

Safety Data Sheets (SDSs)

Section 1 - Identification

Product Name: Nickel Cadmium Battery Rechargeable Battery (NICD Battery)

Recommended Use: General use

Restrictions on Use: N/A

Section 2 – Hazard(s) Identification

In case of fire, it is permissible to use any class of extinguishing medium on these batteries or their packing materials. Cool exterior of batteries if exposed to fire to prevent rupture.

Fire fighters should wear self-contained breathing apparatus. Nickel-Cadmium batteries involved in a fire can vent and produce toxic fumes including nickel, nickel oxide, cadmium, cadmium oxides, and cobalt oxides.

Required Label Elements: N/A

Section 3 – Composition/Information on Ingredients

MATERIAL OR INGREDIENTS	% W. t.
Cadmium as cadmium metal cadmium oxide cadmium hydroxide	8-22
Cobalt as cobalt metal cobalt oxide cobalt hydroxide	1-2
Nickel as nickel metal nickel oxide nickel hydroxide	20-30
Mercury	0-0.0005
Lead as lead metal lead oxide	0-0.004
Potassium Hydroxide	<6
Sodium Hydroxide	<6

Trade Secret Claims: N/A

Section 4 – First-aid Measures

Under normal conditions of use, the battery is hermetically sealed.

Eye Contact:

Contents of an open battery can cause severe irritation and chemical burns. Immediately flush eyes thoroughly with water for at least 15 minutes, lifting upper and lower lids, until no evidence of the chemical remains. Seek medical attention.

Skin Contact:

Contents of an open battery can cause skin irritation and/or chemical burns. Nickel, nickel compounds, cobalt, and cobalt compounds can cause skin sensitization and an allergic contact dermatitis. Remove contaminated clothing and wash skin with soap and water. If a chemical burn occurs or if irritation persists, seek medical attention.

Inhalation:

Contents of an open battery can cause respiratory irritation. Hypersensitivity to nickel can cause allergic pulmonary asthma. Provide fresh air and seek medical attention.

Ingestion:

Swallowing a battery can be harmful. Contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract.

Section 5 – Fire-fighting Measures

If fire or explosion occurs when batteries are on charge, shut off power to charge.

In case of fire, it is permissible to use any class of extinguishing medium 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.

Section 6 - Accidental Release Measures

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 7 - Handling and Storage

Storage:

Store in a cool, well ventilated area. Elevated temperatures can result in shortened battery life.

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.

Mechanical Containment:

Never seal or encapsulate nickel metal hydride batteries.

Do not obstruct safety release vents on batteries. Encapsulation (potting) of batteries will not allow cell venting and can cause high pressure rupture.

Handling:

Accidental short circuit for a few seconds will not seriously affect the battery. However, this battery is capable of delivering very high short circuit currents. Prolonged short circuits will cause high cell temperatures which can cause skin burns. Sources of short circuits include jumbled batteries in bulk containers, metal jewelry, and metal covered tables or metal belts used for assembly of

batteries into devices.

Do not open battery. The negative electrode material may be pyrophoric. Should an individual cell from a battery become disassembled, spontaneous combustion of the negative electrode is possible. This is much more likely to happen if the electrode is removed from its metal container. There can be a delay between exposure to air and spontaneous combustion.

Charging:

This battery is made to be charged many times. Because it gradually loses its charge over a few months, it is good practice to charge battery before use. Use recommended charger. Improper charging can cause heat damage or even high pressure rupture. Observe proper charging polarity.

Section 8 - Exposure Controls / Personal Protection

Ventilation Requirements:

Not necessary under normal conditions.

Respiratory Protection:

Not necessary under normal conditions.

Eye Protection:

Not necessary under normal conditions. Wear safety glasses with side shields if handling an open or leaking battery.

Gloves:

Not necessary under normal conditions. Use neoprene or natural rubber gloves if handling an open or leaking battery.

Open Battery Storage:

Battery should not be opened. Should a cell become disassembled, the electrode should be stored in a fireproof cabinet, away from combustibles.

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.		

OSHA's Permissible Exposure Limits (PELs): N/A

Threshold Limit Values (TLVs): N/A

Section 9 - Physical and Chemical Properties

Boiling Point: N.A.	Specific Gravity (H2O=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 10 - Stability and Reactivity

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 11 - Toxicological Information

The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful.

Numerical Measures of Toxicity: No toxicity.

Section 12 - Ecological Information

Ecological toxicity: No information available.

Biodegradability: No information available.

Non- biodegradability: No information available.

Section 13 - Disposal Considerations

Dispose of batteries according to government regulations.

Section 14 - Transport Information

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, non-regulated Per special provision in A123) and International Maritime Dangerous Goods Regulations (IMDG). The only DOT requirement for shipping these batteries is special provision 130 which states: "Batteries, 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). As of 1/1/97 IATA requires that batteries being transported by air must be protected from short-circuiting and protected from movement that could lead to short-circuiting.

Section 15 - Regulatory Information

Special requirement be according to the local regulatory.

Section 16 - Other Information

The above information is based on the data of which we are aware and is believed to be correct as of the data hereof. Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the data hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

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