



Material Safety Data Sheet

Document Number **PG-MSDS-0001** Revision: 02
Configuration **Nickel / Zinc Batteries, Sizes AA, SUB-C, D**

Section I Chemical Name and Company Information

Name of chemical

This is a manufactured product that does not fall under a chemical designation.

Product: Nickel Zinc Battery (Cell), Size AA, SUB C, D

Manufacturers Name

PowerGenix

Emergency Telephone Number

1 (858) 547-7300

Address (Number, Street, City State, and Zip Code)

10109 Carroll Canyon Road
San Diego, CA 92131

Telephone Number for Information

1 (858) 547-7300

Date Prepared

14-Sep-09

Signature of Preparer

Electronic:

Richard M. Bendert, Engineering Manager

Section II Ingredients/Identity Information

The ingredients are contained in a hermetically sealed case, designed to withstand temperatures and pressures encountered during normal use. As a result, during normal use, hazardous materials are fully contained inside the battery. The battery should not be opened or exposed to heat because exposure to the following ingredients contained within could be harmful under some circumstances. The following information is provided for the user's information only.

Chemical Name	CAS #	Approximate % of Total Weight
Nickel Hydroxide	12054-48-7	<20%
Potassium Hydroxide	1310-58-3	<10%
Lithium Hydroxide	1310-66-3	<1%
Zinc Oxide	1314-13-2	<19%
Cobalt	7740-48-4	<1%

Section III Hazard Identification

Effects of a Single (Acute) Overexposure:

Inhalation: During normal use inhalation is an unlikely route of exposure due to containment of hazardous materials within the battery case. However, should the batteries be exposed to extreme heat or pressures causing a breach in the battery cell case, exposure to the constituents may occur. Inhalation of cobalt dusts may result in pulmonary conditions.

Ingestion: If the battery case is breached in the digestive tract, the electrolyte may cause localized burns.

Skin Absorption: No evidence of adverse effects from available data. **Skin Contact:** Exposure to the liquid contained inside the battery may result in chemical burns. Exposure to nickel may cause dermatitis in some sensitive individuals.

Eye Contact: Exposure to the liquid contained inside the battery may result in severe irritation and chemical burns.



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Section IV First Aid Measures

First Aid Procedures

-If liquid leakage occurs and makes contact with skin, flush area with water immediately
-If liquid comes into contact with eyes, wash with copious amounts of water for fifteen (15) minutes, and contact a physician.
-If liquid vapors are inhaled, provide fresh air and seek medical attention if respiratory irritation develops.

Section V Fire and Explosion Hazard Data

Flash Point	Flammable Limits	LEL
N/A	N/A	N/A
	Ignition Temp.	UEL
	N/A	N/A

Extinguishing Media

Carbon Dioxide, Dry Chemical, or Foam extinguishers

Special Fire Fighting Procedures

N/A

Unusual Fire and Explosion Hazards

Do not dispose of battery in fire- may explode

Section VI Accidental Release or Spill

Steps to be taken in case material is released or spilled

Batteries that are leaking should be handled with rubber gloves

Avoid Direct contact with liquid.

Wear Protective cloths and a positive pressure Self-Contained Breathing Apparatus (SCBA)

Section VII 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 breath cell vapors or touch internal material with bare hands.

Keep batteries between -30° and 35°C for prolonged storage.

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Section VIII Exposure Controls / Personal Protection		
Occupational Exposure Limits N/A	LTEP N/A	STEP N/A
Respiratory Protection (Specify Type)		
Ventilation N/A	Local Exhausts N/A	Special N/A
Protective Gloves N/A	Mechanical (General) N/A	Other N/A
Other Protective Clothing or Equipment N/A		
Work / Hygienic Practices N/A		

Section IX Physical / Chemical Properties		
Boiling Point N/A	Specific Gravity (H2O=1) N/A	Solubility in Water N/A
Vapor Pressure N/A	Melting Point N/A	Appearance and Odor Cylindrical Shape, Odorless
Vapor Density N/A	Evaporation Rate (Butyl Acetate) N/A	

Section X Reactivity Data							
Stability	Unstable		Conditions to avoid				
	Stable	X					
Incompatibility (Materials to avoid) N/A							
Hazardous Decomposition or Byproducts N/A		Hazardous Polymerization	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">May Occur</td> <td style="width: 50%;"></td> </tr> <tr> <td>Will Not Occur</td> <td style="text-align: center;">X</td> </tr> </table>	May Occur		Will Not Occur	X
May Occur							
Will Not Occur	X						

Section XI Toxicological Information			
Route(s) of Entry	Inhalation? N/A	Skin? N/A	Ingestion? N/A
Health Hazard (Acute and Chronic) / Toxicological Information			
<p>In case of liquid leakage, contact with skin can cause severe irritation and chemical burns. Inhalation of liquid vapors may cause irritation of the upper respiratory tract and lungs. Improperly charged, discharged, or short-circuited cells will be hot, may cause burns.</p> <p>Carcinogenicity: Nickel has been identified by the National Toxicology Program (NTP) as reasonably anticipated to be a carcinogen. Cobalt has been identified by IARC as a 2B carcinogen.</p> <p>Other Effects of Repeated (Chronic) Exposure: Chronic overexposure to nickel may result in cancer; dermal contact may result in dermatitis in sensitive individuals.</p> <p>Medical Conditions Aggravated by Overexposure: A knowledge of the available toxicology information and of the physical and chemical properties of the material suggests that overexposure is unlikely to aggravate existing medical conditions.</p>			

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Section XII Ecological Information

Under normal use this battery is not hazardous to the ecology. If the battery case is broken, the chemicals inside the battery are harmful to the environment and must be disposed of properly.

Nickel Zinc Batteries are RoHS compliant..

Section XIII Disposal Method

PowerGenix encourages battery recycling. Our nickel zinc batteries are recyclable through the Rechargeable Battery Recycling Corporation (RBRC). For information call 1-800-8-BATTERY or see their website at www.rbrc.org. Nickel zinc batteries must be handled in accordance with all applicable state and federal laws and regulations.



Section XIV Transportation Information

PowerGenix batteries are considered to be "Dry Cell" batteries and are unregulated for the purpose 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 DOT requirement for shipping Nickel Zinc 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) 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 requires batteries being transported by air must be protected from short-circuiting and protected from movement that could lead to short-circuiting in addition, the words "Not Restricted" and "Special Provision A123" are required on the air waybill, when an air waybill is issued.

Section XV Regulatory Information

No additional regulatory information is known.

Section XVI Other Information

None