



# 力源电池科技（宜春）有限公司

LIYUAN BATTERY TECHNOLOGY (YI CHUN) CO., LTD.

## 承 认 书

客户名称	
品 牌	
产 品	3.0V 扣式锂-二氧化锰电池
型 号	CR2025
制 作	邹陆军
审 批	马旭军
日 期	2018-02-17

深圳地址：广东省深圳市宝安区航城街道联诚发声光电智慧产业园 B 栋  
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## 1. 【范围】

本承认书的各种技术参数仅适用于 3V 锂锰扣式电池 CR2025，该电池由力源电池科技（宜春）有限公司生产。

## 2. 【技术参数】

表一：

项 目	单 位	数 值	条 件	
公称电压	V	3.0	无负载	
公称容量	mAh	150	20℃时标准电阻 15kΩ 放电至 2V	
瞬时短路电流	mA	≥250	时间≤0.5 秒	
开路电压	V	≥3.20	无负载	
贮存温度	℃	0~35	室温	
标准重量	g	2.4	每只电池	
放电时间	初始值	标准值	375h	在负载 7.5KΩ、20~25℃ 的温度、终止电压为 2.0V 的情况下持续放电 时间
		最小值	360h	
	经 12 个月贮存后的数值	标准值	356h	
		最小值	340h	

表二：

保存条件	条 件	特 性 值
自放电率	常温常湿条件下贮存 12 个月	不大于 5%

## 3. 【产品规格和测试方法】

除非特别说明，所有的测试都在下列常温条件下进行：环境温度：20~25℃  
环境湿度：65±20%。见表三

## 4. 【使用注意事项】

- 4.1 正确安装和使用电池,防止短路和装错正负极。
- 4.2 安装前要检查电池极端和所用器具及其接点，以保证清洁和导电，所用器具不能造成短路。
- 4.3 新电池不要与使用过的电池混用，不同牌号、等级和品种的电池不要混用，以免增加漏液的可能性。
- 4.4 电池使用后不得加热，充电或其它的手段反复使用，以免发生爆炸、破

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损和漏液。

4.5 不得将电池投入火中，也不要拆卸电池，以免发生危险。

4.6 妥善保管微型电池，以防幼儿误吞。

4.7 要注意电池的规定贮存期限。

表三：

序号	测试项目	测试方法	标准	
1	外形尺寸	用精确度大于 0.02mm 的游标卡尺测试时，为防止电池短路，卡尺的一端卡头上应贴上一层绝缘材料	直径	20.0(-0.20)mm
			高度	2.5(-0.20)mm
2	开路电压	万用表的精确度不低于 0.25%，内阻大于 1MΩ	≥3.20V	
3	瞬时短路电流	用万用表测试时，每次时间不超过 0.5 秒，避免重复测试，若需再次测试时，时间间隔应在半小时以上	≥250mA	
4	外观	目测	外观平整、光洁、无锈迹	
5	放电容量	在 20~25℃ 的温度和 65±20% 的湿度的条件下放置 8 小时以上，在负载 7.5 KΩ，终止电压为 2.0V 的情况下持续放电时间时所测容量(新电: 生产后三个月内)	≥375h	
6	振摔测试	将合格样品放在振动机的振台上，启动振动机，振动频率为 10-15 次/分钟，持续振动一小时	电池性能稳定	
7	高温耐漏液测试	在 45℃ 的条件下贮存 30 天	无漏液	
8	过放电耐漏液测试	在电池终止电压达到 2.0V 后，持续放电 5 小时	无漏液	

5. 【3.0V 扣式锂-二氧化锰电池剖面图】（详见第 6 页）

6. 【放电图】（详见第 7 页）

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## APPROVAL SHEET

MESSRS	
BRAND	
PRODUCT	3.0V LITHIUM-MANGANESE BUTTON CELL
MODEL	CR2025
PREPARED BY	ZOU LU JUN
APPROVED BY	MA XU JUN
DATE	FEB. 17, 2018

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## 1. 【SCOPE】

This specification applies to the following 3.0v lithium button cell CR2025 made by LIYUAN BATTERY TECHNOLOGY(YI CHUN), LTD.

