

## Safety Data Sheet

The content and format of this SDS is accordant with 29 CFR 1910.1200 (OSHA standard)

### 1. Identification of the substance/preparation and of the company/undertaking

**Product details:**

**Product name:** NI-MH BATTERY

**Recommended use of the chemical and restrictions on use:** Power supply. Restrictions on use: Do NOT use it in an application which may contaminate food or do harm to human health.

**Manufacturer/Supplier:** Xinxiang Jinhong Commercial and Trade CO., LTD.

Address: Dakuai Village , Dakuai Town, Fengquan District, Xinxiang City, Henan Province, China

Tel.: +86-373-5412588

Fax: +86-373-5412588

Email: SHELLY@VIITION,ANMY@DEYUCRAFT.COM

**Further information obtainable from:** Xinxiang Jinhong Commercial and Trade CO., LTD.

**Information in case of emergency:** +86-373-5412588

### 2. Hazards identification

**.GHS classification** (for contact with leakage from rupture):

Physical hazards	Health hazards	Environmental hazards
Explosives-not classified	Acute toxicity (oral)- not classified	Acute hazards to the aquatic environment- 1
Flammable gases-not classified	Acute toxicity (dermal)-not classified	Chronic hazards to the aquatic environment-1
Flammable aerosols-not classified	Acute toxicity (inhalation)- not classified	Hazard to the ozone layer-not classified
Gases under pressure- not classified	Skin corrosion/irritation- 2	
Flammable liquids- not classified	Serious eye damage/eye irritation- not classified	
Flammable solids-not classified	Respiratory sensitizer- 1	
Self-reactive substances and mixtures-not classified	Skin sensitizer- 1	
Pyrophoric liquids-not classified	Germ cell mutagenicity- 2	
Pyrophoric solids-not classified	Carcinogenicity- 1	
Self-heating substances and mixtures-not classified	Toxic to reproduction- 1	
Substances and mixtures, which in contact with water, emit flammable gases-not classified	Effects on or via lactation-not classified	
Oxidizing liquids-not classified	Specific target organ toxicity, single Exposure –not classified	
Oxidizing solids-not classified	Specific target organ toxicity, repeated exposure - 1 (respiratory)	
Organic peroxides-not classified	Aspiration hazard- not classified	
Corrosive to metals-not classified		

**Signal Word:** Danger

**Symbol :**



*Note: This product is generally not hazardous under normal conditions. But like any sealed container, battery may rupture when exposed to excessive heat and this could result in the release of hazardous materials. The information below is given to minimize any possible hazard during handling, storage and disposal.*

**Hazard Statements** (for contact with leakage from rupture):

H315: Causes skin irritation.

H317: May cause an allergic skin reaction.

H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H341: Suspected of causing genetic defects.

H350: May cause cancer.

H360: May damage fertility or the unborn child.

H372: Causes damage to organs (respiratory) through prolonged or repeated exposure.

H400: Very toxic to aquatic life.

H410: Very toxic to aquatic life with long lasting effects.

**Precautionary Statements** (for contact with leakage from rupture):

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume.

P264: Wash hands thoroughly after handling.

P270: Do not eat, drink or smoke when using this product.

P272: Contaminated work clothing should not be allowed out of the workplace.

P273: Avoid release to the environment.

P280: Wear protective gloves.

P281: Use personal protective equipment as required.

P285: In case of inadequate ventilation wear respiratory protection.

**Response Precautionary Statements** (for contact with leakage from rupture):

P302 + P352: IF ON SKIN: Wash with plenty of water.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P362: Take off contaminated clothing and wash before reuse.

P304 + P341: F INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

P342 + P311: If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P314: Get medical advice/attention if you feel unwell.

P391: Collect spillage.

**Storage precautionary statements :**

P405: Store locked up.

**Disposal precautionary statements :**

P501: Dispose of contents/container according to relevant local and national regulations.

