

GP Batteries

Safety Data Sheet for Cylindrical Alkaline Battery

Document Number: SDS100

Revision: 00

Date of prepared: 26 May 2015

Section I – Product and Company Identification

Information of Product

| | |
|---|--|
| Product Identity (used on the label) | Cylindrical Alkaline Battery – LR20, LR14, LR6, LR03 |
|---|--|

Information of Manufacturer

| | |
|--|--|
| Manufacturer's Name | Emergency Telephone Number |
| GPI International Ltd. | Within USA & Canada call: +1-800-424-9300 |
| | Outside USA and Canada call: +1-703-527-3887 |
| Address (Number, Street, City State, and ZIP Code) | Telephone Number for Information |
| 8/F GP Building, 30 Kwai Wing Road, Kwai Chung, N.T., Hong Kong | +852-24843333 |
| | Date of prepared and revised |
| | 26 th May 2015 |

Recommended use of chemicals:

N.A.

Section II – Hazards Identification

Hazards identifications

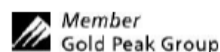
General advice: The common known rules for handling of chemicals should be obeyed. These chemicals are contained in a sealed steel can. For consumer use, adequate hazard warnings are printed on both the package and the battery. Potential for exposure should not exist unless the battery leaks, is exposed to high temperatures or is mechanically or electrically abused. Concentrated potassium hydroxide contained is caustic. Anticipated potential leakage of potassium hydroxide is 2-20 ml, depending on battery size. Do not eat and drink batteries. Keep batteries away from small children.

Physical-Chemical Hazards: This preparation is not classified as dangerous according to the criteria of directive 99/45/EEC.

Hazards to man: If battery leaking, exposure to caustic ingredients may occur. Therefore, may cause sensitization by skin contact.

Hazards to environment: N.A.

Remark: "N.A." is indicated if not applicable.



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Section III – Composition/Information on Ingredients

Chemical Nature: Alkaline zinc-manganese dioxide batteries

| Ingredient | CAS No. | Approximate %/wt | | | |
|---------------------------------------|------------|------------------|---------|---------|---------|
| | | LR03 | LR6 | LR14 | LR20 |
| Manganese Dioxide (MnO ₂) | 1313-13-9 | 40.9 | 42.6 | 40.6 | 41.8 |
| Zinc (Zn) | 7440-66-6 | 14.8 | 16.1 | 16.0 | 17.4 |
| Water (H ₂ O) | 7732-18-5 | 11.7 | 12.2 | 11.0 | 11.1 |
| Potassium Hydroxide (KOH) | 1310-58-3 | 4.8 | 5.2 | 7.0 | 7.0 |
| Graphite | 7782-42-5 | 1.7 | 3.0 | 3.2 | 3.4 |
| Brass | 12597-71-6 | 3.0 | 2.4 | 1.2 | 0.8 |
| Steel | 7439-89-6 | 20.4 | 15.7 | 18.6 | 16.3 |
| Ni-plating | 7440-02-0 | 0.3 | 0.3 | 0.2 | 0.2 |
| Nylon-66 | None | 1.5 | 1.6 | 1.6 | 1.4 |
| Fiber | None | 0.9 | 0.9 | 0.6 | 0.6 |
| Mercury (Hg) | 7439-97-6 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Lead (Pb) | 7439-92-1 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| Cadmium (Cd) | 7440-43-9 | <0.0003 | <0.0003 | <0.0003 | <0.0003 |
| Arsenic (As) | 7440-38-2 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |

Section IV – First-aid Measures

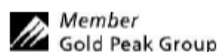
Inhalation: In case of excessive inhalation due to leaking batteries remove to fresh air. Obtain medical advice.

Skin Contact: If exposed to a leaking battery, remove contaminated clothing. Wash exposed areas with plenty of water and soap. If irritation occurs, consult a physician.

Eye contact: If a battery is leaking and materials contact eyes, flush immediately with running water for at least 15 minutes. Consult an ophthalmologist at once.

Ingestion: Not anticipated due to size of batteries. Choking may occur with the smaller size batteries. If exposed to a leaking battery, rinse mouth and surrounding areas with running water for at least 15 minutes. Give plenty of water to drink. Do not induce vomiting. Obtain medical advice.

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Section V – Fire-fighting Measures

Suitable extinguishing media: Carbon dioxide (CO₂), foam, dry chemical powder.

Extinguishing media not to be used: Never use a direct water jet.

Exposure hazards from combustion products: In case of fire, carbon dioxide, carbon monoxide and other toxic organic substances will be generated. Do not inhale fumes and smoke.

Personal protective equipments: Wear full protective clothing. Use self-contained breathing apparatus.

Section VI – Accidental Release Measures

Personal precautions: Notify safety personnel of large spills. Caustic potassium hydroxide may be released from leaking or ruptured batteries. Avoid eye or skin contact and inhalation of vapours. Increase the ventilation. Wear protective clothing. Keep unprotected persons away.

