

# 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  
District of Shenzhen, ShenZhen,  
Guangdong,  
Shenzhen  
Guangdong province  
518103  
US  
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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.

<b>Ingestion</b>	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.
<b>Chronic Effects</b>	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.
<b>Aggravated Medical Conditions</b>	Allergies. Skin disorders. Respiratory disorders. Pre-existing eye disorders. Blood disorders. Kidney disorders. Prostate. Nasal cavities. Lungs.
<b>Interactions with Other Chemicals</b>	Irritants. Sensitizers. Epoxies.
<b>Environmental Hazard</b>	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

<b>General Advice</b>	In case of rupture: Call 911 or emergency medical service. Remove and isolate contaminated clothing and shoes.
<b>Eye Contact</b>	Immediate medical attention is required. In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
<b>Skin Contact</b>	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.
<b>Inhalation</b>	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.
<b>Ingestion</b>	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.
<b>Notes to Physician</b>	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.
<b>Protection of First-aiders</b>	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

<b>Flammable Properties</b>	Not flammable.
<b>Flash Point</b>	Not determined.
<b>Suitable Extinguishing Media</b>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
<b>Hazardous Combustion Products</b>	Carbon oxides.
<b>Explosion Data</b>	
<b>Sensitivity to Mechanical Impact</b>	No.
<b>Specific Hazards Arising from the Chemical</b>	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.
<b>Sensitivity to Static Discharge</b>	No.
<b>Protective Equipment and Precautions for Firefighters</b>	
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

<b>Personal Precautions</b>	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.
<b>Environmental Precautions</b>	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.
<b>Methods for Containment</b>	Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
<b>Methods for Cleaning Up</b>	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.
<b>Other Information</b>	DO NOT GET WATER INSIDE CONTAINERS.

## 7. HANDLING AND STORAGE

<b>Handling</b>	In case of rupture: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing.
<b>Storage</b>	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 <sup>3</sup> Cd TWA: 0.002 mg/m <sup>3</sup> Cd respirable fraction	Action Level: 2.5 µg/m <sup>3</sup> Cd	IDLH: 9 mg/m <sup>3</sup> Cd fume
Nickel hydroxide 12054-48-7	TWA: 0.2 mg/m <sup>3</sup> Ni inhalable fraction	TWA: 1 mg/m <sup>3</sup> Ni (vacated) TWA: 1 mg/m <sup>3</sup> Ni	IDLH: 10 mg/m <sup>3</sup> Ni TWA: 0.015 mg/m <sup>3</sup> except Nickel carbonyl Ni
Nickel 7440-02-0	TWA: 1.5 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup> (vacated) TWA: 1 mg/m <sup>3</sup>	IDLH: 10 mg/m <sup>3</sup> TWA: 0.015 mg/m <sup>3</sup>
Potassium hydroxide 1310-58-3	Ceiling: 2 mg/m <sup>3</sup>	(vacated) Ceiling: 2 mg/m <sup>3</sup>	Ceiling: 2 mg/m <sup>3</sup>
Cobalt hydroxide 21041-93-0	TWA: 0.02 mg/m <sup>3</sup> 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

<b>Appearance</b>	Solid.	<b>Odor</b>	Odorless.
<b>Odor Threshold</b>	No information available	<b>Physical State</b>	Solid
<b>pH</b>	No information available	<b>Autoignition Temperature</b>	No information available
<b>Flash Point</b>	No information available.	<b>Boiling Point/Range</b>	No information available
<b>Decomposition Temperature</b>	No information available	<b>Explosion Limits</b>	No information available
<b>Melting Point/Range</b>	No information available	<b>Solubility</b>	No information available
<b>Flammability Limits in Air</b>	No information available	<b>Vapor Pressure</b>	No data available
<b>Water Solubility</b>	Insoluble in water.	<b>Partition Coefficient: n-octanol/water</b>	
<b>Evaporation Rate</b>	No information available		
<b>Vapor Density</b>	No data available		

## 10. STABILITY AND REACTIVITY

<b>Stability</b>	Stable under recommended storage conditions.
<b>Incompatible Products</b>	Incompatible with strong acids and bases. Incompatible with oxidizing agents.
<b>Conditions to Avoid</b>	Exposure to air or moisture over prolonged periods. Protect from water.
<b>Hazardous Decomposition Products</b>	Thermal decomposition can lead to release of irritating gases and vapors.
<b>Hazardous Polymerization</b>	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/m<sup>3</sup> 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 <sup>3</sup> ( 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 <sup>3</sup> Mexico: STEL= 0.3 mg/m <sup>3</sup>
Cadmium oxide	A2	Mexico: Ceiling 0.05 mg/m <sup>3</sup> Mexico: TWA 0.01 mg/m <sup>3</sup> Mexico: TWA 0.002 mg/m <sup>3</sup>
Nickel		Mexico: TWA 1 mg/m <sup>3</sup>

**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**