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SAFT

M 8902

NIFE

MATERIAL SAFETY DATA SHEETS
NICKEL CADMIUM INDUSTRIAL BATTERIES

SAFT NIFE Inc
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Valdosta, GA 31601
Phone #912-247-2331
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For Chemical Emergency
Spill, Leak, Fire, Exposure or Accident
CALL CHEMTREC - Day or Night
800-424-9300

HMIS Ratings: 3 HEALTH 1 Flammability 2 Reactivity

1. HEALTH HAZARD INFORMATION

Effects of Overexposure

Eye Effects: Contact with electrolyte solution inside battery causes very rapid, severe damage. Extremely corrosive to eye tissues. May result in permanent blindness. Contact with nickel may cause minor irritation.

Skin Effects: Contact with electrolyte solution inside battery may cause serious burns to skin tissues Contact with nickel may cause skin sensitization, resulting in chronic eczema or nickel itch.

Ingestion: Ingestion of electrolyte solution causes tissue damage to throat area and gastro/respiratory tract. Ingestion of nickel oxide causes nausea and giddiness.

Inhalation: During activation procedures mist generated may cause varying degrees of irritation of the nasal mucous membranes and respiratory tract tissues. May vary from mild irritation of nasal mucous membranes to damage of lung tissues proper. Inhalation of cadmium oxide may cause dry throat, cough, headache, vomiting, chest pain, chills, excessive overexposure may result in pulmonary emphysema, corpulmonale.

Carcinogenicity: Nickel and Cadmium have been reported as carcinogenic in animal tests.

2. EMERGENCY FIRST AID

Battery Electrolyte:

Eye Contact: Flush with plenty of water for at least 15 minutes. Get immediate medical attention.

Skin Contact: Remove contaminated clothing and flush affected areas with plenty of water for at least 15 minutes.

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.

Nickel:

Skin Contact: Wash with cold water and soap.

3. SPECIAL PROTECTION INFORMATION

Perform activation procedures in a well ventilated area. Battery operating areas must be well ventilated to remove normal gases generated.

Respiratory Protection: Use NIOSH approved mist respirator if necessary during activation and actual usage.

Eye Protection: Use splash goggles or face shield whenever handling a battery.

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

Other Protective Equipment: Rubber Boots, rubber apron or rainwear or equivalent if exposed to electrolyte solution.

4. REACTIVITY DATA

Stable under normal conditions.

CAUTION: NEVER ACTIVATE OR TOP OFF WITH ACID.

Incompatibilities: Aluminum, zinc, tin and other nonferrous metals, acid, chlorinated and aromatic hydrocarbons, nitrocarbons, halocarbons. Trichloroethylene will react with electrolyte solution to form dichloroacetylene which is spontaneously combustible.

Hazardous Decomposition Products: Nickel oxide, cadmium, cadmium oxide, and potassium hydroxide. Note that normal reactions inside battery liberate flammable hydrogen gas. Do not seal battery from atmosphere.

Hazardous Polymerization will not occur.

Case Material	Polypropylene	Acrylic	Polysulfone
Melting Point	279°F	210°F	374°F
Decomposition (non-violent)		550°F	
Auto Ignition		570°-580°F	1022°F (550°C)

Extinguishing Media

CO_2, Dry Chemical, Foam Water Spray

	Melting Point	Boiling Point
Cadmium	321°C	767°C
Cadmium Oxide	1400°C	900-1000°C decomp
Nickel	1455°C	2900°C

Special Fire Fighting Procedures

Use self-contained breathing apparatus, 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 nitrocarbons and chlorocarbons. Electrolyte solution reacts with zinc, aluminum, tin and other active materials releasing flammable hydrogen gas.

Cadmium fumes may be released when batteries are subjected to high temperatures.

6. INGREDIENTS

INGREDIENTS	EXPOSURE LIMITS	QUANTITY
Acrylic Polymer Container	None Established — OSHA	
Polysulfone Container	None Established — OSHA	= 10%
Polypropylene Container	None Established — OSHA	
Nickel Oxide, Solid	1 mg/m³ — OSHA	= 10%
Lithium Hydroxide	None Established — OSHA	< 1%
Graphite	15 mppcf use respirator	= 3%
Electrolyte Solution (18-28% potassium hydroxide)	2 mg/m³ ACGIH CEILING-Air	= 28%
Steel	None Established — OSHA	= 39%
Cadmium Oxide, Solid	0.1 mg/m³ fume — OSHA 0.2 mg/m³ dust — OSHA 0.05 mg/m³ ACGIH Ceiling	= 9%

7. PHYSICAL PROPERTIES

Boiling Point —	Not Applicable	Melting Point —	Not Applicable
Vapor Pressure —	2 mm Hg at 68° F	Vapor Density —	Not Applicable
Specific Gravity —	1.180 — 1.250 (electrolyte)	Evaporation Rate —	Not Determined
Solubility in Water—	Electrolyte solution is completely soluble.	REMAINDER —	is insoluble.

8. SPILL MANAGEMENT PROCEDURES

Electrolyte Solution Spills

Small (up to 5 gallons): Flush with water and neutralize with dilute acid.

Large: Contain material in suitable containers or holding area. Do NOT allow material to enter sewers, streams or storm conduits. Recover material with vacuum truck and dispose of properly. Reportable Quantity: 1000 pounds. 40 CFR 117.13.

9. DISPOSAL INFORMATION

The storage battery is a hazardous waste under RCRA.

Battery is EP Toxic. Battery and electrolyte solution are corrosive. Dispose 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 active and capable of rapid generation of electrical energy. Care should be taken to handle cells properly to avoid shorting or misuse that will result in rapid uncontrolled generation of electrical, chemical, or heat energy.

Do not transport activated batteries without vent cap in place.

When removing battery from service visually inspect for leakage prior to handling. If leakage has occurred follow Spill Management Procedures.

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

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