

Material Safety Data Sheet

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Revision Number 2

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name 1.2Volt Ni-Cd SC1400mah Battery

Recommended Use Nickel-cadmium battery.

Supplier Address

HUANYU POWER
SOURCE(SHENZHEN) CO.,LTD
Xintang Industrial
Zone,Baishixia,Fuyong Town,Bao'an
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2. HAZARDS IDENTIFICATION

DANGER!

Emergency Overview

In case of rupture:
Corrosive
The product causes burns of eyes, skin and mucous membranes
Harmful by inhalation, in contact with skin and if swallowed
May cause adverse kidney effects
Contains a known or suspected reproductive toxin
Contains a known or suspected carcinogen
Repeated contact may cause allergic reactions in very susceptible persons

Appearance Solid

Physical State Solid.

Odor Odorless

Potential Health Effects

Principle Routes of Exposure

Eye contact. Skin contact.

Acute Toxicity

Eyes

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

Skin

Causes burns. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.

Inhalation

Harmful by inhalation. Corrosive to respiratory system. Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate.

Ingestion	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Causes burns. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking.
Chronic Effects	Avoid repeated exposure. Possible risks of irreversible 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. May cause adverse effects on the bone marrow and blood-forming system. Contains a known or suspected carcinogen. Contains a known or suspected reproductive toxin.
Aggravated Medical Conditions	Allergies. Skin disorders. Respiratory disorders. Pre-existing eye disorders. Blood disorders. Kidney disorders. Prostate. 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 %
Iron	7439-89-6	30-60
Cadmium oxide	1306-19-0	15-40
Nickel hydroxide	12054-48-7	10-30
Water, distilled, conductivity or of similar purity	7732-18-5	10-30
Nickel	7440-02-0	7-13
Potassium hydroxide	1310-58-3	5-10
Brucine dihydrate, (-)-	5892-11-5	3-7
Cobalt hydroxide	21041-93-0	1 - 5

4. FIRST AID MEASURES

General Advice	In case of rupture: Call 911 or emergency medical service. Remove and isolate contaminated clothing and shoes.
Eye Contact	Immediate medical attention is required. In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
Skin Contact	For minor skin contact, avoid spreading material on unaffected skin. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Call a physician immediately.
Inhalation	Move victim to fresh air. Apply artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult. Call a physician or Poison Control Center immediately.
Ingestion	Immediate medical attention is required. Call a physician or Poison Control Center immediately. Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person. Remove from exposure, lie down.
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. Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed. Keep victim warm and quiet. Treat symptomatically.
Protection of First-aiders	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

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.
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.
Sensitivity to Static Discharge	No.
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	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if you can do it without risk.
Environmental Precautions	Do not allow material to contaminate ground water system. Should not be released into the environment. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.
Methods for Containment	Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
Methods for Cleaning Up	Use personal protective equipment. Dam up. Cover liquid spill with sand, earth or other noncombustible absorbent material. Take up mechanically and collect in suitable container for disposal. Clean contaminated surface thoroughly. After cleaning, flush away traces with water. Prevent product and washings from entering drains, sewers or surface water due to high toxicity to aquatic organisms.
Other Information	DO NOT GET WATER INSIDE CONTAINERS.

7. HANDLING AND STORAGE

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

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Cadmium oxide 1306-19-0	TWA: 0.01 mg/m ³ Cd TWA: 0.002 mg/m ³ Cd respirable fraction	Action Level: 2.5 µg/m ³ Cd	IDLH: 9 mg/m ³ Cd fume
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
Potassium hydroxide 1310-58-3	Ceiling: 2 mg/m ³	(vacated) Ceiling: 2 mg/m ³	Ceiling: 2 mg/m ³
Cobalt hydroxide 21041-93-0	TWA: 0.02 mg/m ³ Co		

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 Skin and Body Protection Respiratory Protection

If splashes are likely to occur, wear: Safety glasses with side-shields. Face-shield. Impervious clothing. Impervious gloves. Boots. Chemical resistant apron. No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Solid.	Odor	Odorless.
Odor Threshold	No information available	Physical State	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	Insoluble 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. Protect from water.
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 Harmful by inhalation, in contact with skin and if swallowed.

