

Material Safety Data Sheet For NiCd Batteries

Issue Date: January 5, 2022

Section 1- Product Identification

Product Name: Nickel Cadmium Battery
 Nominal Voltage/Capacity: /
 Chemical System: Nickel/Cadmium
 Manufacturer Name: JYH Technology Co., Ltd.
 Phone Number: +86-750-3808313
 Fax Number: +86-750-3808133

Section 2- Composition /Information on Ingredients

IMPORTANT NOTE: The battery cell should not be opened or exposed to heat because exposure to the following ingredients contained within could be harmful under some circumstances.

Chemical Name	CAS No.	%*
Cadmium	7440-43-9	10-28
Cadmium hydroxide	21041-95-2	10-28
Nickel (powder)	7440-02-0	4-10
Nickel hydroxide	12054-48-7	12-20
Potassium hydroxide	1310-58-3	<3
Nylon	N/A	<2
Iron	7440-02-0	10-13
Nickel	7439-89-6	0-2

*Note: Concentrations vary depending on the state of charge or discharge.

Section 3- Hazard Classification

Classification: N.A.

Section 4- First Aid Measures

If electrolyte leakage occurs and makes contact with skin, wash with plenty of water immediately.

If electrolyte comes into contact with eyes, wash with copious amounts of water for fifteen (15) minutes, and contact a physician.

If electrolyte vapors are inhaled, provide fresh air and seek medical attention if respiratory irritation develops. Ventilate the contaminated area.

Section 5- Fire and explosion Hazard Data

Flash point: N.A	Lgnition Temp: N.A
Lower Explosive Limit: N.A	Upper Explosive Limit: N.A
Flammable Limits: N.A	
Extinguishing Media: Any class of extinguishing medium may be used on the batteries, BUT water extinguisher is not suitable.	

Special Fire Fighting Procedures:

Exposure to temperatures of above 212°F can cause evaporation of the liquid content of the potassium hydroxide electrolyte resulting in the rupture of the cell. Potential for exposure to cadmium fumes during fire, use self-contained breathing apparatus.

Unusual Fire and Explosion Procedures:

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Do not dispose of battery in fire – may explode.
 Do not short-circuit battery – may cause burns.

Section 6- Accidental Release or Spillage

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

- Batteries that are leakage should be handled with rubber gloves.
- Avoid direct contact with electrolyte.
- Wear protective clothing and positive pressure Self-Contained Breathing Apparatus (SCBA).

Section 7- Handling and Storage

Safe handling and storage advice:

- Batteries should be handled and stored carefully to avoid short circuits.
- Do not store in disorderly fashion, or allow metal objects to be mixed with stored batteries.
- Never disassemble a battery.
- Do not breathe cell vapors or touch internal material with bare hands.

Keep batteries between -20°C and 35°C for prolong storage. When the cells are closed to fully charged, the storage temperature should be between -20°C and 30°C and should be controlled at 10-20°C during transportation and packed with efficient air ventilation.

Section 8- Exposure Controls / Person Protection

Occupational Exposure limits	LTEP: N.A.	STEP: N.A.
Ventilation	Local Exhausts: N.A.	Special: N.A.
	Mechanical (General): N.A.	Other: N.A.
Protective Gloves: N.A.	Eye Protection: N.A.	
Other Protective clothing or Equipment: N.A.	Work / Hygienic Practices: N.A.	
Respiratory Protection (Specify Type): N.A.		

Section 9- Physical and Chemical Data

The battery cell is contained in a hermetically-sealed case, designed to withstand temperatures and pressures encountered during normal use. As a result, during normal use, hazardous materials are fully contained inside the battery cell. However, if exposed to a fire, explosion, extreme abuse, misuse, or improper disposal that results in breaching of the battery cell case, hazardous materials may be released. The following physical data relating to the hazardous materials contained within the battery cell are provided for the user’s information.

Cadmium: Melting point (°F): 610 Boiling point (°F): 1,407
 % Volatile by Volume: Vapor Pressure (mm Hg):
 Specific Gravity (H₂O): 8.65@77°F
 Solubility in Water: Insoluble
 Appearance and Odor: Silver-white, blue-tinged, lustrous metal

Cadmium Hydroxide:
 Melting point (°F): 610 Boiling point (°C):
 % Volatile by Volume: Vapor Pressure (mm Hg):
 Specific Gravity (H₂O): 4.79 Vapor Density (Air = 1):
 Solubility in Water: Practically Insoluble
 Appearance and Odor: Powder

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Nickel Metal:

Melting point (°F): 2,831	Boiling point (°F): 5,134
% Volatile by Volume:	Vapor Pressure (mm Hg):
Evaporation Rate:	Vapor Density (Air = 1):
Specific Gravity (H ₂ O): 8.90	
Solubility in Water: Insoluble	
Appearance and Odor: Powder	

Nickel Hydroxide:

Melting point (°F): *	Boiling point (°F):
% Volatile by Volume:	Vapor Pressure (mm Hg):
Evaporation Rate:	Vapor Density (Air = 1):
Specific Gravity (H ₂ O):	
Solubility in Water: Insoluble	
Appearance and Odor: Apple green powder	
*Note: decomposes above 392 °F into NiO and H ₂ O.	

Potassium Hydroxide:

Melting point (°F): *	Boiling point (°F):
% Volatile by Volume:	Vapor Pressure (mm Hg):
Evaporation Rate:	Vapor Density (Air = 1):
Specific Gravity (H ₂ O):	
Solubility in Water: Soluble in 0.9 part water, 0.6 part in boiling water	
Appearance and Odor: White or slightly yellow	

*Note: Potassium hydroxide is present as a liquid or paste and acts as the electrolyte in the battery cell.

Section 10- Stability and Reactivity Data

Stability	Stable
Incompatibility (Materials to Avoid)	N.A
Hazardous Decomposition or Byproducts	N.A
Hazardous Polymerization	Will Not Occur

Section 11- Toxicological information

Route(s) of Entry	Inhalation: N.A
	Skin: N.A
	Ingestion: N.A

Health Hazard (Acute and Chronic)

In case of electrolyte leakage, skin will be itchy when contaminated with electrolyte.
 In contact with electrolyte can cause severe irritation and chemical burns.
 Inhalation of electrolyte vapors may cause irritation of the upper respiratory tract and lungs

Section 12- Ecological Information

N.A.

Section 13- Disposal Method

Dispose of batteries according to government regulations.

Section 14- Transportation Information

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According to the IATA Dangerous Goods Regulations 63th Edition special provisions A123, NiCd batteries can be transport as normal goods, the words "Not Restricted" and the Special Provision number must be included in the description of the substance on the Air Waybill. According to IMDG CODE (Amdt.39-18) 2018 Edition, NiCd batteries can be packaged as ordinary goods.

Section 15- Regulatory Information

Special requirement be according to the local regulatoryies.

Section 16- Other Information

The data in this Material Safety Data Sheet relates only to the specific material designated herein.