

Li-MnO₂ Button Cell(Lithium Metal Battery)

Safety Data Sheet

This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200

Date of issue: 16/09/2019

Revision date: 16/09/2019

Version: 1.0

SECTION 1: Identification

1.1. Identification

Product form : Article
Trade name : Li-MnO₂ Button Cell(Lithium Metal Battery)
Other means of identification : CR1220
40mAh
Voltage : 3.0V
Battery Weight: 0.78g

1.2. Recommended use and restrictions on use

Main use category : Power supply.
Restrictions on use : No information available.

1.3. Supplier

Supplier : CHANGZHOU JINTAN CHAOCHUANG BATTERY CO., LTD
Address : Xiyang Industrial Zone, Xuebu Town, Jintan City, Jiangsu Province, China.
Phone : +86-755-27597836
E-mail : marvelous@chaochuang.com

1.4. Emergency telephone number

+86-13510093096

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

The batteries are not hazardous when used according to the instructions of manufacturer under normal conditions. In case of abuse, there's risk of rupture, fire, heat, leakage of internal components, which could cause casualty loss.

In the case of rupture, the following hazards may expose:

Skin corrosion/irritation, Category 2

Serious eye damage/eye irritation, Category 2A

2.2. GHS Label elements, including precautionary statements

GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

Warning

Hazard statements (GHS-US) :

Causes skin irritation.
Causes serious eye irritation.

Precautionary statements (GHS-US) :

Wash hands, forearms and face thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin: Wash with plenty of water/...
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Specific treatment (see supplemental first aid instruction on this label)
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse.

2.3. Other hazards which do not result in classification

This product should not present a health hazard when used under reasonable conditions. If contact with the internal components of the battery may be irritating to skin, eyes and mucous membranes. Fire will produce irritating, corrosive and/or toxic gases

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2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

| Name | Product identifier | % |
|-------------------------------------|----------------------|--------|
| Stainless Steel | (CAS-No.) 12597-68-1 | 66.666 |
| Manganese oxide (MnO ₂) | (CAS-No.) 1313-13-9 | 19.615 |
| Propylene carbonate | (CAS-No.) 108-32-7 | 3.205 |
| Polypropylene | (CAS-No.) 9003-07-0 | 2.821 |
| Polytetrafluoroethylene | (CAS-No.) 9002-84-0 | 1.731 |
| Graphite | (CAS-No.) 7782-42-5 | 1.731 |
| Ethylene glycol dimethyl ether | (CAS-No.) 110-71-4 | 1.538 |
| Lithium | (CAS-No.) 7439-93-2 | 1.41 |
| Perchloric acid, lithium salt | (CAS-No.) 7791-03-9 | 1.282 |

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

| | |
|---------------------------------------|---|
| First-aid measures general | : No hazards which require special first aid measures. If you feel unwell, seek medical advice (show directions for use or safety data sheet if possible). |
| First-aid measures after inhalation | : There will be no dangerous during normal use. But breathe in a large number of batteries, or heat released from the gas, it will stimulate the respiratory tract and eyes. Remove to fresh air immediately. Get medical treatment immediately |
| First-aid measures after skin contact | : There will be no dangerous during normal use. But contacting battery electrolyte, may cause severe irritation or burns. |
| First-aid measures after eye contact | : There will be no dangerous during normal use. But contacting battery electrolyte can burn the eyes. Flush the eyes with plenty of clean water for at least 15 minutes immediately, without rubbing. Get immediate medical treatment. If appropriate procedures are not taken, this may cause eye injury. |
| First-aid measures after ingestion | : Ingestion of internal chemical materials may cause mouth, throat and intestinal irritation and damage. Rinse mouth Get medical attention Never give anything by mouth to an unconscious person |

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects : No information available.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

| | |
|--------------------------------|---|
| Suitable extinguishing media | : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Unsuitable extinguishing media | : No information available. |

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5.2. Specific hazards arising from the chemical

