NICKEL METAL HYDRIDE SEALED CELLS AND BATTERY ASSEMBLIES



Dantona Industries 3051 Burns Ave. Wantagh, NY 11793 For Chemical emergency Spill, Leak, Fire, Exposure, or Accident CALL CHEMTREC – Day or Night 800–424–9300

NICKEL METAL HYDRIDE SEALED CELL BATTERY

HMIS RATINGS

1 Flammability

2 Reactivity

1. HEALTH HAZARD INFORMATION

3 Health

Effects of Overexposure

Eye Effects: In the case of a fire or cell rupture, the electrolyte solution inside the battery is extremely corrosive to eye tissues. May result in permanent blindness. Contact with the nickel oxide may cause minor irritation.

- Skin Effects: Contact with electrolyte solution inside battery may cause serious burns to skin tissues. Contact with nickel compounds may cause skin sensitization, resulting in chronic eczema or nickel itch.
- **Ingestion:** Ingestion of electrolyte solution causes damage to throat area and gastro / respiratory tract. Ingestion of nickel compound causes nausea and intestinal disorders.

Inhalation: No exposure possible except in the case of fire or abuse. Effects of inhalation of metallic compounds vary from mild irritation of nasal mucous membranes to damage of lung tissues proper. Inhalation may cause dry throat, cough, headache, vomiting, chest pain and chills.

Carcinogenicity: NIOSH recommends that nickel be treated as an occupational carcinogens.

2. EMERGENCY FIRST AID

Battery Electrolyte

- **Eye Contact:** Flush with plenty of water for at least 15 minutes if abuse causes safety vents to activate. Get immediate medical attention.
- Skin Contact: Remove contaminated clothing and flush affected areas with plenty of water for at least 20 minutes. Wash with soap and water.
- **Ingestion:** Do not induce vomiting. Dilute by giving water. If available, give several glasses of milk. Get immediate medical attention. Do not give anything by mouth to an unconscious person.
- Inhalation: Remove to fresh air. Give oxygen or artificial respiration, if needed. Get immediate medical attention.

3. SPECIAL PROTECTION INFORMATION

Respiratory Protection: Use NIOSH/MSHA approved respirator if cell is broken open during a fire to maintain exposure levels below the TWA for metal-based compounds.

Eye Protection: Use splash goggles or face shield if cell activates due to abuse.

Hand Protection: If exposure to electrolyte solution, or dried salts is likely, use any water insoluble non-permeable glove, i.e., synthetic rubber. DO NOT use leather or wool.

Other Protective Equipment: Rubber apron or equivalent, if exposure to electrolyte solution is likely.

4. REACTIVITY DATA

Incompatibilities: Electrolyte will attack, corrode, or react with aluminum, zinc, tin, and other active metals, acid, chlorinated and aromatic hydrocarbons, nitro carbons, and halocarbons.

Hazardous Decomposition Products: Nickel oxide, and other metal oxides, (see section 6), and potassium hydroxide.

Hazardous Polymerization will not occur.

5. FIRE AND EXPLOSION HAZARDS

Extinguishing Media

CO², Sand, Dry Chemical (Purple K)

	Meiting Point	Bolling Point
Nickel	2645° F	4950° F
Nickel Hydroxide	N/A	445° F (Decomposes to NiO)
Nickel Oxide	3605° F	3990° F (Decomposes to Ni and O ²)

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Special Fire Fighting Procedures

Use self-contained breathing apparatus to avoid breathing toxic fumes. Wear protective clothing and equipment to prevent potential body contact with electrolyte solution or mixture of water and solution.

Fire and Explosion Hazards

Electrolyte solution is corrosive to all human tissues. It will react violently with many organic chemicals, especially Nitro carbons and chlorocarbons. Electrolyte solution reacts with zinc, aluminum, tin, and other active materials releasing flammable hydrogen gas.

Toxic fumes may be released when batteries are subjected to high temperatures. In case of fire, do not breathe smoke and fumes !

6. INGREDIENTS

Nickel Cobalt Manganese Aluminum KOH solution Steel Lanthanides Plastics Zinc CAS# 7440-02-0 7440-48-4 7439-96-5 7429-90-5 1310-58-3

EXPOSURE LIMITS QUANTITY 1.0 mg/m3 – OSHA = 39% 0.1 mg/m³ dust – OSHA = 5% $0.2 \text{ mg}/\text{m}^3 - \text{OSHA}$ = 1.5% 5.0 mg / m³ – OSHA = < 1%2.0 mg / m3 -ACGIH Ceiling Air = 12% None Established-None Established None Established = 41.5% None Established

7. PHYSICAL PROPERTIES

Boiling Point -Vapor Pressure -Specific Gravity -Solubility in water - Not Applicable Not Applicable 1.170 – 1.250 (Electrolyte) Electrolyte solution is completely soluble. Melting Point – Not Applicable Vapor Density - Not Applicable Evaporation Rate – Not Determined Remainder – is insoluble.

8. SPILL MANAGEMENT PROCEDURES

Electrolyte Spills – Flush with water and neutralize with dilute citric acid.

9. **DISPOSAL INFORMATION**

The storage battery is **NOT** a hazardous waste under RCRA.

Battery is **NOT** TCLP Toxic. If not recycled, must be disposed of in accordance with all federal, state, and local regulations.

10. PRECAUTIONS AND COMMENTS

These cells and the batteries constructed from them may be highly charged and capable of high-energy discharge. Care should be taken to handle cells properly to avoid shorting or misuse that will result in rapid uncontrolled electrical, chemical, or high energy release.

Do not short circuit - may cause burns.

Do not break open cell.

Do not allow an exposed flame or spark to come near the cells.

11.TRANSPORTATION

Ultralast sealed Nickel Metal Hydride batteries are considered to be "dry cell" batteries and are not subject to dangerous goods regulation for the purpose of transportation by the U. S. Department of Transportation (DOT), the International Civil Aviation Organization (ICAO), the International Air Transport Association (IATA), or the International Maritime Dangerous Goods regulations (IMDG). The only DOT requirement for shipping Nickel Metal Hydride 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). " IATA requires that batteries being transported by air must be protected from short-circuiting and protected from movement that could lead to short-circuiting. The information and recommendations set forth are made in good faith and believed to be accurate as of the date of preparation. Dantona Industries makes no warranty, expressed or implied, with respect to this information and disclaims all liabilities from reliance on it.