JHT
POWER IN PARTNERSHIP

Jhih Hong Technology Co., Ltd.
4F, No. 128, Xiyuan Rd., Zhongli Dist.,
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Taiwan (R.O.C.)

智弘科技股份有限公司
桃園市中壢區西園路128號(4樓)
TEL:(03)4522-755;(03)4522-766
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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, JHT makes no warranty expressed or Implied.

1. Product and company information

Product name	Buckle type - Manganese dioxide batteries
Product model	CR2032#、CR2450#
Brand	JHT
Standard voltage	3 V
Company name	Jhih Hong Technology Co., Ltd.
Company address	4F., No. 128, Xiyuan Rd., Zhongli Dist., Taoyuan City 320017. Taiwan (R.O.C.)
Company website	http://www.jht-energy.com
Contact Telephone	Telephone Numbers:+886-3-452-2755 Fax Numbers: +886-3-452-2711
E-mail	service@jht-energy.com
Date	2025.01.01
Designed for Recharge	NO

The above product model with # means that all product models are followed by one or more English letters, numbers, and symbols (including spaces) is valid for all models.

2. Battery Components

Parts	Ingredient	CAS NO.	Content (wt%)
Positive electrode	Manganese dioxide	1313-13-9	33.40~41.40
Negative electrode	Lithium	7439-93-2	2.00~2.77

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Electrode	1,2-Dimethoxyethane	110-71-4	3.53~4.2
	Propylene Carbonate	108-32-7	4.85~6.10
	Lithium perchlorate	7791-03-9	0.44~0.90
Other	Stainless steel	7439-89-6	43.06~50.30
	Polypropylene	9003-07-0	3.95~4.10

The heavy metal components include mercury (Hg), cadmium (Cd), lead (Pb), and chromium (Cr), which are not used in the battery materials.

3. Hazard information

Batteries contain lithium, organic solvents, and other flammable substances. Due to these components, improper handling of batteries can lead to risks such as deformation, leakage, overheating, explosion, or fire, which may result in personal injury or equipment damage. It is crucial to strictly follow safety instructions to avoid these hazards.

4. First Aid Measures

Internal materials are not exposed. In case of leakage, please follow the instructions below:

Inhalation "Harmful or unpleasant smoke or gases may cause irritation, allergies, or pain to the respiratory system. You should move to an area with fresh air or consult a physician. "

Skin "Immediately rinse the skin with plenty of water. If itching or discomfort persists due to chemical effects, consult a physician."

Eyes "Immediately rinse the eyes with plenty of water for at least 15 minutes. Seek medical advice immediately."

swallow "If swallowed a battery, seek medical advice immediately. If the internal substance enters the mouth, rinse the mouth immediately with plenty of water and consult a physician."

5. Fire Fighting Measures

Extinguishing media "Using a fire extinguisher is effective for fighting alkali metal fires, and large amounts of cold water are effective in lowering the ambient temperature and controlling the spread of the fire. However, since water reacts with lithium to generate hydrogen gas, which can form an explosive mixture, it is recommended that most lithium batteries be burned in a designated area or disposed of by a professional company."

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Fire fighting procedure "Use fully equipped respiratory protection to prevent inhalation of harmful gases."

6. Accidental Release Measures

Accidental leakage "Do not inhale vapors or touch the liquid with bare hands (see Section 4)."

Cleanup procedures "Evacuate the area immediately. If possible, trained personnel or firefighters, wearing NIOSH-approved acid gas respirators or self-contained breathing apparatus, should attempt to neutralize the battery leakage with lime or soda. After neutralization, the leaking battery and the neutralized material should be sealed in a plastic bag and disposed of as hazardous waste."

Other precautions "Refer to North American Emergency Response Guidebook (NAERG) Section 138 for incidents involving battery leakage or explosion."

7. Handling and Storage

Handling "Never swallow. Never reverse the positive and negative terminals when installing. Never short-circuit the battery. Never heat the battery. Never expose to open flames. Never disassemble the battery. Never weld the terminals or wires directly to the battery body. Never touch any liquid leaked from the battery. Never bring fire near the battery liquid. Never keep in contact with the battery."

