

# SDS

## SAFETY DATA SHEET

According to 2012 OSHA Hazard Communication Standard

(29 CFR 1910.1200)

**Prepared For : Shenzhen Chengyan Energy Development  
Technology Co. Ltd.**  
6th Floor, B Building, No.18 Jincheng Road,  
Jinfenghuang Industrial Zone, Fenggang Town,  
Dongguan City, Guangdong, P.R. China

**Prepared By : Shenzhen LCS Compliance Testing Laboratory Ltd.**  
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China

**Issue Date : 2020.11.27**

**Report  
Number : LCS201109188ASD**

**Written by:** Una. Quan

**Approved by:**



# Safety Data Sheet

Version: V1.4

According to 2012 OSHA Hazard Communication Standard  
(29 CFR 1910.1200)

REPORT NO.: LCS201109188ASD

\* The SDS is prepared based on the information provided by client. The contents and formats of this SDS are revised as per client's request.

## Section 1- Identification

### (a) Product identifier

Product name	Li-ion Battery
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### (b) Other means of identification

Product description	Model: CY303759 Nominal Voltage: 3.7V Nominal capacity: 650mAh Watt-hour: 2.405Wh Weight: 14.9g
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### (c) Recommended use of the chemical and restrictions on use

Recommended use	LITHIUM ION BATTERIES
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Uses advised against	No information available.
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### (d) Details of the supplier of the safety data sheet

Supplier Name	Shenzhen Chengyan Energy Development Technology Co. Ltd.
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Supplier Address	6th Floor, B Building, No.18 Jincheng Road, Jinfenghuang Industrial Zone, Fenggang Town, Dongguan City, Guangdong, P.R. China
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Manufacture Company	Shenzhen Chengyan Energy Development Technology Co. Ltd.
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Manufacture Address	6th Floor, B Building, No.18 Jincheng Road, Jinfenghuang Industrial Zone, Fenggang Town, Dongguan City, Guangdong, P.R. China
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Supplier Phone Number	+86-755-36327668
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### (e) Emergency telephone number

+86-755-36327668

## Section 2- Hazards identification

### (a) 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.

Reproductive toxicity	Category 2
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Acute toxicity-Oral	Category 3
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Skin corrosion/ irritation	Category 1
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Specific target organ toxicity-repeated exposure	Category 1
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(b) GHS Label elements, including precautionary statements	
Emergency Overview	
<b>Signal word</b>	Danger
<b>Hazard Statements</b> Suspected of damaging fertility or the unborn child Toxic if swallowed Causes severe skin burns and eye damage Cause damage to organs through prolonged or repeated exposure.	
	
<b>Appearance:</b>	No information available
<b>Physical State:</b>	Solid
<b>Odor:</b>	No information available
P101	If medical advice is needed,,have product containet or label at hand
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P264	Wash ... thoroughly after handling.
P270	dust/fume/gas/mist/vapours/spray
P280	Wear protective gloves/protective clothing/eye protection/face protection
P308+P313 P301+P310 P321 P330 P301+P330+P331 P303+P361+P353 P363 P304+P340 P310 P305+P351+P338 P314	IF exposed or concerned: Get medical advice/ attention. IF SWALLOWED: Immediately call a POISON CENTER/doctor/\u2026. Specific treatment (see ... on this label). Rinse mouth. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. Wash contaminated clothing before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor/\u2026 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention if you feel unwell.
P405	Store locked up.
P501	Dispose of contents/container to ...
<b>(c) Hazards not otherwise classified (HNOc)</b>	
Not applicable	

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## (d) Unknown Toxicity

32% of the mixture consists of ingredient(s) of unknown toxicity

## (e) Other information

Very toxic to aquatic life with long lasting effects

## (f) Interactions with Other Chemicals

No information available.

## Section 3- Composition/information on ingredients

Chemical Name	CAS Number	Weight (%)	Trade Secret
Lithium Cobalt Oxide (CoLiO <sub>2</sub> )	12190-79-3	38.6	*
Copper	7440-50-8	6.4	*
Graphite	7782-42-5	38.2	*
Phosphate(1-), hexafluoro-, lithium	21324-40-3	4.1	*
Aluminum foil	7429-90-5	12.7	*

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

## Section 4- First-aid measures

### Description of first aid measures

- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Immediately rinse with water.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** If symptoms persist consult doctor.
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

## Section 5- Fire-fighting measures

### (a) Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

### (b) Unsuitable extinguishing media

CAUTION: Use of water spray when fighting fire may be inefficient.