**3. Composition/information on ingredients**

**Product description:** substance ( ) ; preparation/mixture (√)

Ingredient (s)	CAS No.	EC No.	% by weight
Nickel hydroxide	12054-48-7	235-008-5	55%
Nickel (powder)	7440-02-0	231-111-4	13.47%
Copper	7440-50-8	231-159-6	10%
Cobalt oxide	1307-96-6	215-154-6	8%
Manganese	7439-96-5	231-105-1	5.5%
Cobalt	7440-48-4	231-158-0	5%
Aluminum	7429-90-5	231-072-3	2%
Iron	7439-89-6	231-096-4	1%
Magnesium	7439-95-4	231-104-6	0.03%

**4. First aid measures**

**As a general rule, in case of doubt of if symptoms persist, always call a doctor:** *(for contact with leakage from rupture)*

**In the event of splashes or contact with eyes:** Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

**In the event of splashes or contact with skin:** Immediately take off contaminated clothes. Wash with soap and water. Wash contaminated clothes before reuse. If irritation occurs, get medical attention.

**In the event of exposure by inhalation:** Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a doctor/physician if you feel unwell.

**In the event of swallowing:** Rinse mouth. Do not induce vomiting without doctor's instruction. Call a doctor/physician if you feel unwell.

**Acute effect and delayed effect:** Acute effect: Causes skin irritation. May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Delayed effect: Suspected of causing genetic defects. May cause cancer. May damage fertility or the unborn child. Causes damage to organs (respiratory) through prolonged or repeated exposure.

**Personal protective equipment:** Wear protective gloves/protective clothing/eye protection/face protection when necessary.

**Indication of immediate medical attention and treatment needed, if necessary:** Treat according to symptoms and exposure dose.

**5. Fire-fighting measures**

**Extinguishing Media:** Use dry chemical, CO<sub>2</sub> for extinction. Do not use direct water stream. Discharging cylinder shape water from fire hose may lead to spread fire to the surroundings.

**Unsuitable Extinguishing Media:** Discharging cylinder shape water from fire hose may lead to spread fire to the surroundings.

**Special Fire Fighting Procedures:** Structural firefighters must wear self-contained breathing apparatus and full protective equipment.

**Unusual Fire and Explosion Hazards:** Cell may vent when subjected to excessive heat-exposing battery contents.

**Special Fire-Fighting Method (This is for fire caused by other ignition sources):**

Fire-fighters must wear self-contained breathing apparatus and full protective equipment (e.g. fire-retardant clothing).

For initial fire, use dry powder, carbon dioxide, etc.

For large fire, it is effective to use fire foam, etc. to shut off air supply.

Deny unnecessary entry to the place around the fire.

Remove containers from fire area if it can be done without risk.

Cool surrounding facilities, etc. with water spray.

Extinguish fire from upwind, and the fire extinguishing method should be appropriate to the situation in the surroundings.

## 6. Accidental release measures

**Personal precautions:** Use proper personal protective equipment as indicated in Section 8.

**Measures for Cleaning/Collection:**

If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. Wipe it up with a cloth, and dispose of it in a plastic bag and put into a steel can. The preferred response is to leave the area and allow the battery to cool and vapors to dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerate.

**Environmental Precautions:** Keep cleaning run-offs out of municipal sewers and open bodies of water. Comply with local and national laws and regulations.

## 7. Handling and storage

**The regulations relating to storage remises apply to workshop where the product is handled :**

**Handling:** *(for contact with leakage from rupture)*

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Do not breathe dust/fume.

Wash hands thoroughly after handling.

Do not eat, drink or smoke when using this product.

Contaminated work clothing should not be allowed out of the workplace.

Avoid release to the environment.

Wear protective gloves.

Use personal protective equipment as required.

In case of inadequate ventilation wear respiratory protection.

**Storage:**

**Requirements to be met by storerooms and receptacles:**

Avoid mechanical or electrical abuse. Storage preferably in cool, dry and ventilated area, which is subject to little temperature change. Storage at high temperatures should be avoided. Do not place the battery near heating equipment, nor expose to direct sunlight for long periods.

**Packing material:** Cardboard boxes.

**Information about storage in one common storage facility:** The storeroom should be equipped with proper facilities for accidental fire.

