

SAFETY DATA SHEET

HCS-2012 APPENDIX D TO §1910.1200

NO:20181124

Version 1

Product Name warriors Li-MnO2 Button Cell - CR2032

Issue Date 2-Jan-2018

Revision date 2-Jan-2018

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name Warriors Li-MnO2 Button Cell - CR2032
Chemical Name Warriors Li-MnO2 Button Cell - CR2032



Other means of identification

Product Code Warriors CR2032 3.0V 210mAh

Recommended use of the chemical and restrictions on use

Recommended Use Used in electric tools, flashlight, etc
Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier SUZHOU XINLVZHOU ELECTRONICS CO., LTD
Address Yangcheng Lake West Road, No777, Xiangcheng District, SuZhou City, Jiangsu Province, China.
Postal Code +86-512-68702665
Phone +86-512-68669435
FAX qky006@lvzhoudianzi.com.cn

Emergency telephone number

+86-512-68702665

2. HAZARDS IDENTIFICATION

GHS Classification

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Label elements

Symbols/Pictograms None
Signal word None
Hazard Statements None
Precautionary Statements
Prevention None
Response None
Storage None
Disposal None

Hazards not otherwise classified (HNOC)

No information available

Unknown acute toxicity

?.% of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature

Mixture

Chemical Name	CAS No	Weight-%
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Stainless steel	12597-68-1	30 - 60
Manganese dioxide	1313-13-9	15 - 40
Perchloric acid, lithium salt	7791-03-9	1 - 5
Polypropylene	9003-07-0	1 - 5
Propylene carbonate	108-32-7	1 - 5
Polytetrafluoroethylene	9002-84-0	1 - 5
Graphite	7782-42-5	1 - 5
Lithium	7439-93-2	1 - 5
Ethylene glycol dimethyl ether	110-71-4	1 - 5

4. FIRST AID MEASURES

Description of first aid measures

General advice	Remove contaminated clothing and shoes. If symptoms persist, call a physician.
Inhalation	Not an expected route of exposure. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Skin Contact	Wash hands thoroughly after handling. .
Eye contact	Not an expected route of exposure. .
Ingestion	Rinse mouth Get medical attention Never give anything by mouth to an unconscious person

Most important symptoms and effects, both acute and delayed

No information available.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Extinguishing media

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

Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating and toxic gases and vapors

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

- Evacuate personnel to safe areas
- Ensure adequate ventilation, especially in confined areas
- Remove all sources of ignition
- Use personal protection recommended in Section 8

Methods and material for containment and cleaning up

- Prevent further leakage or spillage if safe to do so
- Pick up and transfer to properly labeled containers

Avoid release to the environment

7. HANDLING AND STORAGE

Precautions for safe handling

- Handle in accordance with good industrial hygiene and safety practice
- Ensure adequate ventilation, especially in confined areas
- Avoid creating dust
- Avoid contact with eyes
- Wash thoroughly after handling
- Use personal protection recommended in Section 8

Conditions for safe storage, including any incompatibilities

- Keep containers tightly closed in a dry, cool and well-ventilated place
- Keep away from heat

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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	-
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	-
Propylene carbonate (CAS #: 108-32-7)	TWA: 2 mg/m ³	-	-	-	-
Ethylene glycol dimethyl ether (CAS #: 110-71-4)	TWA: 10 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	-
Graphite (CAS #: 7782-42-5)	-	-	3 mg/m ³	STEL 10 mg/m ³ TWA: 5 mg/m ³	-

Appropriate engineering controls

- Showers
- Eyewash stations
- Ventilation systems

Individual protection measures, such as personal protective equipment

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.
Hand Protection	Wear protective gloves.
Eye/face protection	No special technical protective measures are necessary.
Skin and body protection	Wear suitable protective clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Solid
Color	metallic
Odor	Odorless
Odor Threshold	Not determined
pH	Not determined
Melting point/freezing point	Not determined
Boiling point / boiling range	Not determined
Flash point	Not applicable
Evaporation rate	Not determined
Flammability (solid, gas)	Not determined
Flammability Limit in Air	Not determined
Vapor Pressure	Not applicable
Vapor density	Not determined
Density	Not determined
Relative density	Not determined
Bulk density	Not determined
Specific gravity	Not determined
Water solubility	Not determined
Partition coefficient (LogPow)	Not determined
Autoignition temperature	Not determined
Decomposition temperature	Not determined
Kinematic viscosity	Not determined
Dynamic viscosity	Not determined
Explosive properties	Not an explosive
Oxidizing properties	Not determined

Other information

No information available

10. STABILITY AND REACTIVITY

Reactivity

Stable under recommended storage and handling conditions (see SECTION 7, handling and storage).

