

# SAFETY DATA SHEET

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

### Product identifier

**Product Name** TIANQIU Li-Mn Button Cell CR2016

### Other means of identification

**Synonyms** None

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

**Recommended Use** Lithium Primary/Metal Batteries

**Uses advised against** No information available

### Details of the supplier of the safety data sheet

**Supplier Name** GUANGZHOU TIANQIU ENTERPRISE CO., LTD.

**Supplier Address** 9/F TianQiu Building No.16-30, He Yi Rd., San Yuan Li Ave., GuangZhou China  
GUANGZHOU  
GUANDONG  
510410  
CN

**Supplier Phone Number** Phone:8620-36322277  
Fax:8620-36323339  
Contact Phone8613825131170

**Supplier Email** qd@gztianqiu.com

### Emergency telephone number

**Company Emergency Phone Number** 8620-13825131170

## 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.

Acute toxicity - Oral	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Reproductive Toxicity	Category 1B

**GHS Label elements, including precautionary statements**

**Emergency Overview**

<b>Signal word</b>	<b>Danger</b>		
<b>Hazard Statements</b>	Harmful if swallowed Causes skin irritation Causes serious eye irritation May damage fertility or the unborn child		
			
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
			<b>Odor</b> Odorless

**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
- 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
- If skin irritation occurs: Get medical advice/attention
- Take off contaminated clothing and wash before reuse

**Ingestion**

- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
- Rinse mouth



**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**

2.409 % of the mixture consists of ingredient(s) of unknown toxicity

**Other information**

Harmful to aquatic life with long lasting effects

**Interactions with Other Chemicals**

Use of alcoholic beverages may enhance toxic effects.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical name	CAS No	Weight-%	Trade Secret
Iron	7439-89-6	60 - 100	*
Manganese dioxide	1313-13-9	10 - 30	*
Graphite	7782-42-5	1 - 5	*
Perchloric acid, lithium salt	7791-03-9	1 - 5	*
Propylene carbonate	108-32-7	1 - 5	*
Lithium	7439-93-2	1 - 5	*
Ethylene glycol dimethyl ether	110-71-4	0.1 - 1	*

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

**4. FIRST AID MEASURES****First aid measures****General Advice**

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. Remove contact lenses, if present and easy to do. Continue rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.

**Skin contact**

Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.

**Inhalation**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, (trained personnel should) give oxygen.

**Ingestion**

Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician.



**Self-protection of the first aider**      Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

**Most Important Symptoms and Effects**      Burning sensation.

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

**Notes to Physician**      Treat symptomatically.

## 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**

No information available.

**Explosion Data**

**Sensitivity to Mechanical Impact**      None.

**Sensitivity to Static Discharge**      None.

**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.

**6. ACCIDENTAL RELEASE MEASURES**

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

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

**Other Information** DO NOT GET WATER on spilled substance or inside containers.

**Environmental precautions**

**Environmental precautions** 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.

**7. HANDLING AND STORAGE**

**Precautions for safe handling**

**Handling** In case of rupture: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

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

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

**Incompatible Products** Strong acids. Strong oxidizing agents. Strong bases.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Control parameters**

**Exposure Guidelines**

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Manganese dioxide 1313-13-9	TWA: 0.02 mg/m <sup>3</sup> Mn respirable fraction TWA: 0.1 mg/m <sup>3</sup> Mn inhalable fraction	(vacated) Ceiling: 5 mg/m <sup>3</sup> Ceiling: 5 mg/m <sup>3</sup> Mn	IDLH: 500 mg/m <sup>3</sup> Mn TWA: 1 mg/m <sup>3</sup> Mn STEL: 3 mg/m <sup>3</sup> Mn
Graphite 7782-42-5	TWA: 2 mg/m <sup>3</sup> respirable fraction all forms except graphite fibers	TWA: 15 mg/m <sup>3</sup> total dust synthetic TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic (vacated) TWA: 2.5 mg/m <sup>3</sup> respirable dust natural (vacated) TWA: 10 mg/m <sup>3</sup> total dust	IDLH: 1250 mg/m <sup>3</sup> TWA: 2.5 mg/m <sup>3</sup> respirable dust



		synthetic (vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic TWA: 15 mppcf natural	
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ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits NIOSH IDLH Immediately Dangerous to Life or Health

**Appropriate engineering controls**

**Engineering Measures**                      Showers  
    Eyewash stations  
    Ventilation systems

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**                      Wear safety glasses with side shields (or goggles).

