



Material Safety Data Sheet for Lithium Button Cell Series

Document Number: MSDS-CR Series (Version : 2013)

SECTION – Hazardous Ingredients / Identity Information

IMPORTANT NOTE : The battery should be hermetically sealed under normal conditions. The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful.

Substance Name	Chemical Identification CAS#	% Weight
Lithium	7439 - 93 - 2	9%
Propylene Carbonate	108 - 32 - 7	10%
Manganese Dioxide	1313 - 13 - 9	22.5%
Dimethoxymethane	110 - 71 - 4	6%
Lithium Perchlorate	7791 - 03 - 9	3%
Graphite	7782 – 42 - 5	4%
Steel	7439 – 89 -6	45%
Others	N/A	Balance

SECTION III – Physical / Chemical Characteristics

Boiling Point : N.A.

Specific Gravity (H₂O = 1) : N.A.

Melting Point : N.A.

Vapor Pressure (mm Hg) : N.A.

Vapor Density (AIR = 1) : N.A.

Evaporation Rate (Butyl Acetate) : N.A.

Solubility in Water : N.A.

Appearance and Odor , Cylindrical Shape, Odorless



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SECTION IV – Fire and Explosion Hazard Data

Flash Point (Method Used) : N.A.

Flammable Limits : N.A.

LEL : N.A.

UEL : N.A.

Extinguishing Media : N.A.

Special Fire Fighting Procedures : N.A.

Unusual Fire and Explosion Hazards

Do not dispose the battery in fire – May Explode

Do not short-circuit the battery – May cause burns

Emergency Responders should wear self-contained breathing apparatus. Burning lithium manganese dioxide battery produce toxic and corrosive lithium hydroxide fumes.

SECTION V – Reactivity Data

Stability Unstable

Conditions to Avoid : Stable

Incompatibility : Materials to Avoid

Hazardous Decomposition or Byproducts

Hazardous

Polymerization May Occur Conditions to Avoid

Will not Occur

SECTION VI – Health Hazard Data

Route(s) of Entry

Inhalation : N.A.

Skin : N.A.

Ingestion : N.A.

Health Hazard (Acute and Chronic) / Toxicological information

In case of electrolyte leakage , skin will be itchy when contaminated with electrolyte

In contact with electrolyte can cause severe irritation and chemical burns

Inhalation of electrolyte vapors may cause irritation of the upper respiratory tract and lungs



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SECTION VII – First Aid Measures

First Aid Procedures

If electrolyte leakage occurs and makes contact with skin, wash with plenty of the water immediately.

If electrolyte comes into contact with eyes, wash with copious amounts of the water of fifteen minutes(15 mins.), and contact a physician and seek medical attention

If electrolyte vapors are inhaled, provide fresh air and seek medical attention if respiratory irritation develops. Ventilate the contaminated area and seek medical attention

SECTION VIII – Accidental Release or Spillage

Steps to be taken in case material is released or spilled

Batteries that are leakage should be handled with rubber gloves

Avoid direct contact with electrolyte

Wear protective clothing and a positive pressure Self-Contained Breathing Apparatus (SCBA)

SECTION IX – Handling and Storage

Safe handling and storage advice

Batteries should be handled and stored carefully to avoid short circuits

Do not store in disorderly fashion, or allow metal objects to be mixed with stored batteries

Never disassemble a battery

Do not breathe cell vapors or touch internal material with bare hands

Keep batteries between -30°C and 35°C for prolong storage.

SECTION X – Exposure Controls / Person Protection

Ventilation Requirements : N.A.

Respiratory Protection : N.A.

Eyes Protection : N.A.

Gloves : N.A.

SECTION XI – Ecological Information : N.A.

SECTION XII – Disposal Method : Dispose of the batteries according to government regulations.

SECTION XIII – Regulatory Information: Special requirement be according to the local regulations.



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SECTION XIV – Transport Information

The Batteries in all forms of transportation (e.g. Truck, air, or sea) must be packaged in a safe and responsible manner. Regulatory concerns from all agencies for safe packaging require that batteries be packaged in a manner that prevents short circuits and be contained in (Strong Carton / Packaging) that prevents spillage of contents.

The lithium button cell are exempt from the classification as dangerous goods as they meet the requirements of the special provisions listed below (Essentially, they are properly packaged and labeled, Contains less than 1 gram of lithium and pass the tests defined in UN model regulation section 38.3).

Regulatory Parties	Special Provisions
ADR	188,230,310,636,656
IMDG	188,230,310,957
UN	UN3090, UN3091
US DOT	29,A54,A101,102,A100
IATA, ICAO	Packaging Instructions 968 (section II)

Ref: Summary of Packing Instruction (2013 IATA Dangerous Goods Regulations 54th Edition) the minimum requirements necessary to transport as non-restricted goods are as follows

1. For a lithium metal/lithium alloy cell, the lithium content is not more than 1g.
2. Each package must be displayed a battery handling label. (Tel no and emergency call must be printed on label)
3. Each consignment must be accompanied with a declaration of non-dangerous goods document.
4. The Original package (NL) must be capable of with standing a 1.2m drop test.

SECTION XV – Other Information : None