

Material Safety Data Sheet

Ref: PAKKOMSDSCR2016

Coin Type Lithium Manganese Dioxide Battery

Specification:

Model No: CR2016

Weight: 1.8g

Section 1: Information of Manufacturer

Pak Ko Batteries Factory Limited

Address: Unit 11, 9/F., Block A, Hoi Luen Ind. Centre, 55, Hoi Yuen Rd., Kwun Tong, Kowloon, Hong Kong.

Contact number: 852-23455245

Section 2: Ingredients Information

Material	CAS No.	Contents (%wt)
Manganese Dioxide	1313-13-9	31.00%
Lithium	7439-93-2	2.20%
Graphite	7782-42-5	3.00%
Propylene Carbonate	108-32-7	2.50%
Lithium Perchlorate	7791-03-9	0.50%
Iron	7439-89-6	60.80%



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, or fire and cause human injury or equipment trouble. Please strictly observe safety instructions.

(*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.

- 1) Inhalation:** Fumes can cause respiratory irritation. Remove to fresh air and consult a physician.
- 2) Skin:** Immediately flush skin with plenty of water. If itch or irritation by chemical burn persists, consult a physician.
- 3) Eyes:** Immediately flush skin with plenty of water for at least 15 minutes. Consult a physician immediately.
- 4) 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

1) 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 those lots of lithium batteries are burning in a confined space, use a smothering agent.

2) Fire fighting procedure

Use self-contained breathing apparatus and full protective gear not to inhale harmful gas.

Section 6: Accidental Release Measures

N/A

Section 7: Handling and Storage

1) Handling

Never swallow. Never charge. Never heat. Never expose to open flame. Never disassemble. Never reverse the positive and negative terminals when mounting. Never short-circuit the battery. Never weld the terminal or wire to the body of the battery directly. Never use different batteries together. 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

Section 8: Exposure Controls, Personal Protection

Respiratory Protection		N/A
Ventilation	Local Exhaust	N/A
	Mechanical	N/A
	Special	N/A
	Other	N/A
Eye Protection		N/A
Protective Gloves		N/A
Other protective clothing		N/A

Section 9: Physical/Chemical Characteristics

N/A

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

N/A

Section 12: Ecological Information

N/A

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

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)

Organizations governing the transport of lithium batteries



Area	Method	Organization	Special Provision
International	Air	IATA, ICAO	Packing Instruction 968-970
International	Marine	IMO	SP188
U.S.A.	Air, Rail, Road, Marine	DOT	49 CFR Section 173.185

Their regulations are based on the UN Recommendations. Each special provision provides specifications on exceptions and packaging for lithium metal batteries shipping. The products can be transported as “Non Dangerous Goods” by meeting the requirements of packing instruction 968 section II or 969 section II or 970 section II of IATA-DGR (59th edition) or SP188 of IMO-IMDG Code (2018 Edition).

Section 15: Regulatory Information

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

UN Model Regulations: United Nations UN/ ST/SG/AC.10/1/Rev.16, Recommendations on the Transport of Dangerous Goods, 18th revised edition

International Civil Aviation Organization (ICAO): Technical Instructions for the Safe Transport of Dangerous Goods by Air, 2013-2017 Edition.

International Air Transport Association (IATA): Dangerous Goods Regulations, 58th Edition

International Maritime Organization (IMO): International Maritime Dangerous Goods (IMDG) Code, 2017 Edition

Section 16: Other Information

If you want further information, please contact your local sales representative.



Material Safety Data Sheet

Ref: PAKKOMSDSCR2025

Coin Type Lithium Manganese Dioxide Battery

Specification:

Model No: CR2025

Weight: 2.4g

Section 1: Information of Manufacturer

Pak Ko Batteries Factory Limited

Address: Unit 11, 9/F., Block A, Hoi Luen Ind. Centre, 55, Hoi Yuen Rd., Kwun Tong, Kowloon, Hong Kong.

Contact number: 852-23455245

Section 2: Ingredients Information

Material	CAS No.	Contents (%wt)
Manganese Dioxide	1313-13-9	31.00%
Lithium	7439-93-2	2.20%
Graphite	7782-42-5	3.00%
Propylene Carbonate	108-32-7	2.50%
Lithium Perchlorate	7791-03-9	0.50%
Iron	7439-89-6	60.80%



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, or fire and cause human injury or equipment trouble. Please strictly observe safety instructions.

(*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.

