# SAFETY DATA SHEET

Revision Number 1 Issuing Date No data available

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

**Product identifier**
**Product Name** NI-MH battery
**Model Name** AAA,AA
**Other means of identification**
**Synonyms** None
**Recommended use of the chemical and restrictions on use**
**Recommended Use** Nickel Metal Hydride (NiMH) Battery
**Uses advised against** No information available
**Details of the supplier of the safety data sheet**
Supplier Name Zhejiang tianneng energy technology co.,ltd
**Supplier Address** baijiabang village, zhicheng town, changxing county, China 313100
**Supplier Phone Number** Phone: +860572-6216868
Contact Phone+860572-6216868
**Supplier Email** 136334692@qq.com
**Emergency telephone number**

## 2. HAZARDS IDENTIFICATION

**Classification**
This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200) This product is an article which is a sealed battery and as such does not require an MSDS per the OSHA hazard communication standard unless ruptured. The hazards indicated are for a ruptured battery.

| | |
|---|---|
| Serious eye damage/eye irritation | Category1 |
| Skin corrosion/irritation | Category 1 Sub-category B |
| Specific target organ toxicity (repeated exposure) | Category 2 |

**GHS Label elements, including precautionary statements**

**Emergency Overview**

**Signal word** **Warning**

**Hazard Statements**
Harmful if swallowed
Causes severe skin burns and eye damage
May cause damage to organs through prolonged or repeated exposure

**Precautionary Statements - Prevention**
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required

**Precautionary Statements - Response**
IF exposed or concerned: Get medical advice/attention

**Precautionary Statements - Storage**
Store locked up

**Precautionary Statements - Disposal**
Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**
Not applicable

**Unknown Toxicity**

**Other information**
No information available

**Interactions with Other Chemicals**
No information available

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical Name | CAS No | Weight-% |
|---|---|---|
| Potassium hydroxide | 1310-58-3 | 6.1 |
| Water | 7732-18-5 | 9.8 |
| Polypropylene | 9003-07-0 | 5.9 |
| Iron | 7439-89-6 | 35.9 |
| Cobalt(II) oxide | 1307-96-6 | 3.7 |
| Copper | 7440-50-8 | 8.8 |
| Nickel | 7440-02-0 | 29.8 |

## 4. FIRST AID MEASURES

**First aid measures**

**General Advice** First aid is upon rupture of sealed battery.

**Eye Contact** Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician.

**Skin Contact** Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician.

**Inhalation** Remove to fresh air. If symptoms persist, call a physician.

**Ingestion** Do NOT induce vomiting. Drink plenty of water. If symptoms persist, call a physician.

**Self-protection of the first aider** Use personal protective equipment as required.

**Most important symptoms and effects, both acute and delayed**

**Most Important Symptoms and Effects** No information available.

**Indication of any immediate medical attention and special treatment needed**

**Notes to Physician** Treat symptomatically

## 5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable Extinguishing Media**

CAUTION: Use of water spray when fighting fire may be inefficient

**Specific Hazards Arising from the Chemical**

No information available.

**Uniform Fire Code** Sensitizer: Solid
Highly Toxic: Solid

**Hazardous Combustion Products**

Carbon Oxides

**Explosion Data**

**Sensitivity to Mechanical Impact** **No.**

**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.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

**Personal Precautions** Avoid contact with eyes.

**Other Information** Refer to protective measures listed in Sections 7 and 8.

**Environmental Precautions**

**Environmental Precautions** Refer to protective measures listed in Sections 7 and 8.

**Methods and material for containment and cleaning up**

**Methods for Containment** Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up** In case of rupture: Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

