

# Safety Data Sheet

According to HCS-2012 APPENDIX D TO §1910.1200

Version: 1.0/EN

Product name: Lithium Manganese Dioxide button cell

Revision date: 31-may-2018

Printing date: 31-May-2018

## 1. Identification

### (a) Product identifier

Product name: Lithium Manganese Dioxide button cell

### (b) Other means of identification

Product description: Model: CR2050, CR927, CR1025, CR1130, CR1216, CR1220, CR1225, CR1616, CR1620, CR1632, CR2016, CR2020, CR2025, CR2032, CR2050, C2330, CR2354, CR2430, CR2450, CR2477, CR3032  
Nominal Voltage: 3.0V  
Ampere-hour: 0.3Ah  
Typical Capacity: 300mAh  
Lithium content: 0.11g  
Weight: 4.1g  
Dimension: 10.0mm×5.0mm (D×T)

### (c) Recommended use of the chemical and restrictions on use

Recommended use: Lithium primary/Metal Batteries.

Restriction on use: No information available.

### (d) Details of the supplier of the product

Company name(China) SHENZHEN LIDEA BATTERY CO., LTD.  
Address: 3/F. No.5 Bldg., Houhai Xufa Tech. Park, Gongming, Shenzhen, China.  
E-mail: sales@lideabattery.com  
Telephone: +86-755-25179975

### (e) Emergency phone number

+86-755-25179975

## 2. Hazard(s) identification

### (a) Classification of the chemical

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

### (b) GHS Label elements, including precautionary statements

Signal word **Danger**

Emergency Overview

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## Hazard Statements

Harmful if swallowed

Harmful if inhaled

Causes skin irritation

Causes serious eye irritation

May damage fertility or the unborn child

Causes 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.

## 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 protective gloves

## 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

Immediately call a POISON CENTER or doctor/physician

## Ingestion

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

Rinse mouth. Don't induce vomiting

**Precautionary Statements – Storage:** Store locked up

**Precautionary Statements – Disposal:** Dispose of contents/container to an approved waste disposal plant

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**Hazards not otherwise classified (HNOC):** Not applicable

**(c) Other information**

Very toxic to aquatic life with long lasting effects.

**(d) Interactions with Other Chemicals**

Use of alcoholic beverages may enhance toxic effects.

### 3. Composition/information on ingredients

(a) Mixtures information

Chemical name	CAS No.	Concentration%
Lithium	7439-93-2	2.1
Manganese Dioxide	1313-13-9	27.2
Graphite	7782-42-5	9.6
Perchloric acid, lithium salt	7791-03-9	4.0
Ethylene glycol dimethyl ether	110-71-4	8.0
Propylene carbonate	108-32-7	9.5
Iron	7439-89-6	32.0
Chromium	7440-47-3	2.0
Molybdenum	7439-98-7	2.1
Polypropylene	9003-07-0	3.5

### 4. First-aid measures

**(a) Description of 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.

**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 breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get medical attention immediately if symptoms occur.

**Ingestion:**

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

**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. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. Wear personal protective clothing (see section 8).

**(b) Most important symptoms/effects, acute and delayed**

**Most important symptoms and**

Coughing and/ or wheezing. Burning sensation. Difficulty in breathing

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effects:

**(c) Indication of any immediate medical attention and special treatment needed**

Notes to Physician    Treat symptomatically.

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## 5. Fire-fighting measures

### **(a) Extinguishing media**

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.

### **(b) Special hazards arising from the chemical**

No information available.

### **(c) Special protective equipment and precautions for fire-fighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

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## 6. Accidental release measures

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

Personal Precautions                                      In case of rupture. Attention! Corrosive material. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

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

### **(b) Environmental Precautions**

Environmental Precautions                                      Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

### **(c) Methods and materials 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.

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## 7. Handling and storage

### **(a) 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.

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

Storage    Keep containers tightly closed in a dry, cool and well-ventilated place. Protect

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from moisture. Keep out of the reach of children. Store away from other materials.

Incompatible Products

Strong acids. Strong oxidizing agents. Strong bases.

## 8. Exposure controls/personal protection

### (a) 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> 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	IDLH: 1250 mg/m <sup>3</sup> TWA: 2.5 mg/m <sup>3</sup> respirable dust
Chromium 7440-47-3	TWA: 0.5 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup> (vacated) TWA: 1 mg/m <sup>3</sup>	IDLH: 250 mg/m <sup>3</sup> TWA: 0.5 mg/m <sup>3</sup>
Molybdenum 7439-98-7	TWA: 10 mg/m <sup>3</sup> inhalable fraction TWA: 3 mg/m <sup>3</sup> respirable fraction	(vacated) TWA: 10 mg/m <sup>3</sup>	IDLH: 5000 mg/m <sup>3</sup>

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

Hexavalent Chrome may be formed during welding. 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

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,

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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.