### (c) Specific Hazards Arising from the Chemical

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors.

### (d) Hazardous Combustion Products

Carbon oxides.

### (e) 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

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## (a) Personal precautions, protective equipment and emergency procedures

If the battery is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. The preferred response is to leave the area and allow the vapors to dissipate. Avoid skin and eyes contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerated. If leakage of the battery happens, liquid could be absorbed with sand, earth or other inert substance and contaminated area should be ventilated meantime.

## (b) Environment precautions

Do not allow product to reach sewage system or any water source.  
Inform respective authorities in case of seepage into water course or sewage system.  
Do not allow to enter sewers surface or ground water.

## (c) Methods and material for containment and cleaning up

If battery casing is dismantled, small amounts of electrolyte may leak. Collect all released material in a plastic lined container. Dispose off according to the local law and rules. Avoid leached substances to get into the earth, canalization or waters.

## Section 7- Handling and storage

### (a) Precautions for safe handling

#### Handling

Handle in accordance with good industrial hygiene and safety practice. Wear personal protective equipment. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

### (b) Conditions for safe storage, including any incompatibilities

#### Storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

#### Incompatible Products

Strong acids. Strong oxidizing agents. Strong bases

## Section 8- Exposure controls/personal protection

### (a) Control parameters

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Graphite 7782-42-5	TWA: 3 mg/m <sup>3</sup> inhalable fraction	TWA: 3.5 mg/m <sup>3</sup> (vacated) TWA: 3.5 mg/m <sup>3</sup>	IDLH: 1750 mg/m <sup>3</sup> TWA: 3.5 mg/m <sup>3</sup> TWA: 0.1 mg/m <sup>3</sup> Graphite in presence of Polycyclic aromatic hydrocarbons PAH
Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) 12190-79-3	TWA: 0.02 mg/m <sup>3</sup>	-	-
Phosphate(1-), hexafluoro-, lithium 21324-40-3	TWA: 2.5 mg/m <sup>3</sup> F	TWA: 2.5 mg/m <sup>3</sup> F TWA: 2.5 mg/m <sup>3</sup> dust (vacated) TWA: 2.5 mg/m <sup>3</sup>	
Copper 7440-50-8	TWA: 0.2 mg/m <sup>3</sup> fume TWA: 1 mg/m <sup>3</sup> Cu dust and mist	TWA: 0.1 mg/m <sup>3</sup> fume TWA: 1 mg/m <sup>3</sup> dust and mist (vacated) TWA: 0.1 mg/m <sup>3</sup> Cu	IDLH: 100 mg/m <sup>3</sup> dust, fume and mist TWA: 1 mg/m <sup>3</sup> dust and mist

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		dust,fume,mist	TWA:0.1mg/m <sup>3</sup> fume
Aluminum foil 7429-90-5	TWA:1mg/m <sup>3</sup> respirable fraction	TWA:15mg/m <sup>3</sup> total dust TWA:5mg/m <sup>3</sup> respirable fraction (vacated) TWA:15mg/m <sup>3</sup> total dust (vacated) TWA:5mg/m <sup>3</sup> respirable fraction(vacated) TWA:5mg/m <sup>3</sup> AL Aluminum	TWA:10mg/m <sup>3</sup> total dust TWA:5mg/m <sup>3</sup> respirable dust

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value

OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits Immediately Dangerous to Life or Health

**Other Exposure Guidelines** Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992) See section 15 for national exposure control parameters

## (b) Appropriate engineering controls

Engineering Measures  
Showers  
Eyewash stations  
Ventilation systems

## (c) Individual protection measures, such as personal protective equipment

<b>Eye/Face Protection</b>	None required for consumer use. If there is a risk of contact:. Tight sealing safety goggles. Face protection shield.
<b>Skin and body Protection</b>	None required for consumer use. If there is a risk of contact:. Wear protective gloves and protective clothing.
<b>Respiratory Protection</b>	No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
<b>Hygiene Measures</b>	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. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. For environmental protection, remove and wash all contaminated protective equipment before re-use. No information available.

