



Reference No. MHK 190101T

PRODUCT 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, Mitsubishi makes no warranty expressed or Implied.

Section 1 – Product and Company Identification

Product Name: Coin Type Lithium Manganese Dioxide Battery. (Made in CHINA)	Size: ALL*	Date of preparation: January 9, 2019
Company: Mitsubishi Electric Home Appliance Co., Ltd.	Telephone Numbers: 81- (0)47-712-7500	
Address (Number, Street, City, State, and ZIP Code): 3-12,Shiohama, Ichikawa-shi,Chiba,272-0127 Japan	Fax Numbers: 81- (0)47-307-6010	

*: CR1216、CR1220、CR1620、CR2016、CR2025、CR2032、CR2430、CR2450

Section 2 – Composition/Information on Ingredients

Ingredient	CAS #	Content (wt%)
Lithium or Lithium Alloy	7439-93-2	1.2 to 2.2
Propylene Carbonate	108-32-7	2.3 to 6.5
Manganese dioxide	1313-13-9	16.0 to 31.2
1,2-Dimethoxyethane	110-71-4	1.2 to 4.5
Lithium perchlorate	7791-03-9	0.6 to 1.2
※Heavy metal such as Mercury, Cadmium and Lead are not added in the battery.		

Lithium content for each cell

Model	Li content (mg)	Model	Li content (mg)
CR1216	7	CR2025	49
CR1220	14	CR2032	64
CR1620	20	CR2430	75
CR2016	24	CR2450	165

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 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.

- 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.

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 ALL* is complied with IATA Dangerous Goods Regulations 60th Edition of 2019 & Section IB of Packing Instruction PI 968.

(ALL*: CR1216、CR1220、CR1620、CR2016、CR2025、CR2032、CR2430、CR2450)

Shipping Name (UN Number) Lithium metal batteries (UN3090)

Lithium metal batteries packed with equipment (UN3091)

Lithium metal batteries contained in equipment (UN3091)

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, 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 Mitsubishi comply in all respects can be shipped in accordance with IATA Dangerous Goods Regulations 60th Edition & Section IB of Packing Instruction PI 968

If all of following 3 requirements are satisfied, lithium metal batteries can be transported as “Dangerous Goods” cargo.

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

Contents	Lithium metal cells and/or batteries with a lithium content not more than 0.3 g	Lithium metal cells and/or batteries with a lithium content greater than 0.3 g but not more than 1 g	Lithium metal cells and/or batteries with a lithium 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 V, section 38.3 Cells
- 3) Section IB 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.

Section 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.

Section 16 – Other Information

If you want further information, please contact Mitsubishi sales representative.