## 2. 【RATINGS】

TABLE I :

ITEM		UNIT	SPECIFICATIONS	CONDITIONS
Nominal voltage		V	3.0	Standard discharge
Nominal capacity		mAh	150	At 20 °C Ω discharge standard resistance 15 k to 2 v
Instantaneous short-circuit current		mA	≥250	Time≤0.5 second
Off-load voltage		V	≥3.20	
Storage temperature		°C	0~35	
Standard weight		g	2.4	Unit cell
Service output	Initial	Standard	375h	Continuous discharge with load 7.5kΩ, till 2.0v end-voltage at 20~25°C
		Minimum	360h	
	After 12 months storage	Standard	356h	
		Minimum	340h	

TABLE II :

ITEM	CONDITIONS	CHARACTERISTICS
Self-discharge rate	Stored for 12 months at normal temperature, then continuously discharged with 15kΩ load till 2.0v end-voltage	≤5%

## 3. 【PERFORMANCE AND TEST METHODS】

Unless otherwise stated, all the testing is carried out under the condition: environmental temperature, 20°C~25°C; environmental humidity, 65±20%. Please refer to Table III

## 4. 【SUGGESTIONS AND CAUTIONS】

- 4.1 Install batteries correctly.
- 4.2 Ensure the contact points to be clean and conductive.
- 4.3 Do not mix different types, different brands batteries to serve together.
- 4.4 Do not heat, recharge the batteries.
- 4.5 Do not dispose of the batteries in fire.
- 4.6 Keep away from the small children, if swallowed promptly see doctor.
- 4.7 Pay attention to the producing date.

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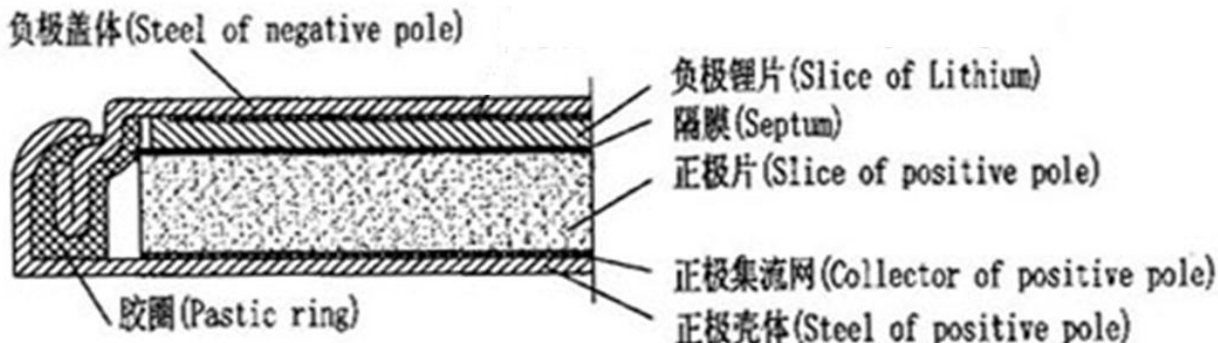
TABLE III:

No	ITEM	TEST METHODS	STANDARD	
1	Dimensions	Using vernier caliper (accuracy $\geq 0.02$ ) while avoiding short-circuit	Diameter	20.0 (-0.20) mm
			Height	2.5(-0.20) mm
2	Off-load voltage	Using multimeter (accuracy $\geq 0.25\%$ ) internal resistance $\geq 1M\Omega$	$\geq 3.20v$	
3	Instantaneous short-circuit current	Time of short-circuit should be less than 0.5 second and avoid repeated test within half an hour	$\geq 250$ mA	
4	Appearance	Eyeballing	Bright, clean, no rust, no leakage, And no flaw	
5	Capacity	Continuously discharge for 8 hours with load 7.5k $\Omega$ , temperature at 20~25 $^{\circ}C$ , humidity at 65 $\pm$ 20% till 2.0v end-voltage (for fresh battery only: within 3 months )	$\geq 375h$	
6	Vibration test	Put battery on the platform of the vibrations machine, start the machine and adjust the frequency form 10 times per minute to 15 times per minute. keep it running for an hour	Characteristics keep stability	
7	Leakage at high temperature	Stored under temperature (45 $^{\circ}C$ ) for 30 days	No leakage allowed	
8	Over discharge Test	After 2.0v end-voltage, continuously discharged for 5 hours	No leakage allowed	

## 5. 【BENCH SECTION OF 3.0V LITHIUM MANGANESE DIOXIDE BUTTON CELL】

### 3.0V扣式锂-锰电池剖面图

#### Bench Section of 3.0V Lithium Manganese Dioxide Button Cell



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## 6. 【DISCHARGE CHARACTERISTICS】



