



MATERIAL SAFETY DATA SHEET

Identity (As used on Label and List)
NICKEL-CADMIUM SEALED CELL BATTERY

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

Section I

BATTERY MANUFACTURER'S MSDS DISTRIBUTED BY: DUAL-LITE MSDS #2	Emergency Telephone Number
	Not applicable
	Telephone Number for Information
	Not applicable
	Date Prepared
	Jan. 10, 1997
	Signature of Preparer (optional)

Section II -- Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity: Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits
			Recommended % (optional)
Cadmium (present as cadmium, cadmium hydroxide, cadmium oxide)	0.2 TWA Dust	0.05 TWA Dust	8-20%
	0.6 C Dust	0.05 C Fume	
	0.1 TWA Fume		
	0.3 C Fume		
Nickel (present as nickel, nickel hydroxide, nickel oxide)	1.0 as Ni	1.0 as Ni	15-35%

Section III -- Physical/Chemical Characteristics

Boiling Point	N/A	Specific Gravity (H ₂ O=1)	1.6
Vapor Pressure (mm Hg.)	N/A	Melting Point	Not Available
Vapor Density (AIR=1)	N/A	Evaporation Rate Butyl Acetate=1	N/A
Solubility in Water			

Appearance and Odor

Section IV -- Fire and Explosion Hazard Data

Flash Point (Method Used)	N/A	Flammable Limits	N/A	LEL	N/A	UEL	N/A
Extinguishing Media	Dry chemical, CO ₂ , Water.						
Special Fire Fighting Procedures	Use NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing if involved in a fire.						
Unusual Fire and Explosion Hazards	Not Applicable.						

Section V -- Reactivity Data

Stability	Unstable		Conditions to Avoid: General storage procedures for hazardous materials are acceptable.
	Stable	XX	

Incompatibility (Materials to Avoid)

N/A

Hazardous Decomposition or By-products

Metal oxide fumes may be evolved at temperatures above melting point.

Hazardous Polymerization	May Occur		Conditions to Avoid: N/A
	Will Not Occur	XX	

Section VI -- Health Hazard Data

Route(s) of Entry:	Inhalation?	Skin?	Ingestion?
	XX		

Health Hazards (Acute and Chronic)

(See attached sheet)

Carcinogenicity: NTP? Yes IARC Monographs? Yes OSHA Regulated? Yes
Nickel and Cadmium and their compounds are listed as carcinogens or potential carcinogens by NTP, IARC, OSHA.

Signs and Symptoms of Exposure

Irritation of nose and throat, sweating, chills, shortness of breath, weakness, local dermatitis, nausea, coughing, chest pains.

Medical Conditions Generally Aggravated by Exposure

Respiratory system disorders, prostate disorders, liver and kidney disorders

Emergency and First Aid Procedures

Inhalation: Remove from exposure, see physician, Ingestion: Induce vomiting if conscious, see a physician, Skin or Eyes: Flush with water for 15 minutes, see physician if symptoms develop.

Section VII -- Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released or Spilled.

Contain the spill. Collect the spilled material and place it in a plastic-lined container. HEPA vacuuming is preferred. Flush spill with water.

Waste Disposal Method

Dispose in accordance with Federal, State and Local laws. If discarded, treat as hazardous waste.

Precautions to Be Taken in Handling and Storing

Wear NIOSH/MSHA approved dust masks or respirators; impervious gloves and safety glasses or goggles.

Other Precautions

Keep container closed, avoid contact with clothing, avoid generating dust.

Section VIII -- Control Measures

Respiratory Protection (Specify Type)

NIOSH/MSHA approved for dust

Ventilation	Local Exhaust XX	Special N/A
	Mechanical (General) XX	Other Maintain OSHA PEL

Protective Gloves	Eye Protection
Impervious	Safety glasses, goggles

Other Protective Clothing or Equipment

Do not wear contaminated clothing home. Shower and change or wear coveralls.

Work/Hygienic Practices

Keep food and tobacco away from work area.

HEALTH HAZARDS (ACUTE AND CHRONIC)

Acute Overexposure (Symptoms and Effects)

Inhalation of dust or fume from cadmium and its compounds may cause irritation of the nose and throat. If high concentrations are inhaled (especially freshly formed fume), a delayed reaction of coughing, chest pain, sweating, chills, shortness of breath and weakness may develop. In severe cases, death may result from pulmonary edema.

Ingestion of cadmium dust may cause nausea, vomiting, diarrhea and abdominal cramps.

Nickel and certain nickel compounds may cause local dermatitis from skin contact. Inhalation may cause upper respiratory irritation. Ingestion of nickel and compounds may cause intestinal disorders.

Chronic Overexposure (Symptoms and Effects)

Long term exposure may cause lung injury (emphysema) and kidney dysfunction (proteinuria). Bone lesions characterized by pain in the back and extremities have also been reported. Inhalation over prolonged periods of time may pose an increased risk of lung cancer and possibly other forms of cancer.