

MATERIAL SAFETY DATA SHEET
PRODUCT NAME: INDUSTRIAL NICKEL-CADMIUM STORAGE BATTERY

Information: Storage Battery Systems, LLC.
 N56 W16665 Ridgewood Drive
 Menomonee Falls, WI 53051

For Chemical Emergency
 Spill, Leak, Fire, Exposure or Accident
 Call INFOTRACK - Day or Night
 800-535-5053 / 1-352-323-3500

SBS BRAND INDUSTRIAL NICKEL CADMIUM STORAGE BATTERY
 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.
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 tissue damage to throat area and gastro/respiratory tract. Ingestion of cadmium and/or nickel compounds causes nausea and intestinal disorders.
Inhalation:	Mists generated during activation procedures may cause varying degrees of irritation to the nasal mucous membranes and respiratory tract tissues varying from mild irritation of nasal mucous membranes to damage of lung tissues proper. Inhalation of cadmium compounds may cause dry throat, cough, headache, vomiting, chest pain, and/or chills. Excessive overexposure may result in pulmonary edema, breathing difficulty, and prostration.
Carcinogenicity:	NIOSH recommends that nickel and cadmium be treated as occupational carcinogens.

2. EMERGENCY FIRST AID

Battery Electrolyte	(Electrolyte is 18-28% Potassium Hydroxide or KOH)
Eye Contact:	Flush with plenty of water for at least 20 minutes. Get immediate medical attention.
Skin Contact:	Remove contaminated clothing and flush affected areas with plenty of water for at least 20 minutes.
Ingestion:	Do not induce vomiting. Dilute by giving large volumes of water or 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 and Cadmium Compounds	
Skin contact:	Wash with cold water and soap.

3. SPECIAL PROTECTION INFORMATION

<p>Perform activation procedures in a well-ventilated area. Battery operating areas must be well ventilated for removal of potentially dangerous and harmful gases generated. Normal reactions inside the battery liberate explosive and flammable hydrogen gas.</p> <p>Respiratory Protection: Use NIOSH-approved mist respirator during activation and actual usage to maintain exposure levels below the TWA.</p> <p>Eye Protection: Use splash goggles or face shield whenever handling a battery.</p> <p>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.</p> <p>Other protective Equipment: Rubber boots, rubber apron or rainwear, or equivalent if exposure to electrolyte solution is likely.</p>
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4. REACTIVITY DATA

<p>CAUTION: NEVER ACTIVATE OR TOP OFF WITH ACID.</p> <p>Incompatibilities: Aluminum, zinc, tin and other active metals, acid, chlorinated and aromatic hydrocarbons, nitrocarbons, halocarbons. Trichloroethylene will react with electrolyte solution to form dichloroacetylene which is spontaneously combustible.</p> <p>Hazardous Decomposition Products: Nickel compounds, cadmium compounds, and potassium hydroxide.</p> <p>Note that normal reactions inside battery liberate explosive and flammable hydrogen gas. Do not seal battery from atmosphere. Hazardous Polymerization will not occur.</p>
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5. FIRE AND EXPLOSION HAZARDS

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 , Sand			

5. FIRE AND EXPLOSION HAZARDS - continued

	Melting Point	Boiling Point
Cadmium	608°F	1410°F
Cadmium Hydroxide	N/A	2838°F (sublimes)
Nickel	2645°F	4950°F
Nickel Hydroxide	N/A	445°F (Decomposes to NiO)

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 electrolyte solution. **Disconnect or cut all cables to and from battery** – especially ground connection.

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. **In case of fire, do not breath smoke and fumes!**

6.0 INGREDIENTS	CAS#	EXPOSURE LIMITS	QUANTITY
Cadmium (as Cadmium and Cadmium Hydroxide)	7440-43-9 21041-95-2	5.0 ug/m ³ dust – OSHA 0.05 mg/m ³ ACGIH CEILING-Fume	8%
Nickel (as Nickel and Nickel Hydroxide)	7440-02-0 1205-44-87	1 mg/m ³ – OSHA	9%
Cobalt (as Cobalt Hydroxide)	7440-48-4	0.1 mg/m ³ dust – OSHA	≈ 0.2%
Electrolyte Solution (18-28% KOH)	1310-58-3	2 mg/m ³ ACGIH CEILING-Air	29%
Acrylic Polymer Container		None Established – OSHA	≈ 10%
Polysulfone Container		None Established – OSHA	≈ 10%
Polypropylene container		None Established – OSHA	≈ 10%
Lithium Hydroxide	1310-66-3	None Established – OSHA	< 1%
Graphite		15 Mg/m ³ use respirator	≈ 3%
Steel		None Established – OSHA	≈ 39%

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 -	1.170 - 1.250 (electrolyte)	Evaporation Rate -	Not Determined
Solubility in Water -	Electrolyte solution is completely soluble.	Remainder -	is insoluble

8. SPILL MANAGEMENT PROCEDURES

Small electrolyte solution spills (up to 5 gallons): Flush with water and neutralize with dilute citric acid.
Large spills: 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

Nickel-cadmium storage batteries are universal wastes under RCRA. They may be returned to SBS for recycling.
These batteries are TCLP Toxic. These batteries and the electrolyte solution they contain are considered to be corrosives. If not recycled, they must be disposed of in accordance with all federal, state, and local hazardous waste regulations.

10. PRECAUTIONS AND COMMENTS

These batteries may be highly charged and are capable of high energy discharge. Care should be taken to handle them properly to avoid shorting or misuse that will result in a rapid, uncontrolled electrical, chemical, or heat energy release.
Do not transport activated batteries without vent caps 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.

11. EPCRA REPORTING REQUIREMENTS

Section 313 Supplier Notification – This product contains the following EPCRA Section 313 chemicals subject to the reporting requirements of Section 313 if the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372):		
CAS #	Chemical Name	Percent by Weight
7440-43-9	Cadmium	8%
7440-02-0	Nickel	9%
7440-48-4	Cobalt	0.2%
A copy of this MSDS may be required to be filed with your local emergency planning commission, state emergency response commission, and local fire department in accordance with sections of the Emergency Planning and Community right-To-Know Act.		

12. TRANSPORTATION INFORMATION

Batteries being forwarded or being returned to SBS for repair should be shipped as Hazardous Material using the following description: Batteries, Wet, Filled with Alkali, 8, UN2795, PG III.
Spent batteries being sent to SBS for recycling should be shipped as Universal Waste using the following description: Used Batteries, Wet, Filled with Alkali, 8, UN2795, PG III.

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