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# Material Safety Data Sheet

Issued on June 23 2020

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

49934 Battery lithium CR2016  
49935 Battery lithium CR2025  
49936 Battery lithium CR2032

**Manufacturer's Name:** GPI International Ltd.

**Address:** 7/F, Building 16W, 16 Science Park West Avenue, Hong Kong  
Science Park, New Territories, Hong Kong

**Phone Number:** 852-2484-3333

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## 2. HAZARDS IDENTIFICATION GHS Classification:

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.

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### 3. COMPOSITION/IDENTIFICATION OF INGREDIENTS

MATERIALS	CAS#	APPROXIMATE PERCENT OF TOTAL WEIGHT (~%)	SVHC substances according to REACH
Lithium or Lithium Alloy	7439-93-2	1-5%	
Manganese Dioxide	1313-13-9	15-40%	
Propylene Carbonate	108-32-7	2-6%	
1,2-Dimethoxyethane; ethylene glycol dimethyl ether	110-71-4	1-5%	>0.1
Lithium Perchlorate	7791-03-9	0-1.5%	
Graphite	7782-42-5	1-4%	

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#### Lithium content for each cell

Model	Lithium content(g)
49934 CR2016	0.023
49935 CR2025	0.048
49936 CR2032	0.065

### 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.

## 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 of fire. But hydrogen gas may be evolving by the reaction of water and lithium and it can form an explosive mixture. Therefore in the case that a lot of lithium batteries are burning in a confined space, use a smothering agent.

Firefighting procedure: Use self-contained breathing apparatus and full protective gear not to inhale harmful gas.

## 6. ACCIDENTAL RELEASE MEASURES

Steps to be taken in case material is released or spilled:

- Batteries that have leakage should be handled with rubber gloves,
- Avoid direct contact with electrolyte,
- Wear protective clothing and a positive pressure self –contained breathing apparatus (SCBA)

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## 7. HANDLING AND STORAGE

- 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,
- The cell and batteries shall not be stored in high temperature; the maximum temperature allowed is 60°C for a short period during the shipment. Otherwise the cells may leak and can result in shortened service life.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Occupational Exposure Limits:** NA

**Respiratory Protection:** NA

**Ventilation: Local exhausts:** NA

**Mechanical(General):** NA

**Special:** NA

**Other:** NA

**Protective gloves:** NA

**Eye Protection:** NA

**Other protective Clothing or Equipment:** NA

**Work/Hygienic Practices:** NA

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling point	NA
Vapor Pressure (mm HG)	NA
Vapor Density(AIR=1)	NA
Solubility in Water	NA
Specific Gravity(H <sub>2</sub> O=1)	NA
Melting Point	NA
Evaporate rate(Butyl Acetate)	NA
Appearance and Odor	Coin Shape, odorless

**Chemical Stability:** Stable in normal circumstances

**Hazardous polymerization:** will not occur

## 10. TOXICOLOGICAL INFORMATION

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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.

## 11. ECOLOGICAL INFORMATION

**Aquatic toxicity:** NA

**Persistence & Degradability:** NA

**Behavior in environmental systems:** NA

**Bioaccumulative potential:** NA

**Mobility in soil:** NA

**Additional ecological information:** Do not allow material to be released to the environment without proper governmental permits.

## 12. DISPOSAL CONSIDERATIONS

Dispose of batteries according to government regulations.

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### 13. TRANSPORT INFORMATION

<b>UN Number:</b> UN 3090
<b>UN Proper Shipping Name:</b> Lithium metal batteries
<b>UN:</b> The transport of Dangerous Goods, Manual of Tests and Criteria 38.3 Lithium batteries

Country	Group/Special provisions	Lithium content	Hazard class	Hazards	Precautions	
USA	US DOT 49CFR Section 173-185 Lithium batteries and cells	>1g(cell)/2g(battery)	Dangerous goods, Class9	No marine pollutant	Lithium handling label needed	
		<= 1g(cell)/2g(battery)	Non dangerous goods			
Air	ICAO/IATA DGR 60th edition 2019	PI 968 Section IA	Dangerous goods, Class9	No marine pollutant	DG label, CAO label needed	
		PI 968 Section IB	<=0.3g,0.3-1g(cell); <=0.3g,0.3-2g(battery) (for that exceed allowance in Section II)	Dangerous goods, Class9	No marine pollutant	Lithium handling label,DG label, CAO label needed
			PI 968 Section II	<=0.3g,0.3-1g(cell); <=0.3g,0.3-2g(battery) (only allow one package prepared per consignment)	Partially regulated dangerous goods	No marine pollutant
Sea	IMO/IMDG CODE38-16	P903 SP188	Dangerous goods, Class9	No marine pollutant	Lithium handling label needed	
		<= 1g(cell)/2g(battery)	Non dangerous goods			
Road	ADR	P903,P903a, P903b	Dangerous goods, Class9	No marine pollutant	Lithium handling label needed	
		<= 1g(cell)/2g(battery)	Non dangerous goods			

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1) In general, all batteries in all forms of transportation 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 outer packaging" that prevents spillage of contents. All original packaging has been designed to be compliant with these regulatory concerns.

Primary (non-rechargeable) lithium metal batteries and cells (UN 3090), are forbidden for transportation abroad, passenger -carrying aircraft. Such batteries can be transported in accordance with Section IA, IB, & !! of Packaging Instruction 968 must be labeled with the CARGO AIRCRAFT ONLY label

2) International Maritime organization (IMO) IMDG Code regulated these products as UN 3090, Lithium metal batteries, Class 9 dangerous good with Special Provision 188 and 903 assigned.

3) all batteries, conform to special regulation 188 and transport condition defined in IMDG Code. It can be transported as non-dangerous goods.

Transport of Lithium metal batteries contained in equipment or Lithium metal batteries packed with equipment have to follow the appropriate regulations for UN3091, PI970 or PI969 respectively.

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## 14. REGULATORY INFORMATION

Dangerous Goods Regulation (DGR)

Recommendations on the Transport of Dangerous Goods Model Regulations

International Maritime Dangerous Goods

Technical Instructions for the Safe Transport of Dangerous Goods

Classification and code of dangerous goods

In accordance with all Federal, State and Local laws.

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## 15. Other Information

### Disclaimer:

This safety data sheet (SDS) is issued based on the latest reference, data etc. currently available. The information in this SDS has been carefully assessed, but no guarantee is given for its accuracy. We cannot anticipate all conditions under which this product may be used. It is the user's responsibility to take appropriate safety measures for handling. Verbatim Limited cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.