- Fire hazard : Battery can be overheated by an external source or by internal shorting and develop metal hydroxide mist.
Toxic vapor may release in case of fire.
Containers may explode when heated.
Fire fighting water runoff and dilution water may be toxic and corrosive and may cause adverse environmental impacts.
Since vapour, generated from burning batteries may make eyes, nose and throat irritates, be sure to extinguish the fire on the windward side. Wear the respiratory protection equipment in some cases.
Exposure to the ingredients contained within the battery pack could be harmful under some circumstances.
- Toxic vapor may release in case of fire. : Thermal decomposition can lead to release of irritating and toxic gases and vapors

5.3. Special protective equipment and precautions for fire-fighters

- Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
- Other information : Evacuate personnel to a safe area. Ensure adequate ventilation, especially in confined areas. Eliminate every possible source of ignition. Move containers from fire area if it can be done without personal risk. Cool tanks/drums with water spray/remove them into safety. Stay upwind/keep distance from source.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Emergency procedures : No open flames, no sparks, and no smoking. Avoid contact with skin, eyes and clothing. Do not breathe dust/fume/gas/mist/vapors/spray.

6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
- Emergency procedures : Stop leak if safe to do so. Evacuate personnel to a safe area. Ensure adequate ventilation, especially in confined areas.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

- For containment : Collect spillage. Move containers from fire area if it can be done without personal risk. Contain large spillage with sand or earth.
- Methods for cleaning up : Take up liquid spill into absorbent material. Clean up any spills as soon as possible, using an absorbent material to collect it. Notify authorities if product enters sewers or public waters.
- Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : When packing the batteries, do not allow battery terminals to contact each other, or contact with other metals.
Be sure to pack batteries by providing partitions in the packaging box, or in a separate plastic bag so that the single batteries are not mixed together.
Use strong material for packaging boxes so that they will not be damaged by vibration, impact, dropping and stacking during their transportation.
Do not short-circuit, recharge, deform, throw into fire or disassemble.
Do not mix different type of batteries.
Do not solder directly onto batteries.
Insert the battery correctly in electrical equipment.
- Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

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7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a cool and dry area, but prevent condensation on cell or battery terminals.
High temperature may damage the performance of the battery.
Protect from physical damage and short circuits.
To avoid risk of fire or explosion, keep sparks and other sources of ignition away from the battery.
Do not allow metal objects to simultaneously contact both positive and negative terminal of batteries.
Do not stack battery directly on another battery.
Do not store batteries on electrically conductive surfaces.
Keep containers tightly closed in a dry, cool and well-ventilated place
Keep locked up and out of reach of children
Keep away from food, drink and animal feeding stuffs
Store in accordance with local regulations

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| | | |
|--|--------------------------------------|--|
| Polypropylene (9003-07-0) | | |
| Not applicable | | |
| Manganese oxide (MnO₂) (1313-13-9) | | |
| Not applicable | | |
| Lithium (7439-93-2) | | |
| Not applicable | | |
| Perchloric acid, lithium salt (7791-03-9) | | |
| Not applicable | | |
| Polytetrafluoroethylene (9002-84-0) | | |
| Not applicable | | |
| Graphite (7782-42-5) | | |
| ACGIH | ACGIH TWA (mg/m ³) | 2 mg/m ³ (all forms except graphite fibers-respirable particulate matter) |
| OSHA | OSHA PEL (TWA) (mg/m ³) | 15 mg/m ³ (synthetic-total dust) 5 mg/m ³ (synthetic-respirable fraction) |
| IDLH | US IDLH (mg/m ³) | 1250 mg/m ³ |
| NIOSH | NIOSH REL (TWA) (mg/m ³) | 2.5 mg/m ³ (natural-respirable dust) |
| Propylene carbonate (108-32-7) | | |
| Not applicable | | |
| Ethylene glycol dimethyl ether (110-71-4) | | |
| Not applicable | | |

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Remove all sources of ignition.
Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Under normal condition of use and handling no special protection is required for sealed battery. In the event of battery case breakage, should be wear appropriate safety gloves

Eye protection:

Under normal condition of use and handling no special protection is required for sealed battery. Use appropriate safety glasses when there is the risk of splash

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Skin and body protection:

Under normal condition of use and handling no special protection is required for sealed battery. It is recommended to wear appropriate protective clothing when the battery case is broken.

