "lithium metal" or "lithium ion" cells or batteries, as appropriate;
- (ii) an indication that the package shall be handled with care and that a flammability hazard exists if the package is damaged;
- (iii) an indication that special procedures shall be followed in the event the package is damaged, to include inspection and repacking if necessary; and
- (iv) a telephone number for additional information.

8 Except when batteries are installed in equipment, each package shall be capable of withstanding a 1.2 m drop test in any orientation without damage to cells or batteries contained therein, without shifting of the contents so as to allow battery to battery (or cell to cell) contact and without release of contents;

9 Except when batteries are installed in or packed with equipment, packages shall not exceed 30 kg gross mass. As used above and elsewhere in this Code, "lithium content" means the mass of lithium in the anode of a lithium metal or lithium alloy cell.

Separate entries exist for lithium metal batteries and lithium ion batteries to facilitate the transport of these batteries for specific modes of transport and to enable the application of different emergency response actions.

## **Section 17 - Other Information**

The information above is believed to be accurate and represents the best information currently available to us. however, concorde 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 material 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.

The data/information contained herein has been reviewed and approved for general release on the basis that this document contains no export controlled information. In the transport process, the attention to light-light, when faced with packing cardboard boxes if damaged, please contact the manufacturer.