

Safety Data Sheet

According to HCS-2012 APPENDIX D TO §1910.1200

Version: 2.0/EN

Product name: Lithium-Manganese Button Cell

Revision date: 01/09/2015

Printing date: 01/09/2015

1. Identification

(a) Product identifier

Product name: Lithium-Manganese Button Cell
Product code: CR632 CR816 CR920 CR927 CR1025 CR1130 CR1212 CR1216 CR1220 CR1225 CR1/3N
CR1616 CR1620 CR1625 CR1632 CR2012 CR2016 CR123A CR2025 CR2030 CR2032
CR2050 CR2320 CR2325 CR2330 CR2332 CR2354 CR2430 CR2450 CR2477 CR3032

(b) Other means of identification

Product description: Nominal Voltage: 3.0V
Ampere-hour: 0.013 - 1.05Ah
Lithium content: 0.005g - 0.3g

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

Recommended use: Battery for low power consumption electronic products, like electronic watch, electronic calendar, calculator, computer motherboard, electronic toy, small electronic gifts, etc.
Restriction on use: No information available.

(d) Details of the supplier of the product

Company name(China) ShenZhen CLN Electronics Co., Ltd
Address: Room 2014-2015, District B, Bao an Internet CSIB, Bao an Centre District, ShenZhen, China
E-mail: grace@clnsz.com
Telephone: +86-755-29955410

(e) Emergency phone number

+86-755-29955410

2. Hazard(s) identification

(a) Classification of the chemical

The batteries are defined as "articles", they are exempted from the requirements of the Hazard Communication Standard. A sealed Li-metal Battery is not hazardous in normal use.

(b) Label elements

Pictogram(s): No pictogram.
Signal word: No signal word.
Hazard statements: No hazard statement.
Precautionary statements: No precautionary statement.

(c) Description of any hazards not otherwise classified

In case of mistreatment (abusive over charge, reverse charge, external short circuit...) and in case of fault some electrolyte can leak from the cell through the safety device. In these cases refer to the risk of the electrolyte. Contact with internal components may cause irritation or severe burns. Irritating to eyes, respiratory system, and skin. The electrode materials are only hazardous, if the materials are released by mechanical damaging of the cell or if exposed

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to fire.

Skin touch: Contact with battery electrolyte may cause burns and skin irritation.

Eyes touch: Contact with battery electrolyte may cause burns. Eye damage is possible.

Inhalation: Inhalation of a large number of vapors or fumes released due to heat may cause respiratory.

Ingestion: Ingestion of battery contents may cause mouth, throat and intestinal burns and damage.

(d) Ingredient with unknown acute toxicity

No information available.

3. Composition/information on ingredients

(a) Mixtures information

Chemical name	CAS No.	Concentration Range %	Typical Concentration %
Stainless steel	12597-68-1	35.68%-59.96%	45.2%
Polypropylene	9003-07-0	2.56%-7.45%	5.4%
Manganese dioxide	1313-13-9	21.84%-41.33%	30%
Poly(tetrafluoroethylene)	9002-84-0	1.19%-1.80%	1.6%
Graphite	7782-42-5	1.19%-1.80%	1.5%
Lithium metal	7439-93-2	1.57%-3.25%	2.8%
Lithium perchlorate	7791-03-9	2.63%-2.70%	2.7%
Propylene carbonate	108-32-7	2.07%-5.26%	4.8%
1,2-Dimethoxyethane	110-71-4	1.14%-5.26%	5.2%
Silicon dioxide	14808-60-7	0.43%-0.89%	0.8%

4. First-aid measures

(a) Description of first aid measures

Inhalation:	Internal components: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice / attention if you feel unwell.
Skin contact:	Internal components: Remove contaminated clothes and rinse the skin with plenty of water. Get medical advice / attention if you feel unwell.
Eye contact:	Internal components: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice / attention if you feel unwell.
Ingestion:	Internal components: Have victim drink 60 to 240 mL (2-8 oz.) of water. And DO NOT induce vomiting. Get medical aid.

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

Contact with internal components may cause allergic skin sensitization (rash) and irritate eyes, skin, nose, throat, respiratory system.

(c) Immediate medical attention and special treatment

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No information available.

5. Fire-fighting measures

(a) Extinguishing media

Suitable extinguishing media: Use foam, dry powder or dry sand, CO₂ as appropriate.

Unsuitable extinguishing media: No information available.

(b) Special hazards arising from the chemical

Under fire conditions, batteries may burst and release hazardous decomposition products when exposed to a fire situation. This could result in the release of flammable or corrosive materials. Hazardous combustion products: CO, CO₂, Metal oxides, Irritating fumes

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

Firefighters must wear fire resistant protective equipment and appropriate breathing apparatus. The staff must equip with filtermask (full mask) or isolated breathing apparatus. The staff must wear the clothes which can defense the fire and the toxic gas. Put out the fire in the upwind direction. Remove the container to the open space as soon as possible. Spray water on the containers in the fireplace to keep them cool until finish extinguishment.

