# Material Safety Data Sheet

## Section I

**Manufacturer’s Name**
Golden Power Corporation (HK) Ltd.

**Telephone Number**
(852) 3125 2288

**Fax Number**
(852) 3125 2000 / 3125 2001

**Address (Number, Sheet, City, State, and ZIP Code)**
Flat C, 20/F., Block 1, Tai Ping Industrial Centre, 57 Ting Kok Road, Tai Po, N.T., Hong Kong

**Date Prepared**
March 01, 2011

**Signature of Preparer (optional)**

## Section II – Hazardous Ingredients/Identity Information

<table>
<thead>
<tr>
<th>Hazardous Components (Specific Chemical Identity, Common Names)</th>
<th>(contents, %/wt)</th>
<th>CAS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese Dioxide (MnO₂)</td>
<td>22.0 %</td>
<td>1313-13-9</td>
</tr>
<tr>
<td>Zinc (Zn)</td>
<td>10.0 %</td>
<td>7440-66-6</td>
</tr>
<tr>
<td>Potassium Hydroxide (KOH)</td>
<td>3.0 %</td>
<td>1310-58-3</td>
</tr>
<tr>
<td>Graphite (C)</td>
<td>2.0 %</td>
<td>7782-42-5</td>
</tr>
<tr>
<td>Cadmium (Cd)</td>
<td>≦ 0.0005 %</td>
<td>7440-43-9</td>
</tr>
<tr>
<td>Mercury (Hg)</td>
<td>≦ 0.0001 %</td>
<td>7439-97-6</td>
</tr>
<tr>
<td>Lead (Pb)</td>
<td>≦ 0.002 %</td>
<td>7439-92-1</td>
</tr>
</tbody>
</table>

## Section III – Physical/Chemical Characteristics

<table>
<thead>
<tr>
<th>Boiling Point</th>
<th>Specific Gravity (H₂O=1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KOH aqua solution = 140 °C</td>
<td>MnO₂ = 4.4, Zn = 7.1, KOH = 2.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vapor Pressure (mmHg)</th>
<th>Melting Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Koh aqua solution = 3mmHg at 20 °C</td>
<td>MnO₂ decompose at 535 °C</td>
</tr>
<tr>
<td></td>
<td>Zn = 420 °C, KOH aqua = −35 °C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evaporation Rate (Butyl Acetate = 1)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Solubility in Water</th>
<th>KOH – complete</th>
</tr>
</thead>
</table>

**Appearance and Color**
MnO₂ is a black powder, Graphite is also a black powder, Zinc is a silver metal.
KOH aqua is a colorless liquid with stimulative order.

## Section IV – Fire and Explosion Hazard Data

<table>
<thead>
<tr>
<th>Flash Point (Method Used)</th>
<th>Incombustible</th>
<th>Flammable Limits</th>
<th>Not Available</th>
<th>LEL</th>
<th>UEL</th>
</tr>
</thead>
</table>

**Extinguishing Media:** See Special Fire Fighting Procedure

Special Fire Fighting Procedure: In case of fire in an adjacent area, use water, CO₂ or dry chemical extinguishers if cells are packed in their original containers since the fuel of the fire is basically paper products. For bulk quantities of unpackaged cells use LITH-X (Graphite Base). In this case, do not use water.

As with any fire, wear self-contained breathing apparatus to avoid inhalation of hazardous decomposition products.
Golden Power Corporation (HK) Ltd.

Section V – Reactivity Data

<table>
<thead>
<tr>
<th>Stability</th>
<th>Conditions to Avoid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unstable</td>
<td>Do not short circuit, charge or dispose of in fire.</td>
</tr>
<tr>
<td>Stable</td>
<td>√</td>
</tr>
</tbody>
</table>

Incompatibility (Materials to Avoid)

Hazardous polymerization will not occur.

Hazardous Decomposition or Byproducts

Not Available

Hazardous Polymerization

May Occur

Conditions to Avoid

Will Not Occur √

Section VI – Health Hazard Data

<table>
<thead>
<tr>
<th>Route(s) of Entry</th>
<th>Inhalation?</th>
<th>Skin?</th>
<th>Ingestion?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Health Hazards (Acute and Chronic)

These chemicals are contained in a sealed can. Risk of exposure occurs, only if battery is mechanically or electrically abused. The most likely risk is acute exposure when a cell vents KOH is caustic alkali and attack the skin and eyes. Contact of electrolyte with skin and eyes should be avoided.

Section VII – Ecological Information

Cardnogenicity

NTP? Not Available

IARC Monographs? Not Available

OSHA Regulated? Not Available

Signs and Symptoms of Exposure

KOH can cause chemical burn upon contact with skin.

Medical Conditions

Generally Aggravated by Exposure

An acute exposure will not generally aggravate any medical help.

Section VIII – Emergency and First Aid Procedures

In case of skin contact with content of battery, flush immediately with water. For eye contact, flush with copious amount of water for 10 minutes. If imitation persists, get medical help.

Section IX - Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released or Spilled

Wipe out by wet duster.

Section X - Waste Disposal Method

General abandonment

Section XI - Precautions to Be Taken in Handling and Storing

Avoid mechanical or electrical abuse.

Section XII - Other Precautions

Do not short circuit, charge or dispose of in fire. Battery may explode or leak.

Section XIII - Control Measures

Respiratory Protection (Specify Type) Not Available

Ventilation

Local Exhaust Not Available Special Not Available

Mechanical (General) Not Available Other Not Available

Protective Gloves

Butyl Eye Protection Safety Glasses

Other Protective Clothing or Equipment

Not Available

Work / Hygienic Practices

Not Available

Section XIV – Regulatory Information

Not Available
Golden Power batteries are considered to be “dry cell” batteries and are not regulated for purposes of transportation with reference to requirements of

1. U.S. Department of Transportation (DOT), Special Provision 130, i.e. ”Batteries, dry are not subject to the requirements of this subchapter only when they are offered for transportation in a manner that prevents the dangerous evolution of heat (for example, by the effective insulation of exposed terminals)”.

2. International Civil Aviation Administration (ICAO) and International Air Transport Association (IATA), Special Provision A123, i.e. “An electrical battery or battery powered device having the potential of dangerous evolutions of heat that is not prepared so as to prevent a short-circuit (e.g. in the case of batteries, by the effective insulation of exposed terminals; or in the case of equipment, by disconnection of the battery and protection of exposed terminals) is forbidden from transportation.”

3. International Maritime Dangerous Goods Regulations (IMDG), Special Provision 304, i.e. “Batteries, dry, containing corrosive electrolyte which will not flow out of the battery case is cracked are not subject to the provisions of this Code provided the batteries are securely packed and protected against short-circuits.

Examples of such batteries include alkali-manganese, silver oxide, zinc carbon, nickel metal hydride and nickel-cadmium batteries.