- 1) **Inhalation:** Fumes can cause respiratory irritation. Remove to fresh air and consult a physician.
- 2) **Skin:** Immediately flush skin with plenty of water. If itch or irritation by chemical burn persists, consult a physician.
- 3) **Eyes:** Immediately flush skin with plenty of water for at least 15 minutes. Consult a physician immediately.
- 4) **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

1) 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 those lots of lithium batteries are burning in a confined space, use a smothering agent.

2) Fire fighting procedure

Use self-contained breathing apparatus and full protective gear not to inhale harmful gas.

Section 6: Accidental Release Measures

N/A

Section 7: Handling and Storage

1) Handling

Never swallow. Never charge. Never heat. Never expose to open flame. Never disassemble. Never reverse the positive and negative terminals when mounting. Never short-circuit the battery. Never weld the terminal or wire to the body of the battery directly. Never use different batteries together. 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

Section 8: Exposure Controls, Personal Protection

Respiratory Protection		N/A
Ventilation	Local Exhaust	N/A
	Mechanical	N/A
	Special	N/A
	Other	N/A
Eye Protection		N/A
Protective Gloves		N/A
Other protective clothing		N/A

Section 9: Physical/Chemical Characteristics

N/A

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

N/A

Section 12: Ecological Information

N/A

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

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)

Organizations governing the transport of lithium batteries



Area	Method	Organization	Special Provision
International	Air	IATA, ICAO	Packing Instruction 968-970
International	Marine	IMO	SP188
U.S.A.	Air, Rail, Road, Marine	DOT	49 CFR Section 173.185

Their regulations are based on the UN Recommendations. Each special provision provides specifications on exceptions and packaging for lithium metal batteries shipping. The products can be transported as “Non Dangerous Goods” by meeting the requirements of packing instruction 968 section II or 969 section II or 970 section II of IATA-DGR (59th edition) or SP188 of IMO-IMDG Code (2018 Edition).

Section 15: Regulatory Information

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

UN Model Regulations: United Nations UN/ ST/SG/AC.10/1/Rev.16, Recommendations on the Transport of Dangerous Goods, 18th revised edition

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International Air Transport Association (IATA): Dangerous Goods Regulations, 58th Edition

International Maritime Organization (IMO): International Maritime Dangerous Goods (IMDG) Code, 2017 Edition

Section 16: Other Information

If you want further information, please contact your local sales representative.



Material Safety Data Sheet

Ref: PAKKOMSDSCR2032

Coin Type Lithium Manganese Dioxide Battery

Specification:

Model No: CR2032

Weight: 3.0g

Section 1: Information of Manufacturer

Pak Ko Batteries Factory Limited

Address: Unit 11, 9/F., Block A, Hoi Luen Ind. Centre, 55, Hoi Yuen Rd., Kwun Tong, Kowloon, Hong Kong.

Contact number: 852-23455245

Section 2: Ingredients Information

Material	CAS No.	Contents (%wt)
Manganese Dioxide	1313-13-9	31.00%
Lithium	7439-93-2	2.20%
Graphite	7782-42-5	3.00%
Propylene Carbonate	108-32-7	2.50%
Lithium Perchlorate	7791-03-9	0.50%
Iron	7439-89-6	60.80%



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, or fire and cause human injury or equipment trouble. Please strictly observe safety instructions.

(*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.

- 1) **Inhalation:** Fumes can cause respiratory irritation. Remove to fresh air and consult a physician.
- 2) **Skin:** Immediately flush skin with plenty of water. If itch or irritation by chemical burn persists, consult a physician.
- 3) **Eyes:** Immediately flush skin with plenty of water for at least 15 minutes. Consult a physician immediately.
- 4) **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

1) 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 those lots of lithium batteries are burning in a confined space, use a smothering agent.

2) Fire fighting procedure

Use self-contained breathing apparatus and full protective gear not to inhale harmful gas.

Section 6: Accidental Release Measures

N/A

Section 7: Handling and Storage

1) Handling

Never swallow. Never charge. Never heat. Never expose to open flame. Never disassemble. Never reverse the positive and negative terminals when mounting. Never short-circuit the battery. Never weld the terminal or wire to the body of the battery directly. Never use different batteries together. 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

Section 8: Exposure Controls, Personal Protection

Respiratory Protection		N/A
Ventilation	Local Exhaust	N/A
	Mechanical	N/A
	Special	N/A
	Other	N/A
Eye Protection		N/A
Protective Gloves		N/A
Other protective clothing		N/A

Section 9: Physical/Chemical Characteristics

N/A

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

N/A

Section 12: Ecological Information

N/A

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

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)

Organizations governing the transport of lithium batteries



Area	Method	Organization	Special Provision
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International Maritime Organization (IMO): International Maritime Dangerous Goods (IMDG) Code, 2017 Edition

Section 16: Other Information

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