

**Material Safety Data Sheet MSDS**

Ref. No. : GPMSDS - GLR6A - 2015A

|                                                                                 |                                                                                                                                                   |
|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTITY (As Read on Label and Line)<br><b>GLR6A</b><br><b>ALKALINE BATTERY</b> | Notice: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that. |
|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|

**Section I**

|                                                                                                                                                            |                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| Manufacturer's Name<br><b>Golden Power Corporation (HK) Ltd.</b>                                                                                           | Telephone Number<br><b>(852) 3125 2288</b>       |
| Address (Number, Sheet, City, State, and ZIP Code)<br><br>Flat C, 20/F., Block 1, Tai Ping Industrial Centre,<br>57 Ting Kok Road, Tai Po, N.T., Hong Kong | Fax Number<br><b>(852) 3125 2000 / 3125 2001</b> |
|                                                                                                                                                            | Date Prepared<br><b>2 January 2015</b>           |
|                                                                                                                                                            | Signature of Preparer (optional)                 |

**Section II – Hazardous Ingredients/Identity Information**

| Hazardous Components (Specific Chemical Identity, Common Names) | (contents, %/wt) | CAS No.   |
|-----------------------------------------------------------------|------------------|-----------|
| Manganese Dioxide (MnO <sub>2</sub> )                           | 37.07 %          | 1313-13-9 |
| Zinc (Zn)                                                       | 17.43 %          | 7440-66-6 |
| Potassium Hydroxide (KOH)                                       | 6.82 %           | 1310-58-3 |
| Graphite (C)                                                    | 2.56 %           | 7782-42-5 |
| Cadmium (Cd)                                                    | < 0.0005 %       | 7440-43-9 |
| Mercury (Hg)                                                    | < 0.0001 %       | 7439-97-6 |
| Lead (Pb)                                                       | < 0.0002 %       | 7439-92-1 |

**Section III – Physical/Chemical Characteristics**

|                                                             |                                                                                         |
|-------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Boiling Point<br>KOH aqua solution = 140 °C                 | Specific Gravity (H <sub>2</sub> O=1)<br>MnO <sub>2</sub> = 4.4, Zn = 7.1, KOH = 2.0    |
| Vapor Pressure (mmHg)<br>KOH aqua solution = 3mmHg at 20 °C | Melting Point<br>MnO <sub>2</sub> decompose at 535 °C<br>Zn = 420 °C, KOH aqua = -35 °C |
| Vapor Density (Air = 1)                                     | Evaporation Rate<br>(Butyl Acetate = 1)                                                 |

Solubility in Water KOH – complete

Appearance and Color

MnO<sub>2</sub> 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**

|                                            |                                   |     |     |
|--------------------------------------------|-----------------------------------|-----|-----|
| Flash Point (Method Used)<br>Incombustible | Flammable Limits<br>Not Available | LEL | UEL |
|--------------------------------------------|-----------------------------------|-----|-----|

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

Special Fire Fighting Procedure: In case of fire in an adjacent area, use water, CO<sub>2</sub> 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.

Unusual Fire and Explosion Hazards

**Section V – Reactivity Data**

|           |          |   |                     |                                                     |
|-----------|----------|---|---------------------|-----------------------------------------------------|
| Stability | Unstable |   | Conditions to Avoid | Do not short circuit, charge or dispose of in fire. |
|           | Stable   | √ |                     |                                                     |

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**

| Route(s) of Entry.                 | Inhalation?                                                                                                                                                                                                                                                                                               | Yes | Skin? | Yes | Ingestion? | Yes |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-------|-----|------------|-----|
| 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 irritation 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        | Special        |                |
|                                        | Not Available        | Not Available  |                |
|                                        | Mechanical (General) | Other          |                |
|                                        | Not Available        | Not Available  |                |
| Protective Gloves                      | Butyl                | Eye Protection | Safety Glasses |
| Other Protective Clothing or Equipment |                      |                |                |
| Not Available                          |                      |                |                |
| Work / Hygienic Practices              |                      |                |                |
| Not Available                          |                      |                |                |

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**Section XIV – Regulatory Information**Not Available

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**Section XV – Other Information**Not Available

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**Section XVI – Transportation Information**

Golden Power GLR6A ALKALINE BATTERY are considered to be “dry cell” batteries and are not listed as dangerous goods under below regulations:

1. Batteries, dry fulfills the requirement of U.S. Department of Transportation (DOT), Special Provision 130, i.e. they are offered for transportation in a manner that prevents the dangerous evolution of heat (for example, by the effective insulation of exposed terminals or batteries to be packed in such a way to prevent short circuits or generation of a dangerous quantity of heat.)”.
2. International Civil Aviation Administration (ICAO) and International Air Transport Association (IATA Dangerous Goods Regulation 56<sup>th</sup> Edition 2015), 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 or batteries to be packed in such a way to prevent short circuits or generation of a dangerous quantity of heat.) is forbidden from transportation.”
3. International Maritime Dangerous Goods Regulations (IMDG) 2012 edition does not regulate these batteries.

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

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