## 7. HANDLING AND STORAGE

**Precautions for safe handling**

**Handling** Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

**Conditions for safe storage, including any incompatibilities**

**Storage** Keep container tightly closed.

**Incompatible Products** Acids. Bases. Oxidizing agent.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters**

**Exposure Guidelines**

| Chemical Name | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|---|---|---|---|
| Cobalt(II) oxide<br>1307-96-6 | TWA: 0.02 mg/m$^3$ Co | -- | |
| Potassium hydroxide<br>1310-58-3 | TWA: 2 mg/m$_3$ | (vacated) Ceiling: 2 mg/m$_3$ | Ceiling: 2 mg/m$_3$ |
| Nickel<br>7440-02-0 | TWA: 1.5 mg/m$^3$ | TWA: 1 mg/m$^3$<br>(vacated) TWA: 1 mg/m$^3$ | IDLH: 10 mg/m$^3$<br>TWA: 0.015 mg/m$^3$ |
| Copper<br>7440-50-8 | TWA: 0.2 mg/m$^3$ fume<br>TWA: 1 mg/ mg/m$^3$ Cu dust and mist | TWA: 0.1 mg/m$^3$ fume<br>TWA: 1 mg/m$^3$ dust and mist<br>(vacated) TWA: 0.1 mg/m$^3$ Cu dust, fume, mist | IDLH: 100 mg/m$^3$ dust, fume and mist<br>TWA: 1 mg/m$^3$ dust and mist<br>TWA: 0.1 mg/m$^3$ fume |

*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) See section 15 for national exposure control parameters

**Appropriate engineering controls**

**Engineering Measures** Showers
Eyewash stations
Ventilation systems

**Individual protection measures, such as personal protective equipment**

**Eye/Face Protection** No special protective equipment required.

Skin and Body Protection No special protective equipment required.

**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** Handle in accordance with good industrial hygiene and safety practice.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical and Chemical Properties**

**Physical State** Solid contain liquid
**Appearance** Silver **Odor** Odorless
**Color** No information available **Odor Threshold** No information available

| Property | Values | Remarks/ |
|---|---|---|
| **pH** | No data available | None known |
| **Melting / freezing point** | No data available | None known |
| **Boiling point / boiling range** | No data available | None known |
| **Flash Point** | No data available | None known |
| **Evaporation Rate** | No data available | None known |
| **Flammability (solid, gas)** | No data available | None known |
| **Flammability Limit in Air** | | |
| **Upper flammability limit** | No data available | |

| | | |
|---|---|---|
| **Lower flammability limit** | No data available | |
| **Vapor pressure** | No data available | None known |
| **Vapor density** | No data available | None known |
| **Specific Gravity** | No data available | None known |
| **Water Solubility** | No data available | None known |
| **Solubility in other solvents** | No data available | None known |
| **Partition coefficient: n-octanol/water** | 0.0001 | None known |
| **Autoignition temperature** | No data available | None known |
| **Decomposition temperature** | No data available | None known |
| **Kinematic viscosity** | No data available | None known |
| **Dynamic viscosity** | 0.0001 | None known |
| **Explosive properties** | No data available | None known |
| **Oxidizing Properties** | No data available | None known |

**Other Information**

**Softening Point** No data available
**VOC Content (%)** No data available
**Particle Size** No data available
**Particle Size Distribution**

## 10. STABILITY AND REACTIVITY

**Reactivity**
No data available

**Chemical stability**
Stable under recommended storage conditions.

**Possibility of Hazardous Reactions**
None under normal processing.

**Hazardous Polymerization**
Hazardous polymerization does not occur.

**Conditions to avoid**
Excessive heat.

**Incompatible materials**
Acids. Bases. Oxidizing agent.

**Hazardous Decomposition Products**
Carbon oxides.

## 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

**Product Information**

**Inhalation** Specific test data for the substance or mixture is not available.
**Eye Contact** Specific test data for the substance or mixture is not available.
**Skin Contact** Specific test data for the substance or mixture is not available.
**Ingestion** Specific test data for the substance or mixture is not available.

