

## Safety Data Sheets (SDSs)

For

LIYUAN BATTERY TECHNOLOGY (SHENZHEN) CO., LTD.

A6, Hongtian Road, Hongtian Industrial Park, Huangpu Community, Xinqiao Street, Baoan District, Shenzhen , Guangdong ,PRC

and for their product

Model /Type reference	LIR1254
Trademark	N/A
Nominal Voltage	3.6V
Typical Capacity	60mAh 0.216Wh
Version Number	V1.0
Preparation Date	Nov 15, 2019
Revision Date	N/A

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

### Product Identifier

Product name: 3.6V Lithium Ion Button Battery

### Other means of identification

Product description	Model:	LIR1254
	Trade mark:	N/A
	Nominal voltage:	3.6V
	Typical capacity:	60mAh 0.216Wh
	Weight:	2.0g

### Recommended use of the chemical and restrictions on use

Recommended Use Used in portable electronic equipments

Uses advised against:

- a) Do not dismantle, open or shred secondary cells or batteries.
- b) Do not expose cells or batteries to heat or fire. Avoid storage in direct sunlight.
- c) Do not short-circuit a cell or a battery. Do not store cells or batteries haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects.
- d) Do not remove a cell or battery from its original packaging until required for use.
- e) Do not subject cells or batteries to mechanical shock.
- f) In the event of a cell leaking, do not allow the liquid to come in contact with the skin or eyes. If contact has been made, wash the affected area with copious amounts of water and seek medical advice.
- g) Do not use any charger other than that specifically provided for use with the equipment.
- h) Observe the plus (+) and minus ( - ) marks on the cell, battery and equipment and ensure correct use.
- i) Do not use any cell or battery which is not designed for use with the equipment.
- j) Do not mix cells of different manufacture, capacity, size or type within a device.
- k) Battery usage by children should be supervised.
- l) Seek medical advice immediately if a cell or a battery has been swallowed.
- m) Always purchase the battery recommended by the device manufacturer for the equipment.
- n) Keep cells and batteries clean and dry.
- o) Wipe the cell or battery terminals with a clean dry cloth if they become dirty.

- p) Secondary cells and batteries need to be charged before use. Always use the correct charger and refer to the manufacturer' s instructions or equipment manual for proper charging instructions.
- q) Do not leave a battery on prolonged charge when not in use.
- r) After extended periods of storage, it may be necessary to charge and discharge the cells or batteries several times to obtain maximum performance.
- s) Retain the original product literature for future reference.
- t) Use only the cell or battery in the application for which it was intended.
- u) When possible, remove the battery from the equipment when not in use.
- v) Dispose of properly.

**Details of the supplier of the safety data sheet:**

Supplier Name: LIYUAN BATTERY TECHNOLOGY (SHENZHEN) CO., LTD.

Address: A6, Hongtian Road, Hongtian Industrial Park, Huangpu Community, Xinqiao Street, Baoan District, Shenzhen , Guangdong ,PRC

Telephone number of the supplier: 13554721711

E-mail address: 2355477091@qq.com

**Emergency telephone number**

Company Emergency Phone Number: 13554721711


## 2. HAZARDS IDENTIFICATION

**Classification**

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

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

**GHS Label elements, including precautionary statements:**

<b>Signal word</b>	<b>Danger</b>	
<b>Hazard Statements</b>		
Causes skin irritation		
Causes serious eye irritation		
May cause an allergic skin reaction		
Suspected of causing cancer		
Causes damage to organs through prolonged or repeated exposures		
		
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.		
<b>Appearance</b> Silver	<b>Physical State</b> Solid containing liquid	<b>Odor</b> None

**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  
 Wear eye/face protection

**Precautionary Statements - Response**

IF exposed or concerned: Get medical advice/attention  
 Specific treatment (see supplemental first aid instructions on this label)

**Eyes**

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

**Skin**

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**

37.3% of the mixture consists of ingredient(s) of unknown toxicity

**Other information**

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.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Chemical characterization: Mixtures

##### Description:

Product: Consisting of the following components.