## Section 9- Physical and chemical properties

<b>Form</b>	Solid
<b>Color</b>	Silver
<b>Odor</b>	Not Available
<b>pH</b>	Not Available
<b>Melting point/freezing point</b>	Not Available
<b>Boiling Point and Boiling range</b>	Not Available

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Flash Point	Not Available
Upper/lower flammability or explosive limits	Not Available
Vapor Pressure	Not Available
Vapor Density	Not Available
Relative density	Not Available
Solubility in Water	Not Available
Auto-ignition temperature	Not Available
Decomposition temperature	Not Available
Evaporation rate	Not Available
Flammability (soil, gas)	Not Available
Viscosity	Not Available
<b>Section 10- Stability and reactivity</b>	
Reactivity	No information available.
Chemical stability	Stable under normal conditions.
Possibility of Hazardous Reactions	None under normal processing.
Hazardous Polymerization	Hazardous polymerization does not occur.
Conditions to avoid	Exposure to air or moisture over prolonged periods. Excessive heat.
Incompatible materials	Acids. Bases. Oxidizing agent.
Hazardous Decomposition Products	Carbon oxides.
<b>Section 11 – Toxicological information</b>	
Product Information	Product does not present an acute toxicity hazard based on known or supplied information. In case of rupture:
Eye contact	Specific test data for the substance or mixture is not available. Causes burns. (based on components). Corrosive to the eyes and may cause severe damage including blindness. Causes serious eye damage. May cause irreversible damage to eyes.
Skin contact	Specific test data for the substance or mixture is not available. Corrosive. (based on components). Causes burns.



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Ingestion	Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways.			
Component Information				
Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50	
Graphite 7782-42-5	> 10000 mg/kg ( Rat )	> 3 g/kg ( Rabbit )	-	
Information on toxicological effects				
Symptoms	Erythema (skin redness). May cause redness and tearing of the eyes. Itching. Rashes. Hives.			
Delayed and immediate effects as well as chronic effects from short and long-term exposure				
Sensitization:	May cause sensitization of susceptible persons. May cause sensitization by skin contact.			
Mutagenic Effects:	No information available.			
Carcinogenicity:	The table below indicates whether each agency has listed any ingredient as a carcinogen.			
Chemical Name	ACGIH	IARC	NTP	OSHA
Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) 12190-79-3	A3	Group 2B		X
Graphite 7782-42-5	A3	Group 2B		X
ACGIH (American Conference of Governmental Industrial Hygienists) A3 - Animal Carcinogen IARC (International Agency for Research on Cancer) Group 2B - Possibly Carcinogenic to Humans OSHA (Occupational Safety and Health Administration of the US Department of Labor) X - Present				
Reproductive Toxicity	No information available.			
STOT - single exposure	No information available.			
STOT - repeated exposure	Causes damage to organs through prolonged or repeated exposure. Based on classification criteria from the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200), this product has been determined to cause systemic target organ toxicity from chronic or repeated exposure. (STOT RE).			
Chronic Toxicity	Contains a known or suspected carcinogen. Avoid repeated exposure. Prolonged exposure may cause chronic effects. May cause adverse liver effects.			
Target Organ Effects	Respiratory system. Eyes. Skin. Gastrointestinal tract (GI). Central Vascular System (CVS).Kidney. Liver. Liver. Cardiovascular system. Systemic Toxicity.			



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Aspiration Hazard		No information available.		
Numerical measures of toxicity Product Information				
The following values are calculated based on chapter 3.1 of the GHS document		ATEmix (oral):		12,905.00 mg/kg
		ATEmix (dermal):		10,200.00 mg/kg (ATE)
Section 12- Ecological information				
Ecological Toxicity		Very toxic to aquatic life with long lasting effects.		
Chemical name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Copper 7440-50-8	96h EC50: 0.031 - 0.054 mg/L (Pseudokirchneriella subcapitata) 72h EC50: 0.0426 - 0.0535 mg/L (Pseudokirchneriella subcapitata)	96h LC50: 0.0068 - 0.0156 mg/L (Pimephales promelas) 96h LC50: = 0.112 mg/L (Poecilia reticulata) 96h LC50: = 0.3 mg/L (Cyprinus carpio) 96h LC50: = 0.8 mg/L (Cyprinus carpio) 96h LC50: = 1.25 mg/L (Lepomis macrochirus) 96h LC50: = 0.052 mg/L (Oncorhynchus mykiss) 96h LC50: = 0.2 mg/L (Pimephales promelas) 96h LC50: < 0.3 mg/L (Pimephales promelas)		48h EC50: = 0.03 mg/L
Graphite 7782-42-5				24h EC50: > 5600 mg/L
Persistence and Degradability		No information available.		
Bioaccumulation		No information available.		
Other adverse effects		No information available.		
Section 13- Disposal considerations				
Waste treatment methods				
Disposal methods		This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.		