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.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|---|---------------------|
| Physical state | : Solid |
| Color | : Metallic color. |
| Odor | : Odorless. |
| Odor threshold | : No data available |
| pH | : No data available |
| Melting point | : No data available |
| Boiling point | : No data available |
| Flash point | : Not applicable |
| Relative evaporation rate (butyl acetate=1) | : No data available |
| Flammability (solid, gas) | : Not flammable |
| Vapor pressure | : Not applicable |
| Relative vapor density at 20 °C | : No data available |
| Relative density | : No data available |
| Solubility | : No data available |
| Log Pow | : No data available |
| Auto-ignition temperature | : No data available |
| Decomposition temperature | : No data available |
| Viscosity, kinematic | : Not applicable |
| Viscosity, dynamic | : Not applicable |
| Explosion limits | : Not applicable |
| Explosive properties | : Not an explosive |
| Oxidizing properties | : No data available |

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition. Avoid contact with incompatible materials

10.5. Incompatible materials

Oxidizing agent. Strong acid. Strong base.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

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| Manganese oxide (MnO₂) (1313-13-9) | |
|--|------------|
| LD50 oral rat | 9000 mg/kg |

| Propylene carbonate (108-32-7) | |
|---------------------------------------|--------------|
| LD50 oral rat | 29000 mg/kg |
| LD50 dermal rabbit | > 3000 mg/kg |

| Ethylene glycol dimethyl ether (110-71-4) | |
|--|-----------------------------------|
| LD50 oral rat | > 4000 mg/kg |
| LD50 dermal rabbit | 1000 - 2000 mg/kg |
| LC50 inhalation rat (mg/l) | 20 - 63 mg/l (Exposure time: 6 h) |

| | |
|-----------------------------------|----------------------------------|
| Skin corrosion/irritation | : Causes skin irritation. |
| Serious eye damage/irritation | : Causes serious eye irritation. |
| Respiratory or skin sensitisation | : Not classified |
| Germ cell mutagenicity | : Not classified |
| Carcinogenicity | : Not classified |

| Polypropylene (9003-07-0) | |
|----------------------------------|----------------------|
| IARC group | 3 - Not classifiable |

| Polytetrafluoroethylene (9002-84-0) | |
|--|----------------------|
| IARC group | 3 - Not classifiable |

| | |
|-----------------------|------------------|
| Reproductive toxicity | : Not classified |
| STOT-single exposure | : Not classified |

| | |
|------------------------|------------------|
| STOT-repeated exposure | : Not classified |
|------------------------|------------------|

| | |
|-------------------|------------------|
| Aspiration hazard | : Not classified |
|-------------------|------------------|

| | |
|-------------------------------------|-------------------|
| Symptoms/effects after skin contact | : Irritation. |
| Symptoms/effects after eye contact | : Eye irritation. |

SECTION 12: Ecological information

12.1. Toxicity

| | |
|-------------------|---|
| Ecology - general | : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment. |
|-------------------|---|

| Propylene carbonate (108-32-7) | |
|---------------------------------------|--|
| LC50 fish 1 | > 1000 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [semi-static]) |
| EC50 Daphnia 1 | > 500 mg/l (Exposure time: 48 h - Species: Daphnia magna) |

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

| Manganese oxide (MnO₂) (1313-13-9) | |
|--|-------------------------------|
| BCF fish 1 | (no bioaccumulation expected) |
| Log Pow | < 0 (at 20 °C) |

| Propylene carbonate (108-32-7) | |
|---------------------------------------|-----------------|
| Log Pow | 0.48 (at 25 °C) |

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12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

Product/Packaging disposal recommendations : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not regulated

Transportation of Dangerous Goods

Not regulated

Transport by sea

Not regulated

Air transport

Not regulated

SECTION 15: Regulatory information

15.1. US Federal regulations

Polypropylene (9003-07-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

EPA TSCA Regulatory Flag

XU - XU - indicates a substance exempt from reporting under the Chemical Data Reporting Rule, (40 CFR 711).