**Further information about storage condition:** None.

## 8. Exposure controls/personal protection

**Control parameters:** *(for contact with leakage from rupture)*

Ingredients	OSHA PEL-TWA	ACGIH TLV-TWA
Aluminum (CAS: 7429-90-5)	15 mg/m <sup>3</sup> (Total dust) 5 mg/m <sup>3</sup> (Respirable fraction)	1 mg/m <sup>3</sup> (Respirable fraction)
Copper (CAS: 7440-50-8)	1 mg/m <sup>3</sup> (Dusts and mists)	1 mg/m <sup>3</sup> (Dusts and mists)
Nickel (powder) (CAS: 7440-02-0)	Metal 0.5 mg/m <sup>3</sup> insoluble 0.1 mg/m <sup>3</sup>	1.5 mg/m <sup>3</sup>

**Engineering Control:**

Use this product only in closed systems fully or with local exhaust ventilation.

Install washer eyes and safety showers near to the handling and storage area.

Shows the location of these facilities, with a clear and prominent warning board.

**Personal Protective Equipment (for workers):**

**Protection of Hands:**

Recommend wearing protective gloves for industrial hygienic purpose.



**Protection of Eyes:**

Not necessary under conditions of normal use. Wear safety glasses when working in a dusty environment or liquid may splash.



**Respiratory Protection:** Not necessary under conditions of normal use. Wear appropriate respirators when vapour or fume is generated from processing.



**Protection of Body:**

Recommend wearing general working clothing.



**General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.  
Wash hands before breaks and at the end of work.  
Avoid contact with eyes and broken skin.

**9. Physical and chemical properties**

General Information	
Form	Battery
Colour	No data available
Odour	No data available
pH Value	No data available
Boiling Range	No data available
Melting point/Melting range	No data available
Flash point	No data available
Flammable/Explosive Limits-Lower Vol %	Not applicable
Flammable/Explosive Limits-Upper Vol %	Not applicable
Density	No data available

<b>Relative vapour density</b>	No data available
<b>Vapour pressure</b>	No data available
<b>Solubility</b>	Not applicable
<b>n-octanol/Water Partition Coefficient</b>	No data available
<b>Self-igniting Temperature</b>	No data available
<b>Decomposition Temperature</b>	No data available
<b>Odour Threshold Value</b>	No data available
<b>Evaporation Rate</b>	No data available
<b>Flammability (solid, gas, etc.)</b>	This product is not classified as flammable solid.

## 10. Stability and reactivity

**Chemical stability:** Stable under normal temperatures and pressures.

**Possibility of hazardous reactions:** If leaked, the electrolyte may react violently with strong oxidizers, mineral acids, strong alkalis, halogenated hydrocarbons.

**Conditions to Avoid:** Heating, mechanical abuse and electrical abuse.

**Incompatible materials:** If leaked, forbidden to contact with strong oxidizers, mineral acids, strong alkalis, halogenated hydrocarbons.

**Hazardous decomposition products:** It may release hazardous fume (e.g. Carbon monoxide, carbon dioxide, lithium oxide fumes) from thermal decomposition.

## 11. Toxicological information

**Product Toxicity Data:** The toxicity data of this product has not been determined by testing or research, but to our best knowledge and reference, this product is not toxic. The toxicity data shown below is for reference only. *(for contact with leakage from rupture)*

Ingredients	CAS number	LD 50/ LC50
Nickel hydroxide	12054-48-7	Acute toxicity (Oral) LD <sub>50</sub> >200-<2,000 mg/kg (rat) Data source: ECHA Registered substances Acute toxicity(Dermal) LD <sub>50</sub> >2,000mg/kg (rabbit) Data source: ECHA Registered substances Acute toxicity(Inhalation): 1.2mg/L 4h (rat)
Aluminum	7429-90-5	Acute toxicity (Oral) LD <sub>50</sub> > 10,000mg/kg (rat) Data source: ECHA Registered substances Acute toxicity(Dermal) LD <sub>50</sub> >2,000mg/kg (rabbit) Data source: ECHA Registered substances
Copper	7440-50-8	Acute toxicity (Oral) LD <sub>50</sub> >2,500mg/kg (rat) Data source: ECHA Registered substances Acute toxicity(Dermal) LD <sub>50</sub> >2,000mg/kg (rabbit) Data source: ECHA Registered substances

Nickel (powder)	7440-02-0	Acute toxicity (Oral) LD <sub>50</sub> >9,000mg/kg (rat) Data source: ECHA Registered substances Acute toxicity(inhalation) LC <sub>50</sub> >10.2mg/L (rat) Data source: ECHA Registered substances
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**Serious eye damage/eye irritation:** No classification for this product.

