SAFETY DATA SHEET

For

LIYUAN BATTERY TECHNOLOGY（SHENZHEN）CO., LTD.

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

3.6V Lithium Ion Button Battery

Model/type reference ..... : LIR1254

Nominal Voltage ..... : 3.6V

Typical Capacity ..... : 0.06Ah

Version number ..... : V2.0

Revision date ..... : 14-Nov-2019

Prepared by ..... : **Shenzhen STS Test Services Co., Ltd.**
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Section 1- Identification of the Substance/Preparation and of the Company/Undertaking

Product Identifier

Product Name: 3.6V Lithium Ion Button Battery

Model No.: LIR1254

Other means of identification

Synonyms: None

Recommended use of the chemical and restrictions on use

Recommended Use: LITHIUM ION BATTERIES

Uses advised against: No information available

Details of the supplier of the safety data sheet

Manufacturer's/ 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 manufacturer/supplier: 0755-29887011

Emergency Telephone Number (24h): 0755-29887011

E-mail address: Caoqian001@liyuancell.com

Section 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 for a ruptured battery.

Precautionary statements

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.

Section 3 – Composition/Information on Ingredients

Chemical Name	CAS Number	Weight-%	Trade Secret
Lithium Cobalt Oxide ($CoLiO_2$)	12190-79-3	44.5	*
Phosphate(1-), hexafluoro-, lithium	21324-40-3	13	*
Graphite	7782-42-5	15	*
Copper	7440-50-8	7	*
Aluminium	7429-90-5	10	*
Polyethylene	9002-88-4	7	*
Nickel	7440-02-0	3.5	*

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

Section 4 – First-aid Measures

General Advice	First aid is upon rupture of sealed battery. **Eye contact:** If symptoms persist, call a physician. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Do not rub affected area.

	Skin contact: Wash off immediately with soap and plenty of water for at least 15 minutes. In the case of skin irritation or allergic reactions see a physician. May cause an allergic skin reaction. **Inhalation:** Remove to fresh air. If symptoms persist, call a physician. 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. **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	**Most important symptoms and effects:** Itching. Coughing and/ or wheezing.
Indication of any immediate medical attention and special treatment needed	**Notes to Physician:** Treat symptomatically. May cause sensitization of susceptible persons.

Section 5 – Fire-fighting Measures

Suitable extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing Media	CAUTION: Use of water spray when fighting fire may be inefficient.
Specific Hazards arising from the chemical	Product is or contains a sensitizer. May cause sensitization by skin contact.
Hazardous Combustion Products	Carbon oxides.
Explosion Data	**Sensitivity to Mechanical Impact:** No. **Sensitivity to Static Discharge:** No.
Protective Equipment and precautions for firefighters	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Section 6 – Accidental Release Measures

Personal Precautions, protective equipment,	**Personal Precautions:** Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required.

and emergency procedures	Evacuate personnel to safe areas. **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.
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:** Pick up and transfer to properly labeled containers.

Section 7 – Handling and Storage

Precautions for safe handling	**Handling:** In case of rupture. Use personal protection equipment. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Do not breathe dust/fume/gas/mist/vapors/spray.
Conditions for safe storage, including any incompatibilities	**Storage:** Keep containers tightly closed in a dry, cool and well-ventilated place. **Incompatible Products:** Strong acids. Strong oxidizing agents. Strong bases.

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	**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.**
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.**
Appropriate engineering controls	**Engineering Measures:** Showers Eyewash stations

	Ventilation systems.
Individual protection measures, such as personal protective equipment	**Eye/Face Protection:** If splashes are likely to occur:. Wear safety glasses with side shields (or goggles). None required for consumer use. **Skin and Body Protection:** Wear protective gloves and protective clothing. Long sleeved clothing. Impervious gloves. **Respiratory Protection:** No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required. **Hygiene Measures:** Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection.Wash hands before breaks and immediately after handling the product.

Section 9 - Physical and Chemical Properties

Physical Properties	**Physical state:** Solid		
	Appearance: Sliver and Shape of the button		
	Color: Sliver		
	Odor: Odorless		
	Odor Threshold: No information available		
Chemical Properties:			
Property		**Values**	**Remarks/ Method**
pH		No data available	None known
Melting / freezing point		No data available	None known
Boiling point / boiling range		No data available	None known
Flash Point		No data available	None known
Evaporation Rate		No data available	None known
Flammability (solid, gas)		No data available	None known
Flammability Limit in Air **Upper flammability limit** **Lower flammability limit**		 No data available No data available	
Vapor pressure		No data available	None known
Vapor density		No data available	None known
Specific Gravity		No data available	None known

Water Solubility	Insoluble in water	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	0.00001	None known
Autoignition temperature	130℃	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	0.00001	None known
Explosive properties	No data available	
Oxidizing Properties	No data available	

Other Information

Softening Point	No data available
VOC Content (%)	No data available
Particle Size	No data available
Particle Size Distribution	No data available

Section 10 - Stability and Reactivity

Reactivity	No data available.
Chemical stability	Stable under recommended storage conditions.
Possibility of Hazardous Reactions	None under normal processing.
Hazardous Polymerization	Hazardous polymerization does not occur.
Conditions to avoid	None known based on information supplied.
Incompatible materials	Strong acids. Strong oxidizing agents. Strong bases.
Hazardous Decomposition Products	Carbon oxides.

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
Teratoaenicitv	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 impace/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

Land transport
ADR/RID class: N/A
UN-Number: Un3481
Maritime transport
IMDG Class: N/A
UN Number: Un3481
Marine pollutant: N/A
Air transport
ICAO/IATA Class N/A
UN/ID Number: Un3481

Environmental hazards: N/A
Special precautions for user
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
The packaging shall be adequate to avoid mechanical damage during transport, handling and stacking.

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

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	

Section 15 - Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture
EU Regulation:
Authorisations: No information available.
Restrictions on use: No information available.
Regulatory information

CAS No.	EU (EINECS)	**US (TSCA)**	**Japan (ENCS)**	**Canada (DSL/ NDSL)**	**Austrlia (AICS)**	**Korea (ECL)**	**China (IECSC)**
12190-79-3	Listed	Not listed	Not listed	NDSL	Not listed	Not listed	Not listed
7429-90-5	Listed	Listed	Listed	DSL	Listed	Listed	Listed
24937-79-9	Listed	Listed	Listed	DSL	Listed	Listed	Listed
7782-42-5	Not listed	Listed	Not listed	DSL	Listed	Listed	Listed
7440-50-8	Not listed	Listed	Not listed	DSL	Listed	Listed	Listed
9003-55-8	Listed	Listed	Listed	DSL	Listed	Listed	Listed
21324-40-3	Listed	Not listed	Not listed	Not listed	Not listed	Not listed	Listed
96-49-1	Listed	Listed	Not listed	DSL	Not listed	Not listed	Not listed
616-38-6	Listed	Listed	Listed	DSL	Listed	Listed	Listed

623-53-0	Listed	Listed	Listed	DSL	Listed	Listed	Listed
7440-02-0	Listed	Listed	Listed	DSL	Listed	Listed	Listed

Chemical safety assessment A Chemical Safety Assessment has not been carried out.

Section 16 - Other Information

Revision Date: 14-Nov-2019

Revision Note: No information available

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

--End of Safety Data Sheet--