Manganese oxide (MnO₂) (1313-13-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Lithium (7439-93-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Perchloric acid, lithium salt (7791-03-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Polytetrafluoroethylene (9002-84-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

EPA TSCA Regulatory Flag

XU - XU - indicates a substance exempt from reporting under the Chemical Data Reporting Rule, (40 CFR 711).

Graphite (7782-42-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Propylene carbonate (108-32-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

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Ethylene glycol dimethyl ether (110-71-4)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

EPA TSCA Regulatory Flag

S - S - indicates a substance that is identified in a final Significant New Use Rule.

15.2. International regulations

CANADA

Polypropylene (9003-07-0)

Listed on the Canadian DSL (Domestic Substances List)

Manganese oxide (MnO₂) (1313-13-9)

Listed on the Canadian DSL (Domestic Substances List)

Lithium (7439-93-2)

Listed on the Canadian DSL (Domestic Substances List)

Perchloric acid, lithium salt (7791-03-9)

Listed on the Canadian DSL (Domestic Substances List)

Polytetrafluoroethylene (9002-84-0)

Listed on the Canadian DSL (Domestic Substances List)

Graphite (7782-42-5)

Listed on the Canadian DSL (Domestic Substances List)

Propylene carbonate (108-32-7)

Listed on the Canadian DSL (Domestic Substances List)

Ethylene glycol dimethyl ether (110-71-4)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

Manganese oxide (MnO₂) (1313-13-9)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Lithium (7439-93-2)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Perchloric acid, lithium salt (7791-03-9)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Graphite (7782-42-5)

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Propylene carbonate (108-32-7)

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Ethylene glycol dimethyl ether (110-71-4)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

Polypropylene (9003-07-0)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

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Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

Lithium (7439-93-2)

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Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

Perchloric acid, lithium salt (7791-03-9)

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Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

Polytetrafluoroethylene (9002-84-0)

Listed on the AICS (Australian Inventory of Chemical Substances)
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Graphite (7782-42-5)

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Propylene carbonate (108-32-7)

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Ethylene glycol dimethyl ether (110-71-4)

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15.3. US State regulations

No additional information available

SECTION 16: Other information

Issue date : 16/09/2019
Revision date : 16/09/2019
Data sources : Loli. ECHA reference.

Key or legend to abbreviations and acronyms used in the safety data sheet

| | |
|------|--|
| ADR | European Agreement Concerning the International Carriage of Dangerous Goods by Road |
| IMDG | International Maritime Dangerous Goods |
| IATA | International Air Transport Association |
| ADN | European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterway |
| RID | Regulations Concerning the International Carriage of Dangerous Goods by Rail |
| PBT | Persistent, Bioaccumulative and Toxic |
| vPvB | Very Persistent and Very Bioaccumulative |
| DNEL | Derived No Effect Level |
| PNEC | Predicted No Effect Concentration |
| LC50 | Lethal Concentration 50 |
| LD50 | Lethal Dose 50 |
| EC50 | Effective Concentration 50 |
| TWA | Time Weighted Average |
| STEL | Short Term Exposure Limit |

Key literature references and sources for data

ECHA: <http://echa.europa.eu/>
IFA GESTIS: [http://gestis-en.itrust.de/nxt/gateway.dll?f=templates\\$fn=default.htm\\$vid=gestiseng:sdbeng](http://gestis-en.itrust.de/nxt/gateway.dll?f=templates$fn=default.htm$vid=gestiseng:sdbeng)
HSDB: <http://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
ICSC: <http://www.ilo.org/dyn/icsc/showcard.home>
eChemPortal: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
NITE-CHRIP: http://www.nite.go.jp/en/chem/chrip/chrip_search/srhInput

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product