Environmental precautions: Avoid discharge and penetration into sewerage systems, waterways, pits, and cellars.

Methods for cleaning up: Collect spilled material with an insert standard absorbent like sand or silica. Care for well-ventilated conditions. Recycle or dispose of the materials in an appropriate way.

Section VII – Handling and Storage

General handling:

Obey the common known rules and precautions for handling with chemicals. Avoid mechanical and electrical abuse. Do not short battery or install incorrectly. Batteries may explode, pyrolize or vent if disassembled, crushed, recharged or exposed to high temperatures. Install batteries according to equipment instructions. Do not mix battery systems, such as alkaline and zinc- carbon. Replace all batteries in equipment at the same time. Do not carry batteries loose in pocket or bag. Do not remove battery labels.

Storage:

Store product in well-filled, appropriate coated and tightly closed containers avoiding influence of oxygen/air, light and humidity. Storage at room temperature.

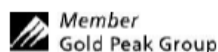
Section VIII – Exposure Controls/Personal Protection

Exposition/Technical measures: Atmospheric vapour concentrations must be minimized by adequate ventilation.

Protection of hands, eyes and skin: None required under normal use conditions. When handling leaking batteries, use neoprene, rubber or nitrile gloves and wear safety glasses to protect hands, eyes and skin.

General safety and hygiene measures: Use only as directed.

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Section IX – Physical and Chemical Properties

Physical state: Stainless steel top battery Colour: Contents dark and gray in colour

Odour: N.A.

Melting point: N.A.

Boiling point: N.A.

Flash point: N.A.

Explosion limit: Not available

Ignition temperature: Not available

Vapour pressure: Not available

Specific gravity: N.A.

Solubility in water: N.A.

Solubility in other solvents: N.A.

PH value: Not available

Partition coefficient: Not available

Viscosity: Not available

Section X – Stability and Reactivity

Thermal decomposition: Batteries may burst and release hazardous decomposition products when exposed to fire.

Substances to avoid: Strong oxidation agents.

Hazardous reactions: Contents incompatible with strong oxidizing agents.

Hazardous decomposition products: Thermal degradation may produce hazardous fumes of zinc and manganese; hydrogen gas; caustic vapors of potassium hydroxide and other toxic by-products.

Section XI – Toxicological Information

Toxicity information is available on the battery ingredients noted in Section III, but in general, N.A. to intact batteries

Chronic health effects: N.A.

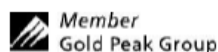
Section XII – Ecological Information

Not available.

Section XIII – Disposal Considerations

Product: Dispose in accordance with appropriate regulations. If in doubt, contact your local government office concerned for information. Do not incinerate, since batteries may explode at excessive temperatures.

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Section XIV – Transport Information

Road (ADR/RID): Not regulated

Air (ICAO/IATA):

IATA DGR (55th) : Special Provision A123: “Examples of such batteries are: alkali-manganese, zinc-carbon, nickel-metal hydride and nickel-cadmium batteries. Any electrical battery ... having the potential of a dangerous evolution of heat must be prepared for transport as to prevent (a) a short-circuit (e.g. in the case of batteries, by the effective insulation of exposed terminals...) is forbidden from transport; and (b) accidental activation. The words “Not Restricted” and the Special Provision number must be included in the description of the substance on the Air Waybill as required by 8.2.6, when an Air Waybill is issued.”

Sea (IMDG):

IMDG CODE: 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 provisions of this Code provided the batteries are securely packed and protected against short-circuits. Examples of such batteries are: alkaline-manganese, zinc-carbon, nickel metal hydride and nickel-cadmium batteries”

These batteries are not regulated by international agencies as hazardous materials or dangerous goods when shipped. A shipping name of “Alkaline Batteries – Non-hazardous” may be used on all domestic and international bills of lading.

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 alkaline batteries has been designed to be compliant with these regulatory concerns.

Section XV – Regulatory Information

Symbol: N.A.

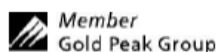
EC labeling: None

Risk phrases: None

Safety phrases: None

Labeling is not required because cylindrical alkaline batteries are classified as “ articles “ under the Dangerous Preparations Directive and as such are exempt from the requirements of the Directive.

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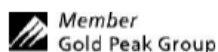
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Section XVI – Other Information

The information on this Safety Data Sheet (SDS) was obtained from current and reputable sources. However, the data is provided without any warranty; expressed or implied, regarding its correctness or accuracy. It is the user's responsibility to assume liability on loss, injury, damage, or expense resulting from improper use of this product. Any previous MSDS of this product mentioned above are hereby replaced with this new document. We urge you to make this information available as appropriate in your organization and to any others with whom you arrange to handle this product.