**Skin corrosion/irritation:** This product is classified as Category 2.

This product contains Nickel hydroxide (CAS: 12054-48-7) (Data source: ECHA Registered substances, EU CLP) which is classified as Category 2. Considering the percentage of this ingredient exceeds the classification criteria, the whole product is classified as Category 2.

**Respiratory sensitizer:** This product is classified as Category 1. This product contains Nickel hydroxide (CAS: 12054-48-7) (Data source: ECHA Registered substances, EU CLP) which is classified as Category 1. Considering the percentage of this ingredient exceeds the classification criteria, the whole product is classified as Category 1.

**Skin sensitizer:** This product is classified as Category 1.

This product contains Nickel hydroxide (CAS: 12054-48-7) (Data source: ECHA Registered substances, EU CLP) which is classified as Category 1 and Nickel (CAS: 7440-02-0) (Data source: ECHA Registered substances, EU CLP) which is classified as Category 1. Considering the total percentage of these ingredients exceeds the classification criteria, the whole product is classified as Category 1.

**Germ cell mutagenicity:** This product is classified as Category 2. This product contains Nickel hydroxide (CAS: 12054-48-7) (Data source: ECHA Registered substances, EU CLP) which is classified as Category 2. Considering the percentage of this ingredient exceeds the classification criteria, the whole product is classified as Category 2.

**Carcinogenicity:** This product is classified as Category 1.

This product contains Nickel hydroxide (CAS: 12054-48-7) (Data source: ECHA Registered substances, EU CLP) which is classified as Category 1 and Nickel (CAS: 7440-02-0) (Data source: ECHA Registered substances, EU CLP) which is classified as Category 2. Considering the total percentage of these ingredients exceeds the classification criteria, the whole product is classified as Category 1.

**Reproductive Toxicity:** This product is classified as Category 1. This product contains Nickel hydroxide (CAS: 12054-48-7) (Data source: ECHA Registered substances, EU CLP) which is classified as Category 1. Considering the percentage of this ingredient exceeds the classification criteria, the whole product is classified as Category 1.

**STOT-single exposure:** No classification for this product.

**STOT-repeated exposure:** This product is classified as Category 1 (respiratory).

T This product contains Nickel hydroxide (CAS: 12054-48-7) (Data source: ECHA Registered substances, EU CLP) which is classified as Category 1 and Nickel (CAS: 7440-02-0) (Data source: ECHA Registered substances, EU CLP) which is classified as Category 1 (respiratory). Considering the total percentage of these ingredients exceeds the classification criteria, the whole product is classified as Category 1 (respiratory).

**Effects on or via lactation:** No classification for this product.

**Aspiration hazard:** No classification for this product.



## 12. Ecological information

**Ecotoxicity** (for contact with leakage from rupture): As for the whole product, there is no relevant data. The data shown below is of the ingredient.

Aluminum (CAS: 7429-90-5):

48h-LC<sub>50</sub>: 11.5mg/L, fish

Data source: ECHA Registered substances

Copper (CAS: 7440-50-8):

96h-LC<sub>50</sub>: 0.460mg/L, fish

Nickel hydroxide (CAS: 12054-48-7):

96h-LC<sub>50</sub>: 8mg/L, fish

48h-LC<sub>50</sub>: 1.9mg/L, aquatic invertebrates

7d-EC<sub>10</sub>: 0.078 - 0.12 mg/L, algae (lemna gibba)

Aquatic Acute 1

Aquatic Chronic 1

Data source: ECHA Registered substances

Classification of the whole product: Aquatic Acute 1

Aquatic Chronic 1

**Persistence and Degradability:** No data available.

**Bioaccumulative Potential:** No information available.

**Mobility in Soil:** No information available.

**Results of PBT and vPvB Assessment:** No information available.

**General Notes:**

Do not throw used product into ground water, water course or sewage system.

Do not allow material to be released to the environment without proper governmental permits.

## 13. Disposal considerations

Minimize the hazard of waste by the methods of neutralization and stabilization.