LD50 Oral VALUE 482.8395 mg/kg (rat) estimated
LC50 Inhalation (DUST) VALUE 5.3333 mg/L (mist) (dust) mg/m³ estimated

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Iron	= 984 mg/kg (Rat)	-	-
Cadmium oxide	= 72 mg/kg (Rat)	-	-
Nickel hydroxide	-	-	= 1200 mg/m ³ (Rat) 4 h
Nickel	> 9000 mg/kg (Rat)	-	-
Potassium hydroxide	= 214 mg/kg (Rat)	-	-

Chronic Toxicity

Chronic Toxicity Avoid repeated exposure. Possible risks of irreversible 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. May cause adverse effects on the bone marrow and blood-forming system. Contains a known or suspected carcinogen Contains a known or suspected reproductive toxin.

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Cadmium oxide	A2	Group 1	Known	X
Nickel hydroxide	A1	Group 1	Known	X
Nickel		Group 1	Reasonably Anticipated	X
Cobalt hydroxide	A3	Group 2B		X

ACGIH: (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen

IARC: (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to 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 Blood. Eyes. Kidney. Lungs. Nasal cavities. Prostate Respiratory system. Skin.

12. ECOLOGICAL INFORMATION

This product contains a chemical which is listed as a severe marine pollutant according to DOT..

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)
Iron		LC50: 0.56 mg/L (96 h semi-static) Cyprinus carpio LC50: 13.6 mg/L (96 h static) Morone saxatilis		
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
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 a hazardous waste according to federal regulations (40 CFR 261).

Contaminated Packaging Do not re-use empty containers.

US EPA Waste Number D006

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		

Chemical Name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
Brucine dihydrate, (-)- - 5892-11-5		P018		

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
Cadmium oxide	Toxic		Toxic	STLC (for PBTs): 1.0 mg/L TTLC (for P&Bs) (EHW): 10000 mg/kg as Cd TTLC (for PBTs): 100 mg/kg
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
Potassium hydroxide			Toxic Corrosive	
Brucine dihydrate, (-)- Cobalt hydroxide	Toxic		Toxic	STLC (for PBTs): 80 mg/L TTLC (for PBTs): 8000 mg/kg

14. TRANSPORT INFORMATION

DOT NOT REGULATED

TDG Not regulated

MEX Not regulated

ICAO Not regulated

IATA Not regulated

IMDG/IMO 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 %
Cadmium oxide	1306-19-0	15-40	0.1
Nickel hydroxide	12054-48-7	10-30	0.1
Nickel	7440-02-0	7-13	0.1
Brucine dihydrate, (-)-	5892-11-5	3-7	1.0
Cobalt hydroxide	21041-93-0	1 - 5	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
Cadmium oxide		X		
Nickel hydroxide		X		X
Nickel		X	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
Cadmium oxide	1306-19-0	15-40				
Nickel hydroxide	12054-48-7	10-30				
Nickel	7440-02-0	7-13				
Cobalt hydroxide	21041-93-0	1 - 5				

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
Cadmium oxide		100 lb
Nickel hydroxide	10 lb	
Nickel	100 lb	
Potassium hydroxide	1000 lb	
Brucine dihydrate, (-)-	100 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
Cadmium oxide	1306-19-0	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
Cadmium oxide	X	X	X	X	X
Potassium hydroxide	X	X	X		X
Cobalt hydroxide			X	X	X
Brucine dihydrate, (-)-	X	X	X		
Nickel	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
Cadmium oxide	A2	Mexico: Ceiling 0.05 mg/m ³ Mexico: TWA 0.01 mg/m ³ Mexico: TWA 0.002 mg/m ³
Nickel		Mexico: TWA 1 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
Cadmium 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

Revision Date 30-Jul-2013

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