Remark: "N.A." is indicated if not applicable.



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Product Information Sheet

Panasonic Batteries

Panasonic Industrial Company
A Division of Panasonic Corporation of North America
5201 Tollview Drive
Rolling Meadows, IL 60008
Toll Free: 877-726-2228
Fax: 847-468-5750
Internet: www.panasonic.com/industrial/batteries-oem
e-mail: ombatteries@us.panasonic.com

Product: Nickel Metal Hydride Batteries (Ni-Mh)

Applicable models/sizes: All

Revision: January 1, 2015

The batteries referenced herein are exempt articles and are not subject to the OSHA Hazard Communication Standard requirement. This sheet is provided as a service to our customers.

MSDS

Material Safety Data Sheets (MSDS) are a sub-requirement of the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR Subpart 1910.1200. This Hazard Communication Standard does not apply to various subcategories including anything defined by OSHA as an "article". OSHA has defined "article" as a manufactured item other than a fluid or particle; (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g. minute or trace amounts of a hazardous chemical, and does not pose a physical hazard or health risk to employees.

Because all of our batteries are defined as "articles", they are exempt from the requirements of the Hazard Communication Standard; hence a MSDS is not required.

The following components are found in a Panasonic Nickel-Metal Hydride battery:

| Component | Material | Formula | CAS # |
|--------------------|---------------------|---------------------------------|---------------------------------|
| Positive Electrode | Nickel II Hydroxide | Ni(OH) ₂ | 12054-48-7 |
| Negative Electrode | Metal Hydride Alloy | AB ₅ Type (See Note) | AB ₅ Type (See Note) |
| Electrolyte | Potassium Hydroxide | KOH | 1310-58-3 |
| | Sodium Hydroxide | NaOH | 1310-73-2 |
| | Lithium Hydroxide | LiOH | 1310-65-2 |

NOTE: Components of AB₅ alloy include: Lanthanum (La) – CAS# 7439-91-0, Cerium (Ce) – CAS#7440-45-1, Neodymium (Nd) – CAS#7440-00-8, Praseodymium (Pr) – CAS#7440-10-0)

The overall reaction is: $MH + NiOOH \rightleftharpoons M + Ni(OH)_2$

Disposal



All Panasonic Nickel Metal Hydride batteries are classified by the federal government as a non-hazardous waste and are safe for disposal in the normal municipal waste stream. Exception: California, which requires these batteries to be disposed of in accordance with the California Universal Waste Rules. These batteries, however, do contain recyclable materials. Panasonic is a Licensee of the Call2Recycle Battery Recycling Program. If you build our cells into a battery pack, please call 1-800-8-BATTERY or go to the Call2Recycle website at www.call2recycle.org for additional information on how your branded product can also participate in the program.

Notice: The information and recommendations set forth are made in good faith and are believed to be accurate at the date of preparation. Panasonic Industrial Company makes no warranty expressed or implied.

Transportation

Nickel Metal Hydride batteries (sometimes referred to as “Dry cell” batteries) are not listed as dangerous goods under the International Civil Aviation Organization (ICAO), 2015-2016 edition, International Air Transport Association (IATA), 56th edition, U.S. Department of Transportation. (DOT), 49 CFR. These batteries are not subject to the dangerous goods regulations provided they meet the requirements contained in the following Special Provisions. Special Provision A123 in the IATA Dangerous Goods Regulations and ICAO Technical Instructions and Special Provision 130 in 49 CFR 172.102 of the U.S. hazardous materials regulations require these batteries to be packed in such a way to prevent short circuits or generating a dangerous quantity of heat. In addition, the IATA Dangerous Goods Regulations and ICAO Technical Instructions require the words “Not Restricted” and “Special Provision A123” to be provided on the air waybill, when an air waybill is issued. Effective January 1, 2012 the International Maritime Organization (IMO) regulates shipments by ocean, in excess of 100 Kg, as a Class 9 dangerous good under UN 3496 and Special Provision 117 and 963.

First Aid

If you get electrolyte in your eyes, flush with water for 15 minutes without rubbing and immediately contact a physician. If you get electrolyte on your skin wash the area immediately with soap and water. If irritation continues, contact a physician. If a battery is ingested, call the National Capital Poison Center (NCPC) at 202-625-333 (Collect) or your local poison center immediately

General Recommendations

CAUTION: May explode or leak if short-circuited, inserted improperly, mixed with different battery types or disposed of in fire. Do not open battery.

Fire Safety

In case of fire, use a smothering agent such as dry sand, dry ground dolomite or soda ash. If you use water, use enough to smother the fire. Using an insufficient amount of water could possibly make the fire worse. Cooling the exterior of the batteries will help prevent rupturing. Burning of these batteries will generate toxic fumes. Fire fighters should use self-contained breathing apparatus

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