Any disposal practice must be in compliance with country, local, state, and federal laws and regulations.

After contents are completely removed, dispose of its container at hazardous or special waste collection point.

Paste a label on the container indicating the possible hazards of the waste.

## 14. Transport Information

### DOT/ Air-Transportation- IATA/ICAO/Sea-Transportation-IMO/IMDG:

**.Proper Shipping Name:** Not regulated.

**.Hazard Class:** Not classified.

**.UN Code:** Not regulated.

**.Packing Group:** Not classified.

**.Packing Group Symbol:** Not classified.

**.Marine Pollutant (Yes/No):** No

**.EMS NO.:** Not regulated.

### **Special precautions for user:**

Check whether the package is completed or sealed before transporting; make sure no damage of packages and prevent goods from falling down during transporting; the transport vehicle should be equipped with facilities for fire-fighting and accidental release handling; do NOT transport this product together with incompatible substances; stay away from fire and areas of high temperature during stopovers.

## 15. Regulatory information

### .United States:

**Section 355 (extremely hazardous substances):** Not listed.

**SARA 313:** Aluminum (CAS: 7429-90-5) (fume or dust), Copper (CAS: 7440-50-8) and Nickel (CAS: 7440-02-0) are listed in SARA 313 Toxic Release Chemicals.

**Toxic Substances Control Act (TSCA):** All ingredients are listed in the U.S. Toxic Substances Control Act Chemical Substance Inventory List.

### **Clean Water Act:**

Nickel (CAS: 7440-02-0) is listed as Hazardous Substances under the CWA.

Copper (CAS: 7440-50-8) and Nickel (CAS: 7440-02-0) are listed as Priority Pollutants under the CWA.

### **Carcinogenicity categories:**

Nickel (CAS: 7440-02-0): IARC-2B, NTP-1, CP65.

Nickel hydroxide (CAS: 12054-48-7): ACGIH-A1, IARC-1, NTP-1, CP65

### **Other relevant laws and regulations:**

**Candidate List of Substances of very high concern (SVHC) according to ECHA:** Not listed.

**REACH Regulation Annex XVII Regulation List:** Not listed.

**REACH Regulation Annex XIV Authorization List:** Not listed.

**Germany – WGK:** WGK-3.

### **(EC) 1272/2008 Annex VI Table 3.1:**

Ingredient (s)	CAS No.	EC No. 1272/2008 Classification	
		CLASS. CODE	HAZARD CODE
Nickel	7440-02-0	Carc. 2	H351
		STOT RE 1	H372 **
		Skin Sens. 1	H317

Nickel hydroxide	12054-48-7	Carc. 1A Muta. 2 Repr. 1B Acute Tox. 4 * Acute Tox. 4 * STOT RE 1 Skin Irrit. 2 Resp. Sens. 1 Skin Sens. 1 Aquatic Acute 1 Aquatic Chronic 1	H350i H341 H360D *** H332 H302 H372 ** H315 H334 H317 H400 H410
Cobalt oxide	1307-96-6	Acute Tox. 4 * Skin Sens. 1 Aquatic Acute 1 Aquatic Chronic 1	H302 H317 H400 H410
Cobalt	7440-48-4	Resp. Sens. 1 Skin Sens. 1 Aquatic Chronic 4	H334 H317 H413

**Chemical Safety Assessment:** A Chemical Safety Assessment has not been carried out.

## 16. Other information

**DISCLAIMER:** Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

### References:

GHS Annex II  
 GHS SDS Instruction  
 ANSI Z400.1/Z129.1-2010  
 OSHA Hazard Communication Standard (HCS) 2012

### Full description of some acronyms:

**CAS-Chemical Abstracts Service**  
**EINECS-European Inventory of Existing Commercial Chemical Substances**  
**IMO-International Maritime Organization**  
**IMDG-International Maritime Dangerous Goods**  
**IATA-International Air Transport Association**  
**ICAO-International Civil Aviation Organization**  
**TSCA-Toxic Substance Control Act**  
**OSHA-Occupational Safety and Health Administration**  
**ACGIH- American Conference of Governmental Industrial Hygienists**

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**SDS Version:** 1.0

\*\*\*\*\*The End\*\*\*\*\*