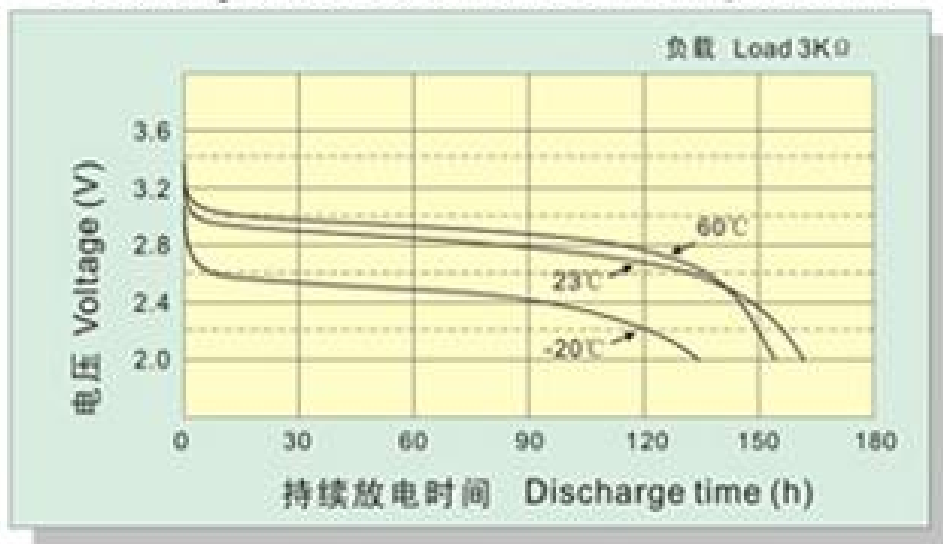
### 负载放电特性

### Discharge Characteristics on Load



### 温度放电特性

### Discharge Characteristics on Temperature



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# SAFETY DATA SHEET

Issuing Date 27-Jun-2011

Revision Date 06-Feb-2015

Revision Number 0



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

### Product identifier

**Product Name** MITSUBISHI Li-Mn Button Cell CR2032

### 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 Business 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 Phone 8613825131170

**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
Acute toxicity - Inhalation (Gases)	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2
Reproductive Toxicity	Category 1B
Specific target organ toxicity (repeated exposure)	Category 2

**GHS Label elements, including precautionary statements**

**Emergency Overview**

<b>Signal word</b>	<b>Danger</b>	
<b>Hazard Statements</b>	Harmful if swallowed Harmful if inhaled Causes skin irritation Causes serious eye irritation May damage fertility or the unborn child May cause damage to organs through prolonged or repeated exposure	
		
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> No data available

**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
- Use only outdoors or in a well-ventilated area
- Do not breathe dust/fume/gas/mist/vapors/spray
- 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

**Inhalation**

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

**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**

3.4 % of the mixture consists of ingredient(s) of unknown toxicity

**Other information**

Very toxic 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	30 - 60	*
Manganese dioxide	1313-13-9	10 - 30	*
Propylene carbonate	108-32-7	3 - 7	*
Ethylene glycol dimethyl ether	110-71-4	1 - 5	*
Graphite	7782-42-5	1 - 5	*
Lithium	7439-93-2	1 - 5	*

\*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. Get medical attention if irritation develops and persists. Do not rub affected area.



<b>Skin contact</b>	Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
<b>Inhalation</b>	Remove to fresh air. Get medical attention immediately if symptoms occur.
<b>Ingestion</b>	Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician.
<b>Self-protection of the first aider</b>	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**

<b>Most Important Symptoms and Effects</b>	Burning sensation. Coughing and/ or wheezing. Difficulty in breathing.
--------------------------------------------	------------------------------------------------------------------------

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

<b>Notes to Physician</b>	Treat symptomatically.
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## 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.

**Hazardous Combustion Products**

Carbon oxides.

<b>Physical/Chemical Reaction Properties</b>	No data available.
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**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.

## 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. Avoid generation of dust. Do not breathe dust. Evacuate personnel to safe areas.

**Other Information** Refer to protective measures listed in Sections 7 and 8.

### Environmental precautions

**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.

## 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. Use personal protection equipment.

### 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 TWA: 0.1 mg/m <sup>3</sup> Mn	(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>	IDLH: 1250 mg/m <sup>3</sup> TWA: 2.5 mg/m <sup>3</sup> respirable dust



		respirable dust natural (vacated) TWA: 10 mg/m <sup>3</sup> total 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 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

**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. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not breathe dust. 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>	No data available
<b>Appearance</b>	Silver	<b>Odor Threshold</b>	No information available
<b>Color</b>	No information available		