**Skin and body protection**                Wear protective gloves and protective clothing. Long sleeved clothing. Impervious gloves.

**Respiratory protection**                    If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

**Hygiene Measures**                         Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Physical and Chemical Properties**

<b>Physical state</b>	Solid	<b>Odor</b>	Odorless
<b>Appearance</b>	Silver	<b>Odor Threshold</b>	No information available
<b>Color</b>	No information available		

<u>Property</u>	<u>Values</u>	<u>Remarks</u>	<u>Method</u>
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	No data available		
Lower flammability limit	No data available		
Vapor pressure	No data available	None known	
Vapor density	No data available	None known	
Specific Gravity	0	None known	
Water Solubility	Insoluble in water	None known	
Solubility in other solvents	No data available	None known	
Partition coefficient: n-octanol/water	No data available	None known	
Autoignition temperature	No data available	None known	
Decomposition temperature	No data available	None known	



<b>Kinematic viscosity</b>	No data available	None known
<b>Dynamic viscosity</b>	No data available	None known
<b>Explosive properties</b>	No data available	
<b>Oxidizing properties</b>	No data available	

**Other Information**

<b>Softening Point</b>	No data available
<b>VOC Content (%)</b>	No data available
<b>Particle Size</b>	No data available
<b>Particle Size Distribution</b>	

## 10. STABILITY AND REACTIVITY

**Reactivity**

No data available.

**Chemical stability**

Stable under recommended storage conditions.

**Possibility of Hazardous Reactions**

None under normal processing.

**Conditions to avoid**

None known based on information supplied.

**Incompatible materials**

Strong acids. Strong oxidizing agents. Strong bases.

**Hazardous Decomposition Products**

None known based on information supplied.

## 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

<b>Product Information</b>	. Product does not present an acute toxicity hazard based on known or supplied information. In case of rupture:.
<b>Inhalation</b>	Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.
<b>Eye contact</b>	Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.
<b>Skin contact</b>	Specific test data for the substance or mixture is not available. Causes skin irritation. (based on components). Prolonged contact may cause redness and irritation.
<b>Ingestion</b>	Specific test data for the substance or mixture is not available. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea,



vomiting and diarrhea. Harmful if swallowed. (based on components).

### Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Iron 7439-89-6	= 984 mg/kg ( Rat )	-	-
Manganese dioxide 1313-13-9	= 9000 mg/kg ( Rat )	-	-
Propylene carbonate 108-32-7	= 29000 mg/kg ( Rat )	> 20 mL/kg ( Rabbit )	-
Ethylene glycol dimethyl ether 110-71-4	= 775 mg/kg ( Rat )	-	-

### Information on toxicological effects

**Symptoms** Erythema (skin redness). May cause redness and tearing of the eyes.

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

<b>Sensitization</b>	No information available.
<b>Mutagenic Effects</b>	No information available.
<b>Carcinogenicity</b>	Contains no ingredient listed as a carcinogen.
<b>Reproductive toxicity</b>	Contains a known or suspected reproductive toxin.
<b>STOT - single exposure</b>	No information available.
<b>STOT - repeated exposure</b>	No information available.
<b>Chronic Toxicity</b>	Contains a known or suspected reproductive toxin. Possible risk of irreversible effects. May cause adverse effects on the bone marrow and blood-forming system. May cause adverse liver effects.
<b>Target Organ Effects</b>	Respiratory system. Eyes. Skin. Reproductive System. Blood. Central Nervous System (CNS). Central Vascular System (CVS). Kidney. Cardiovascular system. Liver.
<b>Aspiration Hazard</b>	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)**  
913.00 mg/kg  
**ATEmix (inhalation-gas)**  
24,663.00 ppm (4 hr)  
**ATEmix (inhalation-dust/mist)**  
8.20 mg/l  
**ATEmix (inhalation-vapor)**  
60.00 ATEmix





## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

Very toxic to aquatic life with long lasting effects.

