

# MATERIAL SAFETY DATA SHEET

Date : Jan 1<sup>st</sup>, 2019  
File No.: PH-W5-105

## 1. Identification of the substance/preparation and of the company/undertaking

### Identification of the product

Product name : Lithium Metal Battery  
Chemical System: Lithium and Manganese Dioxide (Li-MnO<sub>2</sub>O<sub>2</sub> batteries )  
Model: CR123A, 3.0V, 1500mAh,  
Designated for 'DO NOT RECHARGE'?  Yes  No

### Manufacturer/supplier identification

Company : Guangzhou Great Power Energy & Technology Co., Ltd  
Contact for information : 912 Xicun Section, Shiliang Road, Shawan, Panyu, Guangzhou, GD, PRC  
Emergency telephone No. : 0086-20-39196888



## 2. Composition/information on ingredients

Ingredient	Percent	CAS Index No./EC No.	Molar mass	Molecular formula	Symbol
Manganese Dioxide	33%	1313-13-9		MnO <sub>2</sub>	
Lithium	2.4%	7439-93-2		Li	
Propylene carbonate	6.25%	108-32-7		PC	
Dimethyl ether	6.25%	115-10-6		DME	
Lithium Perchlorate	1.4%	7791-03-9		LiClO <sub>4</sub>	
Polypropylene	2.1%	9003-07-0		PP	
Steel	47.2%	7439-89-6		Fe	
Aluminum	1.4%	7429-90-5		Al	

Remark: The weight of metallic lithium per cell is <1 g.

## 3. Hazards identification

### Routes of Entry:

Inhalation - Yes  
Skin - Yes  
Ingestion - Yes

### Health Hazards (Acute and Chronic):

These chemicals are contained in a sealed can. Risk of exposure occurs only if the battery is mechanically or electrically

abused. The most likely risk is an acute exposure when the gas release vent works. Organic solvent has slight toxicity and can irritate skin and eyes. Lithium salt is irritating to skin, eyes and mucous membranes and should be avoided.

Carcinogenicity:

NTP: None IARC Monograph: None OSHA Regulated: None

Medical Conditions Generally Aggravated by Exposure:

An acute exposure will not generally aggravate any medical condition.

---

#### 4. First aid measures

---

After skin contact :	In case of skin contact with contents of battery, flush immediately with water. If irritation persists, get medical help.
After eye contact :	For eye contact, flush with copious amounts of water for 15 minutes. Do not inhale leaked material. If irritation persists, get medical help.

---

#### 5. Fire-fighting measures

---

Extinguishing Media: CO2 or dry chemicals  
Flammable Limits: Not available



---

#### 6. Accidental release measures

---

The preferred response is to leave the area and allow the batteries to cool and the vapors to dissipate. Avoid skin and eye contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerate.

---

#### 7. Handling and storage

---

Avoid mechanical or electrical abuse. Batteries may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

---

#### 8. Exposure controls/personal protection

---

Specific control parameter :

Personal protective equipment :

Respiratory protection (Specify Type) :	Not necessary under conditions of normal use.
Ventilation:	Not necessary under conditions of normal use.
Protective Gloves:	Not necessary under conditions of normal use.
Eye protection:	Not necessary under conditions of normal use.
Other Protective (Clothing or Equipment):	Not necessary under conditions of normal use.

---

## 9. Physical and chemical properties

---

**Specific Gravity:** (H<sub>2</sub>O=1): MnO<sub>2</sub>: 5.03

**Melting Point:** (°C): MnO<sub>2</sub> decomposes at 535 deg. C

MnO<sub>2</sub> is a black, odorless powder.

Lithium is a soft, silvery metal.

Organic solvent is an odorless, colorless or light yellow liquid.

Lithium salt is a white, crystalline and odorless powder.

---

## 10. Stability and reactivity

---

Stability: Stable

Conditions to Avoid: Do not heat, disassemble or charge.

Hazardous Decomposition or By-products: N/A

Hazardous polymerization will not occur.

---

## 11. Toxicological information

---

Acute toxicity :

Organic solvent

Further toxicological information :

Lithium



---

## 12. Ecological information

---

Ecotoxic effects : N/A

Further ecological data : N/A

---

## 13. Disposal considerations

---

Great Power encourages battery recycling. Our Li-MnO<sub>2</sub> batteries are recyclable through the Rechargeable Battery Recycling Corporation's (RBRC) **Charge Up to Recycle! Program**. For information call 1-800-8-BATTERY or see their website at [www.rbrc.org](http://www.rbrc.org). Li-MnO<sub>2</sub> batteries must be handled in accordance with all applicable state and federal laws and regulations.

DO NOT RECHARGE, disassemble, short, or subject battery cells to temperatures in excess of 212 F. Do not use in combination with fresh and used lithium batteries neither with other type of battery.

---

## 14. Transport information

---

International transport regulations : 1. International Air Transport Association (IATA) pursuant to Packing Instruction 968-970, Section II  
2. International Maritime Dangerous Goods Code, IMDG 38-16  
4. U.S. hazardous materials regulations pursuant to 49 CFR 173.185 and Special Provision A188.  
UN-No.: 3090 and 3091  
IATA Packaging Instruction Packing Instruction 968-970 Section II

Great Power Li-MnO2 cells pass the tests defined in UN model regulation section 38.3. Cells and batteries are packed according to the requirement of 60<sup>th</sup> Edition of the IATA Dangerous Goods Regulations (DGR).

**If Great Power Li-MnO2 cells are used to construct battery packs, the assembler of that pack is responsible to ensure the battery has been tested in accordance with the requirements contained in the UN Model Regulations, Manual of Test and Criteria. Part III, subsection 38.3.**

---

### 15. Regulatory information

---

N/A



---

### 16. Other information

---

**Make people :** Professional post : R&D Engineer                      Name(sign) : Jack Wu  
**Make unit :** Name : R&D Department                                      Phone : 0086-20-39196888  
Address : R&D Dept., Panyu Plant.,  
**Date of issue :** 2019/01/01

**DISCLAIMER :**                      **The information and recommendations set forth are made in good faith and believed to be accurate as of the date of preparation. Guangzhou Great Power Energy & Technology Co. Ltd makes no warranty, expressed or implied, with respect to this information and disclaims all liabilities from reliance on it.**