

GP Batteries

Material Safety Data Sheet For NiMH Batteries

Document Number: RRS0541

Revision: 04

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IDENTITY (As Used on Label and List)
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 GPI International Ltd. | Emergency Telephone Number |
| Address (Number, Street, City State, and ZIP Code) 8/F GP Building, 30 Kwai Wing Road, Kwai Chung, N.T. H.K. | Telephone Number for information 852-2484-3333 |
| | Date of prepared and revision 13th July 2009 |
| | Signature of Preparer (optional) |

Section II - Hazardous Ingredients / Identity Information

Hazardous Components:

Hazardous Components:

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

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

| Element | Ni(OH) ₂ (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 | --- |

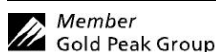
Section III - Physical / Chemical Characteristics

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

Section IV – Hazard Classification

Classification

N.A.



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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.

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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.

Keep batteries between -20°C and 35°C for prolong storage.

When the cells are closed to fully charged, the storage temperature should be between -20°C and 30°C and should be controlled at 10-20° C during transportation and packed with efficient air ventilation.

Section XI – Exposure Controls / Person Protection

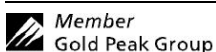
| | | |
|--|------------------------------|-----------------|
| Occupational Exposure Limits: | LTEP N.A. | STEP N.A. |
| Respiratory Protection (Specify Type) | N.A. | |
| Ventilation | Local Exhausts N.A. | Special N.A. |
| | Mechanical (General) N.A. | Other N.A. |
| Protective Gloves N.A. | Eye Protection 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.



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Section XIV – Transportation Information

GP batteries are considered to be "Dry cell" batteries and are unregulated for purposes of transportation by the U.S. Department of Transportation (DOT), International Civil Aviation Administration (ICAO), International Air Transport Association (IATA) and International Maritime Dangerous Goods Regulations (IMDG). The only DOT requirement for shipping these batteries is special provision 130 which states: "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). The only requirements for shipping these batteries by ICAO and IATA is Special Provision A123 which states : "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." The international Maritime Dangerous Goods Code (IMDG) regulate them for ocean transportation under Special Provision 304 which says : Batteries, dry, containing corrosive electrolyte which will not flow out of the battery if the battery case is cracked are not subject to the provision of this Code provided the batteries are securely packed and protected against short-circuits. Example of such batteries are: alkali-manganese, zinc-carbon, silver oxide, nickel metal hydride and nickel-cadmium batteries which are non-dangerous goods. Such batteries have been packed in inner packaging in such a manner as to effectively prevent short circuit and movement that could lead to short circuit.

Section XV – Regulatory Information

Special requirement be according to the local regulatory.

Section XVI – Other Information

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

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.
