

Material Safety Data Sheet

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Revision Number 2

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Ni-MH AA900mAh 6.0V

Recommended Use Nickel Metal Hydride (NiMH) Battery.

Supplier Address
SHENZHEN DELIPOW BATTERY
CO.,LTD.
6th Building,Fu'an Industrial
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2. HAZARDS IDENTIFICATION

DANGER!

Emergency Overview

In case of rupture:
Corrosive
May cause allergic respiratory reaction
The product causes burns of eyes, skin and mucous membranes
Harmful by inhalation, in contact with skin and if swallowed
Irritating to eyes, respiratory system and skin

Appearance Green

Physical State Solid containing liquid.,
Solid.

Odor None

Potential Health Effects

Principle Routes of Exposure Eye contact. Skin contact.

Acute Toxicity

Eyes

Causes burns. Corrosive to the eyes and may cause severe damage including blindness. Risk of serious damage to eyes.

Skin

May be harmful in contact with skin. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. May be absorbed through the skin in harmful amounts. Causes burns.

Inhalation

Harmful by inhalation. Contact with moist mucous membranes of the respiratory system can cause caustic condition resulting in burns.

Ingestion

Ingestion causes burns of the upper digestive and respiratory tract. Can burn mouth, throat, and stomach. Harmful if swallowed.

Chronic Effects	Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen. Avoid repeated exposure. Possible risks of irreversible effects.
Aggravated Medical Conditions	Allergies. Skin disorders. Respiratory disorders. Pre-existing eye disorders. Nasal cavities. Lungs.
Interactions with Other Chemicals	Irritants. Sensitizers. Epoxies.
Environmental Hazard	See Section 12 for additional Ecological Information. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %
Nickel hydroxide	12054-48-7	15-40
Nickel	7440-02-0	15-40
Copper	7440-50-8	5-10
Sodium hydroxide	1310-73-2	5-10
Cobalt(II) oxide	1307-96-6	5-10
Potassium hydroxide	1310-58-3	5-10
Lithium hydroxide	1310-65-2	1 - 5

4. FIRST AID MEASURES

General Advice	This is a battery. In case of rupture:
Eye Contact	Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area.
Skin Contact	Immediate medical attention is required. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.
Inhalation	Move to fresh air in case of accidental inhalation of vapors or decomposition products. Oxygen or artificial respiration if needed Immediate medical attention is required. Consult a physician.
Ingestion	Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Rinse mouth. Drink plenty of water. Call a physician or Poison Control Center immediately.
Notes to Physician	Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure. Treat symptomatically.
Protection of First-aiders	Use personal protective equipment. Avoid contact with skin, eyes and clothing.

5. FIRE-FIGHTING MEASURES

Flammable Properties	Not flammable.
Flash Point	Not determined.
Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Hazardous Combustion Products	Carbon oxides.

Explosion Data**Sensitivity to Mechanical Impact** No.**Sensitivity to Static Discharge** No.**Specific Hazards Arising from the Chemical** The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors. In the event of fire and/or explosion do not breathe fumes.**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA**Health Hazard** 1**Flammability** 0**Stability** 0**Physical and Chemical Hazards** -**6. ACCIDENTAL RELEASE MEASURES**

Personal Precautions	Evacuate personnel to safe areas. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Keep people away from and upwind of spill/leak.
Environmental Precautions	Do not allow material to contaminate ground water system. Should not be released into the environment. Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.
Methods for Containment	Prevent further leakage or spillage if safe to do so.
Methods for Cleaning Up	Use personal protective equipment. Pick up and transfer to properly labeled containers.
Other Information	Refer to protective measures listed in Sections 7 and 8.

7. HANDLING AND STORAGE

Handling	In case of rupture: Handle in accordance with good industrial hygiene and safety practice. Wear personal protective equipment. Avoid contact with skin, eyes and clothing.
Storage	Keep out of the reach of children. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labeled containers.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Nickel hydroxide 12054-48-7	TWA: 0.2 mg/m ³ Ni inhalable fraction	TWA: 1 mg/m ³ Ni (vacated) TWA: 1 mg/m ³ Ni	IDLH: 10 mg/m ³ Ni TWA: 0.015 mg/m ³ except Nickel carbonyl Ni
Nickel 7440-02-0	TWA: 1.5 mg/m ³	TWA: 1 mg/m ³ (vacated) TWA: 1 mg/m ³	IDLH: 10 mg/m ³ TWA: 0.015 mg/m ³
Copper 7440-50-8	TWA: 0.2 mg/m ³ fume	TWA: 0.1 mg/m ³ fume TWA: 1 mg/m ³ dust and mist (vacated) TWA: 0.1 mg/m ³ Cu dust, fume, mist	IDLH: 100 mg/m ³ dust, fume and mist TWA: 1 mg/m ³ dust and mist TWA: 0.1 mg/m ³ fume
Sodium hydroxide 1310-73-2	Ceiling: 2 mg/m ³	TWA: 2 mg/m ³ (vacated) Ceiling: 2 mg/m ³	IDLH: 10 mg/m ³ Ceiling: 2 mg/m ³
Cobalt(II) oxide 1307-96-6	TWA: 0.02 mg/m ³ Co		
Potassium hydroxide 1310-58-3	Ceiling: 2 mg/m ³	(vacated) Ceiling: 2 mg/m ³	Ceiling: 2 mg/m ³

