# MATERIAL SAFETY DATA SHEET

The batteries are exempt articles and are not subject to the OSHA Hazard Communication Standard Requirement. This sheet is only provided as technical information and is referred normal use of the product in question. Zeus makes no warranty expressed or implied.

## SECTION 1 - Product and Company Identification

| | |
|---|---|
| **Product Name:**<br>Nickel Metal Hydride Battery | **Sizes:**<br>All NiMH Series |
| **Company:**<br>PowerCell LLC dba ZEUS Battery Products | **Telephone Number:**<br>+1 (630) 295-6800 |
| **Address:**<br>191 Covington Dr.<br>Bloomingdale, IL 60108<br>USA | **Fax Number:**<br>+1 (630) 295-6801 |
| | **Date of Preparation:**<br>August 26th, 2024 |

## SECTION 2 - Hazardous Ingredients / Identity Information

Hazardous Components:

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

| Element | CAS# | Limit (mg/kg) |
|---|---|---|
| Lead | 7439-92-1 | <1000 |
| Cadmium | 7440-43-9 | <100 |
| Hexavalent Chromium (Cr6+) | 18540-29-9 | <1000 |
| Mercury | 7439-97-6 | <1000 |
| Polybrominated Biphenyls (PBBs) | 59536-65-1 | <1000 |
| Polybrominated Diphenyls Ethers (PBDEs) | --- | <1000 |

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

| Element | CAS# | Limit (mg/kg) |
|---|---|---|
| Lead | 7439-92-1 | <40 |
| Cadmium | 7440-43-9 | <20 |
| Hexavalent Chromium (Cr6+) | 18540-29-9 | <5 |
| Mercury | 7439-97-6 | <5 |
| Polybrominated Biphenyls (PBBs) | 59536-65-1 | Nil |
| Polybrominated Diphenyls Ethers (PBDEs) | --- | Nil |
| $Ni(OH)_2$ (Nickel Hydroxide) | 12054-48-7 | <30% |
| 30% KOH Solution (Potassium Hydroxide) | 1310-58-3 | <20% |
| 30% NaOH Solution (Sodium Hydroxide) | 1310-73-2 | <20% |
| Non-Hazardous Materials | --- | <30% |

NA = Not Applicable

## SECTION 3 - Physical / Chemical Characteristics

| | |
|---|---|
| Boiling Point: | NA |
| Vapor Pressure (mm Hg): | NA |
| Vapor Density (AIR=1): | NA |
| Melting Point: | NA |
| Specific Gravity ($H_2O$=1): | NA |
| Evaporation Rate (Butyl Acetate): | NA |

Solubility Water: NA

Appearance and Odor: Cylindrical Shape, odorless

## SECTION 4 - Hazard Classification

Classification: NA

## SECTION 5 - Reactivity Data

| | | |
|---|---|---|
| Stability | Stable | Conditions to Avoid: NA |
| Incompatibility (Materials to Avoid) | NA | |
| Hazardous Decomposition or Byproducts | NA | |
| Hazardous Polymerization | Will not occur | Conditions to Avoid: NA |

## SECTION 6 - Health Hazard Data

### Route(s) of Entry

| | |
|---|---|
| Inhalation: | NA |
| Skin: | NA |
| Ingestion: | NA |

### Health Hazard (Acute and Chronic) / Toxicological information

In case of electrolyte leakage, skin will be itchy when contaminated with electrolyte.
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 7 - First Aid Measures

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 8 - Fire and Explosion Hazard Data

| | |
|---|---|
| Flash Point (Method Used): | NA |
| Ignition Temp: | NA |
| Lower Explosive Limit: | NA |
| Upper Explosive Limit: | NA |
| Flammable Limits: | NA |

**Extinguishing Media:**

It is permissible to use Carbon Dioxide, Dry Chemical or Foam extinguishers on the batteries or their packing material, BUT water extinguisher is not suitable. Cool exterior of batteries if exposed to fire to prevent rupture.

**Special Fire Fighting Procedures:**

Fire fighters should wear self-contained breathing apparatus.

**Unusual Fire and Explosion Procedures:**

Do not dispose of battery in fire – may explode.
Do not short-circuit battery – may cause burns.

## SECTION 9 - 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 positive pressure Self-Contained Breathing Apparatus (SCBA).

## SECTION 10 - 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 11 - Exposure Controls / Person Protection

| | | |
|---|---|---|
| Occupational Exposure Limits - LTEP | | NA |
| | - STEP | NA |
| Respiratory Protection (Specify Type) | | NA |
| Ventilation | - Local Exhausts | NA |
| | - Mechanical (General) | NA |
| | - Special | NA |
| | - Other | NA |
| Protective Gloves | | NA |
| Eye Protection | | NA |
| Other Protective Clothing or Equipment | | NA |
| Work / Hygienic Practices | | NA |

## SECTION 12 - Ecological Information

NA

## SECTION 13 - Disposal Method

Dispose of batteries according to government regulations.

## SECTION 14 - Transportation Information

**Nickel Metal Hydride Battery**
**Dry Cell**
**Nickel Metal Hydride Batteries have passed UN38.3 testing.**

**U.S DOT:** The Transportation of Nickel Metal Hydride batteries (Dry Cell) are governed by US DOT CFR49 Part 171-185 of the US Hazardous Materials Regulations (HMR). "Dry Cell" batteries are unregulated for purposes of transportation by the U.S. Department of Transportation (DOT).

**IATA Dangerous Goods Regulations DGR:** The International Air Transportation of Nickel Metal Hydride batteries (Dry Cell) are governed International Air Transport Association IATA. The Transportation of "Dry Cell" batteries are "NOT RESTRICTED" in accordance with Special Provision A 123.

**IMDG:** The international Sea Transportation of Nickel Metal Hydride batteries (Dry Cell) are governed by the International Maritime Dangerous Goods (IMDG) regulations.

## SECTION 15 - Regulatory Information

Special requirement be according to the local regulatories.

## SECTION 16 - Other Information

The data in this Material Safety Data Sheet relates only to the specific material designated herein.
If you need further information, please contact a Zeus sales representative.