Safety Data Sheet (SDS)

For

Shenzhen Thanksun Technology Co., Ltd.

4th Floor, Building A, Heshengjia Industrial Park, Huating Road 154, Dalang Street, Baoan District, Shenzhen City, China.

and for their product

Li-ion Polymer Battery

Model/type reference .....:	18650-26++(g), 18650-22++(g), BL-5B, U053450A
Trademark .....:	N/A
Nominal Voltage……..:	3.7V
Typical Capacity……..:	2600mAh, 9.62Wh
Weight……..:	50.0g
Shape and Physical Dimension (mm)……..:	L: 65.0mm D: 18.0mm
Version number……..:	V2.0
Preparation Date……..:	March. 17, 2015
Revision date……..:	N/A.

Laboratory .....:	**Shenzhen SEM.Test Technology Co., Ltd.**
Address .....:	1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, P.R.C. (518101)

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Section 1- Chemical Product and Company Identification

1. Chemical Product Identification

Product name: Li-ion Polymer Battery

Model: 18650-26++(g), 18650-22++(g), BL-5B, U053450A

2. Company Identification

Manufacturer /Supplier Name: Shenzhen Thanksun Technology Co., Ltd.

Address: 4th Floor, Building A, Heshengjia Industrial Park, Huating Road 154, Dalang Street, Baoan District, Shenzhen City, China.

Recommended use and restrictions on use:

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.

Telephone number of the supplier:+86-0755-83223133

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This MSDS was prepared by Shenzhen SEM.Test Technology Co., Ltd.

Item Number: STR15039120S

Referenced documents: ISO 11014:2009 Safety data sheet for chemical products;

Section 2 – Hazard(s) Identification

Preparation hazards and classification	When the battery is In extreme pressure deformation, high-temperature environment, overload, short-circuit condition, or disassemble the battery, an explosion of fire and chemical burn hazards may occur.
Apperance, Color, and Odor	Solid object with no odor, no color.
Primary Route(s) of Exposure	These chemicals are contained in a sealed stainless steel enclosure. 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:	**ACUTE (short term): 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. **Inhalation:** A battery volatilizes no gas unless it was damaged. Damaged battery will volatilize little gas that may stimulate the respiratory tract or cause an anaphylaxis in serious condition. **Ingestion:** Swallowing battery will be Damaged to the respiratory tract and Cause chemical burns to the stomach; in serious conditions it will cause Permanent damage. **Skin:** In normal condition, Contact between the battery and skin will not cause any harms. Contact with a damaged battery may cause skin allergies or chemical burns. **Eye:** in normal condition, Contact between the battery and eyes will not cause any harms. However, the gas Volatilize from a damaged battery may be harmful to eyes. **CHRONIC (long term):** see Section 11 for additional toxicological data
Medical Conditions Aggravated by Exposure	Not applicable
Reported as carcinogen	Not applicable

Section 3 – Composition/Information on Ingredients

Li-ion Polymer Battery is a mixture.

Hazardous Ingredients (Chemical Name)	Concentration or concentration ranges (%)	CAS Number
Phosphate(1-), hexafluoro-, lithium	11	21324-40-3

Dimethyl carbonate	5	616-38-6
Nickel	2	7440-02-0
Ethylene carbonate	5	96-49-1
Aluminum Foils	6	7429-90-5
1,1-Difluoroethylene polymer	1	24937-79-9
Graphite	20	7782-42-5
Copper	10	7440-50-8
Cobalt lithium manganese nickel oxide	40	182442-95-1

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

Section 4 – First-aid Measures

Inhalation	If contents of an opened battery are inhaled, remove source of contamination or move victim to fresh air. Obtain medical advice.
Skin contact	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.
Eye contact	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.
Ingestion	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 contain 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	**Sensitivity to Mechanical Impact:** This may result in rupture in extreme cases **Sensitivity to Static Discharge:** Not Applicable
Specific Hazards arising from the chemical	Fires involving Li-ion Polymer Battery an 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	Do not dismantle, open or shred secondary Li-ion Polymer Battery; Don't handling Li-ion Polymer Battery with metalwork. Do not open, dissemble, 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.
Storage	If the Li-ion Polymer Battery is subject to storage for such a long term as more than 3 months, it is recommended to recharge the Li-ion Polymer Battery periodically. 3 months: -10℃~+40℃, 45 to 85%RH And recommended at 0℃~+35℃ 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. The voltage for a long time storage shall be 3.7V~4.2V range. Do not storage Li-ion 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. Do not expose Li-ion Polymer Battery to heat or fire. Avoid storage in direct sunlight. Do not store together with oxidizing and acidic materials.

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.

Section 9 - Physical and Chemical Properties

Physical State	Form: Solid
	Color: Blue
	Odour: 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.
Odout 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 Li-ion Polymer Battery to mechanical shock. Vibration encoutered 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
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.