Chemical name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Iron 7439-89-6		96h LC50: = 13.6 mg/L (Morone saxatilis)		
Propylene carbonate 108-32-7	72h EC50: > 500 mg/L (Desmodesmus subspicatus)	96h LC50: > 1000 mg/L (Cyprinus carpio) 96h LC50: = 5300 mg/L (Leuciscus idus)	EC50 > 10000 mg/L 17 h	48h EC50: > 500 mg/L

### Persistence and Degradability

No information available.

### Bioaccumulation

Chemical name	Log Pow
Manganese dioxide 1313-13-9	<0
Propylene carbonate 108-32-7	0.48

### Other adverse effects

No information available.

## 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.

#### Contaminated Packaging

Dispose of contents/containers in accordance with local regulations.

#### California Hazardous Waste Codes 141

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 7439-93-2	Corrosive Ignitable Reactive

## 14. TRANSPORT INFORMATION

**Note:** The transportation of primary lithium cells and batteries is regulated by the International



Civil Aviation Organization, International Air Transport Association, International Maritime Dangerous Goods Code and the US Department of Transportation. The batteries must meet the following criteria for shipment: 1. Air shipments must meet the requirements listed in Special Provision A45 of the International Air Transport Association Dangerous Goods Regulations. 2. Meet the requirements for the US Department of Transportation listed in 49 CFR 173.185. 3. The transport of primary lithium batteries is prohibited aboard passenger aircraft. Refer to the Federal Register December 15, 2004 (Hazardous Materials; Prohibited on the Transportation of Primary Lithium Batteries and Cells Aboard Passenger Aircraft; Final Rule)  
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"

<b><u>DOT</u></b>	NOT REGULATED
<b>Proper Shipping Name</b>	NON-REGULATED
<b>Hazard Class</b>	N/A
<b>Emergency Response Guide Number</b>	138
<b><u>TDG</u></b>	Not regulated
<b><u>MEX</u></b>	Not regulated
<b><u>ICAO</u></b>	Not regulated
<b><u>IATA</u></b>	Not regulated
<b>Proper Shipping Name</b>	NON REGULATED
<b>Hazard Class</b>	N/A
<b><u>IMDG/IMO</u></b>	Not regulated
<b>Proper Shipping Name</b>	NON-REGULATED PER SP 188
<b>Hazard Class</b>	N/A
<b>EmS-No.</b>	F-A, S-I
<b><u>RID</u></b>	Not regulated
<b><u>ADR</u></b>	Not regulated
<b><u>ADN</u></b>	Not regulated

## 15. REGULATORY INFORMATION

### International Inventories

TSCA Complies  
DSL All components are listed either on the DSL or NDSL.

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory  
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

### US Federal Regulations

#### SARA 313

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



Chemical name	CAS No	Weight-%	SARA 313 - Threshold Values %
Manganese dioxide - 1313-13-9	1313-13-9	10 - 30	1.0
Ethylene glycol dimethyl ether - 110-71-4	110-71-4	0.1 - 1	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

**CWA (Clean Water Act)**

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

**CERCLA**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

**US State Regulations**

**California Proposition 65**

This product contains the following Proposition 65 chemicals.

Chemical name	California Proposition 65
Lead - 7439-92-1	Carcinogen Developmental Female Reproductive Male Reproductive
Cadmium and compounds (as Cd) - 7440-43-9	Carcinogen Developmental Male Reproductive
Mercury - 7439-97-6	Developmental

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

Chemical name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Manganese dioxide 1313-13-9	X		X	X	X
Graphite 7782-42-5	X	X	X		
Lithium 7439-93-2	X	X	X		
Ethylene glycol dimethyl ether 110-71-4	X	X	X	X	X

**International Regulations**

**Mexico**

**National occupational exposure limits**

Chemical name	Carcinogen Status	Exposure Limits
Manganese dioxide		Mexico: TWA= 0.2 mg/m <sup>3</sup>
Graphite		Mexico: TWA= 2 mg/m <sup>3</sup>

Mexico - Occupational Exposure Limits - Carcinogens

**Canada**



**WHMIS Hazard Class**  
Non-controlled

### 16. OTHER INFORMATION

<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>	0	<b>Flammability</b>	0	<b>Physical Hazard</b>	0	<b>Personal Protection</b>	X

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#### 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**