Common Chemical Name	Concentration (%)	CAS Number
Lithium Cobalt Oxide (LiCoO <sub>2</sub> )	32	12190-79-3
Lithium Hexafluorophosphate (LiPF <sub>6</sub> )	5	21324-40-3
Ethylene Carbonate (C <sub>3</sub> H <sub>4</sub> O <sub>3</sub> )	5	96-49-1
Graphite (C)	21	7782-42-5
Copper	3	7440-50-8
Aluminum	3	7429-90-5
PE Separator	2	90989-93-8
Dimethyl carbonate	18	616-38-6
Nickel	2	7440-02-0
Stainless steel	9	65997-19-5

Note: CAS number is Chemical Abstract Service Registry Number.

### 4. FIRST-AID MEASURES

#### First aid measures

First aid is upon rupture of sealed battery.

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical attention/advice.
Skin Contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required. May cause an allergic skin reaction.
Inhalation	Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get medical attention immediately if symptoms occur.
Ingestion	Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Call a

physician or poison control center immediately.

Self-protection of the first aider      Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wear personal protective clothing (see section 8).

### **Most important symptoms and effects, both acute and delayed**

Itching. Coughing and/ or wheezing. Burning sensation.

### **Indication of any immediate medical attention and special treatment needed**

Notes to Physician      Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rates, frothy sputum, and high pulse pressure. May cause sensitization of susceptible persons.

Treat symptomatically.

## **5. FIRE-FIGHTING MEASURES**

### **Suitable Extinguishing Media**

CO<sub>2</sub>, dry chemical powder, water spray.

Unsuitable Extinguishing Media: No information available.

### **Specific Hazards Arising from the Chemical**

Under fire conditions, batteries may burst and release hazardous decomposition products when exposed to a fire situation.

Formation of toxic gases is possible during heating or in case of fire.

In case of fire, the following can be released:

Carbon monoxide(CO)

Carbon dioxide

Other irritating and toxic gases.

### **Protective Equipment and Precautions for Firefighters**

Firefighters must wear fire resistant protective equipment and appropriate breathing apparatus. The staff must equip with filtermask (full mask) or isolated breathing apparatus. The staff must wear the clothes which can defense the fire and the toxic gas. Put out the fire in the upwind direction. Remove the container to the open space as soon as possible. Spray water on the containers in the fireplace to keep them cool until finish extinguishment.

## **6. ACCIDENTAL RELEASE MEASURES**

### **Personal precautions, protective equipment and emergency procedures**

Personal Precautions      Attention! Corrosive material. Avoid contact with skin, eyes or clothing.

Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Other information Refer to protective measures listed in Sections 7 and 8.

### **Environmental precautions**

Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

### **Methods and material for containment and cleaning up**

Methods for Containment prevent further leakage or spillage if safe to do so.

Methods for Cleaning up Use personal protective equipment. Dam up. Cover liquid spill with sand, earth or other Non combustible absorbent material. Pick up and transfer to properly labeled containers. Clean contaminated surface thoroughly.

## **7. HANDLING AND STORAGE**

### **Precautions for safe handling**

Handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Wear personal protective equipment.  
Wash thoroughly after handling. Use this material with adequate ventilation.  
The product is not explosive.

### **Conditions for safe storage, including any incompatibilities**

If the Lithium-ion Battery is subject to storage for such a long term as more than 3 months, it is recommended to recharge the Lithium-ion Polymer Battery periodically.

3 months: -10°C~+40°C, 45 to 85%RH

And recommended at 0°C~+35°C for long period storage.

The capacity recovery rate in the delivery state (50% capacity of fully charged) after storage is assumed to be 80% or more.

Do not storage Lithium-ion 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.

Do not expose Lithium-ion Polymer Battery to heat or fire. Avoid storage in direct sunlight.

Do not store together with oxidizing and acidic materials.

Keep ignition sources away- Do not smoke.

Store in cool, dry and well-ventilated place.

**Incompatible Products** None known.



## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

### (a) Engineering Controls

Use local exhaust ventilation or other engineering controls to control sources of dust, mist, fumes and vapor. Keepaway from heat and open flame. Store in a cool, dry place.

### (b) Personal Protective Equipment

**Respiratory Protection:** Not necessary under normal conditions. **Skin and body Protection:** Not necessary under normal conditions, Wear neoprene or nitrile rubber gloves if handling an open or leaking battery.