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value. OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits. NIOSH IDLH: Immediately Dangerous to Life or Health.

Other Exposure Guidelines

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Engineering Measures

Showers
Eyewash stations
Ventilation systems

Personal Protective Equipment

Eye/Face Protection

Risk of contact, wear: Tightly fitting safety goggles.

Skin and Body Protection

Risk of contact: Long sleeved clothing. Protective gloves.

Respiratory Protection

No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hygiene Measures

When using, do not eat, drink or smoke. Remove and wash contaminated clothing before re-use. Keep away from food, drink and animal feeding stuffs. Contaminated work clothing should not be allowed out of the workplace. Provide regular cleaning of equipment, work area and clothing. Avoid contact with skin, eyes and clothing. For environmental protection, remove and wash all contaminated protective equipment before re-use. Wear suitable gloves and eye/face protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Green.	Odor	None.
Odor Threshold	No information available	Physical State	Solid containing liquid. Solid
pH	No information available	Autoignition Temperature	No information available
Flash Point	No information available.	Boiling Point/Range	No information available
Decomposition Temperature	No information available	Explosion Limits	No information available
Melting Point/Range	No information available	Solubility	No information available
Flammability Limits in Air	No information available	Vapor Pressure	No data available
Water Solubility	Soluble in water.	Partition Coefficient: n-octanol/water	
Evaporation Rate	No information available		
Vapor Density	No data available		

10. STABILITY AND REACTIVITY

Stability	Stable under recommended storage conditions.
Incompatible Products	Incompatible with strong acids and bases. Incompatible with oxidizing agents.
Conditions to Avoid	Exposure to air or moisture over prolonged periods.
Hazardous Decomposition Products	Thermal decomposition can lead to release of irritating gases and vapors.
Hazardous Polymerization	Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information	In case of rupture:
LD50 Oral VALUE	427.1458 mg/kg (rat) estimated
LD50 Dermal VALUE	2450.091 mg/kg (rat) estimated
LC50 Inhalation (DUST) VALUE	8.5788 mg/L (mist) (dust) mg/m ³ estimated
Inhalation	Harmful by inhalation..
Eye Contact	Causes burns..
Skin Contact	Causes burns.
Ingestion	Harmful if swallowed..

Chronic Toxicity

Chronic Toxicity	Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen. Avoid repeated exposure. Possible risks of irreversible effects.
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Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Nickel hydroxide	A1	Group 1	Known	X
Nickel		Group 1	Reasonably Anticipated	X
Cobalt(II) oxide	A3	Group 2B		X

ACGIH: (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen

A3 - Animal Carcinogen

IARC: (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

Group 2B - Possibly Carcinogenic to Humans

Group 3 - Not Classifiable as to Carcinogenicity in Humans

NTP: (National Toxicity Program)

Known - Known Carcinogen

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

OSHA: (Occupational Safety & Health Administration)

X - Present

Target Organ Effects	Eyes. Kidney. Liver. Lungs. Nasal cavities. Respiratory system. Skin.
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12. ECOLOGICAL INFORMATION

Ecotoxicity

Harmful to aquatic organisms. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Nickel	EC50: 0.174 - 0.311 mg/L (96 h static) Pseudokirchneriella subcapitata EC50: 0.18 mg/L (72 h) Pseudokirchneriella subcapitata	LC50: 10.4 mg/L (96 h static) Cyprinus carpio LC50: 1.3 mg/L (96 h semi-static) Cyprinus carpio LC50: > 100 mg/L (96 h) Brachydanio rerio		EC50: 1 mg/L (48 h Static) Daphnia magna EC50: > 100 mg/L (48 h) Daphnia magna
Copper	EC50: 0.031 - 0.054 mg/L (96 h static) Pseudokirchneriella subcapitata EC50: 0.0426 - 0.0535 mg/L (72 h static) Pseudokirchneriella subcapitata	LC50: 1.25 mg/L (96 h static) Lepomis macrochirus LC50: 0.112 mg/L (96 h flow-through) Poecilia reticulata LC50: 0.8 mg/L (96 h static) Cyprinus carpio LC50: 0.3 mg/L (96 h semi-static) Cyprinus carpio LC50: 0.052 mg/L (96 h flow-through) Oncorhynchus mykiss LC50: 0.0068 - 0.0156 mg/L (96 h) Pimephales promelas LC50: 0.2 mg/L (96 h flow-through) Pimephales promelas LC50: < 0.3 mg/L (96 h static) Pimephales promelas		EC50: 0.03 mg/L (48 h Static) Daphnia magna
Sodium hydroxide		LC50: 45.4 mg/L (96 h static) Oncorhynchus mykiss		
Potassium hydroxide		LC50: 80 mg/L (96 h static) Gambusia affinis		

