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SAFETY DATA SHEET

In Accordance with OSHA Standard 1910.1200 APP D (USA)

1. Identification

- (a) Product Name : **Coin Type Lithium Manganese Dioxide Batteries (CR)**
- (b) Size: CR2032
- (c) Company: JHIH HONG TECHNOLOGY CO.,LTD.
- (d) Telephone Numbers: +886-2-22989236
- (e) Address (Number, Street, City, State, and ZIP Code): 6F, No.15, Wu Chuan Road, Wu-Ku Industrial Park, New Taipei 248
- (f) Fax Numbers: +886-2-22901657

2. Hazard(s) Identification

- (a) GHS Risk categories: NA
- (b) Image or symbol: NA
- (c) Warning: Warning
- (d) Risk information:
 - a. into the mouth may be harmful
 - b. Do not contact with other metals, stacked, extrusion, may cause leakage, overheat, explosion, etc.
- (e) To guard against:
 - a. avoid into the mouth
 - b. Single packing or use tray separated place
- (f) Incident response : Refer to section 4 emergency measures

3. Composition/Information on Ingredients

Ingredient	CAS #	Content(wt%)
Lithium	7439-93-2	2.0
Propylene Carbonate	108-32-7	6.1
Manganese dioxide	1313-13-9	2.9
1,2-Dimethoxyethane	110-71-4	4.2
Lithium perchlorate	7791-03-9	0.9
Graphite	7782-42-5	1.7

Carbon Black	1333-86-4	1.7
Steel(Fe)	7439-89-6	80.5

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 with 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.

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 .

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.

7. Handling and storage

(a) 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.

(b) 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

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

9. Physical and chemical properties

State of matter: Solid state · Button type

Smell : Tasteless (At the time of the fullness)

Odor threshold : NA

PH: NA

Melting Point: NA

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

Evaporation Rate: NA

Flammability (solid, gas):NA

Upper/lower flammability or explosive limits: $\geq 170^{\circ}\text{C}$

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

Vapor Density: 1,2-Dimethoxyethane : 3.11

To the density (Water =1): NA

Dissolving: NA

Specific Gravity: 1,2-Dimethoxyethane :NA

Spontaneous combustion temperature: NA

Decomposition temperature: NA

Viscosity: NA

10. Stability and reactivity

Reactivity	no response
Stability	Stable
Hazardous polymerization	Will not occur.
Condition to avoid	See section 7.
Incompatible materials	Water
Hazardous Decomposition or Byproducts	Hydrogen

11. Toxicological Information

Acute Toxicity:

1,2-Dimethoxyethane:

LC₅₀ (Inhalation): N/A

LD₅₀ : N/A

Eye Effects: Corrosive

Skin Effects: Corrosive

12. Ecological information

Aquatic Toxicity: Do not let internal components enter marine environments.

Avoid releases into waterways, wastewater or groundwater.

13. Disposal considerations

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.

14. Transportation information

Lithium battery model CR2032 is considered as "Not Restricted" cargo because they complied with IATA Dangerous Goods Regulations 56th Edition of 2015 & Section II of Packing Instruction PI 968.

Shipping Name Lithium Metal Batteries

UN Number UN3090

Hazard Classification Class 9 (Miscellaneous)

Organizations governing the transport of lithium batteries

Area	Method	Organization	Special Provision
International	Air	IATA, ICAO	Packing Instruction 968-970
International	Water	IMO	188 & 230
U.S.A	Air, Rail, Highway, Water	DOT	49 CFR Section 173.185

These regulations are based on the UN Recommendations . Each special provision provides specifications on exceptions and packaging for shipping lithium batteries. All the Lithium metal cells of JHIH HONG comply in all respects can be shipped as " Not Restricted" cargo in accordance with IATA Dangerous Goods Regulations 56 Edition & Section II of Packing Instruction PI 968.

If all of following 3 requirements are satisfied, lithium metal batteries can be transported as "Not Restricted" cargo.

1) Lithium weight or equivalent lithium content must be less than value in table.

Contents	Lithium metal cells and/or batteries	Lithium metal cells and/or batteries with a	Lithium metal cells and/or batteries with a lithium
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	with a lithium content not more than 0.3 g	lithium content greater than 0.3 g but not more than 1 g	content greater than 1 g but not more than 2 g
Maximum number of cells / batteries per package	No limit	8 pieces per carton	2 pieces per carton
Maximum net quantity (mass) per package	2.5 Kg	N/A	N/A

Equivalent lithium content (g) is calculated as 0.3 (g/Ah) times the rated capacity (Ah) .

- 2) Each cell or battery is of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, section 38.3 Cells
- 3) Section II of Packing Instruction PI 968:
 - a) Be marked to indicate that it contains lithium metal cells & batteries, and that special procedures be followed in the event that the package is damaged.
 - b) Each package must be labeled with a lithium battery handling label.
 - c) Be accompanied by a shipping paper explaining that the cells and batteries are excepted from regulations.
 - d) Packaging requirement following to above 1) Lithium weight or equivalent lithium content must be less than value in table.
 - e) Be capable of withstanding a 1.2m drop test in any orientation without shifting of the contents that would allow short-circuiting, and without release of package contents. Because the consignor has to take the responsibility, the customer has to confirm the exception conditions when shipping.

15. Regulatory information

EC Labeling : None

Risk Phrases :None

Safety Phrases : None

Labeling is not required because batteries are classified as “articles” under the Dangerous Preparations Directive and as such are exempt from the requirements of the Directive.

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

This Safety Data Sheets (SDS) is issued on 1-Jan-2015 as a first version according to requirements of the USA's OSHA STANDARD 1910.1200 APP D.

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.

