

MSDS Report

Prepared For:	SHENZHEN XIN SEN HUA ENERGY CO., LTD.
Address:	7F, A2 Building, Xinghuaxiong Industrial Park, Baihuadong Community, Guangming New District, Shenzhen.
Product Name:	Polymer lithium battery
Model :	902030 - TinyCircuits Model ASR00035
Nominal Voltage:	3.7V
Rated Capacity:	500mAh, 1.850Wh
Weight:	9.0g
Dimension :	31.0mm×20.0mm×9.0mm (L×W×T)
Prepared By :	Shenzhen TCT Testing Technology Co., Ltd. 1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong, Baoan District, Shenzhen, Guangdong, China.
Report No.:	TCT180402M315

Written by: Sunny Zhang

Approved by: Tomson

Inspected by: Amy Zeng

Date: 2018-04-13



Material Safety Data Sheet**Section 1- Chemical Product & Company Identification**

<i>Product Name:</i>	Polymer lithium battery
<i>Manufacture:</i>	SHENZHEN XIN SEN HUA ENERGY CO., LTD.
<i>Address:</i>	7F, A2 Building, Xinghuaxiong Industrial Park, Baihuadong Community, Guangming New District, Shenzhen.
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<i>Item Code:</i>	TCT180402M315

Section 2- Hazards Identification

<i>Classification of Danger</i>	See section 14.
<i>Primary Route(s) of Exposure</i>	Eye, skin contact, ingestion.
<i>Health Hazard</i>	The batteries are not hazardous when used according to the instructions of manufacturer under normal conditions. In case of abuse, there's risk of rupture, fire, heat, leakage of internal components, with could cause casualty loss. Abuses include but not limited to the following cases: charged for long time, short circuited, put into fire, whacked with hard object, punctured with acute object, crushed, and broken.

Section 3- Composition/Information on Ingredients

<i>Chemical Name</i>	<i>Concentration or concentration ranges (%)</i>	<i>CAS Number</i>
Lithium Cobalt Oxide (CoLiO ₂)	15-40	12190-79-3
Graphite	10-30	7782-42-5
Phosphate(1-), hexafluoro-, lithium	10-30	21324-40-3
Copper	7-13	7440-50-8
Aluminum foil	5-10	7429-90-5
Nickel	1-5	7440-02-0

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

<i>Eye</i>	Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
<i>Skin</i>	Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Get medical aid.
<i>Inhalation</i>	Remove from exposure and move to fresh air immediately. Use oxygen if available.
<i>Ingestion</i>	Give at least 2 glasses of milk or water. Induce vomiting unless patient is unconscious. Call a physician.

Section 5- Fire Fighting Measures

<i>Characteristics of Hazard</i>	Dusts at sufficient concentrations can form explosive mixtures with air. Combustion generates toxic fumes.
<i>Hazardous Combustion Products</i>	Carbon dioxide.

<i>Fire-extinguishing Methods and Extinguishing Media</i>	For small fires, use water spray, dry chemical, carbon dioxide or chemical foam.
<i>Attention in Fire-extinguishing</i>	Wear self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Section 6- Accidental Release Measures

<i>Personal Precautions, protective equipment, and emergency procedures</i>	In case of rupture. Attention! Corrosive material. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Refer to protective measures listed in Sections 7 and 8.
<i>Environmental Precautions</i>	Prevent product from contaminating soil and from entering sewers or waterways.
<i>Methods and materials for Containment</i>	Stop the leak if safe to do so. Contain the spilled liquid with dry sand or earth. Clean up spills immediately.
<i>Methods and materials for cleaning up</i>	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

<i>Handling</i>	In case of rupture. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Use personal protection equipment.
<i>Storage</i>	Store in a cool, dry, well-ventilated area away from incompatible substances. Store locked up. Keep out of the reach of children.
<i>Other Precautions</i>	The battery may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

Section 8 - Exposure Controls/Personal Protection

<i>Engineering Controls</i>	Use adequate ventilation to keep airborne concentrations low. If used under conditions that generate particulates, the ACGIH TLV-TWA of 3mg/m ³ respirable fraction (10mg/m ³ total) should be observed.
<i>Personal Protective Equipment</i>	<p>Eye and Face Protection: None required for consumer use. If there is a risk of contact: Tight sealing safety goggles. Face protection shield.</p> <p>Skin and Body Protection: None required for consumer use. If there is a risk of contact: Wear protective gloves and protective clothing.</p> <p>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.</p>