Chemical Name	Log Pow
Potassium hydroxide	0.83

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods

This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated Packaging

Do not re-use empty containers.

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Nickel hydroxide - 12054-48-7	(hazardous constituent - no waste number)			
Nickel - 7440-02-0	(hazardous constituent - no waste number)	Included in waste streams: F006, F039		

California Hazardous Waste Codes 181

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California EHW	California Carc	California Hazardous Waste	California Waste - Part 2
Nickel hydroxide				STLC (for PBTs): 20 mg/L TTLC (for PBTs): 2000 mg/kg
Nickel			Toxic powder Ignitable powder	STLC (for PBTs): 20 mg/L TTLC (for PBTs): 2000 mg/kg
Copper			Toxic	STLC (for PBTs): 25 mg/L TTLC (for PBTs): 2500 mg/kg
Sodium hydroxide			Toxic Corrosive	
Cobalt(II) oxide			Toxic	STLC (for PBTs): 80 mg/L TTLC (for PBTs): 8000 mg/kg
Potassium hydroxide			Toxic Corrosive	

14. TRANSPORT INFORMATION

<u>DOT</u>	NOT REGULATED
<u>TDG</u>	Not regulated
<u>MEX</u>	Not regulated
<u>ICAO</u>	Not regulated
<u>IATA</u>	Not regulated
<u>IMDG/IMO</u>	Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA Complies
 DSL Not determined

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values %
Nickel hydroxide	12054-48-7	15-40	0.1
Nickel	7440-02-0	15-40	0.1
Copper	7440-50-8	5-10	1.0
Cobalt(II) oxide	1307-96-6	5-10	0.1

SARA 311/312 Hazard Categories

Acute Health Hazard Yes
 Chronic Health Hazard Yes
 Fire Hazard No
 Sudden Release of Pressure Hazard No
 Reactive Hazard No

Clean Water Act

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42):

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Nickel hydroxide		X		X
Nickel		X	X	
Copper		X	X	
Sodium hydroxide	1000 lb			X
Potassium hydroxide	1000 lb			X

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product contains the following substances which are listed hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act:

Chemical Name	CAS-No	Weight %	HAPS data	VOC Chemicals	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Nickel hydroxide	12054-48-7	15-40				
Nickel	7440-02-0	15-40				
Cobalt(II) oxide	1307-96-6	5-10				

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Nickel hydroxide	10 lb	
Nickel	100 lb	
Copper	5000 lb	
Sodium hydroxide	1000 lb	
Potassium hydroxide	1000 lb	

U.S. State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals:

Chemical Name	CAS-No	California Prop. 65
Nickel hydroxide	12054-48-7	Carcinogen
Cobalt(II) oxide	1307-96-6	Carcinogen
Nickel	7440-02-0	Carcinogen

U.S. State Right-to-Know Regulations

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Nickel hydroxide	X	X	X	X	X
Cobalt(II) oxide			X	X	X
Potassium hydroxide	X	X	X		X
Sodium hydroxide	X	X	X		X
Nickel	X	X	X	X	X
Copper	X	X	X	X	X

International Regulations**Mexico - Grade**

Moderate risk, Grade 2

Chemical Name	Carcinogen Status	Exposure Limits
Nickel hydroxide		Mexico: TWA= 0.1 mg/m ³ Mexico: STEL= 0.3 mg/m ³
Sodium hydroxide		Mexico: Ceiling 2 mg/m ³
Nickel		Mexico: TWA 1 mg/m ³
Copper		Mexico: TWA= 1 mg/m ³ Mexico: TWA= 0.2 mg/m ³ Mexico: STEL= 2 mg/m ³

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

Non-controlled



Chemical Name	NPRI
Nickel hydroxide	X
Cobalt(II) oxide	X
Nickel	X

Legend

NPRI - National Pollutant Release Inventory

16. OTHER INFORMATION**Prepared By**

Product Stewardship
23 British American Blvd.
Latham, NY 12110
1-800-572-6501

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Revision Note No information available

General Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet