

MATERIAL SAFETY DATA SHEET

The batteries are exempt articles and are not subject to the OSHA Hazard Communication Standard Requirement. This sheet is provided as technical information only. The information and recommendations set forth are made in good faith and believed to be accurate as of the date of preparation. However, JHIH HONG makes no warranty expressed or Implied.

Section 1-Product and Company Identification

Product Name: Lithium Manganese Dioxide Batteries	Size: CR2032	Date of preparation: JAN 06 2016
CHEMICAL SYSTEM: Lithium Manganese Dioxide	Trade Mark: JHT	Volts: 3 V
Designed for Recharge: NO	Approximate Weight: 3.2 g	
Company: JHIH HONG TECHNOLOGY CO.,LTD.	Telephone Numbers: +886-2-22989236	
Address (Number, Street, City, State, and ZIP Code): 6F, No.15, Wu Chuan Road, Wu-Ku Industrial Park, New Taipei 248	Fax Numbers: +886-2-22901657	

Section 2- Composition/Information on Ingredients

Ingredient	CAS NO.	Content (wt%)
Lithium	7439-93-2	0.064 gram
Propylene Carbonate	108-32-7	6.1
Manganese dioxide	1313-13-9	29.0
1,2-Dimethoxyethane	110-71-4	4.2
Lithium perchlorate	7791-03-9	0.9
Graphite	7782-42-5 、1333-86-4	3.4
Polypropylene	9003-07-0	4.1

Section 3 – Hazards Identification

This contains lithium, organic solvent, and other combustible materials. For this reason, Improper handling of the battery could lead to distortion, leakage*, overheating, explosion of fire and cause human injury or equipment trouble. Please strictly observe safety instruction.

(*Leakage is defined as an unintended escape of liquid from a battery.)

Section 4 – First Aid Measures

None unless internal materials exposure. If contents are leaked out, observe following Instructions

Inhalation	Fumes can cause respiratory irritation . Remove to fresh air and consult a physician.
Skin	Immediately flush skin plenty of water. If itch or irritation by chemical burn persists, consult a physician.
Eyes	Immediately flush eye with plenty of water for at least 15 minutes. Consult a physician immediately
Ingestion	If swallowing a battery, consult a physician immediately. If contents come into mouth, immediately rinse by plenty of water and consult a physician.

Section 5-Fire Fighting Measures

Extinguishing Media	Extinguisher of alkaline metal fire is effective. Plenty of cold water is also effective to cool the surrounding area and control the spread fire. But hydrogen gas may be evolved by the reaction of water and lithium and it can form an explosive mixture. Therefore in the case that lots of lithium batteries are burning in a confined space ,use a smothering agent.
Fire fighting procedure	Use self-contained breathing apparatus and full protective gear not to inhale harmful gas .

Section 6-Accidental Release Measures

Accidental Releases: Do not breathe vapors or touch liquid with bare hands (see section 4).

Waste Disposal Methods: Evacuate area. If possible, a trained person should attempt to stop or contain the leak by neutralizing spill with soda lime or baking soda. A NIOSH Approved Acid Gas Filter Mask or Self-Contained Breathing Apparatus should be worn. Seal leaking battery and soda lime or baking soda in a plastic bag and dispose of as hazardous waste.

Other: Follow North American Emergency Response Guide (NAERG)#138 for cells involved in an accident, cells that have vented, or have exploded.

Section 7-Handling and Storage

1) Handling

Never swallow. Never reverse the positive and negative terminals when mounting . Never short-circuit the battery. Never heat. Never expose to open flame. Never disassemble. Never weld the terminal or wire to the body of the battery directly. Never touch the liquid leaked out of battery . Never bring fire close to battery liquid. Never keep in touch with battery.

2) Storage

Never let the battery contact with water. Never store the battery in hot and high humid place. Don't push the battery

excessively and destroy the battery packaging, often wet and ventilating the dry place to keep in the normal atmospheric temperature, find the unusual battery is dealt with in time

Section 8 – Exposure Controls, Personal Protection

Respiratory Protection	NA
Ventilation	Local Exhaust NA
	Mechanical NA
	Special NA
	Other NA
Eye Protection	NA
Protective Gloves	NA
Other protective clothing	NA

Section 9 – Physical/Chemical Characteristics

State of matter: Solid state

Form : Button type

Color: True quality of stainless steel

Smell : Tasteless (At the time of the fullness)

Resolve temperature: NA

Spontaneous combustion temperature: NA

Explosion demarcation line : Higher than 170 degrees Centigrade of batteries will be burnt

To the density (Water =1): NA

Dissolving: NA

Boiling Point: 1,2-Dimethoxyethane : 83°C

Vapor Pressure: 1,2-Dimethoxyethane :6.40(20°C)

Vapor Density: 1,2-Dimethoxyethane : 3.11

Solubility in Water: 1,2-Dimethoxyethane : :diffluence contact with water

Specific Gravity: 1,2-Dimethoxyethane :1.63

Melting Point: 1,2-Dimethoxyethane :-67°C

Evaporation Rate: N/A

Water Reactive: 1,2-Dimethoxyethane : :diffluence contact with water

Appearance & Odor: 1,2-Dimethoxyethane : achromatism liquid; slight aether odor.