Section 9- Physical and Chemical Properties

<i>Physical State</i>	Appearance: Prismatic
	Color: Silver
	Odour: If leaking, smells of medical ether.
<i>Change in condition</i>	
pH	Not applicable as supplied.
Flash Point	Not applicable unless individual components exposed.
Flammability	Not applicable unless individual components exposed.
Relative density:	Not applicable unless individual components exposed.
Solubility (water)	Not applicable unless individual components exposed.
Solubility (other)	Not applicable unless individual components exposed.

Section 10 – Stability and Reactivity

<i>Chemical Stability</i>	Stable under recommended storage conditions.
<i>Possibility of Hazardous Reactions</i>	None under normal processing.
<i>Conditions to Avoid</i>	Exposure to air or moisture over prolonged periods.

<i>Incompatible materials</i>	Acids, Oxidizing agents, Bases.
<i>Hazardous Decomposition Products</i>	Carbon oxides.

Section 11 – Toxicological Information

<i>Irritation</i>	In the event of exposure to internal contents, vapour fumes may be very irritating to the eyes and skin.
<i>Sensitization</i>	Not Available.
<i>Reproductive Toxicity</i>	Not Available.
<i>Toxicologically Synergistic Materials</i>	Not Available.

Section 12-Ecological Information

<i>General note:</i>	Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
<i>Anticipated behavior of a chemical product in environment/possible environmental impact/ ecotoxicity</i>	Not Available.

Section 13 – Disposal Considerations

<i>Waste Treatment</i>	Recycle or dispose of in accordance with government, state & local regulations.
<i>Attention for Waste Treatment</i>	Deserted batteries couldn't be treated as ordinary trash. Couldn't be thrown into fire or placed in high temperature. Couldn't be dissected, pierced, crushed or treated similarly. Best way is recycling.

Section 14 – Transport Information

<i>UN number</i>	3481
<i>Proper shipping name</i>	Lithium ion batteries contained in equipments (including lithium ion polymer batteries)
<i>Class or division</i>	9 (Not subject to these Regulations)
<i>Marine pollutant (Yes/No)</i>	No

Label(s) / Placard Required	Miscellaneous Lithium batt
Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises	
ICAO / IATA:	Can be shipped by air in accordance with International Civil Aviation Organization (ICAO), TI or International Air Transport Association (IATA), DGR Packing Instructions (PI) 967 Section II appropriate of IATA DGR 59th (2018 Edition) for transportation.
IMDG CODE:	The batteries are not restricted to IMDG Code 2016 Edition (Amdt 38-16) according to special provision 188.
DOT:	Other requirements for the US Department of Transportation (DOT) Subchapter C, Hazardous Materials Regulations if shipped in compliance with 49 CFR 173.185.
ADR/ ADN:	The batteries are not subject to the provisions of United Nations Economic Commission for Europe (UNECE) ADR/ADN if they meet the requirements of special provision 188 of Chapter 3.3. Applicable as from 1 January 2017.
In addition, to be permitted in transport each lithium cell and battery types must have passed the applicable tests set out in Subsection 38.3 of the UN Manual of Tests and Criteria.	

Section 15 – Regulatory Information

Dangerous Goods Regulations

Recommendations on the Transport of Dangerous Goods-Model Regulations (20th revised edition)

Recommendations on the Transport of Dangerous Goods-Manual of Tests and Criteria

International Air Transport Association (IATA)

International Maritime Dangerous Goods (IMDG Code 2016 Edition Amdt 38-16)

Technical Instructions for the Safe Transport of Dangerous Goods

Classification and code of dangerous goods (GB 6944-2012)

2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Toxic Substance Control Act (TSCA)

Code of Federal Regulations

In accordance with all Federal, State and local laws

Section 16 – Additional Information

MSDS creation date: 2018 Version: 2.0

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

The data/information contained herein has been reviewed and approved for general release on the basis that this document contains no export controlled information.

*******End of report*******

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Page 8 of 8