

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 are believed to be accurate as of the date of preparation. However, **Maxell makes no warranty expressed or implied.**

Section 1 - Product and Company Identification

| | | |
|--|---|--------------------------------------|
| Product Name: Lithium Manganese Dioxide Rechargeable Batteries (ML) | Sizes: All | Date of preparation: Jan. 1, 2010 |
| Company: Hitachi Maxell, Ltd. Micro Battery Division | Telephone Numbers: 81-(0)794-63-8054 | |
| Address (Number, Street, City, State, and ZIP Code): 5, Takumidai, Ono-shi, Hyogo 675-1322, Japan | Fax Numbers: 81-(0)794-63-8058 | |

Section 2 - Composition/Information on Ingredients

| Ingredient | CAS# | Content (wt%) |
|-----------------------------|------------------------|---------------|
| Manganese Dioxide | 1313-13-9 | 5 to 20 |
| Propylene Carbonate | 108-32-7 | 2 to 10 |
| 1,2-Dimethoxyethane | 110-71-4 | 1 to 3 |
| Lithium Hexafluorophosphate | 21324-40-3 | 0 to 2 |
| Lithium | 7439-93-2 | 0 to 3 |
| Aluminum | 7429-90-5 | 3 to 20 |
| Graphite | 7782-42-5 1333-86-4 | 0 to 2 |

*) Lithium content for each cell

| Model | Li content (g) | Model | Li content (g) |
|--------|----------------|--------|----------------|
| ML1220 | 0.01 | ML2032 | 0.03 |
| ML2016 | 0.015 | | |

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

- 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

N/A

Section 7 - Handling and Storage

1) Handling

Never swallow. Do not replace. Never use two or more batteries connected in series or in parallel. 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.

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

| | |
|---------------------------|---|
| 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 A154, A164 |
| 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 batteries shipping. The product can be transported as "Non Dangerous Goods" when they meet the requirements of packing instruction 968 section II or 969 section II or 970 section II of IATA-DGR (51st edition) or SP188 of IMO-IMDG Code.

Section 15 - Regulatory Information

N/A

Section 16 - Other Information

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

N/A=Not Applicable