

Material Safety Data Sheet for Lithium Button Cell Series

Document Number: **MSDS-CR Series –Not for recharge** (Version : 2016)

SECTION I – Manufacturer Information

Signature of Prepare (Optional)

SECTION II – Hazardous Ingredients / Identity Information

IMPORTANT:

Use under normal conditions, the lithium battery is hermetically sealed.

Ingestion: Swallowing may lead to serious injury or death in as little as 2 hours due to chemical burns and potential of the esophagus. IMMEDIATELY SEE DOCTOR. Do not induce vomiting or give food or drink.

Inhalation: Contents of an open battery can cause respiratory irritation.

Skin Contact: Contents of an open battery can cause skin irritation.

Eye Contact: Contents of an open battery can cause severe irritation.

Important Note: The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful.

Substance Name/CAS#	PEL (OSHA)	% Weight
Lithium 7439-93-2	None Established	1-8%
Propylene Carbonate 108-32-7	None Established	1-9%
Manganese Dioxide 1313-13-9	5mg/m ³ Ceiling (as Mn)	10-22%
Dimethoxymethane 110-71-4	None Established	0-6%
Lithium Perchlorate 7791-03-09	None Established	0-3%
Carbon Black 1333-86-4	3.5mg/m ³ TWA	0-1%
Dioxolane 646-06-0	None Established	0-8%

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Graphite 7782-42-5	15mg/m ³ TWA (total Dust) 5mg/m ³ TWA (respirable fraction)	4%
Steel 65997-19-5	None Established	32%
Others	None Established	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

SECTION IV —Control Fire Measures

In case of fire where lithium batteries are present, flood area with water or smother with a Class D fire extinguisher appropriate for lithium metal, such as lith-X. Water may not extinguish burning batteries but will cool the adjacent batteries and control the spread of fire. Burning batteries will burn themselves out. Virtually all fires involving lithium batteries can be controlled by flooding with water. However, the contents of the battery will react with water and form hydrogen gas. In a confined space, hydrogen gas can form an explosive mixture. In this situation, smothering agents are recommended. A smothering agent will extinguish burning lithium batteries.

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 : Stable

Conditions to Avoid : Stable

Incompatibility : Materials to Avoid

Lithium manganese batteries do not meet any of the criteria established in 40CFR 261.2 for reactivity.

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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

Contact with electrolyte can cause severe irritation and chemical burns

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

SECTION VII –First Aid Measures

Ingestion: Swallowing may lead to serious injury or death in as little as 2 hours due to chemical burns and potential of the esophagus.

IMMEDIATELY SEE DOCTOR. Do not induce vomiting or give food or drink.

Inhalation : Provide fresh air and seek medical attention.

Skin Contact : Remove contaminated clothing and wash skin with soap and water

Eye Contact : Immediately flush eyes thoroughly with water for at least 15 minutes, lifting upper and lower lids, until no evidence of the chemical remains. Seek medical attention.

SECTION VIII –Accidental Release or Spillage

Ventilation Requirements: Room ventilation may be required in areas where there are open or leaking batteries

Respiratory Protection : Avoid exposure to electrolyte fumes from open or leaking batteries

Eye Protection: Wear safety glasses with side shields if handling open or leaking batteries

Gloves: Use neoprene or natural rubber gloves if handling open or leaking batteries, battery materials should be

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collected in a leak-proof container.

SECTION IX –Safety Warning for Swallowed Hazardous



Keep out of reach of children. Swallowing may lead to serious injury or death in as little as 2 hours due to chemical burns and potential perforation of the esophagus. Immediately see doctor or ring **LOCAL EMERGENCY**. Keep in original package until ready to use. Dispose used batteries immediately.

SECTION X –Handling and Storage

Storage : Store in a cool, well ventilated area. Elevated temperatures can result in shortened battery life. In locations that handle large quantities of lithium batteries, such as warehouse, lithium batteries should be isolated from unnecessary combustible materials.

Mechanical Containment: If potting or sealing the battery in an airtight or watertight container is required, consult your New Leader Battery Limited representative for precautionary suggestions. Do not obstruct safety release vents on batteries. Encapsulation of batteries will not allow cell venting and can cause high pressure rupture.

Handling: Accidental short circuit for a few seconds will not seriously affect the battery. Prolonged short circuit will cause the battery to lose energy, generate significant heat and can cause the safety release vent to open. Source of short circuits include jumbled batteries in bulk containers, metal jewelry, metal covered tables or metal belts used for assembly of batteries into devices. Damaging a lithium battery may result in an internal short circuit.

The contents of an open battery, including a vented battery, when exposed to water, may result in a fire and/or explosion. Crushed or damaged batteries may result in a fire.

If soldering or welding to the battery is required, consult us for proper precaution to prevent seal damage or short

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circuit.

Charging: This battery is manufactured in a charged state. It is not designed for recharging. Recharging can cause battery leakage or in some case, high pressure rupture. Inadvertent charging can occur if a battery is installed backwards

SECTION XI –Exposure Controls / Personal Protection

Ventilation Requirements : N.A.

Respiratory Protection : N.A.

Eyes Protection : N.A.

Gloves : N.A.

SECTION XII –Ecological Information : N.A.

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

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

SECTION XV –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 cells 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

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ADR	188,230,310,636,656
IMDG	188,230,310,957
UN	UN3090, UN3091
US DOT	29,A54,A101,A100
IATA, ICAO	Packaging Instructions 968 –970 (section II)

Ref: Summary of Packing Instruction (2016 IATA Dangerous Goods Regulations 57th 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 standard a 1.2m drop test.

SECTION XVII - Lithium Content

<i>Model No</i>	<i>Lithium / g</i>	<i>Model No:</i>	<i>Lithium / g</i>
CR2450	Less than 0.496	CR2430	Less than 0.336
CR2330	Less than 0.320	CR2320	Less than 0.240
CR2032	Less than 0.248	CR2025	Less than 0.200
CR2016	Less than 0.144	CR1620	Less than 0.104
CR1616	Less than 0.096	CR1225	Less than 0.080
CR1220	Less than 0.072	CR1216	Less than 0.056
CR927	Less than 0.040		

SECTION XVI – DISTRIBUTOR INFORMATION

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