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## MATERIAL SAFETY DATA SHEET

Rev :CD-019

### Section 1 - Product and Company Identification

Product Name: LITHIUM BUTTON CELL (CR927 CR1025 CR1216 CR1220 CR1225 CR1530 CR1616 CR1620 CR1632 CR2012 CR2016 CR2025 CR2032 CR2320 CR2325 CR2330 CR2335 CR2354 CR2412 CR2430 CR2450 CR2477 CR3032 CR3055	Sizes: All	Date of preparation: 1. 1, 2023
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### Section 2 - Composition/Information on Ingredients

Ingredient	CAS#	Content (wt%)	RTECS#	OSHA PEL (mg/m <sup>3</sup> )	ACGIN TLV (mg/m <sup>3</sup> )
Lithium metal	7439-93-2	1~3	OJ5540000	-	-
Manganese Dioxide	1313-13-9	14.5~33.5	OP0350000	5	5
Graphite	7782-42-5	0.6~1.5	MD9659600	-	2
Carbon Black	1333-86-4	0.9~2.2	FF5800000	3.5	3.5
Teflon	116-14-3	1.9~4.5	KX4025000	15	10
1,2-Dimethoxyethane	110-71-4	0.5	KI1451000	-	3(ppm)
Propylene Carbonate	108-32-7	1.2~1.9	FF9650000	-	-
Lithium Perchlorate	7791-03-9	0.4~0.9	-	-	-

### Section 3 - Hazards Summarizing

Routes of Entry: Inhalation: NO Skin: NO Ingestion: YES

Reports of Carcinogenicity: NTP: NO IARC: NO OSHA: NO

Health Hazards Acute and Chronic: These chemicals are in a sealed can. Risk of exposure occurs

only if the battery is mechanically or electrically abused. The most likely risk is acute exposure when a cell vents. PC is mildly irritating on eye and skin contact. DME is believed to be slightly to moderately irritant. Contact of electrolyte and extruded lithium with skin and eyes should be avoided.

Effects of Overexposure: Irritation of skin or eyes. Lithium can cause thermal & chemical burns upon contact with skin.

#### **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**

Spill release Procedures: If cell vents or is punctured, ventilate area well. Wear eye and skin protection. Respiratory protection may be necessary in confined spaces.

Absorb liquid with suitable material such as sand or clay. Transfer to container for later disposal.

Neutralizing Agent: Not relevant.

## Section 7- Handling and Storage

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.

Store in cool, dry place.

## Section 8 - Exposure Controls/Personal Protection

Respiratory Protection: SCBA(fire); Full-face respirator with particulate/organic cartridge(spill).

Ventilation: In case of venting, provide as much ventilation as possible.

Protective Gloves: Natural or Butyl rubber gloves.

Eye Protection: Chem workers goggles

Work Hygienic Practices: Avoid exposure, wash hands after handling.

## Section 9 - Physical and Chemical Properties

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

Do not let the internal ingredients contact water. Avoid emit to the ditch, waste ditch and the earth's surface.

## Section 13 - Disposal

All the lithium battery disposed by certified tools.

## Section 14 - Transport Information

The battery has passed the test of UN38.3.. The battery is non-restricted goods.

UN numbers and proper shipping names:

UN 3090: Lithium metal batteries

UN 3091: Lithium metal batteries contained in equipment

Lithium metal batteries packed with equipment

Organizations governing the transport of lithium batteries

Area	Method	Organization	Special Provision
International	Air	IATA, ICAO	Section II of PI 968-970
International	Marine	IMO	SP188,SP230,SP310 and SP957
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.

Ref) Summary of Packing Instruction (IATA Dangerous Goods Regulations 64th Edition) 2023

The minimum requirements necessary to transport as non-restricted goods are as follows:

1) For a lithium metal or lithium alloy cell, the lithium content is not more than 1g. For a lithium metal or lithium alloy battery, the aggregate lithium content is not more than 2g.

Our products all accords this standard.

2) Each cell or battery is of the type proven to meet the requirement of each test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3.

3) Each package must be displayed a battery handling label. (Telephone number must be printed for emergency call on the handling label.)

4) Each consignment must be accompanied with a declaration of non-dangerous goods document. (Telephone number must be printed for emergency call on the document.)

5) Each package must be capable of withstanding a 1.2 m drop test.

In addition,

a) Transportation of batteries installed in equipment as non-restricted goods

If each package contains no more than 4 cells or 2 batteries, the requirement is the same as current. But for other cases of cell or battery quantity, the requirements are 1), 2), 3) and 4).

b) Transport of batteries packed with equipment as non-restricted goods. Regardless of the battery quantity, the requirements 1) to 5) shall be satisfied.

c) Transportation of batteries only as non-restricted goods. Regardless of the battery quantity, the requirements 1) to 5) shall be satisfied.

Also the maximum weight of one package is restricted in air transport, 2.5kg or less for lithium metal cells or batteries.

The article is not subject to other provisions of IMO IMDG Code according to special provision 188.

## **Section 15 - Regulatory Information**

IATA Dangerous Goods Regulations 64th Edition (2023)

ICAO Technical Instructions for the safe transport of dangerous goods by air.

Safety regulations for dangerous chemical goods.

Our products all follows above-mentioned regulations.

## **Section 16 - Other Information**

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