Material Safety Data Sheet

1. Identification of the substance/preparation and of the company / undertaking

Product name: Lithium Primary Battery
Product Designation: CR2430/ CR2450/ CR2016/ CR2025/ CR2032 CR1620 CR1220 etc.
Nominal Voltage: 3.0V
Chemical system: Lithium/ Manganese Dioxide
Designed for recharge: Yes___No √

2. Hazards identifications

General advice: The common known rules for handling of chemicals should be obeyed. Do not eat and drink batteries. Keep batteries away from small children.
Physical-Chemical Hazards: This preparation is not classified as dangerous according to the criteria of directive 99/45/EEC.
Hazards to environment: N.A..

3. Compositions /Information on Ingredients

Chemical Nature: Lithium/ Manganese dioxide batteries

Material	Identification code (CAS)	% (w/w)
iron	7439-89-6	52%
manganese dioxide	1313-13-9	30%
graphite	7782-42-5	4.60%
polypropylene	9003-07-0	4.40%
propylene carbonate	108-32-7	3%
lithium	7439-93-2	2%
1,2-dimethoxyethane	110-71-4	2%
1,3-dioxolane	646-06-0	1.30%
lithium perchlorate	7791-3-9	0.70%
Mercury (Hg)	7439-97-6	≤0.0005
Lead (Pb)	7439-92-1	≤0.0040
Cadmium (Cd)	7440-43-9	≤0.0020

4. First–aid measures

In case of electrolyte leakage, skin will be itchy when contaminated with electrolyte.
In contact with electrolyte can cause server irritation and chemical burns
Inhalation of electrolyte vapors may cause irritation of the upper respiratory tract and lungs.
If electrolyte leakage occurs and makes contact with skin, wash with plenty of water immediately
If electrolyte comes into contact with eyes, wash with copious amounts of water for fifteen (15) minutes, and contact a physician.
If electrolyte vapors are inhaled, provide fresh air and seek medical attention if respiratory irritation develops. Ventilate the contaminated area.

5. Fire-fighting measures

Flash Point (Method Used)	Flammable Limits	LEL	UEL
N.A.	N.A.	N.A.	N.A.

Extinguishing Media: Carbon Dioxide, Dry Chemical or Foam extinguishers.
Special Fire Fighting Procedures: N.A.
Unusual Fire and Explosion Hazards
Do not dispose of battery in fire - may cause explosion
Do not short-circuit battery – may cause burns.
In case of fire, it is permissible to use any class of extinguishing medium on these batteries or their packing material. Cool exterior of batteries if exposed to fire to prevent rupture.
Fire fighters should wear self-contained breathing apparatus.

6. Accidental release measures

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).

7. 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℃ and 35℃ for prolong storage.

8. Exposure controls and personal protection

Exposition/Technical measures: Atmospheric vapour concentrations must be minimized by adequate ventilation.
Protection of hands, eyes and skin: None required under normal use conditions.
General safety and hygiene measures: Use only as directed.

9. Physical and chemical properties

Boiling Point N.A.	Specific Gravity (H_2O=1) N.A.
Vapor Pressure (mm Hg) N.A.	Melting Point N.A.
Vapor Density (AIR=1) N.A.	Evaporation Rate (Butyl Acetate=1) N.A.
Solubility in Water N.A.	Appearance and Odor Cylindrical or Button Shape, odorless

10. Stability and Reactivity

Stability	Unstable		conditions to avoid
	Stable	√	

Incompatibility(Materials to avoid)
Hazardous Decompostion or Byproducts

Hazardous Polymerization	May Occur		conditions to avoid

	Will not occur	√	

11. Toxicological information

Toxicity information is available on the battery ingredients noted in Section 2, but in general, N.A. to intact batteries.

Chronic health effects: N.A.

12. Ecological information

Not available

13. Disposable considerations

Dispose of the batteries according to the government regulations.

14. Transport 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 section II
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 metal batteries shipping. The products can be transported as “Non Dangerous Goods” when they meet the requirements of packing instruction 968 Section Ⅱ of IATA-DGR(58th Edition)or SP188 of IMDG Code (Amdt. 37-14) 2014 Edition.

15. Regulatory Information

Special requirement be according to the local regulatory.

16. Other information

The data in this Material Safety Data Sheet relates only to the specific material designated herein.