The batteries are exempt articles and are not subject to the OSHA Hazard Communication Standard Requirement. This sheet is only provided as technical information and is referred normal use of the product in question. Peak Power makes no warranty expressed or implied.

**Section 1 – Identification**

**Manufacturer's Name**

GPI International Ltd.

**Address (Number, Street, City State, and ZIP Code)**

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

**Telephone Number for information**

852-2484-3333

**Date of prepared and revision**

Jan 1, 2017

**Signature of Prepare (optional)**


**Section 2 – Hazards Identification**

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.

(*leakage is defined as an unintended escape of liquid from a battery)

**Section 3 – Composition/Information On Ingredients**

**Hazardous Components:**

<table>
<thead>
<tr>
<th>Description</th>
<th>CAS Number</th>
<th>Approximate % of total weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium or Lithium Alloy</td>
<td>7439-93-2</td>
<td>1 to 5</td>
</tr>
<tr>
<td>Manganese Dioxide</td>
<td>1313-13-9</td>
<td>15 to 40</td>
</tr>
<tr>
<td>Propylene Carbonate</td>
<td>108-32-7</td>
<td>2 to 6</td>
</tr>
<tr>
<td>1,2-Dimethoxyethane</td>
<td>110-71-4</td>
<td>1 to 5</td>
</tr>
<tr>
<td>Lithium Perchlorate</td>
<td>7791-03-9</td>
<td>0 to 1.5</td>
</tr>
<tr>
<td>Graphite</td>
<td>7782-42-5</td>
<td>1 to 4</td>
</tr>
</tbody>
</table>

*) Lithium content for each cell

<table>
<thead>
<tr>
<th>Model</th>
<th>Li content(g)</th>
<th>Model</th>
<th>Li content(g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR927</td>
<td>0.009</td>
<td>CR2016</td>
<td>0.023</td>
</tr>
<tr>
<td>CR1025</td>
<td>0.010</td>
<td>CR2025</td>
<td>0.048</td>
</tr>
<tr>
<td>CR1216</td>
<td>0.0068</td>
<td>CR2032</td>
<td>0.065</td>
</tr>
<tr>
<td>CR1220</td>
<td>0.011</td>
<td>CR2354</td>
<td>0.145</td>
</tr>
<tr>
<td>CR1616</td>
<td>0.014</td>
<td>CR2430</td>
<td>0.090</td>
</tr>
<tr>
<td>CR1620</td>
<td>0.020</td>
<td>CR2450</td>
<td>0.162</td>
</tr>
<tr>
<td>CR1632</td>
<td>0.038</td>
<td>CR2477</td>
<td>298</td>
</tr>
</tbody>
</table>

**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

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 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.

The cells and batteries shall not be stored in high temperature, the maximum temperature allowed is 60℃ for a short period during the shipment. Otherwise the cells maybe leakage and can result in shortened service life.

Section 8– Exposure Controls / Person Protection

Occupational Exposure Limits: LTEP STEP

Respiratory Protection (Specify Type)       N.A.       N.A.

Ventilation       Local Exhuasts N.A. Special N.A.

Mechanical (General)       N.A. Other N.A.

Protective Gloves       N.A. Eye Protection N.A.

Other Protective Clothing or Equipment       N.A.

Work / Hygienic Practices       N.A.

Section 9 - Physical / Chemical Properties

Boiling Point       N.A. Specific Gravity (H₂O=1)       N.A.

Vapor Pressure (mm Hg)       N.A. Melting Point       N.A.
Material Safety Data Sheet for Lithium coin cell

Vapor Density (AIR=1)  N.A.  |  Evaporation Rate (Butyl Acetate)  N.A.
Solubility in Water  N.A.  
Appearance and Odor  Coin Shape, odorless

Section 10 – Stability and Reactivity

<table>
<thead>
<tr>
<th>Stability</th>
<th>Unstable</th>
<th>Conditions to Avoid</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stable</td>
<td>X</td>
</tr>
</tbody>
</table>

Incompatibility (Materials to Avoid)

Hazardous Decomposition or Byproducts

<table>
<thead>
<tr>
<th>Hazardous Polymerization</th>
<th>May Occur</th>
<th>Conditions to Avoid</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Will Not Occur</td>
<td>X</td>
</tr>
</tbody>
</table>

Section 11 – Toxicological Information

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.

Section 12 – Ecological Information

N.A.

Section 13 – Disposal Considerations

Dispose of batteries according to government regulations.

Section 14 – Transportation Information

Manufacturer reserves the right to alter or amend the design, model and specification without prior notice.
All PD lithium coin cell (Lithium Metal Battery) shown in this MSDS comply to the necessary requirements under the UN Recommendations on the Transport of Dangerous Goods Model Regulations and UN Manual of Tests and Criteria as referenced in the following transportation regulations:

1. UN Recommendation on the Transport of Dangerous Goods Model Regulations
2. U.S. Department of Transportation hazardous materials regulations (HMR)
3. International Civil Aviation Organization (ICAO) Technical Instruction,
4. International Air Transport Association (IATA) Dangerous Goods Regulations, Partially Regulated DG section II of PI 968 and

PD lithium batteries are exempted from these regulations since they meet all UN Testing requirements and not exceed 1g lithium equivalent for single cell and 2 g lithium equivalent for battery. (UN3090) Non-dangerous Goods.

All PD lithium batteries (Lithium Metal Battery) packaging complies with Partially regulated DG section II of PI 968.
### UN No. Shipping modes Regulations Packing instructions Limit of Aggregated lithium content Classification Lithium handling label Class 9 DG label

<table>
<thead>
<tr>
<th>UN No.</th>
<th>Shipping modes</th>
<th>Regulations</th>
<th>Packing instructions</th>
<th>Limit of Aggregated lithium content</th>
<th>Classification</th>
<th>Lithium handling label</th>
<th>Class 9 DG label</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN3090</td>
<td>USA</td>
<td>US Department of Transportation of Hazardous Substances (HMR) 49 CFR § 173.185</td>
<td>PI 968 Section IB</td>
<td>&lt;=0.3 g, 0.3-1 g (cell); &lt;=0.3 g, 0.3-2 g (battery) (that exceed allowance in Section II)</td>
<td>Non-dangerous goods</td>
<td>Needed</td>
<td>Not necessary</td>
</tr>
<tr>
<td></td>
<td>Air</td>
<td>ICAO/IATA DGR 58th edition</td>
<td>PI 968 Section IB</td>
<td>&lt;=0.3 g, 0.3-1 g (cell); &lt;=0.3 g, 0.3-2 g (battery) (Only allow one package prepared per consignment)</td>
<td>Partially-regulated dangerous goods</td>
<td>Needed</td>
<td>Not necessary</td>
</tr>
<tr>
<td></td>
<td>Sea</td>
<td>IMO/IMDG Code 35-10</td>
<td>P903</td>
<td>1 g (cell)/2 g (battery)</td>
<td>Non-dangerous goods</td>
<td>Needed</td>
<td>Not necessary</td>
</tr>
<tr>
<td></td>
<td>Road/Rail</td>
<td>ADR / RID</td>
<td>P903 P903a P903b</td>
<td>1 g (cell)/2 g (battery)</td>
<td>Non-dangerous goods</td>
<td>Needed</td>
<td>Not necessary</td>
</tr>
</tbody>
</table>

### Section 15 – Regulatory Information
Special requirement be according to the local regulatory.

### Section 16 – Other Information
The data in this Material Safety Data Sheet relates only to the specific material designated herein.

### Section 17 – Measures for fire extinction
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.

Manufacturer reserves the right to alter or amend the design, model and specification without prior notice.