

# GP Batteries

## Material Safety Data Sheet For NiMH Batteries

Document Number: RRS0541

Revision: 10

Page 1 of 5

|                                                                      |                                                                                                                                               |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTITY (As Used on Label and List)<br>Nickel Metal Hydride Battery | Note: 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 – Information of Manufacturer

|                                                                                                                    |                                                   |
|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| Manufacturer's Name<br>GPI International Ltd.                                                                      | Emergency Telephone Number                        |
| Address (Number, Street, City State, and ZIP Code)<br>8/F GP Building, 30 Kwai Wing Road,<br>Kwai Chung, N.T. H.K. | Telephone Number for information<br>852-2484-3333 |
|                                                                                                                    | Date of prepared and revision<br>26th Oct 2011    |
|                                                                                                                    | Signature of Preparer (optional)                  |

### Section II - Hazardous Ingredients / Identity Information

Hazardous Components:

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A) The content of elements are based on homogeneous materials level of NiMH battery:

| Element       | Lead      | Cadmium   | Hexavalent Chromium (Cr <sup>6+</sup> ) | Mercury   | Polybrominated Biphenyls (PBBs) | Polybrominated Diphenyls Ethers (PBDEs) |
|---------------|-----------|-----------|-----------------------------------------|-----------|---------------------------------|-----------------------------------------|
| Limit (mg/kg) | <1000     | <100      | <1000                                   | <1000     | <1000                           | <1000                                   |
| CAS no.       | 7439-92-1 | 7440-43-9 | 18540-29-9                              | 7439-97-6 | 59536-65-1                      | ---                                     |

B) The content of elements are based on total weight of NiMH battery:

| Element       | Lead | Cadmium | Hexavalent Chromium (Cr <sup>6+</sup> ) | Mercury | Polybrominated Biphenyls (PBBs) | Polybrominated Diphenyl Ethers (PBDEs) |
|---------------|------|---------|-----------------------------------------|---------|---------------------------------|----------------------------------------|
| Limit (mg/kg) | <40  | <20     | <5                                      | <5      | Nil                             | Nil                                    |

| Element     | Ni(OH) <sub>2</sub> (Nickel Hydroxide) | 30% KOH Solution (Potassium Hydroxide) | 30% NaOH Solution (Sodium Hydroxide) | Non-Hazardous Materials |
|-------------|----------------------------------------|----------------------------------------|--------------------------------------|-------------------------|
| Limit (wt%) | <30%                                   | <20%                                   | <20%                                 | <30%                    |
| CAS no.     | 12054-48-7                             | 1310-58-3                              | 1310-73-2                            | ---                     |

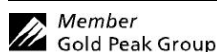
### Section III - Physical / Chemical Characteristics

|                                |                                               |
|--------------------------------|-----------------------------------------------|
| Boiling Point<br>N.A.          | Specific Gravity (H <sub>2</sub> O=1)<br>N.A. |
| Vapor Pressure (mm Hg)<br>N.A. | Melting Point<br>N.A.                         |
| Vapor Density (AIR=1)<br>N.A.  | Evaporation Rate (Butyl Acetate)<br>N.A.      |
| Solubility in Water<br>N.A.    |                                               |
| Appearance and Odor            | Cylindrical Shape, odorless                   |

### Section IV – Hazard Classification

Classification

N.A.



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

# GP Batteries

## Material Safety Data Sheet For NiMH Batteries

Document Number: RRS0541

Revision: 10

Page 2 of 5

### Section V – Reactivity Data

|           |          |   |                     |
|-----------|----------|---|---------------------|
| Stability | Unstable |   | Conditions to Avoid |
|           | Stable   | X |                     |

Incompatibility (Materials to Avoid)

Hazardous Decomposition or Byproducts

|                          |                |   |                     |
|--------------------------|----------------|---|---------------------|
| Hazardous Polymerization | May Occur      |   | Conditions to Avoid |
|                          | Will Not Occur | X |                     |

### Section VI - Health Hazard Data

|                   |             |       |            |
|-------------------|-------------|-------|------------|
| Route(s) of Entry | Inhalation? | Skin? | Ingestion? |
|                   | N.A.        | N.A.  | 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 VII – First Aid Measures

First Aid Procedures

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.