Section 10 – Stability and Reactivity

Stability	Stable
Incompatibility	Water
Hazardous polymerization	Will not occur.
Condition to avoid	See section 7.
Hazardous Decomposition or Byproducts	Hydrogen

Section 11 – Toxicological Information

Acute Toxicity:

1,2-Dimethoxyethane:

LC₅₀ (Inhalation): N/A

LD₅₀: N/A

Eye Effects: Corrosive

Skin Effects: Corrosive

Section 12 – Ecological Information

Aquatic Toxicity: Do not let internal components enter marine environments. Avoid releases into waterways, wastewater or groundwater.

Section 13 – Disposal condition

The battery may be regulated by national or local regulation. Please follow the instructions of Proper regulation. As electric capacity is left in a discarded battery and it comes into contact With other metals, it could lead to distortion, leakage, overheating, or explosion, so make sure to cover the (+) and (-) terminals with friction tape or some other insulator before disposal.

Section 14 – Transportation Information

Lithium battery model CR2032 is considered as “Not Restricted” cargo because they complied with IATA Dangerous Goods Regulations 57th Edition of 2016 & Section II of Packing Instruction PI 968~970.

- 1) Shipping Name(UN Number) Lithium metal batteries(UN3090)
Lithium metal batteries packed with equipment(UN3091)
Lithium metal batteries contained in equipment(UN3091)
- 2) Hazard Classification Class 9 (Miscellaneous)
- 3) Method of transportation: As the cells are manufactured under a quality management programme in the ISO9001 certified factory and the cells meet all the requirements in UN manual of tests and criteria, Part III, sub-section 38.3, the applicable packing instructions(PI) or special provisions(SP) are as per the following table.
The cells or batteries classified in Section II of any Packing Instruction or SP188 may be exempted from Class 9 Dangerous Goods if complying with all requirements of applicable Section II or SP188. But Lithium metal cells and batteries transported as cargo are restricted to Cargo Aircraft Only since January 1 st 2015.

Note. The prohibition does not apply to lithium metal batteries packed with equipment (PI 969) or contained in equipment (PI 970)

Li content per cell	Product name	Air *See Section 15 4)			Sea *See Section 15 5)
		Cell only	Cell packed with equipment	Cell contained in equipment	
not more than 0.3 g	CR2032	PI 968 Section II	PI 969 Section II	PI 970 Section II	SP188
more than 0.3 g but not more than 1 g	(No)	PI 968 Section IB(8 or less cells: Section II)	PI 969 Section II	PI 970 Section II	SP188
more than 1 g	(No)	PI 968 Section IA	PI 969 Section I	PI 970 Section I	SP230

As the related district, country or airline may establish their special requirements, the shipper shall confirm them with the forwarder in advance.

Please confirm the aggregate lithium content when transport the battery.

Section 15-Regulatory Information

Major applicable regulations for the transportation of lithium metal cells and batteries are as follows:

- 1) UN(United Nations)Recommendations on the Transport of Dangerous Goods:Model of Regulations 18th revised edition
- 2) UN(United Nations)Recommendations on the Transport of Dangerous Goods:Manual of Test and Criteria 5th revised edition,Amendment 2
- 3) International Civil Aviation Organization(ICAO):Technical Instructions for Safety Transport of Dangerous Goods by Air,2015-2016 Edition
- 4) International Air Transport Association(IATA): Dangerous Goods Regulations,57th Edition
- 5) International Maritime Organization(IMO): International Maritime Dangerous Goods(IMDG)Code,2014 Edition

Section 16-Other Information

Major environmental regulations are as follows:

- 1) EU BATTERY DIRECTIVE(2006/66/EC)
- 2) California Code of regulations ,Title 22,Division 4.5,Chapter 33:Best Management Practices for Perchlorate Materials

Note:

(1)The symbol in above-mentioned materials " ——"representative consult at present it materials not relevant, but symbol "NA" represent field the getting more suitable for material.

(2)If you want further information, please contact JHIH HONG sales representative.

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