**Component Information**

| Chemical Name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---|---|---|---|
| Iron<br>7439-89-6 | = 984 mg/kg ( Rat ) | - | - |
| Nickel<br>7440-02-0 | > 9000 mg/kg ( Rat ) | - | - |
| Potassium hydroxide<br>1310-58-3 | = 214 mg/kg ( Rat ) | - | - |

**Information on toxicological effects**

**Symptoms** No information available.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Sensitization** May cause sensitization of susceptible persons.
**Mutagenic Effects** Contains a known or suspected mutagen.
**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Chemical Name | ACGIH | IARC | NTP | OSHA |
|---|---|---|---|---|
| Nickel<br>7440-02-0 | | Group 2B | Reasonably Anticipated | X |
| Cobalt(II) oxide<br>1307-96-6 | 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*
***NTP (National Toxicology Program)***
*Known - Known Carcinogen*
***OSHA (Occupational Safety and Health Administration of the US Department of Labor)***
*X- Present*

**Reproductive Toxicity** No information available.
**STOT - single exposure** No information available.
**STOT - repeated exposure** No information available.
**Chronic Toxicity** Contains a known or suspected carcinogen.
**Target Organ Effects** Skin.
**Aspiration Hazard** No information available.

**Numerical measures of toxicity Product Information**
**The following values are calculated based on chapter 3.1 of the GHS document**
**ATEmix (oral)**
**ATEmix (inhalation-gas)**
**ATEmix (inhalation-dust/mist)**
**ATEmix (inhalation-vapor)**

## 12. ECOLOGICAL INFORMATION

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

| Chemical Name | Toxicity to Algae | Toxicity to Fish | Toxicity to Microorganisms | Daphnia Magna (Water Flea) |
|---|---|---|---|---|
| Iron<br>7439-89-6 | | 96h LC50: = 13.6 mg/L (Morone saxatilis) | | |
| Nickel<br>7440-02-0 | 72h EC50: = 0.18 mg/L (Pseudokirchneriella subcapitata) 96h EC50: 0.174 - 0.311 mg/L (Pseudokirchneriella subcapitata) | 96h LC50: > 100 mg/L (Brachydanio rerio) 96h LC50: = 1.3 mg/L (Cyprinus carpio) 96h LC50: = 10.4 mg/L (Cyprinus carpio) | | 48h EC50: > 100 mg/L 48h EC50: = 1 mg/L |
| Copper<br>7440-50-8 | 96h EC50: 0.031 - 0.054 mg/L (Pseudokirchneriella subcapitata) 72h EC50: 0.0426 - 0.0535 mg/L (Pseudokirchneriella subcapitata) | 96h LC50: 0.0068 - 0.0156 mg/L (Pimephales promelas) 96h LC50: = 0.112 mg/L (Poecilia reticulata) 96h LC50: = 0.3 mg/L (Cyprinus carpio) 96h LC50: = 0.8 mg/L (Cyprinus carpio) 96h | | 48h EC50: = 0.03 mg/L |

| | | | | |
|---|---|---|---|---|
| | | LC50: = 1.25 mg/L (Lepomis macrochirus) 96h LC50: = 0.052 mg/L (Oncorhynchus mykiss) 96h LC50: = 0.2 mg/L (Pimephales promelas) 96h LC50: < 0.3 mg/L (Pimephales promelas) | | |
| Potassium hydroxide 1310-58-3 | | 96h LC50: = 80 mg/L (Gambusia affinis) | | |

**Ecotoxicity**
The environmental impact of this product has not been fully investigated.

**Persistence and Degradability**
No information available.

**Bioaccumulation**

| Chemical Name | Log Pow |
|---|---|
| Potassium hydroxide 1310-58-3 | 0.83 |

**Other adverse effects**
No information available.

## 13. DISPOSAL CONSIDERATIONS

**Waste treatment methods**
**Disposal methods** Should not be released into the environment.
**Contaminated Packaging** Dispose of in accordance with federal, state and local regulations.