## 9. Physical and chemical properties

(a) Appearance	solid
(b) Odor	Odorless
(c) Odor threshold	Not available.
(d) pH	Not available.
(e) Melting point/freezing point	Not available.
(f) Initial boiling point and boiling range	Not available.
(g) Flash point	Not applicable.
(h) Evaporation rate	Not applicable.
(i) Flammability	Non flammable.
(j) Upper/lower flammability or explosive limits	Not available.
(k) Vapor pressure	Not applicable.
(l) Vapor density	Not available.
(m) Relative density	Not available.
(n) Solubility(ies)	Insoluble in water.
(o) Partition coefficient: n-octanol/water	Not available.
(p) Auto-ignition temperature	Not available.
(q) Decomposition temperature	Not available.
(r) Viscosity	Not available.

## 10. Stability and reactivity

### **(a) Reactivity**

Stable under recommended storage and handling conditions.

### **(b) Chemical stability**

Stable under recommended storage conditions.

### **(c) Possibility of hazardous reactions**

None under normal processing.

### **(d) Conditions to avoid**

Excessive heat.

### **(e) Incompatible materials**

Strong acids. Strong oxidizing agents. Strong bases.

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## (f) Hazardous decomposition products

Carbon oxides.

## 11. Toxicological information

### (a) Information on the likely routes of exposure

#### Product Information

Product does not present an acute toxicity hazard based on known or supplied information.

In case of rupture:

Inhalation:

Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract. Harmful by inhalation. (based on components).

Ingestion:

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).

Skin contact:

Specific test data for the substance or mixture is not available. Causes skin irritation. (based on components). Prolonged contact may cause redness and irritation.

Eye contact:

Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.

### Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Graphite 7782-42-5	> 10000 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 )	
Iron 7439-89-6	= 984 mg/kg ( Rat )		

### (b) Information on toxicological characteristics

#### Symptoms

Erythema (skin redness). Burning. May cause blindness. Coughing and/ or wheezing.

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

Sensitization

May cause sensitization of susceptible person, May cause sensitization by skin contact. May cause sensitization by inhalation.

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
Chromium 7440-47-3		Group 3		

### IARC (International Agency for Research on Cancer)

Group 3 - Not Classifiable as to Carcinogenicity in Humans

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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	No known effect based on information supplied. 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. May cause adverse liver effects. Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitization of susceptible persons. Carcinogenic potential is unknown.
Target Organ Effects	Respiratory system. Eyes. Skin. Reproductive System. Blood. Central Nervous System (CNS). Central Vascular System (CVS). Kidney. Liver. Cardiovascular system. Systemic Toxicity.
Aspiration Hazard	No information available.

## 12. Ecological information

### (a) 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

### (b) Persistence and Degradability

No information available.

### (c) Bioaccumulative potential

No information available.

### (d) Other adverse effects

No information available.

## 13. Disposal considerations

### (a) Waste treatment methods

Disposal methods	This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261).
Contaminated Packaging	Dispose of contents/containers in accordance with local regulations



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US EPA Waste Number                      D007

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Chromium 7440-47-3		Included in waste streams: F032, F034, F035, F037, F038, F039	5.0 mg/L regulatory level	

California Hazardous Waste 141  
Codes

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California Hazardous Waste
Chromium 7440-47-3	Toxic Corrosive Ignitable
Lithium 7439-93-2	Corrosive Ignitable Reactive
Molybdenum 7439-98-7	Ignitable powder

## 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>UN number</b>	3480&3481
<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

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<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

### (a) Safety, health and environmental regulations specific for the product in question

CAS No.	USA TSCA	EU EINECS	Japan ENCS	Korea ECL	China IECSC	Canada DSL
7439-93-2	Listed	Listed	Listed	Listed	Listed	Listed
1313-13-9	Listed	Listed	Not Listed	listed	Listed	Listed
7782-42-5	Listed	Not Listed	listed	Listed	Listed	Listed
7791-03-9	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed
110-71-4	Listed	Listed	Not Listed	listed	Listed	Listed
108-32-7	Not Listed	listed	Not Listed	Not Listed	Not Listed	Not Listed
7439-89-6	Listed	Listed	Listed	Listed	Listed	Listed
7440-47-3	Listed	Listed	Listed	Listed	Listed	Listed
7439-98-7	Listed	Listed	Listed	Listed	Listed	Listed
9003-07-0	Listed	Listed	Listed	Listed	Listed	Listed

## 16. Other information, including date of preparation or last revision

### (a) Preparation and revision information

Date of previous revision: Not applicable.

Date of this revision: 31-May-2018

Revision summary: The first New SDS

### (b) Abbreviations and acronyms

TSCA:	Toxic Substances Control Act, The American chemical inventory.
DSL	Domestic Substances List
EINECS:	European Inventory of Existing Commercial chemical Substances
ENCS	Japanese Existing and New Chemical Substances
ECL:	Existing Chemicals List, the Korean chemical inventory.
IECSC:	Inventory of existing chemical substances in China.

### (c) Disclaimer

Because all of our batteries are defined as "articles", they are exempted from the requirements of the Hazard Communication Standard. The information in this SDS is provided all the relevant data fully and truly. However, the information is provided without any warranty on their absolute extensiveness and accuracy. This SDS was prepared to provide safety preventive measures for the users who have got professional training. The personal user who obtained this SDS should make independent judgment for the applicability of this SDS under special conditions. In these special cases, we do not assume responsibility for the damage.

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----- End of the SDS -----