6. Accidental release measures

(a) Personal precautions, protective equipment and emergency procedures

If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. The preferred response is to leave the area, dispose the case after the batteries cool and vapors dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors.

(b) Methods and materials for containment and cleaning up

If battery casing is dismantled, small amounts of electrolyte may leak. Collect all released material in a plastic lined container. Dispose off according to the local law and rules. Avoid leached substances to get into the earth, canalization or waters.

7. Handling and storage

(a) Precautions for safe handling

Always follow the warning information on the batteries and in the manuals of devices. Only use the recommended battery types. Keep batteries away from children. For devices to be used by children, the battery casing should be protected against unauthorized access. Unpacked batteries shall not lie about in bulk. In case of battery change always replace all batteries by new ones of identical type and brand. Do not swallow batteries. Do not throw batteries into water. Do not throw batteries into fire. Avoid deep discharge. Do not short-circuit batteries Use recommended charging time and current.

(b) Conditions for safe storage, including any incompatibilities

Do not storage Battery haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects. Keep out of reach of children.

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8. Exposure controls/personal protection

(a) Control parameters

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH	Denmark	European Union
Manganese dioxide (CAS #: 1313-13-9)	TWA: 0.02 mg/m ³ Mn TWA: 0.1 mg/m ³ Mn	(vacated) Ceiling: 5 mg/m ³ Ceiling: 5 mg/m ³ Mn	IDLH: 500 mg/m ³ Mn TWA: 1 mg/m ³ Mn STEL: 3 mg/m ³ Mn	TWA: 0.2 mg/m ³	-
Quartz (CAS #: 14808-60-7)	TWA: 0.025 mg/m ³ respirable fraction	-	-	TWA: 0.3 mg/m ³ TWA: 0.1 mg/m ³	-
Graphite (CAS #: 7782-42-5)	TWA: 2 mg/m ³ respirable fraction all forms except graphite fibers	-	-	TWA: 2.5 mg/m ³	-

Chemical Name	Latvia	France	Finland	Germany	Italy
Manganese dioxide (CAS #: 1313-13-9)	TWA: 0.3 mg/m ³	-	TWA: 0.2 mg/m ³ TWA: 0.1 mg/m ³	TWA: 0.2 mg/m ³ TWA: 0.02 mg/m ³ Ceiling / Peak: 1.6 mg/m ³ Ceiling / Peak: 0.16 mg/m ³ TWA: 0.5 mg/m ³	-
Ethylene glycol dimethyl ether (CAS #: 110-71-4)	TWA: 10 mg/m ³	-	-	-	-
Propylene carbonate (CAS #: 108-32-7)	TWA: 2 mg/m ³	-	-	-	-

Chemical Name	Poland	Portugal	Spain	Switzerland	Netherlands
Manganese dioxide (CAS #: 1313-13-9)	TWA: 0.3 mg/m ³	TWA: 0.2 mg/m ³	TWA: 0.2 mg/m ³	TWA: 0.5 mg/m ³	-

Chemical Name	Norway	United Kingdom	Australia	Austria	Belgium
Manganese dioxide (CAS #: 1313-13-9)	TWA: 1 mg/m ³ TWA: 0.1 mg/m ³ STEL: 3 ppm STEL: 0.3 mg/m ³	TWA: 0.5 mg/m ³	1 mg/m ³	STEL 2 mg/m ³ TWA: 0.5 mg/m ³	-
Quartz (CAS #: 14808-60-7)	-	-	0.1 mg/m ³	TWA: 0.15 mg/m ³	-
Graphite (CAS #: 7782-42-5)	-	-	3 mg/m ³	STEL 10 mg/m ³ TWA: 5 mg/m ³	-

(b) Appropriate engineering controls

Under normal conditions (during charge and discharge) release of ingredients does not occur.

(c) Personal protective equipment

Respiratory protection:

No personal respiratory protective equipment normally required. In case of inadequate ventilation wear respiratory protection.

Hand protection:

Wear protective gloves.

Eye/face protection:

No personal protective equipment normally required.

Skin/body protection:

Wear protective clothing to prevent contact.

9. Physical and chemical properties

(a) Appearance

Silvery button cell; Solid

(b) Odor

Odorless

(c) Odor threshold

Not available.

(d) pH

7.0

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(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) Density	2.3-3.16 g/cm ³
(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 normal conditions.

(c) Possibility of hazardous reactions

When heated the risk of rupture may occur. Due to special safety construction, rupture implies controlled release of pressure without ignition.

(d) Conditions to avoid

Do not subject battery to mechanical shock. Keep away from open flames, high temperature.