**US EPA Waste Number** Dispose of contents/containers in accordance with local regulations.

| Chemical Name | RCRA | RCRA - Basis for Listing | RCRA - D Series Wastes | RCRA - U Series Wastes |
|---|---|---|---|---|
| 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 Hazardous Waste |
|---|---|
| Cobalt oxide 1307-96-6 | Toxic |
| Potassium hydroxide 1310-58-3 | Toxic Corrosive |
| Copper 7440-50-8 | Toxic |

## 14. TRANSPORT INFORMATION

**DOT** NOT REGULATED

**Proper Shipping Name** NON REGULATED
**Hazard Class** N/A
**Marine Pollutant** This product contains a chemical which is listed as a severe marine pollutant according to DOT

**TDG** Not regulated
**MEX** Not regulated

**CAO** Not regulated
**IATA** Not regulated
**Proper Shipping Name** Not regulated
**Hazard Class** N/A

**IMDG/IMO** Not regulated
**Hazard Class** N/A
**RID** Not regulated
**ADR** Not regulated
**AND** Not regulated

## 15. REGULATORY INFORMATION

### International Inventories

TSCA Complies
DSL All components are listed either on the DSL or NDSL.
**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

### US 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 % |
|---|---|---|---|
| Cobalt(II) oxide | 1307-96-6 | 3.7 | 0.1 |
| Nickel | 7440-02-0 | 29.8 | 0.1 |
| Copper | 7440-50-8 | 8.8 | 1.0 |

**SARA 311/312 Hazard Categories**

**Acute Health Hazard** **No**
**Chronic Health Hazard** **No**
**Fire Hazard** **No**
**Sudden release of pressure hazard** **No**
**Reactive Hazard** **No**

**CWA (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 7440-02-0 | | X | X | |
| Copper 7440-50-8 | | X | X | |
| Potassium hydroxide 1310-58-3 | 1000 lb | | | X |

**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 | RQ |
|---|---|---|---|
| Nickel 7440-02-0 | 100 lb | | RQ 100 lb final RQ<br>RQ 45.4 kg final RQ |
| Copper 7440-50-8 | 5000 lb | | RQ 5000 lb final RQ<br>RQ 2270 kg final RQ |
| Potassium hydroxide 1310-58-3 | 1000 lb | | RQ 1000 lb final RQ<br>RQ 454 kg final RQ |

### US State Regulations

**California Proposition 65**

This product contains the following Proposition 65 chemicals.

| Chemical Name | California Proposition 65 |
|---|---|
| Nickel - 7440-02-0 | Carcinogen |
| Cobalt(II) oxide - 1307-96-6 | Carcinogen |

**U.S. State Right-to-Know Regulations**

| Chemical Name | New Jersey | Massachusetts | Pennsylvania | Rhode Island | Illinois |
|---|---|---|---|---|---|
| Cobalt(II) oxide | | | X | X | X |
| Nickel 7440-02-0 | X | X | X | X | X |
| Copper 7440-50-8 | X | X | X | X | X |
| Potassium hydroxide 1310-58-3 | X | X | X | X | |

**International Regulations**

**Mexico**

**National occupational exposure limits**

| Component | Carcinogen Status | Exposure Limits |
|---|---|---|
| Nickel 7440-02-0(29.8%) | | Mexico: TWA 1 mg/m$^3$ |
| Copper 7440-50-8(8.8%) | | Mexico: TWA= 1 mg/m$^3$<br>Mexico: TWA= 0.2 mg/m$^3$<br>Mexico: STEL= 2 mg/m$^3$ |

*Mexico - Occupational Exposure Limits - Carcinogens*

**Canada**

**WHMIS Hazard Class**

Non-controlled

## 16. OTHER INFORMATION

**NFPA** **Health Hazards** 1 **Flammability** 0 **Instability** 0 **Physical and Chemical Hazards** - **Personal Protection** X

**MIS** **Health Hazards** 0 **Flammability** 0 **Physical Hazard** 0

**Prepared By** Zhejiang tianneng energy technology co.,ltd
**Revision Date** 30-April-2015
**Revision Note**

**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