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<b>Contaminated Packaging</b>	Disposal should be in accordance with applicable regional, national and local laws and regulations.
<b>California Hazardous Waste Codes 141</b> This product contains one or more substances that are listed with the State of California as a hazardous waste.	
Chemical Name	California Hazardous Waste
Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) 12190-79-3	Toxic
Copper 7440-50-8	Toxic
Aluminum foil 7429-90-5	Ignitable powder
Section 14 – Transport information	
<b>UN Number</b> <b>-DOT, IMDG, IATA</b>	UN 3480 & UN 3481
<b>UN Proper shipping name</b> <b>-DOT, IMDG, IATA</b>	Lithium ion Batteries (Including lithium ion polymer batteries) or ; Lithium ion Batteries contained in equipments (Including lithium ion polymer batteries) or; Lithium ion Batteries packed with equipment (Including lithium ion polymer batteries)
<b>Transport information</b>	<p>Li-ion Battery (Sample Model: CY303759) is tested and has passed in accordance with UN manual of Tests and Criteria, Part III, subsection 38.3.</p> <p>The transportation of lithium cells and batteries is regulated by the International Air Transport Association (According to Section II/ Section IB of PACKING INSTRUCTION 965, or to Section II of PACKING INSTRUCTION 966~967 of IATA DGR 61th Edition for transportation), International Civil Aviation Organization, International Maritime Dangerous Goods Code and the US Department of Transportation listed in 49 CFR 173.185.</p> <p>Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipment" may not be classified as "Dangerous Goods" when shipped in accordance with "special provision A45 of IATA-DGR" or "special provision 188 of IMO-IMDG Code"</p>
<b>Transport hazard class(es)</b> <b>-DOT, IMDG, IATA</b>	9
<b>Environmental hazards</b>	Yes(DOT)
<b>Marine pollutant</b>	Symbol (fish and tree)
<b>Special precautions for user</b> <b>EMS Number</b>	Warning: Miscellaneous dangerous substances and articles F-A,S-N
<b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable
<b>DOT Remarks:</b>	Special marking with the symbol (fish and tree)
<b>IMDG</b> <b>Limited quantities (LQ)</b> <b>Excepted quantities (EQ)</b>	0 Code: E0 Not permitted as Excepted Quantity

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## Section 15- Regulatory information

### (a) International Inventories

<b>TSCA</b>	Complies.
<b>DSL</b>	All components are listed either on the DSL or NDSL.

### (b) US Federal Regulations

<b>SARA 313</b>	Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.
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Chemical Name	CAS No	Weight-%	SARA 313 – Threshold Values %
Lithium Cobalt Oxide (CoLiO <sub>2</sub> )	12190-79-3	15-40	0.1
Copper	7440-50-8	3-7	1.0
Aluminum foil	7429-90-5	7-13	1.0

### SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

<b>CWA (Clean Water Act)</b>	This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)
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Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Copper 7440-50-8		X	X	

<b>CERCLA</b>	This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)
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Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Copper 7440-50-8	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ

### (c) US State Regulations

<b>California Proposition 65</b>	This product contains the following Proposition 65 chemicals.
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Chemical name	California Proposition 65
Graphite – 7782-42-5	Carcinogen

### U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Graphite 7782-42-5	X	X	X		X
Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) 12190-79-3	X		X	X	X
Aluminum 7429-90-5	X	X	X	X	
Copper 7440-50-8	X	X	X	X	X