(e) Incompatible materials

Strong oxidizer, strong acid.

(f) Hazardous decomposition products

No information available.

11. Toxicological information

(a) Information on the likely routes of exposure

Inhalation: Inhalation of a large number of vapors or fumes released due to heat may cause respiratory.

Ingestion: Ingestion of battery contents may cause mouth, throat and intestinal burns and damage.

Skin contact: Contact with battery electrolyte may cause burns and skin irritation.

Eye contact: Contact with battery electrolyte may cause burns. Eye damage is possible.

Under normal conditions (during charge and discharge) release of ingredients does not occur. If accidental release occurs see information in section 2, 3, and 4. Swallowing of a battery can be harmful. Call the local Poison Control Centre for advice and follow-up.

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(b) Information on toxicological characteristics

Acute toxicity:

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Manganese dioxide (CAS #: 1313-13-9)	= 9000 mg/kg (Rat)	-	-
Propylene carbonate (CAS #: 108-32-7)	= 29000 mg/kg (Rat)	> 20 mL/kg (Rabbit)	-
Polypropylene (CAS #: 9003-07-0)	>5 g/kg	-	-

Skin corrosion/irritation: The liquid in the battery irritates.

Serious eye damage/irritation: The liquid in the battery irritates.

Respiratory sensitization: The liquid in the battery may cause sensitization to some person.

skin sensitization: The liquid in the battery may cause sensitization to some person.

Carcinogenicity:

This product contains one or more substances which are classified by IARC as carcinogenic to humans (Group I), probably carcinogenic to humans (Group 2A) or possibly carcinogenic to humans (Group 2B)

Chemical Name	ACGIH	IARC	NTP	OSHA
Quartz (CAS #: 14808-60-7)	A2	-	-	-

Germ Cell Mutagenicity: No data available.

Reproductive Toxicity: No data available.

STOT-Single Exposure: No data available.

STOT-Repeated Exposure: No data available.

Aspiration Hazard: No data available.

12. Ecological information

(a) Ecotoxicity

No information available.

(b) Persistence and Degradability

No information available.

(c) Bioaccumulative potential

No information available.

(d) Mobility in soil

No information available.

(e) Other adverse effects

No information available.

13. Disposal considerations

(a) Safe handling and methods of disposal

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Local regulations may be more stringent than regional or national requirements.

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14. Transport information

According to the packaging instruction 967 section II of IATA DGR 56th Edition for transportation.

According to the packaging provision 188 of IMDG or the Recommendation on the Transportation of Dangerous Goods-Model Regulation (18th).

The products are not subjects to dangerous goods.

DOT / IMDG / IATA

(a) UN number	Not regulated as dangerous goods
(b) UN Proper shipping name	Not regulated as dangerous goods
(c) Transport hazard class(es)	Not regulated as dangerous goods
(d) Packing group (if applicable)	Not regulated as dangerous goods
(e) Marine pollutant (Yes/No)	No
(f) Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code)	No information available.
(g) Special precautions	No information available.

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/NDL
12597-68-1	Not listed	Not listed	Not listed	Not listed	Listed	Not listed
9003-07-0	Listed	Not listed	Listed	Listed	Listed	Listed
1313-13-9	Listed	Listed	Listed	Listed	Listed	Listed
9002-84-0	Listed	Not listed	Listed	Listed	Listed	Listed
7782-42-5	Listed	Listed	Not listed	Listed	Listed	Listed
7439-93-2	Listed	Not listed	Listed	Listed	Listed	Listed
7791-03-9	Listed	Listed	Listed	Listed	Listed	Listed
108-32-7	Listed	Listed	Listed	Listed	Listed	Listed
110-71-4	Listed	Listed	Listed	Listed	Listed	Listed
14808-60-7	Listed	Listed	Listed	Listed	Listed	Listed

Remark: The above-mentioned search results are based on the Non-Confidential Inventory.

(b) 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	SARA 313 - Threshold Values %
Manganese dioxide - 1313-13-9	1.0
Ethylene glycol dimethyl ether - 110-71-4	1.0

SARA 311/312 Hazard Categories

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

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CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals

Chemical Name	California Proposition 65
Quartz - 14808-60-7	Carcinogen

U.S. State Right-to-Know Regulations

This product may contain substances regulated by state right-to-know regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Manganese dioxide 1313-13-9	X	-	X
Ethylene glycol dimethyl ether 110-71-4	X	X	X
Lithium 7439-93-2	X	X	X

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

(a) Preparation and revision information

Date of previous revision: 01/06/2014

Date of this revision: 01/09/2015

Revision summary: The first revision. Update section 8 and 15.

(b) Abbreviations and acronyms

TSCA:	Toxic Substances Control Act, The American chemical inventory.
DSL/NDL	Domestic Substances List/Non-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.

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