Battery storage "Never let the battery come into contact with water. Never store the battery in a hot or high-humidity environment. Do not excessively squeeze the battery or damage its packaging. Store the battery in a cool, dry, and well-ventilated place at normal room temperature. If an abnormal battery is found, handle it promptly."

8. Exposure Controls, Personal Protection

Respiratory Protection		NA
Ventilation	Local Exhaust	NA
	Mechanical Properties	NA
	Special Properties	NA
	Others	NA
Eye Protection		NA

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Protective Gloves	NA
Other Protective Clothing	NA

9. Physical and Chemical Characteristics

State of Matter：Solid-State Battery.

Shape：Button-shaped.

Nominal Voltage:3V.

10. Stability and Reactivity

Stability	Stable
Incompatibility	Water
Hazardous Polymerization	Will not occur
Conditions to Avoid	See section 7.
Hazardous Decomposition Products or Byproducts	H_2

11. Toxicological Information

The components of the battery are sealed within a metal casing, and under normal use, it does not pose any toxicity.

12. Environmental Impact Information

When spent batteries are buried in soil, it is confirmed that the metals contained in the batteries are unlikely to leach out.

13. Disposal Conditions

According to national and local disposal regulations, used batteries must be insulated at both the positive and negative terminals before disposal to ensure safe handling.

Due to the residual charge remaining in discarded batteries, contact with other metals may cause short-circuiting, deformation, leakage, overheating, or even explosion.

14. Transport Information

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The lithium battery model ALL is classified as a 'dangerous good' because it meets the IATA Dangerous Goods Regulations, 2024 Edition, Section 65, and Packing Instruction PI968, Part IB. This item falls under the scope of Special Provision 188, and may not be subject to ADR regulations.

UN Number Metallic Lithium Battery (UN3090)
Packaging and Equipment for Lithium Metal Batteries (3091)
Equipment Containing Lithium Metal Batteries (3091)

Hazard Classification Miscellaneous Dangerous Goods

Transportation Methods for Lithium Batteries：

The battery factory is certified under ISO 9001 and manufactures according to a quality management plan. The batteries must meet the requirements of Section 38.3 of the UN Manual of Tests and Criteria, Part III, as well as all ADR requirements, and comply with TRUCK hazardous goods regulations for **European road transport**. The applicable packing instructions (PI) or special provisions (SP) are listed in the table below.

If you meet all the requirements of Section 2 or the applicable parts of SP 188, any batteries or battery packs classified under packing instructions or SP 188 Section 2 may be exempted from Class 9 hazardous goods requirements. However, **lithium metal batteries** and battery packs for transport as cargo are **restricted to cargo aircraft** only.

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

Because specific regions, countries, and airlines may have their own special requirements, the shipper must confirm the requirements with the freight forwarder in advance. When shipping batteries, please confirm the **total lithium content**.

Lithium content	Product Name	Air and Sea Freight Reference*Section 15 4			Sea Freight Reference *Section15 5
		Bare Battery	Battery Packaging and Equipment	Battery-Powered Equipment	
Less than 0.3 g	CR2032# CR2450#	PI968 Section IB	PI969 Section II	PI970 Section II	SP188

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0.3~1g	N/A	PI968 Section IB	PI969 Section II	PI970 Section II	SP188
More than 1g	N/A	PI968 Section IA	PI969 Section I	PI970 Section I	SP230

The product models listed above with a '#' symbol indicate that all models with one or more letters, numbers, symbols (including spaces) following the model number are valid.

15. Regulatory Information

The main applicable regulations for the transportation of lithium metal battery cells and battery packs are as follows:

1) UN：Guidelines for the transportation of hazardous materials：Model Regulation.
2) UN：Guidelines for Transporting Dangerous Goods：Dangerous Goods Handbook Testing and Standards.
3) ICAO：Technical Regulations for the Safe Air Transport of Dangerous Goods. 2023-2024 Year Edition.
4) IATA：Dangerous Goods Regulations, 65th Edition, Button Cell CR Battery.
5) IMO：International Maritime Dangerous Goods (IMDG) Code.2022 Year Edition.

16. Other Information

The main environmental regulations are as follows:

1) EU Battery Directive 2006/66/EC(2013/56/EU).
2) California Regulations, Title 22, Section 4.5, Chapter 33: Best Management Practices for Perchlorate Materials.