Chemical stability

Stable under normal conditions

Possibility of Hazardous Reactions

None under normal processing

Conditions to avoid

Strong heating. Incompatible materials

Incompatible materials

Strong acids Strong bases Strong oxidizing agents

Hazardous Decomposition Products

None known based on information supplied

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation	Inhalation of vapors in high concentration may cause irritation of respiratory system
Eye contact	Contact with eyes may cause irritation
Skin Contact	Substance may cause slight skin irritation
	Ingestion may cause irritation to mucous membranes

Information on toxicological effects

Acute toxicity

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

Skin corrosion/irritation

Non-irritating to the skin

Serious eye damage/eye irritation

No eye irritation

Sensitization

No information available

Germ cell mutagenicity

No information available

Carcinogenicity

No information available

Reproductive toxicity

No information available

STOT - single exposure

No information available

STOT - repeated exposure

No information available

Aspiration hazard

No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/aquatic plants EC50	Fish LC50	Crustacea EC50

Propylene carbonate (CAS #: 108-32-7)	500: 72 h Desmodemus subspicatus mg/L EC50	5300: 96 h Leuciscus idus mg/L LC50 static 1000: 96 h Cyprinus carpio mg/L LC50 semi-static	500: 48 h Daphnia magna mg/L EC50
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Persistence and degradability

No information available

Bioaccumulative potential

Chemical Name	Partition coefficient (LogPow)
Manganese dioxide (CAS #: 1313-13-9)	<0
Propylene carbonate (CAS #: 108-32-7)	0.48

Mobility in soil

No information available

Other adverse effects

No information available

13. DISPOSAL CONSIDERATIONS**Waste treatment methods**

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

Contaminated packaging Dispose of in accordance with federal, state and local regulations

14. TRANSPORT INFORMATION

US DOT, All batteries are not subject to the requirements of the Department of Transportation (DOT) subchapter C, Hazardous Material Regulations since each battery meets the exceptions under 173.185 (b). The batteries are exempted from the US DOT regulations as long as they are separated to prevent short circuits and packed in strong packing for conditions normally encountered in transportation.

ICAO and IATA, IMDG all batteries are regulated as Hazardous Material by the International Civil Aviation Organization (ICAO), the International Air Transport Association (IATA) and International Maritime Dangerous Goods Regulations (IMDG). The only DOT requirement for shipping these batteries is special provision 130 which states: "Batteries, dry are not subject. They must be transported according to Section 38.3 of the Fifth Revised of the Recommendations on the transport of Dangerous Goods and Drop test of Section II of Packing Instructions 968~970 of 59th DGR Manual of IATA. The lithium cell (CR2032) has passed the test UN38.3, according to the report ID:1114010125.

References: IATA Dangerous Goods Regulations 59th Edition (2018)
IMO International Maritime Dangerous Goods Code 2012, 2014 Edition

DOT / IMDG / IATA

UN/ID No.	Not regulated
Proper shipping name	Not regulated
Hazard Class	Not regulated
Packing Group	Not regulated
Special precautions	No information available
Marine pollutant	Not applicable
UN/ID No.	Not Regulated
UN/ID No.	Not Regulated
UN/ID No.	Not Regulated

15. REGULATORY INFORMATION**International Inventories**

Component	AICS	DSL/NDSL	EINECS/ELI NCS	ENCS	IECSC	KECL	PICCS	TSCA
Stainless steel 12597-68-1 (30 - 60)	-	-	-	-	X	-	-	-
Manganese dioxide 1313-13-9 (15 - 40)	X	X	X	X	X	X	X	X
Perchloric acid, lithium salt 7791-03-9 (1 - 5)	X	X	X	X	X	X	-	X
Polypropylene 9003-07-0 (1 - 5)	X	X	-	X	X	X	X	X
Propylene carbonate 108-32-7 (1 - 5)	X	X	X	X	X	X	X	X
Polytetrafluoroethyle ne 9002-84-0 (1 - 5)	X	X	-	X	X	X	X	X
Graphite 7782-42-5 (1 - 5)	X	X	X	-	X	X	X	X
Lithium 7439-93-2 (1 - 5)	X	X	X	X	X	X	X	X
Ethylene glycol dimethyl ether 110-71-4 (1 - 5)	X	X	X	X	X	X	X	X

"-" Not Listed

"X" Listed

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

Does not apply

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

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
Lithium 7439-93-2	X	X	X
Ethylene glycol dimethyl ether 110-71-4	X	X	X

16. OTHER INFORMATION

Revision Note

Issue Date	2-Jan-2018
Revision date	2-Jan-2018
Revision Note	Not applicable

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

TWA - TWA (time-weighted average)

STEL - STEL (Short Term Exposure Limit)

Ceiling - Maximum limit value

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

Disclaimer

The information provided in this Material 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 -----