The potential effects on the environment and human health of the substances used in batteries and accumulators; the desirability of not disposing of waste batteries and accumulators as unsorted municipal waste and of participating in their separate collection so as to facilitate treatment and recycling;

Section 14 – Transport Information

This report applies to by sea, by air and by land;

Polymer Li-ion Polymer Battery complies with the UN Recommendations on the Transport of Dangerous Goods; IATA Dangerous Goods regulations, and applicable U.S. DOT regulations for the safe transport of Polymer Li-ion Polymer Battery. Batteries containing these cells should be transported as Class 9 hazardous material, except for those battery types declared to be exempt (contact Concorde for a current listing of exempt batteries) and/or The Polymer Li-ion Polymer Battery (model: 18650-26++(g), 18650-22++(g), BL-5B, U053450A) tested according to the requirements of the UN manual of tests and Criteria, Part III, subsection 38.3;

If the lithium ion or lithium polymer cells with a Watt-hour rating not exceeding 20Wh and the lithium ion or lithium polymer batteries with a Watt-hour rating not exceeding 100Wh, The lithium ion or lithium polymer cells and batteries according to Section II/Section IB of PACKING INSTRUCTION 965, or Section II of PACKING INSTRUCTION 966～967 of the Dangerous Goods regulations 56th Edition may be transported.

If the lithium ion or lithium polymer cells with a Watt-hour rating in excess of 20Wh and the lithium ion or lithium polymer batteries with a Watt-hour rating in excess of 100Wh that have been determined to meet the criteria for assignment to Class 9, The lithium ion or lithium polymer cells and batteries according to Section IA of PACKING INSTRUCTION 965, or Section I of PACKING INSTRUCTION 966～967 of the Dangerous Goods regulations 56th 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 (Prior to the deadline set by HM 224F, February 6, 2015)

Meets the requirements of 49CFR173.185 to be transported as non-dangerous goods for road, rail, air, and vessel (Effective August 6, 2014 per HM224F)

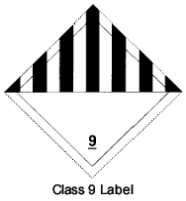
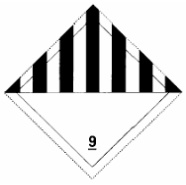
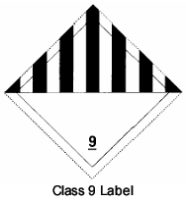
Meets the requirements of TDG special provision 34 to be transported as non-dangerous goods.

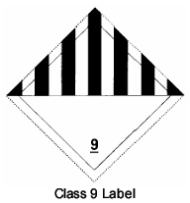
The package must be handled with care and that a flammability hazard exists if the package is

damaged;

Each package must be labeled with a Li-ion Polymer Battery handling label or in addition to the Class 9 hazard label.

The following information is provided for domestic and international transport.

DOT regulations:		
UN Classification (Transport Hazard class):	Class 9-Micellaneous Dangerous Goods;	 Class 9 Label
UN number:	3480 or 3481	
Packing group:	II	
UN Proper shipping name(technical name):	Lithium ion batteries or Lithium ion batteries contained in equipment or Lithium ion batteries packed with equipment;	
Marine pollutant(Y/N)	N	
Label:	9	
Land transport ADR/RID (cross-broder):		
ADR/RID class:	Class 9-Micellaneous Dangerous Goods and articles	 Class 9 Label
Danger code(Kemler):	9	
UN-Number:	3480 or 3481	
Packaging group:	II	
Marine pollutant(Y/N):	N	
Label:	9	
Description of goods:	Lithium ion batteries or Lithium ion batteries contained in equipment or Lithium ion batteries packed with equipment;	
Sea transport IMDG:		
IMDG Class:	Class 9-Micellaneous Dangerous Goods;	 Class 9 Label
UN Number:	3480 or 3481	
Label:	9	
Packaging group:	II	
EMS Number:	F-A, S-I	
Marine pollutant(Y/N):	Y	
Special regulate:	IMDG 188, 230, 310, 348, 957	
Propper shipping name:	Lithium ion batteries or	

	Lithium ion batteries contained in equipment or Lithium ion batteries packed with equipment;	
Air transport ICAO-TI and IATA-DGR:		
UN/ID Number:	3480 or 3481	 Class 9 Label
Label:	9	
Packaging group:	II	
Marine pollutant(Y/N):	N	
Propper shipping name:	Lithium ion batteries or Lithium ion batteries contained in equipment or Lithium ion batteries packed with equipment;	

Section 15 - Regulatory Information

Occupational Safety and Health Standards (OSHA) (29 CFR 1910.1200)

_____ Hazardous ____V___ Non-hazardous

Section 16 - Other Information

None;

**********The End**********