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<b>(d) International Regulations</b>								
<b>Mexico</b>								
<b>National occupational exposure limits</b>								
Component			Carcinogen Status			Exposure Limits		
Graphite 7782-42-5 ( 15 - 40 )						Mexico: TWA=3.5 mg/m <sup>3</sup>		
Aluminum 7429-90-5 ( 7 - 13 )						Mexico: TWA= 10 mg/m <sup>3</sup>		
Copper 7440-50-8 ( 3 - 7 )						Mexico: TWA= 1 mg/m <sup>3</sup> Mexico: TWA= 0.2 mg/m <sup>3</sup> Mexico: STEL= 2 mg/m <sup>3</sup>		
<i>Mexico - Occupational Exposure Limits - Carcinogens</i>								
<b>Canada</b>								
<b>WHMIS Hazard Class</b>			Not determined					
<b>Section 16- Other information</b>								
<b>NFPA</b>	<b>Health Hazards</b>	1	<b>Flammability</b>	0	<b>Instability</b>	0	<b>Physical and Chemical Hazards</b>	-
<b>HMIS</b>	<b>Health Hazards</b>	2*	<b>Flammability</b>	0	<b>Physical Hazard</b>	0	<b>Personal Protection</b>	X
Chronic Hazard Star Legend * = Chronic Health Hazard								
<b>Disclaimer</b> 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\*\*\*\*\*

## Material Safety Data Sheet

### Section 1-Chemical Product and Company Identification

Product name: Lithium ion rechargeable battery cell

Details:

BATTER MODEL	Cell Voltage (V)	Battery Voltage (V)	Watt hour Rating (Wh)	Weight (grams)	Equivalent Lithium Content (grams)
PT852528 550mAh	3.7	3.7	2.035	11.6	

Manufacturer:

Guangdong Pow-tech New Power Co., Ltd.

Address: No.9,Hengdong 3Road,Hengkeng Shiling Industry Zone,Liaobu Town,Dongguan

Tel: (+86)769-83527566, Fax: (+86)0769-83520288

E-mail : wangcong@szpowtech.com.cn

### Section 2-Hazards Identification

#### Preparation hazards and classification

Not dangerous with normal use. Do not dismantle, open or shred Li-ion Battery

Exposure to the ingredients contained within or their ingredients products could be harmful.

Appearance, Color, and Odor: Solid object with no odor, no color.

#### Primary Route(s) of Exposure:

These chemicals are contained in a Aluminum-plastic composite membrane or hermetically sealed metal or metal laminated plastic case,

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: 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.

Ingestion: 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

Skin: 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.

Eye: 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.

Medical Conditions Aggravated by Exposure: Not applicable

Reported as carcinogen: Not applicable



### Section 3-Composition/Information on Ingredients

Chemical Composition	Molecular Formula	Weight%	CAS No	OSHA(PEL)	ACGIH(TLV)
Lithium Cobalt Oxide	LiCoO <sub>2</sub>	39.64%	12190-79-3	N/A	N/A
Graphite powder	C	23.19%	7782-42-5	N/A	N/A
Electrolyte	LiPF <sub>6</sub> C <sub>3</sub> H <sub>4</sub> O <sub>3</sub> C <sub>4</sub> H <sub>6</sub> O <sub>3</sub> C <sub>3</sub> H <sub>10</sub> O <sub>3</sub>	15.4%	21324-40-3	N/A	N/A
Polyethylene	(C <sub>2</sub> H <sub>4</sub> ) <sub>n</sub>	0.05%	9002-88-4	N/A	N/A
Cu	Cu	9.7%	7440-50-8	N/A	N/A
Electrolyte (EC)	C <sub>3</sub> H <sub>4</sub> O <sub>3</sub>	2.72%	96-49-1	N/A	N/A
Polyvinylidene fluoride	(CH <sub>2</sub> CF <sub>2</sub> ) <sub>n</sub>	1.71%	24937-79-9	N/A	N/A
Polypropylene	(C <sub>3</sub> H <sub>6</sub> ) <sub>n</sub>	0.8%	9003-07-0	N/A	N/A
Aluminum foil	Al	5.54%	7429-90-5	N/A	N/A
SBR	(C <sub>8</sub> H <sub>8</sub> .C <sub>4</sub> H <sub>6</sub> ) <sub>x</sub>	1.25%	9003-55-8	N/A	N/A

### 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 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

Spilled internal cell materials, such as electrolyte leaked from a battery cell, are carefully dealt with according to the followings:

Precautions for human body:

Remove spilled materials with protective equipment (protective glasses and protective gloves). Do not inhale the gas as much as possible. Moreover, avoid touching with as much as possible.