**Hand protection:** Wear neoprene or natural rubber material gloves if handling an open or leaking battery.

**Eye Protection:** Not necessary under normal conditions, wear safety glasses if handling an open or leaking battery.

### (c) Other Protective Equipment

Have a safety shower and eye wash fountain readily available in the immediate work area.

### (d) Hygiene Measures

Do not eat, drink, or smoke in work area. Maintain good housekeeping.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Form: prismatic
	Color: Silver-white
	Odour: Odourless
	Odor Threshold: No information available
Change in condition:	
pH, with indication of the concentration	Not determined.
Melting point/freezing point	Not determined.
Initial boiling point and Boiling range:	Not determined.
Flash Point	Not determined.
Evaporation rate	Not determined.
Flammability (solid, gas)	Not determined.
Upper/lower flammability or explosive limits	Not determined.
Vapor Pressure:	Not determined.
Vapor Density:	Not determined.
relative density:	Not determined.

Solubility in Water:	Not determined.
Solubility in other solvents	Not determined.
n-octanol/water partition coefficient	Not determined.
Auto-ignition temperature	Product is not self-igniting.
Decomposition temperature	Not determined.
Odour threshold	Not determined.
Evaporation rate	Not determined.
Viscosity	Not determined.
Other Information	No further relevant information available.

## 10. STABILITY AND REACTIVITY

**Reactivity:** Stable under recommended storage and handling conditions (see section 7, Handling and storage).

**Chemical stability:** Stable under normal conditions of use, storage and transport.

**Thermal decomposition/conditions to be avoided:** No decomposition if used according to specifications.

**Possibility of Hazardous Reactions:** None under normal processing.

**Hazardous Polymerization:** Hazardous polymerization does not occur.

**Conditions to avoid:** Strong heating, fire, Incompatible materials.

**Incompatible materials:** Strong oxidizing agents. Strong acids. Base metals.

**Hazardous Decomposition Products:** Carbon oxides, Other irritating and toxic gases.

## 11. TOXICOLOGICAL INFORMATION

**Acute toxicity:** No data available.

LD/LC50 values relevant for classification:

Not available.

**Skin corrosion/irritation:** No irritant effect.

**Serious eye damage/irritation:** Cause serious eye irritation.

**Respiratory or skin sensitization:** No sensitizing effects known.

**Specific target organ system toxicity:** No information available.

**CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):** No information available.

## 12. Ecological Information

**Toxicity:**

Acquatic toxicity:

No further relevant information available.

**Persistence and degradability:** No further relevant information available.

**Bioaccumulative potential:** No further relevant information available.

**Mobility in soil:** No further relevant information available.

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

**Other adverse effects:** No information available.

## 13. DISPOSAL CONSIDERATIONS

### **Waste treatment methods**

Recommendation: Must not be disposed together with household garbage.

Do not allow product to reach sewage system

### **Uncleaned packaging:**

Recommendation: Disposal must be made according to official regulations.

## 14. TRANSPORT INFORMATION

### **Land transport**

ADR/RID class: Not regulated.

UN-Number: UN3480 or UN3481.

### **Maritime transport**

IMDG Class: Class 9.

UN Number: UN3480 or UN3481.

Marine pollutant: No

### **Air transport**

ICAO/IATA Class: Class 9

UN/ID Number: UN3480 or UN3481

Environmental hazards: Not applicable.

Special precautions for user: Not applicable.

Transport/Additional information: Not restricted goods according to the above specifications.

The Lithium-ion Battery had been tested according to the requirements of the UN manual of tests and Criteria, Part III, subsection 38.3;

The lithium ion batteries according to Section II/Section IB of PACKING INSTRUCTION 965, or Section II of PACKING INSTRUCTION 966~967 of the Dangerous Goods regulations 58th Edition may be transported.

The packaging shall be adequate to avoid mechanical damage during transport, handling and stacking. The materials and pack design shall be chosen so as to prevent the development of unintentional electrical conduction, corrosion of the terminals and ingress of moisture.

Meets requirements of DOT Special Provision 188 to be transported as non-dangerous goods