<b><u>Property</u></b>	<b><u>Values</u></b>	<b><u>Remarks</u></b>	<b><u>Method</u></b>
<b>pH</b>	No data available	None known	
<b>Melting / freezing point</b>	No data available	None known	
<b>Boiling point / boiling range</b>	No data available	None known	
<b>Flash Point</b>	No data available	None known	
<b>Evaporation Rate</b>	No data available	None known	
<b>Flammability (solid, gas)</b>	No data available	None known	
<b>Flammability Limit in Air</b>			
<b>Upper flammability limit</b>	No data available		
<b>Lower flammability limit</b>	No data available		
<b>Vapor pressure</b>	No data available	None known	
<b>Vapor density</b>	No data available	None known	
<b>Specific Gravity</b>	0	None known	
<b>Water Solubility</b>	Negligible	None known	
<b>Solubility in other solvents</b>	No data available	None known	
<b>Partition coefficient: n-octanol/water</b>	No data available	None known	



<b>Autoignition temperature</b>	No data available	None known
<b>Decomposition temperature</b>	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.

**Hazardous Polymerization**

Hazardous polymerization does not occur.

**Conditions to avoid**

Excessive heat.

**Incompatible materials**

Strong acids. Strong oxidizing agents. Strong bases.

**Hazardous Decomposition Products**

Carbon oxides.

## 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. Harmful by inhalation. (based on components).
<b>Eye contact</b>	Specific test data for the substance or mixture is not available. Expected to be an irritant based on components. Irritating to eyes. May cause redness, itching, and pain. May cause temporary eye irritation.
<b>Skin contact</b>	Specific test data for the substance or mixture is not available. Expected to be an irritant based on components. Irritating to skin. 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. May be 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 )	-
Graphite 7782-42-5	> 10000 mg/kg ( Rat )	-	-

**Information on toxicological effects**

**Symptoms** Erythema (skin redness). May cause redness and tearing of the eyes. Coughing and/ or wheezing.

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

**Sensitization** No information available.

**Mutagenic Effects** No information available.

**Carcinogenicity** Contains no ingredient listed as a carcinogen.

**Reproductive toxicity** Contains a known or suspected reproductive toxin.

**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 reproductive toxin. Possible risk of irreversible effects. Avoid repeated exposure. Prolonged exposure may cause chronic effects. May cause adverse effects on the bone marrow and blood-forming system.

**Target Organ Effects** Respiratory system. Eyes. Skin. Reproductive System. Blood. Central Nervous System (CNS). Central Vascular System (CVS). Kidney. Cardiovascular system. Liver.

**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)**

917.00 mg/kg

**ATEmix (inhalation-gas)**

13,554.00 ppm (4 hr)

**ATEmix (inhalation-dust/mist)**

4.50 mg/l

**ATEmix (inhalation-vapor)**

33.00 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 ( <i>Morone saxatilis</i> )		
Propylene carbonate 108-32-7	72h EC50: > 500 mg/L ( <i>Desmodesmus subspicatus</i> )	96h LC50: > 1000 mg/L ( <i>Cyprinus carpio</i> ) 96h LC50: = 5300 mg/L ( <i>Leuciscus idus</i> )	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





<b>Note:</b>	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>DOT</b>	NOT REGULATED
<b>Proper Shipping Name</b>	NON-REGULATED
<b>Hazard Class</b>	9
<b>Emergency Response Guide Number</b>	138
<b>TDG</b>	Not regulated
<b>MEX</b>	Not regulated
<b>ICAO</b>	Not regulated
<b>IATA</b>	Not regulated
<b>Proper Shipping Name</b>	NON REGULATED
<b>Hazard Class</b>	N/A
<b>IMDG/IMO</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>RID</b>	Not regulated
<b>ADR</b>	Not regulated
<b>ADN</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	1 - 5	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 does not contain any 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
Ethylene glycol dimethyl ether 110-71-4	X	X	X	X	X
Graphite 7782-42-5	X	X	X		
Lithium 7439-93-2	X	X	X		

**International Regulations**

**Mexico**

**National occupational exposure limits**

Component	Carcinogen Status	Exposure Limits
Manganese dioxide 1313-13-9 ( 10 - 30 )		Mexico: TWA= 0.2 mg/m <sup>3</sup>
Graphite 7782-42-5 ( 1 - 5 )		Mexico: TWA= 2 mg/m <sup>3</sup>

Mexico - Occupational Exposure Limits - Carcinogens



## Canada

## WHMIS Hazard Class

Not determined

16. OTHER INFORMATION					
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<b>NFPA</b>	<b>Health Hazards</b>	0	<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**