Environmental precautions:

Do not throw out into the environment. Method of cleaning up: The spilled solids are put into a container. The leaked place is wiped off with dry cloth.

Prevention of secondary hazards:

Avoid re-scattering. Do not bring the collected materials close to fire.

## Section 7-Handling and Storage

Handling	Don't handling Li-ion 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 Battery are subject to storage for such a long term as more than 3 months, it is recommended to recharge the Li-ion 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 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 Battery to heat or fire.



	<p>Avoid storage in direct sunlight.</p> <p>Do not store together with oxidizing and acidic materials.</p>
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## Section 8-Exposure Controls/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>Respiratory Protection: Not necessary under normal conditions.</p> <p>Skin and body Protection: Not necessary under normal conditions, Wear neoprene or nitrile rubber gloves if handling an open or leaking battery.</p> <p>Hand protection: Wear neoprene or natural rubber material gloves if handling an open or leaking battery.</p> <p>Eye Protection: 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	<p>Do not eat, drink, or smoke in work area.</p> <p>Maintain good housekeeping.</p>

## 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.
Odor 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, shocker vibration)	Do not subject Li-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

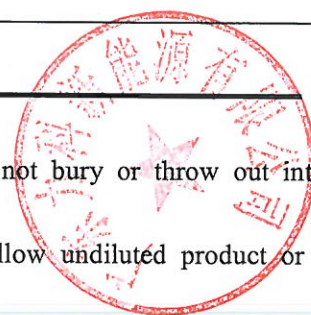
Irritation	Risk of irritation occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, irritation to the skin, eyes and respiratory tract may occur.
Sensitization	Not Available
Neurological Effects	Not Available
Teratogenicity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

## Section 12- Ecological Information

### General note:

Since a battery cell and the internal materials remain in the environment, do not bury or throw out into the environment.

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.





## 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 accumulations; 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;

The Li-ion Battery tested according to the requirements of the 6th revised edition of the UN manual of tests and Criteria, Part III, subsection 38.3;

Lithium ion battery was protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to short circuit;

The LITHIUM ION BATTERY according to Section II/IA/IB of PACKING INSTRUCTION 965/ 966 /967 of the 2020 IATA Dangerous Goods regulations 61th Edition may be transported and applicable U.S.DOT regulations for the safe transport of Li-ion Battery.

More information concerning shipping, testing, marking and packaging can be obtained from label master at <http://www.labelmaster.com/>.

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.

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 Battery handling label or in addition to the Class 9 hazard label.

With regard to 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. UN number of lithium battery: UN3480 or UN3481;

UN Proper shipping name/Description (technical name): Lithium ion batteries or Lithium ion batteries contained in equipment or Lithium ion batteries packed with equipment;

UN Classification (Transport hazard class): Non dangerous;

Marine pollutant (Y/N): N;

- The International Maritime Dangerous Goods IMDG Code(Amend 39-2018).

For lithium-ion batteries by sea, provided that packaging is strong and prevent the products from short-circuit. UN number of lithium battery: UN3480 or UN3481;

UN Proper shipping name/Description (technical name): Lithium ion batteries or Lithium ion batteries contained in equipment or Lithium ion batteries packed with equipment;

UN Classification (Transport hazard class): Non dangerous; Marine pollutant (Y/N): N;

Special Provision: International maritime dangerous goods code IMDG (Amend 39-2018)188, 230, 310, 348, 957;

- 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 Transportations' (DOT) Research and Special Programs Administration (RSPA)

## **Section 15-Regulatory Information**

Regulations specifically applicable to the product: Wastes Disposal and Public Cleaning Law [Japan] Law for Promotion of Effective Utilization of resources [Japan] US Department of Transportation 49 Code of Federal Regulations [USA]

OSHA hazard communication standard (29 CFR 1910.1200)

                     Hazardous

          V           Non-hazardous

## **Section 16-Other Information**

The information above is believed to be accurate and represents the best information currently available to us. However, concord 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 of 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.