### Section VIII - Fire and Explosion Hazard Data

|                           |                |                  |      |      |
|---------------------------|----------------|------------------|------|------|
| Flash Point (Method Used) | Ignition Temp. | Flammable Limits | LEL  | UEL  |
| N.A.                      | N.A.           | N.A.             | N.A. | N.A. |

Extinguishing Media

Carbon Dioxide, Dry Chemical or Foam extinguishers can be used for battery BUT water extinguisher is not suitable.

Special Fire Fighting Procedures

N.A.

Unusual Fire and Explosion Hazards

Do not dispose of battery in fire - may explode.

Do not short-circuit battery - may cause burns.

# GP Batteries

## Material Safety Data Sheet For NiMH Batteries

Document Number: RRS0541

Revision: 10

Page 3 of 5

### Section IX – Accidental Release or Spillage

#### 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 X – 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°C for a short period during the shipment , Otherwise the cells maybe leakage and can result in shortened cycle life.

### Section XI – Exposure Controls / Person Protection

Occupational Exposure Limits: LTEP

N.A.

STEP

N.A.

Respiratory Protection (Specify Type)

N.A.

Ventilation

Local Exhausts

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 XII – Ecological Information

N.A.

### Section XIII – Disposal Method

Dispose of batteries according to government regulations.

# GP Batteries

## Material Safety Data Sheet For NiMH Batteries

Document Number: RRS0541

Revision: 10

Page 4 of 5

### Section XIV – Transportation Information

a) In general, all batteries in all forms of transportation (ground, air, or ocean) 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 for GP nickel metal hydride batteries has been designed to be compliant with these regulatory concerns.

GP nickel metal hydride batteries (sometimes referred to as “Dry cell” batteries) are not defined as dangerous goods under the IATA Dangerous Goods Regulations. ICAO Technical Instructions and the U.S. hazardous materials regulations (49 CFR). These batteries are not subject to the dangerous goods regulations as they are compliant with the requirements contained in the following special provisions.

| Regulatory Body | Special Provisions            |
|-----------------|-------------------------------|
| ADR             | 295 – 304, 598                |
| IMO             | UN 3496 SP117 and SP963       |
| UN              | UN 3496                       |
| US DOT          | 49 CFR 172, 102 Provision 130 |
| IATA            | A123                          |
| ICAO            | UN 3496                       |

In addition, the IATA Dangerous Goods Regulations and ICAO Technical Instructions require the words “not restricted” and the Special Provision number A123 be provided on the air waybill, when an air waybill is issued.

b) International Maritime Organization (IMO) IMDG Code regulated these products as UN 3496 BATTERIES, NICKEL METAL HYDRIDE, class 9 dangerous goods with Special Provision 117 and 963 assigned

#### SP117

Only regulated when transported by sea.

#### SP963

Nickel-metal hydride button cells or nickel-metal hydride cells or batteries packed with or contained in equipment are not subject to the provisions of this Code.

All other nickel-metal hydride cells or batteries shall be securely packed and protected from short circuit. They are not subject to other provisions of this Code provided that they are loaded in a cargo transport unit in a total quantity of less than 100 Kg gross mass. When loaded in a cargo transport unit in a total quantity of 100 Kg gross mass or more, they are not subject to other provisions of this Code except those of 5.4.1, 5.4.3 and column (16) of the dangerous good list in Chapter 3.2.

The requirements of these sections are:

- (1) dangerous goods transport documentation to accompany the shipment,
- (2) the shipment must be described as "UN3496, BATTERIES, NICKEL-METAL HYDRIDE, CLASS 9" on the shipper's declaration for dangerous goods.
- (3) the dangerous goods description must also be entered on the Dangerous Cargo Manifest and/or the detailed stowage plan in compliance with the IMDG Code requirements for shipboard documentation.

# GP Batteries

## Material Safety Data Sheet For NiMH Batteries

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Document Number: RRS0541

Revision: 10

Page 5 of 5

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### Section XV – Regulatory Information

Special requirement be according to the local regulatories.

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### Section XVI – Other Information

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

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### Section XVII – Measures for fire extinction

In case of fire, it is permissible to use Carbon Dioxide, Dry Chemical or Foam extinguishers 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.

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