

SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

NAME: Li-MnO₂ Button Cell - CR2032

MODEL: CR2032

RATING: 210mAh, 3.0V, 0.42Wh

SUPPLIER: Wilmar LLC

20413 59th Pl S. Suite 160

Kent, WA 98032

USA

TELEPHONE: (800) 426-1262, (425) 970-6970

2. HAZARDS IDENTIFICATION

Not dangerous with normal use. Do not dismantle, open or shred the battery ingredients contained within or their ingredients products could be harmful.

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

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Concentration or concentration ranges (%)
Stainless steel	12597-68-1	30 - 60
Manganese dioxide	1313-13-9	15 - 40
Perchloric acid, lithium salt	7791-03-09	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

4. FIRST AID MEASURES

GENERAL ADVICE: Remove contaminated clothing and shoes. If symptoms persist, call a physician.

INHALATION: Remove victims to fresh air and keep at rest in a comfortable breathing position. Call the NATIONAL BATTERY INGESTION HOTLINE for advice and follow up at (800-498-8666) day or night.

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.

5. FIRE FIGHTING MEASURES

CHARACTERISTICS OF HAZARD: Toxic fumes, gases or vapors may be released on burning.

FIRE-EXTINGUISHING METHODS AND EXTINGUISHING MEDIA: Please use water, dry sand, foam, and other proper fire extinguishing media.

PROTECTION FOR FIRE FIGHTERS AND OTHERS: Responders should wear self-contained breathing apparatuses and full fire-fighting suits. Prevent contact with skin and eyes. Do not extinguish from a position down wind of the fire. Evacuate those who are not responding.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: Use personal protective equipment. Ensure adequate ventilation, Keep people away from and upwind of spill/leak. Entry to non-involved personnel should be controlled around the leakage area by roping off. Remove all sources of ignition.

PRECAUTIONS TO PROTECT THE ENVIRONMENT: Keep product out of sewers and waterways.

SPILL CLEAN-UP PROCEDURES: Take all the precautions listed in this document. Use water mixed with abluent to clean up the contaminated area. Use absorbent. Avoid contact with eyes or skin. Avoid discharge into all sorts of waterways.

7. HANDLING AND STORAGE

HANDLING: Never throw out cells in a fire or expose to high temperatures. Do not soak cells in water and seawater. Do not expose to strong oxidizers. Do not give a strong mechanical shock or throw down. Never disassemble, modify or deform. Do not connect the positive terminal to the negative terminal with electrically conductive material.

STORAGE CONDITIONS: Do not place the battery cell near heating equipment, nor expose to direct sunlight for long periods. Elevated temperatures can result in shortened battery cell life and degrade

performance. Store in cool place (temperature: -20-45C, humidity: 45-75%).

INCOMPATIBLE PRODUCTS: Conductive materials, water, seawater, strong oxidizers and strong acids

PACKING MATERIAL: Insulated and tear-proof materials are recommended.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

ENGINEERING CONTROLS: No engineering controls are required for handling batteries that have not been damaged. Personal protective equipment for damaged batteries should include chemical resistant gloves and safety glasses.

PERSONAL PROTECTIVE EQUIPMENT:

Respiratory Protection: In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting cell cores. Respiratory Protection is not necessary under conditions of normal use.

Protective Gloves: Not necessary under conditions of normal use.

Other Protective Clothing or Equipment: Not necessary under conditions of normal use.

PERSONAL PROTECTION IS RECOMMENDED FOR VENTING BATTERY: Respiratory Protection, Protective Gloves, Protective Clothing and safety glass with side shields.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Solid

COLOR: Metallic

FORM: Geometric solid

ODOR: Odorless

SOLUBILITY: Insoluble

10. STABILITY AND REACTIVITY

STABILITY: Stable under normal temperatures and pressures.

CONDITIONS TO AVOID: Heat above 100°C and attempts to incinerate, deform, mutilate, crush, disassemble, overcharge, or short circuit.

HAZARDOUS DECOMPOSITION PRODUCTS: Acrid or harmful gas is emitted during fire.

POSSIBILITY OF HAZARDOUS REACTION: If leaks occur, do not contact with strong oxidizers, mineral acids, or strong alkalis.

11. TOXICOLOGICAL INFORMATION

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)	-

IRRITATION: In the event of exposure to internal contents, vapor fumes may be very irritating to the eyes and skin.

SENSITIZATION: Not applicable.

REPRODUCTIVE TOXICITY: Not applicable.

TOXICOLOGICALLY SYNERGISTIC MATERIALS: Not applicable.

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

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

GENERAL NOTE: Do not allow undiluted product or large quantities of it to reach ground water, sewage system, or waterways.

WASTE DISPOSAL PROCEDURES: Recycle or dispose of in accordance with government, state & local regulations. Used batteries may not be treated as ordinary trash. Do not dispose of in fire or high temperature. Do not dissect, pierce, or crush. Recycle.

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

Component	AI CS	DSL/ NDSL	EINECS/ ELINCS	EN CS	IEC SC	KE CL	PIC CS	TS CA
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
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
Polytetrafluoroethylene 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	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

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: Manganese dioxide - 1313-13-9
SARA 313 - Threshold Values %: 1.0

Chemical: Ethylene glycol dimethyl ether - 110-71-4 1.0
SARA 313 - Threshold Values %: 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

Manganese dioxide 1313-13-9: New Jersey, Pennsylvania

Lithium 7439-93-2: New Jersey, Massachusetts, Pennsylvania

Ethylene glycol dimethyl ether 110-71-4: New Jersey, Massachusetts, Pennsylvania

16. OTHER INFORMATION

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied,

with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their purposes.

Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. This safety data sheet provides guidelines for the safe handling and use of this product; it does not and cannot advise on all possible situations, therefore, your specific use of this product should be evaluated to determine if additional precautions are required.