



Material Safety Data Sheet Sealed Nickel Cadmium Rechargeable Batteries

Company Identification

Manufacturer's Name:
SEC Industrial Battery Company

Product

Date: January 2007
Product & Brand Name:
SEC Nickel Cadmium
Pocket Plate

Section 1 - Product Identification

Product: Sealed Nickel Cadmium Rechargeable Batteries
Trade Name: SEC Nickel Cadmium Pocket Plate
Nominal Voltage: 1.2V
Electrodes: Positive: Nickel Oxyhydroxide, Negative: Cadmium
Electrolyte: Potassium Hydroxide

Section 2 - Hazardous Ingredients/Identity Information

Components	CAS Number	% 1	OSHA PEL 0g/m ³	ACGIH TLV (0/m ³)
Cadmium	7440-43-9	11-26	0.005 TWA ²	0.05 TWA
Cadmium Hydroxide	21041-95-2	11-26	0.005 TWA	0.05 TWA
Nickel Powder	7440-02-0	8-17	1 TWA	1 TWA
Nickel Hydroxide	12054-48-7	5-12	1 TWA	1 TWA
Potassium Hydroxide	1310-58-3	<3	2 Ceiling	2 Ceiling
Nylon	N/A	<2	N/A	N/A
Steel	N/A	12-13	N/A	N/A
Other	N/A	<1	N/A	N/A

Notes: 1. Concentration may vary depending on the stage of charge or discharge. 2. TWA is the Time Weighted Average concentration over an 8-hour period

Section 3 – Physical Properties

Each battery cell is a sealed cylindrical container enclosing a cadmium electrode nickel electrode and KOH or NaOH electrolyte.

	Cadmium	Cadmium Hydroxide	Nickel Powder	Nickel Hydroxide	Potassium Hydroxide
Melting Point °F	610	N/A	2,831	*	**
% Volatile by Vol.	N/A	N/A	N/A	N/A	N/A
Evaporation Rate	N/A	N/A	N/A	N/A	N/A
Specific Gravity (H ₂ O)	8.65 @ 77°F	4.79	8.90	N/A	N/A
Solubility in Water	Insoluble	Practically insoluble	Insoluble	Insoluble	Soluble in 0.9 parts water, 0.6 part in boiling water
Boiling Point °F	1,407	N/A	5,134	N/A	N/A
Vapor Pressure (mm Hg)	N/A	N/A	N/A	N/A	N/A
Vapor Density (air=1)	N/A	N/A	N/A	N/A	N/A
Appearance and Odour	Silver-white, blue tinged, lustrous metal	Powder	Powder	Apple green powder	White or slightly yellow

* Decomposes above 392°F into NiO and water ** Potassium Hydroxide is present as a liquid or paste and acts as the electrolyte in the battery cell.

Section 4 - Fire and Explosion Hazard Data

Flash Point: N/A

Flammable Limits: LEL = N/A
UEL = N/A

Extinguishing media: Dry chemical, CO₂, water spray, or alcohol-resistant foam

Special Fire Fighting

Procedures: Use full body protective clothing and full face piece.
Self-contained breathing apparatus in a positive pressure mode.
Molten and overheated Cd and Ni produce fume, vapour or dust.
Under these conditions, Ni or Cd is suspected carcinogen.
KOH is highly caustic. Contact with eye and skin must be avoided.
No heating or smoking during handling or inspection.
Do not cause sparks.

SECTION 5 - Health Hazard Data

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

Ingestion: Contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract. Contents include toxic cadmium compounds that can cause excessive salivation, choking, nausea, persistent vomiting, diarrhea, abdominal pain, dizziness, faintness, unconsciousness, and possible liver and kidney injury. If a battery or open battery is ingested, do not induce vomiting or give food or drink. Seek medical attention immediately.

Inhalation: Contents of an open battery can cause respiratory irritation. Cadmium oxide fumes and cause metal fume fever. Hypersensitivity to nickel can cause allergic pulmonary asthma. Provide fresh air and seek medical attention.

Skin Contact: Contents of an open battery can cause skin irritation and/or chemical burns. Cobalt, cobalt compounds, nickel, and nickel 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.

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.

Section 6 - Reactivity Data

Stability: Stable

Conditions to Avoid: Avoid shorting batteries such as contacting across terminals

Unstable: With any metal object. Avoid continuous temperatures over 190°F.

Hazardous Decomposition

Products: Nickel compounds, Cadmium compounds, and caustic liquid.

Incompatibility: (materials to avoid) Do not fill cells with Lead Acid Battery electrolyte (Sulfuric Acid).

Section 7 - Health Hazard Data

Inhalation: Fumes irritate nose and throat but fumes generated only if batteries are on charge (not a transportation condition).

Eye Contact: Severe irritation. Possible corneal damage. Flush with water for 15 minutes.

Skin Contact: Severe irritation and inflammation. Flush with water. Obtain medical attention.

Skin Absorption: Severe irritation and inflammation. Flush with water. Obtain medical attention.

Ingestion: Severe inflammation or internal tissues. Contact physician immediately.

FIRST AID

Inhalation: Not applicable to batteries in transit but if on charge in confined poorly ventilated area and fumes irritating remove person to fresh air.

Eyes: Hold eyelids open and flush with clean water for 15 minutes. Get medical help promptly.

Section 8 - Precautions for Safe Handling and Use

Spill or Leak Procedures: Clean up personnel should wear safety goggles, rubber gloves, rubber boots and rubber apron. Use weak acids, ex: boric acid, acetic acid.

Waste Disposal Methods: Consult waste disposal business for proper disposition. Do not empty in common sewer systems.

Handling: Rubber boots and rubber aprons, chemical goggles or full-face shield should be worn.

Storage: Cells/Batteries to be stored in standard battery room conditions.

Section 9 - Other Regulatory Information

IATA

The international transportation of wet and moist charged (moist active) batteries is regulated by the International Air Transport Association (IATA).

These regulations also classify these types of batteries as a hazardous material.

The batteries must be packed according to IATA Packing Instruction 800.

The shipping information is as follows:

Proper Shipping Name: Batteries, wet, filled with alkali

Hazardous Class: 8

UN Identification: UN2795

Packing Group: III

Label / Placard Required: Corrosive

IMDG

The international transportation of wet and moist charged (moist active) batteries is regulated by the International Maritime Dangerous Goods code (IMDG).

These regulations also classify these types of batteries as a hazardous material.

The batteries must be packed according to IMDG code pages 8120 and 8121.

The shipping information is as follows:

Proper Shipping Name: Batteries, wet, filled with alkali

Hazardous Class: 8

UN Identification: UN2795

Packing Group: III

Label / Placard Required: Corrosive